**ray\_block3d.f**

**arguments** (1)

1: time (minutes) after earthquake possible values are from 7.0 to 20.5

**necessary file**

output file of ray.f (ray tracing), “rtemp\_fine” is given as an example

“input/ray\_block3d”, a 4 line file in which you need to give

line 1 geomagnetic declination (from north clockwise) and inclination (up positive) in degree

line 2 two parameters for Chapman distribution in km (300.0 65.0)

line 3 time constant for the N-shaped wave (give 1/4 of the period in second). 60.0 is recommended for earthquakes

line 4 scale factor (arbitrary, just let the output be consistent with real CsID in TECU), typically 0.01 or so

**example**

bin/ray\_block3d 10.5 < (ray tracing file) > (output file)

to get electron density anomalies in voxels at 10 min. 30 seconds after earthquake.

It is recommended to make these files every 15 seconds (every 0.25 minutes) for smooth-looking simulated TEC data (as shown in the script file “ray\_caltec3dprep”)

**How to view the output file**

viewing program: draw\_block3d.f

bin/draw\_block3d v 300.0 < (ray\_block3d output file) for map view at altitude 300 km

bin/draw\_block3d n 0.0 < (ray\_block3d output file) for east-west profile at north=0 km

bin/draw\_block3d e 0.0 < (ray\_block3d output file) for north-south profile at east=0 km

output of draw\_block3d.f should be sent to *gmt psxy -Ss0.1 -C(color palette)….*