

EPI C operations Status 2015

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- Nominal observations
 - See the Quarterly Status report at http://xmm.esac.esa.int/external/xmm_news/mission_status/index.php

- MOS1 CCD 3 & 6 yearly check: no changes.
 - Both CCDs are still unusable.

- RBI clock resynchronization every ~194 days
 - One on 2014-03-03 due to CDMU reset.
 - Other on 2014-09-13, normal wrap around.
 - On 2014-10-03 other CDMU reset took place.
 - The next normal wrap around is predicted for 2015-04-15.

- CDMU (main spacecraft computer) reset on 3-March and 3-October.
 - The EPICs safe they self.
 - A clock resync was needed afterwards as the main CDMU clock was reset.
 - PN required a EPDH reset on top of the nominal recovery from Safe Standby.

- 2 new cases of NCR#133 (false current limiter activation in circuits not being used)
 - 20-Jun-2014, PN extra heating circuit. No impact.
 - 5-Aug-2014, MOS2 FW coil 1 circuit. Operations were stopped until it was verified that it really was a false alarm.

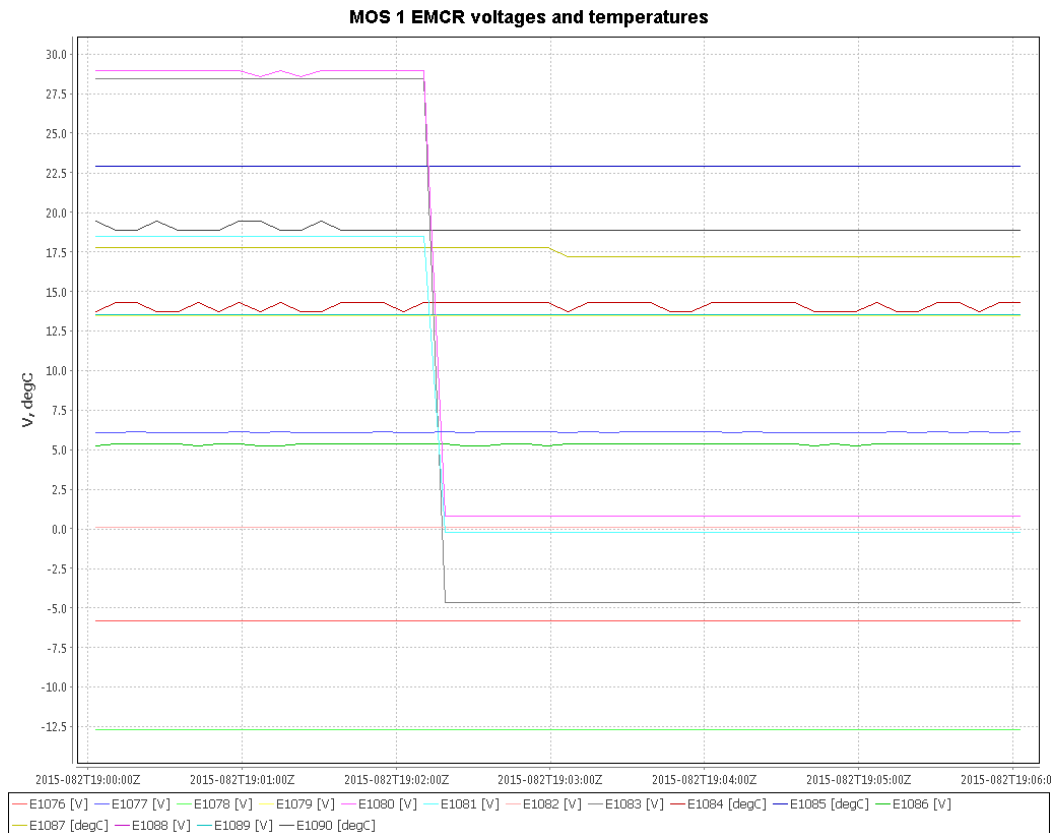
Incidents (cont)

MOS 1 suffered a SEU in the form of some voltages drop in 23rd March.

The instrument was switched OFF as per procedure.

After checks, it was powered ON again, and work correctly.

A very similar case was on Oct-2011, with the same solution.



