Geostationary Ocean Colour Radiometry

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(co-chairs)

GEO Products and Applications

Presentations

- J-K Choi: GOCI overview
- D. Doxaran: Dynamics of SPM in river plumes using GOCI
- R. Frouin: Estimating PAR from GOCI

Discussion:

- **What new products can be derived from GEO OC data?**
  - surface currents; sediment transport; particle tracking
  - Event tracking: oil spills, ship dumping, HABs, etc.
- **What new processes can we describe?**
  - Tidal dynamics, eddies, fronts
  - Diel evolution of traditional ocean color products
  - Direct NPP & NCP
  - Phytoplankton bloom dynamics
  - Exchange at land-sea interface; air-sea interface;

GEO data processing technique

Presentations

- (M. Wang) S. Son: GOCI Atmospheric Correction Applications
- C. Mazeran: Specificities in GEO OCR processing

Discussion:

What are new challenges for GEO data processing?

- Sun glint – minor issue
- Backscattering (sun behind sensor)
  - Limits to aerosol model selection & AOT (135° – yes; 163° – no)
  - <90° side & forward scattering
- GEO improves coverage (optimization for clouds)
  - >200 days/yr with ≥1 image; compared to ~100 d/yr for LEO
- Air mass fraction
  - High-viewing angle (<60-deg sensor view angle okay)
  - Atm. correction out of spec when AMF>4
  - Aerosols & trace gases from larger area with GEO than LEO

GEO data processing technique

- MTF – scale of details observable by sensor
  - Goal=0.3; manufacturers: 250m not possible; 500m possible (GOCI) – due to pointing stability
- Multi-temporal data processing?
- What is max AMF for Atm. correction?
  - What approach is best for high AMF: direct (Gordon-Wang) or indirect (e.g., neural network) methods?
- Can we correct for air-sea interface at high sun/viewing zenith angle? (wave shadows at high SZA)
- Can we correct for atmospheric “spherical shell” (earth curvature)?
- Is BRDF a problem or an opportunity?
  - BRDF increases rapidly with viewing angle

GEO new missions and synergy

Presentations

- J-H Ryu: Korean Geo new mission synergy
- A. Mannino: NASA GEO-CAPE Status
- D. Antoine: European GEO - OCAPI
- Q. Vanhellemont: MODIS-SEVIRI Synergy Product

Discussion

- How should GEO and LEO be designed to optimize synergy?
- Do we need a global GEO constellation?
- Potential for synergy: GOCI-II + MI-II (met) + GEMS (atm profile)?
- Harmonization of multi-agency requirements bands, SNR, etc.?

Final thoughts

- Limitations to GEO requirements
  - trade off in spatial resolution, temporal resolution, SNR, spatial coverage, spectral resolution, etc.
- Sensor type
  - 2D frame capture multispectral (GOCI, SEVIRI, ABI…)
  - 1D - Single slit hyperspectral with very wide field of view
  - 1D - Multiple slits hyperspectral
- Need for more informative sessions on Geo
- Need for more extensive discussions