

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N
Longitude 0 to 4 °E

Correction to Latitude
Correction to Longitude

Latitude										Longitude									
0°	0°	1°	1°	2°	2°	3°	3°	4°	Longitude	0°	0°	1°	1°	2°	2°	3°	3°	4°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	69° 45'	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	69° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	69° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	69° 0'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	68° 45'	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	68° 30'	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	-0.1	-0.1	0	0	0	68° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.3	
0	0	0	0	0	0	0	0	0	68° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.3	
0	0	0	0	0	0	0	0	0	67° 45'	-0.1	0	0	-0.1	-0.1	-0.2	-0.2	-0.2	-0.3	
0	0	0	0	0	0	0	0	0.1	67° 30'	-0.1	-0.1	0	-0.1	-0.1	-0.2	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	0	0.1	67° 15'	-0.2	-0.1	0	0	-0.1	-0.2	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	0	0.1	67° 0'	-0.2	-0.1	0	0	-0.1	-0.3	-0.4	-0.4	-0.4	
0	0	0	0	0	0.1	0	0	0	66° 45'	-0.2	-0.1	-0.1	-0.1	-0.2	-0.3	-0.4	-0.4	-0.4	
-0.1	0	0	0	0	0.1	0	0	0	66° 30'	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	66° 15'	-0.1	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	66° 0'	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	
0	0	0	-0.1	-0.1	-0.1	0	0	0	65° 45'	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	
0	0	0	0	0	0	0	0	0	65° 30'	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.4	-0.3	-0.2	
0	0	0	0	0	0	0	0	0	65° 15'	-0.1	-0.2	-0.2	-0.2	-0.3	-0.4	-0.4	-0.3	-0.2	
0	0	0	0	0.1	0.1	0	0	0	65° 0'	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	64° 45'	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	64° 30'	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	
0	0	0	0	0	0	0	0	0	64° 15'	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	
0	0	0	0	0	0	0	0	0	64° 0'	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	-0.1	-0.1	63° 45'	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	
0	0	0	0	0	0	-0.1	-0.1	-0.1	63° 30'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.2	
0	0	0	0	0	0	-0.1	-0.1	-0.1	63° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	63° 0'	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	
0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	62° 45'	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	62° 30'	0	-0.1	-0.2	-0.1	0	0	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	62° 15'	-0.1	-0.2	-0.2	-0.1	0	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	0	0.1	0.1	0.1	0	62° 0'	-0.1	-0.2	-0.2	-0.1	0	-0.1	-0.2	-0.2	-0.1	
0	0	0	0	0	0	0.1	0	0	61° 45'	-0.2	-0.3	-0.3	-0.1	-0.1	-0.1	-0.2	-0.1	0	
0	0	0	0	0	0	0	0	0	61° 30'	-0.2	-0.3	-0.3	-0.1	-0.1	-0.1	-0.2	-0.1	0	
0.1	0	0	0	0	0	0	0	0	61° 15'	-0.2	-0.3	-0.2	-0.1	-0.1	-0.1	-0.2	-0.1	0	
0.1	0	0	0	0	0	0	0	0	61° 0'	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.1	0	
0	0	0	0	0	0	0	0	0	60° 45'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	0	
0	0	0	0	0	0	0	0	0	60° 30'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	0	
0	0	0	0	0	0	0	0	0	60° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	0	
0	0	0	0	0	0	0	0	0	60° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	0	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 4 to 8 °E									
Correction to Latitude										Correction to Longitude									
4°	4°	5°	5°	6°	6°	7°	7°	8°	Longitude	4°	4°	5°	5°	6°	6°	7°	7°	8°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
0	0	0	0	0	0	0	0	0	69° 45'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
0	0	0	0	0	0	0	0	0	69° 30'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
0	0	0	0	0	0	0	0	0	69° 15'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
0	0	0	0	0	0	0	0	0.1	69° 0'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
0	0	0	0	0	0	0	0.1	0.1	68° 45'	-0.2	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3
0	0	0	0	0	0	0	0	0.1	68° 30'	-0.2	-0.3	-0.2	-0.2	-0.2	-0.2	-0.3	-0.4	-0.4	-0.4
0	0	0	0	0	0	0	0	0	68° 15'	-0.3	-0.3	-0.3	-0.2	-0.2	-0.3	-0.4	-0.4	-0.3	-0.3
0	0	0	0	0.1	0.1	0.1	0	0	68° 0'	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2
0	0	0	0.1	0.1	0.1	0.1	0	0	67° 45'	-0.3	-0.3	-0.3	-0.4	-0.4	-0.4	-0.3	-0.1	0	0
0.1	0.1	0.1	0.1	0	0	0	0	-0.1	67° 30'	-0.3	-0.3	-0.3	-0.4	-0.4	-0.3	-0.2	0	0.1	0.1
0.1	0.1	0.1	0.1	0	0	-0.1	-0.1	-0.1	67° 15'	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1	0.1	0.1	0.1
0.1	0.1	0	0	0	-0.1	-0.1	-0.1	-0.1	67° 0'	-0.4	-0.3	-0.2	-0.1	-0.1	-0.1	0	0.1	0.1	0.1
0	0	0	0	0	-0.1	-0.1	0	0	66° 45'	-0.4	-0.3	-0.2	-0.1	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	66° 30'	-0.3	-0.2	-0.1	-0.1	0	0	0	0	-0.1	-0.1
0	0	0	0	0	0	0	0	0.1	66° 15'	-0.2	-0.2	-0.2	-0.1	0	0	-0.1	-0.1	-0.2	-0.2
0	0	0	0	0	0	0	0.1	0.1	66° 0'	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2
0	0	0	0	0	0	0	0.1	0.1	65° 45'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2
0	0	0	0	0	0	0.1	0.1	0	65° 30'	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
0	0	0	0	0	0	0.1	0	0	65° 15'	-0.2	-0.1	-0.1	-0.2	-0.2	-0.3	-0.2	-0.2	-0.1	-0.1
0	0	0	0	0	0	0	0	0	65° 0'	-0.2	-0.1	-0.1	-0.2	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1
0.1	0.1	0.1	0.1	0	0	0	0	0	64° 45'	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	0	0
0.1	0.1	0.1	0	0	-0.1	-0.1	-0.1	0	64° 30'	-0.2	-0.1	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	64° 15'	-0.2	-0.1	0.1	0.1	0	-0.1	-0.2	-0.2	-0.1	-0.1
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	64° 0'	-0.3	-0.1	0.1	0.2	0.1	0	-0.1	-0.2	-0.2	-0.2
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	63° 45'	-0.3	-0.1	0.1	0.2	0.1	0	-0.1	-0.1	-0.2	-0.2
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	63° 30'	-0.2	-0.1	0.1	0.2	0.1	0	-0.1	-0.1	-0.2	-0.2
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	63° 15'	-0.2	0	0.1	0.1	0	0	-0.1	-0.1	-0.2	-0.2
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	63° 0'	-0.1	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2
-0.1	0	0	0	0	0	0	0	-0.1	62° 45'	-0.1	-0.1	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
0	0	0	0	0	0	0	-0.1	-0.1	62° 30'	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0
0	0	0	0	0	0	-0.1	-0.1	-0.1	62° 15'	-0.2	-0.1	-0.1	-0.1	0	0	0.1	0.1	0	0
0	0	0	0	0	0	0	-0.1	0	62° 0'	-0.1	-0.1	0	0	0	0	0.1	0.1	0	0
0	0	0	0	0	0	0	0	0	61° 45'	0	0	0	0	0	0	0.1	0.1	0	0
0	0	0	0	0	0	0	0	0	61° 30'	0	0.1	0	-0.1	-0.1	0	0	0.1	0	0
0	0	0	0	0	0	0	0	0	61° 15'	0	0.1	0	-0.1	-0.1	-0.1	0	0	0	0
0	0	0	0	0	0	0	0	0	61° 0'	0	0.1	0.1	0	0	-0.1	0	0	-0.1	-0.1
0	0	0	0	0	0	0	0	0	60° 45'	0	0.1	0.1	0	0	0	0	-0.1	-0.2	-0.2
0	0	0	0.1	0.1	0	0	0	0	60° 30'	0	0.1	0	0	0	0.1	0	-0.1	-0.3	-0.3
0	0	0	0	0.1	0.1	0	0	0	60° 15'	0	0	0	0	0	0.1	0.1	-0.1	-0.3	-0.3
0	0	0	0	0	0	0	0	0	60° 0'	0	0	-0.1	-0.1	0	0.1	0.1	-0.1	-0.3	-0.3

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 8 to 12 °E									
Correction to Latitude										Correction to Longitude									
8°	8°	9°	9°	10°	10°	11°	11°	12°	Longitude	8°	8°	9°	9°	10°	10°	11°	11°	12°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	69° 45'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.2	-0.2	-0.2	
0	0	0	0	0	0.1	0.1	0	0	69° 30'	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	
0	0	0.1	0.1	0.1	0.1	0.1	0	0	69° 15'	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	69° 0'	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0	0	0	0	-0.1	68° 45'	-0.3	-0.3	-0.3	-0.2	-0.2	-0.1	0	0	0	
0.1	0	0	0	0	-0.1	-0.1	-0.1	-0.1	68° 30'	-0.4	-0.3	-0.2	-0.1	0	0	0	0	0	
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	68° 15'	-0.3	-0.2	-0.1	0	0	0	0	0	0	
0	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	68° 0'	-0.2	0	0.1	0.1	0	0	0	-0.1	-0.1	
0	-0.1	-0.1	-0.1	0	0	0	0	0.1	67° 45'	0	0.1	0.1	0	-0.1	-0.1	-0.1	-0.1	-0.2	
-0.1	-0.1	0	0	0	0	0.1	0.1	0.1	67° 30'	0.1	0.2	0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.3	
-0.1	0	0	0	0	0.1	0.1	0.1	0.1	67° 15'	0.1	0.1	-0.1	-0.2	-0.3	-0.3	-0.2	-0.3	-0.4	
-0.1	0	0	0	0	0	0	0	0.1	67° 0'	0.1	0	-0.2	-0.3	-0.3	-0.3	-0.2	-0.3	-0.4	
0	0	0	0	0	0	0	0	0	66° 45'	0	-0.1	-0.2	-0.3	-0.3	-0.3	-0.2	-0.3	-0.4	
0	0.1	0.1	0.1	0.1	0.1	0	0	0	66° 30'	-0.1	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2	-0.3	-0.4	
0.1	0.1	0.1	0.1	0	0	0	0	0	66° 15'	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2	-0.3	-0.4	
0.1	0.1	0.1	0	0	0	0	0	0	66° 0'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.4	
0.1	0	0	0	0	0	0	0	0	65° 45'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.3	-0.4	
0	0	0	0	0	0	0	0	0	65° 30'	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.3	-0.4	
0	0	0	0	0	0	0	0	0	65° 15'	-0.1	-0.1	-0.1	0	-0.1	-0.1	-0.2	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	65° 0'	-0.1	-0.1	-0.1	0	-0.1	-0.1	-0.2	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	64° 45'	0	-0.1	0	0	0	-0.1	-0.3	-0.4	-0.4	
0	0	0	0	0	0	0	0	0.1	64° 30'	-0.1	-0.1	0	0	0	-0.2	-0.3	-0.5	-0.5	
-0.1	-0.1	0	0	0	0	0	0	0.1	64° 15'	-0.1	-0.1	0	0	-0.1	-0.2	-0.4	-0.5	-0.5	
-0.1	-0.1	-0.1	0	0	0	0	0	0	64° 0'	-0.2	-0.1	-0.1	-0.1	-0.2	-0.3	-0.4	-0.5	-0.4	
-0.1	-0.1	-0.1	0	0	0	0	0	0	63° 45'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.4	-0.4	-0.3	
0	0	0	0	0	0	0	0	-0.1	63° 30'	-0.2	-0.2	-0.3	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	
0	0	0	0	-0.1	-0.1	-0.1	0	0	63° 15'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	
0	0	-0.1	-0.1	-0.1	-0.1	0	0	0	63° 0'	-0.2	-0.2	-0.1	-0.1	-0.2	-0.3	-0.3	-0.4	-0.4	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	62° 45'	-0.1	-0.1	-0.1	-0.1	-0.2	-0.4	-0.4	-0.4	-0.4	
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	62° 30'	0	0	-0.1	-0.2	-0.3	-0.4	-0.4	-0.4	-0.3	
-0.1	-0.1	0	0	0.1	0.1	0.1	0	0	62° 15'	0	-0.1	-0.2	-0.4	-0.4	-0.5	-0.4	-0.3	-0.3	
0	0	0	0	0.1	0.1	0	0	0	62° 0'	0	-0.2	-0.3	-0.5	-0.5	-0.4	-0.3	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	61° 45'	0	-0.2	-0.4	-0.5	-0.5	-0.4	-0.3	-0.2	-0.2	
0	0	0	0	0	0	0	0	0.1	61° 30'	0	-0.2	-0.4	-0.5	-0.4	-0.3	-0.3	-0.3	-0.3	
0	0.1	0.1	0.1	0	0	0	0	0.1	61° 15'	0	-0.2	-0.4	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3	
0	0.1	0.1	0.1	0.1	0	0	0	0	61° 0'	-0.1	-0.3	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3	-0.3	
0	0.1	0.1	0.1	0	0	0	0	0	60° 45'	-0.2	-0.4	-0.4	-0.3	-0.2	-0.2	-0.3	-0.4	-0.4	
0	0	0	0	0	0	0	0	0	60° 30'	-0.3	-0.4	-0.4	-0.3	-0.2	-0.2	-0.3	-0.4	-0.4	
0	0	0	0	0	0	0	0	0	60° 15'	-0.3	-0.4	-0.3	-0.2	-0.2	-0.2	-0.3	-0.4	-0.4	
0	0	0	0	0	0	0	0	0	60° 0'	-0.3	-0.4	-0.3	-0.2	-0.2	-0.2	-0.3	-0.4	-0.4	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 12 to 16 °E									
Correction to Latitude										Correction to Longitude									
12°	12°	13°	13°	14°	14°	15°	15°	16°	Longitude	12°	12°	13°	13°	14°	14°	15°	15°	16°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0.1	0	0	0	70° 0'	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3	-0.4	
0	0	0	0.1	0.1	0.1	0.1	0	0	69° 45'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	69° 30'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	69° 15'	-0.1	-0.2	-0.2	-0.2	-0.1	-0.2	-0.2	-0.3	-0.4	
0	0	0	0	0	0	0	0.1	0.1	69° 0'	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.3	-0.4	-0.5	
-0.1	-0.1	-0.1	0	0	0.1	0.1	0.2	0.2	68° 45'	0	0	-0.1	-0.2	-0.3	-0.4	-0.5	-0.6	-0.5	
-0.1	-0.1	0	0	0.1	0.1	0.2	0.2	0.2	68° 30'	0	-0.1	-0.2	-0.3	-0.5	-0.6	-0.7	-0.6	-0.5	
-0.1	0	0	0.1	0.1	0.2	0.2	0.2	0.2	68° 15'	0	-0.2	-0.4	-0.6	-0.8	-0.8	-0.8	-0.6	-0.3	
0	0	0.1	0.1	0.2	0.2	0.2	0.1	0.1	68° 0'	-0.1	-0.3	-0.5	-0.8	-0.9	-0.9	-0.7	-0.4	-0.1	
0.1	0.1	0.1	0.2	0.2	0.1	0.1	0	0	67° 45'	-0.2	-0.4	-0.7	-0.9	-0.9	-0.8	-0.5	-0.2	0	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	67° 30'	-0.3	-0.5	-0.7	-0.8	-0.8	-0.6	-0.4	-0.1	0.1	
0.1	0.1	0.1	0.1	0	0	0	0	0	67° 15'	-0.4	-0.6	-0.7	-0.7	-0.6	-0.5	-0.3	0	0.1	
0.1	0.1	0	0	0	-0.1	-0.1	-0.1	-0.1	67° 0'	-0.4	-0.6	-0.6	-0.5	-0.5	-0.4	-0.3	-0.1	0	
0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	66° 45'	-0.4	-0.5	-0.5	-0.4	-0.3	-0.3	-0.2	-0.2	-0.1	
0	0	0	0	0	0	-0.1	-0.1	-0.1	66° 30'	-0.4	-0.5	-0.4	-0.3	-0.2	-0.2	-0.2	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	66° 15'	-0.4	-0.5	-0.4	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	66° 0'	-0.4	-0.4	-0.4	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	-0.1	0	0	0	0	0.1	65° 45'	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	-0.1	0	0	0	0	0.1	65° 30'	-0.4	-0.3	-0.3	-0.3	-0.2	-0.3	-0.3	-0.3	-0.2	
0	0	0	0	0	0	0	0	0	65° 15'	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	
0	0	0	0	0	0.1	0.1	0.1	0	65° 0'	-0.3	-0.3	-0.3	-0.3	-0.3	-0.4	-0.3	-0.3	-0.2	
0	0.1	0.1	0.1	0.1	0.1	0.1	0	0	64° 45'	-0.4	-0.3	-0.3	-0.3	-0.3	-0.4	-0.3	-0.2	-0.1	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	64° 30'	-0.5	-0.4	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	64° 15'	-0.5	-0.4	-0.3	-0.2	-0.3	-0.3	-0.2	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	64° 0'	-0.4	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.1	-0.1	
0	-0.1	0	0	0	0	0	0	0	63° 45'	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	-0.1	
-0.1	-0.1	0	0	0	0	0	0	0	63° 30'	-0.3	-0.4	-0.4	-0.4	-0.3	-0.1	-0.1	-0.1	-0.2	
0	0	0	0	-0.1	0	0	0	0	63° 15'	-0.3	-0.4	-0.4	-0.3	-0.2	-0.1	-0.1	-0.1	-0.2	
0	0	0	0	-0.1	-0.1	0	0	0	63° 0'	-0.4	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	62° 45'	-0.4	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	62° 30'	-0.3	-0.3	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	62° 15'	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	62° 0'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.4	
0	0	0	0	0	0	0	0	0	61° 45'	-0.2	-0.3	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.4	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	61° 30'	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.4	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	61° 15'	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	
0	0.1	0.1	0.1	0.1	0.1	0.1	0	0	61° 0'	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	
0	0	0.1	0.1	0.1	0	0	0	0.1	60° 45'	-0.4	-0.3	-0.2	-0.2	-0.2	-0.1	-0.2	-0.2	-0.3	
0	0	0	0	0	0	0	0.1	0.1	60° 30'	-0.4	-0.4	-0.3	-0.2	-0.1	-0.1	-0.2	-0.3	-0.3	
0	0	0	0	0	0	0	0.1	0.1	60° 15'	-0.4	-0.4	-0.3	-0.2	-0.1	-0.1	-0.2	-0.3	-0.3	
0	0	0	0	0	0	0.1	0.1	0	60° 0'	-0.4	-0.4	-0.3	-0.2	-0.1	-0.2	-0.2	-0.3	-0.3	



# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 20 to 24 °E									
Correction to Latitude										Correction to Longitude									
20°	20°	21°	21°	22°	22°	23°	23°	24°	Longitude	20°	20°	21°	21°	22°	22°	23°	23°	24°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	-0.4	-0.3	-0.2	-0.1	-0.2	-0.3	-0.4	-0.5	-0.4	
0	0	0	0	0	0	0	-0.1	-0.1	69° 45'	-0.4	-0.3	-0.2	-0.1	-0.2	-0.2	-0.3	-0.4	-0.3	
0	-0.1	-0.1	-0.1	0	0	0	-0.1	-0.1	69° 30'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	69° 15'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
-0.1	-0.1	-0.1	0	0	0	0	0	0	69° 0'	-0.1	-0.1	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	68° 45'	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	0	0.1	68° 30'	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.4	-0.4	-0.4	
0	0.1	0.1	0.1	0	0	0	0	0.1	68° 15'	-0.3	-0.3	-0.2	-0.2	-0.2	-0.3	-0.4	-0.4	-0.4	
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	68° 0'	-0.3	-0.3	-0.2	-0.2	-0.2	-0.3	-0.4	-0.4	-0.4	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	67° 45'	-0.3	-0.3	-0.3	-0.2	-0.2	-0.3	-0.4	-0.4	-0.3	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	67° 30'	-0.2	-0.3	-0.3	-0.3	-0.3	-0.4	-0.4	-0.3	-0.3	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	67° 15'	-0.2	-0.3	-0.3	-0.4	-0.4	-0.4	-0.4	-0.3	-0.2	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	67° 0'	-0.2	-0.3	-0.3	-0.4	-0.4	-0.4	-0.4	-0.3	-0.2	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 45'	-0.3	-0.3	-0.4	-0.4	-0.4	-0.4	-0.4	-0.3	-0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 30'	-0.3	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.3	-0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 15'	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.3	-0.3	-0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 0'	-0.4	-0.4	-0.4	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 45'	-0.4	-0.4	-0.4	-0.4	-0.3	-0.3	-0.3	-0.2	-0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 30'	-0.4	-0.4	-0.4	-0.4	-0.4	-0.3	-0.2	-0.2	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 15'	-0.4	-0.4	-0.4	-0.4	-0.4	-0.3	-0.2	-0.2	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	65° 0'	-0.4	-0.4	-0.4	-0.4	-0.3	-0.3	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	64° 45'	-0.4	-0.4	-0.4	-0.4	-0.3	-0.2	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	64° 30'	-0.4	-0.4	-0.4	-0.4	-0.3	-0.2	-0.2	-0.1	0	
0	0	0	0	0	0	0	0	0	64° 15'	-0.4	-0.4	-0.4	-0.4	-0.3	-0.2	-0.2	-0.1	0	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	64° 0'	-0.4	-0.4	-0.4	-0.4	-0.3	-0.2	-0.1	-0.1	0	
0.2	0.1	0.1	0.1	0.1	0	0	0	0	63° 45'	-0.4	-0.4	-0.4	-0.3	-0.2	-0.1	-0.1	0	0	
0.2	0.1	0.1	0.1	0	0	0	0	0	63° 30'	-0.4	-0.3	-0.3	-0.2	-0.1	0	0	0	0	
0.1	0.1	0.1	0	0	0	0	0	0	63° 15'	-0.4	-0.3	-0.2	-0.1	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	63° 0'	-0.3	-0.2	-0.1	0	0	0	0	0	0	
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	62° 45'	-0.2	-0.2	-0.1	-0.1	-0.1	0	0	0	0.1	
-0.1	-0.1	0	0	0	0	0	0	0	62° 30'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	0	0	0	
0	0	0	0	0	0	0	0	0	62° 15'	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	0	0	0	
0	0	0	0	0	0	0	0	0	62° 0'	-0.2	-0.2	-0.2	-0.1	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	61° 45'	-0.2	-0.2	-0.1	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	61° 30'	-0.2	-0.2	-0.1	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	61° 15'	-0.2	-0.1	-0.1	-0.1	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	61° 0'	-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	
0.1	0	0	0	0	0	0	0	0	60° 45'	-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	
0.1	0.1	0	0	0	0	0	0	0	60° 30'	-0.1	0	0	0	0	0	0	0	-0.1	
0.1	0	0	0	0	0	0	0	0	60° 15'	-0.1	0	0.1	0	0	0	0	0	-0.1	
0	0	0	0	0	0	0	0	0	60° 0'	-0.1	0	0.1	0.1	0	0	0	-0.1	-0.1	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 24 to 28 °E									
Correction to Latitude										Correction to Longitude									
24°	24°	25°	25°	26°	26°	27°	27°	28°	Longitude	24°	24°	25°	25°	26°	26°	27°	27°	28°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	70° 0'	-0.4	-0.2	0	0.1	0	-0.1	-0.3	-0.4	-0.4	
-0.1	-0.1	-0.1	0	0	0	0	0	0	69° 45'	-0.3	-0.2	0	0.1	0	-0.2	-0.4	-0.5	-0.5	
-0.1	-0.1	-0.1	0	0	0	0	0	0	69° 30'	-0.3	-0.2	-0.1	0	-0.1	-0.2	-0.4	-0.5	-0.5	
0	0	0	0	0	0	0	0	0	69° 15'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.4	-0.4	
0	0	0	0	0	0	0	0	0	69° 0'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.4	-0.4	
0	0.1	0.1	0.1	0.1	0.1	0	0	0	68° 45'	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	68° 30'	-0.4	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 15'	-0.4	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0.1	0	0	0.1	0.1	0.1	0.1	0.1	0.1	68° 0'	-0.4	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0.1	0	0	0	0.1	0.1	0.1	0.1	0.1	67° 45'	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	67° 30'	-0.3	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	67° 15'	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	67° 0'	-0.2	-0.2	-0.2	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	
0.1	0.1	0.1	0	0	0	0	0	0	66° 45'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0.1	0.1	0.1	0.1	0	0	0	0	0	66° 30'	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	66° 15'	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	66° 0'	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	
0.1	0.1	0.1	0	0	0	0	0	0	65° 45'	-0.1	-0.1	-0.1	-0.1	0	-0.1	0	0	0	
0.1	0.1	0	0	0	0	0	0	0	65° 30'	-0.1	-0.1	0	0	0	0	-0.1	0	0	
0	0	0	0	0	0	0	0	0	65° 15'	-0.1	0	0	0	0	0	-0.1	0	0	
0	0	0	0	0	0	0	0	0	65° 0'	-0.1	0	0	0	0	0	-0.1	0	0	
0	0	0	0	0	0	0	0	0	64° 45'	-0.1	0	0	0	0	0	0	0	0.1	
0	0	0	0	0	0	0	0	0	64° 30'	0	0	0	0	0	-0.1	0	0	0	
0	0	0	0	0	0	0	0	0	64° 15'	0	0.1	0.1	0	0	-0.1	0	0	0	
0	0	0	0	0	0	0	0	0	64° 0'	0	0.1	0.1	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	63° 45'	0	0	0.1	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	63° 30'	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	63° 15'	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	63° 0'	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	62° 45'	0.1	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	62° 30'	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	62° 15'	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	62° 0'	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0.1	0.1	0.1	0.1	61° 45'	0	0	0	0	0	0	0	0	0	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	61° 30'	0	0	-0.1	-0.1	-0.1	-0.1	0	0	0	
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	61° 15'	0	-0.1	-0.1	-0.2	-0.2	-0.1	0	0	0	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	61° 0'	0	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	0	0	
0	0	0	0	0	0	0	0	0	60° 45'	0	-0.1	-0.2	-0.3	-0.2	-0.1	-0.1	0	0	
0	0	0	0	0	0	0	0	0	60° 30'	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	0	0	
0	0	0	0	0	0	0	0	0	60° 15'	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	0	0	
0	0	0	0	0	0	0	0	0	60° 0'	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	0	0	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 28 to 32 °E									
Correction to Latitude										Correction to Longitude									
28°	28°	29°	29°	30°	30°	31°	31°	32°	Longitude	28°	28°	29°	29°	30°	30°	31°	31°	32°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	-0.4	-0.4	-0.3	-0.3	-0.4	-0.3	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	69° 45'	-0.5	-0.4	-0.4	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	69° 30'	-0.5	-0.4	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	69° 15'	-0.4	-0.4	-0.3	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	69° 0'	-0.4	-0.3	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.2	
0	0	0	0	0	0	0	0	0	68° 45'	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0.1	0.1	0.1	0	0	68° 30'	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	68° 15'	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	-0.1	0	0	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	68° 0'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	0	0	
0.1	0.1	0.1	0.1	0	0	0	0	0	67° 45'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	0	0	0	
0.1	0.1	0.1	0	0	0	0	0	0	67° 30'	-0.2	-0.2	-0.1	0	0	0	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	67° 15'	-0.2	-0.2	-0.1	0	0	0	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	67° 0'	-0.2	-0.2	-0.1	0	0	0	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	66° 45'	-0.2	-0.1	-0.1	0	0	0	-0.1	-0.1	0	
0	0	0	0	0	0	0	0	0	66° 30'	-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	66° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0	66° 0'	0	0	-0.1	-0.1	-0.1	-0.1	0	0	0	
0	0	0	0	0	0	0	0	0	65° 45'	0	0	0	-0.1	-0.1	-0.1	0	0	0	
0	0	0	0	0	0	0	0	0	65° 30'	0	0.1	0	-0.1	-0.1	-0.1	-0.1	0	0.1	
0	0	0	0	0	0	0	0	0	65° 15'	0	0.1	0.1	0	-0.2	-0.2	-0.1	0	0.1	
0	0	0	0	0	0	0	0	0	65° 0'	0	0.1	0.1	0	-0.1	-0.2	-0.2	0	0.1	
0	0	0	0	0	0	0	0	0	64° 45'	0.1	0.1	0.1	0	-0.1	-0.2	-0.2	-0.1	0	
0	0	0	0	0	0	0	0	0	64° 30'	0	0.1	0.1	0	-0.1	-0.2	-0.2	-0.1	0	
0	0	0	0	0	0	0	0	0	64° 15'	0	0	0	0	-0.1	-0.2	-0.2	-0.1	0	
0	0	0	0	0	0	0	0	0	64° 0'	0	0	0	0	-0.1	-0.1	-0.2	-0.1	0	
0	0	0	0	0	0	0	0	0	63° 45'	0	0	0	0	-0.1	-0.2	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	63° 30'	0	0	0	0	-0.1	-0.1	-0.2	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	63° 15'	0	-0.1	-0.1	0	-0.1	-0.1	-0.2	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	63° 0'	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	62° 45'	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	
0	0	0	0	0	0	0	0	-0.1	62° 30'	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	-0.1	-0.1	62° 15'	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	62° 0'	0	-0.1	-0.1	-0.1	-0.1	0	0	-0.1	-0.1	
0.1	0.1	0	0	0	0	0	0	0	61° 45'	0	0	0	0	0	0	0	-0.1	-0.1	
0.1	0.1	0.1	0	0	0	0	0	0.1	61° 30'	0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	61° 15'	0	0.1	0.1	0	0	0	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	61° 0'	0	0.1	0.1	0.1	0	0	0	-0.1	-0.1	
0	0.1	0.1	0.1	0.1	0	0	0	0	60° 45'	0	0	0.1	0.1	0.1	0.1	0	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	60° 30'	0	0	0	0.1	0.1	0.1	0	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	60° 15'	0	0	0	0.1	0.1	0	0	0	0	
0	0	-0.1	0	0	0	0	0	0	60° 0'	0	0	0.1	0.1	0	0	0	0	0	



# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 32 to 36 °E									
Correction to Latitude										Correction to Longitude									
32°	32°	33°	33°	34°	34°	35°	35°	36°	Longitude	32°	32°	33°	33°	34°	34°	35°	35°	36°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
-0.1	-0.1	-0.1	0	0	0	0	0	0	70° 0'	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	69° 45'	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	69° 30'	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	
0	0	0	0	0	-0.1	-0.1	0	0	69° 15'	-0.3	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	69° 0'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	68° 45'	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	68° 30'	-0.1	0	0	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	68° 15'	0	0	0	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	68° 0'	0	0	0	0	-0.1	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	67° 45'	0	0	0	0	0	0	-0.1	-0.1	-0.2	
0	0.1	0.1	0	0	0	0	0	0	67° 30'	-0.1	0	0	0.1	0.1	0	0	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	67° 15'	-0.1	0	0.1	0.1	0.1	0.1	0	0	-0.2	
0	0	0	0	0	0	0	0	0	67° 0'	-0.1	0	0.1	0.1	0.1	0.1	0.1	0	-0.1	
0	0	0	0	0	0	0.1	0.1	0.1	66° 45'	0	0	0.1	0.1	0	0	0	0	0	
0	0	0	0	0	0	0	0.1	0.1	66° 30'	0	0	0	0	0	-0.1	-0.1	0	0	
0	0	0	0	0	0	0	0	0	66° 15'	0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	-0.1	-0.1	-0.1	0	66° 0'	0	0	0	0	0	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	-0.1	-0.1	-0.1	65° 45'	0	0	0	0.1	0.1	0	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	-0.1	65° 30'	0.1	0.1	0.1	0.1	0.1	0	-0.1	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	65° 15'	0.1	0.1	0.1	0.1	0.1	0	0	-0.1	-0.1	
0	0	0	0	0.1	0.1	0.1	0.1	0	65° 0'	0.1	0.1	0.1	0	0	0	0	0	0	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	64° 45'	0	0.1	0	0	0	0	0	0	0	
0	0	0	0	0	0.1	0.1	0.1	0.1	64° 30'	0	0.1	0	0	-0.1	-0.1	0	0	0	
0	0	0	0	0	0	0.1	0.1	0.1	64° 15'	0	0	0	0	-0.1	-0.1	-0.1	0	0	
0	0	0	0.1	0.1	0.1	0	0	0.1	64° 0'	0	0	0	-0.1	-0.1	-0.1	-0.1	0	0	
0	0	0	0.1	0.1	0.1	0	0	0	63° 45'	-0.1	0	0	-0.1	-0.1	-0.1	0	0	0	
0	0	0	0	0	0	0	0	0	63° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	
0	0	0	0	0	0	0	0.1	0	63° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	
0	0	0	0	0	0	0	0	0	63° 0'	-0.1	-0.1	0	-0.1	-0.1	-0.1	-0.1	0	0.1	
0	0	0	0	0	0	0	0	0	62° 45'	-0.1	-0.1	0	-0.1	-0.2	-0.2	-0.1	0.1	0.1	
-0.1	0	0	0	0	0	0	0	0	62° 30'	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	0.1	0.1	
-0.1	-0.1	0	0	0	0	0	0	0	62° 15'	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	62° 0'	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	0	0	
0	0	0	0	0	0	0	0	0.1	61° 45'	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	0	0	
0.1	0.1	0	0	0	0	0	0	0.1	61° 30'	-0.1	-0.1	0	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	
0	0.1	0.1	0	0	0	0	0	0	61° 15'	-0.1	-0.1	0	0	-0.1	-0.2	-0.2	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	61° 0'	-0.1	-0.1	0	0	-0.1	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	-0.1	0	0	60° 45'	-0.1	-0.1	0	0	0	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	-0.1	-0.1	-0.1	0	60° 30'	-0.1	-0.1	0	0.1	0	-0.1	-0.2	-0.3	-0.3	
0	0	0	0	0	0	0	0	-0.1	60° 15'	0	0	0	0.1	0	-0.1	-0.2	-0.3	-0.3	
0	0	0	0	0	0	0	0	-0.1	60° 0'	0	0	0	0	0	-0.1	-0.2	-0.2	-0.3	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 36 to 40 °E									
Correction to Latitude										Correction to Longitude									
36°	36°	37°	37°	38°	38°	39°	39°	40°	Longitude	36°	36°	37°	37°	38°	38°	39°	39°	40°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	-0.1	-0.1	0	70° 0'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	69° 45'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	69° 30'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	69° 15'	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	69° 0'	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	68° 45'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	68° 30'	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	0	68° 15'	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	0	-0.1	68° 0'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	67° 45'	-0.2	-0.2	-0.3	-0.2	-0.2	-0.1	-0.1	-0.2	-0.3	
0	0	0	0	0	0	0	0	0	67° 30'	-0.2	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	-0.2	
0	0	0	-0.1	0	0	0	0	0	67° 15'	-0.2	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	-0.2	
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	0	67° 0'	-0.1	-0.2	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	-0.2	
0.1	0.1	0	0	0	-0.1	0	0	0	66° 45'	0	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.2	-0.3	
0.1	0.1	0.1	0.1	0	0	0	0	0	66° 30'	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.3	-0.3	
0	0.1	0.1	0.1	0.1	0.1	0.1	0	0	66° 15'	-0.1	-0.1	0	0	0	0	-0.1	-0.2	-0.3	
0	0	0	0	0.1	0.1	0.1	0.1	0	66° 0'	-0.2	-0.2	-0.1	-0.1	-0.1	0	0	-0.1	-0.2	
-0.1	-0.1	0	0	0	0	0.1	0.1	0	65° 45'	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	0	0	-0.1	
-0.1	-0.1	-0.1	0	0	0	0	0	0.1	65° 30'	-0.2	-0.2	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	65° 15'	-0.1	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	65° 0'	0	-0.1	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2	-0.1	
0.1	0.1	0	0	0	0	0	0	0	64° 45'	0	-0.1	-0.2	-0.3	-0.3	-0.2	-0.2	-0.2	-0.1	
0.1	0.1	0.1	0	0	0	0	0	0	64° 30'	0	0	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0	0	0	0	0	64° 15'	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0	0	0	0	0	64° 0'	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	63° 45'	0	0	-0.1	-0.1	-0.1	0	0	-0.1	-0.1	
0	0	0	0	0.1	0.1	0	0	0	63° 30'	0	-0.1	-0.1	-0.1	-0.1	0	0	-0.1	-0.1	
0	0	0	0	0	0.1	0.1	0.1	0	63° 15'	0	0	-0.1	-0.1	-0.1	0	0	-0.1	-0.1	
0	0	0	0	0	0	0	0	0.1	63° 0'	0.1	0	-0.1	-0.2	-0.1	0	0	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	62° 45'	0.1	0	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	62° 30'	0.1	0	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	62° 15'	0.1	0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	62° 0'	0	0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	0	
0.1	0.1	0.1	0	0	0	0	0	0	61° 45'	0	-0.1	0	0	0	-0.1	-0.2	-0.1	0	
0.1	0.1	0.1	0.1	0	0	0	0	0	61° 30'	-0.1	-0.1	0	0.1	0	-0.1	-0.1	-0.1	0	
0	0	0.1	0.1	0	0	0	0	0	61° 15'	-0.1	-0.1	0	0.1	0.1	0	-0.1	-0.1	0	
0	0	0	0	0	0	0	0	0	61° 0'	-0.2	-0.1	0	0.1	0.1	0	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	60° 45'	-0.2	-0.2	-0.1	0.1	0.1	0	-0.1	-0.1	0	
0	0	0	0	0	0	0	0	0	60° 30'	-0.3	-0.2	-0.1	0	0.1	0	-0.1	-0.1	0	
-0.1	-0.1	0	0	0	0	0	0	0	60° 15'	-0.3	-0.2	-0.1	0	0.1	0	0	0	0	
-0.1	-0.1	-0.1	0	0	0	0	-0.1	0	60° 0'	-0.3	-0.3	-0.2	0	0.1	0.1	0	0	0	



# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 44 to 48 °E									
Correction to Latitude										Correction to Longitude									
44°	44°	45°	45°	46°	46°	47°	47°	48°	Longitude	44°	44°	45°	45°	46°	46°	47°	47°	48°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	69° 45'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	69° 30'	-0.2	-0.2	-0.1	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	69° 15'	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	69° 0'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.3	-0.3	-0.3	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	68° 45'	-0.2	-0.2	-0.2	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	68° 30'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	
0	0	0	0	0	0	-0.1	-0.1	-0.1	68° 15'	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	0	-0.1	68° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.3	
0	0	0	0	0.1	0	0	0	0	67° 45'	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	0.1	0.1	0	0	0	67° 30'	-0.2	-0.3	-0.3	-0.2	-0.1	0	0	-0.1	-0.1	
0	0	0	0	0	0.1	0.1	0.1	0	67° 15'	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1	0	0	0	
0	0	0	0	0	0.1	0.1	0.1	0	67° 0'	-0.3	-0.3	-0.4	-0.3	-0.2	-0.1	0	0	0	
0	0	0	0	0	0	0.1	0.1	0	66° 45'	-0.2	-0.3	-0.4	-0.4	-0.3	-0.1	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	66° 30'	-0.1	-0.2	-0.4	-0.4	-0.4	-0.2	0	0.1	0.1	
-0.1	-0.1	-0.1	0	0	0	0	0	0	66° 15'	-0.1	-0.2	-0.4	-0.5	-0.4	-0.3	-0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	66° 0'	-0.1	-0.2	-0.4	-0.5	-0.5	-0.3	-0.1	0	0.1	
0.1	0.1	0.1	0	0	0	0	0	0	65° 45'	-0.1	-0.2	-0.4	-0.5	-0.4	-0.3	-0.1	0	0.1	
0.1	0.1	0.1	0.1	0	0	0	0	0	65° 30'	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1	0	
0.1	0.1	0.1	0.1	0	0	0	0	0	65° 15'	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	0	
0.1	0.1	0	0	0	0	0	-0.1	-0.1	65° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	-0.1	-0.1	64° 45'	-0.1	-0.1	-0.1	-0.1	0	0	0	-0.1	-0.1	
-0.1	0	0	0	0	-0.1	-0.1	-0.1	0	64° 30'	-0.1	-0.1	-0.1	-0.1	0	0	0	-0.1	-0.1	
-0.1	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	0	64° 15'	-0.2	-0.1	-0.1	-0.1	0	0	0	-0.1	-0.2	
0	0	0	0	-0.1	-0.1	-0.1	0	0	64° 0'	-0.2	-0.2	-0.1	0	0	0	-0.1	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	63° 45'	-0.2	-0.2	-0.1	0	0.1	0	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	63° 30'	-0.2	-0.2	-0.1	0	0.1	0	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	63° 15'	-0.2	-0.2	-0.1	0	0.1	0.1	0	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	63° 0'	-0.2	-0.2	-0.2	0	0.1	0.1	0	0	-0.1	
0	0	0	0	0	0	0	0	0	62° 45'	-0.2	-0.2	-0.2	0	0	0	0	0	0	
0	0	0	0	0	0	0	0.1	0.1	62° 30'	-0.2	-0.2	-0.1	0	0	0	0	0	-0.1	
0	0	0	0	0	0	0	0	0	62° 15'	-0.2	-0.2	-0.1	0	0	0	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	62° 0'	-0.2	-0.2	-0.1	-0.1	0	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	61° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	61° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	61° 15'	-0.1	-0.1	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	61° 0'	-0.1	-0.1	0	0	-0.1	-0.1	-0.1	-0.1	0	
0	0	0	0	0	0	0	0	0	60° 45'	0	0	0	0	-0.1	-0.2	-0.2	-0.1	0	
-0.1	-0.1	0	0	0	0	0	0	0	60° 30'	0	0	0	-0.1	-0.2	-0.2	-0.2	-0.1	0	
-0.1	0	0	0	0	0	0	0	0	60° 15'	0	0	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	0	
0	0	0.1	0.1	0.1	0	0	0	0	60° 0'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	0	0	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 48 to 52 °E									
Correction to Latitude										Correction to Longitude									
48°	48°	49°	49°	50°	50°	51°	51°	52°	Longitude	48°	48°	49°	49°	50°	50°	51°	51°	52°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	69° 45'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	69° 30'	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	69° 15'	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	69° 0'	-0.3	-0.3	-0.2	-0.2	-0.1	-0.2	-0.2	-0.2	-0.3	
-0.1	0	0	0	0	0	0	0	0	68° 45'	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	-0.2	-0.3	
-0.1	-0.1	0	0	0	0	0	0	0	68° 30'	-0.3	-0.4	-0.3	-0.3	-0.2	-0.1	-0.1	-0.2	-0.3	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	68° 15'	-0.3	-0.4	-0.4	-0.3	-0.2	-0.1	-0.1	-0.2	-0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	68° 0'	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.1	-0.2	-0.2	
0	-0.1	-0.1	-0.1	-0.1	0	0	0	0	67° 45'	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	67° 30'	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	67° 15'	0	-0.1	-0.2	-0.3	-0.4	-0.4	-0.3	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	67° 0'	0	-0.1	-0.2	-0.3	-0.4	-0.4	-0.4	-0.3	-0.2	
0	0	0	0	0	0	0	0	0	66° 45'	0.1	0	-0.1	-0.2	-0.3	-0.4	-0.4	-0.3	-0.2	
0	0	0	0	0	0	0	0	0	66° 30'	0.1	0	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	66° 15'	0.1	0	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	66° 0'	0.1	0.1	0	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	65° 45'	0.1	0.1	0	-0.1	-0.2	-0.3	-0.3	-0.3	-0.2	
0	0	0	0	0	0	0	0	0	65° 30'	0	0.1	0	-0.1	-0.2	-0.3	-0.3	-0.3	-0.2	
0	0	0	0	0	0	-0.1	-0.1	0	65° 15'	0	0	0	0	-0.1	-0.2	-0.3	-0.3	-0.3	
-0.1	0	0	0	0	0	-0.1	-0.1	-0.1	65° 0'	-0.1	0	0	0	-0.1	-0.2	-0.3	-0.3	-0.3	
-0.1	0	0	0	0	0	0	0	0	64° 45'	-0.1	-0.1	-0.1	0	0	-0.1	-0.2	-0.3	-0.4	
0	0	0	0	0	0	0	0	0	64° 30'	-0.1	-0.2	-0.1	-0.1	0	-0.1	-0.1	-0.3	-0.3	
0	0	0	0	0	0	0.1	0	0	64° 15'	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.3	
0	0	0	0	0	0	0.1	0.1	0	64° 0'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	63° 45'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	-0.1	-0.1	0	0	0	0	0	0	63° 30'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	-0.1	-0.1	0	0	0	0	0	0	63° 15'	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	63° 0'	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	
0	0	0	0	0	0	0	0	0	62° 45'	0	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	
0.1	0.1	0.1	0.1	0	0	0	0	0	62° 30'	-0.1	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	
0	0.1	0.1	0	0	0	0	0	0	62° 15'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.3	-0.3	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	62° 0'	-0.1	-0.2	-0.2	-0.1	-0.2	-0.3	-0.3	-0.3	-0.2	
0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	61° 45'	-0.1	-0.2	-0.2	-0.1	-0.1	-0.2	-0.3	-0.3	-0.2	
0	0	0	0	0	0	0	-0.1	-0.1	61° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.3	-0.3	-0.2	
0	0	0	0	0	0	0	0	0	61° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.3	-0.3	-0.2	
0	0	0	0	0	0	0	0	0	61° 0'	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	60° 45'	0	0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	60° 30'	0	0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	60° 15'	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	60° 0'	0	0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 52 to 56 °E									
Correction to Latitude										Correction to Longitude									
52°	52°	53°	53°	54°	54°	55°	55°	56°	Longitude	52°	52°	53°	53°	54°	54°	55°	55°	56°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	69° 45'	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	69° 30'	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	69° 15'	-0.2	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	69° 0'	-0.3	-0.2	-0.2	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	68° 45'	-0.3	-0.3	-0.2	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	68° 30'	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	68° 15'	-0.2	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	68° 0'	-0.2	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	67° 45'	-0.2	-0.2	-0.3	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	67° 30'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	67° 15'	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	67° 0'	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	66° 45'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	66° 30'	-0.3	-0.2	-0.1	-0.1	0	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	66° 15'	-0.3	-0.2	-0.1	-0.1	0	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	66° 0'	-0.3	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	65° 45'	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	65° 30'	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	65° 15'	-0.3	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	
-0.1	0	0	0	0	0	0	0	0	65° 0'	-0.3	-0.3	-0.2	-0.2	-0.2	-0.1	-0.1	0	-0.1	
0	0	0	0	0	0	0	0	0	64° 45'	-0.4	-0.3	-0.3	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	64° 30'	-0.3	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	64° 15'	-0.3	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	64° 0'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	63° 45'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	63° 30'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	63° 15'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	63° 0'	-0.2	-0.2	-0.1	0	0	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	62° 45'	-0.2	-0.2	-0.1	0	0	0	-0.1	-0.2	-0.2	
0	0	0	0	0.1	0.1	0.1	0	0	62° 30'	-0.2	-0.1	-0.1	0	0	0	-0.1	-0.1	-0.2	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	62° 15'	-0.2	-0.1	-0.1	-0.1	0	0	-0.1	-0.1	-0.1	
0	0	0	0	0	0.1	0.1	0.1	0.1	62° 0'	-0.2	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	
-0.1	-0.1	0	0	0	0	0	0.1	0.1	61° 45'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	61° 30'	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	61° 15'	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	0	61° 0'	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	-0.1	-0.1	-0.1	60° 45'	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	60° 30'	-0.2	-0.1	-0.1	-0.2	-0.2	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	60° 15'	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	60° 0'	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	

## Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 56 to 60 °E									
Correction to Latitude										Correction to Longitude									
56°	56°	57°	57°	58°	58°	59°	59°	60°	Longitude	56°	56°	57°	57°	58°	58°	59°	59°	60°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0.1	0.1	0.1	0.1	0	0	70° 0'	-0.1	0	0	0	0	-0.1	-0.2	-0.3	-0.3	
0	0	0	0	0.1	0.1	0.1	0.1	0	69° 45'	-0.2	-0.1	-0.1	0	0	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	69° 30'	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	69° 15'	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	69° 0'	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	68° 45'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.3	
0	0	0	0	0	0	0	0	0	68° 30'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.3	
0	0	0	0	0	0	0	0	0	68° 15'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	68° 0'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	67° 45'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	67° 30'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	67° 15'	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	67° 0'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0.1	66° 45'	-0.2	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	
0	0	0	0	0	0	0	0	0.1	66° 30'	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	66° 15'	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	
0	0	0	0	0.1	0	0	0	0	66° 0'	-0.2	-0.2	-0.2	-0.2	-0.1	-0.2	-0.2	-0.3	-0.3	
0	0	0	0	0	0	0	-0.1	-0.1	65° 45'	-0.2	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	
0	0	0	0	0	0	-0.1	-0.1	-0.2	65° 30'	-0.2	-0.3	-0.4	-0.3	-0.1	0	0.1	0	0	
0	0	0	0	0	0	-0.1	-0.1	-0.1	65° 15'	-0.1	-0.3	-0.3	-0.3	-0.1	0.1	0.2	0.1	0	
0	0	0	0	0	0	-0.1	-0.1	-0.1	65° 0'	-0.1	-0.2	-0.3	-0.2	-0.1	0.2	0.3	0.2	0	
0	0	0	0	0	0	0	0	0	64° 45'	-0.1	-0.2	-0.3	-0.2	0	0.2	0.3	0.2	-0.1	
0	0	0	0	0	0	0	0	0	64° 30'	-0.1	-0.2	-0.3	-0.2	0	0.2	0.3	0.1	-0.1	
0	0	0	0	0	0	0	0	0	64° 15'	-0.1	-0.2	-0.3	-0.2	0	0.2	0.3	0.1	-0.2	
0	0	0	0	0	0	0	0	0.1	64° 0'	-0.1	-0.2	-0.3	-0.2	0.1	0.2	0.2	0	-0.3	
0	0	0	0	0	0	0	0	0.1	63° 45'	-0.1	-0.2	-0.2	-0.1	0.1	0.2	0.1	-0.1	-0.3	
0	0	0	0	0	0	0	0	0.1	63° 30'	-0.1	-0.2	-0.2	-0.1	0.1	0.1	0	-0.2	-0.4	
0	0	0	0	0	0	0	0	0	63° 15'	-0.2	-0.2	-0.2	-0.1	0.1	0.1	0	-0.2	-0.4	
0	0	0	0	0	0	0	0	0	63° 0'	-0.2	-0.2	-0.2	-0.1	0	0.1	0	-0.2	-0.4	
0	0	0	0	0.1	0.1	0	0	0	62° 45'	-0.2	-0.2	-0.2	-0.2	0	0.1	0	-0.2	-0.3	
0	0	0	0	0	0	0	0	0	62° 30'	-0.2	-0.2	-0.3	-0.2	0	0.1	0.1	-0.1	-0.3	
0.1	0	0	0	0	0	0	0	0	62° 15'	-0.1	-0.2	-0.2	-0.2	-0.1	0.1	0.1	-0.1	-0.3	
0.1	0.1	0	0	0	0	0	0	0	62° 0'	-0.1	-0.1	-0.2	-0.2	0	0.1	0.2	0	-0.3	
0.1	0.1	0	0	0	0	0	0	0	61° 45'	-0.1	-0.1	-0.1	-0.2	0	0.2	0.2	0	-0.3	
0	0	0	0	0	0	0	0	0	61° 30'	-0.1	-0.1	-0.1	-0.1	0	0.2	0.2	0	-0.3	
0	0	0	0	0	0	0	0	0	61° 15'	-0.1	-0.1	-0.1	-0.1	0	0.1	0.2	0	-0.3	
0	0	0	0	0	0	0	0	0	61° 0'	-0.2	-0.1	-0.1	-0.1	0	0.1	0.1	0	-0.3	
-0.1	0	0	0	0	0	0	0	0	60° 45'	-0.2	-0.2	-0.1	-0.1	0	0.1	0.1	-0.1	-0.3	
0	0	0	0	0	0	0	0	0	60° 30'	-0.2	-0.2	-0.1	-0.1	0	0.1	0.1	-0.1	-0.3	
0	0	0	0	0	0	0	0	0	60° 15'	-0.2	-0.2	-0.1	-0.1	0	0.1	0.1	-0.1	-0.4	
0	0	0	0	0	0	0	0	0	60° 0'	-0.2	-0.2	-0.1	-0.1	0	0.1	0	-0.1	-0.4	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 60 to 64 °E									
Correction to Latitude										Correction to Longitude									
60°	60°	61°	61°	62°	62°	63°	63°	64°	Longitude	60°	60°	61°	61°	62°	62°	63°	63°	64°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	0	70° 0'	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1	
0	0	0	0	0	-0.1	-0.1	-0.1	0	69° 45'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	69° 30'	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.3	-0.3	-0.2	
0	0	0	0	0	0	0	0	0	69° 15'	-0.2	-0.1	-0.1	0	-0.1	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0.1	0	0	0	0	69° 0'	-0.2	-0.2	-0.1	0	0	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	0	0.1	0.1	0.1	0	68° 45'	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	68° 30'	-0.3	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	68° 15'	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.1	0	
0	0	0	0	0	0	0	0	0	68° 0'	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	67° 45'	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	
0	0	0	0.1	0.1	0.1	0	0	0	67° 30'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	0	
0	0	0.1	0.1	0.1	0.1	0.1	0	0	67° 15'	-0.2	-0.2	-0.3	-0.2	-0.2	-0.1	0	0.1	0.1	
0	0.1	0.1	0.1	0.1	0.1	0.1	0	0	67° 0'	-0.2	-0.3	-0.3	-0.3	-0.2	-0.1	0.1	0.2	0.3	
0.1	0.1	0.1	0.1	0.1	0	0	0	-0.1	66° 45'	-0.3	-0.3	-0.4	-0.3	-0.2	0	0.2	0.4	0.4	
0.1	0.1	0.1	0	0	-0.1	-0.1	-0.1	-0.1	66° 30'	-0.3	-0.4	-0.4	-0.3	-0.1	0.1	0.3	0.4	0.3	
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	0	66° 15'	-0.3	-0.3	-0.3	-0.1	0.1	0.3	0.4	0.3	0.1	
0	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	0	0	66° 0'	-0.3	-0.2	-0.1	0	0.2	0.2	0.2	0.1	-0.2	
-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	0	0.1	0.1	65° 45'	-0.2	-0.1	0	0.1	0.1	0.1	0	-0.2	-0.3	
-0.2	-0.2	-0.2	-0.1	-0.1	0	0.1	0.1	0.1	65° 30'	0	0	0	0	-0.1	-0.2	-0.2	-0.3	-0.4	
-0.1	-0.1	-0.1	0	0	0.1	0.1	0.1	0.1	65° 15'	0	-0.1	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.4	
-0.1	0	0	0	0.1	0.1	0.1	0.1	0	65° 0'	0	-0.1	-0.3	-0.3	-0.4	-0.4	-0.3	-0.3	-0.3	
0	0	0.1	0.1	0.1	0.1	0.1	0	0	64° 45'	-0.1	-0.3	-0.4	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 30'	-0.1	-0.3	-0.4	-0.4	-0.3	-0.3	-0.2	-0.3	-0.3	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 15'	-0.2	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	
0.1	0.1	0.1	0.1	0	0.1	0.1	0.1	0.1	64° 0'	-0.3	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	63° 45'	-0.3	-0.4	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	63° 30'	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	
0	0	0	0	0.1	0.1	0.1	0	0	63° 15'	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.1	
0	0	0	0	0	0.1	0	0	0	63° 0'	-0.4	-0.4	-0.4	-0.4	-0.3	-0.3	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	62° 45'	-0.3	-0.4	-0.4	-0.4	-0.4	-0.3	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	62° 30'	-0.3	-0.4	-0.4	-0.4	-0.3	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	62° 15'	-0.3	-0.4	-0.4	-0.4	-0.3	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	62° 0'	-0.3	-0.5	-0.4	-0.4	-0.3	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	61° 45'	-0.3	-0.4	-0.4	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	61° 30'	-0.3	-0.4	-0.4	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	61° 15'	-0.3	-0.4	-0.4	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	
0	0	0	0.1	0.1	0	0	0	0	61° 0'	-0.3	-0.4	-0.4	-0.3	-0.3	-0.2	-0.1	-0.1	-0.2	
0	0	0.1	0.1	0.1	0	0	0	0.1	60° 45'	-0.3	-0.4	-0.4	-0.3	-0.2	-0.1	-0.1	-0.1	-0.2	
0	0	0.1	0.1	0	0	0	0	0.1	60° 30'	-0.3	-0.5	-0.4	-0.3	-0.2	-0.1	-0.1	-0.2	-0.3	
0	0	0.1	0.1	0	0	0	0.1	0.1	60° 15'	-0.4	-0.5	-0.5	-0.3	-0.1	-0.1	-0.1	-0.2	-0.3	
0	0	0	0	0	0	0	0.1	0.1	60° 0'	-0.4	-0.6	-0.5	-0.3	-0.1	-0.1	-0.2	-0.3	-0.3	



# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 64 to 68 °E									
Correction to Latitude										Correction to Longitude									
64°	64°	65°	65°	66°	66°	67°	67°	68°	Longitude	64°	64°	65°	65°	66°	66°	67°	67°	68°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	-0.1	0	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	69° 45'	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	69° 30'	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	69° 15'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	69° 0'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	68° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	-0.1	-0.1	0	0	68° 30'	-0.1	0	0	0	-0.1	-0.2	-0.3	-0.3	-0.2	
0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	68° 15'	0	0	0.1	0.1	0	-0.1	-0.3	-0.3	-0.3	
0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	68° 0'	-0.1	0	0.1	0.2	0.1	0	-0.2	-0.3	-0.4	
0	0	0	0	0	0	0	0	0	67° 45'	-0.1	0	0.1	0.2	0.1	0	-0.2	-0.3	-0.4	
0	0	-0.1	-0.1	0	0	0	0	0	67° 30'	0	0.1	0.1	0.1	0.1	0	-0.2	-0.3	-0.4	
0	0	-0.1	-0.1	0	0	0.1	0.1	0.1	67° 15'	0.1	0.2	0.1	0.1	-0.1	-0.2	-0.3	-0.4	-0.4	
0	0	0	0	0	0.1	0.1	0.1	0.1	67° 0'	0.3	0.3	0.1	-0.1	-0.2	-0.3	-0.4	-0.4	-0.4	
-0.1	0	0	0	0.1	0.1	0.1	0.1	0.1	66° 45'	0.4	0.3	0	-0.2	-0.4	-0.4	-0.4	-0.3	-0.3	
-0.1	0	0	0.1	0.1	0.1	0.1	0.1	0.1	66° 30'	0.3	0.1	-0.1	-0.3	-0.4	-0.4	-0.4	-0.3	-0.3	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 15'	0.1	-0.1	-0.3	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3	
0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	66° 0'	-0.2	-0.4	-0.5	-0.4	-0.3	-0.2	-0.2	-0.2	-0.3	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 45'	-0.3	-0.5	-0.5	-0.3	-0.2	-0.1	-0.2	-0.2	-0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0	0.1	0.1	65° 30'	-0.4	-0.4	-0.4	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	
0.1	0.1	0.1	0.1	0	0	0	0	0	65° 15'	-0.4	-0.4	-0.3	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	65° 0'	-0.3	-0.4	-0.3	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	64° 45'	-0.3	-0.4	-0.3	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	
0.1	0.1	0.1	0	0	0	0	0	0	64° 30'	-0.3	-0.4	-0.3	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	
0.1	0.1	0	0	0	0	0	0	0	64° 15'	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	
0.1	0.1	0	0	0	0	0	0	0	64° 0'	-0.3	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	63° 45'	-0.3	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	63° 30'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	63° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0.1	0.1	63° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0.1	0.1	0.1	0.1	62° 45'	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.3	-0.2	-0.2	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	62° 30'	-0.1	-0.1	-0.1	-0.1	-0.2	-0.3	-0.3	-0.2	-0.1	
0	0	0	0	0	0.1	0.1	0.1	0.1	62° 15'	-0.1	-0.1	-0.1	-0.2	-0.3	-0.3	-0.3	-0.2	-0.1	
0	0	0	0	0	0.1	0.1	0.1	0.1	62° 0'	-0.1	-0.1	-0.2	-0.2	-0.3	-0.4	-0.3	-0.2	-0.1	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	61° 45'	-0.1	-0.1	-0.2	-0.3	-0.3	-0.4	-0.3	-0.2	-0.1	
0	0	0.1	0.1	0.1	0.1	0	0	0	61° 30'	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1	
0	0.1	0.1	0.1	0.1	0	0	0	0	61° 15'	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1	
0	0.1	0.1	0.1	0.1	0	0	0	0	61° 0'	-0.2	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0.1	0.1	0.1	0.1	0	0	0	0	0	60° 45'	-0.2	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0.1	0.1	0	0	0	0	0	0	0	60° 30'	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0.1	0	0	0	0	0	0	0	0	60° 15'	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.2	
0.1	0	0	0	0	0	0	0	0	60° 0'	-0.3	-0.2	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.2	

## Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 68 to 72 °E									
Correction to Latitude										Correction to Longitude									
68°	68°	69°	69°	70°	70°	71°	71°	72°	Longitude	68°	68°	69°	69°	70°	70°	71°	71°	72°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
0	0	0	0	0	0	0	0	0	69° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
0	0	0	0	0	0	0	0	0	69° 30'	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
0	0	0	0	0	0	0.1	0.1	0.1	69° 15'	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
0	0	0	0	0	0	0.1	0.1	0.1	69° 0'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1
0	0	0	0	0	0	0.1	0.1	0.1	68° 45'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1
0	0	0	0	0	0	0.1	0.1	0.1	68° 30'	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1
-0.1	0	0	0	0	0	0	0	0	68° 15'	-0.3	-0.3	-0.2	-0.3	-0.3	-0.4	-0.3	-0.3	-0.2	-0.1
-0.1	0	0	0	0	0	0	0	0	68° 0'	-0.4	-0.4	-0.3	-0.3	-0.3	-0.4	-0.3	-0.3	-0.3	-0.1
0	0	0	0	0	0	0	0	0	67° 45'	-0.4	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2
0	0	0	0	0	0	0	0	0	67° 30'	-0.4	-0.5	-0.4	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2
0.1	0.1	0.1	0.1	0.1	0	0	0	0	67° 15'	-0.4	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	67° 0'	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	66° 45'	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	66° 30'	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
0.1	0.1	0.1	0.1	0	0	0	0.1	0.1	66° 15'	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
0.1	0.1	0	0	0	0	0	0	0	66° 0'	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
0.1	0	0	0	0	0	0	0	0	65° 45'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
0.1	0	0	0	0	0	0	0	0	65° 30'	-0.2	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
0	0	0	0	0	0	0	0	0	65° 15'	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
0	0	0	0	0	0	0	0	0	65° 0'	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
0	0	0	0	0	0	0	0	0	64° 45'	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2
0	0	0	0	0	0	0	0	0	64° 30'	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2
0	0	0	0	0.1	0.1	0.1	0	0	64° 15'	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	64° 0'	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	63° 45'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1
0	0	0	0	0.1	0.1	0.1	0.1	0.1	63° 30'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 15'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 0'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	62° 45'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	62° 30'	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2
0.1	0.1	0.1	0.1	0	0	0	0.1	0.1	62° 15'	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2
0.1	0.1	0	0	0	0	0	0	0	62° 0'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2
0.1	0.1	0	0	0	0	0	0	0	61° 45'	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2
0	0.1	0.1	0	0	0	0	0	0	61° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2
0	0	0.1	0.1	0	0	0	0.1	0	61° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2
0	0	0	0	0	0	0.1	0.1	0	61° 0'	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2
0	0	0	0	0	0	0.1	0.1	0	60° 45'	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1
0	0	0	0	0	0	0.1	0	0	60° 30'	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1
0	0	0	0	0	0	0	0	0	60° 15'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1
0	0	0	0	0	0	0	0	0	60° 0'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 72 to 76 °E									
Correction to Latitude										Correction to Longitude									
72°	72°	73°	73°	74°	74°	75°	75°	76°	Longitude	72°	72°	73°	73°	74°	74°	75°	75°	76°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	-0.1	-0.1	0	0	0	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	69° 45'	-0.1	-0.1	0	0	0	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	69° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	69° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	69° 0'	-0.1	-0.1	-0.1	-0.1	0	0	0	0	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 45'	-0.1	-0.1	-0.1	0	0	0	0	0	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 30'	-0.1	0	0	0	0	0	0	0	-0.1	
0	0	0	0	0	0.1	0.1	0.1	0.1	68° 15'	-0.1	0	0	0	0	0	0	0	-0.1	
0	0	0	0	0	0.1	0.1	0.1	0.1	68° 0'	-0.1	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	67° 45'	-0.2	-0.1	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	67° 30'	-0.2	-0.1	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	67° 15'	-0.2	-0.1	-0.1	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0.1	67° 0'	-0.2	-0.2	-0.1	0	0	0	0	0	0	
0	0	0	0.1	0.1	0.1	0	0	0.1	66° 45'	-0.2	-0.2	-0.1	0	0	0	0	0	0	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 30'	-0.2	-0.2	-0.1	-0.1	0	0	0	0	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 15'	-0.2	-0.2	-0.1	-0.1	0	0	0	0	0	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	66° 0'	-0.2	-0.2	-0.1	-0.1	-0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0.1	65° 45'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	0	0	0	
0	0	0	0	0	0	0	0	0.1	65° 30'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	
0	0	0	0	0	0	0	0	0.1	65° 15'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	
0	0	0	0	0	0	0.1	0.1	0.1	65° 0'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	
0	0	0	0	0	0.1	0.1	0.1	0.1	64° 45'	-0.2	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	
0	0	0	0	0	0.1	0.1	0.1	0	64° 30'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	0	
0	0	0	0	0	0	0	0	0	64° 15'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	0	
0.1	0.1	0.1	0	0	0	0	0	0	64° 0'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	0	
0.1	0.1	0.1	0.1	0	0	0	0	0	63° 45'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0	0	0	0	0	63° 30'	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	63° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	63° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0	0	0	0	0	62° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0	0	0	0	0.1	62° 30'	-0.2	-0.1	-0.1	0	0	-0.1	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0	0.1	0.1	0.1	62° 15'	-0.2	-0.1	-0.1	0	0	-0.1	-0.1	-0.1	-0.1	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	62° 0'	-0.2	-0.2	-0.1	0	0	-0.1	-0.1	-0.1	-0.2	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	61° 45'	-0.2	-0.2	-0.1	0	0	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0.1	0.1	0.1	61° 30'	-0.2	-0.2	-0.1	0	0	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0.1	0.1	61° 15'	-0.2	-0.2	-0.1	0	0	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0.1	0.1	61° 0'	-0.2	-0.1	-0.1	0	0	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0.1	0.1	0.1	0	0	60° 45'	-0.1	-0.1	-0.1	0	-0.1	-0.1	-0.2	-0.2	-0.2	
0	0	0	0.1	0.1	0.1	0.1	0	0	60° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	
0	0	0.1	0.1	0.1	0.1	0.1	0	0	60° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	60° 0'	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 76 to 80 °E									
Correction to Latitude										Correction to Longitude									
76°	76°	77°	77°	78°	78°	79°	79°	80°	Longitude	76°	76°	77°	77°	78°	78°	79°	79°	80°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0.1	0.1	0.1	0	0	0	70° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	69° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	69° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	69° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	69° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0	0	0	0	0	0	68° 45'	-0.1	-0.1	-0.1	0	0	-0.1	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0	0	0	0	0	68° 30'	-0.1	-0.1	-0.1	0	0	0	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0	0	0	0	0.1	0	68° 15'	-0.1	-0.1	0	0	0	0	-0.1	-0.1	-0.1	
0.1	0	0	0	0	0	0	0	0	68° 0'	0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	67° 45'	0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	67° 30'	0	0	0	0	-0.1	-0.1	-0.1	-0.1	0	
0	0.1	0.1	0.1	0	0	0.1	0.1	0	67° 15'	0	0	0	0	-0.1	-0.1	-0.1	-0.1	0	
0.1	0.1	0.1	0.1	0	0	0	0.1	0	67° 0'	0	0	0	0	-0.1	-0.1	-0.1	-0.1	0	
0.1	0.1	0.1	0.1	0	0	0	0	0	66° 45'	0	0	0	0	0	-0.1	-0.2	-0.1	-0.1	
0.1	0.1	0.1	0.1	0	0	0	0	0	66° 30'	-0.1	0	0	0.1	0	-0.1	-0.2	-0.2	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	66° 15'	0	0	0	0.1	0	-0.1	-0.2	-0.2	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	66° 0'	0	0	0	0	0	0	-0.1	-0.2	-0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	65° 45'	0	0	0	0	0	0	-0.1	-0.2	-0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	65° 30'	0	0	0	0	0	0	-0.1	-0.2	-0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	65° 15'	0	0	0	0	0	0	-0.1	-0.2	-0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	65° 0'	-0.1	0	0	0	0.1	0	0	-0.2	-0.2	
0.1	0.1	0	0	0	0.1	0.1	0	0	64° 45'	-0.1	0	0	0.1	0.1	0	0	-0.1	-0.2	
0	0	0	0	0	0.1	0.1	0.1	0	64° 30'	0	0	0.1	0	0	0	0	-0.1	-0.1	
0	0	0	0	0.1	0.1	0.1	0.1	0	64° 15'	0	0	0	0	0	0	0	0	-0.1	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0	64° 0'	0	0	0	0	0	0	0	0	0	
0	0	0.1	0.1	0.1	0	0.1	0.1	0	63° 45'	-0.1	-0.1	0	0	0	0	-0.1	0	0	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0	63° 30'	-0.1	-0.1	0	0	0	-0.1	-0.1	0	0	
0	0	0	0.1	0.1	0.1	0.1	0.1	0	63° 15'	-0.1	-0.1	0	0	0	-0.1	-0.1	0	0	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0	63° 0'	-0.1	-0.1	0	0	0	-0.1	-0.1	-0.1	0	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0	62° 45'	-0.1	-0.1	-0.1	0	0	-0.1	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	62° 30'	-0.1	-0.1	-0.1	0	0	0	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	62° 15'	-0.1	-0.1	-0.1	-0.1	0	0	-0.1	-0.2	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	62° 0'	-0.2	-0.1	-0.1	0	0	0	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	61° 45'	-0.2	-0.1	-0.1	0	0	-0.1	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	61° 30'	-0.2	-0.1	0	0	0	-0.1	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	61° 15'	-0.2	-0.1	0	0	0	-0.1	-0.2	-0.2	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	61° 0'	-0.2	-0.1	0	0	0	-0.1	-0.2	-0.1	-0.1	
0	0	0	0	0.1	0.1	0.1	0.1	0	60° 45'	-0.2	-0.1	0	0	0	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0.1	0.1	0.1	0	60° 30'	-0.2	-0.1	0	0	0	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0.1	0.1	0.1	0.1	0	60° 15'	-0.2	-0.1	0	0	-0.1	-0.2	-0.2	-0.1	0	
0	0	0	0.1	0.1	0.1	0.1	0	0	60° 0'	-0.2	-0.1	0	0	-0.1	-0.2	-0.1	-0.1	0	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 80 to 84 °E									
Correction to Latitude										Correction to Longitude									
80°	80°	81°	81°	82°	82°	83°	83°	84°	Longitude	80°	80°	81°	81°	82°	82°	83°	83°	84°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	0	0	0	
0	0	0	0	0	0	0	0	0	69° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	69° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	69° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	69° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	68° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	
0	0	0	0	0	0	0	0	0	68° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	
0.1	0.1	0	0	0	0	0	0	0	68° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0	68° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0	67° 45'	-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	67° 30'	0	0	-0.1	-0.1	0	0	0	0	-0.1	
0.1	0.1	0	0	0	0	0	0	0	67° 15'	0	0	-0.1	-0.1	0	0	0	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	67° 0'	0	0	0	-0.1	0	0	0	-0.1	-0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	66° 45'	-0.1	0	0	0	0	0	0	0	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	66° 30'	-0.1	0	0	0	0	0	0.1	0	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 15'	-0.1	-0.1	0	0	0	0	0.1	0	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 0'	-0.2	-0.1	0	0	0	0	0.1	0	-0.1	
0.1	0.1	0.1	0.1	0	0	0	0	0	65° 45'	-0.2	-0.1	0	0	0	0.1	0.1	0	-0.1	
0.1	0.1	0.1	0.1	0	0	0	0.1	0.1	65° 30'	-0.2	-0.1	0	0	0.1	0.1	0.1	0	0	
0	0	0	0	0	0	0.1	0.1	0.1	65° 15'	-0.2	-0.1	0	0.1	0.1	0.1	0	0	0	
0	0	0	0	0	0.1	0.1	0.1	0.1	65° 0'	-0.2	-0.2	0	0.1	0.1	0	0	0	-0.1	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	64° 45'	-0.2	-0.2	-0.1	0	0	0	0	0	-0.1	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	64° 30'	-0.1	-0.1	-0.1	0	0	0	0	0	-0.1	
0.1	0	0	0	0.1	0.1	0.1	0.1	0.1	64° 15'	-0.1	-0.1	-0.1	-0.1	0	0	0	0	-0.1	
0.1	0	0	0	0.1	0.1	0.1	0.1	0.1	64° 0'	0	-0.1	-0.1	-0.1	-0.1	0	0	0	-0.1	
0.1	0	0	0	0.1	0.1	0.1	0.1	0.1	63° 45'	0	0	-0.1	-0.1	-0.1	0	0	0	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 30'	0	0	-0.1	-0.1	-0.1	0	0	0	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 15'	0	0	-0.1	-0.1	-0.1	0	0	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 0'	0	0	-0.1	-0.1	-0.1	0	0.1	0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	62° 45'	-0.1	0	0	-0.1	-0.1	0	0	0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	62° 30'	-0.1	0	0	0	-0.1	0	0	0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	62° 15'	-0.1	-0.1	0	0	-0.1	0	0	0	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	62° 0'	-0.1	-0.1	0	-0.1	-0.1	0	0	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	61° 45'	-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	
0.1	0.1	0.1	0.1	0.1	0	0.1	0.1	0.1	61° 30'	-0.1	-0.1	0	0	0	0	0	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	61° 15'	-0.1	-0.1	0	0	0	0	0	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	61° 0'	-0.1	-0.1	0	0	0	0	0	0	0	
0.1	0	0.1	0.1	0.1	0.1	0.1	0	0	60° 45'	-0.1	-0.1	-0.1	0	0	0	0	0	0	
0.1	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	60° 30'	-0.1	-0.1	-0.1	0	0	0	0	0	0	
0.1	0	0	0.1	0.1	0.1	0.1	0.1	0.1	60° 15'	0	-0.1	-0.1	-0.1	0	0	0	0	0	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	60° 0'	0	0	-0.1	-0.1	0	0	0	0	0	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 84 to 88 °E									
Correction to Latitude										Correction to Longitude									
84°	84°	85°	85°	86°	86°	87°	87°	88°	Longitude	84°	84°	85°	85°	86°	86°	87°	87°	88°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	0	0	-0.1	-0.1	0	0	0.1	0.1	0.2	
0	0	0	0	0	0	0	0	0	69° 45'	-0.1	-0.1	-0.1	-0.1	0	0	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	69° 30'	-0.1	-0.1	-0.1	0	0	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	69° 15'	-0.1	-0.1	-0.1	0	0.1	0.1	0.1	0.1	0	
0	0	0	0	0	0	0	0	0	69° 0'	-0.1	-0.1	-0.1	0	0.1	0.2	0.1	0	-0.1	
0	0	0	0	0	0	0	0	0.1	68° 45'	0	-0.1	-0.1	0	0.1	0.1	0.1	-0.1	-0.2	
0	0	0	0	0	0	0	0.1	0.1	68° 30'	0	0	0	0	0	0	0	-0.1	-0.2	
0	0	0	0	0	0	0	0.1	0.1	68° 15'	0	0	0	0	0	0	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	68° 0'	0	0	0	0	0	-0.1	-0.2	-0.2	-0.2	
0	0.1	0.1	0	0	0	0	0	0	67° 45'	0	0	0	0.1	0	-0.1	-0.2	-0.2	-0.2	
0	0.1	0.1	0.1	0.1	0.1	0.1	0	0	67° 30'	-0.1	-0.1	0	0.1	0.1	0	-0.2	-0.2	-0.1	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	67° 15'	-0.1	-0.1	0	0.1	0.1	0	-0.1	-0.2	-0.1	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	67° 0'	-0.2	-0.2	-0.1	0.1	0.1	0	-0.1	-0.2	-0.1	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	66° 45'	-0.1	-0.2	-0.1	0	0	0	-0.2	-0.2	-0.1	
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	66° 30'	-0.1	-0.2	-0.1	0	0	-0.1	-0.2	-0.2	-0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 15'	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 0'	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	65° 45'	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	
0.1	0	0	0	0.1	0.1	0.1	0.1	0	65° 30'	0	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	65° 15'	0	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	65° 0'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	64° 45'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 30'	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 15'	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 0'	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	0	0	
0.1	0.1	0.1	0.1	0	0	0	0	0.1	63° 45'	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	0	
0.1	0	0	0.1	0	0	0	0	0	63° 30'	-0.1	-0.1	-0.2	-0.1	-0.1	0	-0.1	-0.1	-0.1	
0.1	0	0.1	0.1	0.1	0	0	0	0	63° 15'	0	-0.1	-0.2	-0.1	0	0	0	-0.1	-0.1	
0.1	0.1	0.1	0.1	0	0	0	0	0	63° 0'	0	-0.1	-0.2	-0.1	0	0.1	0	-0.1	-0.1	
0.1	0.1	0.1	0	0	0	0	0	0	62° 45'	0	-0.1	-0.2	-0.1	0	0.1	0.1	-0.1	-0.1	
0.1	0.1	0.1	0	0	0	0	0	0	62° 30'	0	0	-0.1	-0.1	0	0.1	0.1	0	-0.1	
0.1	0.1	0.1	0.1	0	0	0.1	0.1	0.1	62° 15'	0.1	0	0	0	0	0.1	0.1	0	-0.1	
0.1	0.1	0.1	0	0	0	0.1	0.1	0.1	62° 0'	0	0	0	0	0	0	0	0	-0.1	
0.1	0.1	0	0	0	0	0.1	0.1	0.1	61° 45'	0	0.1	0	0	0	0	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	61° 30'	0	0.1	0.1	0	0	0	-0.1	-0.2	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	61° 15'	0	0.1	0	0	0	0	-0.1	-0.2	-0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	61° 0'	0	0	0	0	0	0	0	-0.1	-0.2	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	60° 45'	0	0	-0.1	-0.1	0	0.1	0	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	60° 30'	0	0	-0.1	-0.1	0	0	0	0	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	60° 15'	0	0	-0.1	-0.1	-0.1	0	0	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	60° 0'	0	0	0	-0.1	0	0	0	-0.1	-0.1	

## Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 88 to 92 °E									
Correction to Latitude										Correction to Longitude									
88°	88°	89°	89°	90°	90°	91°	91°	92°	Longitude	88°	88°	89°	89°	90°	90°	91°	91°	92°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	0.2	0.1	0.1	0	0	0.1	0.2	0.2	0.1	
0	0	0	0.1	0.1	0.1	0.1	0	0	69° 45'	0.1	0.1	0	0	0	0.1	0.2	0.2	0.1	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 30'	0.1	0	-0.1	-0.1	0	0.1	0.2	0.2	0.1	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 15'	0	-0.1	-0.2	-0.1	0	0.1	0.2	0.2	0.2	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 0'	-0.1	-0.2	-0.2	-0.2	-0.1	0.1	0.2	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 45'	-0.2	-0.3	-0.3	-0.2	-0.1	0.1	0.2	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 30'	-0.2	-0.3	-0.3	-0.2	-0.1	0	0.1	0.2	0.2	
0.1	0.1	0	0	0	0	0	0	0.1	68° 15'	-0.2	-0.2	-0.2	-0.1	-0.1	0	0.1	0.2	0.2	
0	0	0	0	0	0	0	0	0.1	68° 0'	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	0	0.1	0.2	
0	0	0	0	0	0	0	0	0.1	67° 45'	-0.2	-0.1	0	-0.1	-0.1	-0.1	-0.1	0	0.1	
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	67° 30'	-0.1	0	0	-0.1	-0.2	-0.2	-0.1	0	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	67° 15'	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	0	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	67° 0'	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	0.1	0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0.1	0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 30'	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	0	0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 15'	-0.2	-0.1	0	0	-0.1	-0.1	0	0	0	
0.1	0.1	0.1	0.1	0.1	0	0	0	0.1	66° 0'	-0.2	-0.1	0	0	0	-0.1	-0.1	0	0	
0.1	0.1	0.1	0.1	0	0	0	0	0	65° 45'	-0.2	-0.1	0	0	0	0	0	0	-0.1	
0	0	0	0	0	0	0	0	0	65° 30'	-0.1	-0.1	0	0	0.1	0	0	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	65° 15'	-0.1	0	0	0.1	0.1	0.1	0	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	65° 0'	0	0	0	0.1	0.1	0.1	0	-0.1	-0.2	
0	0	0	0	0.1	0.1	0.1	0	0	64° 45'	0	0	0	0.1	0.1	0	0	-0.1	-0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	64° 30'	0	0	0	0	0.1	0.1	0	-0.1	-0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	64° 15'	0	0	0	0	0.1	0.1	0	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 0'	0	0	0	0.1	0.1	0.1	0	0	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 45'	0	0	0.1	0	0	0	0	0	0	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 30'	-0.1	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0.1	0.1	63° 15'	-0.1	-0.1	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0.1	63° 0'	-0.1	-0.1	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0.1	62° 45'	-0.1	-0.1	0	0	0	-0.1	-0.1	0	0	
0	0	0	0	0	0.1	0.1	0.1	0.1	62° 30'	-0.1	-0.1	0	0	-0.1	-0.1	-0.1	0	0	
0.1	0.1	0	0	0.1	0.1	0.1	0.1	0.1	62° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	62° 0'	-0.1	0	0	-0.1	-0.1	-0.1	-0.1	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	61° 45'	-0.1	0	0	0	-0.1	-0.1	-0.1	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	61° 30'	-0.1	0	0.1	0.1	0	-0.1	-0.1	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	61° 15'	-0.2	0	0.1	0.1	0.1	0	0	0	0	
0	0.1	0.1	0.1	0.1	0.1	0	0	0	61° 0'	-0.2	-0.1	0	0.1	0.1	0.1	0	0	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	60° 45'	-0.1	-0.1	-0.1	0.1	0.1	0.1	0.1	0	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	60° 30'	-0.1	-0.2	-0.1	0	0.1	0.1	0.1	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	60° 15'	-0.1	-0.1	-0.1	0	0.1	0.1	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	60° 0'	-0.1	-0.1	-0.1	0	0.1	0.1	0.1	0.1	0.1	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 92 to 96 °E									
Correction to Latitude										Correction to Longitude									
92°	92°	93°	93°	94°	94°	95°	95°	96°	Longitude	92°	92°	93°	93°	94°	94°	95°	95°	96°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	0.1	0	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	69° 45'	0.1	0	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	69° 30'	0.1	0	-0.2	-0.2	-0.1	-0.1	0	0	-0.1	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	69° 15'	0.2	0	-0.1	-0.1	0	0.1	0.1	0	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 0'	0.2	0.1	0	0	0.1	0.1	0.1	0	-0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 45'	0.2	0.1	0	0	0.1	0.1	0.1	0	-0.2	
0.1	0.1	0.1	0	0	0.1	0.1	0.1	0.1	68° 30'	0.2	0.1	0.1	0.1	0.1	0.1	0.1	-0.1	-0.2	
0.1	0	0	0	0	0	0.1	0.1	0.1	68° 15'	0.2	0.1	0.1	0.1	0.1	0.1	0	0	-0.1	
0.1	0.1	0.1	0	0	0.1	0.1	0.1	0.1	68° 0'	0.2	0.2	0.1	0.1	0.1	0	0	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	67° 45'	0.1	0.2	0.2	0.1	0	0	-0.1	-0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	67° 30'	0.1	0.1	0.1	0.1	0	-0.1	-0.1	-0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	67° 15'	0	0	0	0.1	0	0	-0.1	-0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	67° 0'	0	0	0	0	0	0	-0.1	-0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 45'	0	-0.1	-0.1	0	0	0	0	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 30'	0	0	-0.1	0	0	0.1	0	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 15'	0	0	0	0	0.1	0.1	0	0	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 0'	0	0	0	0.1	0.1	0.1	0	-0.1	-0.1	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 45'	-0.1	-0.1	0	0.1	0.1	0.1	0	-0.1	-0.1	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 30'	-0.1	-0.2	-0.1	0	0.1	0.1	0	-0.1	-0.1	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 15'	-0.2	-0.2	-0.2	0	0.1	0.1	0	-0.1	-0.1	
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	65° 0'	-0.2	-0.3	-0.2	-0.1	0	0.1	0	0	-0.1	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	64° 45'	-0.2	-0.2	-0.2	-0.1	0	0	0	0	0	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	64° 30'	-0.2	-0.2	-0.2	-0.2	-0.1	0	0	0.1	0.1	
0	0	0	0	0	0	0.1	0.1	0.1	64° 15'	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	0	0.1	0.1	
0.1	0	0	0	0	0	0	0.1	0.1	64° 0'	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	0	0	
0.1	0	0	0	0	0	0	0.1	0.1	63° 45'	0	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	0	
0.1	0.1	0	0	0	0	0	0	0	63° 30'	0	0	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	63° 15'	0	0	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	63° 0'	0	0	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	0	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	62° 45'	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	
0.1	0.1	0.1	0.1	0	0	0	0	0	62° 30'	0	0	-0.1	-0.1	-0.1	-0.1	0	0	0	
0.1	0.1	0.1	0	0	0	0	0	0	62° 15'	0	0	-0.1	0	0	0	0	0	-0.1	
0.1	0.1	0	0	0	0	0	0	0.1	62° 0'	0	0	0	0	0	0	0	-0.1	-0.1	
0	0	0	0	0	0	0	0.1	0.1	61° 45'	0	0	0	0	0	0	0	-0.1	-0.1	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	61° 30'	0	0	0	0	0	0	-0.1	-0.1	-0.2	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	61° 15'	0	0	0	-0.1	-0.1	0	-0.1	-0.1	-0.2	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	61° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	
0	0	0	0	0	0.1	0.1	0.1	0.1	60° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	
0.1	0	0	0	0	0	0	0.1	0.1	60° 30'	0	0	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	
0.1	0.1	0	0	0	0	0	0	0	60° 15'	0.1	0.1	0	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	
0.1	0.1	0.1	0.1	0	0	0	0	0	60° 0'	0.1	0.1	0.1	0	-0.1	-0.2	-0.2	-0.2	-0.1	





# Correct Astronomical Position to WGS84

**Latitude 60 to 70 °N**

**Correction to Latitude**

**Longitude 100 to 104 °E**

**Correction to Longitude**

Correction to Latitude										Correction to Longitude									
100° 0'	100° 30'	101° 0'	101° 30'	102° 0'	102° 30'	103° 0'	103° 30'	104° 0'	Longitude	100° 0'	100° 30'	101° 0'	101° 30'	102° 0'	102° 30'	103° 0'	103° 30'	104° 0'	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	70° 0'	0	0	0	0	0	0.1	0.2	0.2	0.3	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 45'	0	0	0.1	0.1	0.1	0.1	0.2	0.2	0.3	
0.1	0.1	0.1	0.1	0.1	0	0	0	0.1	69° 30'	-0.1	0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	
0	0	0	0	0	0	0	0	0	69° 15'	-0.2	0	0.1	0.2	0.2	0.2	0.1	0.1	0.2	
-0.1	0	0	0	0	0	0	0	0	69° 0'	-0.3	-0.1	0.1	0.2	0.3	0.2	0.1	0.1	0	
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	68° 45'	-0.3	-0.1	0.1	0.2	0.2	0.2	0.1	0	0	
0	0	0	0	0	0	0	0	0	68° 30'	-0.2	-0.1	0	0.1	0.2	0.1	0	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	68° 15'	-0.1	-0.1	0	0.1	0.1	0.1	0	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 0'	-0.1	0	0	0.1	0.1	0.1	0	0	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	67° 45'	-0.1	0	0	0.1	0.1	0.1	0.1	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	67° 30'	-0.1	0	0	0.1	0.1	0.1	0.1	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	67° 15'	-0.1	0	0.1	0.2	0.2	0.1	0.1	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	67° 0'	-0.1	0	0.1	0.2	0.2	0.1	0	0	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 45'	-0.1	0	0.1	0.2	0.2	0.1	0	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 30'	-0.1	-0.1	0	0.1	0.1	0.1	0.1	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 15'	0	-0.1	0	0.1	0.1	0.1	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 0'	0	0	0	0	0.1	0.1	0.1	0.1	0.1	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	65° 45'	0	0	0	0	0.1	0.2	0.2	0.1	0.1	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 30'	0	-0.1	-0.1	0	0.1	0.2	0.2	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 15'	-0.1	-0.1	-0.1	0	0.1	0.2	0.2	0.2	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 0'	-0.1	-0.2	-0.2	-0.1	0.1	0.2	0.3	0.2	0.2	
0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 45'	-0.1	-0.1	-0.1	0	0.1	0.2	0.2	0.2	0.2	
0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 30'	-0.1	-0.1	0	0.1	0.1	0.2	0.2	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 15'	-0.1	-0.1	0	0.1	0.1	0.1	0.1	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 0'	-0.1	0	0	0.1	0.1	0.1	0.1	0.1	0.1	
0.1	0	0	0	0	0.1	0.1	0.1	0.1	63° 45'	0	0	0	0	0	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0.1	0.1	0.1	63° 30'	0	0.1	0	0	0	0	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	63° 15'	0.1	0.1	0.1	0	-0.1	-0.1	0	0	0.1	
0	0	0	0	0	0	0	0	0	63° 0'	0	0.1	0.1	0	-0.1	-0.1	0	0	0.1	
0	0	0.1	0.1	0	0	0	0	0	62° 45'	0	0	0.1	0	0	0	0	0	0.1	
0	0	0	0	0	0	0	0	0	62° 30'	0	0	0	0.1	0	0	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	62° 15'	0	0	0	0.1	0.1	0	0	0.1	0.1	
0.1	0.1	0.1	0.1	0	0	0	0	0	62° 0'	0	0	0	0.1	0.1	0.1	0	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	61° 45'	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0.1	0	0	0.1	0.1	0.1	0	0	0	61° 30'	0.1	0	0	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	61° 15'	0.1	0	0	0	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	61° 0'	0.1	0	0	0	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	60° 45'	0.1	0	0	0.1	0.1	0.1	0.1	0.1	0.1	
0	0.1	0	0	0	0	0	0.1	0	60° 30'	0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0.1	0.1	0.1	0.1	60° 15'	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	60° 0'	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 104 to 108 °E									
Correction to Latitude										Correction to Longitude									
104° 0'	104° 30'	105° 0'	105° 30'	106° 0'	106° 30'	107° 0'	107° 30'	108° 0'	Longitude	104° 0'	104° 30'	105° 0'	105° 30'	106° 0'	106° 30'	107° 0'	107° 30'	108° 0'	
									Latitude										
0.1	0.1	0.1	0	0	0.1	0.1	0.1	0.1	70° 0'	0.3	0.3	0.2	0.2	0.1	0.1	0.2	0.3	0.3	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 45'	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 30'	0.2	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.2	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 15'	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 0'	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	68° 45'	0	0	0	0	0	0	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0.1	68° 30'	-0.1	-0.1	-0.1	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	68° 15'	-0.1	-0.1	-0.1	0	0	0	0	0	0	
0.1	0	0	0.1	0.1	0.1	0	0	0	68° 0'	-0.1	-0.1	-0.1	0	0	0.1	0	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	67° 45'	0	-0.1	-0.1	0	0	0.1	0	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	67° 30'	0	-0.1	-0.1	-0.1	0	0	0.1	0.1	0	
0.1	0.1	0.1	0.1	0	0	0	0	0	67° 15'	0	0	0	0	0	0	0	0.1	0.1	
0.1	0.1	0.1	0	0	0	0	0	0	67° 0'	-0.1	0	0	0	0	0	0.1	0.1	0.1	
0.1	0.1	0.1	0	0	0	0	0	0	66° 45'	0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0	0	0	0	0	66° 30'	0	0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	66° 15'	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 0'	0.1	0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	
0	0	0	0	0	0.1	0.1	0.1	0.1	65° 45'	0.1	0	0	0.1	0.1	0.1	0.2	0.2	0.2	
0.1	0	0	0	0	0.1	0.1	0.1	0.1	65° 30'	0.1	0	0	0.1	0.1	0.1	0.1	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 15'	0.1	0.1	0.1	0	0	0.1	0.1	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 0'	0.2	0.1	0.1	0	0	0	0.1	0.1	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 45'	0.2	0.1	0.1	0	0	0	0.1	0.1	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 30'	0.2	0.1	0.1	0	0	0	0.1	0.1	0.2	
0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	64° 15'	0.2	0.1	0.1	0	0	0	0.1	0.1	0.2	
0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	64° 0'	0.1	0.1	0.1	0	0	0	0.1	0.1	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 45'	0.1	0.1	0.1	0	0	0.1	0.1	0.1	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 30'	0.1	0.1	0	0	0	0.1	0.1	0.1	0.2	
0	0	0	0	0	0	0.1	0.1	0.1	63° 15'	0.1	0.1	0	0	0	0.1	0.1	0.1	0.2	
0	0	0	0	0	0	0	0	0	63° 0'	0.1	0.1	0	0	0	0.1	0.1	0.1	0.2	
0	0	0	0	0	0	0	0	0	62° 45'	0.1	0.1	0	0	0	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	62° 30'	0.1	0.1	0	0	0	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0.1	62° 15'	0.1	0.1	0	0	0	0	0	0	0.1	
0	0	0	0	0	0	0	0	0	62° 0'	0.1	0	0	0	0	0	0	0	0.1	
0	0	0	0	0	0	0	0	0	61° 45'	0.1	0	0	0	0	0	0	0	0.1	
0	0	0	0	0	0	0	0	0	61° 30'	0.1	0	0	0	0	0	0	0	0.1	
0	0	0	0	0	0	0	0	0	61° 15'	0.1	0	0	0	0	0	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	61° 0'	0.1	0.1	0	0	0	0	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	60° 45'	0.1	0.1	0.1	0	0	0	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	60° 30'	0.1	0.1	0.1	0	0	0	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0	0	0	0	0	60° 15'	0.1	0.1	0.1	0	0	0.1	0.1	0.1	0.1	
0.1	0	0	0	0	0	0	0	0	60° 0'	0.1	0.1	0.1	0	0	0.1	0.1	0.1	0.1	

# Correct Astronomical Position to WGS84

**Latitude 60 to 70 °N**

**Correction to Latitude**

**Longitude 108 to 112 °E**

**Correction to Longitude**

Correction to Latitude										Correction to Longitude									
108° 0'	108° 30'	109° 0'	109° 30'	110° 0'	110° 30'	111° 0'	111° 30'	112° 0'	Longitude	108° 0'	108° 30'	109° 0'	109° 30'	110° 0'	110° 30'	111° 0'	111° 30'	112° 0'	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	70° 0'	0.3	0.3	0.2	0	-0.1	-0.2	-0.2	-0.2	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	69° 45'	0.2	0.2	0.2	0.1	-0.1	-0.2	-0.2	-0.2	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	69° 30'	0.2	0.2	0.1	0.1	0	0	-0.1	0	0	
0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	69° 15'	0.1	0.1	0.1	0.1	0	0	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 0'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 45'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 30'	0	0.1	0.1	0.1	0.1	0.1	0	0.1	0.1	
0	0.1	0.1	0.1	0.1	0	0	0	0	68° 15'	0	0	0.1	0.2	0.1	0.1	0	0	0.1	
0	0	0	0.1	0.1	0	0	0	0	68° 0'	0	0	0.1	0.2	0.2	0.1	0.1	0	0.1	
0.1	0	0	0	0.1	0.1	0.1	0	0	67° 45'	0	0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	
0.1	0	0	0	0	0.1	0.1	0	0	67° 30'	0	0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	
0	0	0	0	0	0	0	0	0	67° 15'	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	
0	0	0	0	0	0	0	0	0	67° 0'	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	
0	0	0	0	0	0	0	0	0	66° 45'	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	
0	0	0	0	0	0	0	0	0	66° 30'	0.1	0.1	0	0	0.1	0.1	0.2	0.1	0.1	
0	0	0	0	0	0	0	0	0	66° 15'	0.2	0.1	0	0	0.1	0.1	0.2	0.1	0.1	
0.1	0.1	0	0	0	0	0	0	0	66° 0'	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	
0.1	0.1	0.1	0.1	0	0	0	0	0	65° 45'	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 30'	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 15'	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 0'	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 45'	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 30'	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 15'	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 0'	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 45'	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 30'	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 15'	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	63° 0'	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	
0	0	0	0	0.1	0.1	0	0	0	62° 45'	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	62° 30'	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	
0.1	0	0	0	0	0	0	0	0	62° 15'	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	62° 0'	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0	
0	0	0	0	0	0	0	0	0	61° 45'	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0	
0	0	0	0	0	0	0	0	0.1	61° 30'	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0	0	
0	0	0	0	0	0	0	0	0	61° 15'	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0	0	
0	0	0	0	0	0	0	0	0	61° 0'	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0	0	
0	0	0	0	0	0	0	0	0	60° 45'	0.1	0.1	0.1	0.2	0.2	0.1	0	0	0	
0	0	0	0	0	0	0	0.1	0.1	60° 30'	0.1	0.1	0.1	0.1	0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0.1	60° 15'	0.1	0.1	0.1	0.1	0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0	60° 0'	0.1	0.1	0.1	0.1	0	0	0	0	0	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N  
Correction to Latitude
Longitude 112 to 116 °E  
Correction to Longitude

Latitude										Longitude									
112°	112°	113°	113°	114°	114°	115°	115°	116°	Longitude	112°	112°	113°	113°	114°	114°	115°	115°	116°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	69° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	69° 30'	0	-0.1	-0.1	-0.1	-0.1	0	0.1	0.1	0.1	
0.1	0	0	0	0	0	0	0	0	69° 15'	0.1	0	-0.1	-0.1	-0.1	0	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0	0	0	0	0	69° 0'	0.1	0.1	0	-0.1	-0.1	0	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	68° 45'	0.2	0.1	0.1	0	0	0	0.1	0.2	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	68° 30'	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	
0	0.1	0.1	0.1	0	0	0	0	0	68° 15'	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	
0	0	0	0	0	0	0	0	0	68° 0'	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	
0	0	0	0	0	0	0	0	0	67° 45'	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	
0	0	0	0	0	0	0	0	0	67° 30'	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	
0	0	0	0	0	0	0	0	0	67° 15'	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0.1	67° 0'	0.2	0.2	0.1	0.1	0.1	0.1	0	0	0.1	
0	0	0	0	0	0	0	0.1	0.1	66° 45'	0.2	0.2	0.1	0.1	0.1	0	0	0	0.1	
0	0	0	0	0	0	0.1	0.1	0.1	66° 30'	0.1	0.1	0.1	0.1	0.1	0	0	0	0.1	
0	0	0	0	0	0.1	0.1	0.1	0.1	66° 15'	0.1	0.1	0.1	0.1	0.1	0	0	0	0	
0	0	0	0	0	0.1	0.1	0.1	0.1	66° 0'	0.1	0	0	0	0	0	-0.1	-0.1	0	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	65° 45'	0.1	0	0	0	-0.1	-0.1	-0.1	-0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 30'	0.1	0.1	0	0	-0.1	-0.2	-0.1	-0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 15'	0.1	0.1	0	0	-0.1	-0.2	-0.1	-0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	65° 0'	0.1	0.1	0.1	0	-0.1	-0.1	-0.1	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	64° 45'	0.1	0.1	0.1	0	-0.1	-0.1	-0.1	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 30'	0.1	0.1	0.1	0	-0.1	-0.1	-0.1	0	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 15'	0.1	0.1	0.1	0	0	-0.1	-0.1	0	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 0'	0.1	0.1	0.1	0.1	0	-0.1	-0.1	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 45'	0.1	0.1	0.1	0.1	0	-0.1	-0.1	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 30'	0.1	0.1	0.1	0.1	0	-0.1	-0.1	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 15'	0.1	0.1	0.1	0.1	0	0	-0.1	-0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	63° 0'	0.1	0.1	0.1	0.1	0.1	0	-0.1	-0.1	0	
0	0	0.1	0.1	0.1	0.1	0	0	0	62° 45'	0.1	0.1	0.1	0.1	0.1	0	-0.1	0	0.1	
0	0	0	0.1	0.1	0.1	0	0	-0.1	62° 30'	0.1	0.1	0.1	0.1	0.1	0	0	0.1	0.2	
0	0	0	0	0.1	0	0	0	0	62° 15'	0.1	0	0	0.1	0.1	0.1	0.1	0.2	0.3	
0	0	0	0	0	0	0	0	0	62° 0'	0	0	0	0	0.1	0.1	0.2	0.2	0.3	
0	0	0	0	0	0	0	0	0	61° 45'	0	0	0	0	0	0.1	0.2	0.2	0.3	
0.1	0	0	0.1	0.1	0.1	0.1	0.1	0.1	61° 30'	0	0	0	0	0	0.1	0.2	0.2	0.2	
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	61° 15'	0	0.1	0	0	0	0.1	0.2	0.2	0.2	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	61° 0'	0	0	0	-0.1	0	0.1	0.2	0.2	0.3	
0	0.1	0.1	0.1	0.1	0.1	0.1	0	0	60° 45'	0	0	-0.1	-0.1	0	0.1	0.2	0.2	0.3	
0.1	0.1	0.1	0.1	0	0	0	0	0	60° 30'	0	0	-0.1	-0.1	0	0.1	0.2	0.3	0.4	
0.1	0.1	0.1	0	0	0	-0.1	-0.1	-0.1	60° 15'	0	0	-0.1	0	0.1	0.2	0.2	0.3	0.4	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	60° 0'	0	0	0	0	0.1	0.2	0.3	0.3	0.4	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 116 to 120 °E									
Correction to Latitude										Correction to Longitude									
116°	116°	117°	117°	118°	118°	119°	119°	120°	Longitude	116°	116°	117°	117°	118°	118°	119°	119°	120°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0	70° 0'	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	
0	0	0	0	0	0	0	0.1	0	69° 45'	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	
0	0	0	0	0	0	0	0	0	69° 30'	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	
0	0	0	0	0	0	0	0	0	69° 15'	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	
0	0	0	0	0	0	0	0	0	69° 0'	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0	
0	0	0	0	0	0	0	0	0	68° 45'	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0	
0	0	0	0	0	0	0	0	0	68° 30'	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	
0	0	0	0	0	0	0	0	0	68° 15'	0.2	0.2	0.1	0.1	0.1	0.1	0	0	0	
0	0	0	0	0	0	0	0	0	68° 0'	0.2	0.2	0.1	0.1	0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0	67° 45'	0.2	0.1	0.1	0.1	0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0	67° 30'	0.1	0.1	0.1	0.1	0	0	0	0.1	0	
0	0	0	0	0	0	0	0	0	67° 15'	0.1	0.1	0.1	0.1	0	0	0	0.1	0.1	
0.1	0	0	0	0	0	0	0	0	67° 0'	0.1	0.1	0.1	0.1	0.1	0	0	0	0	
0.1	0.1	0.1	0.1	0	0	0.1	0.1	0	66° 45'	0.1	0.1	0.2	0.1	0.1	0	0	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	66° 30'	0.1	0.1	0.2	0.1	0.1	0	0	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	66° 15'	0	0.1	0.1	0.1	0.1	0	0	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	66° 0'	0	0	0.1	0.1	0.1	0	0	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	65° 45'	0	0	0.1	0.1	0.1	0	0	0	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	65° 30'	0	0.1	0.1	0.1	0.1	0	0	0	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	65° 15'	0	0.1	0.1	0.1	0.1	0.1	0	0	0	
0	0	0	0	0	0	0	0	0	65° 0'	0	0	0.1	0.1	0.1	0.1	0	0	0	
0	0	0	0	0	0	0	0	0	64° 45'	0	0.1	0.1	0.1	0.1	0.1	0	0	0	
0.1	0.1	0.1	0	0	0	0	0	0	64° 30'	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	64° 15'	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	64° 0'	0	0.1	0.1	0.1	0.1	0.1	0.1	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	63° 45'	0	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0	0	0	0	0	63° 30'	0	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	
0.1	0.1	0	0	0	0	0	0	0	63° 15'	0	0.1	0.2	0.2	0.3	0.3	0.2	0.1	0.1	
0	0	0	-0.1	-0.1	-0.1	0	0	0	63° 0'	0	0.1	0.3	0.3	0.3	0.2	0.1	0	0	
0	-0.1	-0.1	-0.1	-0.1	0	0.1	0.1	0	62° 45'	0.1	0.2	0.4	0.4	0.3	0.1	-0.1	-0.1	0	
-0.1	-0.1	-0.1	-0.1	0	0.1	0.1	0.2	0	62° 30'	0.2	0.3	0.4	0.3	0.1	-0.2	-0.3	-0.1	0.1	
0	-0.1	0	0	0.1	0.1	0.1	0.1	0	62° 15'	0.3	0.3	0.3	0.2	-0.1	-0.3	-0.3	-0.1	0.2	
0	0	0	0.1	0.1	0.1	0.1	0	0	62° 0'	0.3	0.3	0.2	0	-0.2	-0.4	-0.3	0	0.4	
0	0.1	0.1	0.1	0	0	-0.1	-0.1	0	61° 45'	0.3	0.3	0.2	0	-0.2	-0.3	-0.1	0.1	0.4	
0.1	0.1	0.1	0	0	-0.1	-0.1	-0.2	0	61° 30'	0.2	0.2	0.2	0.1	-0.1	-0.1	0	0.2	0.4	
0.1	0.1	0	0	0	-0.1	-0.1	-0.1	0	61° 15'	0.2	0.3	0.3	0.2	0.1	0	0.1	0.2	0.3	
0.1	0	0	0	0	-0.1	-0.1	-0.1	0	61° 0'	0.3	0.4	0.4	0.3	0.1	0	0.1	0.2	0.3	
0	0	0	0	0	0	0	0	0	60° 45'	0.3	0.4	0.4	0.3	0.1	0.1	0.1	0.2	0.3	
0	0	0	0	0	0	0	0	0	60° 30'	0.4	0.5	0.4	0.3	0.1	0.1	0.1	0.2	0.3	
-0.1	-0.1	0	0	0	0	0	0	0	60° 15'	0.4	0.4	0.4	0.2	0.1	0.1	0.2	0.2	0.2	
-0.1	-0.1	-0.1	0	0	0	0	0	0	60° 0'	0.4	0.3	0.3	0.1	0.1	0.1	0.2	0.2	0.2	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N

Correction to Latitude

Longitude 120 to 124 °E

Correction to Longitude

Longitude										Latitude									
120°	120°	121°	121°	122°	122°	123°	123°	124°	0'	120°	120°	121°	121°	122°	122°	123°	123°	124°	0'
0'	30'	0'	30'	0'	30'	0'	30'	0'	0'	0'	30'	0'	30'	0'	30'	0'	30'	0'	0'
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	70° 0'	0.2	0.1	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 45'	0.2	0.1	0	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 30'	0.1	0.1	0	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 15'	0.1	0	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	69° 0'	0	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2
0	0	0	0	0	0	0.1	0.1	0.1	68° 45'	0	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2
0	0	0	0	0	0	0	0	0	68° 30'	0	-0.1	-0.2	-0.3	-0.3	-0.4	-0.4	-0.4	-0.4	-0.3
0	0	0	0	0	0	0	0	0	68° 15'	0	-0.1	-0.1	-0.2	-0.3	-0.4	-0.4	-0.4	-0.4	-0.3
0	0	0	0	0	0	0	0	0	68° 0'	0	0	-0.1	-0.2	-0.3	-0.4	-0.4	-0.4	-0.4	-0.3
0	0	0	0	0	0	0	0	0	67° 45'	0	0	-0.1	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3
0	0	0	0	0	0	0	0	0	67° 30'	0	0	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2
0	0	0	0	0	0	0	0	0	67° 15'	0.1	0	-0.1	-0.1	-0.2	-0.2	-0.3	-0.2	-0.2	-0.2
0	0.1	0.1	0.1	0	0	0	0	0	67° 0'	0	0	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1
0.1	0.1	0.1	0.1	0.1	0	0	0	0	66° 45'	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0
0.1	0.1	0.1	0.1	0.1	0	0	0	0	66° 30'	0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	0
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 15'	0	0	0	0	0	0	-0.1	-0.1	-0.1	0
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 0'	0	0	0	0	0	0	0	-0.1	-0.1	0
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 45'	0.1	0.1	0	0	0	0	0	0	0	0
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 30'	0.1	0.1	0	0	0	0	0	0	0	0
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 15'	0	0	0	0	0	0	0	0	0	0
0	0.1	0.1	0.1	0.1	0	0	0	0	65° 0'	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	64° 45'	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	-0.1	64° 30'	0	0	0	0	0	0.1	0.1	0.1	0.1	0.1
0	0	0	0	0	0	0	-0.1	-0.1	64° 15'	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
0	0	0	0	0	0	-0.1	-0.1	-0.1	64° 0'	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	63° 45'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	63° 30'	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	63° 15'	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
0.1	0.1	0	0	0	-0.1	-0.1	-0.1	-0.1	63° 0'	0	0.1	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1
0.1	0.1	0	0	0	-0.1	-0.1	-0.1	-0.1	62° 45'	0	0.2	0.3	0.4	0.3	0.2	0.2	0.1	0.1	0.1
0.1	0.1	0	0	0	-0.1	-0.1	-0.1	-0.1	62° 30'	0.1	0.3	0.5	0.4	0.4	0.3	0.2	0.1	0.1	0.1
0.1	0	0	0	-0.1	0	0	0	0	62° 15'	0.2	0.5	0.6	0.5	0.4	0.3	0.2	0.1	0.1	0.1
0	-0.1	-0.1	-0.1	-0.1	0	0	0	0	62° 0'	0.4	0.6	0.6	0.5	0.4	0.2	0.2	0.1	0.1	0.1
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	-0.1	61° 45'	0.4	0.6	0.6	0.4	0.3	0.2	0.1	0.1	0.1	0.1
-0.2	-0.1	-0.1	-0.1	-0.1	0	0	0	-0.1	61° 30'	0.4	0.5	0.5	0.4	0.3	0.2	0.1	0.1	0.1	0.2
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	61° 15'	0.3	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2
-0.1	-0.1	0	0	0	0	0	0	0	61° 0'	0.3	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2
0	0	0	0	0	0	0	0	-0.1	60° 45'	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2
0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	60° 30'	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2
0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	60° 15'	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2
0	0	0	0	0	0	-0.1	-0.1	-0.1	60° 0'	0.2	0.2	0.3	0.4	0.3	0.3	0.2	0.2	0.2	0.2

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 124 to 128 °E									
Correction to Latitude										Correction to Longitude									
124° 0'	124° 30'	125° 0'	125° 30'	126° 0'	126° 30'	127° 0'	127° 30'	128° 0'	Longitude	124° 0'	124° 30'	125° 0'	125° 30'	126° 0'	126° 30'	127° 0'	127° 30'	128° 0'	Latitude
0.1	0.1	0.1	0.1	0.1	0	0	0	0	70° 0'	-0.1	-0.1	-0.1	0	0	0.1	0.2	0.2	0.3	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	-0.1	69° 45'	-0.1	-0.1	0	0	0.1	0.2	0.3	0.4	0.4	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	-0.1	69° 30'	-0.2	-0.1	0	0.1	0.3	0.4	0.5	0.5	0.5	
0.1	0.2	0.2	0.2	0.1	0.1	0.1	0	0	69° 15'	-0.2	-0.1	0	0.2	0.4	0.6	0.7	0.7	0.6	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	69° 0'	-0.2	-0.1	0	0.2	0.4	0.6	0.8	0.8	0.7	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	68° 45'	-0.2	-0.1	0	0.2	0.5	0.7	0.8	0.9	0.8	
0	0	0	0	0	0	0	0	0	68° 30'	-0.3	-0.1	0.1	0.3	0.5	0.7	0.9	0.9	0.8	
0	0	0	0	0	0	-0.1	-0.1	0	68° 15'	-0.3	-0.1	0.1	0.4	0.6	0.8	0.9	0.9	0.7	
0	0	0	0	0	0	0	0	0	68° 0'	-0.3	-0.1	0.2	0.4	0.6	0.8	0.9	0.8	0.6	
0	0	0	0	0	0	0	0	0	67° 45'	-0.3	-0.1	0.1	0.4	0.6	0.8	0.8	0.8	0.6	
0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	67° 30'	-0.2	-0.1	0.1	0.4	0.6	0.8	0.8	0.7	0.5	
0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	67° 15'	-0.2	0	0.2	0.4	0.6	0.7	0.7	0.6	0.4	
0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	67° 0'	-0.1	0.1	0.3	0.5	0.6	0.7	0.6	0.5	0.3	
0	0	0	0	0	0	0	0	0	66° 45'	0	0.2	0.4	0.5	0.6	0.6	0.6	0.4	0.3	
0	0	0	0	0	0	0	0	0	66° 30'	0	0.2	0.4	0.5	0.6	0.6	0.5	0.4	0.3	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	66° 15'	0	0.1	0.3	0.5	0.6	0.6	0.5	0.4	0.3	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	66° 0'	0	0.1	0.3	0.5	0.6	0.6	0.6	0.5	0.4	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	65° 45'	0	0.1	0.3	0.5	0.6	0.6	0.6	0.5	0.5	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	65° 30'	0	0.1	0.3	0.5	0.6	0.6	0.6	0.6	0.5	
0.1	0.1	0.1	0.1	0	0	0	0	0	65° 15'	0	0.1	0.3	0.5	0.6	0.6	0.6	0.6	0.5	
0	0	0	0	0	0	0	0	0	65° 0'	0	0.1	0.3	0.5	0.6	0.6	0.6	0.5	0.5	
0	0	0	0	0	0	0.1	0.1	0.1	64° 45'	0	0.1	0.3	0.5	0.6	0.6	0.6	0.5	0.4	
-0.1	-0.1	0	0	0	0.1	0.1	0.1	0.1	64° 30'	0.1	0.1	0.2	0.4	0.5	0.5	0.5	0.5	0.4	
-0.1	-0.1	-0.1	0	0	0.1	0.1	0.1	0.2	64° 15'	0.1	0.1	0.1	0.2	0.3	0.4	0.4	0.4	0.4	
-0.1	-0.1	-0.1	-0.1	0	0	0	0.1	0.1	64° 0'	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.3	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0.1	63° 45'	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	63° 30'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
-0.1	-0.1	-0.1	0	0	0	0	0	0	63° 15'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
-0.1	-0.1	0	0	0	0	0	0	-0.1	63° 0'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
-0.1	-0.1	-0.1	0	0	0	-0.1	-0.1	-0.1	62° 45'	0.1	0	0	0	0	0.1	0.1	0.2	0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	62° 30'	0.1	0	0	0	0.1	0.1	0.2	0.2	0.2	
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	62° 15'	0.1	0.1	0	0.1	0.1	0.1	0.2	0.2	0.2	
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	62° 0'	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	61° 45'	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	61° 30'	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	61° 15'	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	61° 0'	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	60° 45'	0.2	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	60° 30'	0.2	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	60° 15'	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	60° 0'	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	





# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 132 to 136 °E										
Correction to Latitude										Correction to Longitude										
132° 0'	132° 30'	133° 0'	133° 30'	134° 0'	134° 30'	135° 0'	135° 30'	136° 0'	Longitude	132° 0'	132° 30'	133° 0'	133° 30'	134° 0'	134° 30'	135° 0'	135° 30'	136° 0'		
										Latitude										
0	0	0	0	0	0	0	0	0	70° 0'	0.1	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2		
0	0	0	0	0	0	0	0	0	69° 45'	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2		
0	0	0	0	0	0	0	0	0	69° 30'	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2		
0	0	0	0	0	0	0	0	0	69° 15'	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2		
0	0	0	0	0	0	0	0	0	69° 0'	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2		
0	0	0	0	0	0	0	0	0	68° 45'	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1		
0	0	0	0	0	0	0	0	0	68° 30'	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2		
0	0	0	0	0	0	0	0	0	68° 15'	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2		
0	0	0	0	0	0	0	0	0	68° 0'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
0	0	0	0	0	0	0	0	0	67° 45'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
0	0	0	0	0	0	0	0	0	67° 30'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	-0.1	-0.1	-0.1	67° 15'	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	-0.1	-0.1	-0.1	67° 0'	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	
0	0	0	0	0	0	-0.1	-0.1	-0.1	66° 45'	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	
0	0	0	0	0	0	0	0	0	66° 30'	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.1	
0	0	0	0	0	0	0	0	0	66° 15'	0.1	0.2	0.2	0.3	0.3	0.2	0.2	0.1	0.1		
0	0	0	0	0	0	0	0	0	66° 0'	0.1	0.2	0.2	0.3	0.3	0.2	0.2	0.1	0.1		
0	0	0	0	0	0	0	0	0	65° 45'	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1		
0	0	0	0	0	0	0	0	0	65° 30'	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	65° 15'	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	65° 0'	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	
0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	64° 45'	0.2	0.2	0.3	0.3	0.2	0.1	0	0.1	0.1		
0.1	0	0	0	0	0	0	-0.1	-0.1	64° 30'	0.3	0.3	0.3	0.3	0.2	0.1	0	0.1	0.1		
0.2	0.2	0.1	0.1	0.1	0.1	0	0	0	64° 15'	0.4	0.4	0.4	0.3	0.2	0.1	0.1	0.1	0.1		
0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0	64° 0'	0.5	0.5	0.5	0.4	0.3	0.3	0.2	0.2	0.2		
0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	63° 45'	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3		
0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	63° 30'	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.4		
-0.1	-0.1	-0.1	0	0	0.1	0.1	0.2	0.2	63° 15'	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4		
-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	0	0	0	63° 0'	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.4		
-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	62° 45'	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.3		
-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	62° 30'	0.2	0.2	0.1	0.1	0.1	0	0.1	0.1	0.2		
-0.2	-0.2	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	62° 15'	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2		
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	62° 0'	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2		
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	61° 45'	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3		
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	61° 30'	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.3		
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	61° 15'	0.2	0.2	0.1	0.1	0.1	0	0.1	0.2	0.3		
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	61° 0'	0.2	0.2	0.1	0.1	0	0	0.1	0.2	0.3		
-0.1	-0.1	-0.1	0	0	0	0	0	0	60° 45'	0.2	0.2	0.1	0	0	0	0.1	0.1	0.2		
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	60° 30'	0.2	0.2	0.1	0	0	0	0.1	0.1	0.2		
-0.1	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	60° 15'	0.2	0.1	0.1	0	0	0	0	0.1	0.2		
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	60° 0'	0.1	0.1	0.1	0.1	0.1	0	0	0.1	0.2		