1. ODB 6.21, 30-Apr-2014, from rev 2635
 - a. MOS extended BPT reporting. DPs and ANDs.
 - b. PN Extended Full Frame MOUTP corrected.
 - c. MOS 1&2 Diagnostics synchronized.
 - d. AND, GRD and SCR for MOS 1&2 housekeeping A/D monitoring.
 - e. At MOC side, CDMU thermal control patch auxiliary items.
2. ODB 6.22, 31-Jul-2014, from rev 2688
 - a. Improved TTCMD safety on eclipse
 - b. Redundant configuration items for MOS1 without CCD3
 - c. MOC items related to CDMU thermal control
3. ODB 6.23, 26-Feb-2015, from rev 2801
 - a. Preparation for eclipses with G/S gaps
 - b. Correction of noisy MOS1 radiation parameter
 - c. MOC items for 4WD and CDMU TDC/TCL

- A nominal post-perigee season on 18th May – 9th June 2014.
 - Nominal operations
 - Post eclipse TTCMD operations were separated from INSTENG1 operations at planning level, but without any change at operation level (preparation for next seasons)
 - A manual test for the next season was performed, OK.

- A pre-perigee season with a lot of changes on 6th Nov – 22nd Dec 2014.
 - Affect to revolution 2730 to 2754.
 - Maspalomas and Goldstone G/S were used, so at the end we have almost no gap on telemetry. The gap on telecommand was fully leaped using on-board time tagged commands.
 - But anyway the instruments needed to be powered OFF around 2.5 hours, so the operation needed significative changes.

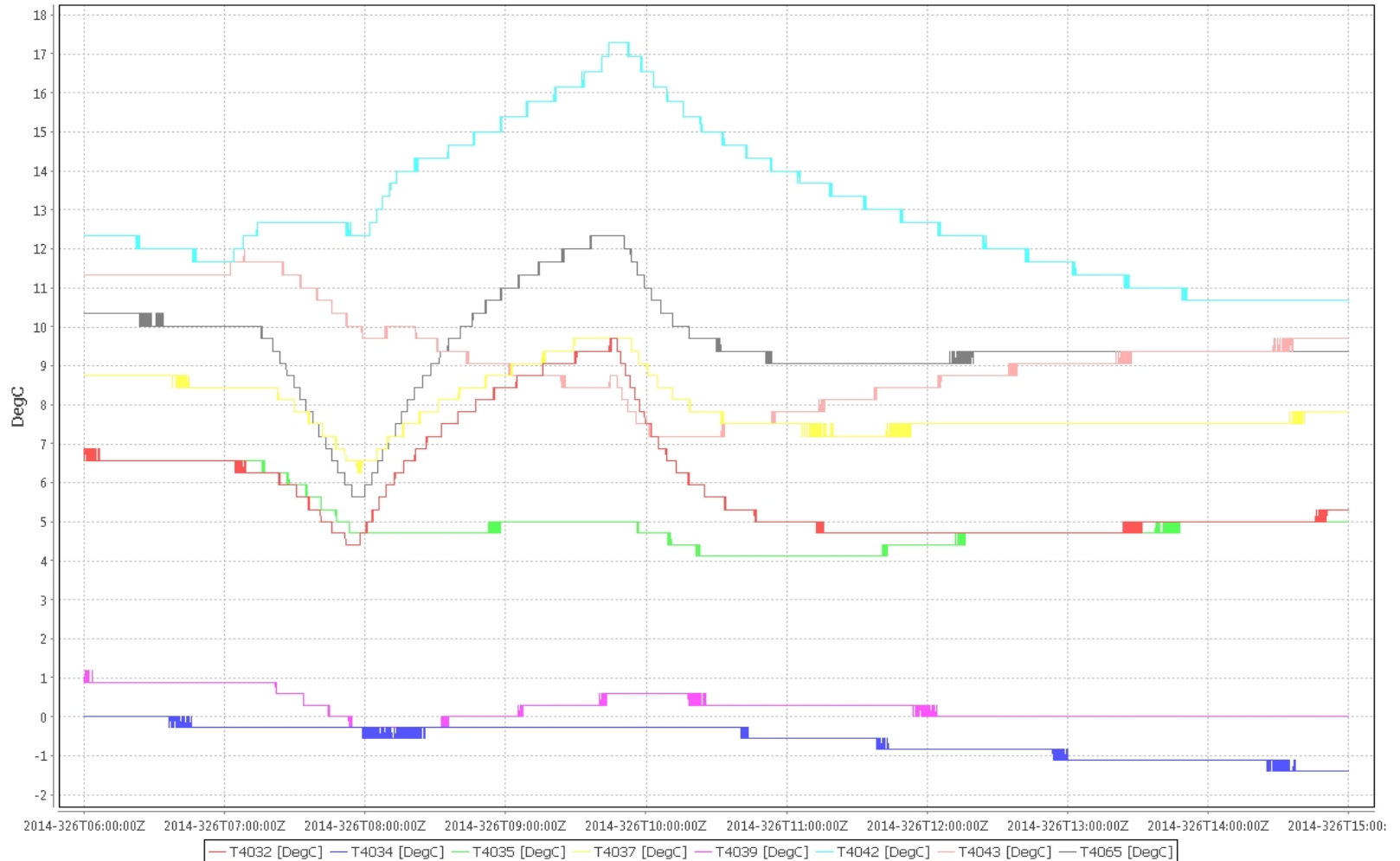
1. The eclipse took place before perigee, but the instruments reactivation (INSTENG1) could not be performed until after perigee, so ...
 - the instruments were powered OFF much longer than usual
 - the instruments OFF have no thermal control {DANGER}

