PREPARATION AND OPERATIONS OF THE MISSION PERFORMANCE CENTRE (MPC) FOR THE COPERNICUS SENTINEL-3 MISSION

S3-A SLSTR Cyclic Performance Report

Cycle No. 010

Start date: 14/10/2016

End date: 10/11/2016



Mission
Performance
Centre

SENTINEL 3



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Disclaimer

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Changes Log

Version	Date	Changes
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1 Instrument monitoring

1.1 Instrument temperatures

- Instrument temperatures have been stable and consistent with previous operations.
- Blackbody, baffle and OME temperatures all show a systematic increase in temperature during the last cycle. This is due to the fact that the Earth is getting closer to the Sun until perihelion on January 3rd and the instrument is slowly heating up. This will be monitored carefully over the coming weeks.

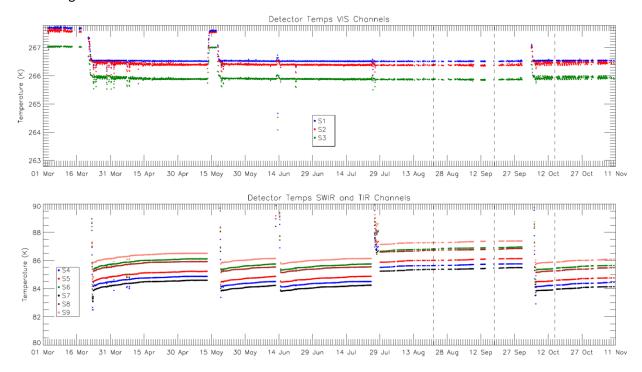


Figure 1: Detector temperatures for each channel from 1st March 2016. Discontinuities occur for the infrared channels where the FPA was heated for decontamination or following an anomaly. Cycles 8, 9 and 10 are indicated by the vertical dashed lines.

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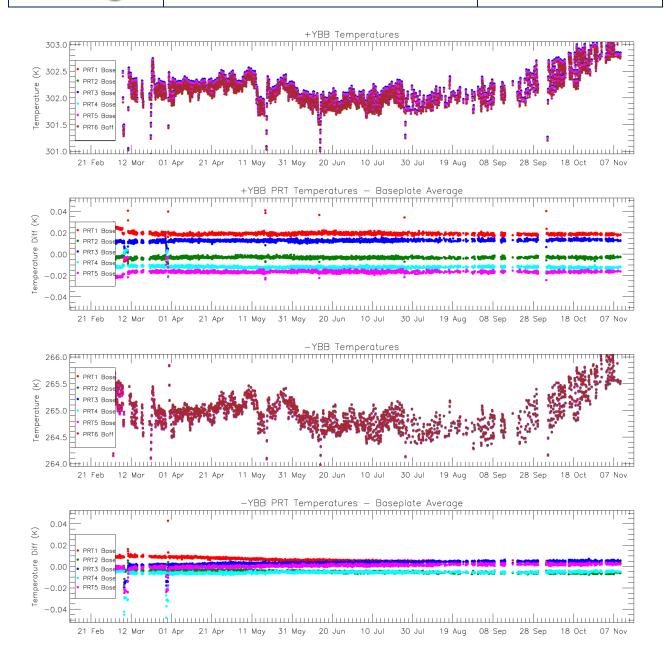


Figure 2: Blackbody temperature and baseplate gradient trends.

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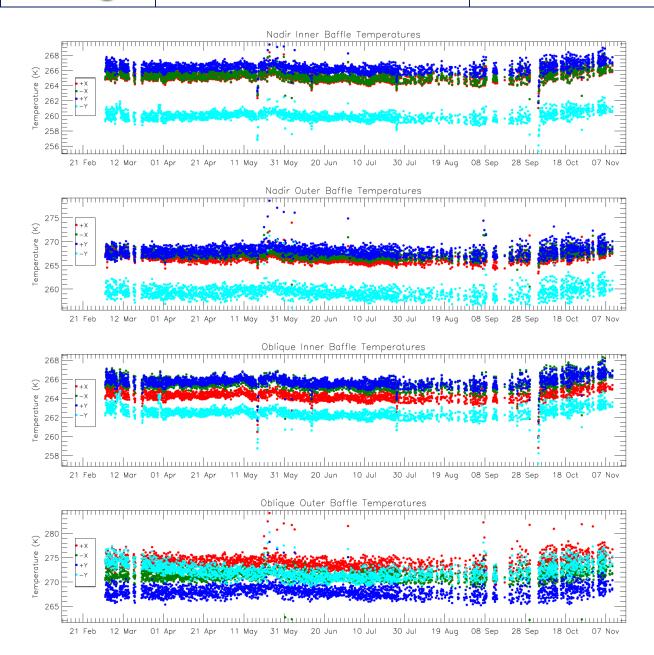


Figure 3: Baffle temperature trends.

