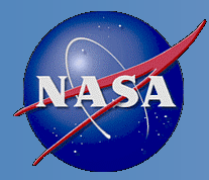


Comparison of the Sensor Data Record (SDR) from Ozone Mapping and Profiler (OMPS)

Xiangqian Wu, NOAA/NESDIS/STAR,

Quanhua Liu, Jian Zeng, Michael Grotenhuis, Haifeng Qian, Maria Caponi, Larry Flynn,
Glen Jaross, Bhaswar Sen, Richard H. Buss Jr., William Johnsen, Scott Janz, Chunhui
Pan, Jianguo Niu, Trevor Beck, Eric Beach, Wei Yu, Rama Mundakkara, Derek Stuhmer,
Daniel Cumpton, Cristina Owen, Wen-Hao Li

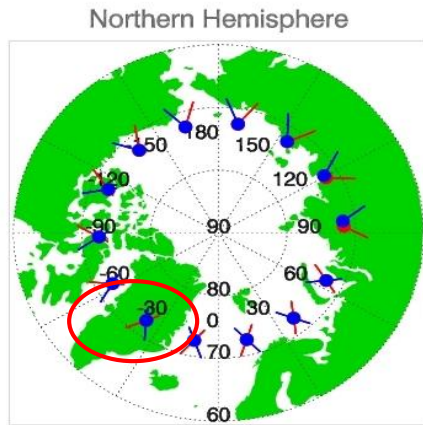


Outline



- Simultaneous Nadir Overpass (SNO)
- Community Radiative Transfer Model (CRTM)
- Stability over stable earth target

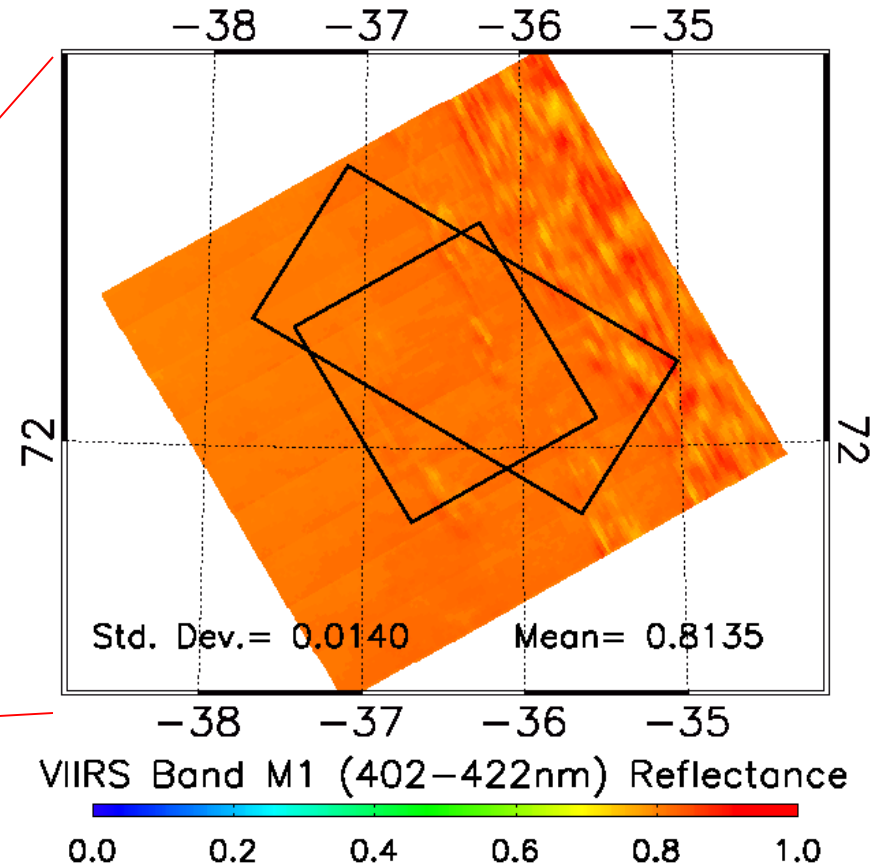
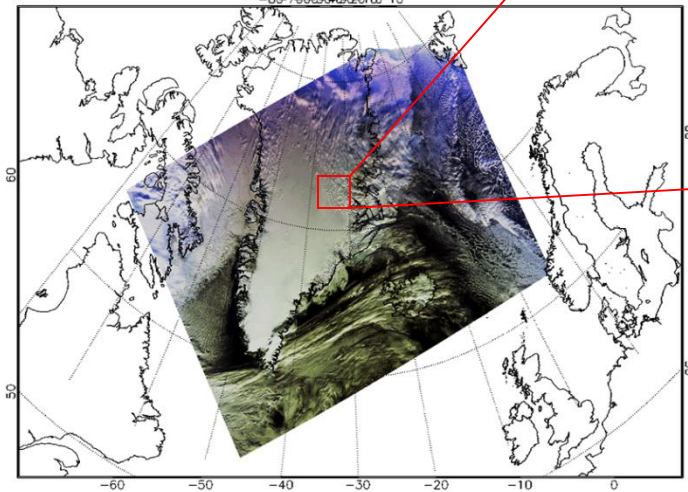
Simultaneous Nadir Overpass (SNO)



