

ep : Obliquity of the ecliptic

ra : Right ascension

δ : Declination

$gmst$: Greenwich mean sidereal time

$lmst$: Local mean sidereal time

$long$: Geographical longitude

Φ : Geographical latitude

ω : Hour angle

θ_z : Zenith distance

γ : Solar azimuth

ρ : Actual position of Sun (+ve indicates East of verticle)

EarthMeanRadius = 6371.01 km

AstronomicalUnit = 149597890 km