

Comparison of inter-hemispheric 6300 Å structures in the American sector: evidence of conjugate plasma instabilities and thermospheric dynamics

C. Martinis, J.Baumgardner, M.Mendillo

Center for Space Physics- Boston University (martinis@bu.edu)

All-sky imagers located at Arecibo, Puerto Rico (18.3° N, 66.7° W, 28° N mag lat) and El Leoncito, Argentina (31.8° S, 69.3° W, 18° S mag lat), are used to study 6300 Å airglow emission features. From a regional point of view, Arecibo is considered a typical mid-latitude station, poleward of the northern crest of the Appleton Anomaly, while El Leoncito is a low-latitude station, close to the southern crest of the Anomaly. Thus, phenomena observed at these two sites are, in general , distinct in appearance and different in frequency of occurrence. For example, at El Leoncito, airglow depletions associated with the Rayleigh-Taylor instability are observed frequently, not the case for Arecibo. Yet, airglow structures related with a Perkins-like instability are observed more frequently at Arecibo. Although not exactly located at their respective conjugate points, there is a partial overlapping of their conjugate fields of view, allowing us to look for simultaneous events.

We present preliminary results comparing airglow depletions observed at both sites, cases of simultaneous observations, and comparisons with data from the Global Positioning System (GPS) network and from UV sensors on the TIMED and IMAGE satellites. A separate feature common to both sites is the poleward motion of a brightness wave (BW), the optical signature of meridional winds from the equatorial midnight temperature maximum.