Red line: METOP-B Blue line: NPP

GMOD0 2013 03 02 t1352147_e1357551

-80-79665043020100 10



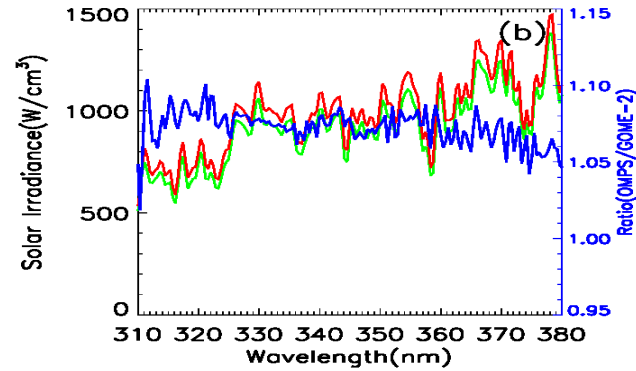
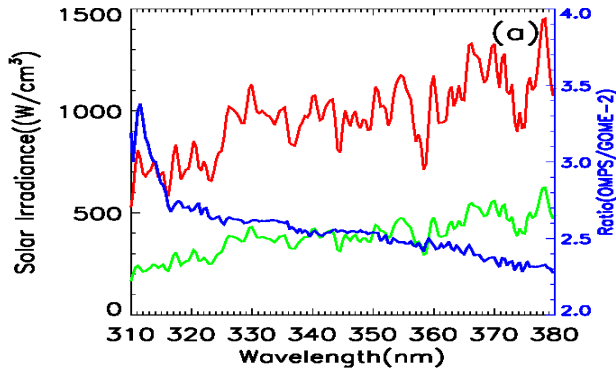
No compensation for size, shape, and orientation of FOV's – rely on scene uniformity.



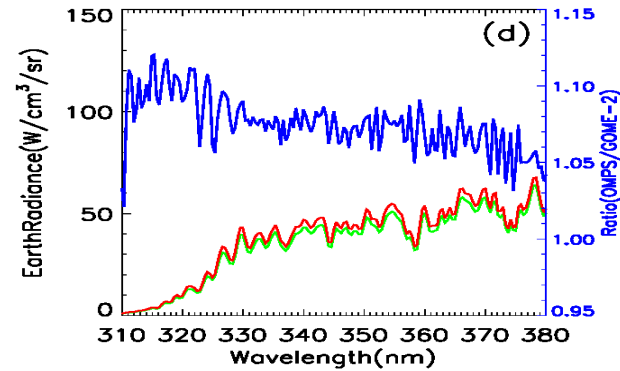
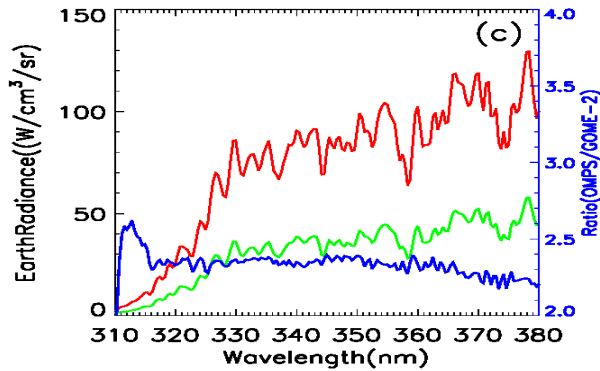
SNO Case Study



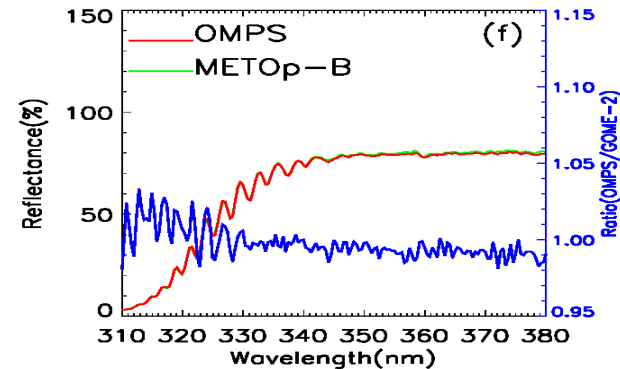
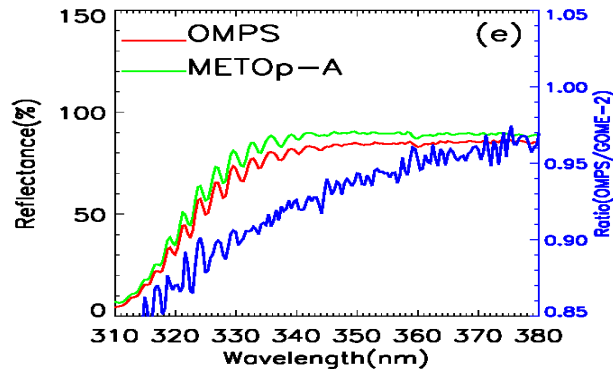
Solar



