INTEGRAL Mission Status

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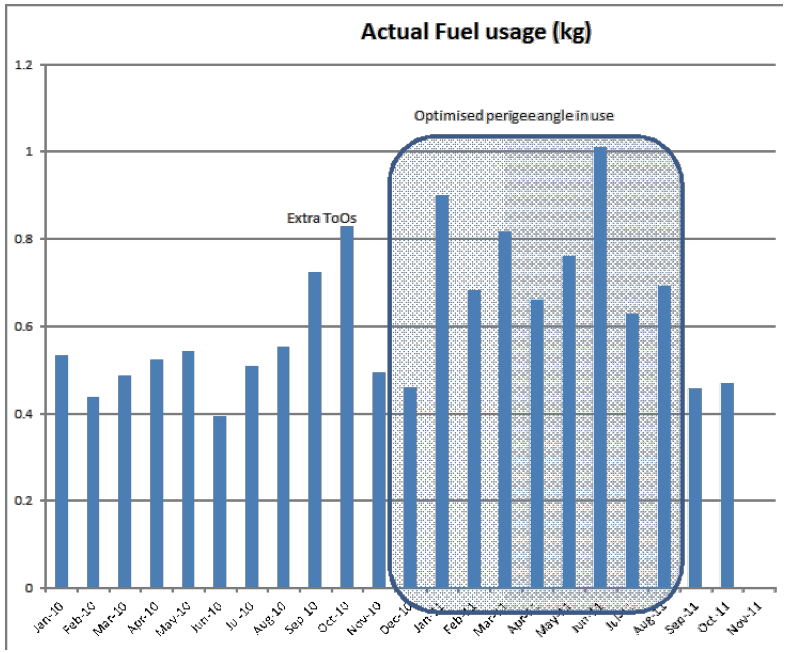
INTEGRAL User Group Meeting

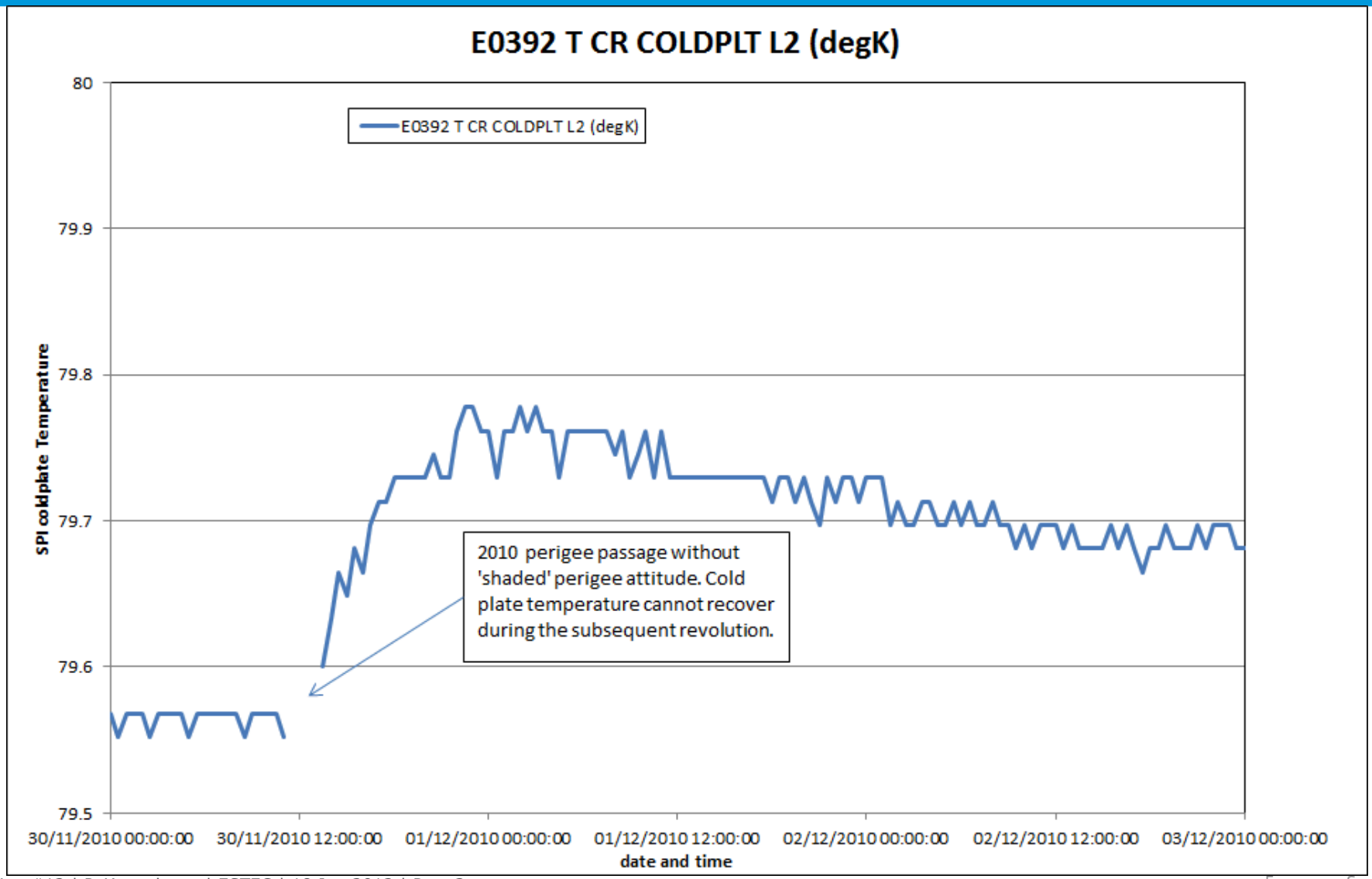
