Information needed to simulate the 2000_225 event.

Magnetic field:
The magnetic field model used is the Tsyganenko 96 (T96) model. The magnetic field configuration is varied every 600 seconds. The file 2000_225.parmod contains the 4 parmod's needed in calling T96.

Nightside boundary distribution at 10 RE:
The boundary condition at the nightside equator at 10 RE is updated every time step (10 seconds in CRCM run). The distribution at the nightside boundary is assumed to be Maxwellian with temperature and density modeled by solar wind velocity and density at the subsolar point and with a 3-hour time lag.

```
N_10RE(t) = (0.025*Nsw(t-3hr) + 0.395)    ! N in cm^-3

kT_10RE(t) = 0.019*Vsw(t-3hr) - 3.65      ! kT in keV, Vsw in km/s
if (kT_10RE.gt.7.5) kT_10RE=7.5
```

The solar wind velocity, density and IMF at the subsolar point are given in files 2000_225.sw and 2000_225.imf. Data cover from 3 hours prior the 00 UT because the 3-hour time lag.

Boundary condition on the dayside:
The distribution on the dayside boundary is not important so it is modeled in a sloppy way. The dayside boundary distribution is assumed to be a Maxwellian with constant temperature and density, kT_day = 0.3 keV and N_day = 5 cm^-3. The day-night transition is not set at 06-18 LT but determined by the intersection of the 10-RE circle and the equatorial crossing of field lines rooted at high latitude boundary (68.408 degree) at the ionosphere.

Initial condition:
Initial distribution is assumed to be isotropic in local time and in pitch angle, so it is only a function of energy (E in keV) and equatorial distance (ro in RE). File initial_h.dat contains the H+ flux as a function of E(ie) and ro(il). ro goes from 2.5 to 7.7. E goes from 1.52 to 125. After the listing of E's, flux is listed as, for a given row, flux(E=Ei,ro(1:il)). Note that the fluxes are in (cm^2 s MeV)^-1.

Polar cap potential:
The Boyle model is used for the cross polar cap potential drop.

```
vdrop = 1000.*0.5*(1.1e - 4*Vsw*Vsw + 11.1*Bt*sina1**3)
```

where vdrop is half of the potential drop in volt, again Vsw is in km/s, Bt is the imf magnitude in nT, and sina1 = sin(0.5*acos(bz/Bt)).
The high latitude boundary is set at 68.408 degree. The solar wind, imf data needed to calculate vdrop are also given in files 2000_225.sw and 2000_225.imf.

Conductance model:
The new "quiet time" model I got from Bob recently is used, overlaying the Kp driven Hardy model. The Kp's on 2000_225 are,

hour	Kp
-1.5	5.67
1.5	5.
4.5	7.33
7.5	7.67
10.5	7.67
13.5	7.33
16.5	7.33
19.5	6.33
22.5	3.67
25.5	4.33

The conductance is updated every time step (10 seconds). The instantaneous Kp (xKp) is obtained by interpolation in time. The Kp input to routine cond is i_kp, which is obtained by

```
i_kp=nint(xkp)
if (i_kp.gt.6) i_kp=6
```

Please talk to me if you need more details.