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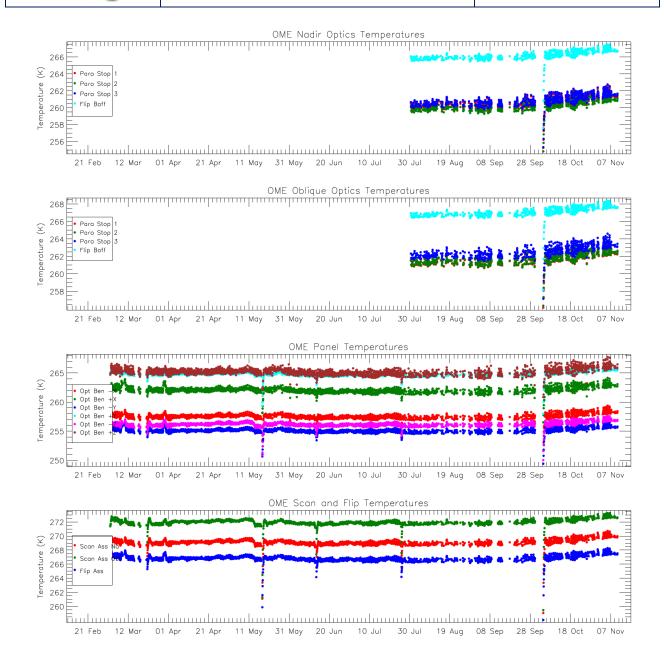


Figure 4: OME temperature trends showing the paraboloid stops and flip baffle (top two plots) and optical bench and scanner and flip assembly (lower two plots). The top two plots only show data starting from 30th July 2016.

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1.2 Scanner performance

Scanner performance has been consistent with previous operations and within required limits.

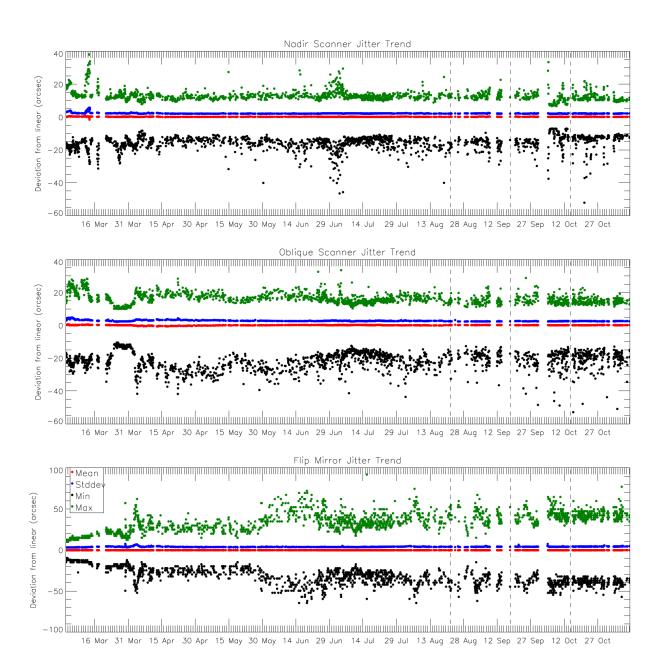


Figure 5: Scanner and flip jitter, showing mean, stddev and max/min position compared to the expected one for the nadir view. Cycles 8, 9 and 10 are indicated by vertical dashed lines.

