$$gmst = 6.6974243242 + 0.0657098283 * (n) + hour \quad \text{..... (2. 11)}$$

$$lmst = (gmst * 15 + long) * (\pi/180) \quad \text{..... (2. 12)}$$

$$\omega = lmst - ra \quad \text{..... (2. 13)}$$

$$\theta z = \cos^{-1}[\cos \Phi \cos \omega \cos \delta + \sin \delta \sin \Phi] \quad \text{..... (2. 14)}$$

$$\gamma = \tan^{-1}\left(\frac{-\sin \omega}{\tan \delta \cos \Phi - \sin \Phi \cos \omega}\right) \quad \text{..... (2. 15)}$$

$$Parallax = \frac{\text{EarthMeanRadius}}{\text{AstronomicalUnit}} * \sin \theta z \quad \text{..... (2. 16)}$$

$$\theta_t = \theta_z + Parallax \quad \text{..... (2. 17)}$$

$$\rho = \tan^{-1} \frac{\sin(\gamma)}{\tan(180/\pi) - \theta_t} \quad \text{..... (2. 18)}$$

Where:

jd: Julian Day

m: Month {required from the PLC}

y: Year {required from the PLC}

d: Day {required from the PLC}

$hour$: Hour in Universal Time {required from the PLC}

n: The difference between current Julian Day and Julian Day 2000)

L: Mean longitude of the Sun

g: Mean anomaly of the Sun

l: Ecliptic longitude of the Sun