

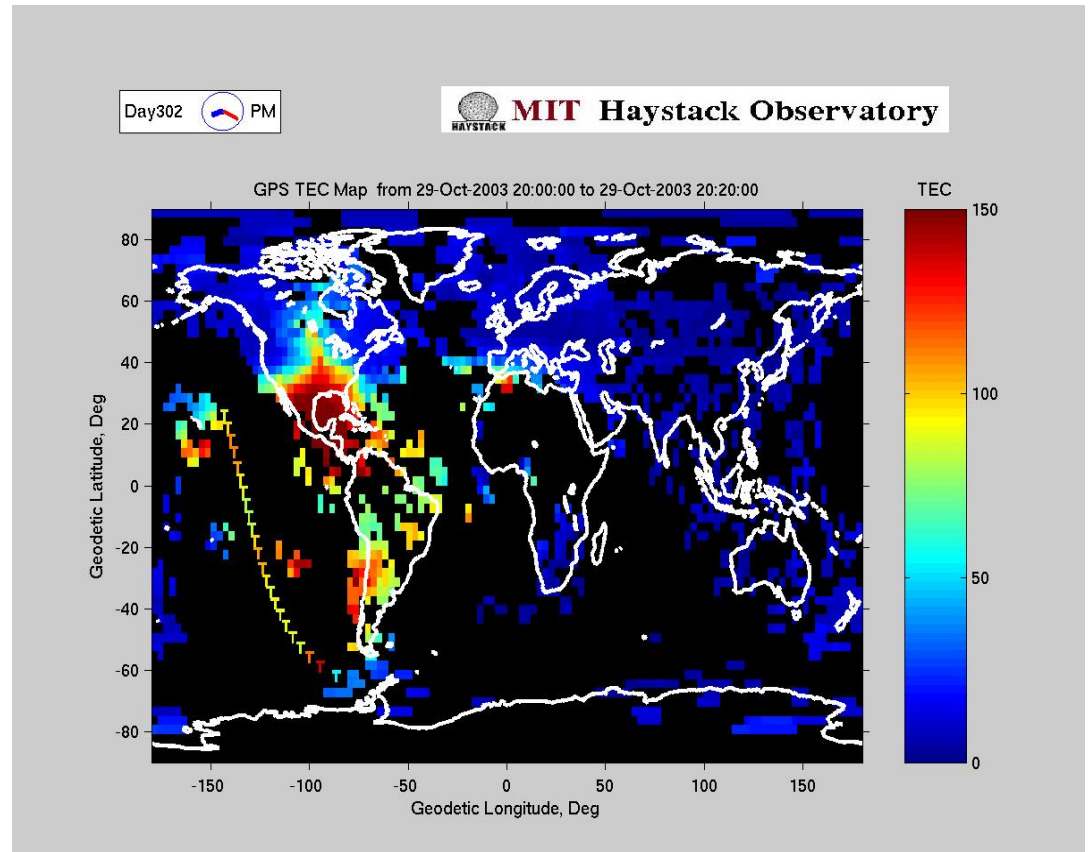
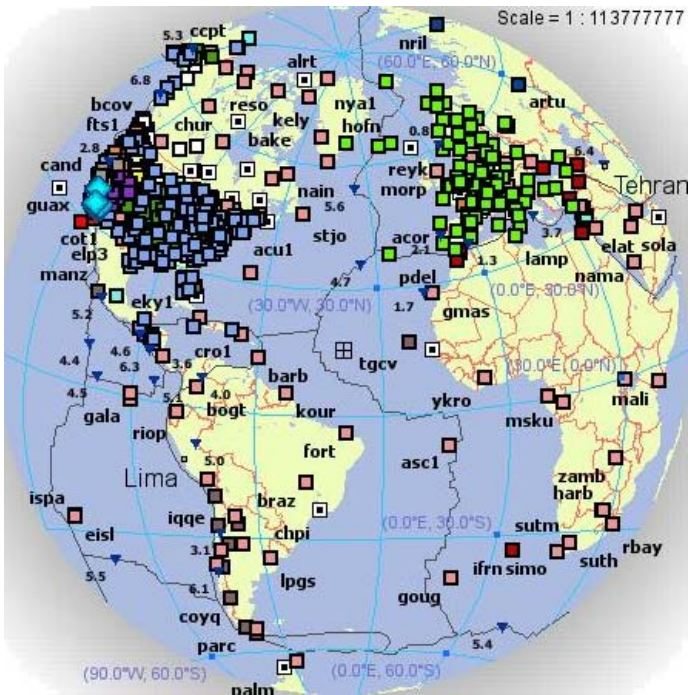
# **Climate and Weather of the Sun-Earth System : Use of GPS**

*Material Prepared by Anthea Coster*

**GPS useful for monitoring:**

- **Ionospheric response to solar storms**
- **Scintillations on Satellite  
Communications**
- **Impact of TEC gradients on Navigation**

# GPS Coverage Limited over Oceans, Africa, South America, Asia, Australia



# Outstanding Issues

- **Access to Real-Time World-Wide data.** The majority of receivers do not report their data in real or near-real time.
- **Limited number of GPS scintillation monitors on-line and available for processing**
- **Open-source GPS processing code for TEC measurements**
- **Receivers that can readily accept new codes and the L5 frequency**
  - **Software receivers appear to offer the promise of flexibility.**
- **Processing issues: determination of receiver biases, absolute calibration of the GPS TEC measurement, removal of bad data (e.g. multipath), correct determination of mapping functions**