

## **Polar Cap Dynamic Structure seen using full 2-radar PolarDARN Data**

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**Abstract:** The polar cap region is dynamic and quite sensitive to IMF conditions, particularly when  $B_y$  is dominant or  $B_z$  is positive. In this talk, the details of polar cap structure during development of a series of relatively short-lived lobe cells near noon on Jan. 09, 2008 will be discussed. For the first lobe cell (8 minutes), the IMF was initially in a strong  $B_{y+}$  and near-zero  $B_z$  state, and an intense prenoon westward flow near the open-closed field line boundary was observed. An explanation of that type of convection pattern will be given in terms of reconnection. The development of two more lobe cells of 12 minute-duration will then be shown. The second cell is interesting in that the location of the most negative polar cap voltage shifts from near dusk to the center of the prenoon lobe cell. The final configuration is one showing two lobe cells when  $B_y$  has dropped to near zero and  $B_{z+}$  conditions prevail. For all the lobe cells, sunward flow near the center of the polar cap is a prominent feature.