# Correct Astronomical Position to WGS84

**Latitude 60 to 70 °N**
**Longitude 136 to 140 °E**

**Correction to Latitude**
**Correction to Longitude**

Latitude										Longitude									
136°	136°	137°	137°	138°	138°	139°	139°	140°		136°	136°	137°	137°	138°	138°	139°	139°	140°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	0'
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	70° 0'	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0
0	0	0	0	0	-0.1	-0.1	0	0	69° 45'	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0
0	0	0	0	0	0	0	0	0	69° 30'	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0	0	0
0	0	0	0	0	0	0	0	0	69° 15'	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0	0	0
0	0	0	0	0	0	0	0	-0.1	69° 0'	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0	0	0
0	0	0	0	0	0	-0.1	-0.1	-0.1	68° 45'	0.1	0.2	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.1
0	0	0	0	-0.1	-0.1	0	0	0	68° 30'	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1
0	0	0	0	0	0	0	0	0	68° 15'	0.2	0.3	0.4	0.3	0.3	0.1	0.1	0.1	0.1	0.1
0	0	0	0	0	0	0	0	0	68° 0'	0.2	0.3	0.4	0.4	0.3	0.1	0	0	0	0
0	0	0	0	0	0	0	0	0	67° 45'	0.2	0.3	0.5	0.5	0.3	0.1	0	-0.1	-0.1	-0.1
0	0	0	0	0	0	0	-0.1	-0.1	67° 30'	0.1	0.3	0.4	0.5	0.5	0.3	0.1	-0.1	-0.1	-0.1
-0.1	0	0	0	0	0	0	-0.1	-0.1	67° 15'	0.1	0.1	0.3	0.4	0.5	0.4	0.2	0	0	-0.1
-0.1	-0.1	0	0	0	0	0	0	-0.1	67° 0'	0.1	0	0.1	0.3	0.5	0.5	0.3	0.1	0.1	-0.1
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	66° 45'	0.1	0	0.1	0.2	0.4	0.5	0.4	0.2	0	0
0	-0.1	-0.1	-0.1	-0.1	0	0	0	0	66° 30'	0.1	0.1	0.1	0.2	0.3	0.4	0.3	0.3	0.2	0.2
0	0	-0.1	-0.1	-0.1	-0.1	0	0	0	66° 15'	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.2	0.2
0	0	0	0	-0.1	-0.1	0	0	0	66° 0'	0.1	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2
0	0	0	0	0	0	0	0	0	65° 45'	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2
0	-0.1	-0.1	0	0	0	0	0	0	65° 30'	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	65° 15'	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	65° 0'	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	0	64° 45'	0.1	0.2	0.2	0.2	0.1	0	0	0.1	0.1	0.1
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	64° 30'	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0	0	0
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	64° 15'	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0	0	0
0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	64° 0'	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0	0
0.2	0.1	0.1	0	0	0	0	0	-0.1	63° 45'	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0	0
0.2	0.2	0.1	0.1	0	0	0	0	-0.1	63° 30'	0.4	0.4	0.4	0.4	0.3	0.2	0.2	0.1	0	0
0.2	0.2	0.1	0.1	0	0	0	0	-0.1	63° 15'	0.4	0.5	0.6	0.5	0.4	0.3	0.2	0.1	0	0
0	0	0.1	0	0	0	0	0	-0.1	63° 0'	0.4	0.5	0.6	0.5	0.4	0.3	0.3	0.2	0.1	0
-0.1	-0.1	0	0	0	0	0	0	0	62° 45'	0.3	0.5	0.6	0.5	0.4	0.4	0.3	0.3	0.2	0.1
-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	62° 30'	0.2	0.4	0.5	0.5	0.4	0.3	0.3	0.3	0.2	0.1
-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	0	0	62° 15'	0.2	0.3	0.4	0.4	0.4	0.2	0.2	0.2	0.2	0.1
-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	62° 0'	0.2	0.3	0.4	0.4	0.3	0.2	0.1	0.2	0.2	0.1
-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	61° 45'	0.3	0.4	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	61° 30'	0.3	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1
0	0	0	0	0	0	-0.1	0	0	61° 15'	0.3	0.4	0.3	0.2	0.1	0.1	0.2	0.1	0	0
0	0	0	0	0	0	0	0	0	61° 0'	0.3	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0	0
0	0	0	0	0	0	0	0	0	60° 45'	0.2	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0	0
0	0	0	0	0	0	0	0	0	60° 30'	0.2	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1
-0.1	-0.1	-0.1	0	0	0	0	0	0	60° 15'	0.2	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	60° 0'	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1

# Correct Astronomical Position to WGS84

**Latitude 60 to 70 °N**

**Correction to Latitude**

**Longitude 140 to 144 °E**

**Correction to Longitude**

Correction to Latitude										Correction to Longitude									
140° 0'	140° 30'	141° 0'	141° 30'	142° 0'	142° 30'	143° 0'	143° 30'	144° 0'	Longitude Latitude	140° 0'	140° 30'	141° 0'	141° 30'	142° 0'	142° 30'	143° 0'	143° 30'	144° 0'	
-0.1	-0.1	-0.1	0	0	0	0	0	0	70° 0'	0	0	-0.1	0	0	0	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	69° 45'	0	-0.1	-0.1	-0.1	0	0	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	69° 30'	0	-0.1	0	0	0	0	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	69° 15'	0	0	0	0	0.1	0.1	0.1	0.1	0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	-0.1	69° 0'	0	0	0	0	0	0.1	0.1	0.1	0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	68° 45'	0.1	0	0	-0.1	-0.1	0	0.1	0.1	0.1	
0	-0.1	-0.1	0	0	0	0	0	0	68° 30'	0.1	0.1	-0.1	-0.2	-0.2	-0.1	0.1	0.2	0.2	
0	0	0	0	0	0	0	0	0	68° 15'	0.1	0.1	-0.1	-0.2	-0.2	-0.1	0	0.2	0.2	
0	0	0	0	0	0	0	0	0	68° 0'	0	0.1	0	-0.1	-0.2	-0.2	0	0.1	0.2	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	67° 45'	-0.1	0	0.1	0	-0.1	-0.1	-0.1	0	0.1	
-0.1	-0.1	0	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	67° 30'	-0.1	0	0.1	0.1	0.1	0	0	-0.1	-0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	67° 15'	-0.1	-0.1	0	0.2	0.2	0.2	0.1	0	-0.1	
-0.1	-0.1	-0.1	-0.1	0	0	-0.1	-0.1	-0.2	67° 0'	-0.1	-0.1	0	0.1	0.2	0.3	0.4	0.3	0	
0	-0.1	-0.1	-0.1	0	0	0	0	-0.1	66° 45'	0	-0.1	-0.1	0	0.1	0.3	0.5	0.5	0.3	
0	-0.1	-0.1	-0.1	-0.1	0	0	0	0	66° 30'	0.2	0.1	0	-0.1	0	0.2	0.4	0.5	0.4	
0	0	-0.1	-0.1	-0.1	0	0	0	0.1	66° 15'	0.2	0.1	0	-0.1	-0.1	0	0.2	0.3	0.4	
0	0	0	0	0	-0.1	0	0	0	66° 0'	0.2	0.1	0	-0.1	-0.1	0	0.1	0.2	0.2	
0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	65° 45'	0.2	0.1	0	0	0	0	0	0.1	0.1	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	65° 30'	0.2	0.1	0.1	0	0	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	-0.1	65° 15'	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	
0	0	0	0	0	0	0	0	0	65° 0'	0.2	0.2	0.2	0.1	0.1	0	0.1	0.2	0.2	
0	0	0	0	0	0	0	0	0	64° 45'	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	
-0.1	-0.1	0	0	0	0	-0.1	-0.1	-0.1	64° 30'	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
-0.1	-0.1	-0.1	0	0	-0.1	-0.1	-0.1	-0.1	64° 15'	0	0	0	0.1	0.1	0.2	0.2	0.1	0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	-0.1	64° 0'	0	0	0	0	0.1	0.2	0.2	0.2	0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	63° 45'	0	0	0	0	0.1	0.2	0.2	0.2	0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	63° 30'	0	0	0	0.1	0.1	0.1	0.1	0.2	0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	63° 15'	0	0	0	0	0.1	0	0.1	0.2	0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	63° 0'	0.1	0	0	0	0	0	0.1	0.1	0.2	
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	62° 45'	0.2	0.1	0	0	0	0	0	0.1	0.1	
0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	62° 30'	0.2	0.2	0.1	0	0	0	0	0	0.1	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	62° 15'	0.2	0.2	0.1	0.1	0.1	0.1	0	0	0	
-0.1	0	0	0	0	-0.1	-0.1	-0.1	-0.1	62° 0'	0.2	0.2	0.1	0.1	0.1	0.1	0	0	0	
-0.1	0	0	0	0	0	0	0	0	61° 45'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	
-0.1	0	0	0	0	0	0	0	0	61° 30'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	61° 15'	0	0	0.1	0.1	0.1	0	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	61° 0'	0	0.1	0.1	0.1	0	0	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	60° 45'	0	0.1	0.1	0.1	0	0	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	60° 30'	0.1	0.1	0.1	0	0	0	0.1	0.1	0	
0	0	0	0	0	0	0	0	0	60° 15'	0.1	0.1	0	0	0	0	0.1	0.2	0.1	
0	0	0	0	0	0	0	0	0	60° 0'	0.1	0	0	0	0	0	0.1	0.2	0.1	



# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 148 to 152 °E									
Correction to Latitude										Correction to Longitude									
148°	148°	149°	149°	150°	150°	151°	151°	152°	Longitude	148°	148°	149°	149°	150°	150°	151°	151°	152°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	0.1	0	0	0	0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0	69° 45'	0.1	0.1	0.1	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	69° 30'	0.1	0.1	0.1	0.1	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	69° 15'	0.1	0.1	0.1	0.1	0	0	0	0	0	
-0.1	0	0	0	0	0	0	0	0	69° 0'	0.1	0.1	0.1	0.1	0	0	0	0	-0.1	-0.1
0	0	0	0	0	0	0	0	0	68° 45'	0.1	0.1	0.1	0.1	0	0	0	0	-0.1	-0.1
0	0	0	0	0	0	0	0	0	68° 30'	0.1	0.1	0.1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	-0.1	68° 15'	0.1	0.1	0.1	0.1	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	68° 0'	0.1	0.1	0.1	0.1	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	67° 45'	0.1	0.2	0.1	0.1	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	67° 30'	0.2	0.2	0.2	0.1	0.1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	67° 15'	0.2	0.2	0.2	0.1	0.1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	67° 0'	0.3	0.2	0.2	0.1	0.1	0.1	0	0	0	0
0	0	0	0	0	0	0	0	0	66° 45'	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
-0.1	-0.1	0	0	0	0	0	0	0	66° 30'	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
-0.2	-0.1	-0.1	0	0	0	0	0	0	66° 15'	-0.2	-0.2	-0.1	0	0.1	0.2	0.2	0.2	0.2	0.1
-0.2	-0.2	-0.1	-0.1	0	0	0	0	0	66° 0'	-0.3	-0.3	-0.3	-0.2	0	0.2	0.3	0.2	0.2	0.1
-0.2	-0.2	-0.2	-0.1	-0.1	0	0	0	0	65° 45'	-0.2	-0.4	-0.5	-0.4	-0.1	0.2	0.3	0.3	0.3	0.1
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	65° 30'	0	-0.3	-0.5	-0.5	-0.2	0.1	0.3	0.3	0.3	0.1
0	0	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	65° 15'	0.1	-0.2	-0.5	-0.5	-0.3	0	0.2	0.2	0.2	0.1
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	0	65° 0'	0.1	-0.1	-0.3	-0.4	-0.3	-0.1	0.1	0.2	0.2	0.1
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	0	64° 45'	0.1	0	-0.1	-0.2	-0.2	-0.1	0	0.1	0.1	0.1
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	64° 30'	0	0	0	-0.1	-0.1	-0.1	-0.1	0	0	0
-0.1	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	64° 15'	0	0	0	0	0	-0.1	-0.1	-0.1	0	0
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	64° 0'	0	0	0	0	0	-0.1	-0.1	-0.1	0	0
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	63° 45'	0	0	0	0	0	0	-0.1	-0.1	-0.1	0
0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	63° 30'	0	0	0	0	0	0	0	-0.1	-0.1	-0.1
0	0	0	0	0	0	0	0	0	63° 15'	0.1	0	0	0	0	0	0	0	0	-0.1
0	0	0	0	0	0	0	0	0	63° 0'	0.1	0	0	0	0	0	0	0	0	-0.1
0	0	-0.1	-0.1	-0.1	0	0	0	-0.1	62° 45'	0.1	0.1	0	0	0	0	0	0	0	0
0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	62° 30'	0.1	0.1	0	0	0	0	0	0	0	0
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	62° 15'	0.1	0.1	0.1	0	0	0	0	0	0	0
-0.1	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	62° 0'	0.1	0.1	0.1	0.1	0	0	0	0	0	0
-0.1	-0.1	0	0	0	-0.1	0	0	0	61° 45'	0	0	0.1	0.1	0.1	0	0	0	0	0
-0.1	-0.1	0	0	0	0	0	0	0	61° 30'	0	0	0.1	0.1	0.1	0	0	0	0	0
0	0	0	0	0	0	0	-0.1	-0.1	61° 15'	0	0	0	0.1	0.1	0	0	0	0	0
0	0	-0.1	-0.1	0	0	0	-0.1	-0.1	61° 0'	0.1	0	0.1	0.1	0.1	0	0	0.1	0.1	0.1
0	0	0	0	0	0	0	0	0	60° 45'	0.1	0.1	0.1	0.1	0	0	0	0.1	0.1	0.1
0	0	0	0	0	0	0	0	0	60° 30'	0.1	0.1	0.1	0.1	0	0	0	0.1	0.1	0.1
0	0	0	0	0	0	0	0	0	60° 15'	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	60° 0'	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 152 to 156 °E										
Correction to Latitude										Correction to Longitude										
152° 0'	152° 30'	153° 0'	153° 30'	154° 0'	154° 30'	155° 0'	155° 30'	156° 0'	Longitude	152° 0'	152° 30'	153° 0'	153° 30'	154° 0'	154° 30'	155° 0'	155° 30'	156° 0'		
										Latitude										
0	0	0	0	0	0	0	0	0	70° 0'	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	69° 45'	0	0	0	0	0	0	0	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	69° 30'	0	0	0	0	0	0	0	0	0	0.1	
0	0	0	0	0	0	-0.1	-0.1	0	69° 15'	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	-0.1	-0.1	69° 0'	-0.1	0	0	0.1	0.1	0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0	68° 45'	-0.1	0	0	0.1	0.1	0.1	0.1	0	0	0	
0	-0.1	-0.1	-0.1	0	0	0	0	0	68° 30'	0	0	0	0.1	0.1	0.1	0.1	0	0	0	
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	68° 15'	0	0	0	0	0.1	0.1	0.1	0	0	0	
0	-0.1	-0.1	-0.1	0	0	0	0	0	68° 0'	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	67° 45'	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	67° 30'	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	67° 15'	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	67° 0'	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	66° 45'	0.1	0	0	0	0	0	0	0	0	0	
0	0	0	0	-0.1	-0.1	0	0	0	66° 30'	0.1	0.1	0	0	0	0	0	0	0	0	
0	0	0	0	0	-0.1	-0.1	0	0	66° 15'	0.1	0.1	0.1	0	0	0	-0.1	0	0	0	
0	0	0	0	0	0	0	0	-0.1	66° 0'	0.1	0.1	0	0.1	0	0	-0.1	0	0	0	
0	0	0	0	0	0	0	-0.1	-0.1	65° 45'	0.1	0	0	0.1	0	0	-0.1	0	0.1	0.1	
0	0	0	0	0	0	0	-0.1	-0.1	65° 30'	0.1	0	0	0	0	0	0	0	0	0.1	
0	0	0	0	0	0	0	-0.1	-0.1	65° 15'	0.1	0	0	0	0	0	0	0	0.1	0.1	
0	0	0	0	0	0	0	-0.1	-0.1	65° 0'	0.1	0.1	0	0	0	0	0.1	0.1	0.1	0.1	
0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	64° 45'	0.1	0.1	0	0	0	0	0.1	0.1	0.1	0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	64° 30'	0	0.1	0.1	0	0	0	0.1	0.1	0.1	0.1	
-0.1	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	64° 15'	0	0.1	0.1	0	0	0.1	0.1	0.1	0.1	0.1	
-0.1	-0.1	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	64° 0'	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	63° 45'	-0.1	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	63° 30'	-0.1	-0.1	0	0.1	0.1	0.1	0.1	0.1	0	0	
0	0	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	63° 15'	-0.1	-0.1	0	0.1	0.1	0.1	0.1	0	0	0	
0	0	0	-0.1	-0.1	-0.1	-0.1	0	0	63° 0'	-0.1	0	0	0.1	0.1	0.1	0	0	0	0	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	62° 45'	0	0	0	0.1	0.1	0.1	0	0	0	0	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	62° 30'	0	0	0	0.1	0.1	0.1	0	0	0	0	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	62° 15'	0	-0.1	0	0	0.1	0.1	0.1	0	0	0	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	62° 0'	0	-0.1	-0.1	0	0.1	0.1	0.1	0	-0.1	-0.1	
0	0	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	61° 45'	0	0	0	0	0.1	0.1	0	-0.1	-0.1	-0.1	
0	0	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	61° 30'	0	0	0	0	0.1	0.1	0	-0.1	-0.2	-0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	61° 15'	0	0	0	0.1	0.1	0	-0.1	-0.2	-0.2	-0.2	
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	61° 0'	0.1	0	0	0	0	0	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	60° 45'	0.1	0	0	0	0	-0.1	-0.2	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	60° 30'	0.1	0	0	0	0	-0.1	-0.2	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	60° 15'	0	0	0	0	0	-0.1	-0.1	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	60° 0'	0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N

Longitude 156 to 160 °E

Correction to Latitude

Correction to Longitude

Correction to Latitude										Correction to Longitude									
156° 0'	156° 30'	157° 0'	157° 30'	158° 0'	158° 30'	159° 0'	159° 30'	160° 0'	Longitude Latitude	156° 0'	156° 30'	157° 0'	157° 30'	158° 0'	158° 30'	159° 0'	159° 30'	160° 0'	
0	0	0	0	0	0	0	0	0	70° 0'	0	0.1	0.1	0.1	0.1	0.1	0	0	0	
0	0	0	0	0	0	0	0	0	69° 45'	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	
0	0	0	0	0	0	0	0	0	69° 30'	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	
0	0	0	0	0	0	0	0	0	69° 15'	0	0	0.1	0.1	0.1	0.1	0	0	0	
-0.1	0	0	0	0	0	0	0	0	69° 0'	0	0	0	0	0.1	0.1	0.1	0	0	
0	0	0	0	0	0	0	0	0	68° 45'	0	0	0	0	0	0.1	0	0	0	
0	0	0	0	0	0	0	0	0	68° 30'	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	68° 15'	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	68° 0'	0	0	0	0.1	0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0	67° 45'	0	0	0	0.1	0.1	0	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	67° 30'	0	0	0.1	0.1	0.1	0	0	0	0.1	
0	0	0	0	0	0	0	0	0	67° 15'	0	0.1	0.1	0.1	0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0	67° 0'	0	0.1	0.1	0.1	0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0	66° 45'	0	0.1	0.1	0.1	0.1	0.1	0	0	0	
0	0	0	0	0	0	0	0	0	66° 30'	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	66° 15'	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	66° 0'	0	0.1	0.1	0.1	0	0.1	0.1	0.1	0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	65° 45'	0.1	0.1	0.1	0.1	0	0	0.1	0.1	0.1	
-0.1	-0.1	-0.1	0	0	0	0	0	0	65° 30'	0.1	0.1	0.1	0	0	0	0.1	0.1	0.1	
-0.1	-0.1	0	0	0	0	0	0	0	65° 15'	0.1	0.1	0	0	0	0	0	0	0	
-0.1	0	0	0	-0.1	-0.1	-0.1	-0.1	0	65° 0'	0.1	0	0	0	0.1	0.1	0	0	0	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	64° 45'	0.1	0	0	0.1	0.1	0.1	0	0	0	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	64° 30'	0.1	0	0.1	0.1	0.1	0.1	0	0	0	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	64° 15'	0.1	0.1	0.1	0.1	0.1	0	0	0	0	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	64° 0'	0.1	0.1	0.1	0.1	0	0	0	0	0	
-0.1	-0.1	-0.1	0	-0.1	-0.1	-0.1	0	0	63° 45'	0	0.1	0.1	0.1	0	0	0	0	0	
-0.1	0	0	0	0	0	0	0	0	63° 30'	0	0	0.1	0.1	0	0	0	0	0	
0	-0.1	-0.1	-0.1	0	0	0	0	0	63° 15'	0	0	0.1	0.1	0	0	0	0	0	
0	-0.1	-0.1	0	0	0	0	0	0	63° 0'	0	0.1	0.1	0	0	-0.1	-0.1	-0.1	-0.1	
-0.1	0	0	0	0	0	0	0	0	62° 45'	0	0.1	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	
-0.1	0	0	0	0	0	0	0	0	62° 30'	0	0	0	0	-0.1	-0.1	-0.1	-0.1	0	
-0.1	0	0	0	0	0	0	0	0	62° 15'	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	
0	0	0	0	0	0	0	0	0	62° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0.1	
0	0	0	0	0	0	0	0	0	61° 45'	-0.1	-0.2	-0.2	-0.1	-0.1	0	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	61° 30'	-0.2	-0.2	-0.2	-0.1	-0.1	0	0.1	0.1	0.2	
0	0	0	0	0	0	0	0	0	61° 15'	-0.2	-0.2	-0.2	-0.1	-0.1	0	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	61° 0'	-0.2	-0.1	-0.1	-0.1	0	0	0.1	0.1	0	
0	0	0	0	0	0	0	0	0	60° 45'	-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	60° 30'	-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	60° 15'	-0.1	-0.1	0	0	0	0	0	0	0.1	
0	0	0	0	0	0	0	0	0	60° 0'	-0.1	-0.1	0	0	-0.1	0	0	0.1	0.2	



# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 160 to 164 °E									
Correction to Latitude										Correction to Longitude									
160°	160°	161°	161°	162°	162°	163°	163°	164°	Longitude	160°	160°	161°	161°	162°	162°	163°	163°	164°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	0	0.1	0.1	0.1	0.1	0.1	0	0	0	
0	0	0	0	0	0	-0.1	-0.1	-0.1	69° 45'	0	0	0.1	0.1	0.1	0.1	0.1	0	0	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	69° 30'	0	0	0.1	0.1	0.2	0.2	0.1	0.1	0	
0	0	0	-0.1	-0.1	-0.1	0	0	0	69° 15'	0	0	0.1	0.1	0.2	0.2	0.1	0.1	0	
0	0	0	0	0	0	0	0	0	69° 0'	0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	68° 45'	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	68° 30'	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	68° 15'	0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	
0	-0.1	-0.1	0	0	0	0	0	0	68° 0'	0	0	0	0	0.1	0.1	0.1	0.1	0.1	
0	-0.1	-0.1	-0.1	0	0	0	0	0	67° 45'	0.1	0	0	0	0	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	67° 30'	0.1	0.1	0	0	0	0	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	67° 15'	0	0.1	0	0	0	0	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	67° 0'	0	0.1	0.1	0	0	0	0	0.1	0.1	
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	66° 45'	0	0.1	0.1	0	0	0	0	0.1	0.1	
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	66° 30'	0.1	0.1	0.1	0	0	0	0	0.1	0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	66° 15'	0.1	0.1	0.1	0	0	0	0	0.1	0.1	
-0.1	-0.1	0	0	-0.1	-0.1	-0.1	-0.1	0	66° 0'	0.1	0.1	0.1	0	0	0	0	0.1	0	
0	0	0	0	0	0	-0.1	-0.1	0	65° 45'	0.1	0.1	0.1	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	65° 30'	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	
0	0	0	0	0	0	0	0	0	65° 15'	0	0	0.1	0.1	0.1	0.1	0	0	0	
-0.1	0	0	0	0	0	0	0	0	65° 0'	0	0	0.1	0.1	0.2	0.1	0	0	0	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	64° 45'	0	0	0.1	0.1	0.1	0.1	0	-0.1	0	
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	64° 30'	0	0	0	0	0.1	0	0	-0.1	-0.1	
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	64° 15'	0	0	0	0	0	0	0	-0.1	-0.1	
-0.1	0	0	0	0	0	0	0	0	64° 0'	0	0	-0.1	-0.1	0	0	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	63° 45'	0	0	-0.1	-0.1	0	0	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	63° 30'	0	0	-0.1	0	0	0	0	-0.1	0	
0	0	0	0	0	0	0	0	0	63° 15'	0	0	-0.1	-0.1	-0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0	63° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	
0	0	0	0	0	0	0	0	0	62° 45'	-0.1	0	-0.1	-0.1	-0.1	-0.1	0	0	0	
0	0	0	0	-0.1	0	0	0	0	62° 30'	0	0	0	0	0	-0.1	-0.1	0	0	
0	0	-0.1	-0.1	-0.1	0	0	0	0	62° 15'	0	0	0	0	-0.1	-0.1	-0.1	-0.1	0	
0	-0.1	-0.1	-0.1	0	0	0	0	0	62° 0'	0.1	0.1	0	0	-0.1	-0.2	-0.2	-0.1	0	
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	61° 45'	0.1	0.1	0	-0.1	-0.2	-0.3	-0.2	-0.1	0	
0	0	0	0	0	0	0	0	0	61° 30'	0.2	0.1	0	-0.1	-0.3	-0.3	-0.2	-0.1	0	
0	0	0	0	0	0	0	0	0	61° 15'	0.1	0.1	0	-0.1	-0.2	-0.3	-0.2	-0.1	0	
0	0	0	0	0	0	-0.1	0	0	61° 0'	0	0	0	0	-0.1	-0.2	-0.2	-0.1	0	
0	0	0	0	0	0	0	-0.1	-0.1	60° 45'	0	0	0	0	-0.1	-0.2	-0.2	-0.1	0	
0	-0.1	-0.1	-0.1	0	0	0	-0.1	-0.1	60° 30'	0	0	0	0	-0.1	-0.2	-0.1	-0.1	0	
0	-0.1	-0.1	-0.1	0	0	0	0	-0.1	60° 15'	0.1	0.1	0	-0.1	-0.2	-0.2	-0.1	0	0	
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	60° 0'	0.2	0.1	0	-0.1	-0.2	-0.2	0	0	0	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 164 to 168 °E									
Correction to Latitude										Correction to Longitude									
164°	164°	165°	165°	166°	166°	167°	167°	168°	Longitude	164°	164°	165°	165°	166°	166°	167°	167°	168°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	0	0	0	-0.1	-0.1	-0.1	0	0.1	0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	69° 45'	0	0	0	-0.1	-0.1	-0.1	0	0.1	0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	69° 30'	0	0	0	-0.1	-0.1	-0.1	0	0	0	
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	69° 15'	0	0	0	0	-0.1	-0.1	0	0	0	
0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	69° 0'	0.1	0.1	0.1	0	0	-0.1	-0.1	-0.1	-0.1	
0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	68° 45'	0.1	0.1	0.1	0.1	0	0	-0.1	-0.1	-0.1	
0	0	0	0	0	0	-0.1	-0.1	-0.1	68° 30'	0.1	0.1	0.1	0.1	0	0	0	-0.1	-0.1	
0	0	0	0	0	0	0	0	-0.1	68° 15'	0.1	0.1	0.1	0.1	0	0	0	0	-0.1	
0	0	0	0	0	0	0	0	0	68° 0'	0.1	0.1	0.1	0	0.1	0.1	0.1	0	0	
0	0	0	0	0	0	0	0	0	67° 45'	0.1	0.1	0	0	0.1	0.1	0.1	0	0	
0	0	0	0	0	0	0	0	0	67° 30'	0.1	0.1	0.1	0.1	0.1	0.1	0	0	-0.1	
0	0	0	0	0	0	0	0	0	67° 15'	0.1	0.1	0	0.1	0.1	0.1	0	0	-0.1	
0	0	0	0	0	0	0	0	0	67° 0'	0.1	0.1	0	0	0.1	0.1	0	0	-0.1	
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	66° 45'	0.1	0.1	0	0	0	0.1	0	0	0	
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	66° 30'	0.1	0.1	0	0	0	0	0	0	-0.1	
-0.1	-0.1	0	0	0	0	0	0	0	66° 15'	0.1	0	0	0	0	0	0	0	-0.1	
0	0	0	0	0	0	0	0	0	66° 0'	0	0	0	0	0	0	0	0	-0.1	
0	0	0	0	0	0	0	0	0	65° 45'	0	0	0	0	0	0	0	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	65° 30'	0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	65° 15'	0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	65° 0'	0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	-0.1	64° 45'	0	0	0	0	0	0	0	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	64° 30'	-0.1	0	0	0	0	0	0	0	-0.1	
0	0	0	0	0	0	0	0	0	64° 15'	-0.1	0	0	0	0	0	0	0	-0.1	
0	0	0	0	0	0	0	0	0	64° 0'	-0.1	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	63° 45'	-0.1	0	0	0	-0.1	-0.2	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	63° 30'	0	0	0	0	-0.1	-0.2	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	63° 15'	0	0	0	0	-0.1	-0.2	-0.2	-0.1	0	
0	0	0	0	0	0	0	0	0	63° 0'	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	0	
0	0	0	0	0	0	0	0	0	62° 45'	0	0	0	-0.1	-0.1	-0.1	-0.1	0	0	
0	0	0	0	0	0	0	0	0	62° 30'	0	0	0	-0.1	-0.1	-0.1	-0.1	0	0	
0	0	0	0	0	0	0	0	0	62° 15'	0	0	0	0	-0.1	-0.1	-0.1	0	0	
0	0	0	0	0	0	0	0	0	62° 0'	0	0	0	-0.1	-0.1	-0.1	0	0	0.1	
0	0	0	0	0	0	-0.1	-0.1	-0.1	61° 45'	0	0	0	-0.1	-0.1	0	0	0.1	0.1	
0	0	0	0	0	-0.1	-0.1	-0.1	0	61° 30'	0	0	0	-0.1	0	0	0.1	0	0	
0	0	0	-0.1	-0.1	0	0	0	0	61° 15'	0	0.1	0	0	0	0	0	0	-0.1	
0	0	-0.1	-0.1	0	0	0	0	0	61° 0'	0	0.1	0	0	-0.1	0	0	0	-0.1	
-0.1	-0.1	-0.1	0	0	0	0	0	0	60° 45'	0	0.1	0	-0.1	-0.1	0	0	0	-0.1	
-0.1	-0.1	0	0	0	0	0	0	0.1	60° 30'	0	0.1	0	-0.1	-0.2	-0.1	0	0	-0.1	
-0.1	0	0	0	0	0	0	0	0.1	60° 15'	0	0	-0.1	-0.2	-0.1	-0.1	0	-0.1	-0.2	
0	0	0	0	0	0	0.1	0.1	0.2	60° 0'	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.3	

## Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 168 to 172 °E									
Correction to Latitude										Correction to Longitude									
168°	168°	169°	169°	170°	170°	171°	171°	172°	Longitude	168°	168°	169°	169°	170°	170°	171°	171°	172°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	0.1	0.1	0	0	-0.1	-0.1	-0.1	0	0	
-0.1	0	0	0	0	0	0	0	-0.1	69° 45'	0.1	0.1	0	-0.1	-0.1	-0.1	0	0	0	
-0.1	-0.1	0	0	0	0	0	0	0	69° 30'	0	0	-0.1	-0.1	-0.1	0	0	0.1	0	
-0.1	-0.1	0	0	0	0	0	0	0	69° 15'	0	-0.1	-0.1	-0.1	-0.1	0	0	0	0	
-0.1	-0.1	0	0	0	0	0	0	0	69° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	68° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	68° 30'	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0
-0.1	-0.1	-0.1	0	0	0	0	0	0	68° 15'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	0	0	
0	0	0	0	0	0	0	0	0	68° 0'	0	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	0	0	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	0	67° 45'	0	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	0	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	67° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0
0	0	0	0	0	0	0	0	0	67° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
0	0	0	0	0	0	0	0	0	67° 0'	-0.1	-0.1	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
0	0	0	0	0	0	0	0	0	66° 45'	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
0	0	0	0	0	0	0	0	0	66° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	66° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	66° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	65° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2
0	0	0	0	0	0	0	0	0	65° 30'	-0.1	-0.1	0	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	65° 15'	-0.1	0	0	-0.1	-0.2	-0.2	-0.2	-0.1	0	
0	0	0	0	0	0	0	0	0	65° 0'	-0.1	-0.1	0	-0.1	-0.2	-0.2	-0.2	-0.1	0	
-0.1	0	0	0	0	0	0	0	0	64° 45'	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	0	0	
0	0	0	0	0	0	0	0	0	64° 30'	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	0	0	
0	0	0	0	0	0	0	0	0	64° 15'	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	0	0	
0	0	0	0	0	0	0	0	0	64° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	
0	0	0	0	0	0	0	0	0	63° 45'	-0.1	-0.1	0	0	0	-0.1	-0.1	-0.1	0	
0	0	0	0	0	0	0	0	0	63° 30'	-0.1	0	0	0	0	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	63° 15'	0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	63° 0'	0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	0	62° 45'	0	0	0	0	0	0	-0.1	-0.1	-0.1	
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	0	62° 30'	0	0	0	0	0	0	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	62° 15'	0	0.1	0.1	0.1	0	0	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	62° 0'	0.1	0.1	0.1	0	0	0	-0.1	-0.2	-0.3	
-0.1	0	0	0	0	0	0	0	0	61° 45'	0.1	0.1	0	0	0	0	-0.1	-0.2	-0.3	
0	0	0	0.1	0.1	0	0	0	0	61° 30'	0	0	-0.1	-0.1	0	0	0	-0.1	-0.3	
0	0	0	0	0	0	0.1	0.1	0.1	61° 15'	-0.1	-0.1	-0.1	-0.1	0	0.1	0	-0.1	-0.3	
0	0	0	0	0	0	0.1	0.2	0.2	61° 0'	-0.1	-0.1	-0.1	0	0	0	-0.1	-0.2	-0.4	
0	0	0	0	0	0	0.2	0.3	0.3	60° 45'	-0.1	-0.1	-0.1	0	0	-0.2	-0.3	-0.4	-0.4	
0.1	0.1	0.1	0	0	0.1	0.2	0.3	0.3	60° 30'	-0.1	-0.1	0	0.1	-0.1	-0.4	-0.6	-0.6	-0.4	
0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.3	60° 15'	-0.2	-0.1	0.1	0.1	-0.1	-0.6	-0.8	-0.7	-0.3	
0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	60° 0'	-0.3	-0.1	0.1	0.2	-0.1	-0.6	-0.9	-0.7	-0.2	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 172 to 176 °E									
Correction to Latitude										Correction to Longitude									
172° 0'	172° 30'	173° 0'	173° 30'	174° 0'	174° 30'	175° 0'	175° 30'	176° 0'	Longitude	172° 0'	172° 30'	173° 0'	173° 30'	174° 0'	174° 30'	175° 0'	175° 30'	176° 0'	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	70° 0'	0	0	0	0	0	0	0	0	0	-0.1
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	69° 45'	0	0	0	0	0	0	0	0	0	-0.1
0	0	0	-0.1	-0.1	-0.1	0	0	0	69° 30'	0	0	0	0	0	0	0	0	0	-0.1
0	0	0	0	0	0	0	0	0	69° 15'	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	-0.1	69° 0'	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	-0.1	68° 45'	0	0	0	0.1	0.1	0.1	0	0.1	0	0
0	0	0	0	0	0	0	0	0	68° 30'	0	0	0.1	0.1	0.1	0.1	0	0	0	0
0	0	0	0	0	0	0	0	0	68° 15'	0	0.1	0.1	0.1	0.1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	68° 0'	0	0.1	0.1	0.1	0.1	0	-0.1	0	0	0
0	0	0	0	0	0	0	0	0	67° 45'	0	0.1	0.1	0.1	0	0	-0.1	-0.1	0	0
-0.1	0	0	0	0	0	0	0	0	67° 30'	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	67° 15'	-0.1	-0.1	-0.1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	67° 0'	-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	66° 45'	-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	66° 30'	-0.2	-0.2	-0.2	0	0	0.1	0	0	-0.1	-0.1
0	0	0	0	0	0	0	0	0	66° 15'	-0.2	-0.2	-0.2	0	0.1	0.1	0	-0.1	-0.1	-0.1
0	0	0	0	0	0	0	0	0	66° 0'	-0.2	-0.2	-0.2	0	0	0	-0.1	-0.1	-0.1	-0.1
0	0	0	0	0	0	0	0	0	65° 45'	-0.2	-0.2	-0.1	0	0	0	-0.1	-0.1	-0.1	-0.1
0	0	0	0	0	0	0	0	0	65° 30'	-0.1	-0.1	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1
0	0	0	0	0	0	0	0	0	65° 15'	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1
0	0	0	0	0	0	0	0	0	65° 0'	0	0	-0.1	-0.1	-0.1	0	-0.1	-0.2	-0.2	-0.2
0	0	0	0	0	0	0	0	0	64° 45'	0	-0.1	-0.2	-0.1	0	0	0	-0.2	-0.2	-0.2
0	0	0	0	0	0	0	0	0	64° 30'	0	-0.1	-0.2	-0.1	0	0	0	-0.2	-0.2	-0.2
0	0	0	0	0	0	0	0	0	64° 15'	0	-0.1	-0.1	-0.1	-0.1	0	-0.1	-0.2	-0.2	-0.2
0	0	0	0	0	0	0	0	0	64° 0'	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2
0	0	0	0	0	0	0	-0.1	-0.1	63° 45'	0	0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2
0	0	0	0	0	0	0	-0.1	-0.1	63° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2
0	0	0	0	0	0	0	0	0	63° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	-0.1	-0.1	-0.1
0	0	0	0	0	0	0	0.1	0.1	63° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
0	0	0	0	0	0	0.1	0.1	0.1	62° 45'	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
0	0	0	0	0	0.1	0.1	0.1	0.1	62° 30'	-0.2	-0.1	-0.1	-0.1	-0.2	-0.3	-0.3	-0.3	-0.2	-0.1
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	62° 15'	-0.2	-0.2	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	62° 0'	-0.3	-0.3	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	61° 45'	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	61° 30'	-0.3	-0.4	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	61° 15'	-0.3	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2
0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	61° 0'	-0.4	-0.4	-0.3	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2
0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	60° 45'	-0.4	-0.3	-0.3	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	-0.1
0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0	60° 30'	-0.4	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	0
0.3	0.2	0.1	0.1	0.1	0.1	0	0	0	60° 15'	-0.3	-0.1	0	-0.1	-0.1	-0.2	-0.1	0	0	0.1
0.1	0.1	0	0	0	0	0	-0.1	-0.1	60° 0'	-0.2	0	0	-0.1	-0.1	-0.1	0	0	0	0.1

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N  
Correction to Latitude
Longitude 176 to 180 °E  
Correction to Longitude