Earth View

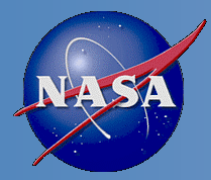


Reflectance



Metop-A

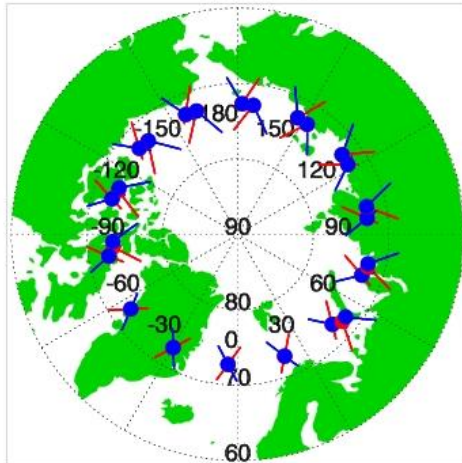
Metop-B



SNO Results

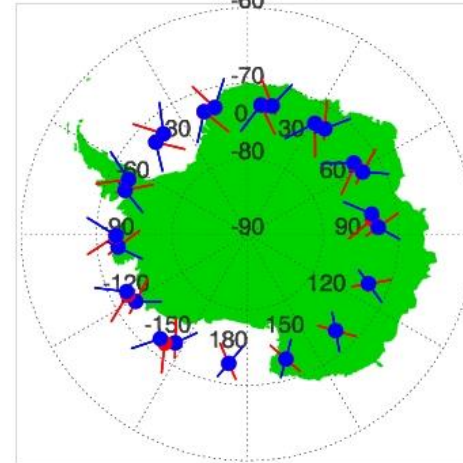


Northern Hemisphere



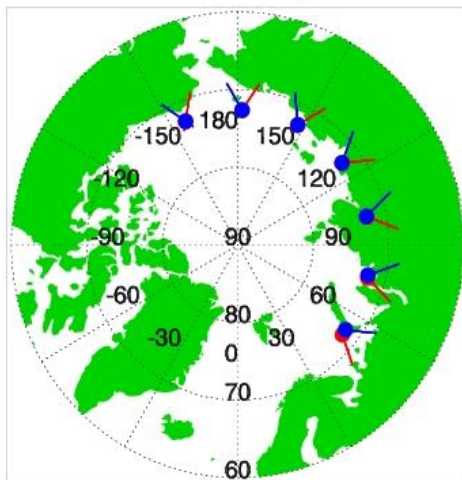
Red line: METOP-A Blue line: NPP

