Analysis Workbench.tool

STK tools for Vector Geometry Tools

<http://help.agi.com/stk/index.htm#stk/vgTool.htm%3FTocPath%3DGetting%2520Started%7CAnalysis%2520Workbench%2520Tools%7CVector%2520Geometry%2520Tool%7C_____0>

Spherical coordinate system for polar coordinates

<http://help.agi.com/stk/index.htm#stk/vehSat_coordType_spherical.htm>

Vector normal of solar panel

http://help.agi.com/stk/index.htm#howTo/vectornormal.htm

Inertial : all central bodies except moon

Fixed: all central bodies except earth

Conversions in 3D:

radius = sqrt(x^2 + y^2 + z^2)

polar = arccos(z/radius)

azimuthal = atan2(y, x)

x = radius \* sin(polar) \* cos(azimuthal)

y = radius \* sin(polar) \* sin(azimuthal)

z = radius \* cos(polar)

Geographic:

latitude = polar - 90°

longitude = azimuthal

latitude = arcsin(z/radius)

longitude = atan2(y, x)

x = radius \* cos(latitude) \* cos(longitude)

y = radius \* cos(latitude) \* sin(longitude)

z = radius \* sin(latitude)