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

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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