Absolute Radiometric Response in the Irradiance channel

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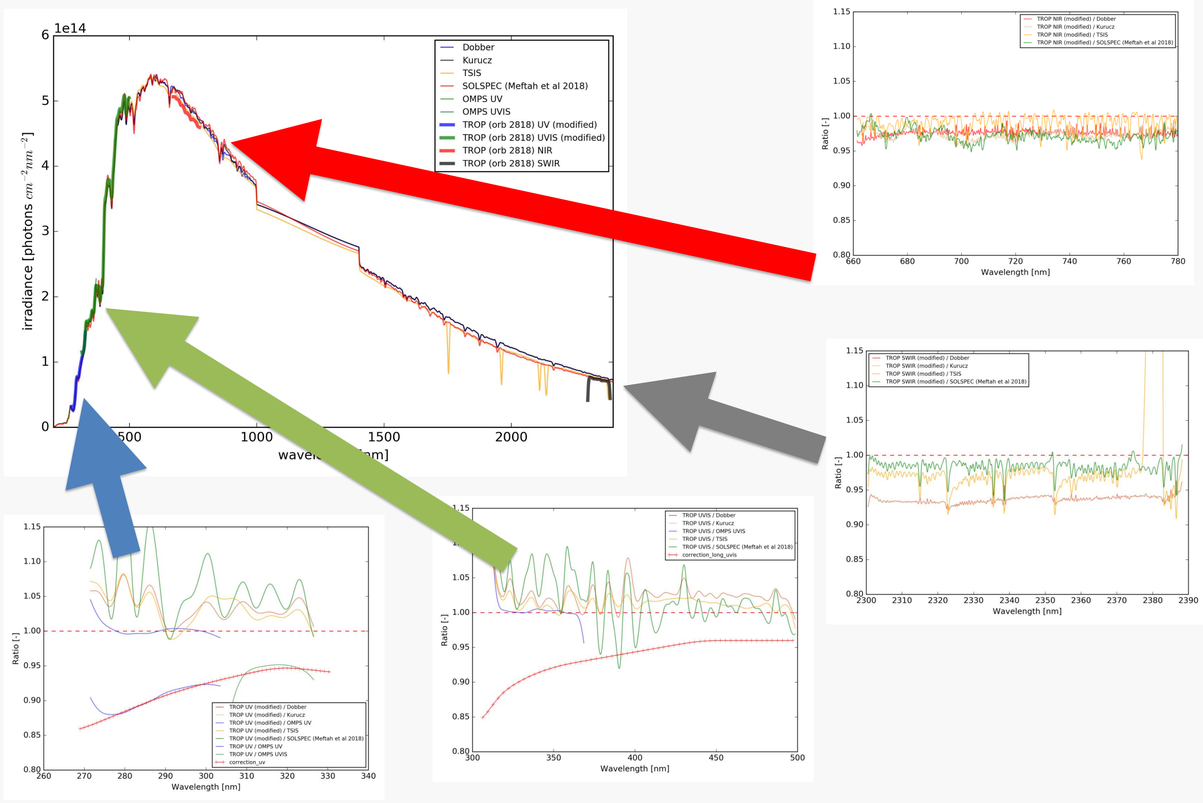
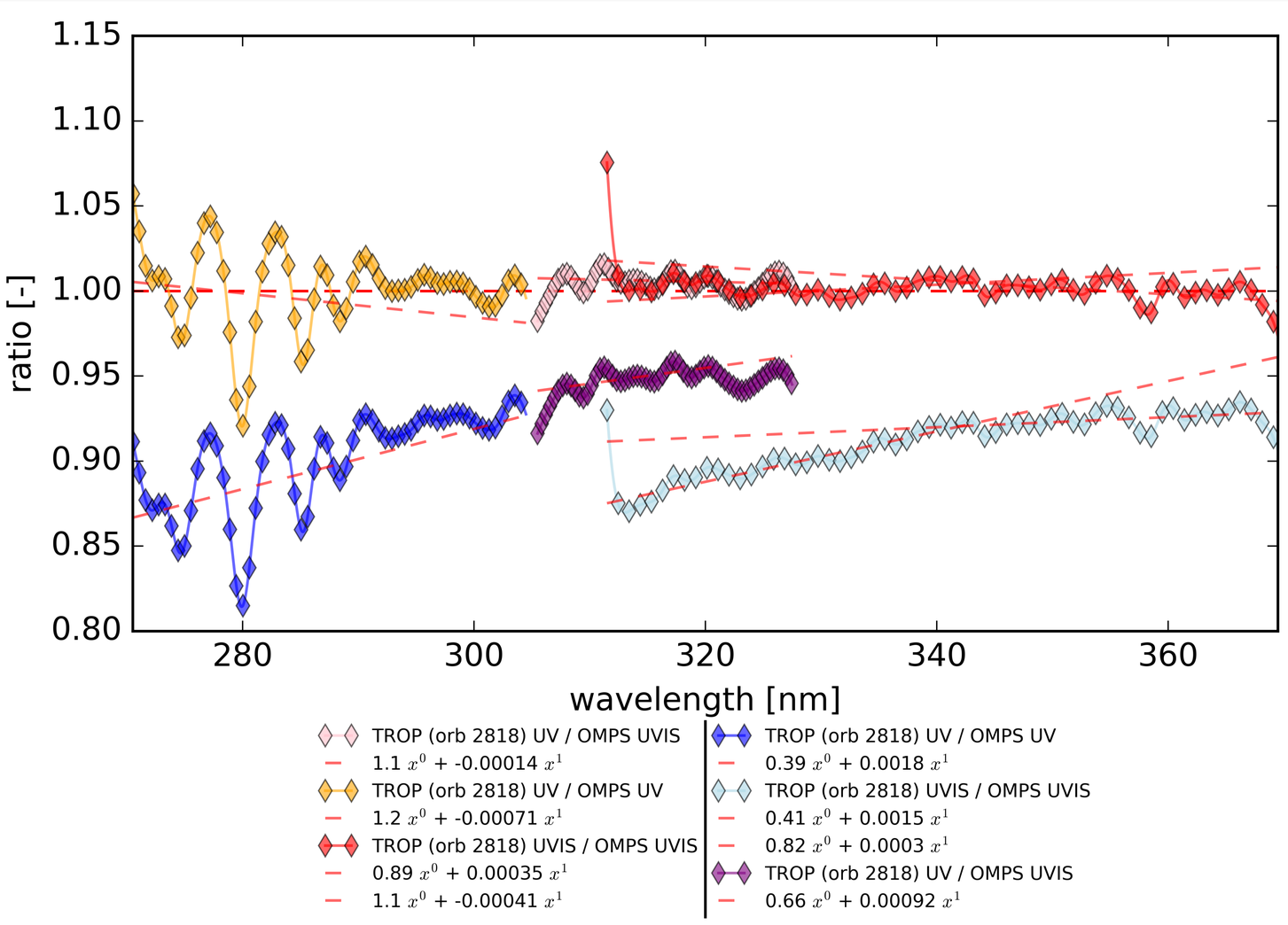
Absolute irradiance: the issue