Latitude										Longitude									
176°	176°	177°	177°	178°	178°	179°	179°	180°	Longitude	176°	176°	177°	177°	178°	178°	179°	179°	180°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	70° 0'	-0.1	-0.1	-0.1	-0.1	0	0	0	0	-0.1	
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	69° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	-0.1	-0.1	
0	-0.1	-0.1	-0.1	0	0	0	0	0	69° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	69° 15'	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	69° 0'	0	0	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	68° 45'	0	0	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	68° 30'	0	0	0	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	68° 15'	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	68° 0'	0	0	0	0	-0.1	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	67° 45'	0	0	0	0	-0.1	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	67° 30'	0	0	0.1	0	-0.1	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	67° 15'	0	0	0	0	-0.1	-0.1	-0.2	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	67° 0'	0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	66° 45'	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	66° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0.1	0.1	0	0	0	0	0	0	66° 15'	-0.1	-0.1	-0.1	0	0	0	0	0	-0.1	
0	0	0	0	0	0	0	0	0	66° 0'	-0.1	-0.1	0	0	0	0	0	0	-0.1	
0	0	0	0	0	0	0	0	0	65° 45'	-0.1	0	0	0	0	0	0	0	-0.1	
0	0	0	0	0	0	0	0	0	65° 30'	-0.1	0	0	0	0	0	0	0	-0.1	
0	0	0	0	0	0	0	0	0	65° 15'	-0.1	0	0	0	0	0	0	0	-0.1	
0	0	0	0	0	0	0	0	0	65° 0'	-0.2	-0.1	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	64° 45'	-0.2	-0.1	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	64° 30'	-0.2	-0.1	0	0	0	-0.1	-0.1	0	0	
0	0	0	0	0	0	0	0	0	64° 15'	-0.2	-0.1	0	0	0	-0.1	-0.1	0	0.1	
0	0	0	0	0	0	0	0	0	64° 0'	-0.2	-0.1	0	0	0	-0.1	-0.1	0	0.1	
-0.1	-0.1	-0.1	0	0	0	0	0	0	63° 45'	-0.2	-0.1	0	0	-0.1	-0.1	-0.1	0	0.1	
-0.1	-0.1	-0.1	-0.1	0	-0.1	-0.1	0	0	63° 30'	-0.2	-0.1	-0.1	0	-0.1	-0.1	-0.1	-0.1	0	
0	0	0	0	0	0	-0.1	-0.1	0	63° 15'	-0.1	-0.2	-0.1	-0.1	0	-0.1	-0.1	-0.1	0	
0.1	0.1	0.1	0	0	0	0	-0.1	-0.1	63° 0'	-0.1	-0.2	-0.1	0	0	0	-0.1	-0.1	0	
0.1	0.1	0.1	0	0	0	0	0	0	62° 45'	-0.2	-0.1	0	0.1	0.1	0	-0.1	-0.1	0	
0.1	0.1	0.1	0	0	0	0	0	0	62° 30'	-0.1	0	0.1	0.2	0.1	0	-0.1	-0.1	0	
0.1	0.1	0	0	0	0	0	0	0	62° 15'	-0.1	0	0.2	0.3	0.2	0	-0.1	-0.1	0	
0.1	0.1	0.1	0.1	0	0	0	0	0	62° 0'	-0.1	0.1	0.3	0.3	0.2	0	-0.2	-0.1	0	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	61° 45'	-0.1	0	0.2	0.4	0.4	0.1	-0.1	-0.2	-0.1	
0.1	0.1	0.2	0.2	0.2	0.1	0	0	0	61° 30'	-0.2	-0.1	0.1	0.4	0.5	0.3	0	-0.2	-0.1	
0.1	0.1	0.1	0.2	0.2	0.2	0.1	0	0	61° 15'	-0.2	-0.1	0	0.3	0.5	0.5	0.2	0	-0.1	
0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	61° 0'	-0.2	-0.1	0	0.2	0.4	0.5	0.4	0.1	0	
0.1	0	0	0	0	0.1	0.2	0.2	0.1	60° 45'	-0.1	0	0	0.1	0.3	0.4	0.3	0.2	0.1	
0	0	0	0	0	0	0.1	0.2	0.2	60° 30'	0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	
0	0	0	0	0	0	0	0.1	0.1	60° 15'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
-0.1	0	0	0	0	0	0	0	0	60° 0'	0.1	0.1	0.1	0.1	0.1	0	0	0	0.1	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 180 to 176 °W									
Correction to Latitude										Correction to Longitude									
180°	179°	179°	178°	178°	177°	177°	176°	176°	Longitude	180°	179°	179°	178°	178°	177°	177°	176°	176°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	69° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	69° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	69° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
-0.1	0	0	0	0	0	0	0	0	69° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
-0.1	0	0	0	0	0	0	0	0	68° 45'	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	68° 30'	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	68° 15'	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	68° 0'	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	67° 45'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	67° 30'	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	67° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	67° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	66° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	66° 30'	-0.1	-0.1	-0.1	-0.1	0	-0.1	-0.1	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	66° 15'	-0.1	-0.1	-0.1	0	0	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	66° 0'	-0.1	-0.1	-0.1	0	0	0	-0.1	-0.1	0	
0	0	0	0	0	0	0	0	0	65° 45'	-0.1	-0.1	-0.1	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	65° 30'	-0.1	-0.1	-0.1	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	65° 15'	-0.1	-0.1	-0.1	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	65° 0'	0	-0.1	-0.1	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	64° 45'	0	0	0	0	0	0.1	0.1	0	0	
0	0	0	0	0	0	0	0	0	64° 30'	0	0	0	0	0.1	0.1	0	0	0	
0	0	0	0	0	0	0	0	0	64° 15'	0.1	0	0	0	0.1	0.1	0	0	0	
0	0	0	0	0	0	0	0	0	64° 0'	0.1	0.1	0	0	0	0.1	0	0	0	
0	0	0	0	0	0	0	0	0	63° 45'	0.1	0.1	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	63° 30'	0	0.1	0	0	0	0	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	63° 15'	0	0.1	0.1	0	-0.1	0	0	0.1	0.1	
-0.1	0	0	0	0	0	0	0	0	63° 0'	0	0	0.1	0	-0.1	-0.1	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	62° 45'	0	0	0	0	0	0	0	0	0.1	
0	0	0	0	0	0	0	0	0	62° 30'	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	62° 15'	0	0	-0.1	0	0	0.1	0.1	0	0	
0	0	0	0	0	0	0	0	0	62° 0'	0	0	0	0	0	0.1	0.1	0	0	
0	0	0	0	0	0	0.1	0.1	0	61° 45'	-0.1	0	0	0	0	0	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	61° 30'	-0.1	-0.1	0	0	0	0	0	0.1	0.2	
0	0	0	0	0	0	0	0	0	61° 15'	-0.1	-0.1	-0.1	-0.1	0	0	0.1	0.1	0.2	
0.1	0	0	0	0	0	0	0	0	61° 0'	0	-0.1	-0.1	-0.1	0	0	0.1	0.1	0.2	
0.1	0.1	0	0	0	0	0	0	0	60° 45'	0.1	0	0	0	0	0	0.1	0.1	0.2	
0.2	0.1	0.1	0	0	0	0	0	0	60° 30'	0.2	0.2	0.1	0	0	0	0.1	0.1	0.1	
0.1	0.1	0.1	0	0	0	0	0	0	60° 15'	0.2	0.3	0.2	0.1	0	0	0	0.1	0.1	
0	0.1	0	0	0	0	0	0	0	60° 0'	0.1	0.3	0.3	0.2	0.1	0	0	0.1	0.1	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 176 to 172 °W									
Correction to Latitude										Correction to Longitude									
176°	175°	175°	174°	174°	173°	173°	172°	172°	Longitude	176°	175°	175°	174°	174°	173°	173°	172°	172°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	-0.2	-0.1	0	0	0.1	0.1	0.1	0.1	0	
0	0	0	0	0	0	0	0	0	69° 45'	-0.1	-0.1	-0.1	0	0	0.1	0.1	0.1	0	
0	0	0	0	0	0	0	0	0	69° 30'	-0.1	-0.1	-0.1	0	0	0	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	69° 15'	-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	69° 0'	-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	68° 45'	-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	68° 30'	-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	68° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0	68° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0	67° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	
0	0	0	0	0	0	0	0	0	67° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	
0	0	0	0	0	0	0	0	-0.1	67° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0.1	0	
0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	67° 0'	-0.1	-0.1	-0.1	-0.1	0	0	0	0.1	0	
0	0	0	0	0	-0.1	-0.1	-0.1	0	66° 45'	-0.2	-0.1	-0.1	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	66° 30'	-0.1	-0.1	0	0	0	0	0	0	0	
0	0	-0.1	0	0	0	0	0	0	66° 15'	-0.1	-0.1	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	66° 0'	0	0	0	-0.1	0	0	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	65° 45'	0	0	0	-0.1	-0.1	0	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	65° 30'	0	0	0	-0.1	-0.1	0	0	0	0.1	
0	0	0	0	0	0	0	0	0	65° 15'	0	0	0	0	0	0	-0.1	-0.1	0	
0	0	0	0	0	0	0	0	0	65° 0'	0	0	0	0	0	0	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	64° 45'	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	64° 30'	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	64° 15'	0	0	0	0	-0.1	0	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	64° 0'	0	0	0.1	0	0	-0.1	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	63° 45'	0	0	0.1	0	0	0	0	0	0.1	
0	0	0	0	0	0	0	0	0	63° 30'	0.1	0	0	0	0	0	0	0	0.1	
0	0	0	0	0	0	0	0	0	63° 15'	0.1	0.1	0	0	0	0	0	0	0.1	
0	0	0	0	0	0	0	0	0	63° 0'	0.1	0.1	0	0	0	0.1	0.1	0	0	
0	0	0	0	0	0	0	0	0	62° 45'	0.1	0.1	0	0	0	0	0	0	0.1	
0	0	0	0	0	0	0	0	0	62° 30'	0	0.1	0.1	0	0	0	0	0	0.1	
0	0	0	0	0	0	0	0	0	62° 15'	0	0.1	0.1	0.1	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	62° 0'	0	0.1	0.1	0.1	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	61° 45'	0.1	0.1	0.1	0.1	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	61° 30'	0.2	0.2	0.1	0.1	0.1	0.1	0	0	0	
0	0	0	0	0	0	0	0	0	61° 15'	0.2	0.2	0.1	0	0.1	0.1	0.1	0	0	
0	0	0	0	0	0	0	0	0	61° 0'	0.2	0.2	0.1	0	0	0.1	0.1	0	0	
0	0	0	0	0	0	0	0	0	60° 45'	0.2	0.2	0.1	0	0	0	0.1	0.1	0	
0	0	0	0	0	0	0	0	0	60° 30'	0.1	0.2	0.1	0.1	0	0	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	60° 15'	0.1	0.1	0.2	0.1	0	0	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	60° 0'	0.1	0.1	0.2	0.1	0.1	0	0	0.1	0.1	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 172 to 168 °W									
Correction to Latitude										Correction to Longitude									
172°	171°	171°	170°	170°	169°	169°	168°	168°	Longitude	172°	171°	171°	170°	170°	169°	169°	168°	168°	Longitude
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude
0	0	0	0	0	0	0	0	0	70° 0'	0	0	-0.1	-0.1	-0.1	0	0	0.1	0	
0	0	0	0	0	0	0	0	0	69° 45'	0	0	-0.1	-0.1	-0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0	69° 30'	0.1	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	69° 15'	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	69° 0'	0	0	0.1	0.1	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	68° 45'	0	0	0.1	0.1	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	68° 30'	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	68° 15'	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	68° 0'	0	-0.1	-0.1	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	67° 45'	0	0	-0.1	0	0	0	0	0	0	
0	-0.1	-0.1	-0.1	-0.1	0	0	0	-0.1	67° 30'	0	0	-0.1	-0.1	0	0	0	0	0	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	67° 15'	0	0	-0.1	-0.1	-0.1	0	0	0	0	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	67° 0'	0	0	0	-0.1	-0.1	0	0	0	0	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	66° 45'	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	-0.1	-0.1	-0.1	66° 30'	0	0	0	0	0	0	0	0	0	
0	-0.1	0	0	0	0	0	0	-0.1	66° 15'	0	0	0	0	0	0	0	0	0	
0	0	-0.1	0	0	0	0	0	0	66° 0'	0.1	0	-0.1	-0.1	0	0	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	65° 45'	0.1	0	0	-0.1	-0.1	0	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	65° 30'	0.1	0.1	0	0	-0.1	-0.1	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	65° 15'	0	0.1	0.1	0	0	-0.1	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	65° 0'	-0.1	0	0.1	0.1	0	0	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	64° 45'	0	0	0	0	0	0	0	0.1	0.1	
0	0	-0.1	0	0	0	0	0	0	64° 30'	0	0	0	0	0	0	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	64° 15'	0.1	0.1	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	64° 0'	0.1	0.1	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	63° 45'	0.1	0.1	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	63° 30'	0.1	0.1	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	63° 15'	0.1	0.1	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	63° 0'	0	0.1	0.1	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	62° 45'	0.1	0.1	0.1	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	62° 30'	0.1	0.1	0	0	0	0	0.1	0	0	
0	0	0	0	0	0	0	0	0	62° 15'	0	0	0	0	0	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	62° 0'	0	0	0	0	0	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	61° 45'	0	0	0	0	0	0	0.1	0.1	0.1	
0	0	0	0	-0.1	-0.1	-0.1	0	0	61° 30'	0	0	0.1	0.1	0	0	0.1	0.1	0.1	
0	0	0	0	0	0	-0.1	-0.1	0	61° 15'	0	0	0.1	0.1	0.1	0	0.1	0.1	0.1	
0	0	0	0	0	0	0	-0.1	-0.1	61° 0'	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	-0.1	-0.1	60° 45'	0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	60° 30'	0.1	0	0	0	0.1	0.1	0.1	0.1	0.1	
0	0	0	-0.1	-0.1	0	0	0	0	60° 15'	0.1	0.1	0	0	0.1	0.1	0.1	0.1	0.1	
0	0	0	-0.1	-0.1	-0.1	0	0	0	60° 0'	0.1	0.1	0	0	0.1	0.1	0.1	0.1	0.1	



# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 168 to 164 °W									
Correction to Latitude										Correction to Longitude									
168°	167°	167°	166°	166°	165°	165°	164°	164°	Longitude	168°	167°	167°	166°	166°	165°	165°	164°	164°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	0	
0	0	0	0	0	0	0	0	0	69° 45'	0	0	0	-0.1	-0.1	-0.1	-0.1	0	0	
0	0	0	0	0	0	0	0	0	69° 30'	0	0	0	0	-0.1	-0.1	-0.1	0	0.1	
0	0	0	0	0	0	0	0	-0.1	69° 15'	0	0	0	0	-0.1	-0.1	0	0.1	0.1	
0	0	0	0	0	0	0	0	-0.1	69° 0'	0	0	0	0	0	0	0	0.1	0.2	
0	0	0	0	0	0	0	0	0	68° 45'	0	0	0	0	0	0	0.1	0.2	0.3	
0	0	0	0	0	0	0	0	0	68° 30'	0	0.1	0.1	0	0	0	0.1	0.2	0.2	
0	0	0	0	0	0	0	0	0	68° 15'	0	0.1	0.1	0.1	0	0	0.1	0.1	0.2	
0	0	0	0	0	0	0	0	0	68° 0'	0	0.1	0.1	0.1	0.1	0	0.1	0.1	0.2	
0	0	0	0	0	0	0	0	0	67° 45'	0	0	0	0.1	0.1	0.1	0.1	0.2	0.2	
-0.1	-0.1	-0.1	0	0	0	0	0	0	67° 30'	0	0	0	0	0.1	0.1	0.1	0.2	0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	67° 15'	0	0	0	0	0	0.1	0.1	0.2	0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	67° 0'	0	0	0	0	0	0.1	0.1	0.1	0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	66° 45'	0	0	0	0	0	0	0.1	0.1	0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	66° 30'	0	0	0	0	0	0	0	0	0	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	66° 15'	0	0	0.1	0.1	0.1	0	0	0	0	
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	66° 0'	0.1	0.1	0.1	0.1	0.1	0	0	0	0.1	
0	0	0	0	0	0	0	-0.1	-0.1	65° 45'	0.1	0.1	0.1	0.1	0.1	0	0	0	0.1	
0	0	0	0	0	0	0	0	0	65° 30'	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0.1	
0	0	0	0	0	0	0	0	0	65° 15'	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	
0	0	0	0	0	0	0	0	0	65° 0'	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	
0	0	0	0	0	0	0	0	0	64° 45'	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	
0	0	0	0	0	0	0	0	0	64° 30'	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	
0	0	0	0	0	0	0	0	0	64° 15'	0	0	0.1	0.1	0.1	0.1	0.1	0	0.1	
0	0	0	0	0	0	0	0	0	64° 0'	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	63° 45'	0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	
0	-0.1	0	0	0	0	0	-0.1	-0.1	63° 30'	0	0	0	0	0	0.1	0.1	0.1	0.1	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	63° 15'	0	0	0	0	0	0.1	0.1	0.1	0.1	
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	63° 0'	0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	62° 45'	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	62° 30'	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	-0.1	-0.1	0	0	0	0	0	62° 15'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	-0.1	-0.1	0	0	0	0	0	62° 0'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	61° 45'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	61° 30'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	61° 15'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	61° 0'	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	60° 45'	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	
0	0	-0.1	0	0	0	0	0	0	60° 30'	0.1	0.1	0.1	0.1	0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0	60° 15'	0.1	0.1	0.1	0.1	0	0	0	0	0.1	
0	0	0	0	0	0	0	0	0	60° 0'	0.1	0.1	0.1	0	0	0	0	0	0.1	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N

Longitude 164 to 160 °W

Correction to Latitude

Correction to Longitude

Correction to Latitude									Correction to Longitude									
164°	163°	163°	162°	162°	161°	161°	160°	160°	Longitude	164°	163°	163°	162°	162°	161°	161°	160°	160°
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'
0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	70° 0'	0	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0
0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	69° 45'	0	0	0	0	-0.1	-0.1	-0.1	0	0
0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	0	69° 30'	0.1	0.1	0.1	0.1	0	0	0	0	0
-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	0	69° 15'	0.1	0.2	0.2	0.2	0.1	0.1	0	0	0
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	69° 0'	0.2	0.3	0.3	0.2	0.2	0.2	0.1	0	0
0	-0.1	-0.1	0	0	0	0	0	0	68° 45'	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0	-0.1
0	0	0	0	0	0	0	0	0	68° 30'	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0	-0.1
0	0	0	0	0	0	0	0	0	68° 15'	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0	-0.1
0	0	0	0	0	0	0	0	0	68° 0'	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0	0
0	0	0	0	0	0	0	0	0	67° 45'	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0	0
0	0	0	0	0	0	0	0	0	67° 30'	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0
0	0	0	0	0	0	0	0	0	67° 15'	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
0	0	0	0	0	0	0	0	0	67° 0'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
0	0	0	0	0	0	0	0	0	66° 45'	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	66° 30'	0	0	0	0.1	0.1	0.2	0.2	0.1	0.1
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	66° 15'	0	0	0	0.1	0.1	0.1	0.1	0.1	0.1
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	66° 0'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	65° 45'	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0
0	0	0	0	0	0	0	-0.1	0	65° 30'	0.1	0.1	0.1	0.1	0	0	0	0	0.1
0	0	0	0	0	0	-0.1	-0.1	0	65° 15'	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
0	0	0	0	0	-0.1	-0.1	-0.1	0	65° 0'	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
0	0	0	0	0	0	0	-0.1	0	64° 45'	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
0	0	0	0	0	0	0	0	0	64° 30'	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
0	0	0	0	0	0	0	0	0	64° 15'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
0	0	0	0	0	0	0	0	0	64° 0'	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0
0	0	0	-0.1	-0.1	-0.1	-0.1	0	0	63° 45'	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	63° 30'	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	63° 15'	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0	0
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	63° 0'	0.1	0.1	0.1	0.1	0.1	0.1	0	0	-0.1
-0.1	-0.1	-0.1	0	0	0	0	0	0	62° 45'	0.1	0.1	0.1	0.1	0.1	0.1	0	0	-0.1
-0.1	0	0	0	0	0	0	0	0	62° 30'	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0
0	0	0	0	0	0	0	0	0	62° 15'	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0
0	0	0	0	0	0	0	0	0	62° 0'	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0
0	0	0	0	0	0	0	0	0	61° 45'	0.1	0.1	0.1	0.1	0	0	0.1	0.1	0
0	0	0	0	0	0	0	0	0	61° 30'	0.1	0.1	0.1	0	0	0	0.1	0.1	0.1
0	0	0	0	0	0	0	-0.1	0	61° 15'	0.1	0.1	0.1	0	0	0	0.1	0.1	0.1
0	0	0	0	0	0	-0.1	-0.1	0	61° 0'	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
0	0	0	0	0	0	-0.1	-0.1	0	60° 45'	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
0	0	0	0	0	0	0	-0.1	0	60° 30'	0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1
0	0	0	0	0	0	0	0	0	60° 15'	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0
0	0	0	0	0	0	0	0	0	60° 0'	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0



# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 156 to 152 °W									
Correction to Latitude										Correction to Longitude									
156°	155°	155°	154°	154°	153°	153°	152°	152°	Longitude	156°	155°	155°	154°	154°	153°	153°	152°	152°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	70° 0'	0	0.1	0.1	0.1	0	0	0	0	-0.1	-0.1
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	69° 45'	0	0	0	0	0.1	0	0	0	-0.1	-0.1
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	69° 30'	0	0	0	0	0.1	0.1	0	0	-0.1	-0.1
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	69° 15'	0	0	0	0	0.1	0	0	0	0	-0.1
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	69° 0'	0	0	0	0	0	0	0	0	0	0
-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	68° 45'	0	0.1	0.1	0.1	0	0	0	0	0	0.1
-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	68° 30'	0.1	0.2	0.1	0.1	0	-0.1	-0.1	0	0.1	0.1
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	68° 15'	0.2	0.2	0.2	0.1	0	-0.1	-0.1	0	0.1	0.1
-0.1	-0.1	-0.1	0	0	0	0	-0.1	-0.1	68° 0'	0.3	0.3	0.1	0	-0.1	-0.1	-0.1	0	0.1	0.1
0	0	0	0	0	0	0	0	0	67° 45'	0.3	0.2	0.1	0	-0.1	-0.1	0	0	0.1	0.1
0	0	0	0	0	0	0	-0.1	-0.1	67° 30'	0.3	0.2	0.1	0	0	0	0	0	0.1	0.1
0	0	0	0	0	0	0	0	0	67° 15'	0.2	0.1	0.1	0.1	0.1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	67° 0'	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	66° 45'	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	66° 30'	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0
0	0	0	0	0	0	0	-0.1	-0.1	66° 15'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0.1	0.1
0	0	0	0	0	0	0	0	-0.1	66° 0'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
0	0	-0.1	-0.1	0	0	0	0	0	65° 45'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	65° 30'	0.1	0.1	0.1	0.1	0	0	0	0.1	0.1	0.1
0	0	0	0	0	0	0	0	0	65° 15'	0.1	0.1	0.1	0.1	0	0	0	0.1	0.1	0.1
0	0	0	0	0	0	0	0	0	65° 0'	0.1	0.1	0.1	0.1	0	0	0	0	0.1	0.1
0	0	0	0	0	0	-0.1	-0.1	-0.1	64° 45'	0	0	0	0.1	0.1	0.1	0.1	0	0.1	0.1
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	64° 30'	0	0	0	0.1	0.1	0.1	0.1	0	0	0
0	0	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	64° 15'	0	0	0.1	0.1	0.1	0.1	0.1	0	0	0
0	0	-0.1	-0.1	-0.1	-0.1	0	0	0	64° 0'	0	0.1	0.1	0.1	0.1	0	0	0	0.1	0.1
0	0	0	0	0	0	0	0	-0.1	63° 45'	0	0.1	0.2	0.1	0.1	0	-0.1	0	0.2	0.2
0	0	0	0	0	0	0	-0.1	-0.2	63° 30'	0	0.1	0.1	0.1	0	0	0	0.1	0.3	0.3
0	0	0	0	0	0	-0.1	-0.2	-0.2	63° 15'	0	0	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.4
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	63° 0'	0	0	0	0.1	0.2	0.2	0.3	0.3	0.3	0.3
0	0	-0.1	-0.1	-0.1	-0.1	-0.1	0	0.1	62° 45'	0	0	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1
0	0	-0.1	-0.1	-0.1	-0.1	0	0.1	0.2	62° 30'	0	0.1	0.2	0.2	0.2	0.1	0	-0.1	-0.2	-0.2
0	-0.1	-0.1	-0.1	-0.1	-0.1	0	0.1	0.1	62° 15'	0.1	0.2	0.3	0.3	0.2	0	-0.2	-0.3	-0.4	-0.4
0	0	0	0	0	0	0	0	0	62° 0'	0.1	0.2	0.3	0.3	0.1	-0.1	-0.3	-0.4	-0.4	-0.4
0	0	0	0	0	0	0	0	0	61° 45'	0.1	0.2	0.2	0.2	0.1	-0.1	-0.2	-0.4	-0.5	-0.5
-0.1	0	0	0	0	0	0	0	0	61° 30'	0.1	0.2	0.1	0.1	0.1	0	-0.1	-0.4	-0.6	-0.6
-0.1	0	0	0	0	0	0	0	0.1	61° 15'	0.1	0.1	0.1	0	0	0	-0.1	-0.4	-0.7	-0.7
-0.1	0	0	0	0	0	0	0	0.1	61° 0'	0.1	0.1	0	0	0	0	-0.2	-0.6	-0.8	-0.8
0	0	0	0	0	0	0	0.1	0.1	60° 45'	0	0	0	0	0.1	0	-0.3	-0.7	-0.8	-0.8
0	0	0	0	0	0	0.1	0.1	0.1	60° 30'	0	0	0	0	0.1	0	-0.3	-0.7	-0.7	-0.7
0	0	0	0	0	0.1	0.1	0.1	0	60° 15'	0	0	0	0	0	-0.1	-0.4	-0.6	-0.5	-0.5
0	0	0	0	0	0.1	0.1	0	-0.1	60° 0'	0	0	0	0	-0.1	-0.2	-0.4	-0.5	-0.2	-0.2

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 152 to 148 °W									
Correction to Latitude										Correction to Longitude									
152°	151°	151°	150°	150°	149°	149°	148°	148°	Longitude	152°	151°	151°	150°	150°	149°	149°	148°	148°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	70° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	69° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	0.1
-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	69° 30'	-0.1	-0.1	-0.1	0	0	0	0	0	0.1	0.2
-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	69° 15'	-0.1	-0.1	0	0	0.1	0.1	0.1	0.2	0.3	
-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	69° 0'	0	0	0.1	0.1	0.1	0.1	0.2	0.2	0.3	
-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	68° 45'	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.3	
-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	68° 30'	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	68° 15'	0.1	0.2	0.3	0.2	0.1	0.1	0	0	0	
-0.1	0	0	0	0	0	0	0	0	68° 0'	0.1	0.2	0.2	0.2	0.1	0.1	0	0	-0.1	
0	0	0	0	0	0	0	0	0	67° 45'	0.1	0.1	0.2	0.2	0.1	0.1	0	0	-0.1	
0	0	0	0	0	0	0	0	0	67° 30'	0.1	0.1	0.1	0.1	0.1	0.1	0	0	-0.1	
0	0	0	0	0	0	0	0	0	67° 15'	0	0.1	0.1	0.1	0.1	0	0	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	67° 0'	0	0.1	0.1	0.1	0	0	0	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	66° 45'	0	0.1	0.1	0.1	0	0	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	66° 30'	0	0.1	0.1	0	-0.1	-0.1	-0.1	-0.1	-0.1	
-0.1	-0.1	-0.1	0	0	0	0	-0.1	-0.1	66° 15'	0.1	0	0	-0.1	-0.1	-0.1	0	0	0	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	66° 0'	0.1	0	0	-0.1	-0.1	0	0	0.1	0	
0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	65° 45'	0.1	0.1	0	0	0	0	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	65° 30'	0.1	0.1	0	0	0	0	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	65° 15'	0.1	0.1	0.1	0	0	0	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	65° 0'	0.1	0.1	0	0	0	0	0.1	0.1	0.1	
-0.1	0	0	0	0	0	-0.1	-0.1	-0.1	64° 45'	0.1	0	0	0	0	0.1	0.1	0.1	0	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	64° 30'	0	0	0	0	0	0.1	0.1	0.1	0	
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	64° 15'	0	0	0	0.1	0.1	0.1	0.1	0.1	0	
0	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	64° 0'	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	
-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	63° 45'	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	
-0.2	-0.2	-0.2	-0.1	-0.1	0	0	0	0	63° 30'	0.3	0.4	0.3	0.1	0	0	0	0.1	0.1	
-0.2	-0.2	-0.1	0	0	0.1	0	0	0	63° 15'	0.4	0.3	0.1	0	-0.1	-0.1	0	0.1	0.1	
-0.1	0	0.1	0.1	0.1	0.1	0	-0.1	-0.1	63° 0'	0.3	0.1	-0.1	-0.2	-0.1	0	0.1	0.1	0.1	
0.1	0.2	0.2	0.2	0.2	0.1	-0.1	-0.1	-0.1	62° 45'	0.1	-0.1	-0.2	-0.2	0.1	0.3	0.3	0.2	0	
0.2	0.3	0.3	0.2	0.1	0	0	-0.1	-0.1	62° 30'	-0.2	-0.2	-0.2	0	0.3	0.6	0.5	0.3	0	
0.1	0.2	0.2	0.2	0.1	0.1	0	0	0	62° 15'	-0.4	-0.3	-0.1	0.2	0.5	0.7	0.6	0.3	0	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	62° 0'	-0.4	-0.3	-0.1	0.2	0.5	0.7	0.6	0.3	0.1	
0	0	0.1	0.1	0.1	0.2	0.2	0.1	0.1	61° 45'	-0.5	-0.4	-0.2	0.2	0.5	0.6	0.6	0.4	0.3	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	61° 30'	-0.6	-0.6	-0.3	0.1	0.5	0.6	0.6	0.5	0.4	
0.1	0.1	0.1	0.1	0	0	0.1	0.1	0.2	61° 15'	-0.7	-0.7	-0.3	0.2	0.5	0.6	0.5	0.4	0.4	
0.1	0.1	0	-0.1	-0.1	-0.1	0	0.1	0.1	61° 0'	-0.8	-0.7	-0.2	0.3	0.6	0.5	0.3	0.2	0.2	
0.1	0	-0.1	-0.2	-0.2	-0.2	-0.1	0	0	60° 45'	-0.8	-0.5	0.1	0.5	0.6	0.3	0.1	0	0.1	
0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	0	60° 30'	-0.7	-0.3	0.3	0.6	0.5	0.2	0	0	0	
0	-0.1	-0.2	-0.2	-0.1	0	0	0	0	60° 15'	-0.5	0	0.5	0.6	0.3	0.1	0	0	-0.1	
-0.1	-0.2	-0.2	-0.1	0	0.1	0.1	0	0	60° 0'	-0.2	0.2	0.5	0.4	0.1	0	0	0	-0.1	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 148 to 144 °W									
Correction to Latitude										Correction to Longitude									
148°	147°	147°	146°	146°	145°	145°	144°	144°	Longitude	148°	147°	147°	146°	146°	145°	145°	144°	144°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	70° 0'	0	0	0	0	0	-0.1	-0.1	0	0	
-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	69° 45'	0.1	0.2	0.2	0.2	0.1	0	-0.1	-0.1	-0.1	
-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	69° 30'	0.2	0.3	0.3	0.3	0.2	0	-0.1	-0.2	-0.2	
-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	69° 15'	0.3	0.3	0.3	0.3	0.2	0.1	0	-0.1	-0.1	
-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	69° 0'	0.3	0.3	0.3	0.2	0.1	0.1	0	0	-0.1	
-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	68° 45'	0.3	0.3	0.2	0.1	0	0	0	0	0	
-0.2	-0.1	-0.1	-0.1	0	0	0	0	0	68° 30'	0.2	0.1	0	-0.1	-0.1	-0.1	0	0	0	
-0.1	0	0	0	0	0	0	0	0	68° 15'	0	0	-0.1	-0.1	-0.1	-0.1	0	0	-0.1	
0	0	0	0	0	0	0	0	0	68° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	67° 45'	-0.1	-0.1	-0.1	-0.1	0	0	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	67° 30'	-0.1	-0.1	-0.1	-0.1	0	0	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	67° 15'	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	67° 0'	-0.1	-0.2	-0.2	-0.1	-0.1	0	0	0	0	
0	0	0	0	0	0	0	0	-0.1	66° 45'	-0.1	-0.2	-0.2	-0.1	0	0	0	0	0	
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	66° 30'	-0.1	-0.1	-0.1	-0.1	0	0	0.1	0.1	0	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	66° 15'	0	0	-0.1	0	0	0	0	0	0	
-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	66° 0'	0	0	0	-0.1	-0.1	0	0	0	0	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	65° 45'	0.1	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	0	
0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	65° 30'	0.1	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	65° 15'	0.1	0.1	0	0	0	0	-0.1	-0.1	-0.1	
0	0	0	0	0	0	-0.1	-0.1	-0.1	65° 0'	0.1	0	0.1	0.1	0.1	0	0	0	0	
-0.1	0	0	0	0	0	0	-0.1	-0.1	64° 45'	0	0	0	0.1	0.1	0.1	0	0	0	
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	64° 30'	0	0	0	0	0.1	0.1	0.1	0	0	
-0.2	-0.2	-0.2	-0.1	-0.1	0	0	0	0	64° 15'	0	-0.1	-0.1	-0.1	0	0	0	0	0	
-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	0	64° 0'	0.1	-0.1	-0.2	-0.2	-0.1	-0.1	0	-0.1	0	
-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	63° 45'	0.1	0	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	
0	0	0	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	63° 30'	0.1	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	63° 15'	0.1	0.1	0.1	0	0	0	-0.1	-0.2	-0.3	
-0.1	0	0	0	0	0	0	0	-0.1	63° 0'	0.1	0.1	0.1	0.1	0.1	0	0	-0.1	-0.2	
-0.1	-0.1	0	0	0.1	0.1	0.1	0	-0.1	62° 45'	0	-0.1	-0.1	0	0	0	0	0	-0.1	
-0.1	-0.1	0	0	0	0.1	0	0	-0.1	62° 30'	0	-0.2	-0.2	-0.2	-0.1	0	0.1	0.2	0.1	
0	0	-0.1	-0.1	0	0	0	0	-0.1	62° 15'	0	-0.1	-0.2	-0.2	-0.2	0	0.2	0.3	0.2	
0.1	0	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	62° 0'	0.1	0	-0.1	-0.2	-0.2	0	0.2	0.3	0.2	
0.1	0	0	-0.1	-0.1	-0.1	-0.1	0	0	61° 45'	0.3	0.2	0	-0.2	-0.2	-0.1	0.1	0.2	0.1	
0.2	0.1	0.1	0	0	-0.1	-0.1	0	0	61° 30'	0.4	0.3	0.1	-0.1	-0.2	-0.1	0	0.1	0	
0.2	0.2	0.2	0.2	0.1	0	0	0	0	61° 15'	0.4	0.3	0.2	0.1	0	0	0	0	-0.1	
0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	61° 0'	0.2	0.3	0.3	0.2	0.1	0.1	0	0	-0.1	
0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	60° 45'	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0	-0.1	
0	0	0.1	0.1	0.2	0.2	0.2	0.2	0.3	60° 30'	0	0	0	0.1	0.1	0.1	0	0	0	
0	0	0	0.1	0.1	0.1	0.2	0.2	0.2	60° 15'	-0.1	-0.1	-0.1	0	0	0	0	0	0	
0	0	0	0	0	0.1	0.1	0.1	0.1	60° 0'	-0.1	-0.1	-0.1	-0.1	0	0	0	-0.1	-0.1	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 144 to 140 °W									
Correction to Latitude										Correction to Longitude									
144°	143°	143°	142°	142°	141°	141°	140°	140°	Longitude	144°	143°	143°	142°	142°	141°	141°	140°	140°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	70° 0'	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	69° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	
-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	69° 30'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	
-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	69° 15'	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	
-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	69° 0'	-0.1	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.4	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	68° 45'	0	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	68° 30'	0	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	0	-0.1	68° 15'	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	
0	0	0	0	0	0	0	0	-0.1	68° 0'	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	-0.1	67° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	-0.1	67° 30'	-0.1	-0.1	-0.1	0	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	67° 15'	-0.1	0	0	0	0	0	0	0	-0.1	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	67° 0'	0	0	0.1	0.1	0	0	0	0	-0.1	
-0.1	-0.1	-0.1	-0.1	0	0	-0.1	-0.1	0	66° 45'	0	0	0.1	0.1	0	0	0	0	-0.1	
-0.1	-0.1	-0.1	0	0	0	0	0	0	66° 30'	0	0	0	0	0	0	0	0	-0.1	
-0.1	-0.1	-0.1	0	0	0	0	0	0	66° 15'	0	0	0	0	0	0	0	0	0	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	66° 0'	0	0	0	0	0	0	0	0	0	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	65° 45'	0	-0.1	-0.1	0	0	0	0	0	-0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	65° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	-0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	65° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	65° 0'	0	-0.1	-0.1	-0.1	-0.1	0	0	0.1	0	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	64° 45'	0	-0.1	-0.1	-0.1	-0.1	0	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	64° 30'	0	0	-0.1	-0.2	-0.2	-0.1	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	64° 15'	0	0	0	-0.1	-0.2	-0.2	-0.1	0	0	
0	0	0	0	0	0	0	0	0	64° 0'	0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	
-0.1	-0.1	0	0	0	0	0	0	0	63° 45'	-0.1	-0.1	0	0	0	-0.1	-0.1	-0.1	-0.2	
-0.1	-0.1	-0.1	0	0	0	0	0	0	63° 30'	-0.2	-0.2	-0.2	-0.1	0	0	-0.1	-0.1	-0.2	
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	63° 15'	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	63° 0'	-0.2	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	62° 45'	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.2	-0.2	-0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	62° 30'	0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	62° 15'	0.2	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	62° 0'	0.2	0	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	
0	0.1	0	0	-0.1	-0.1	-0.2	-0.1	-0.1	61° 45'	0.1	0	-0.1	-0.1	-0.1	-0.2	-0.4	-0.4	-0.3	
0	0.1	0.1	0.1	0.1	0	-0.1	-0.1	-0.1	61° 30'	0	-0.1	-0.1	0	0.1	0	-0.3	-0.4	-0.4	
0	0	0.1	0.1	0.2	0.1	0	-0.1	-0.1	61° 15'	-0.1	-0.2	-0.2	0	0.1	0.1	0	-0.3	-0.4	
0.1	0.1	0.1	0.2	0.2	0.2	0.1	0	-0.1	61° 0'	-0.1	-0.2	-0.3	-0.2	0.1	0.3	0.2	0	-0.3	
0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0	60° 45'	-0.1	-0.2	-0.3	-0.2	0	0.3	0.4	0.1	-0.2	
0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	60° 30'	0	-0.1	-0.2	-0.1	0.1	0.3	0.4	0.2	-0.1	
0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.3	0.3	60° 15'	0	-0.1	-0.1	0	0.1	0.2	0.2	0.1	0	
0.1	0.2	0.2	0.1	0.1	0.2	0.3	0.4	0.4	60° 0'	-0.1	-0.1	0	0	0	0	0	0	0.1	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 140 to 136 °W									
Correction to Latitude										Correction to Longitude									
140°	139°	139°	138°	138°	137°	137°	136°	136°	Longitude	140°	139°	139°	138°	138°	137°	137°	136°	136°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
-0.1	-0.1	0	0	0	0	0	0	0	70° 0'	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	0	0	0	
-0.2	-0.1	-0.1	0	0	0	0	0	0	69° 45'	-0.2	-0.2	-0.3	-0.3	-0.2	-0.1	0	0	0	
-0.2	-0.2	-0.2	-0.1	-0.1	0	0	0	0	69° 30'	-0.3	-0.4	-0.5	-0.5	-0.4	-0.2	-0.1	0	-0.1	
-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	0	0	69° 15'	-0.4	-0.5	-0.6	-0.6	-0.5	-0.4	-0.2	-0.1	-0.1	
-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	69° 0'	-0.4	-0.5	-0.6	-0.6	-0.6	-0.5	-0.4	-0.3	-0.2	
0	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	68° 45'	-0.3	-0.4	-0.5	-0.5	-0.6	-0.5	-0.4	-0.3	-0.3	
0	0	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	68° 30'	-0.3	-0.3	-0.3	-0.4	-0.4	-0.4	-0.4	-0.4	-0.3	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	68° 15'	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.4	-0.4	-0.4	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	68° 0'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.4	
-0.1	-0.1	-0.1	-0.1	0	-0.1	-0.1	-0.1	-0.1	67° 45'	-0.1	-0.2	-0.2	-0.3	-0.2	-0.2	-0.2	-0.3	-0.4	
-0.1	-0.1	-0.1	-0.1	0	-0.1	-0.1	-0.1	-0.1	67° 30'	-0.1	-0.2	-0.3	-0.3	-0.3	-0.2	-0.1	-0.2	-0.3	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	67° 15'	-0.1	-0.2	-0.3	-0.3	-0.2	-0.1	0	-0.1	-0.3	
-0.1	-0.1	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	67° 0'	-0.1	-0.2	-0.3	-0.3	-0.2	0	0.1	0	-0.3	
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	66° 45'	-0.1	-0.2	-0.3	-0.3	-0.1	0	0.1	0	-0.2	
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	-0.1	66° 30'	-0.1	-0.2	-0.2	-0.2	-0.1	0.1	0.1	0	-0.2	
0	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	66° 15'	-0.1	-0.2	-0.2	-0.2	-0.1	0	0	0	-0.2	
0	0	-0.1	-0.1	-0.1	-0.1	0	0	0	66° 0'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	
0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	65° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	65° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	65° 15'	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	65° 0'	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	64° 45'	0.1	0	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	64° 30'	0.1	0	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 15'	0	0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	
0	0	0	0	0.1	0.1	0.1	0.1	0	63° 45'	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	63° 30'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	-0.1	0	0	0	0	63° 15'	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	63° 0'	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	62° 45'	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	62° 30'	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	62° 15'	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
-0.1	0	0	0	0	0	0	0	0	62° 0'	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	
-0.1	0	0	0	0	0	0	0	0	61° 45'	-0.3	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	
-0.1	-0.1	-0.1	0	0	0	0	0	0	61° 30'	-0.4	-0.3	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	
-0.1	-0.1	-0.1	0	0	0	0	0	0	61° 15'	-0.4	-0.4	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	
-0.1	-0.1	-0.1	0	0	0	0	0	0	61° 0'	-0.3	-0.4	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	60° 45'	-0.2	-0.4	-0.4	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	
0.2	0.1	0.1	0	0	0	0	0	0	60° 30'	-0.1	-0.3	-0.4	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	
0.3	0.3	0.1	0.1	0	0	0	0	0	60° 15'	0	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0.4	0.3	0.2	0.1	0.1	0	0	0	0	60° 0'	0.1	0.1	0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	



# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N

Longitude 136 to 132 °W

Correction to Latitude

Correction to Longitude

Correction to Latitude										Correction to Longitude									
136°	135°	135°	134°	134°	133°	133°	132°	132°	Longitude	136°	135°	135°	134°	134°	133°	133°	132°	132°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	70° 0'	0	-0.1	-0.1	-0.2	-0.3	-0.3	-0.2	-0.2	-0.1	
0	0.1	0.1	0.1	0.1	0.1	0	0	0	69° 45'	0	-0.2	-0.2	-0.3	-0.2	-0.2	-0.1	0	0	
0	0	0	0	0	0	0	0	0	69° 30'	-0.1	-0.2	-0.3	-0.3	-0.2	-0.1	0	0.1	0	
0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	69° 15'	-0.1	-0.2	-0.2	-0.2	-0.1	0	0.1	0.1	0	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	69° 0'	-0.2	-0.2	-0.1	-0.1	0	0.1	0.1	0	-0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	68° 45'	-0.3	-0.2	-0.1	0	0.1	0.1	0	-0.1	-0.1	
-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	68° 30'	-0.3	-0.3	-0.1	0	0.1	0.1	0	-0.1	-0.2	
-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	68° 15'	-0.4	-0.4	-0.2	-0.1	0.1	0.1	0	-0.1	-0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	68° 0'	-0.4	-0.4	-0.3	-0.1	0	0.1	0	-0.1	-0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	67° 45'	-0.4	-0.4	-0.4	-0.2	0	0	0	-0.1	-0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	67° 30'	-0.3	-0.4	-0.4	-0.3	-0.1	0	-0.1	-0.2	-0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	67° 15'	-0.3	-0.4	-0.5	-0.3	-0.2	-0.1	-0.1	-0.2	-0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	67° 0'	-0.3	-0.5	-0.5	-0.4	-0.3	-0.2	-0.2	-0.2	-0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	66° 45'	-0.2	-0.5	-0.6	-0.5	-0.4	-0.3	-0.2	-0.2	-0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	66° 30'	-0.2	-0.4	-0.5	-0.5	-0.5	-0.4	-0.3	-0.3	-0.3	
0	0	0	-0.1	-0.1	-0.1	-0.1	0	0	66° 15'	-0.2	-0.3	-0.5	-0.5	-0.5	-0.5	-0.4	-0.3	-0.3	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	66° 0'	-0.2	-0.3	-0.4	-0.4	-0.4	-0.4	-0.4	-0.3	-0.3	
0	0	0	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	65° 45'	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	
-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	65° 30'	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.3	-0.4	
-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	65° 15'	-0.2	-0.2	-0.1	-0.1	0	0	-0.1	-0.3	-0.4	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	65° 0'	-0.1	-0.2	-0.2	-0.1	-0.1	0	-0.1	-0.2	-0.3	
0	-0.1	-0.1	0	0	0	0	0	0	64° 45'	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.3	
0	0	0	0	0.1	0.1	0.1	0.1	0	64° 30'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 15'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 0'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	0	-0.1	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 45'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	0	0	
0	0	0	0	0	0	0	0	0	63° 30'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	63° 15'	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	63° 0'	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	62° 45'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	62° 30'	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	62° 15'	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	62° 0'	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	61° 45'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	61° 30'	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	61° 15'	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	61° 0'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	60° 45'	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	60° 30'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	60° 15'	-0.2	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	60° 0'	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	-0.1	



# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N

Longitude 128 to 124 °W

Correction to Latitude

Correction to Longitude

Correction to Latitude										Correction to Longitude									
128°	127°	127°	126°	126°	125°	125°	124°	124°	Longitude	128°	127°	127°	126°	126°	125°	125°	124°	124°	Longitude
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude
0	0	0	0	0	0	-0.1	-0.1	-0.1	70° 0'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
0	0	0	0	0	-0.1	-0.1	-0.1	-0.2	69° 45'	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	0	0	-0.1	-0.1
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	69° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0.1	0.1	0	0
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	69° 15'	-0.1	-0.1	-0.1	-0.1	0	0.1	0.2	0.1	0	0
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	69° 0'	-0.1	-0.1	-0.1	-0.1	0	0.1	0.1	0.1	0	0
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	68° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0.1	0.1	0	0
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	68° 30'	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	0	0	0	0
-0.1	-0.1	-0.1	0	0	0	0	0	0	68° 15'	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1
-0.1	-0.1	0	0	0	0	0	0	0	68° 0'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1
-0.1	0	0	0	0	0	0	0	0	67° 45'	-0.1	-0.2	-0.2	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	-0.1
0	0	0	0	0	0	0	0	0	67° 30'	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2
0	0	0	0	0	0	0	0	0	67° 15'	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2
0	0	0	0	0	0	0	0.1	0.1	67° 0'	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
0.1	0.1	0.1	0	0.1	0.1	0.1	0.1	0.1	66° 45'	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
0	0	0	0	0	0	0.1	0.1	0.1	66° 30'	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2
0	0	0	0	0	0	0	0	0	66° 15'	-0.1	-0.2	-0.2	-0.2	-0.3	-0.4	-0.4	-0.3	-0.2	-0.2
0	0	0	0	0	0	0	0	0	66° 0'	-0.1	-0.1	-0.1	-0.2	-0.3	-0.4	-0.4	-0.3	-0.2	-0.2
0	0	0	0	0	0	0	0	0	65° 45'	-0.2	-0.2	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3
-0.1	-0.1	0	0	0.1	0	0	0	0	65° 30'	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3
-0.2	-0.1	-0.1	0	0	0	0	0	0	65° 15'	-0.5	-0.5	-0.4	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3
-0.2	-0.2	-0.1	-0.1	0	0	0	0	0	65° 0'	-0.6	-0.6	-0.6	-0.5	-0.3	-0.2	-0.1	-0.1	-0.1	-0.2
-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	0	0	-0.1	64° 45'	-0.6	-0.7	-0.7	-0.6	-0.4	-0.2	-0.1	-0.1	-0.1	-0.2
-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	64° 30'	-0.5	-0.6	-0.7	-0.7	-0.5	-0.3	-0.1	-0.1	-0.1	-0.1
0	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	64° 15'	-0.4	-0.5	-0.6	-0.6	-0.5	-0.3	-0.2	-0.1	-0.1	-0.1
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	0	64° 0'	-0.3	-0.4	-0.4	-0.5	-0.5	-0.4	-0.3	-0.2	-0.2	-0.2
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	0	63° 45'	-0.3	-0.3	-0.3	-0.4	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	63° 30'	-0.3	-0.3	-0.3	-0.3	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	63° 15'	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.4	-0.4	-0.4
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	63° 0'	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.4	-0.4	-0.4	-0.4
0	0	-0.1	-0.1	-0.1	-0.1	0	0	0	62° 45'	0	-0.1	-0.2	-0.3	-0.4	-0.4	-0.4	-0.4	-0.5	-0.5
0	0	0	0	0	0	0	0	0	62° 30'	0	0	-0.1	-0.3	-0.3	-0.4	-0.4	-0.5	-0.5	-0.5
0	0	0.1	0.1	0	0	0	0	0	62° 15'	0	-0.1	-0.1	-0.2	-0.3	-0.3	-0.4	-0.5	-0.5	-0.5
0	0	0.1	0.1	0.1	0	0	0	0	62° 0'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.3	-0.4	-0.5	-0.5
0	0	0	0.1	0.1	0	0	0	0	61° 45'	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.4	-0.5	-0.5
0	0	0	0	0	0	0	0	0.1	61° 30'	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.4	-0.5	-0.5
0	0	0	0	0	0	0	0	0.1	61° 15'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.3	-0.5	-0.5	-0.5
0	0	0	0	0	0	0	0	0	61° 0'	0	-0.1	-0.2	-0.2	-0.2	-0.2	-0.3	-0.5	-0.5	-0.5
0	0.1	0.1	0	0	0	0	0	0	60° 45'	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.3	-0.5	-0.5	-0.5
0.1	0.1	0.1	0	0	0	0.1	0.1	0.1	60° 30'	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.3	-0.5	-0.5	-0.5
0.1	0.1	0.1	0	0	0.1	0.1	0.1	0.1	60° 15'	-0.1	-0.1	-0.1	-0.2	-0.1	-0.2	-0.3	-0.5	-0.5	-0.5
0	0.1	0.1	0	0	0.1	0.1	0.1	0.1	60° 0'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.3	-0.4	-0.5	-0.4	-0.4

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 124 to 120 °W									
Correction to Latitude										Correction to Longitude									
124°	123°	123°	122°	122°	121°	121°	120°	120°	Longitude	124°	123°	123°	122°	122°	121°	121°	120°	120°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	70° 0'	-0.2	-0.2	-0.2	-0.1	-0.1	-0.2	-0.3	-0.4	-0.4	
-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	0	69° 45'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.3	-0.4	-0.4	-0.4	
-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	0	69° 30'	0	-0.1	-0.2	-0.2	-0.3	-0.4	-0.4	-0.5	-0.4	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	69° 15'	0	-0.1	-0.2	-0.3	-0.3	-0.4	-0.4	-0.4	-0.4	
0	0	0	0	0	0	-0.1	-0.1	0	69° 0'	0	-0.1	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.4	
0	0	0	0	0	0	0	0	0	68° 45'	0	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	
0	0	0	0	0	0	0	0	0	68° 30'	0	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.3	
0	0	0	0	0	0	0.1	0.1	0	68° 15'	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.3	
0	0	0	0	0	0.1	0.1	0.1	0	68° 0'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.4	
0	0	0	0	0.1	0.1	0.1	0.1	0	67° 45'	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.4	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	67° 30'	-0.2	-0.1	-0.2	-0.2	-0.3	-0.4	-0.4	-0.3	-0.3	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	67° 15'	-0.2	-0.2	-0.2	-0.3	-0.3	-0.4	-0.4	-0.3	-0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	67° 0'	-0.3	-0.2	-0.2	-0.3	-0.3	-0.4	-0.3	-0.2	-0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	66° 45'	-0.3	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	66° 30'	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	66° 15'	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	66° 0'	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	65° 45'	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	65° 30'	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	-0.1	-0.1	-0.1	0	65° 15'	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	65° 0'	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	-0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	64° 45'	-0.2	-0.2	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	-0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	64° 30'	-0.1	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	
-0.1	-0.1	0	0	0	0	0	0	0	64° 15'	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	64° 0'	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	63° 45'	-0.3	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.4	-0.3	
-0.1	0	0	0	0	0	0	0	0	63° 30'	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.3	-0.4	-0.4	
-0.1	0	0	0	0	0	0	0	0	63° 15'	-0.4	-0.4	-0.3	-0.2	-0.2	-0.2	-0.3	-0.4	-0.4	
0	0	0	0	0	0	0	0	0	63° 0'	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2	-0.2	-0.3	-0.4	
0	0	0	0	0	0	0	0	0	62° 45'	-0.5	-0.4	-0.4	-0.3	-0.2	-0.1	-0.1	-0.2	-0.4	
0	0	0	0	0	0	0	0	0	62° 30'	-0.5	-0.4	-0.4	-0.3	-0.2	-0.1	-0.1	-0.1	-0.3	
0	0	0	0	0	0	0	0	0	62° 15'	-0.5	-0.5	-0.4	-0.3	-0.2	-0.1	0	-0.1	-0.3	
0	0	0	0	0	0	0	0.1	0	62° 0'	-0.5	-0.5	-0.4	-0.3	-0.2	-0.1	-0.1	-0.1	-0.3	
0	0	0	0	0	0	0	0	0	61° 45'	-0.5	-0.5	-0.4	-0.3	-0.2	-0.2	-0.1	-0.2	-0.3	
0.1	0.1	0	0	0	0	0	0	0	61° 30'	-0.5	-0.5	-0.4	-0.3	-0.2	-0.2	-0.2	-0.2	-0.3	
0.1	0.1	0	0	0	0	0	0	0	61° 15'	-0.5	-0.4	-0.3	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	61° 0'	-0.5	-0.4	-0.2	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	60° 45'	-0.5	-0.4	-0.2	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3	
0.1	0	0	0	0	0	0	0	0	60° 30'	-0.5	-0.3	-0.1	0	-0.1	-0.2	-0.2	-0.3	-0.3	
0.1	0	0	0	0	0	0	0	0	60° 15'	-0.5	-0.3	-0.1	0	-0.1	-0.2	-0.2	-0.3	-0.3	
0.1	0	0	0	0	0	0	0	0	60° 0'	-0.4	-0.2	-0.1	0	-0.1	-0.2	-0.2	-0.3	-0.2	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N

Longitude 120 to 116 °W

Correction to Latitude

Correction to Longitude

Correction to Latitude										Correction to Longitude									
120°	119°	119°	118°	118°	117°	117°	116°	116°	Longitude	120°	119°	119°	118°	118°	117°	117°	116°	116°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	-0.4	-0.4	-0.3	-0.2	-0.1	-0.1	0	0	0	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	69° 45'	-0.4	-0.4	-0.3	-0.2	-0.2	-0.1	0	0	0	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	69° 30'	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	0	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	69° 15'	-0.4	-0.4	-0.4	-0.4	-0.4	-0.3	-0.2	-0.2	-0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	69° 0'	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.3	-0.3	
-0.1	-0.1	0	0	0	0	0	0	0	68° 45'	-0.3	-0.4	-0.4	-0.5	-0.4	-0.4	-0.4	-0.4	-0.3	
0	0	0	0	0	0	0	0	0	68° 30'	-0.3	-0.4	-0.5	-0.5	-0.4	-0.3	-0.3	-0.3	-0.4	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	68° 15'	-0.3	-0.4	-0.5	-0.5	-0.4	-0.3	-0.2	-0.3	-0.4	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 0'	-0.4	-0.5	-0.5	-0.5	-0.3	-0.2	-0.1	-0.2	-0.3	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	67° 45'	-0.4	-0.4	-0.4	-0.4	-0.3	-0.2	-0.1	-0.2	-0.3	
0.1	0.1	0.1	0	0	0	0	0	0	67° 30'	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.1	-0.2	
0.1	0	0	0	0	0	0	0	0	67° 15'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	67° 0'	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	66° 45'	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	66° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	66° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	-0.1	
0	0	0	0	0	0	0	0	0	66° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0	65° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	-0.1	
0	0	0	0	0	0	0	0	0.1	65° 30'	-0.1	-0.2	-0.2	-0.2	-0.1	0	0	-0.1	-0.1	
-0.1	0	0	0	0	0	0	0.1	0.1	65° 15'	-0.1	-0.2	-0.3	-0.2	-0.1	0	0	-0.1	-0.2	
-0.1	0	0	0	0	0	0	0.1	0.1	65° 0'	-0.2	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	-0.2	
0	0	0	0	0	0	0	0.1	0.1	64° 45'	-0.2	-0.3	-0.4	-0.3	-0.2	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0.1	64° 30'	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	64° 15'	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	64° 0'	-0.3	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	63° 45'	-0.3	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	63° 30'	-0.4	-0.3	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	63° 15'	-0.4	-0.3	-0.2	-0.2	-0.2	-0.3	-0.3	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	63° 0'	-0.4	-0.4	-0.3	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	
-0.1	-0.1	-0.1	0	0	0	0	0	0	62° 45'	-0.4	-0.4	-0.3	-0.3	-0.2	-0.3	-0.3	-0.3	-0.3	
0	-0.1	0	0	0	0	0	0	0	62° 30'	-0.3	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	62° 15'	-0.3	-0.4	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3	-0.3	
0.1	0.1	0.1	0	0	0	0	0	0	62° 0'	-0.3	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	
0.1	0.1	0.1	0	0	0	0	0	0	61° 45'	-0.3	-0.4	-0.4	-0.3	-0.2	-0.2	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	61° 30'	-0.3	-0.4	-0.3	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	61° 15'	-0.3	-0.3	-0.3	-0.3	-0.2	-0.3	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	61° 0'	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	60° 45'	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	60° 30'	-0.3	-0.3	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	60° 15'	-0.3	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	-0.1	-0.1	60° 0'	-0.2	-0.1	-0.1	-0.1	-0.2	-0.3	-0.3	-0.2	-0.2	





# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N

Longitude 108 to 104 °W

Correction to Latitude

Correction to Longitude

Correction to Latitude										Correction to Longitude									
108°	107°	107°	106°	106°	105°	105°	104°	104°	Longitude	108°	107°	107°	106°	106°	105°	105°	104°	104°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	70° 0'	-0.1	0	0	0	0	-0.1	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 45'	-0.1	0	0	0	-0.1	-0.1	-0.1	-0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 30'	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 15'	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 0'	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 45'	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	
0	0	0	0	0	0.1	0.1	0.1	0.1	68° 30'	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0.1	0.1	0.1	68° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0.1	0.1	68° 0'	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0.1	67° 45'	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	67° 30'	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	67° 15'	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	67° 0'	-0.3	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	
-0.1	0	0	0	0	0	0	0	0	66° 45'	-0.3	-0.2	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	66° 30'	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	66° 15'	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.3	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	66° 0'	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.2	
0	0	0	0	0	0	0	0	0	65° 45'	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0.1	0.1	0	0	0	0	0	65° 30'	-0.3	-0.3	-0.2	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	65° 15'	-0.4	-0.3	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	65° 0'	-0.4	-0.3	-0.2	-0.1	0	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	64° 45'	-0.4	-0.3	-0.2	-0.1	0	-0.1	-0.2	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	64° 30'	-0.4	-0.3	-0.2	-0.1	0	-0.1	-0.2	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	64° 15'	-0.3	-0.3	-0.2	-0.1	0	-0.1	-0.2	-0.3	-0.4	
0	0	0	0	0	0	0	0.1	0.1	64° 0'	-0.3	-0.3	-0.1	-0.1	-0.1	-0.1	-0.2	-0.3	-0.3	
0	0	0	0	0	0	0.1	0.1	0.1	63° 45'	-0.3	-0.2	-0.1	-0.1	-0.1	-0.2	-0.3	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	63° 30'	-0.3	-0.2	-0.1	-0.1	-0.2	-0.3	-0.3	-0.3	-0.2	
0	0	0	0	0	0	0	0	0	63° 15'	-0.3	-0.2	-0.1	-0.1	-0.2	-0.3	-0.3	-0.3	-0.2	
0	0	0	0	0	0	0	0	0	63° 0'	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3	-0.2	
0	0	0	0	0	0	0	0	0	62° 45'	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	62° 30'	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	62° 15'	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	
0	0	0	0	0	0	0	0	0	62° 0'	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.3	
0	0	0	0	0	0	0	0	0	61° 45'	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	61° 30'	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3	-0.2	
0	0	0	0	0	0	0	0	0	61° 15'	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.3	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	61° 0'	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	60° 45'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	60° 30'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	60° 15'	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	60° 0'	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	



# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 104 to 100 °W									
Correction to Latitude										Correction to Longitude									
104°	103°	103°	102°	102°	101°	101°	100°	100°	Longitude	104°	103°	103°	102°	102°	101°	101°	100°	100°	Latitude
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	0'
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	70° 0'	-0.1	0	0.1	0.1	0.2	0.1	0.1	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 45'	0	0	0.1	0.1	0.1	0.1	0	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 30'	0	0.1	0.1	0.1	0.1	0	0	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 15'	0	0.1	0.1	0.1	0.1	0	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 0'	0	0	0.1	0.1	0	0	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 45'	0	0	0	0	0	0	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 30'	-0.1	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 0'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	0	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	67° 45'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	0	0	0	
0	0	0	0	0	0	0	0	0	67° 30'	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	0	0	0	
0	0	0	0	0	0	0	0	0	67° 15'	-0.1	-0.2	-0.2	-0.2	-0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0	67° 0'	-0.2	-0.2	-0.2	-0.2	-0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0	66° 45'	-0.2	-0.2	-0.2	-0.2	-0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0.1	66° 30'	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	0	0	-0.1	
0	0	0	0	0	0	0	0	0.1	66° 15'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0.1	0.1	66° 0'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0.1	0.1	65° 45'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0.1	0.1	65° 30'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0.1	0.1	0.1	65° 15'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 0'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 45'	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 30'	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0.1	0.1	0.1	64° 15'	-0.4	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	
0.1	0	0	0	0	0	0	0.1	0.1	64° 0'	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0.1	0	0	0	0	0	0	0	0	63° 45'	-0.3	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	63° 30'	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	63° 15'	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	63° 0'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	62° 45'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	62° 30'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	62° 15'	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	62° 0'	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	61° 45'	-0.3	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	61° 30'	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	61° 15'	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	61° 0'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	60° 45'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	60° 30'	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	60° 15'	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	60° 0'	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 100 to 96 °W									
Correction to Latitude										Correction to Longitude									
100°	99°	99°	98°	98°	97°	97°	96°	96°	Longitude	100°	99°	99°	98°	98°	97°	97°	96°	96°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	70° 0'	0	0	0	0	0	0.1	0.1	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	69° 45'	0	0	0	0	0	0	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 30'	-0.1	0	0	0	0	0	0	0	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 15'	-0.1	0	0	0	0	0	0	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 0'	-0.1	0	0	0	0	0	0	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 45'	-0.1	0	0	0.1	0.1	0	0	0	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 30'	-0.1	0	0	0.1	0.1	0.1	0	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 15'	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 0'	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	67° 45'	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	67° 30'	0	0	0	0.1	0.1	0.1	0	0.1	0.1	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	67° 15'	0	0	0	0	0.1	0	0	0.1	0.1	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	67° 0'	0	0	0	0	0	0	0	0.1	0.1	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 45'	0	-0.1	-0.1	0	0	0	0.1	0.1	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 30'	-0.1	-0.1	-0.1	-0.1	0	0	0.1	0.1	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 15'	-0.1	-0.1	-0.1	-0.1	0	0	0.1	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 0'	-0.1	-0.1	-0.1	-0.1	0	0	0.1	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 45'	-0.1	-0.1	-0.1	-0.1	0	0	0.1	0.1	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 30'	-0.1	-0.1	-0.1	0	0	0	0	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 15'	-0.1	-0.1	-0.1	0	0	0	0	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 0'	-0.1	-0.1	-0.1	0	0	0	0	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 45'	-0.1	-0.1	-0.1	0	0	0	0	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 30'	-0.1	-0.1	-0.1	0	0	0.1	0.1	0	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 15'	-0.1	-0.1	-0.1	0	0.1	0.1	0.1	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 0'	-0.2	-0.1	-0.1	0	0.1	0.1	0.1	0.1	0.1	
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	63° 45'	-0.2	-0.1	-0.1	0	0	0.1	0.1	0.1	0.1	
0	0	0	0	0	0.1	0.1	0.1	0.1	63° 30'	-0.2	-0.1	-0.1	-0.1	0	0	0	0.1	0.1	
0	0	0	0	0	0	0	0.1	0.1	63° 15'	-0.2	-0.1	-0.1	-0.1	0	0	0	0	0.1	
0	0	0	0	0	0	0	0	0.1	63° 0'	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	
0	0	0	0	0	0	0	0	0.1	62° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	
0	0	0	0	0	0	0	0	0.1	62° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0.1	62° 15'	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	62° 0'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	61° 45'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	61° 30'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	61° 15'	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	61° 0'	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	60° 45'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	60° 30'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	
0	0	-0.1	0	0	0	0	0	0	60° 15'	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	-0.2	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	60° 0'	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 96 to 92 °W									
Correction to Latitude										Correction to Longitude									
96°	95°	95°	94°	94°	93°	93°	92°	92°	Longitude	96°	95°	95°	94°	94°	93°	93°	92°	92°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	70° 0'	0.2	0.2	0.2	0.2	0.1	0.1	0	-0.1	-0.1	
0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	69° 45'	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0	
0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	69° 30'	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 15'	0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 0'	0	0.1	0.1	0.2	0.2	0.3	0.3	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 45'	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 30'	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 15'	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.2	
0.1	0.1	0.1	0.1	0	0	0	0	0	68° 0'	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.2	
0.1	0.1	0.1	0	0	0	0.1	0.1	0.1	67° 45'	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.2	
0.1	0.1	0	0	0	0.1	0.1	0.1	0.1	67° 30'	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	
0.1	0	0	0	0	0	0.1	0.1	0.1	67° 15'	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
0.1	0	0	0	0	0	0.1	0.1	0.1	67° 0'	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 45'	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 30'	0.2	0.2	0.2	0.2	0.1	0.1	0	0	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 15'	0.2	0.2	0.2	0.2	0.1	0.1	0	0	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 0'	0.2	0.2	0.2	0.1	0.1	0	0	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	65° 45'	0.2	0.2	0.1	0.1	0.1	0.1	0	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	65° 30'	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	65° 15'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 0'	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	64° 45'	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0	
0.1	0.1	0.1	0.1	0.1	0	0.1	0.1	0.1	64° 30'	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 15'	0	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 0'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	63° 45'	0.1	0.1	0.1	0.1	0	0	0	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 30'	0.1	0.1	0.1	0.1	0	0	0	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 15'	0.1	0.1	0.1	0	0	0	0	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 0'	0	0	0	0	0	0	0	0	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	62° 45'	0	0	0	0	0	0	0	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	62° 30'	-0.1	-0.1	0	0	0	0	0	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	62° 15'	-0.1	-0.1	0	0	0	0	0	0	0	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	62° 0'	-0.1	-0.1	-0.1	0	0	0	0	0	0	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	61° 45'	-0.1	-0.1	-0.1	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	61° 30'	-0.1	-0.1	-0.1	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	61° 15'	-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	61° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0	60° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0.1	
0	0	0	0	0	0	0	0	0	60° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0.1	
0	0	0	0	0	0	0	0	0	60° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0.1	
0	0	0	0	0	0	0	0	0	60° 0'	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	0	0	0.1	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 92 to 88 °W									
Correction to Latitude										Correction to Longitude									
92°	91°	91°	90°	90°	89°	89°	88°	88°	Longitude	92°	91°	91°	90°	90°	89°	89°	88°	88°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	70° 0'	-0.1	-0.1	-0.1	0	0	0	0	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 45'	0	0	0	0	0	0	0	0	0	0.1
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 30'	0.1	0.1	0	0	0	0	0	0	0	0
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 15'	0.2	0.1	0	0	0	0	0	0	0	0
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 0'	0.2	0.1	0	0	0	0	0	0	0	0
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 45'	0.2	0.1	0	0	0	0	0	0	0	0
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 30'	0.2	0.1	0	0	-0.1	0	0	0	0	0
0.1	0.1	0.1	0.1	0	0	0.1	0.1	0.1	68° 15'	0.2	0.1	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
0	0	0	0	0	0	0	0	0.1	68° 0'	0.2	0.1	0	0	0	-0.1	-0.1	-0.2	-0.1	-0.1
0.1	0	0	0	0	0	0	0	0	67° 45'	0.2	0.1	0	0	0	-0.1	-0.1	-0.2	-0.2	-0.2
0.1	0.1	0.1	0.1	0	0	0	0	0	67° 30'	0.2	0.1	0.1	0	0	0	-0.1	-0.2	-0.2	-0.2
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	67° 15'	0.2	0.2	0.1	0.1	0	0	-0.1	-0.1	-0.1	-0.1
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	67° 0'	0.2	0.2	0.1	0.1	0.1	0	0	-0.1	-0.1	-0.1
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 45'	0.1	0.2	0.1	0.1	0.1	0.1	0	0	-0.1	-0.1
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 30'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 15'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 0'	0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	65° 45'	0	0	0.1	0	0.1	0.1	0.1	0.1	0.1	0.1
0	0	0	0	0	0	0.1	0.1	0.1	65° 30'	0	0	0	0	0	0.1	0.1	0.1	0.1	0.1
0	0	0	0	0	0	0	0.1	0.1	65° 15'	0.1	0	0	0	0	0.1	0.1	0.1	0.1	0.1
0.1	0.1	0.1	0.1	0	0	0	0.1	0.1	65° 0'	0.1	0	0	0.1	0.1	0.1	0	0	0	0
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 45'	0	0	0	0.1	0.1	0	0	0	0	0
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 30'	0	0	0	0.1	0.1	0	0	0	0	0
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 15'	0	0	0	0	0	0	0	0	0	0
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 0'	0.1	0	0	0	0	0	0	0	0	0.1
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 45'	0.1	0.1	0	0	0	0	0	0.1	0.1	0.1
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 30'	0.1	0.1	0	0	0	0	0.1	0.1	0.1	0.1
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 15'	0.1	0.1	0	0	0	0.1	0.1	0.1	0.1	0.1
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 0'	0.1	0.1	0	0	0.1	0.1	0.1	0.1	0.1	0.1
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	62° 45'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	62° 30'	0	0.1	0	0.1	0.1	0.2	0.2	0.1	0.1	0.1
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	62° 15'	0	0	0	0.1	0.1	0.2	0.2	0.1	0.1	0.1
0.1	0.1	0.1	0	0	0	0	0	0	62° 0'	0	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1
0.1	0.1	0	0	0	0	0	0	0	61° 45'	0	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1
0	0	0	0	0	0	0	0	0	61° 30'	0	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
0	0	0	0	0	0	0	0	0	61° 15'	0	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
0	0	0	0	0	0	0	0	0	61° 0'	0	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0
0	0	0	0	0	0	0	0	0	60° 45'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0
0	0	0	0	0	0	0	0	0	60° 30'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0
0	0	0	0	0	0	0	0	0	60° 15'	0.1	0.1	0.1	0.1	0.1	0.1	0	0	-0.1	-0.1
0	0	0	0	0	0	0	0	0	60° 0'	0.1	0.1	0.1	0.1	0.1	0.1	0	0	-0.1	-0.1

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 88 to 84 °W									
Correction to Latitude										Correction to Longitude									
88°	87°	87°	86°	86°	85°	85°	84°	84°	Longitude	88°	87°	87°	86°	86°	85°	85°	84°	84°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	70° 0'	0.1	0.2	0.2	0.3	0.4	0.4	0.3	0.2	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 45'	0.1	0.1	0.2	0.3	0.4	0.4	0.3	0.2	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	69° 30'	0	0	0.1	0.3	0.4	0.5	0.4	0.3	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 15'	0	0	0.1	0.2	0.4	0.5	0.5	0.4	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 0'	0	0	0	0.1	0.3	0.5	0.5	0.4	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 45'	0	0	0	0.1	0.3	0.4	0.5	0.4	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 30'	0	0	0	0.2	0.3	0.4	0.4	0.3	0.2	
0.1	0.1	0.1	0.1	0.1	0	0	0.1	0.1	68° 15'	-0.1	0	0.1	0.3	0.4	0.5	0.4	0.3	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 0'	-0.1	0	0.1	0.3	0.4	0.5	0.4	0.3	0.1	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	67° 45'	-0.2	0	0.1	0.3	0.4	0.4	0.3	0.2	0.1	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	67° 30'	-0.2	0	0.1	0.2	0.3	0.3	0.3	0.2	0.2	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	67° 15'	-0.1	0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	67° 0'	-0.1	-0.1	0	0.1	0.2	0.2	0.2	0.2	0.2	
0.1	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 45'	-0.1	-0.1	0	0.1	0.1	0.2	0.2	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 30'	0	-0.1	0	0	0.1	0.1	0.2	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 15'	0	0	0	0	0.1	0.1	0.1	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 0'	0.1	0	0	0	0	0.1	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0.1	65° 45'	0.1	0.1	0	0	0.1	0.1	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	65° 30'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	65° 15'	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	65° 0'	0	0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 45'	0	0	0.1	0.1	0.2	0.2	0.3	0.3	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 30'	0	0	0.1	0.1	0.2	0.2	0.3	0.3	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	64° 15'	0	0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 0'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 45'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 30'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 15'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 0'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	62° 45'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	62° 30'	0.1	0.1	0.1	0.1	0	0.1	0.1	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	62° 15'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	62° 0'	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	61° 45'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	61° 30'	0.1	0	0	0.1	0.1	0.1	0.1	0.1	0.2	
0	0	0	0	0	0	0	0	0	61° 15'	0.1	0	0	0.1	0.1	0.1	0.1	0.1	0.2	
0	0	0	0	0	0	0	0	0	61° 0'	0	0	0	0.1	0.1	0.1	0.1	0.2	0.2	
0	0	0	0	0	0	0	0	0	60° 45'	0	0	0	0	0.1	0.2	0.2	0.2	0.2	
0	0	0	0	0	0	0	0	0	60° 30'	0	0	0	0	0.1	0.2	0.2	0.2	0.1	
0	0	0	0.1	0.1	0	0	0	0	60° 15'	-0.1	0	0	0	0.1	0.2	0.2	0.2	0.1	
0	0	0	0	0	0	0	0.1	0.1	60° 0'	-0.1	-0.1	0	0	0.1	0.2	0.2	0.2	0.1	

## Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 84 to 80 °W									
Correction to Latitude										Correction to Longitude									
84°	83°	83°	82°	82°	81°	81°	80°	80°	Longitude	84°	83°	83°	82°	82°	81°	81°	80°	80°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0	70° 0'	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	69° 45'	0.1	0.1	0	0.1	0.1	0.2	0.2	0.3	0.3	
0	0	0	0.1	0.1	0.1	0.1	0.1	0	69° 30'	0.2	0	0	0	0.1	0.1	0.2	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	69° 15'	0.2	0	0	0	0	0.1	0.2	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	69° 0'	0.2	0	-0.1	0	0	0.1	0.2	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	68° 45'	0.2	0	-0.1	0	0	0.1	0.2	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	68° 30'	0.2	0	-0.1	0	0	0.1	0.1	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	68° 15'	0.1	0	-0.1	0	0	0	0.1	0.2	0.2	
0.1	0.1	0	0	0	0	0	0	0	68° 0'	0.1	0	0	0	0	0	0.1	0.2	0.2	
0.1	0.1	0.1	0	0	0	0	0	0	67° 45'	0.1	0.1	0	0	0	0	0.1	0.2	0.3	
0.1	0.1	0.1	0.1	0	0	0	0.1	0	67° 30'	0.2	0.2	0.1	0	0	0	0.1	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	67° 15'	0.2	0.2	0.2	0.1	0	0	0.1	0.1	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	67° 0'	0.2	0.2	0.2	0.1	0	0	0.1	0.1	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	66° 45'	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	66° 30'	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	66° 15'	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	66° 0'	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	65° 45'	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	
0	0	0	0.1	0.1	0.1	0.1	0.1	0	65° 30'	0.1	0	0	0.1	0.2	0.3	0.2	0.1	0.1	
0	0	0	0	0	0	0.1	0.1	0	65° 15'	0.1	0	0	0	0.1	0.2	0.2	0.1	0	
0	0	0	0	0	0	0	0.1	0	65° 0'	0.2	0	-0.1	-0.1	0	0.2	0.2	0.1	0	
0.1	0	0	0	0	0	0	0.1	0	64° 45'	0.2	0.1	0	-0.1	0	0.1	0.1	0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	64° 30'	0.2	0.1	0	0	0	0.1	0.1	0.1	0.1	
0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0	64° 15'	0.2	0.1	0.1	0	0.1	0.1	0.1	0.1	0.1	
0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0	64° 0'	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	63° 45'	0	0	0.1	0.2	0.2	0.2	0.2	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	63° 30'	0	0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	
0.1	0.1	0	0	0	0.1	0.1	0.1	0	63° 15'	0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	
0.1	0	0	0	0	0	0	0	0	63° 0'	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	
0	0	0	0	0	0	0	0	0	62° 45'	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	
0	0	0	0	0	0	0	0	0	62° 30'	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	
0	0.1	0.1	0.1	0.1	0	0	0	0	62° 15'	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	62° 0'	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	
0.1	0.1	0.1	0	0	0	0	0	0	61° 45'	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	
0.1	0	0	0	0	0	0	0	0	61° 30'	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	
0	0	0	0	0	0	0	0	0	61° 15'	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	
0	0	0	0	0	0	0.1	0.1	0	61° 0'	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0	
0	0	0	0	0.1	0.1	0.1	0.1	0	60° 45'	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0	
0	0	0	0.1	0.1	0.1	0.1	0.2	0	60° 30'	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0	0	
0	0	0.1	0.1	0.1	0.1	0.1	0.2	0	60° 15'	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	60° 0'	0.1	0.1	0.1	0.1	0.1	0	0	0	0.1	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 80 to 76 °W									
Correction to Latitude										Correction to Longitude									
80°	79°	79°	78°	78°	77°	77°	76°	76°	Longitude	80°	79°	79°	78°	78°	77°	77°	76°	76°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	70° 0'	0.3	0.3	0.4	0.5	0.5	0.6	0.6	0.6	0.7	
0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	69° 45'	0.3	0.3	0.3	0.4	0.5	0.5	0.5	0.6	0.7	
0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	69° 30'	0.2	0.2	0.3	0.3	0.4	0.5	0.5	0.6	0.6	
0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	69° 15'	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.5	0.6	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 0'	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.5	0.6	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 45'	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.5	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 30'	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.5	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 15'	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.5	
0	0	0	0	0	0.1	0.1	0.1	0.1	68° 0'	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.4	0.4	
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	67° 45'	0.3	0.3	0.2	0.1	0.1	0.2	0.3	0.4	0.4	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	67° 30'	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.4	0.4	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	67° 15'	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.4	0.4	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	67° 0'	0.2	0.1	0.1	0	0	0.2	0.3	0.4	0.4	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 45'	0.2	0.1	0.1	0	0	0.1	0.2	0.3	0.4	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 30'	0.1	0.1	0.1	0	0	0	0.2	0.3	0.4	
0.1	0.1	0.1	0.1	0	0	0	0	0	66° 15'	0.1	0.1	0.1	0.1	0	0.1	0.1	0.3	0.3	
0.1	0.1	0.1	0.1	0	0	0	0	0	66° 0'	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.3	0.3	
0.1	0.1	0.1	0.1	0	0	0	0	0	65° 45'	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3	
0.1	0.1	0.1	0.1	0	0	0	0	0	65° 30'	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3	
0.1	0.1	0.1	0.1	0	0	0	0	0	65° 15'	0	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3	
0.1	0.1	0.1	0	0	0	0	0	0.1	65° 0'	0	0.1	0.2	0.3	0.4	0.3	0.3	0.2	0.2	
0.1	0	0	0	0.1	0.1	0.1	0.1	0.1	64° 45'	0	0.1	0.2	0.3	0.4	0.3	0.2	0.2	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 30'	0.1	0.1	0.2	0.3	0.3	0.3	0.2	0.2	0.2	
0.1	0.1	0	0.1	0.1	0.1	0.1	0.1	0.1	64° 15'	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	
0.1	0	0	0	0	0	0.1	0.1	0.1	64° 0'	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
0.1	0	0	0	0	0	0	0.1	0.1	63° 45'	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	
0.1	0.1	0	0	0	0	0.1	0.1	0.1	63° 30'	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	63° 15'	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.2	
0	0.1	0.1	0.1	0.1	0	0	0	0	63° 0'	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	
0	0	0	0	0	0	-0.1	-0.1	-0.1	62° 45'	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	
0	0	0	0	0	0	-0.1	-0.1	-0.1	62° 30'	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	
0	0	0	0	0	0	0	-0.1	-0.1	62° 15'	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	
0	0	0	0	0	0	0	0	0	62° 0'	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	61° 45'	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	61° 30'	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	61° 15'	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	61° 0'	0	0	0.1	0.3	0.3	0.3	0.3	0.3	0.3	
0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	60° 45'	0	0	0.1	0.3	0.3	0.3	0.3	0.3	0.3	
0.2	0.2	0.1	0.1	0.1	0.1	0.1	0	0	60° 30'	0	0.1	0.2	0.3	0.4	0.4	0.3	0.3	0.3	
0.1	0.1	0.1	0.1	0	0	0	0	0	60° 15'	0	0.1	0.2	0.3	0.4	0.4	0.4	0.3	0.3	
0.1	0.1	0	0	0	0	0	0	0	60° 0'	0.1	0.2	0.3	0.4	0.4	0.4	0.4	0.3	0.3	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 76 to 72 °W									
Correction to Latitude										Correction to Longitude									
76°	75°	75°	74°	74°	73°	73°	72°	72°	Longitude	76°	75°	75°	74°	74°	73°	73°	72°	72°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	70° 0'	0.7	0.8	0.8	0.8	0.7	0.6	0.5	0.5	0.5	
0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	69° 45'	0.7	0.8	0.8	0.9	0.8	0.7	0.6	0.5	0.5	
0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	69° 30'	0.6	0.7	0.8	0.9	0.8	0.7	0.6	0.5	0.5	
0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	69° 15'	0.6	0.7	0.8	0.8	0.7	0.7	0.6	0.6	0.6	
0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	69° 0'	0.6	0.6	0.7	0.7	0.7	0.6	0.6	0.6	0.6	
0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	68° 45'	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7
0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	68° 30'	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.7	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	68° 15'	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.7	
0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	68° 0'	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	
0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	67° 45'	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	67° 30'	0.4	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.5	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	67° 15'	0.4	0.3	0.2	0.2	0.3	0.4	0.5	0.5	0.5	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	67° 0'	0.4	0.3	0.2	0.2	0.3	0.4	0.5	0.5	0.5	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 45'	0.4	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.5	
0.1	0.1	0.1	0.1	0	0	0	0	0.1	66° 30'	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.5	0.5	
0	0	0	0	0	0	0	0	0	66° 15'	0.3	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.4	
0	0	0	0	0	0	0	0	0	66° 0'	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	
0	0	0	0	0	0	0	0	0	65° 45'	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	
0	0	0	0	0	0	0	0	0	65° 30'	0.3	0.3	0.3	0.2	0.3	0.4	0.4	0.4	0.4	
0	0.1	0.1	0	0	0	0	0	0	65° 15'	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	65° 0'	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	64° 45'	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	64° 30'	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.4	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 15'	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.5	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 0'	0.2	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.6	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 45'	0.2	0.2	0.2	0.3	0.4	0.4	0.5	0.5	0.6	
0.1	0.1	0	0	0.1	0.1	0.1	0.1	0.1	63° 30'	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.5	0.6	
0	0	0	0	0	0	0.1	0.1	0.1	63° 15'	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.6	
0	0	0	0	0	0	0	0.1	0.1	63° 0'	0.2	0.3	0.3	0.2	0.2	0.3	0.3	0.4	0.5	
-0.1	-0.1	0	0	0	0	0	0	0.1	62° 45'	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.4	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	62° 30'	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	62° 15'	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	62° 0'	0.2	0.2	0.2	0.2	0.2	0.2	0	0	0	
0	0	0	0	0	0	0	0	0	61° 45'	0.3	0.2	0.2	0.2	0.3	0.2	0	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	61° 30'	0.3	0.3	0.2	0.2	0.3	0.2	0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	61° 15'	0.3	0.3	0.2	0.2	0.3	0.2	0.1	0	0	
0.1	0.1	0.1	0	0	0	0	0	0	61° 0'	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.1	
0.1	0.1	0	0	0	0	0	0	0	60° 45'	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	
0	0	0	0	0	0.1	0.1	0.1	0	60° 30'	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	60° 15'	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	60° 0'	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	



## Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 72 to 68 °W									
Correction to Latitude										Correction to Longitude									
72°	71°	71°	70°	70°	69°	69°	68°	68°	Longitude	72°	71°	71°	70°	70°	69°	69°	68°	68°	Latitude
0'	30'	0'	30'	0'	30'	0'	30'	0'		0'	30'	0'	30'	0'	30'	0'	30'	0'	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	70° 0'	0.5	0.5	0.5	0.4	0.3	0.2	0.1	0.1	0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 45'	0.5	0.5	0.5	0.5	0.4	0.3	0.2	0.1	0	
0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	69° 30'	0.5	0.5	0.5	0.5	0.4	0.3	0.2	0.1	0	
0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	69° 15'	0.6	0.6	0.6	0.5	0.5	0.4	0.3	0.1	-0.1	
0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	69° 0'	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.2	0	
0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 45'	0.7	0.6	0.5	0.4	0.4	0.4	0.4	0.3	0.2	
0.2	0.1	0.1	0.1	0.1	0.1	0	0	0	68° 30'	0.7	0.6	0.5	0.5	0.4	0.5	0.5	0.5	0.3	
0.2	0.2	0.1	0.1	0.1	0	0	0	0	68° 15'	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.5	0.4	
0.2	0.2	0.2	0.1	0.1	0.1	0	0	0	68° 0'	0.6	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.5	
0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0	67° 45'	0.6	0.7	0.8	0.8	0.8	0.8	0.7	0.7	0.6	
0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	67° 30'	0.5	0.6	0.7	0.8	0.8	0.8	0.8	0.8	0.8	
0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	67° 15'	0.5	0.6	0.6	0.7	0.8	0.8	0.7	0.8	0.9	
0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	67° 0'	0.5	0.5	0.6	0.7	0.7	0.7	0.7	0.7	0.8	
0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	66° 45'	0.5	0.5	0.5	0.6	0.7	0.7	0.6	0.5	0.6	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 30'	0.5	0.5	0.5	0.6	0.7	0.7	0.6	0.5	0.5	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	66° 15'	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.5	0.5	
0	0	0	0	0	0	0.1	0.1	0.1	66° 0'	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	
0	0	0	0	0	0	0	0	0	65° 45'	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.4	0.4	
0	0	0	0	0	0	0	0	0	65° 30'	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.3	
0	0	0	0	0	0	0	0	0	65° 15'	0.4	0.4	0.5	0.5	0.5	0.5	0.4	0.4	0.3	
0	0	0	0	0	0	0	0	0	65° 0'	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.4	0.4	
0	0	0	0	0	0	0	0	0	64° 45'	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	
0	0	0	0	0	0	0	0	0	64° 30'	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.6	
0.1	0	0	0	0	0	0	0	0	64° 15'	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.6	
0.1	0.1	0	0	0	0	0	0.1	0.1	64° 0'	0.6	0.6	0.6	0.5	0.3	0.3	0.3	0.5	0.6	
0.1	0.1	0.1	0	0	0	0	0.1	0.1	63° 45'	0.6	0.7	0.6	0.5	0.3	0.2	0.3	0.4	0.6	
0.1	0.1	0.1	0.1	0.1	0	0	0	0.1	63° 30'	0.6	0.7	0.7	0.6	0.4	0.3	0.2	0.3	0.4	
0.1	0.1	0.1	0.2	0.1	0.1	0.1	0	0.1	63° 15'	0.6	0.6	0.7	0.6	0.5	0.3	0.3	0.2	0.3	
0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	63° 0'	0.5	0.6	0.6	0.6	0.5	0.5	0.4	0.3	0.3	
0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	62° 45'	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.3	
0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	62° 30'	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.4	
0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	62° 15'	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.4	
0	0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	62° 0'	0	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	
0	0	0	0.1	0.1	0.1	0.1	0.1	0.2	61° 45'	-0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.3	0.4	
0	0	0	0	0	0	0.1	0.1	0.1	61° 30'	-0.1	0	0.2	0.2	0.2	0.2	0.2	0.2	0.3	
0	0	0	0	0	0	0	0	0.1	61° 15'	0	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.2	
0	0	-0.1	-0.1	0	0	0	0	0	61° 0'	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	
0	0	0	0	0	0	0	0	0	60° 45'	0.1	0.1	0.2	0.2	0.1	0.1	0	0.1	0.2	
0	0	0.1	0.1	0	0	0	0	0	60° 30'	0.1	0.1	0.2	0.2	0.2	0.1	0	0.1	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	60° 15'	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	60° 0'	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 68 to 64 °W								
Correction to Latitude										Correction to Longitude								
68°	67°	67°	66°	66°	65°	65°	64°	64°	Longitude	68°	67°	67°	66°	66°	65°	65°	64°	64°
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	70° 0'	0.1	0.2	0.3	0.5	0.8	1	1	0.9	0.8
0.1	0.1	0.1	0.1	0.1	0	0	0	0	69° 45'	0	0.1	0.3	0.6	0.9	1.1	1.1	0.9	0.6
0.1	0.1	0.1	0.1	0.1	0	0	0	0	69° 30'	0	0	0.3	0.7	1.1	1.3	1.2	0.9	0.5
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	69° 15'	-0.1	0	0.2	0.7	1.2	1.4	1.3	0.9	0.5
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 0'	0	0	0.2	0.7	1.2	1.4	1.3	0.9	0.5
0.1	0	0	0	0.1	0.1	0.1	0.1	0.1	68° 45'	0.2	0.1	0.2	0.6	1	1.3	1.3	0.9	0.6
0	0	-0.1	0	0	0.1	0.1	0.1	0.1	68° 30'	0.3	0.2	0.2	0.5	0.8	1.1	1.1	0.9	0.6
0	-0.1	-0.1	-0.1	-0.1	0	0.1	0.1	0.1	68° 15'	0.4	0.2	0.2	0.4	0.6	0.9	0.9	0.9	0.7
0	-0.1	-0.1	-0.1	-0.1	0	0	0.1	0.2	68° 0'	0.5	0.4	0.3	0.3	0.4	0.6	0.7	0.7	0.7
0	0	-0.1	-0.2	-0.2	-0.1	0	0.1	0.2	67° 45'	0.6	0.6	0.5	0.4	0.3	0.2	0.3	0.4	0.5
0.1	0.1	0	-0.1	-0.1	-0.1	-0.1	0	0.1	67° 30'	0.8	0.8	0.8	0.5	0.3	0	-0.1	0	0.3
0.2	0.2	0.1	0.1	0	-0.1	-0.1	-0.1	0	67° 15'	0.9	1	1	0.8	0.4	0	-0.2	-0.2	0
0.2	0.3	0.3	0.2	0.2	0.1	0	-0.1	-0.1	67° 0'	0.8	1	1.1	1	0.7	0.3	0	-0.1	0
0.2	0.2	0.3	0.3	0.2	0.2	0.1	0	0	66° 45'	0.6	0.8	1.1	1.1	0.9	0.6	0.3	0.2	0.1
0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0	66° 30'	0.5	0.7	0.9	1.1	1	0.7	0.5	0.4	0.3
0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	66° 15'	0.5	0.6	0.8	0.9	0.9	0.8	0.6	0.5	0.4
0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	66° 0'	0.5	0.6	0.7	0.8	0.8	0.8	0.7	0.6	0.4
0	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	65° 45'	0.4	0.5	0.6	0.7	0.8	0.8	0.8	0.6	0.4
0	0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	65° 30'	0.3	0.3	0.4	0.5	0.7	0.8	0.8	0.7	0.4
0	0	0	0	0.1	0.1	0.2	0.2	0.2	65° 15'	0.3	0.3	0.3	0.3	0.5	0.7	0.8	0.7	0.4
0	-0.1	-0.1	-0.1	0	0	0.1	0.2	0.2	65° 0'	0.4	0.3	0.2	0.2	0.3	0.5	0.6	0.6	0.4
0	-0.1	-0.1	-0.1	-0.1	0	0	0.1	0.1	64° 45'	0.5	0.4	0.2	0.1	0.1	0.3	0.4	0.5	0.4
0	0	-0.1	-0.1	-0.1	-0.1	0	0	0.1	64° 30'	0.6	0.5	0.3	0.2	0.1	0.1	0.2	0.3	0.3
0	0	0	-0.1	-0.1	-0.1	-0.1	0	0	64° 15'	0.6	0.6	0.4	0.2	0.1	0.1	0.1	0.1	0.2
0.1	0.1	0	0	0	0	0	0	0	64° 0'	0.6	0.6	0.5	0.3	0.2	0.1	0.1	0.1	0.1
0.1	0.1	0.1	0.1	0.1	0	0	0	0	63° 45'	0.6	0.7	0.6	0.4	0.2	0.1	0	0	0.1
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	63° 30'	0.4	0.6	0.6	0.5	0.3	0.2	0.1	0.1	0.1
0.1	0.1	0.1	0.2	0.2	0.1	0.1	0	0	63° 15'	0.3	0.5	0.5	0.5	0.4	0.2	0.1	0.2	0.3
0.1	0.1	0.1	0.2	0.2	0.1	0.1	0	0	63° 0'	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.4
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	62° 45'	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.5
0.2	0.2	0.1	0.1	0.1	0.1	0.1	0	0	62° 30'	0.4	0.3	0.3	0.3	0.4	0.5	0.5	0.6	0.6
0.2	0.2	0.2	0.1	0.1	0	0	0	0	62° 15'	0.4	0.4	0.4	0.4	0.4	0.5	0.6	0.7	0.6
0.2	0.2	0.2	0.1	0.1	0	0	0	0	62° 0'	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6
0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	61° 45'	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.5
0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	61° 30'	0.3	0.4	0.6	0.7	0.7	0.7	0.6	0.6	0.5
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	61° 15'	0.2	0.4	0.5	0.6	0.7	0.7	0.7	0.6	0.5
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	61° 0'	0.2	0.3	0.4	0.6	0.7	0.8	0.7	0.6	0.5
0	0	0	0	0	0	0	0	0	60° 45'	0.2	0.3	0.4	0.5	0.7	0.8	0.8	0.6	0.5
0	0	0	0	0	0	0	0	0.1	60° 30'	0.2	0.3	0.4	0.5	0.6	0.7	0.7	0.6	0.5
0	-0.1	-0.1	-0.1	-0.1	0	0	0	0.1	60° 15'	0.2	0.3	0.4	0.5	0.6	0.7	0.6	0.5	0.4
0	0	-0.1	0	0	0	0	0.1	0.1	60° 0'	0.3	0.3	0.4	0.5	0.6	0.6	0.5	0.4	0.4

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 64 to 60 °W									
Correction to Latitude										Correction to Longitude									
64°	63°	63°	62°	62°	61°	61°	60°	60°	Longitude	64°	63°	63°	62°	62°	61°	61°	60°	60°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	70° 0'	0.8	0.6	0.6	0.7	0.7	0.7	0.6	0.5	0.4	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69° 45'	0.6	0.5	0.5	0.6	0.6	0.6	0.6	0.5	0.5	
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	69° 30'	0.5	0.3	0.3	0.4	0.5	0.6	0.6	0.6	0.6	
0	0	0	0	0	0.1	0.1	0.1	0	69° 15'	0.5	0.3	0.3	0.4	0.5	0.5	0.5	0.6	0.7	
0.1	0.1	0.1	0	0	0	0	0	0	69° 0'	0.5	0.3	0.3	0.4	0.4	0.4	0.5	0.6	0.8	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	68° 45'	0.6	0.4	0.4	0.4	0.5	0.4	0.5	0.7	0.8	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	68° 30'	0.6	0.5	0.4	0.5	0.5	0.5	0.5	0.7	0.8	
0.1	0.1	0.1	0.1	0.1	0	0	0.1	0.1	68° 15'	0.7	0.5	0.5	0.5	0.5	0.4	0.5	0.6	0.8	
0.2	0.2	0.1	0.1	0.1	0.1	0	0	0.1	68° 0'	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.7	
0.2	0.2	0.2	0.2	0.1	0.1	0	0	0.1	67° 45'	0.5	0.6	0.7	0.7	0.7	0.6	0.5	0.5	0.5	
0.1	0.1	0.2	0.2	0.1	0.1	0	0	0	67° 30'	0.3	0.5	0.7	0.8	0.8	0.7	0.6	0.4	0.4	
0	0	0	0.1	0.1	0.1	0.1	0	0	67° 15'	0	0.3	0.6	0.8	0.9	0.8	0.7	0.5	0.3	
-0.1	-0.1	-0.1	0	0	0.1	0.1	0	0	67° 0'	0	0.2	0.4	0.6	0.8	0.8	0.7	0.5	0.4	
0	-0.1	-0.1	0	0	0.1	0.1	0.1	0	66° 45'	0.1	0.2	0.2	0.4	0.6	0.7	0.7	0.6	0.4	
0	0	0	0	0.1	0.1	0.1	0	0	66° 30'	0.3	0.2	0.2	0.2	0.4	0.7	0.8	0.7	0.6	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	66° 15'	0.4	0.2	0.1	0.1	0.4	0.7	0.9	0.8	0.6	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	66° 0'	0.4	0.2	0.1	0.1	0.5	0.8	1	0.9	0.6	
0.1	0.1	0.2	0.1	0.1	0.1	0	0	0	65° 45'	0.4	0.2	0	0.2	0.5	0.9	1.1	0.9	0.6	
0.2	0.2	0.2	0.1	0.1	0.1	0	0	0	65° 30'	0.4	0.1	0	0.2	0.6	1	1.1	0.9	0.5	
0.2	0.2	0.1	0.1	0	0	0	0	0	65° 15'	0.4	0.2	0.1	0.4	0.7	1	1.1	0.8	0.5	
0.2	0.2	0.1	0	0	0	0	0	0	65° 0'	0.4	0.3	0.3	0.5	0.8	1	1	0.8	0.5	
0.1	0.1	0.1	0	0	-0.1	0	0	0.1	64° 45'	0.4	0.4	0.5	0.7	0.9	1	0.9	0.7	0.4	
0.1	0.1	0.1	0	0	0	0	0.1	0.1	64° 30'	0.3	0.4	0.7	0.9	1	0.9	0.7	0.5	0.4	
0	0	0	0	0	0	0	0.1	0.1	64° 15'	0.2	0.4	0.7	1	1	0.8	0.6	0.4	0.3	
0	0	0	0	0	0	0	0.1	0.1	64° 0'	0.1	0.4	0.7	1	1	0.8	0.5	0.3	0.2	
0	0	0	0	0	0	0	0.1	0.1	63° 45'	0.1	0.3	0.7	1	1	0.8	0.5	0.2	0.2	
0	0	0	0	0	0	0	0.1	0.1	63° 30'	0.1	0.4	0.7	0.9	1	0.7	0.4	0.2	0.1	
0	-0.1	-0.1	-0.1	0	0	0.1	0.1	0.1	63° 15'	0.3	0.4	0.7	0.8	0.8	0.6	0.3	0.1	0.1	
0	-0.1	-0.1	-0.1	0	0	0.1	0.1	0.1	63° 0'	0.4	0.5	0.7	0.7	0.7	0.5	0.2	0.1	0.1	
0	-0.1	-0.1	0	0	0	0	0.1	0.1	62° 45'	0.5	0.6	0.6	0.6	0.6	0.4	0.2	0.1	0.1	
0	0	0	0	0	0	0	0	0	62° 30'	0.6	0.6	0.5	0.6	0.5	0.4	0.1	0	0.1	
0	0	0	0.1	0.1	0	0	0	0	62° 15'	0.6	0.5	0.5	0.5	0.6	0.4	0.2	0	0	
0	0.1	0.1	0.1	0.1	0	0	0	0	62° 0'	0.6	0.4	0.4	0.5	0.6	0.5	0.2	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	61° 45'	0.5	0.4	0.4	0.5	0.7	0.6	0.2	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	61° 30'	0.5	0.4	0.4	0.5	0.6	0.6	0.3	0	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	61° 15'	0.5	0.4	0.3	0.4	0.6	0.5	0.3	0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	61° 0'	0.5	0.4	0.3	0.4	0.5	0.4	0.3	0.2	0.2	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	60° 45'	0.5	0.4	0.3	0.4	0.4	0.3	0.3	0.2	0.3	
0.1	0.1	0	0	0	0.1	0.1	0.1	0.1	60° 30'	0.5	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.3	
0.1	0.1	0.1	0	0	0	0	0	0.1	60° 15'	0.4	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.3	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	60° 0'	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.2	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 60 to 56 °W									
Correction to Latitude										Correction to Longitude									
60°	59°	59°	58°	58°	57°	57°	56°	56°	Longitude	60°	59°	59°	58°	58°	57°	57°	56°	56°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0.1	0.1	0	0	0	0	0	0	0	70° 0'	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.1	
0.1	0.1	0	0	0	0	0	0	0	69° 45'	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.2	0.1	
0.1	0	0	0	0	0	0	0	0	69° 30'	0.6	0.6	0.5	0.4	0.3	0.3	0.3	0.2	0.1	
0	0	0	0	0	0	0	0	0	69° 15'	0.7	0.7	0.6	0.4	0.3	0.2	0.3	0.3	0.1	
0	0	0	0	0	0	0.1	0.1	0	69° 0'	0.8	0.8	0.6	0.4	0.2	0.2	0.3	0.3	0.1	
0	0	0	0	0	0	0.1	0.1	0.1	68° 45'	0.8	0.8	0.6	0.3	0.1	0.1	0.2	0.3	0.1	
0.1	0.1	0	0	0	0	0	0	0.1	68° 30'	0.8	0.8	0.6	0.3	0.1	0	0.2	0.2	0.1	
0.1	0.1	0.1	0.1	0	0	0	0	0	68° 15'	0.8	0.8	0.6	0.4	0.1	0.1	0.1	0.2	0.1	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	68° 0'	0.7	0.7	0.7	0.5	0.3	0.1	0.1	0.1	0	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	67° 45'	0.5	0.6	0.6	0.6	0.4	0.2	0.1	0	0	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	67° 30'	0.4	0.5	0.5	0.6	0.5	0.3	0.2	0.1	0	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0	67° 15'	0.3	0.4	0.4	0.5	0.4	0.3	0.3	0.2	0.2	
0	0	0	0	0	0.1	0.1	0	0	67° 0'	0.4	0.3	0.4	0.4	0.4	0.3	0.3	0.4	0.4	
0	0	0	0	0	0	0	0	0	66° 45'	0.4	0.4	0.4	0.3	0.3	0.2	0.3	0.4	0.5	
0	0	0	0	0	0	0	0	0	66° 30'	0.6	0.4	0.4	0.3	0.2	0.2	0.3	0.5	0.6	
0	0	0	0	0	0	0	0	0	66° 15'	0.6	0.4	0.3	0.2	0.1	0.1	0.3	0.5	0.6	
0	0	0.1	0.1	0.1	0	0	0	0	66° 0'	0.6	0.4	0.3	0.2	0.2	0.2	0.3	0.5	0.6	
0	0.1	0.1	0.1	0.1	0	0	0	0	65° 45'	0.6	0.3	0.2	0.2	0.2	0.3	0.3	0.5	0.6	
0	0.1	0.1	0.1	0.1	0	0	0.1	0.1	65° 30'	0.5	0.3	0.2	0.3	0.3	0.3	0.3	0.4	0.6	
0	0	0	0.1	0.1	0.1	0	0.1	0.1	65° 15'	0.5	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.5	
0	0	0	0.1	0.1	0.1	0	0	0.1	65° 0'	0.5	0.2	0.1	0.2	0.3	0.3	0.3	0.3	0.5	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	64° 45'	0.4	0.2	0.1	0.2	0.3	0.4	0.3	0.3	0.4	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	64° 30'	0.4	0.2	0.1	0.2	0.3	0.4	0.4	0.3	0.3	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 15'	0.3	0.2	0.2	0.2	0.3	0.4	0.4	0.3	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	64° 0'	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.3	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 45'	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.4	0.3	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 30'	0.1	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.3	
0.1	0.1	0.1	0.1	0.1	0	0.1	0.1	0.1	63° 15'	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	
0.1	0.1	0.1	0.1	0	0	0	0	0.1	63° 0'	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	62° 45'	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
0	0.1	0.1	0.1	0.1	0.1	0	0	0	62° 30'	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
0	0	0.1	0.1	0.1	0.1	0	0	0	62° 15'	0	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.3	
0	0	0	0	0	0	0	0	0	62° 0'	-0.1	0.1	0.3	0.3	0.3	0.3	0.4	0.4	0.3	
0	0	0	0	0	0	0	0.1	0.1	61° 45'	-0.1	0.1	0.3	0.3	0.3	0.3	0.4	0.4	0.4	
0	0	0	0	0	0	0	0.1	0.1	61° 30'	-0.1	0.1	0.3	0.3	0.3	0.3	0.3	0.4	0.4	
0.1	0	0	0	0.1	0	0	0	0	61° 15'	0	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.4	
0.1	0	0	0	0.1	0.1	0	0	0	61° 0'	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	
0.1	0.1	0.1	0	0.1	0.1	0.1	0.1	0.1	60° 45'	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	60° 30'	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.3	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	60° 15'	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.3	
0	0.1	0.1	0.1	0.1	0	0	0	0.1	60° 0'	0.2	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	



# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 52 to 48 °W									
Correction to Latitude										Correction to Longitude									
52°	51°	51°	50°	50°	49°	49°	48°	48°	Longitude	52°	51°	51°	50°	50°	49°	49°	48°	48°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	70° 0'	0.1	0.3	0.6	0.7	0.7	0.7	0.6	0.6	0.5	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	69° 45'	0.1	0.4	0.6	0.8	0.8	0.7	0.6	0.6	0.5	
0.1	0.1	0.1	0.1	0	0	0	0	0	69° 30'	0.1	0.4	0.7	0.8	0.9	0.8	0.6	0.6	0.5	
0	0	0	0	0	0	0	0	0	69° 15'	0.2	0.5	0.7	0.8	0.8	0.7	0.6	0.6	0.5	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	69° 0'	0.4	0.5	0.6	0.7	0.7	0.7	0.6	0.6	0.6	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	68° 45'	0.4	0.5	0.6	0.6	0.6	0.6	0.5	0.5	0.5	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	68° 30'	0.4	0.5	0.5	0.6	0.6	0.5	0.5	0.5	0.5	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	68° 15'	0.3	0.4	0.6	0.6	0.6	0.5	0.4	0.4	0.4	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	68° 0'	0.2	0.4	0.5	0.6	0.6	0.5	0.4	0.4	0.4	
-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	67° 45'	0.2	0.3	0.5	0.6	0.6	0.5	0.4	0.4	0.4	
-0.1	-0.1	-0.1	-0.1	-0.1	0	-0.1	-0.1	-0.1	67° 30'	0.2	0.2	0.4	0.5	0.5	0.5	0.5	0.5	0.5	
0	0	0	0	0	0	0	0	0	67° 15'	0.2	0.2	0.3	0.4	0.5	0.5	0.5	0.5	0.5	
0	0	0	0	0	0	0	0	0	67° 0'	0.3	0.3	0.3	0.4	0.5	0.5	0.5	0.6	0.6	
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	66° 45'	0.4	0.3	0.3	0.4	0.4	0.4	0.5	0.6	0.6	
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	66° 30'	0.4	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.6	
0	0	0	0	0	0	0	0	0	66° 15'	0.3	0.2	0.2	0.2	0.3	0.4	0.4	0.5	0.5	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	66° 0'	0.2	0.2	0.2	0.3	0.4	0.4	0.5	0.5	0.5	
0.2	0.2	0.1	0.1	0.1	0	0	0	0	65° 45'	0.2	0.2	0.3	0.4	0.5	0.5	0.6	0.6	0.6	
0.1	0.1	0.1	0	0	0	0	0	0	65° 30'	0.2	0.3	0.4	0.5	0.6	0.6	0.6	0.6	0.6	
0.1	0.1	0	0	0	0	0	-0.1	0	65° 15'	0.2	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.6	
0	0	0.1	0.1	0	0	0	0	0	65° 0'	0.2	0.4	0.5	0.6	0.7	0.7	0.6	0.6	0.5	
0	0	0.1	0.1	0.1	0.1	0	0	0	64° 45'	0.1	0.3	0.4	0.6	0.7	0.8	0.7	0.6	0.5	
0	0	0	0	0	0	0	0	0	64° 30'	0	0.2	0.3	0.5	0.7	0.8	0.8	0.7	0.5	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	64° 15'	0	0.1	0.3	0.5	0.6	0.7	0.7	0.6	0.6	
0	0	-0.1	-0.1	-0.1	-0.1	0	0	0	64° 0'	0	0.2	0.3	0.5	0.6	0.6	0.6	0.6	0.6	
0	0	0	0	0	0	0	0	0	63° 45'	0.1	0.2	0.4	0.5	0.6	0.5	0.5	0.5	0.6	
0	0	0	0	0	0	0	0	-0.1	63° 30'	0.2	0.2	0.3	0.5	0.6	0.6	0.5	0.5	0.6	
0	0	0	0	0	0	0	-0.1	-0.1	63° 15'	0.3	0.2	0.3	0.4	0.6	0.6	0.6	0.6	0.6	
0.1	0	0	0	0.1	0	0	0	0	63° 0'	0.4	0.2	0.2	0.3	0.5	0.7	0.7	0.7	0.6	
0.1	0.1	0	0	0	0.1	0.1	0.1	0.1	62° 45'	0.5	0.4	0.2	0.3	0.5	0.7	0.8	0.7	0.5	
0.1	0.1	0	0	0	0.1	0.1	0.2	0.2	62° 30'	0.6	0.5	0.3	0.3	0.4	0.6	0.7	0.6	0.5	
0.1	0.1	0	0	0	0.1	0.1	0.2	0.2	62° 15'	0.5	0.5	0.4	0.3	0.3	0.4	0.6	0.6	0.5	
0	0.1	0	0	0	0.1	0.1	0.1	0.1	62° 0'	0.4	0.5	0.5	0.3	0.2	0.3	0.4	0.6	0.6	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	61° 45'	0.3	0.5	0.5	0.4	0.2	0.2	0.4	0.5	0.6	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	61° 30'	0.3	0.4	0.4	0.3	0.2	0.2	0.3	0.5	0.6	
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	61° 15'	0.2	0.3	0.4	0.3	0.2	0.2	0.3	0.4	0.5	
0	0	0	0	0	0	0	0.1	0.1	61° 0'	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.3	0.4	
0	0	0	0	0	0	0	0	0	60° 45'	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.3	0.4	
0	0	0	0	0	0	0	0	0	60° 30'	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.4	
0	0	0	0	0	0	0	0	0	60° 15'	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.4	
0	0	0	0	0	0	0	0	0	60° 0'	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 48 to 44 °W									
Correction to Latitude										Correction to Longitude									
48°	47°	47°	46°	46°	45°	45°	44°	44°	Longitude	48°	47°	47°	46°	46°	45°	45°	44°	44°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	0.5	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.3	
0	0	0	0	0	0	0	0	0	69° 45'	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	
0	0	0	0	0	0	0	0	0	69° 30'	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	
0	0	0	0	0	0	0	0	0	69° 15'	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	
0	0	0	0	0	0	0	0	0	69° 0'	0.6	0.5	0.5	0.5	0.4	0.4	0.3	0.3	0.3	
0	0	0	0	0	0	-0.1	-0.1	-0.1	68° 45'	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.3	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	68° 30'	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.3	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	68° 15'	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.3	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	68° 0'	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	67° 45'	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	67° 30'	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	67° 15'	0.5	0.5	0.4	0.3	0.3	0.4	0.4	0.3	0.3	
0	0	0	-0.1	-0.1	0	0	0	0	67° 0'	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	
0	0	0	0	0	0	0	0	0	66° 45'	0.6	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.3	
0	0	0	0	0	0	0	0	0	66° 30'	0.6	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.3	
0	0	0	0	0	0	0	0	0	66° 15'	0.5	0.5	0.4	0.4	0.3	0.4	0.4	0.3	0.3	
0	0	0	0	0	0	0	0	0	66° 0'	0.5	0.5	0.4	0.3	0.3	0.3	0.4	0.3	0.3	
0	0	0	-0.1	-0.1	-0.1	0	0	0	65° 45'	0.6	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	65° 30'	0.6	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.2	
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	65° 15'	0.6	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.2	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	65° 0'	0.5	0.5	0.5	0.5	0.4	0.4	0.3	0.2	0.1	
0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	64° 45'	0.5	0.5	0.5	0.5	0.5	0.4	0.3	0.2	0.1	
0	0	0	0	0	0	0	0	0	64° 30'	0.5	0.5	0.5	0.5	0.5	0.5	0.3	0.2	0	
0	0	0	0	0	0	0	0	0	64° 15'	0.6	0.5	0.5	0.5	0.5	0.4	0.3	0.2	0.1	
0	0	0	0	0	0	0	0	0	64° 0'	0.6	0.5	0.5	0.5	0.5	0.4	0.3	0.2	0.1	
0	0	0	0	0	0	0	0	0	63° 45'	0.6	0.6	0.5	0.5	0.4	0.4	0.3	0.2	0.1	
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	63° 30'	0.6	0.6	0.5	0.5	0.4	0.4	0.3	0.2	0.1	
-0.1	-0.1	0	0	0	0	0	0	0	63° 15'	0.6	0.5	0.5	0.4	0.4	0.3	0.3	0.2	0	
0	0	0	0	0	0	0	0	0.1	63° 0'	0.6	0.5	0.4	0.4	0.4	0.3	0.3	0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	62° 45'	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.1	-0.1	
0.2	0.1	0.1	0.1	0.1	0.1	0	0	0	62° 30'	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.2	-0.2	
0.2	0.1	0.1	0.1	0.1	0.1	0.1	0	0	62° 15'	0.5	0.5	0.5	0.5	0.4	0.4	0.3	0.2	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	62° 0'	0.6	0.6	0.6	0.5	0.4	0.4	0.3	0.2	-0.1	
0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	61° 45'	0.6	0.6	0.5	0.4	0.4	0.4	0.4	0.2	-0.1	
0.1	0.2	0.2	0.3	0.3	0.2	0.2	0.1	0.1	61° 30'	0.6	0.5	0.4	0.4	0.3	0.4	0.5	0.3	0	
0.1	0.2	0.2	0.3	0.3	0.2	0.2	0.1	0.1	61° 15'	0.5	0.4	0.3	0.3	0.4	0.6	0.6	0.4	0	
0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	61° 0'	0.4	0.3	0.3	0.2	0.4	0.6	0.7	0.5	0.1	
0	0	0	0	0	0.1	0.1	0.1	0.1	60° 45'	0.4	0.3	0.3	0.2	0.3	0.6	0.7	0.5	0.1	
0	0	0	-0.1	-0.1	0	0	0.1	0.1	60° 30'	0.4	0.4	0.3	0.2	0.2	0.4	0.6	0.5	0.2	
0	0	0	0	-0.1	-0.1	0	0	0.1	60° 15'	0.4	0.4	0.4	0.3	0.2	0.3	0.4	0.4	0.2	
0	0.1	0.1	0	0	-0.1	0	0	0	60° 0'	0.3	0.4	0.5	0.4	0.3	0.2	0.3	0.3	0.3	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 44 to 40 °W									
Correction to Latitude										Correction to Longitude									
44°	43°	43°	42°	42°	41°	41°	40°	40°	Longitude	44°	43°	43°	42°	42°	41°	41°	40°	40°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	
0	0	0	0	0	0	0	0	0	69° 45'	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.4	
0	0	0	0	0	0	0	0	0	69° 30'	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.4	
0	0	0	0	0	0	0	0	0	69° 15'	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.4	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	0	69° 0'	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	68° 45'	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	68° 30'	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	68° 15'	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	68° 0'	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	67° 45'	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.2	
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	67° 30'	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	
0	0	0	0	0	0	0	0	0	67° 15'	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	
0	0	0	0	0	0	0	0	0	67° 0'	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
0	0	0	0	0	0	0	0	0	66° 45'	0.3	0.2	0.1	0.1	0	0.1	0.1	0.2	0.2	
0	0	0	0	0	0	0	0	0	66° 30'	0.3	0.2	0.1	0	0	0.1	0.2	0.2		
0	0	0	0	0	0	0	0	0	66° 15'	0.3	0.2	0.1	-0.1	-0.1	0	0.1	0.2	0.2	
0	0	0	0	0	0	0.1	0.1	0	66° 0'	0.3	0.2	0	-0.1	-0.1	0	0.1	0.2	0.1	
0	0	0	0	0	0	0.1	0.1	0	65° 45'	0.3	0.2	0	-0.1	-0.2	-0.1	0	0	0.1	
-0.1	-0.1	0	0	0	0	0.1	0.1	0	65° 30'	0.2	0.1	0	-0.1	-0.2	-0.2	-0.2	-0.1	0	
-0.1	-0.1	0	0	0	0	0.1	0.1	0	65° 15'	0.2	0.1	-0.1	-0.2	-0.3	-0.3	-0.3	-0.2	0	
-0.1	-0.1	0	0	0	0	0	0	0	65° 0'	0.1	0	-0.1	-0.2	-0.3	-0.4	-0.4	-0.2	0.1	
-0.1	0	0	0	0	0	0	0	0	64° 45'	0.1	-0.1	-0.2	-0.3	-0.4	-0.4	-0.4	-0.2	0.1	
0	0	0	0	0	0	0	0	0	64° 30'	0	-0.1	-0.2	-0.3	-0.4	-0.5	-0.4	-0.1	0.2	
0	0	0	0	0	0	0	-0.1	0	64° 15'	0.1	0	-0.1	-0.3	-0.5	-0.5	-0.3	0	0.3	
0	0	0	0	0	0	0	-0.1	0	64° 0'	0.1	0	-0.1	-0.4	-0.5	-0.4	-0.2	0.2	0.5	
0	0	0	0	0	0	-0.1	-0.1	0	63° 45'	0.1	0	-0.2	-0.4	-0.5	-0.3	0	0.4	0.5	
0	0	0.1	0.1	0.1	0	-0.1	-0.1	0	63° 30'	0.1	-0.1	-0.3	-0.5	-0.4	-0.1	0.2	0.5	0.5	
0	0.1	0.1	0.1	0.1	0	-0.1	-0.1	0	63° 15'	0	-0.2	-0.4	-0.4	-0.2	0.1	0.3	0.4	0.4	
0.1	0.1	0.1	0.1	0.1	0	-0.1	-0.1	0	63° 0'	-0.1	-0.4	-0.5	-0.3	0	0.3	0.4	0.3	0.2	
0	0.1	0.1	0.1	0	-0.1	-0.1	-0.1	0	62° 45'	-0.1	-0.4	-0.5	-0.2	0.2	0.5	0.4	0.2	0	
0	0	0	0	0	-0.1	-0.1	0	0	62° 30'	-0.2	-0.5	-0.5	-0.1	0.3	0.5	0.4	0.1	-0.1	
0	0	0	0	-0.1	-0.1	0	0	0	62° 15'	-0.1	-0.4	-0.4	-0.1	0.4	0.5	0.3	0	-0.1	
0.1	0.1	0	0	-0.1	0	0	0	0	62° 0'	-0.1	-0.4	-0.3	0	0.4	0.5	0.2	0	-0.1	
0.1	0.1	0	0	-0.1	0	0	0	0	61° 45'	-0.1	-0.3	-0.2	0.1	0.4	0.4	0.1	0	0	
0.1	0.1	0	0	0	0	0	0	0	61° 30'	0	-0.2	-0.1	0.2	0.4	0.3	0	0	0	
0.1	0.1	0	0	0	0	0	0	0	61° 15'	0	-0.2	0	0.3	0.4	0.2	0	0	0.1	
0.1	0	0	0	0	0	0	0	0	61° 0'	0.1	-0.1	0.1	0.4	0.4	0.1	-0.1	-0.1	0.1	
0.1	0	0	0	0	0	0	0	0	60° 45'	0.1	0	0.1	0.4	0.3	0.1	-0.1	0	0.1	
0.1	0	0	0	0	0	0	0	0	60° 30'	0.2	0.1	0.2	0.4	0.3	0.1	-0.1	0	0.1	
0.1	0	0	0	0	0	0	0	0	60° 15'	0.2	0.1	0.2	0.3	0.2	0.1	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	60° 0'	0.3	0.2	0.3	0.3	0.2	0	0	0.1	0.1	



# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 40 to 36 °W									
Correction to Latitude										Correction to Longitude									
40°	39°	39°	38°	38°	37°	37°	36°	36°	Longitude	40°	39°	39°	38°	38°	37°	37°	36°	36°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	-0.1	70° 0'	0.3	0.4	0.4	0.4	0.3	0.3	0.4	0.5	0.6	
0	0	0	0	0	0	-0.1	-0.1	-0.1	69° 45'	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.6	0.6	
0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	69° 30'	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.6	0.6	
0	0	0	0	0	0	-0.1	0	0	69° 15'	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	
0	0	0	0	0	0	0	0	0	69° 0'	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	
0	0	0	0	0	0	0	-0.1	-0.1	68° 45'	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.4	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	68° 30'	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.4	
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	68° 15'	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.5	0.4	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	68° 0'	0.2	0.3	0.4	0.4	0.5	0.5	0.5	0.5	0.3	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	67° 45'	0.2	0.3	0.4	0.5	0.6	0.6	0.5	0.4	0.3	
0	0	0	0	-0.1	-0.1	-0.1	0	0	67° 30'	0.2	0.4	0.5	0.6	0.6	0.6	0.5	0.4	0.2	
0	0	0	0	0	0	0	0	0	67° 15'	0.2	0.4	0.5	0.6	0.6	0.5	0.4	0.3	0.2	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	67° 0'	0.2	0.3	0.4	0.5	0.6	0.5	0.4	0.2	0.1	
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	66° 45'	0.2	0.2	0.3	0.4	0.5	0.5	0.4	0.2	0.1	
0	0	0	0.1	0.1	0.1	0.2	0.1	0.1	66° 30'	0.2	0.1	0.1	0.2	0.4	0.4	0.4	0.2	0.1	
0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	66° 15'	0.2	0.1	0	0.1	0.3	0.4	0.4	0.3	0.2	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	66° 0'	0.1	0	0	0.1	0.2	0.4	0.4	0.4	0.3	
0.2	0.2	0.1	0.1	0.1	0	0	0	0	65° 45'	0.1	0.1	0.1	0.2	0.3	0.4	0.5	0.4	0.4	
0.2	0.1	0.1	0.1	0	0	0	0	-0.1	65° 30'	0	0.1	0.2	0.3	0.4	0.5	0.5	0.5	0.5	
0.1	0.1	0	0	0	0	0	0	0	65° 15'	0	0.2	0.3	0.4	0.5	0.5	0.6	0.5	0.5	
0	0	-0.1	-0.1	0	0	0	0	0	65° 0'	0.1	0.3	0.4	0.4	0.4	0.5	0.6	0.6	0.4	
0	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	64° 45'	0.1	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	64° 30'	0.2	0.4	0.4	0.4	0.3	0.4	0.5	0.4	0.3	
-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	0	0	64° 15'	0.3	0.5	0.5	0.4	0.3	0.3	0.3	0.3	0.1	
-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	0	0	0.1	64° 0'	0.5	0.5	0.5	0.3	0.3	0.2	0.1	0.1	0	
-0.2	-0.2	-0.1	-0.1	0	0	0	0.1	0.1	63° 45'	0.5	0.5	0.4	0.2	0.1	0.1	0	-0.1	0	
-0.1	0	0	0.1	0.1	0.1	0.1	0.1	0.1	63° 30'	0.5	0.4	0.2	0.1	0.1	0	-0.1	-0.1	0	
0	0	0.1	0.1	0.1	0.1	0.1	0	0	63° 15'	0.4	0.2	0.1	0.1	0.1	0	0	0	0.1	
0	0	0.1	0.1	0.1	0	0	0	0	63° 0'	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	62° 45'	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	62° 30'	-0.1	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	62° 15'	-0.1	0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	
0	0	0	0	0	0	0	0	0	62° 0'	-0.1	0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	
0	0	0	0	0	0	0	0	0	61° 45'	0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	
0	0	0	0	0	0	0	0	0	61° 30'	0	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	
0	0	0	0	0	0	0	0	0	61° 15'	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	
0	0	0	0	0	0	0	0	0	61° 0'	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	
0	0	0	0	0	0	0	0	0	60° 45'	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	
0	0	0	0	0	0	0	0	0	60° 30'	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	
0	0	0	0	0	0	0	0	0	60° 15'	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	
0	0	0	0	0	0	0	0	0	60° 0'	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 36 to 32 °W									
Correction to Latitude										Correction to Longitude									
36°	35°	35°	34°	34°	33°	33°	32°	32°	Longitude	36°	35°	35°	34°	34°	33°	33°	32°	32°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	70° 0'	0.6	0.5	0.4	0.3	0.2	0.2	0.3	0.3	0.2	
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	69° 45'	0.6	0.5	0.3	0.2	0.1	0.2	0.2	0.3	0.2	
-0.1	0	0	0	0	0	0	0	0	69° 30'	0.6	0.5	0.3	0.1	0	0.1	0.3	0.4	0.3	
0	0	0	0	0	0	0	0	0	69° 15'	0.5	0.4	0.2	0	0	0.2	0.4	0.5	0.4	
0	0	0	0	0	0	0	0	0	69° 0'	0.5	0.3	0.1	-0.1	0	0.2	0.4	0.6	0.5	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	68° 45'	0.4	0.3	0.1	-0.1	-0.1	0.1	0.3	0.5	0.4	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	68° 30'	0.4	0.3	0.1	-0.1	-0.1	0	0.2	0.3	0.3	
-0.1	-0.1	-0.1	0	0	0	0	0	0	68° 15'	0.4	0.2	0	-0.1	-0.1	0	0.1	0.2	0.2	
-0.1	-0.1	0	0	0	0	0	0	0	68° 0'	0.3	0.1	-0.1	-0.2	-0.1	0	0.2	0.3	0.2	
-0.1	0	0	0	0	0	0	0	0	67° 45'	0.3	0.1	-0.1	-0.2	-0.2	0	0.2	0.3	0.3	
0	0	0	0	0	-0.1	0	0	0	67° 30'	0.2	0.1	-0.1	-0.2	-0.1	0	0.2	0.3	0.2	
0	0	0	0	0	-0.1	0	0	0	67° 15'	0.2	0.1	0	-0.1	-0.1	0	0.1	0.1	0.1	
0.1	0.1	0.1	0	0	0	0	0	0	67° 0'	0.1	0.1	0	0	0.1	0.1	0.1	0.1	0	
0.1	0.1	0.1	0.1	0	0	0	0	0	66° 45'	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0	0	
0.1	0.1	0.1	0	0	0	0	0	0	66° 30'	0.1	0.1	0.2	0.3	0.3	0.2	0.1	0	0	
0.1	0	0	0	0	0	0	0	0	66° 15'	0.2	0.2	0.3	0.3	0.3	0.2	0.1	0	0.1	
0	0	0	0	0	0	0	0	0	66° 0'	0.3	0.4	0.4	0.4	0.3	0.1	0.1	0.1	0.1	
0	-0.1	-0.1	0	0	0	0	0	0	65° 45'	0.4	0.4	0.4	0.3	0.2	0.1	0	0.1	0.2	
-0.1	-0.1	0	0	0	0.1	0.1	0.1	0.1	65° 30'	0.5	0.4	0.3	0.2	0.1	0	0	0	0.2	
0	0	0	0	0.1	0.1	0.1	0.1	0.1	65° 15'	0.5	0.3	0.2	0.1	0	-0.1	-0.1	0	0.2	
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	65° 0'	0.4	0.3	0.1	0	0	-0.1	0	0.1	0.2	
0	0	0.1	0.1	0.1	0.1	0	0	0	64° 45'	0.4	0.2	0	-0.1	-0.1	0	0	0.1	0.2	
0	0.1	0.1	0.1	0.1	0	0	0	0	64° 30'	0.3	0.1	-0.1	-0.1	0	0.1	0.1	0.2	0.2	
0	0.1	0.1	0.1	0	0	0	0	0	64° 15'	0.1	0	-0.1	0	0.1	0.1	0.2	0.2	0.2	
0.1	0.1	0.1	0	0	0	0	0	0	64° 0'	0	0	0	0.1	0.2	0.2	0.2	0.2	0.2	
0.1	0.1	0	0	0	0	0	0	0	63° 45'	0	0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	
0.1	0	0	0	0	0	0	0	0	63° 30'	0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
0	0	0	0	0	0	0	0	0	63° 15'	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.3	
0	0	0	0	0	0	0	0	0	63° 0'	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
0	0	0	0	0	0	0	0	0	62° 45'	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
0	0	0	0	0	0	0	0	0	62° 30'	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
0	0	0	0	0	0	0	0	0	62° 15'	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	
0	0	0	0	0	0	0	0	0	62° 0'	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	
0	0	0	0	0	0	-0.1	-0.1	0	61° 45'	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	
0	0	0	0	0	0	-0.1	-0.1	0	61° 30'	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.2	
0	0	0	0	0	0	0	0	0	61° 15'	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	
0	0	0	0	0	0	0	0	0	61° 0'	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	
0	0	0	0	0	0	0	0	0	60° 45'	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	
0	0	0	0	0	0	0	0	0	60° 30'	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	
0	0	0	0	0	0	0	0	0	60° 15'	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	
0	0	0	0	0	0	0	0	0	60° 0'	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 32 to 28 °W									
Correction to Latitude										Correction to Longitude									
32°	31°	31°	30°	30°	29°	29°	28°	28°	Longitude	32°	31°	31°	30°	30°	29°	29°	28°	28°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.3	-0.3	-0.3	70° 0'	0.2	0.1	0.1	0.1	0	-0.1	-0.2	-0.2	-0.1	
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.3	-0.3	69° 45'	0.2	0.2	0.1	0.2	0.3	0.2	0.1	0	-0.1	
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	69° 30'	0.3	0.2	0.1	0.2	0.3	0.4	0.4	0.2	0	
0	0	-0.1	0	0	0	0	0	0	69° 15'	0.4	0.2	0.1	0.1	0.3	0.4	0.4	0.3	0	
0	0	0	0	0	0	0	0.1	0.1	69° 0'	0.5	0.3	0.1	0.1	0.2	0.3	0.3	0.2	0	
0	0.1	0.1	0.1	0	0	0.1	0.1	0.1	68° 45'	0.4	0.3	0.1	0.1	0.2	0.3	0.2	0.1	0	
0	0.1	0.1	0	0	0	0.1	0.1	0.1	68° 30'	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0	-0.1	
0	0	0	0	0	0	0	0	0	68° 15'	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0	-0.1	
0	-0.1	-0.1	0	0	0	0	0	0	68° 0'	0.2	0.2	0.2	0.2	0.2	0.1	0	0	0	
0	0	0	0	0	0	0	0	0	67° 45'	0.3	0.2	0.1	0.1	0.1	0.1	0	0	0.1	
0	0	0	0	0	0	0	0	0	67° 30'	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	67° 15'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	67° 0'	0	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	66° 45'	0	0	0.1	0.2	0.2	0.2	0.1	0.1	0.1	
0	0	0	-0.1	0	0	0	0	0	66° 30'	0	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	
0	0	-0.1	-0.1	-0.1	0	0	0	0	66° 15'	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	66° 0'	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	65° 45'	0.2	0.2	0.2	0.1	0.1	0	0	0.1	0.2	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	65° 30'	0.2	0.3	0.2	0.1	0	0	0	0.1	0.2	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	65° 15'	0.2	0.3	0.2	0.2	0.1	0	0.1	0.2	0.3	
0.1	0.1	0.1	0.1	0	0	0	0	-0.1	65° 0'	0.2	0.3	0.2	0.2	0.1	0.1	0.2	0.3	0.3	
0	0	0	0	0	0	0	0	0	64° 45'	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	
0	0	0	0	0	0	0	0	0	64° 30'	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	
0	0	0	0	0	0	0	0	0	64° 15'	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
0	0	0	0	0	0	0	0	0	64° 0'	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	
0	0	0	0	0	0	0	0	0	63° 45'	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	
0	0	0	0	0	0	0	0	0	63° 30'	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	
0	0	0	0	0	0	0	0	0	63° 15'	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	
0	0	0	0	0	0	0	0	0	63° 0'	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	
0	0	0	0	0	0	0	0	0	62° 45'	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	
0	0	0	0	0	0	0	0	0	62° 30'	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	
0	-0.1	0	0	0	0	0	0	0	62° 15'	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
0	0	0	0	0	0	0	0	0	62° 0'	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	
0	0	0	0	0	0	0	0	0	61° 45'	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	
0	0	0	0	0	0	0	0	0	61° 30'	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	
0	0	0	0	0	0	0	0	0	61° 15'	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	61° 0'	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	60° 45'	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0	
0	0	0	0	0	0	0	0	0	60° 30'	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0	0	
0	0	0	0	0	0	0	0	0	60° 15'	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0	0	
0	0	0	0	0	0	0	0	0	60° 0'	0.2	0.2	0.2	0.1	0.1	0.1	0	0	0	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 28 to 24 °W									
Correction to Latitude										Correction to Longitude									
28°	27°	27°	26°	26°	25°	25°	24°	24°	Longitude	28°	27°	27°	26°	26°	25°	25°	24°	24°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	70° 0'	-0.1	0.1	0.3	0.3	0.2	0	-0.2	-0.3	-0.2	
-0.3	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	69° 45'	-0.1	0	0.1	0.1	0.1	-0.1	-0.2	-0.3	-0.2	
-0.2	-0.2	-0.1	-0.1	-0.1	0	0	0	0	69° 30'	0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.3	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	69° 15'	0	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	0	
0.1	0.1	0.1	0.1	0.1	0	0	0	0	69° 0'	0	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	0	
0.1	0.1	0.1	0.1	0	0	0	0	0	68° 45'	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	
0	0	0	0	0	0	0	0	0	68° 30'	-0.1	-0.1	0	0.1	0	0	-0.1	-0.1	0	
0	0	0	0	0	0	0	0	0	68° 15'	-0.1	0	0.1	0.1	0	-0.1	-0.1	-0.1	0	
0	0	0	0	0	0	0	0	0	68° 0'	0	0.1	0.2	0.1	0	-0.1	-0.2	-0.1	0.1	
0	0	0	0	0	0	0	-0.1	-0.1	67° 45'	0.1	0.1	0.1	0.1	-0.1	-0.1	-0.1	0	0.2	
0	0	0	0	0	0	0	-0.1	-0.1	67° 30'	0.1	0.1	0.1	0	-0.1	-0.1	0	0.2	0.3	
0	0	0	0	0	0	-0.1	-0.1	-0.1	67° 15'	0.1	0.1	0	-0.1	-0.1	0	0.2	0.3	0.3	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	67° 0'	0.1	0.1	0	0	0	0.1	0.2	0.3	0.3	
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	66° 45'	0.1	0.1	0.1	0	0.1	0.1	0.2	0.2	0.2	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	66° 30'	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	
0	0	0	0	-0.1	-0.1	-0.1	0	0	66° 15'	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	
0	0	0	-0.1	-0.1	0	0	0	0	66° 0'	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	
0	0	0	-0.1	-0.1	-0.1	0	0	0	65° 45'	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	
0	0	0	-0.1	-0.1	0	0	0	0	65° 30'	0.2	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	65° 15'	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	
-0.1	-0.1	0	0	0	0	0	0	0	65° 0'	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	64° 45'	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.1	
0	0	0	0	0	0	0	0	0	64° 30'	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	64° 15'	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	64° 0'	0.2	0.2	0.2	0.2	0.1	0	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	63° 45'	0.2	0.2	0.2	0.2	0.1	0.1	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	63° 30'	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	63° 15'	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0	0	
0	0	0	0	0	0	0	0	0	63° 0'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	
0	0	0	0	0	0	0	0	0	62° 45'	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	
0	0	0	0	0	0	0	0	0	62° 30'	0.2	0.1	0.1	0.1	0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0	62° 15'	0.2	0.1	0.1	0.1	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	62° 0'	0.1	0.1	0.1	0	0	0	0	0	-0.1	
0	0	0	0	0	0	0	0	0	61° 45'	0.1	0.1	0.1	0	0	0	0	0	-0.1	
0	0	0	0	0	0	0	0	0	61° 30'	0.1	0.1	0	0	0	0	0	0	-0.1	
0	0	0	0	0	0	0	0	0	61° 15'	0.1	0	0	0	0	-0.1	0	0	-0.1	
0	0	0	0	0	0	0	0	0	61° 0'	0.1	0	0	0	-0.1	-0.1	0	0	-0.1	
0	0	0	0	0	0	0	0	0	60° 45'	0	0	0	0	-0.1	-0.1	0	0	-0.1	
0	0	0	0	0	0	0	0	0	60° 30'	0	0	0	0	-0.1	-0.1	0	0	-0.1	
0	0	0	0	0	0	0	0	0	60° 15'	0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	60° 0'	0	0	0	-0.1	-0.1	0	-0.1	-0.1	-0.1	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 24 to 20 °W									
Correction to Latitude										Correction to Longitude									
24°	23°	23°	22°	22°	21°	21°	20°	20°	Longitude	24°	23°	23°	22°	22°	21°	21°	20°	20°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	70° 0'	-0.2	-0.2	0	0.2	0.3	0.4	0.4	0.3	0.1	
-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	0	0	69° 45'	-0.2	-0.1	0	0.2	0.2	0.3	0.2	0.1	0	
0	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	69° 30'	-0.1	0	0.1	0.2	0.2	0.1	0	0	-0.1	
0	0	0	0	0	0	0	0	0	69° 15'	0	0.1	0.2	0.1	0.1	0.1	0	0	0	
0	0	0	0	0	0	0	0	0	69° 0'	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	-0.1	68° 45'	0	0	0	0	0	0.2	0.2	0.2	0.2	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	68° 30'	0	0	0	0	0.1	0.2	0.2	0.2	0.2	
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	68° 15'	0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	68° 0'	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	67° 45'	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	67° 30'	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	67° 15'	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
-0.1	-0.1	-0.1	0	0	0	0	0	0	67° 0'	0.3	0.2	0.1	0.1	0	0.1	0.1	0	0	
-0.1	-0.1	0	0	0	0	0	0	0	66° 45'	0.2	0.1	0.1	0.1	0.1	0.1	0	0	0	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	66° 30'	0.1	0.1	0.1	0.1	0.1	0	0	0	0	
0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	66° 15'	0.1	0.1	0.1	0.1	0.1	0	0	0	0.1	
0	0	0	0	0	0	0	0	0	66° 0'	0.1	0.1	0.2	0.1	0.1	0	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	65° 45'	0.1	0.2	0.2	0.1	0.1	0	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	65° 30'	0.1	0.1	0.1	0.1	0	0	0	0.1	0.1	
0	0	0	0	0	0	0	0	0	65° 15'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	65° 0'	0.1	0.1	0.1	0	0.1	0.1	0.1	0.1	0.1	
0	0	0	0	0	0	0	0	0	64° 45'	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	
0	0	0	0	0	0	0	0	0	64° 30'	0.1	0.1	0.1	0.1	0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0	64° 15'	0.1	0.1	0.1	0.1	0.1	0	0	0	0.1	
0	0	0	0	0	0	0	0	0	64° 0'	0.1	0.1	0.1	0.1	0	0	0	0.1	0.1	
0	0	0	0	0	0	0	0	0.1	63° 45'	0.1	0.1	0	0	0	0	0	0.1	0.1	
0	0	0	0	0	0	0.1	0.1	0.1	63° 30'	0.1	0	0	0	0	0	0	0	0	
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	63° 15'	0	0	-0.1	0	0	0	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0.1	0.1	0.1	63° 0'	0	-0.1	-0.1	0	0	0	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	62° 45'	0	-0.1	-0.1	0	0	-0.1	-0.1	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	62° 30'	0	-0.1	-0.1	-0.1	0	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	62° 15'	0	-0.1	-0.1	-0.1	0	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	62° 0'	-0.1	-0.1	-0.1	0	0	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0.1	0.1	61° 45'	-0.1	-0.1	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0.1	0.1	0.1	61° 30'	-0.1	-0.1	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0.1	0.1	0.1	0	0	61° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0.1	0.1	0.1	0	0	61° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0.1	0.1	0.1	0	0	60° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	
0	0	0	0	0.1	0.1	0	0	0	60° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	
0	0	0	0	0.1	0.1	0	0	0	60° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	
0	0	0	0	0	0	0	0	0	60° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 20 to 16 °W									
Correction to Latitude										Correction to Longitude									
20°	19°	19°	18°	18°	17°	17°	16°	16°	Longitude	20°	19°	19°	18°	18°	17°	17°	16°	16°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	0	70° 0'	0.1	-0.2	-0.2	-0.2	0	0.1	0.2	0.1	0	
0	0	0	0	-0.1	-0.1	-0.1	-0.1	0	69° 45'	0	-0.1	-0.1	0	0.1	0.1	0.1	0.1	0	
0	0	0	0	-0.1	-0.1	-0.1	0	0	69° 30'	-0.1	-0.1	0	0.1	0.1	0.1	0.1	0	-0.1	
0	0	0	-0.1	-0.1	-0.1	0	0	0	69° 15'	0	0	0.1	0.1	0.2	0.1	0	-0.1	-0.1	
0	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	69° 0'	0.1	0.1	0.1	0.1	0.1	0.1	0	-0.1	-0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	68° 45'	0.2	0.1	0.1	0.1	0.1	0	-0.1	-0.1	-0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	68° 30'	0.2	0.1	0.1	0.1	0.1	0	-0.1	-0.1	-0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	68° 15'	0.1	0.1	0.1	0.1	0	-0.1	-0.1	-0.1	-0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	68° 0'	0.1	0.1	0.1	0	0	-0.1	-0.1	-0.1	-0.1	
-0.1	-0.1	-0.1	-0.1	0	0	0	0	-0.1	67° 45'	0.1	0.1	0.1	0	-0.1	-0.1	-0.1	-0.1	-0.1	
-0.1	-0.1	-0.1	0	0	0	0	-0.1	-0.1	67° 30'	0.1	0.1	0	0	-0.1	-0.1	-0.1	-0.1	0	
0	0	0	0	0	0	-0.1	-0.1	-0.1	67° 15'	0.1	0	0	0	-0.1	-0.1	-0.1	0	0	
0	0	0	0	0	0	-0.1	-0.1	-0.1	67° 0'	0	0	0	0	0	-0.1	-0.1	0	0	
0	0	0	0	0	0	0	-0.1	-0.1	66° 45'	0	0	0	0	0	0	0	0	-0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	-0.1	-0.1	66° 30'	0	0	0	-0.1	0	0	0	0	-0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	66° 15'	0.1	0	0	-0.1	-0.1	0	0	0	-0.1	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	66° 0'	0.1	0.1	0	-0.1	-0.1	0	0	0	-0.1	
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	65° 45'	0.1	0.1	0	0	-0.1	-0.1	0	0	0	
0	0	0	0	-0.1	-0.1	0	0	0	65° 30'	0.1	0.1	0.1	0	-0.1	-0.1	-0.1	0	0	
0	0	0	0	0	0	0	0	0	65° 15'	0.1	0.1	0.1	0	-0.1	-0.1	-0.1	-0.1	0	
0	0	0	0	0	0	0	0	0	65° 0'	0.1	0	0	0	0	-0.1	-0.1	-0.1	0	
0	0	0	0	0	0	0	0	0	64° 45'	0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0.1	0.1	0.1	64° 30'	0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0.1	0.1	0.1	0.1	64° 15'	0.1	0.1	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	64° 0'	0.1	0.1	0	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 45'	0.1	0	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	
0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	63° 30'	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 15'	-0.1	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	63° 0'	-0.2	-0.1	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0.1	0.1	0.1	0	0	62° 45'	-0.1	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	62° 30'	-0.1	-0.1	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	62° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	-0.1	
0	0	0	0	0	0	0	0	0	62° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0	0	0	0	0	61° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0.1	0.1	0.1	0.1	0	0	0	0	0	61° 30'	-0.1	-0.1	-0.1	0	0	-0.1	-0.1	-0.1	0	
0	0	0	0	0	0	0	0	0	61° 15'	-0.1	-0.1	-0.1	0	0	-0.1	-0.1	-0.1	0	
0	0	0	0	0	0	0	0	0	61° 0'	-0.1	-0.1	-0.1	0	0	-0.1	-0.1	0	0	
0	0	0	0	0	0	0	0	0	60° 45'	0	0	0	0	0	-0.1	-0.1	-0.1	0	
0	0	0	0	0	0	0	0	0	60° 30'	0	0	0	0	0	-0.1	-0.1	-0.1	0	
0	0	0	0	0	0	0	0	0	60° 15'	0	0	0	-0.1	-0.1	0	0	0	0	
0	0	0	0	0	0	0	0	0	60° 0'	0	0	-0.1	-0.1	-0.1	0	0	0	0	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 16 to 12 °W									
Correction to Latitude										Correction to Longitude									
16°	15°	15°	14°	14°	13°	13°	12°	12°	Longitude	16°	15°	15°	14°	14°	13°	13°	12°	12°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2
0	0	0	0	0	0	0	0	0	69° 45'	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2
0	0	0	0	0	0	0	0	0	69° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
0	0	0	0	0	0	0	0	0	69° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
0	0	0	0	0	0	0	0	0	69° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1
0	0	0	0	0	0	0	0	0	68° 45'	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1
0	0	0	0	0	0	0	0	0	68° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2
0	0	0	0	0	0	0	0	0	68° 15'	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2
0	0	0	0	0	0	0	0	0	68° 0'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2
-0.1	-0.1	-0.1	0	0	0	0	0	0	67° 45'	-0.1	-0.1	-0.2	-0.3	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2
-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	67° 30'	0	-0.1	-0.2	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	67° 15'	0	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	67° 0'	0	-0.1	-0.1	-0.2	-0.2	-0.3	-0.4	-0.4	-0.4	-0.3
-0.1	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	66° 45'	-0.1	-0.1	-0.1	-0.1	-0.2	-0.3	-0.4	-0.4	-0.4	-0.3
-0.1	-0.1	0	0	0	-0.1	-0.1	-0.1	-0.1	66° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.3	-0.4	-0.4	-0.4
-0.1	-0.1	0	0	0	0	-0.1	-0.1	-0.1	66° 15'	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.2	-0.3	-0.4	-0.4
-0.1	-0.1	-0.1	0	0	0	0	0	-0.1	66° 0'	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.3	-0.3
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	65° 45'	0	-0.1	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	-0.1	-0.3
0	0	-0.1	-0.1	0	0	0	0	0	65° 30'	0	-0.1	-0.2	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	-0.2
0	0	0	0	0	0	0	0	0	65° 15'	0	-0.1	-0.2	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	-0.2
0	0	0	0	0	0	0	0	0	65° 0'	0	-0.1	-0.2	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	-0.1
0	0	0.1	0	0	0	0	0	0	64° 45'	-0.1	-0.1	-0.2	-0.2	-0.3	-0.2	-0.1	-0.1	-0.1	-0.1
0.1	0.1	0.1	0.1	0	0	0	0	0	64° 30'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1
0.1	0.1	0.1	0.1	0	0	0	0	0	64° 15'	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	64° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	-0.1
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	63° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	0	-0.1
0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	63° 30'	-0.1	-0.1	-0.1	-0.1	0	0	0.1	0	0	0
0.1	0.1	0.1	0.1	0	0	0	0	0	63° 15'	-0.1	-0.1	-0.1	0	0	0.1	0.1	0.1	0	0
0.1	0.1	0.1	0	0	0	0	0	0	63° 0'	-0.1	-0.1	0	0	0.1	0.1	0.1	0	0	0
0	0	0	0	0	0	0	0	0	62° 45'	-0.1	-0.1	0	0.1	0.1	0.1	0	0	0	-0.1
0	0	0	0	0	0	0	0.1	0	62° 30'	-0.1	-0.1	0	0	0.1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	62° 15'	-0.1	-0.1	0	0	0.1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	62° 0'	-0.1	-0.1	0	0	0.1	0	0	0	0	0
0	0	0	0	0	0	0	0	0	61° 45'	-0.1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	61° 30'	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	61° 15'	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	61° 0'	0	0	0	0	0	0	0	0	-0.1	-0.1
0	0	0	0	0	0	0	0	0	60° 45'	0	0	0	0	0	0	-0.1	-0.1	-0.1	-0.1
0	0	0	0	0	0	0	0	0	60° 30'	0	0	0	0	0	0	-0.1	-0.1	-0.1	-0.1
0	0	0	0	0	0.1	0.1	0.1	0.1	60° 15'	0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1
0	0	0	0	0	0.1	0.1	0.1	0.1	60° 0'	0	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 12 to 8 °W									
Correction to Latitude										Correction to Longitude									
12°	11°	11°	10°	10°	9°	9°	8°	8°	Longitude	12°	11°	11°	10°	10°	9°	9°	8°	8°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0	0	0	70° 0'	-0.2	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	-0.2	-0.4	
0	0	0	0	0	0	0	0	0	69° 45'	-0.2	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	-0.2	-0.4	
0	0	0	0	0	0	0	0	0	69° 30'	-0.1	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.4	
0	0	0	0	0	0	0	0	0	69° 15'	-0.1	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2	-0.3	-0.4	
0	0	0	0	0	0	0	0	0	69° 0'	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.4	-0.4	
0	0	0	0	0	0	0	0	0	68° 45'	-0.1	-0.1	-0.1	-0.2	-0.2	-0.3	-0.4	-0.4	-0.4	
0	0	0	0	0	0	0	0	0	68° 30'	-0.2	-0.1	-0.1	-0.2	-0.2	-0.3	-0.4	-0.4	-0.3	
0	0	0	0	0	0	0	0	0	68° 15'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	
0	0	0	0	0	0	0	0	0	68° 0'	-0.2	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	67° 45'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	67° 30'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	67° 15'	-0.2	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	67° 0'	-0.3	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	
-0.1	-0.1	-0.1	0	0	0	0	0	0	66° 45'	-0.3	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	
-0.1	-0.1	-0.1	0	0	0	0	0	0	66° 30'	-0.4	-0.3	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.3	
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	66° 15'	-0.4	-0.4	-0.3	-0.2	-0.2	-0.1	-0.2	-0.2	-0.3	
-0.1	-0.1	-0.1	-0.1	0	0	0	0	0	66° 0'	-0.3	-0.4	-0.4	-0.3	-0.2	-0.2	-0.2	-0.3	-0.3	
0	0	0	-0.1	0	0	0	0	0	65° 45'	-0.3	-0.4	-0.3	-0.3	-0.2	-0.2	-0.2	-0.3	-0.3	
0	0	0	0	0	0	0	0	0	65° 30'	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	65° 15'	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	65° 0'	-0.1	-0.2	-0.3	-0.3	-0.4	-0.3	-0.3	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	64° 45'	-0.1	-0.2	-0.2	-0.3	-0.4	-0.4	-0.3	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	64° 30'	-0.1	-0.2	-0.2	-0.3	-0.4	-0.4	-0.3	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	64° 15'	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	-0.1	64° 0'	-0.1	-0.2	-0.2	-0.2	-0.3	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	-0.1	63° 45'	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	
0	0	0	0	0	0	0	0	-0.1	63° 30'	0	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.2	-0.3	
0	0	0	0	0	0	0	0	0	63° 15'	0	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.2	-0.3	
0	0	0	0	0	0	0	0	0	63° 0'	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	62° 45'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	62° 30'	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	62° 15'	0	0	-0.1	-0.1	-0.1	0	-0.1	-0.1	-0.2	
0	0	0.1	0.1	0.1	0	0	0	0	62° 0'	0	0	-0.1	-0.1	0	0	-0.1	-0.2	-0.2	
0	0	0.1	0.1	0.1	0.1	0	0	0	61° 45'	0	-0.1	-0.1	-0.1	0	0	0	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	61° 30'	0	-0.1	-0.1	-0.1	0	0.1	0	-0.1	-0.2	
0	0	0	0	0	0	0	0	0.1	61° 15'	0	-0.1	-0.1	-0.1	0	0.1	0	-0.2	-0.2	
0	0	0	0	0	0	0	0	0.1	61° 0'	-0.1	0	-0.1	-0.1	0	0	-0.1	-0.2	-0.1	
0	0	0	0	0.1	0.1	0.1	0	0	60° 45'	-0.1	0	-0.1	-0.1	0	0	-0.1	-0.2	-0.1	
0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	60° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	-0.1	-0.1	
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	60° 15'	-0.1	-0.1	-0.1	-0.2	-0.1	0	0	0	-0.1	
0.1	0.1	0.1	0.1	0	0.1	0.1	0.1	0.1	60° 0'	-0.1	-0.1	-0.2	-0.1	-0.1	0	0.1	0	-0.1	



# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 8 to 4 °W									
Correction to Latitude										Correction to Longitude									
8°	7°	7°	6°	6°	5°	5°	4°	4°	Longitude	8°	7°	7°	6°	6°	5°	5°	4°	4°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0	0	0	0	0	0	0.1	0.1	0.1	70° 0'	-0.4	-0.5	-0.5	-0.3	-0.1	0	0.1	0	-0.1	
0	0	0	0	0	0	0	0	0	69° 45'	-0.4	-0.5	-0.5	-0.3	-0.2	0	0	0	-0.1	
0	0	0	0	0	0	0	0	0	69° 30'	-0.4	-0.5	-0.5	-0.3	-0.2	-0.1	0	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	69° 15'	-0.4	-0.4	-0.4	-0.3	-0.2	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	69° 0'	-0.4	-0.4	-0.3	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	68° 45'	-0.4	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	
0	0	-0.1	0	0	0	0	0	0	68° 30'	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	68° 15'	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	-0.1	0	
0	0	0	0	0	0	0	0	0	68° 0'	-0.2	-0.2	-0.3	-0.3	-0.4	-0.3	-0.2	0	0	
0	0	0	0	0	0	0	0	0	67° 45'	-0.2	-0.2	-0.3	-0.4	-0.4	-0.3	-0.1	0	0	
0	0	0	0	0	0	0	0	0	67° 30'	-0.2	-0.2	-0.3	-0.4	-0.3	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	67° 15'	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	67° 0'	-0.2	-0.2	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	66° 45'	-0.2	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	66° 30'	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	66° 15'	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	66° 0'	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	
0	-0.1	-0.1	-0.1	0	0	0	0	0	65° 45'	-0.3	-0.3	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	
0	-0.1	-0.1	-0.1	0	0	0	0	0	65° 30'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	65° 15'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	65° 0'	-0.1	-0.1	-0.2	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	64° 45'	-0.1	-0.1	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	64° 30'	-0.1	-0.2	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	64° 15'	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	64° 0'	-0.2	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	0	
0	0	0	0	0	0	0	0	0	63° 45'	-0.3	-0.4	-0.4	-0.3	-0.2	-0.2	-0.1	-0.1	0	
-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	0	63° 30'	-0.3	-0.4	-0.4	-0.3	-0.2	-0.2	-0.2	-0.1	-0.1	
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	63° 15'	-0.3	-0.3	-0.3	-0.3	-0.2	-0.3	-0.2	-0.2	-0.1	
0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	63° 0'	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	-0.1	
0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	62° 45'	-0.1	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	62° 30'	-0.1	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	62° 15'	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	
0	0	0	0	0	0	0.1	0.1	0	62° 0'	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.3	-0.4	
0	0	0	0	0	0	0	0	0	61° 45'	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.3	-0.4	
0	0	0	0	0	0	0	0	0	61° 30'	-0.2	-0.1	-0.1	-0.2	-0.3	-0.3	-0.2	-0.3	-0.3	
0.1	0	0	0	0	0	0	0	0	61° 15'	-0.2	-0.1	-0.1	-0.2	-0.3	-0.3	-0.2	-0.2	-0.3	
0.1	0	0	0	0	0	0	0	0	61° 0'	-0.1	0	0	-0.2	-0.3	-0.3	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	-0.1	60° 45'	-0.1	0	0	-0.1	-0.3	-0.3	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	-0.1	60° 30'	-0.1	0	0	-0.1	-0.3	-0.3	-0.1	-0.1	0	
0	0	0	0	0	-0.1	-0.1	-0.1	-0.1	60° 15'	-0.1	0	0	-0.1	-0.2	-0.2	-0.1	0	0	
0.1	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	60° 0'	-0.1	0	0	0	-0.1	-0.2	-0.1	-0.1	0	

# Correct Astronomical Position to WGS84

Latitude 60 to 70 °N										Longitude 4 to 0 °W									
Correction to Latitude										Correction to Longitude									
4°	3°	3°	2°	2°	1°	1°	0°	0°	Longitude	4°	3°	3°	2°	2°	1°	1°	0°	0°	
0'	30'	0'	30'	0'	30'	0'	30'	0'	Latitude	0'	30'	0'	30'	0'	30'	0'	30'	0'	
0.1	0	0	0	0	0	0	0	0	70° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	69° 45'	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	69° 30'	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	69° 15'	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	69° 0'	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	68° 45'	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	0	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	68° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	68° 15'	0	0	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	68° 0'	0	0	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	67° 45'	0	0	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	67° 30'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	
0	0	0	0	0	0	0	0	0	67° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	67° 0'	-0.1	-0.2	-0.1	0	0	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	66° 45'	-0.1	-0.1	-0.1	0	0	-0.1	-0.2	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	66° 30'	-0.2	-0.1	-0.1	0	-0.1	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	66° 15'	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	66° 0'	-0.1	-0.1	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	65° 45'	-0.1	0	0	-0.1	-0.1	-0.1	-0.1	0	-0.1	
0	0	0	0	0	0	0	0	0	65° 30'	-0.1	0	0	-0.1	-0.1	-0.1	-0.1	0	-0.1	
0	0	0	0	0	0	0	0	0	65° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	65° 0'	-0.1	-0.1	-0.1	-0.1	-0.1	0	0	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	64° 45'	-0.1	-0.1	-0.1	-0.1	0	0	-0.1	-0.1	-0.2	
0	0	0	0	0	0	0	0	0	64° 30'	-0.1	-0.1	0	0	0	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0	0	64° 15'	-0.1	0	0	0	-0.1	-0.1	-0.1	-0.2	-0.2	
0	0	0	0	0	0	0	0.1	0	64° 0'	0	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	63° 45'	0	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	63° 30'	-0.1	0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
0	0	0	0	0	0	0	0	0	63° 15'	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
-0.1	-0.1	0	0	0	0	0	0	0	63° 0'	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	
-0.1	0	0	0	0	0	0	0	0	62° 45'	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	0	0	-0.1	
0	0	0.1	0.1	0	0	0	0	0	62° 30'	-0.2	-0.3	-0.3	-0.3	-0.2	0	0.1	0.1	0	
0	0.1	0.1	0.1	0	0	0	0	0	62° 15'	-0.3	-0.3	-0.3	-0.2	-0.1	0	0.1	0.1	-0.1	
0.1	0.1	0.1	0	0	-0.1	-0.1	0	0	62° 0'	-0.4	-0.3	-0.2	-0.1	0	0.1	0.1	0	-0.1	
0	0	0	0	0	-0.1	0	0	0	61° 45'	-0.4	-0.3	-0.2	0	0.1	0.1	0.1	0	-0.2	
0	0	0	0	-0.1	0	0	0	0	61° 30'	-0.3	-0.3	-0.1	0	0.1	0.1	0.1	0	-0.2	
0	0	0	-0.1	-0.1	0	0	0	0	61° 15'	-0.3	-0.2	-0.1	0.1	0.1	0	0	-0.1	-0.2	
0	-0.1	-0.1	-0.1	-0.1	0	0	0.1	0	61° 0'	-0.2	-0.2	0	0.1	0	-0.1	-0.1	-0.1	-0.2	
-0.1	-0.1	-0.1	-0.1	0	0	0	0.1	0	60° 45'	-0.1	-0.1	0	0	-0.1	-0.2	-0.2	-0.2	-0.2	
-0.1	-0.1	-0.1	0	0	0	0	0	0	60° 30'	0	0	0	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	
-0.1	-0.1	0	0	0	0.1	0	0	0	60° 15'	0	0	-0.1	-0.2	-0.2	-0.3	-0.2	-0.1	-0.1	
-0.1	0	0	0	0.1	0.1	0	0	0	60° 0'	0	-0.1	-0.2	-0.2	-0.3	-0.2	-0.2	-0.1	-0.1	