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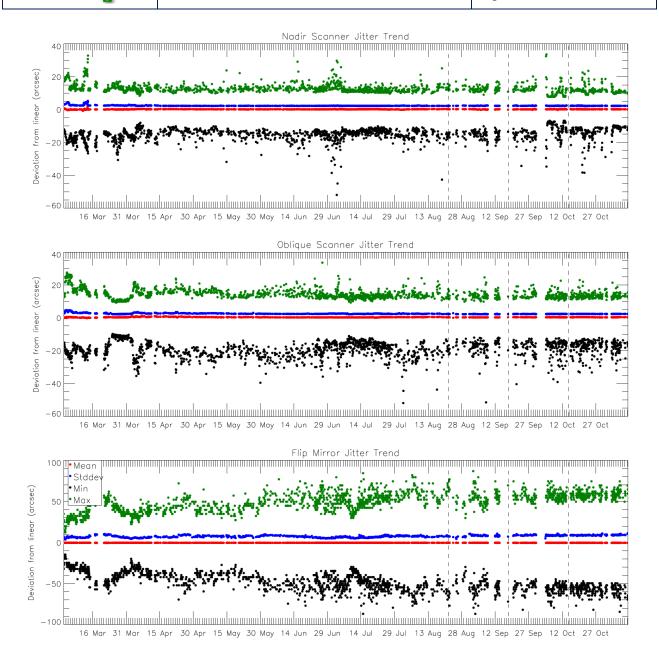


Figure 6: Scanner and flip jitter, showing mean, stddev and max/min position compared to the expected one for the oblique view. Cycles 8, 9 and 10 are indicated by vertical dashed lines.

1.3 **Detector noise levels**

VIS and SWIR channel signal-to-noise 1.3.1

The VIS and SWIR channel signal-to-noise is stable and consistent with previous operations.

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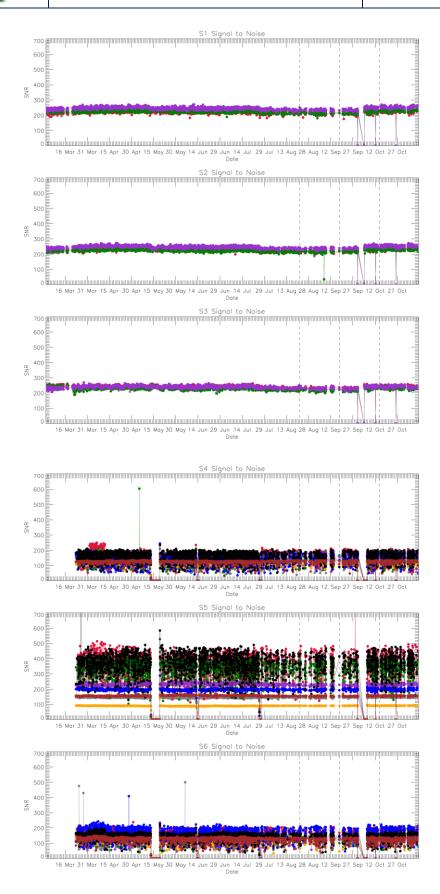


Figure 7: VIS and SWIR channel signal-to-noise. Different colours indicate different detectors.

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1.3.2 TIR channel NEDT

The thermal channel NEDT values are consistent with previous operations and within the requirements.

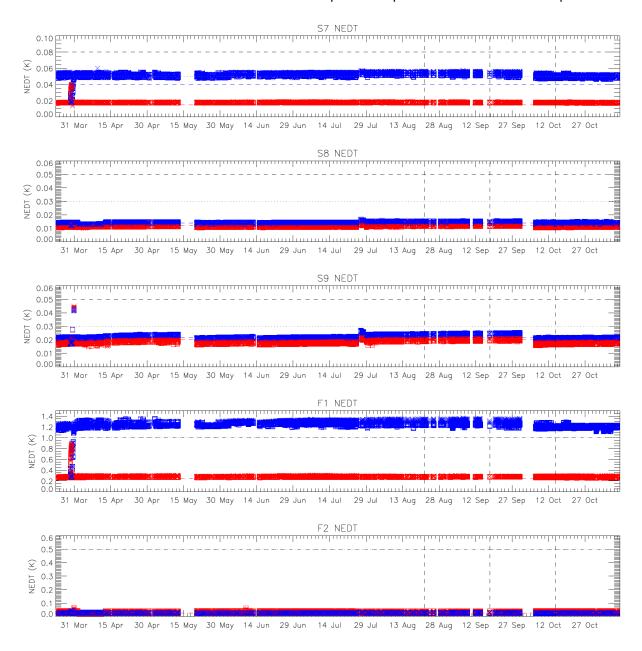


Figure 8: NEDT trend for the thermal channels. Blue points were calculated from the cold blackbody signal and red points from the hot blackbody. Horizontal lines indicate the requirement (dashed) and goal (dotted) as well as the measured values on ground (red and blue dashed). Cycles 8, 9 and 10 are indicated by the vertical dashed lines.