- **Deviations, especially in 250 – 400 nm**
- **Mismatch between UV and VIS detector**
- **Other missions and reference spectra indicate higher signal in this range**
- **Deviation larger than expected from on-ground calibration analysis**
- **Issue for L2 product retrieval (ozone total column, …)**

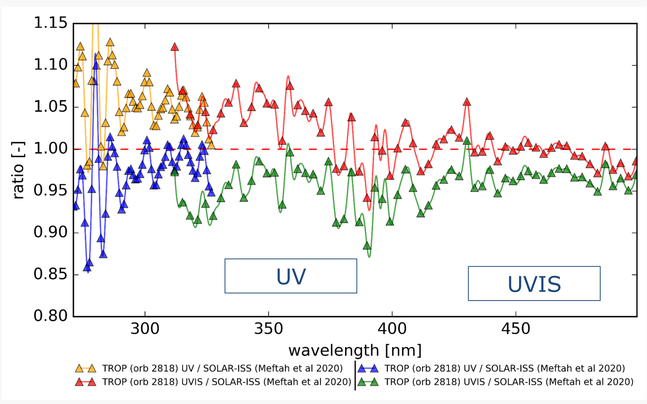
Result:

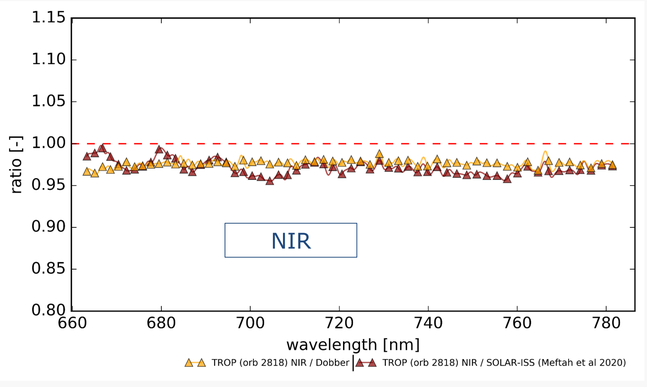


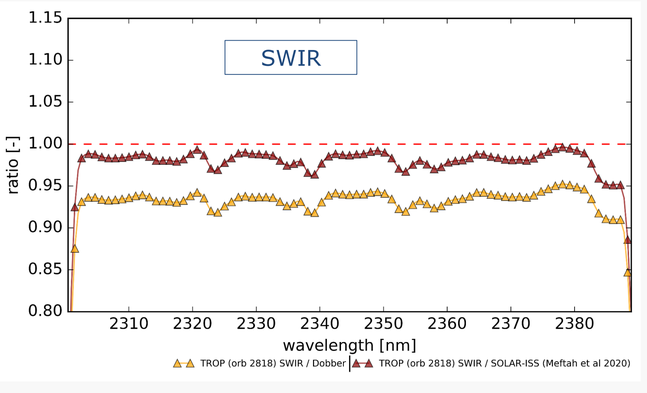
Comparison to Meftah:

Meftah et al, Solar Phys (2020) 295:14, A New Version of SOLAR-ISS…

- Slight bias







Why OMPS (Suomi NPP)?

***Flynn et al, JGR Atmospheres** (2014, doi.org/10.1002/2013JD020467)*

- **Independently calibrated**
- **Available in the spectral range**
- **NIR & SWIR not adjusted:**
  - **No clear reason present calibration is *wrong***
- **Choices:**
  - **Convolution with Gaussian (slit function OMPS is different than TROPOMI)**
  - **approximate using line segments joined by splines to avoid spectral features**

Conclusion

Ludewig et al, AMT (2020) 13 In-flight calibration results…

- **Absolute irradiance responsivity CKD was updated**
- **Resulting in better overlap UV – VIS**
- **Slight positive bias in UV – VIS with respect to Meftah (2020) reference spectrum**