ESTEC – 18 January 2012

PLATFORM & PAYLOAD STATUS

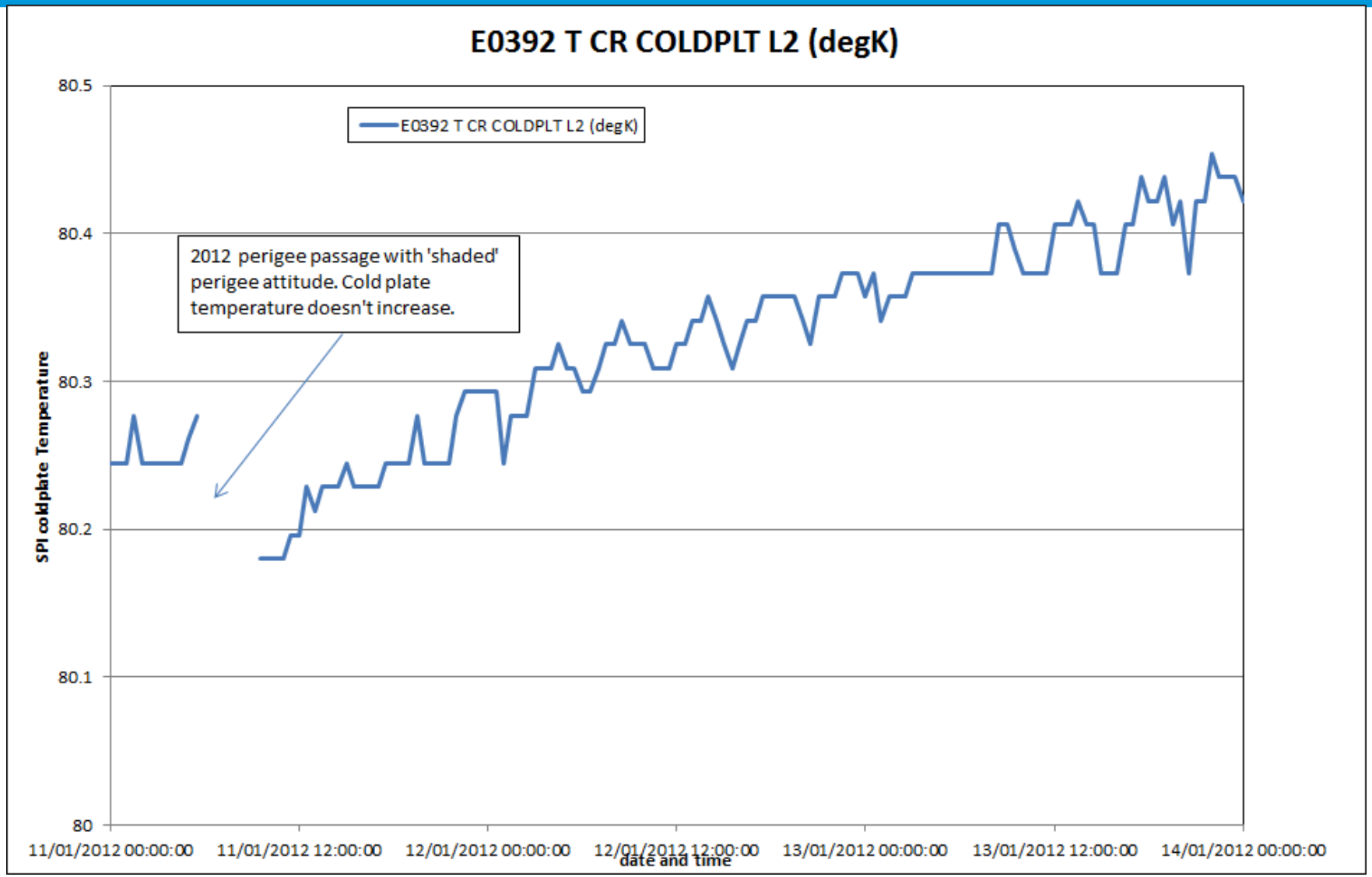
- Platform (AOCS, Power, Thermal, OBDH) all working smoothly.
