MCST – MODLAND

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Organization

- MODLAND is working with MCST through bi-weekly meeting MSWG (Z. Wan, E. Vermote)
- N Saleous and E. Vermote have ad-hoc interactions with MCST through dedicated Point of Contact (Vincent Chiang)

Issues being tracked

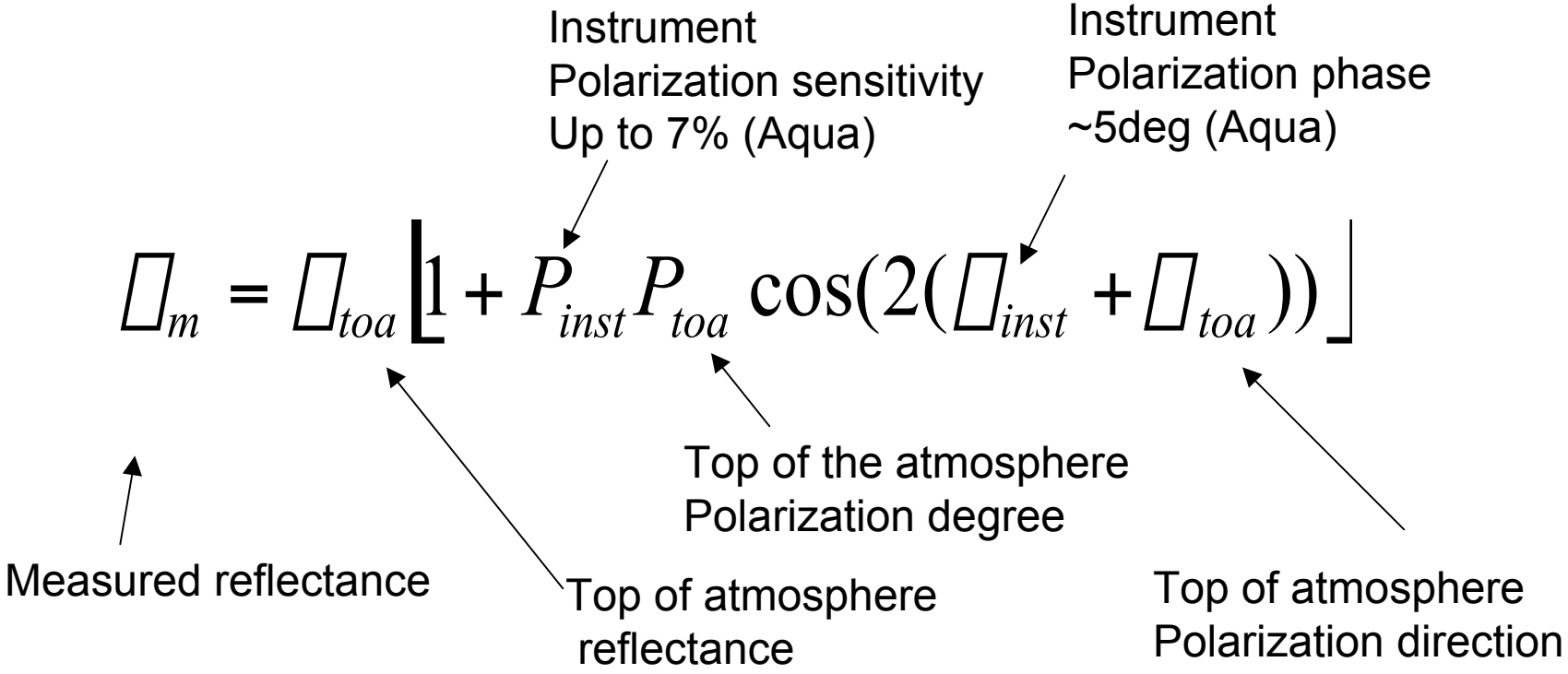
- Noise appearing in the Terra longwave bands (being tracked) – Orange
- Striping in SWIR (esp. Band7), Atmosphere de-striping algorithm operational for land collection 5 Yellow
- Polarization correction to be used for aerosol inversion over Land at 412nm is under evaluation – Yellow
- Earth Shine effect on RSB calibration is being tracked closely – Yellow/Green (<0.5%)
- Recent update to L1B LUT produced artifact in band 21 (???) – Red

