



**Figure 1**

(A): 10-min plots from 0325:00 UT for 02 January 1986, showing a keogram along geomagnetic meridian passing SHM (66.3N, 336.0 in corrected geomagnetic coordinates). (B): H component of HUA at dip-equator (1.0N, 355.5 in geomagnetic coordinates), and (C): Inclination angle of field lines at geosynchronous satellite GOES 5 (footprint of this satellite is 64.0N, 349.8 in geomagnetic coordinates). Initial pulse of Pi 2 pulsations and associated dipolarization onset at 0328:30 UT is marked by vertical bar in red. All-sky images in the bottom are viewed from above the ionosphere (along the field lines). Poleward expansion of the onset aurora showing clockwise turnover of the splitting arc is demonstrated in consecutive images at 0328:30 and 0329:00. To the right, all-sky image overlaid with geographic grids are presented. Grid lines (55N, 56N) in latitudes and (268, 270) in longitudes are highlighted. Geomagnetic meridian passing through optical station (SHM) is marked by solid line. The auroral animation for 1 min intervals starting at 0328:00 can be found in supplementary material, 0102(1986).mp4.