Southern Hemisphere



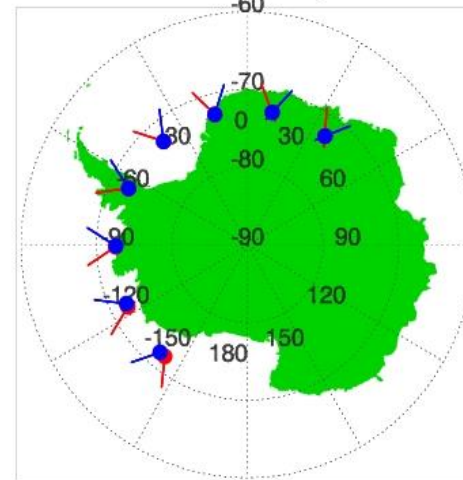
TLE Epoch: 2013/3/24

Northern Hemisphere

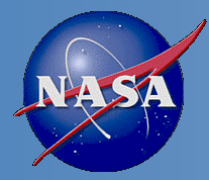


Red line: METOP-A Blue line: NPP

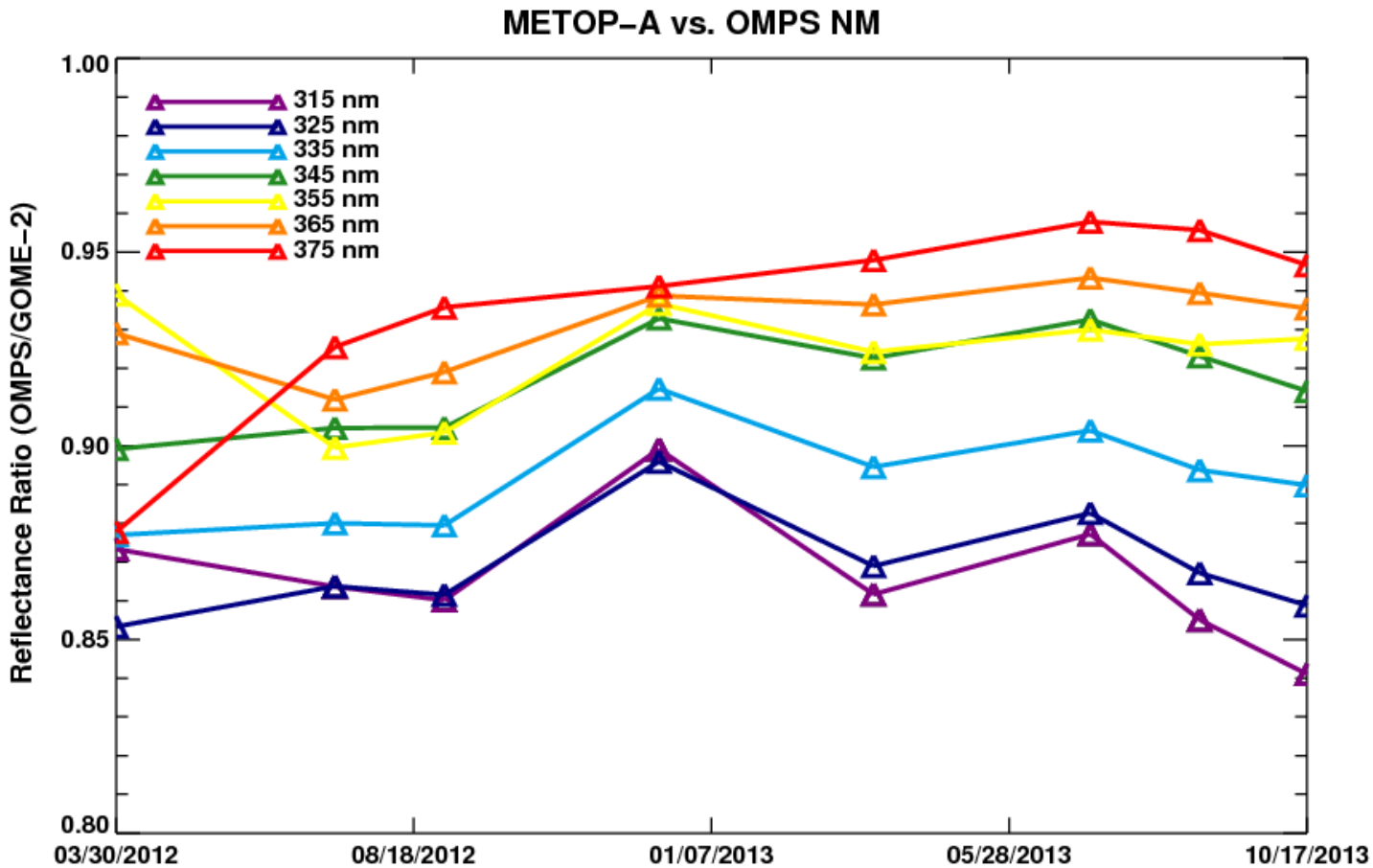
Southern Hemisphere