Striping in SWIR (esp. Band7)

- The atmosphere destriping code has been used for land band (5-7)
- Testing has been done on one day and on two 16days period part of collection 5 testing plan
- Results are satisfactory for land, however the cause of the problem needs to be identified and a less empirical correction applied (e.g. Xtalk correction) if possible (Collection 6?).

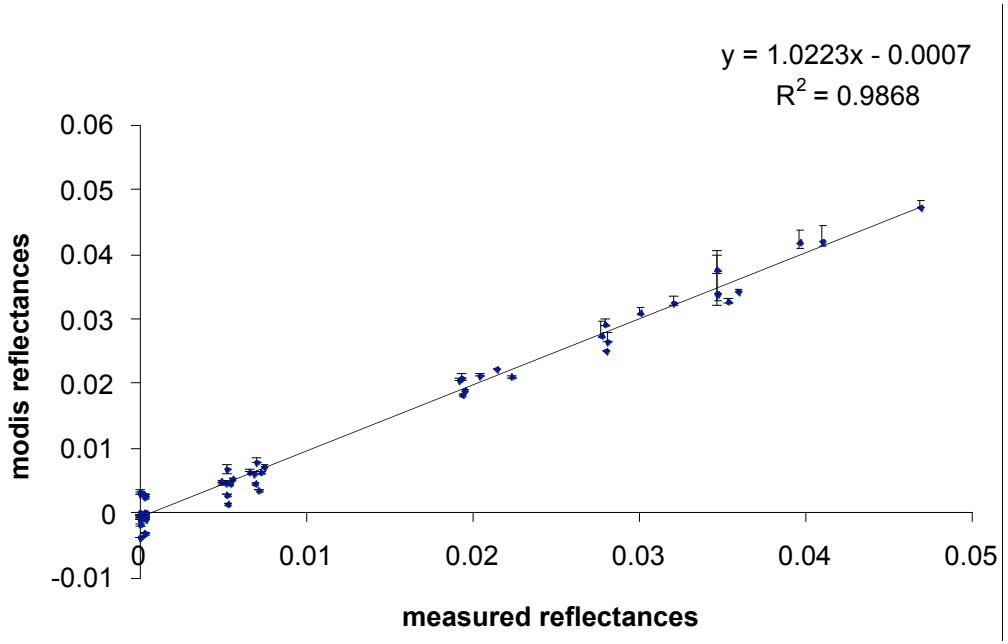
Instrument Polarization correction

- The polarization correction is coded for Aqua (slight discrepancies between MCST and Ocean coefficient)



Results over MOBY site

- The atmospheric correction of aqua data was performed over MOBY using AERONET aerosol observations from Lanai site.



Comparison of the reflectance just above the surface derived from MOBY data during 2003 (January 2, February 1, February 10, September 3, September 19, October 6, October 22) with MODIS AQUA estimated reflectance's at 412nm, 443nm, 490nm, 530nm,550nm, 667nm, 678nm.

However, in those case, the instrument polarization effect was small, because P_{toa} was small or θ_{toa} was close to 45deg.

For a clear atmosphere, the polarization is maximum for a scattering angle of 90deg (rayleigh), in Moby cases that geometry is also associated with sun-glint.

Earth Shine impact on RSB calibration

- Earth Shine is a moderate concern for land (~0.5%).
- Modeling of the radiation at the very high solar and view zenith angle is very delicate (earth atmosphere curvature,validity of surface BRDF,glint). Error of up to 50% may exist in the current model.

Update to L1B LUT

- Recent update to L1B LUT produced artifact in band 21
  - LUT update testing needs attention
  - Cause of the problem are still unclear