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1.4 Calibration factors

1.4.1 VIS and SWIR VISCAL signal response

Signals from the VISCAL source for the VIS channels show oscillations due to the build up of ice on the optical path within the FPA. A couple of orbits show a jump to zero signal in the last two cycles (e.g. 12 October, 26 October) – these are due to Level-0 data files containing incomplete orbits getting included in the analysis – i.e. with insufficient data to cover the VISCAL peak. They are not due to problems with the instrument.

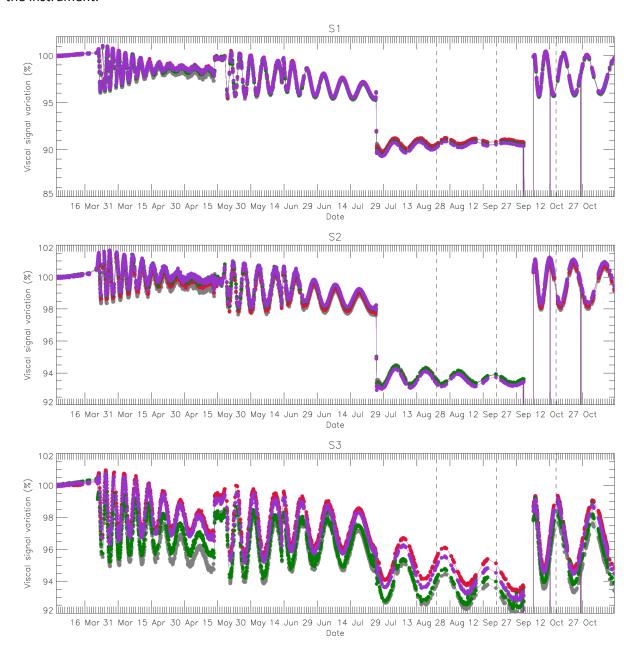


Figure 9: VISCAL signal trend for VIS channels (nadir view). Cycles 008 and 009 are indicated by the vertical dashed lines.

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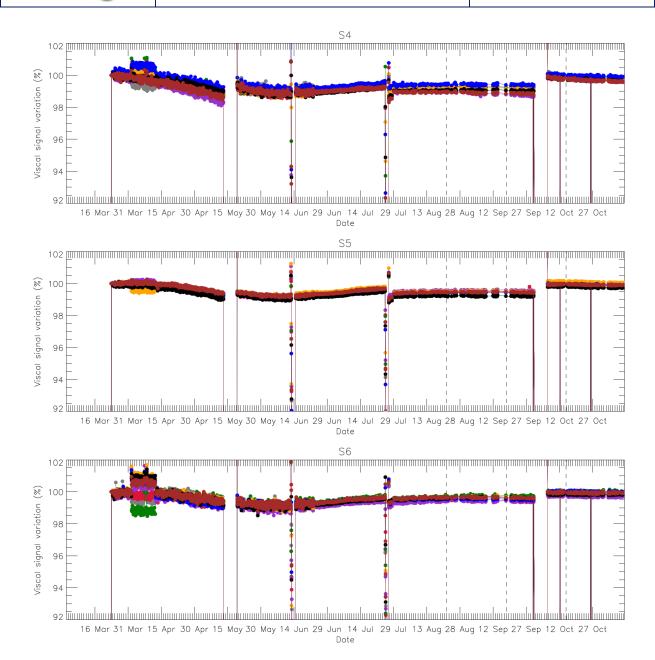


Figure 10: VISCAL signal trend for SWIR channels (nadir view). Cycles 008 and 009 are indicated by the vertical dashed lines.



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2 Events

SLSTR has been switched on and operating nominally during the cycle, with SUE scanning and autonomous switching between day and night modes.



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3 Appendix A

Other reports related to the Optical mission are:

S3-A OLCI Cyclic Performance Report, Cycle No. CCC (ref. S3MPC.ACR.PR.01-010)

All Cyclic Performance Reports are available on MPC pages in Sentinel Online website, at: https://sentinel.esa.int

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