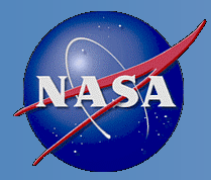


TLE Epoch: 2013/3/25

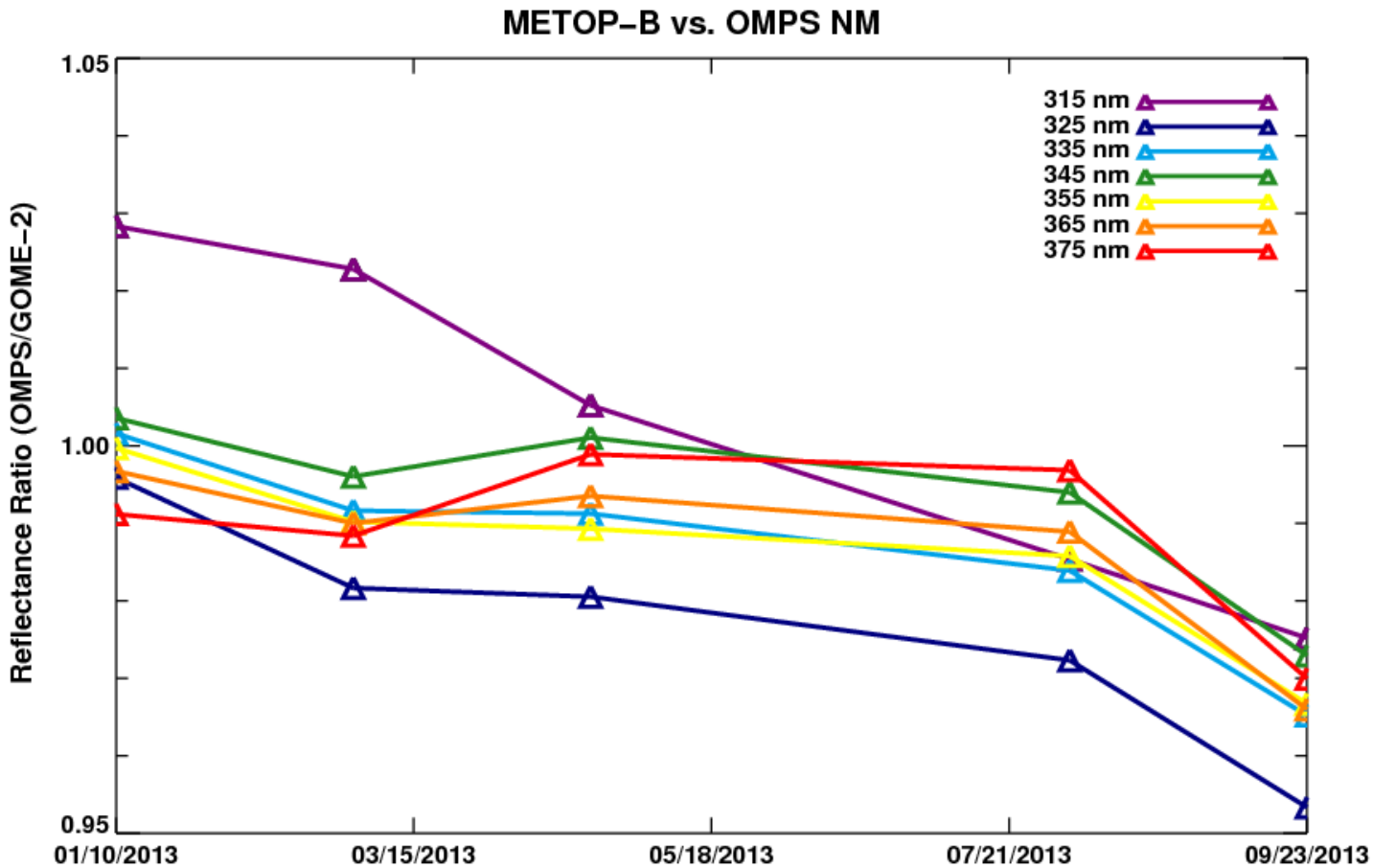


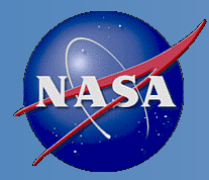
SNO Results with METOP-A



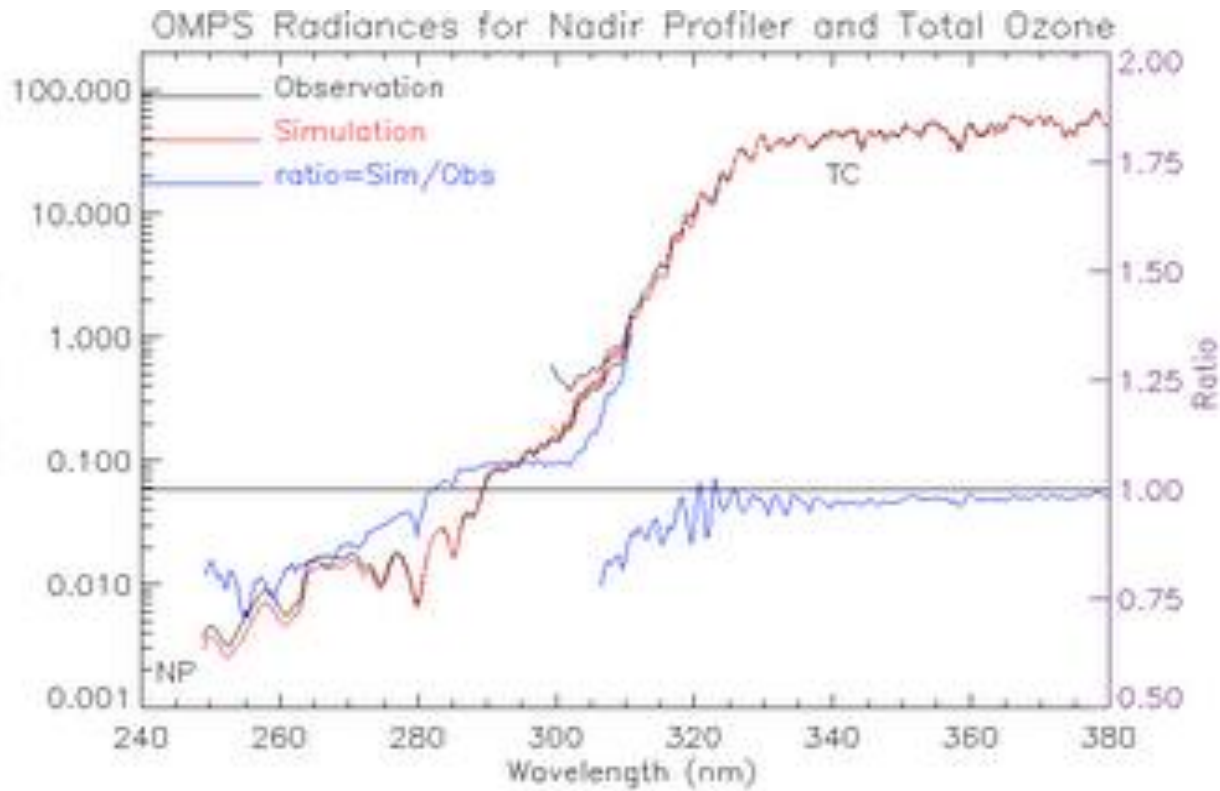


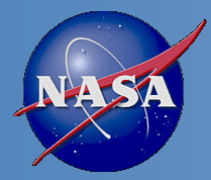
SNO Results with METOP-B



