Determination of the "Meridian Convergence" and the "Scale Factor" at Chajnantor.
A. Otárola

$$\phi := -1\cdot\left(23 + \frac{1}{60} + \frac{10}{3600}\right)\cdot\frac{\pi}{180}$$

$$\lambda := -1\cdot\left(67 + \frac{45}{60} + \frac{10}{3600}\right)\cdot\frac{\pi}{180}$$

$$\lambda_0 := -1\cdot 69\cdot\frac{\pi}{180}$$

$$l := \lambda - \lambda_0$$ Longitude difference

The second excentricity on the Hayford Elipsoid (reference to the PSAD-56 datum) is:

$$e_p := \sqrt{0.006768170197}$$

$$a_7 := \sin(\phi)$$

$$a_9 := \frac{1}{3}\cdot\sin(\phi)\cdot\cos(\phi)^2\cdot\left(1 + 3\cdot e_p{}^2\cdot\cos(\phi)^2 + 2\cdot e_p{}^4\cdot\cos(\phi)^4\right)$$

$$a_{11} := \frac{1}{15}\cdot\sin(\phi)\cdot\cos(\phi)^2\cdot\left(-1 + 3\cdot\cos(\phi)^2\right)$$

Hence, the meridian convergence (in degrees) is the following

$$C := \left(a_7\cdot l + a_9\cdot l^3 + a_{11}\cdot l^5\right)\cdot\frac{180}{\pi}$$

$C = -0.48778453$ Negative value indicates the grid´s north is west of the geographic north

Determination of the scale factor

$$a_8 := \frac{1}{2}\cdot\cos(\phi)^2\cdot\left(1 + e_p{}^2\cdot\cos(\phi)^2\right)$$

$$a_{10} := \frac{1}{24}\cdot\cos(\phi)^2\cdot\left[-4 + \left(9 - 28\cdot e_p{}^2\right)\cdot\cos(\phi)^2 + 42\cdot e_p{}^2\cdot\cos(\phi)^4\right]$$

$$m := 1 + a_8\cdot l^2 + a_{10}\cdot l^4$$

$m = 1.00020188$