



Evaluating the Long-Term Stability of EarthCARE After Two Years in Orbit



R. Díez-García⁽¹⁾, M. Cika⁽¹⁾, P. Khawas⁽¹⁾

⁽¹⁾ Telespazio UK Ltd. (UK). E-mail: Raul.DiezGarcia@telespazio.com



Monthly Reports



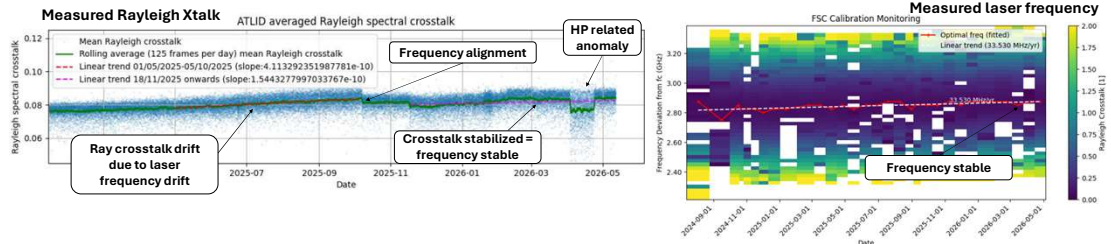
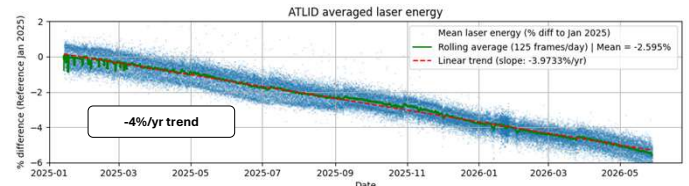
QC Disclaimers

Long Term Stability Monitoring

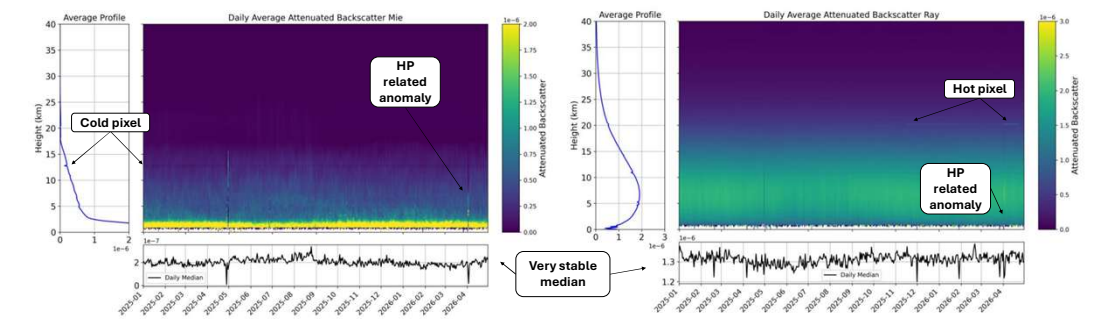
- The EarthCARE DISC monitors the quality of L1 & L2 ATLID, MSI and BBR EarthCARE data
- Long Term trends are presented here for calibration and L1 data for **BA/BC** baselines
- Data quality is **detailed in the EarthCARE Monthly Reports**

ATLID Calibration Stability

- Laser energy steady decrease (-4%/yr)
- Frequency drift stabilized since February 2026

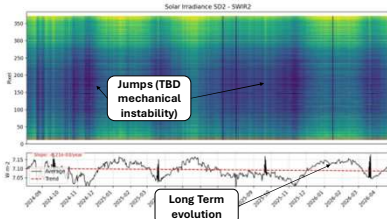


Daily average all-sky ATLID profile trends

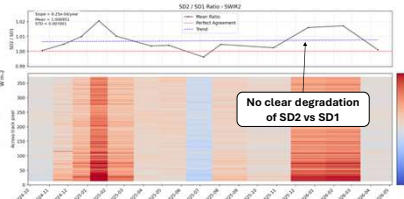


MSI Calibration Stability

SD2 (daily) solar irradiance (SWIR2)



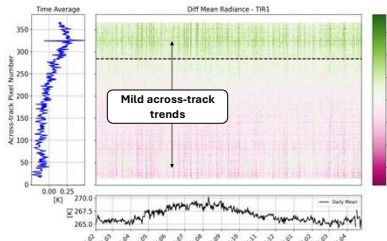
Comparison between daily and monthly diffusers



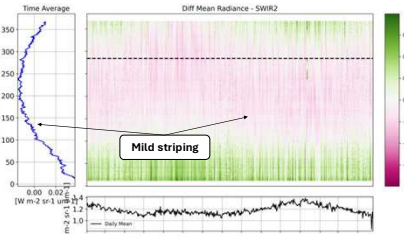
- Existing instabilities on the SD2 measurements prevent the use of the EC-native solar irradiance

Long Term MSI Reflectance & Radiance

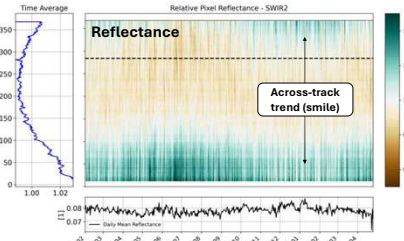
Daily all-sky average radiance (TIR1)



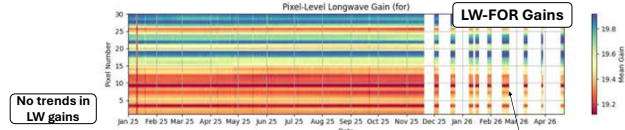
Daily all-sky average radiance (SWIR2)



- MSI exhibits some across-track features that are attributed to the SMILE effect and limited striping (under investigation)

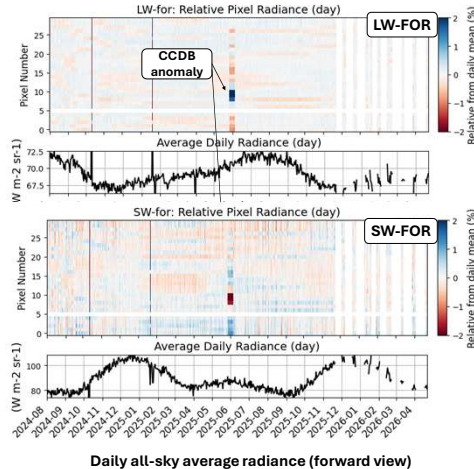


BBR Gains Stability



Long Term BBR Radiance Stability

- BBR exhibits mild striping
- No visible trends besides the geophysical seasonality



2 years of EarthCARE operations:

- ATLID, MSI and BBR Stability remains overall excellent, without major instrumental trends
- Some open anomalies under investigation, mainly with MSI diffuser calibration