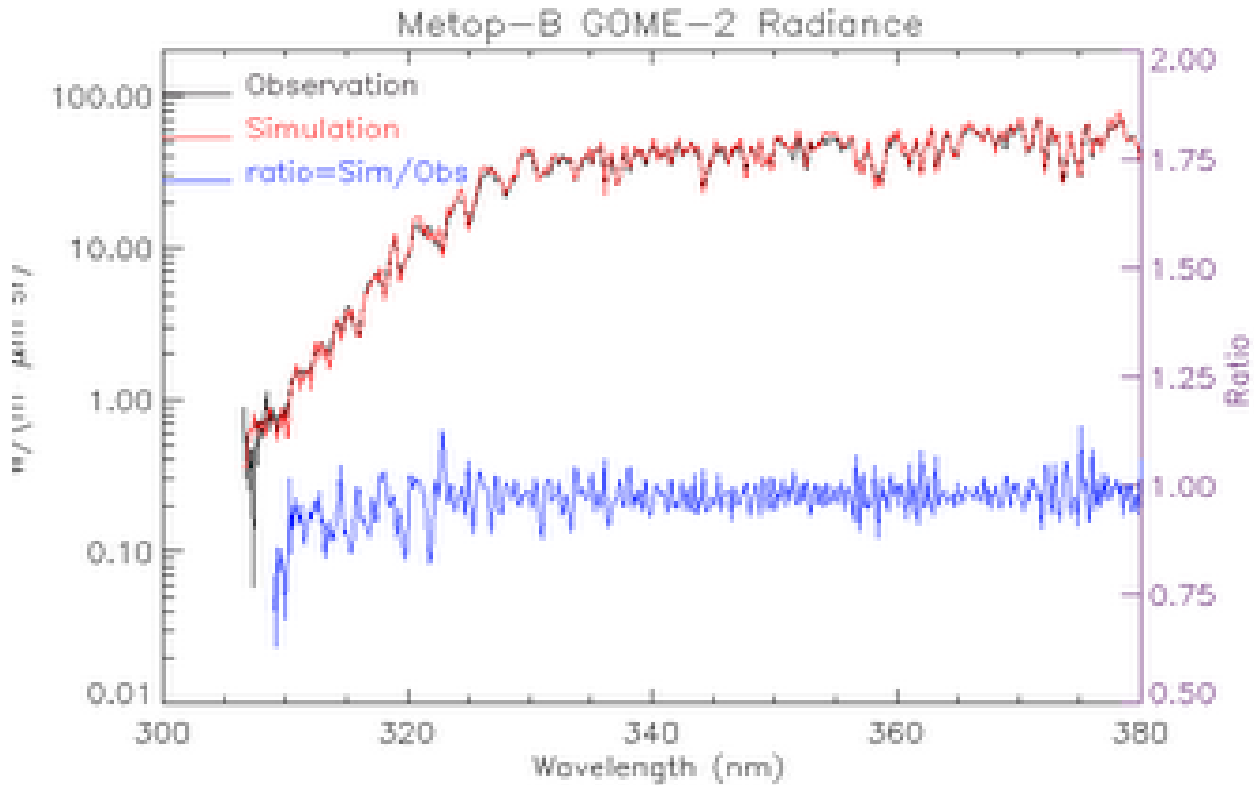


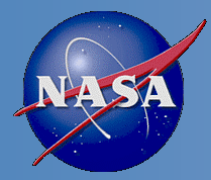
CRTM Simulation for OMPS



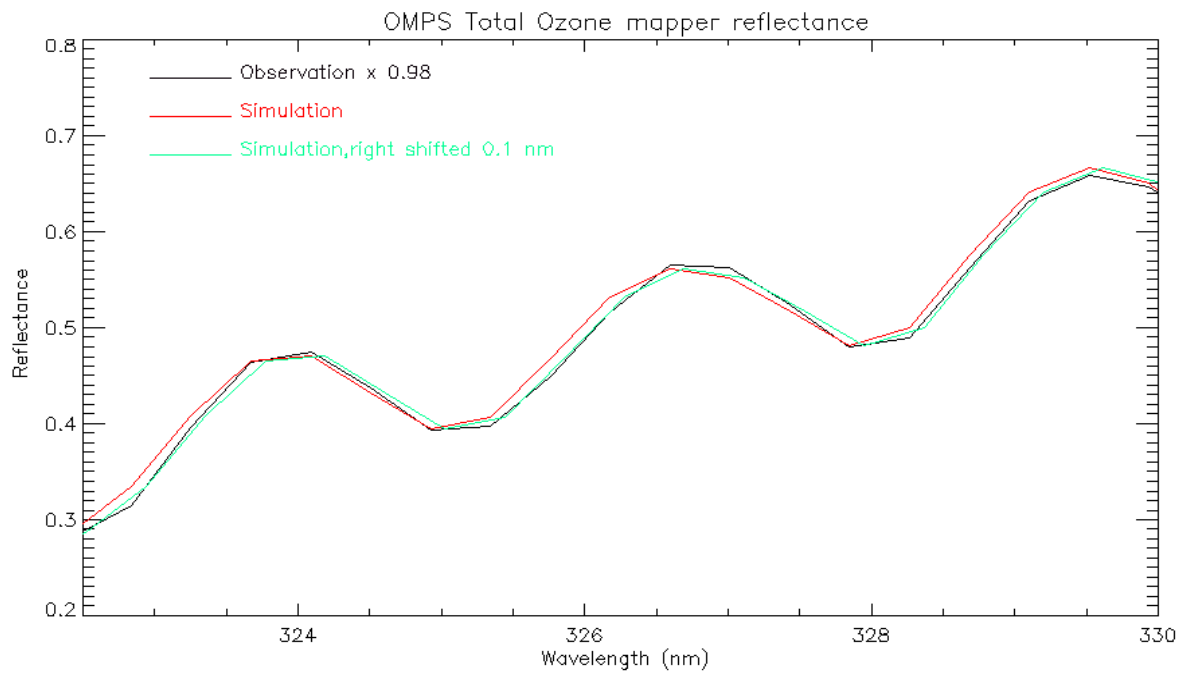


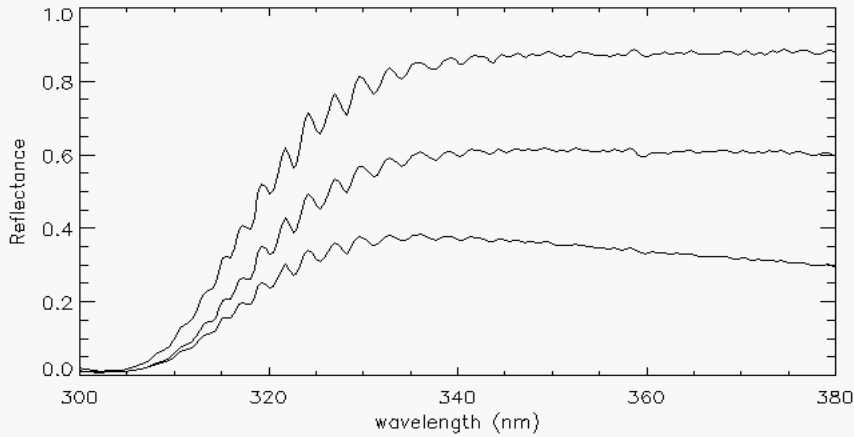
CRTM Simulation for GOME-2





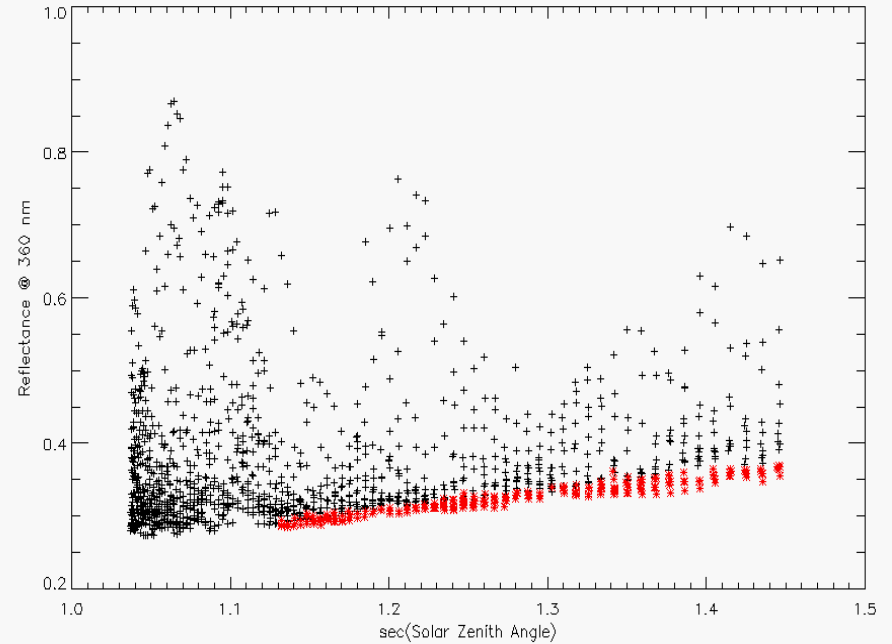
