

## COORDINATED OPTICAL AND RADIO STUDIES OF EQUATORIAL AND MIDLATITUDE IONOSPHERIC PROCESSES

Carlos Martinis, Jeffrey Baumgardner, Joei Wroten and Michael Mendillo

### Key words:

**Abstract.** All-sky imaging systems in the American sector at both hemispheres (Arecibo, PR and Mercedes and El Leoncito, Argentina) are used to study processes in the low and mid latitude ionosphere. Airglow depletions associated with equatorial Spread-F (ESF) have been observed to reach lower mid latitudes during low solar activity conditions. The simultaneous occurrence in both hemispheres (i.e., conjugate observations) of medium-scale traveling ionospheric disturbances (MSTIDs) has also been studied. The optical diagnostic provides 2D information covering an area of  $\sim 1 \times 10^6 \text{ km}^2$ . In both cases *line – of – sight* GPS and *in-situ* satellite data are included to complement the 2D information provided by the all-sky imagers.