

ILWS Geospace Themes and Targets

D. G. Sibeck

NASA/GSFC

Equatorial Ionosphere

- 1. Determine the causes for equatorial and mid-latitude instabilities.
- 2. C/NOFS (extend), COSMIC, EQUARS
- 3. ground-based observations: Jicamarca, ‘Meridian Project’, ionosondes, all sky imagers, GPS receivers, etc.
- 4. TIMED (extend), RAVENS (accelerate), FUV imagers (start)
- 5. Solar wind observations (ensure)
- 6. Polar cap observations (electric field, size of polar cap....), from s/c and ground.
- 7. Assimilative ionospheric modeling.

Substorms

- 1. SW-magnetosphere interaction with a focus on substorms.
- 2. In-situ tail: CLUSTER (extend), THEMIS, SWISE, SCOPE (approve), MMS (don't delay), Geotail (don't turn off)
- 3. Nearer Earth: GOES, LANL
- 4. Remote: Ravens (approve)
- 5. Low-altitude- NPOESS, SWARM
- 6. Ground. SuperDARN, EISCAT, Antarctic, other Northern Hemisphere ground observations, AMISR

Radiation Belts

- 1. Determine the source and loss mechanisms for energetic particles within the radiation belts.
- 2. In situ observations: LANL, GOES, HEO, RBSP (approve), SWISE, ORBITALS (approve).
- 3. Remote: TWINS
- 4. Plasma sheet input: THEMIS, MMS, SWISE
- 5. Loss: DMSP, POES, NPOESS, SAMPEX
- 6. StormDARN, other ground based.
- 7. Must have good solar wind monitor.