CRTM – Wavelength Registration

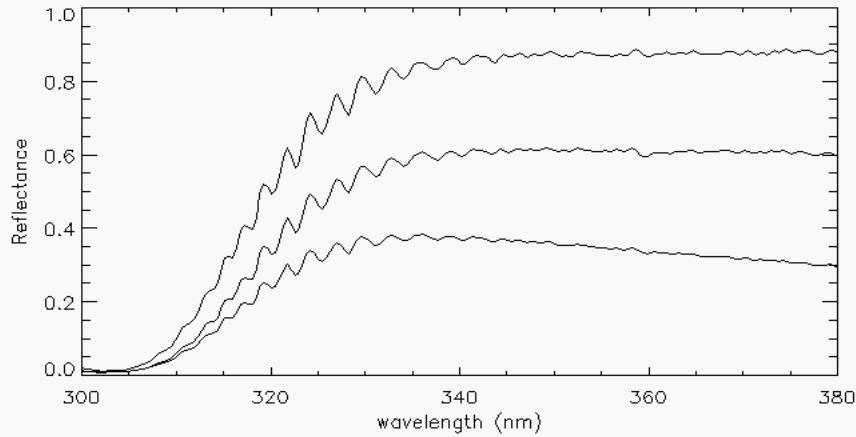




Using spectral radiance to identify clear pixels.

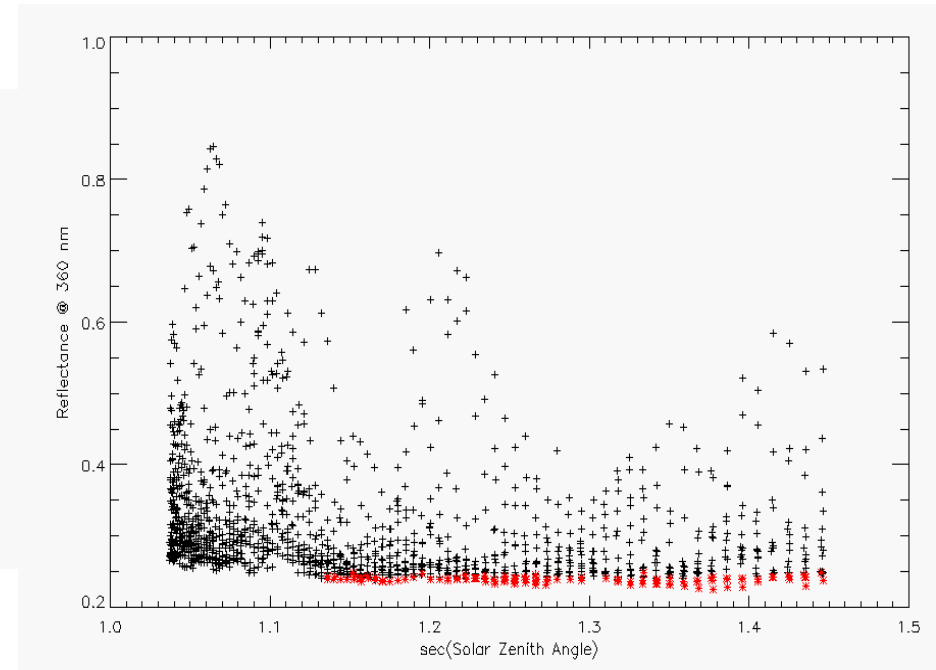
Spectral reflectance with and without consideration of Rayleigh scattering variation with solar irradiance.