2. The eclipse operation itself was as in previous years.
 - a. But just after it started a period with Sun light and energy, but without instrument thermal control nor assured commanding capabilities.
 - b. The solution was a manually planned, on-board time tagged executed sequence of heaters switch ON/OFF commands.
 - c. The changes were first tested on a dress rehearsal simulation, 23rd Sep

The eclipse thermal result

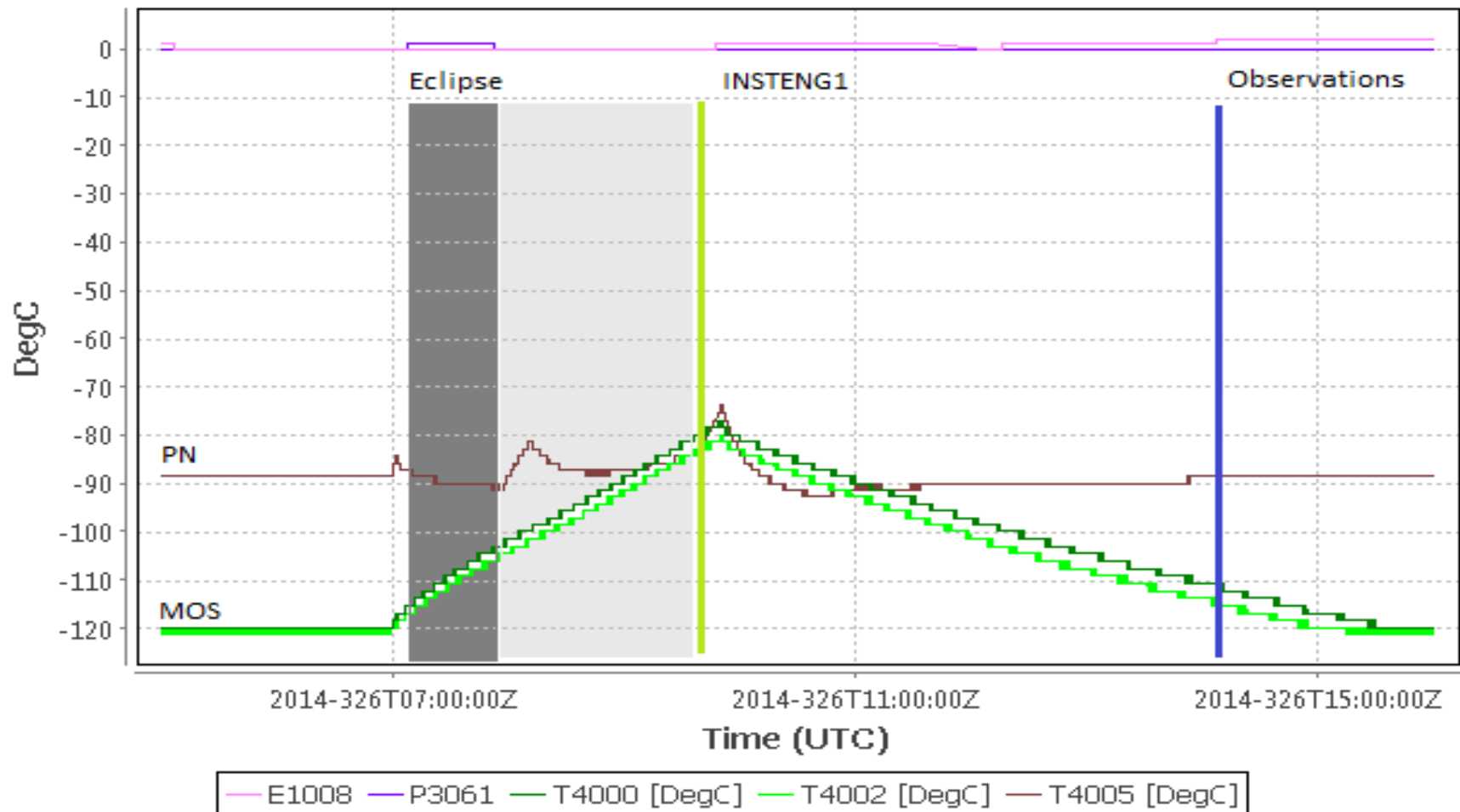


EPIC electronics temps on Eclipse

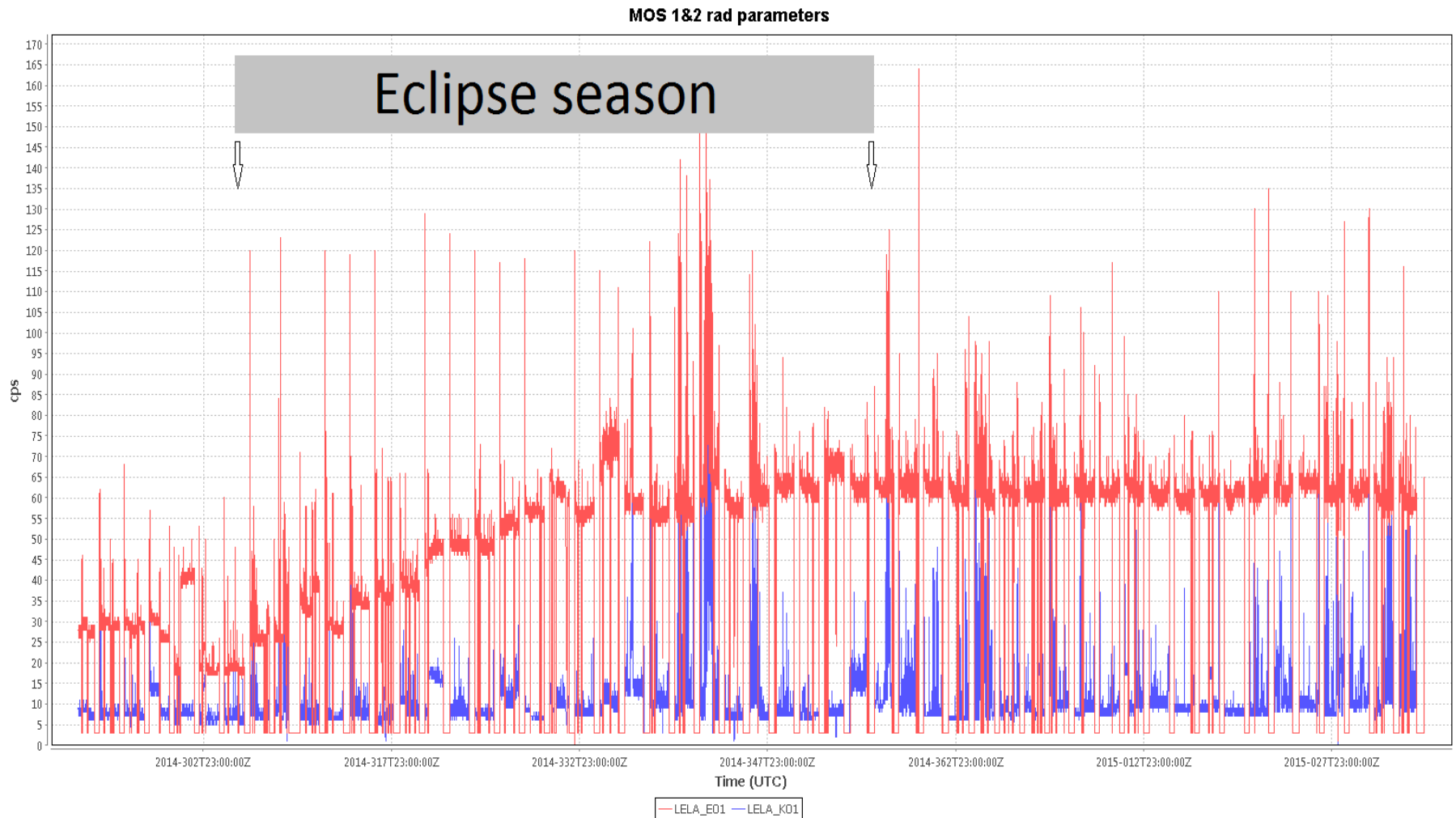


The eclipse thermal result

EPIC's CCD temp on Eclipse



MOS1 increased noise



1. MOS1 noise suppression; new BPTs and/or Offset Tables
2. CDMU TCL commissioning for instruments – on going (MOC)
3. Future eclipses:
 - a. April – May 2015, post-perigee (easy). Will be used for test the independent activation of each EPIC, PN CCD temperature increased from switch ON to final configuration, and mostly the CDMU TCL operation of eclipses for the next autumn season.
 - b. Oct – Nov 2015, pre-perigee (challenging). TCL is expected to be operational. MOS temperature recovery on time will be a main driver for the planning.

PN CCD temp set test, 21st Jan





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