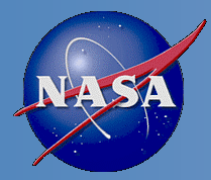




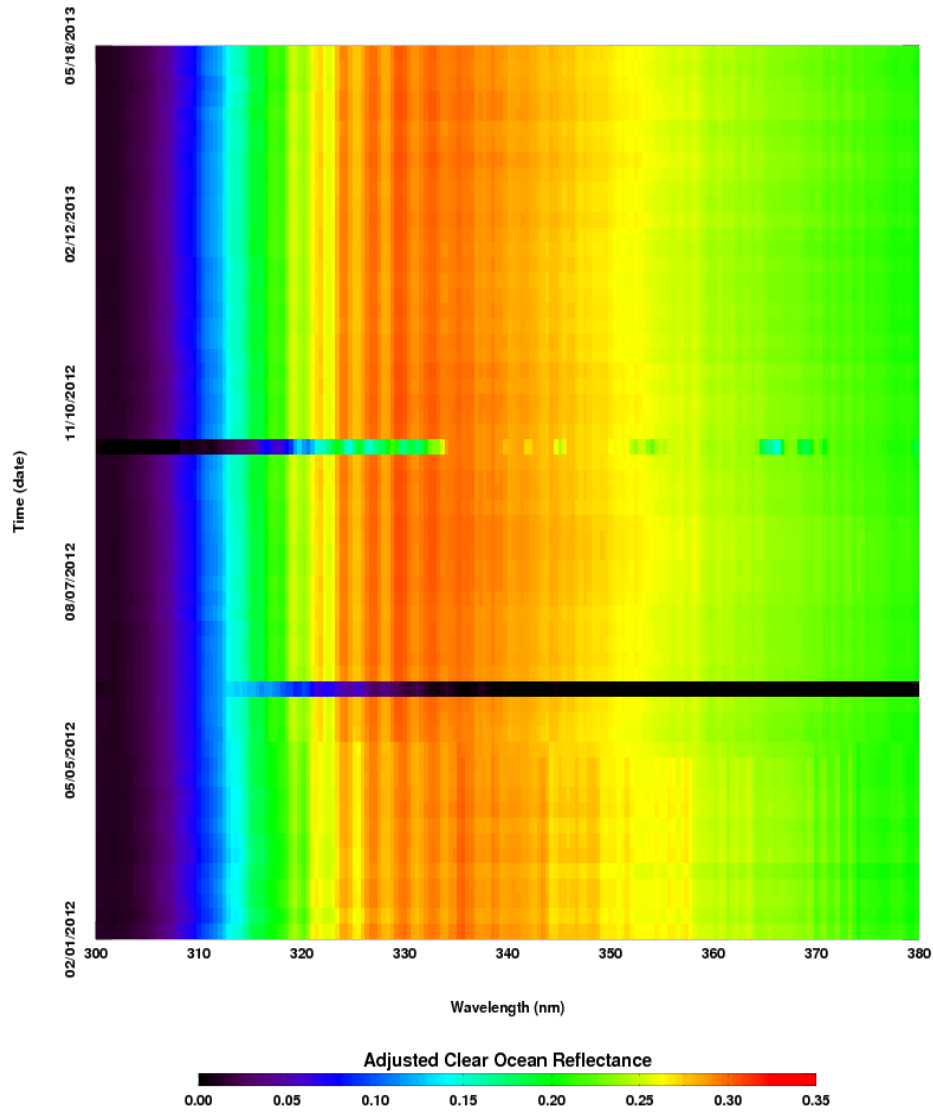
Using spectral radiance to identify clear pixels.

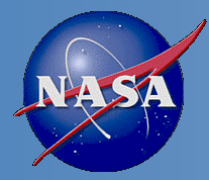
Spectral reflectance with and without consideration of Rayleigh scattering variation with solar irradiance.





Stability – results





Summary



- Comparisons with GOME-2 on METOP-A/B agree with knowledge of those instruments.
- Agree with radiative transfer model where input data are reliable.
 - Unexpected large wavelength shift was suggested and is being investigated.
- First 15 months of data are generally stable.
 - The OMPS nadir SDR quality is satisfactory for the current level of Provisional maturity.
 - Methods used in the evaluation are being further developed and expanded to support the upcoming long term monitoring.
- Plan to participate in the UV Subgroup being organized by the Global Space-based Inter-Calibration System (GSICS) Research Working Group (GRWG).