- Instruments nominal.
- 18th SPI annealing was successful, but issue with AFEE DC detector voltages for detectors 2, 8 & 11 while outgassing cold box ➔ SPI presentation.
- Fuel consumption increased when optimised perigee angle to keep SPI shadowed was used. Used standard perigee orientation up to SPI annealing. Since Rev 1118 (9-12 Dec) optimised angles are used again. Current fuel reserve: ~115 kg.
- Massive solar flare (M9.3) in August, since then mostly minor events.
- Background rather stable/decreasing.



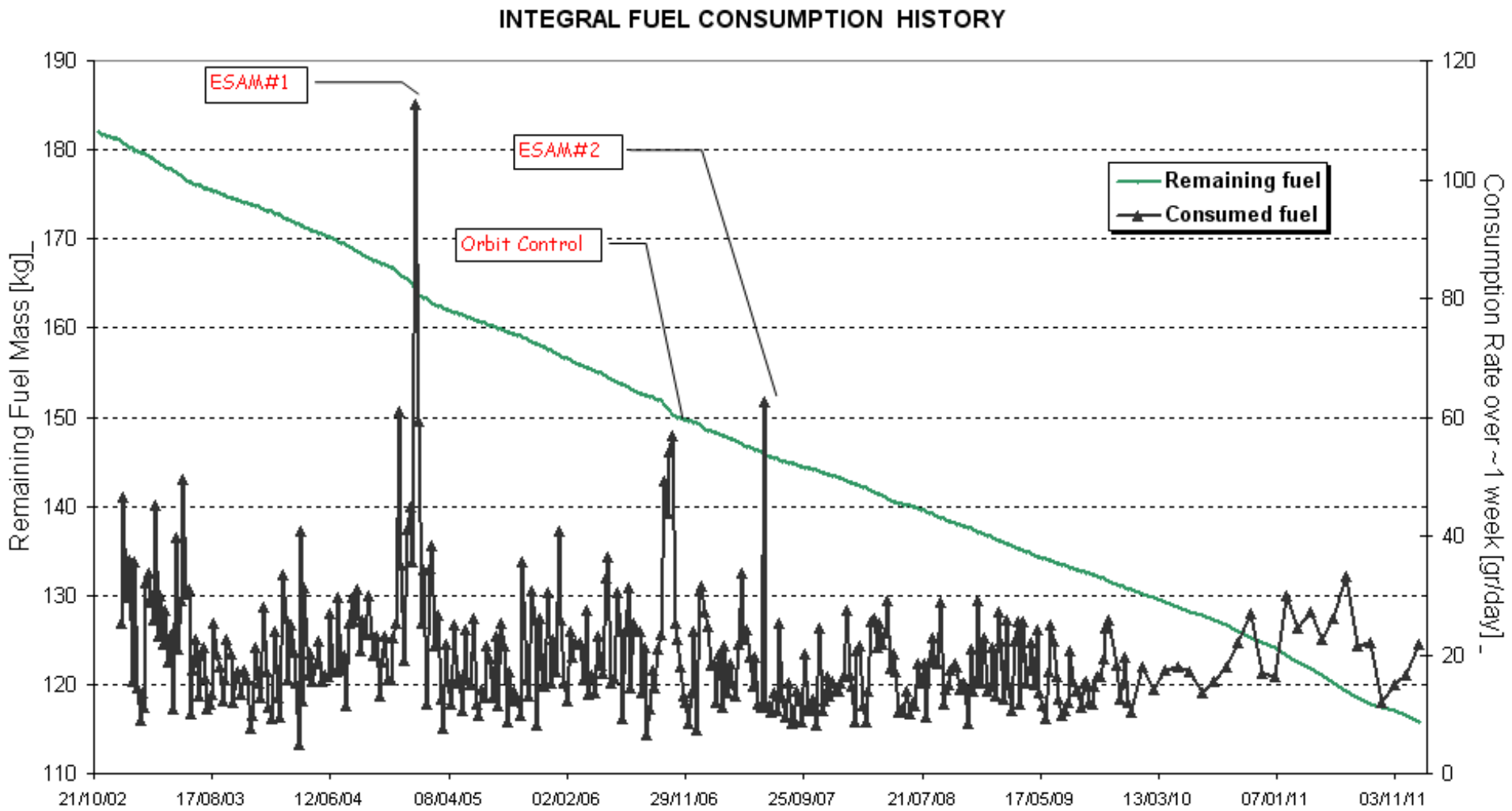
SPI – NO SHADING



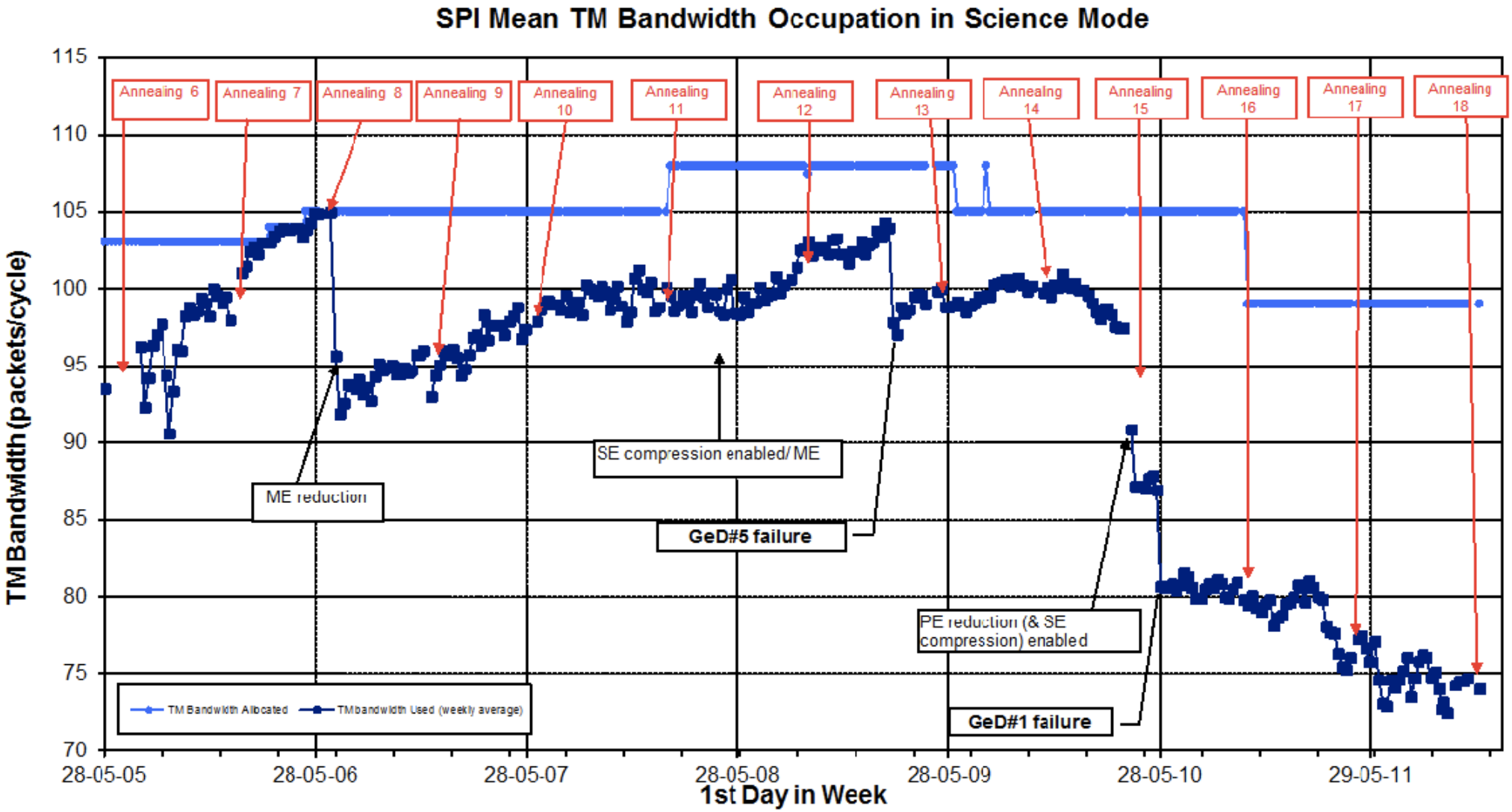
SPI – WITH SHADING



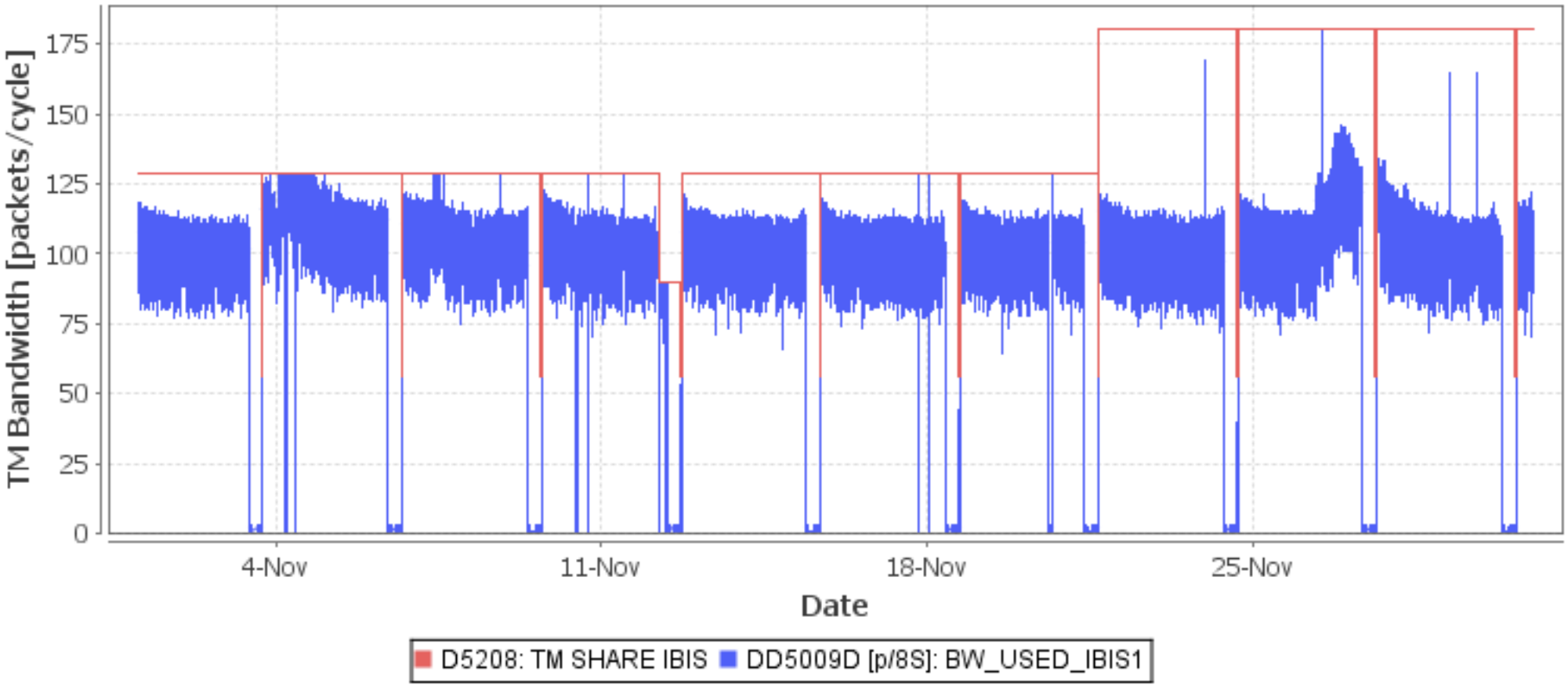
FUEL CONSUMPTION HISTORY



SPI TELEMETRY USAGE

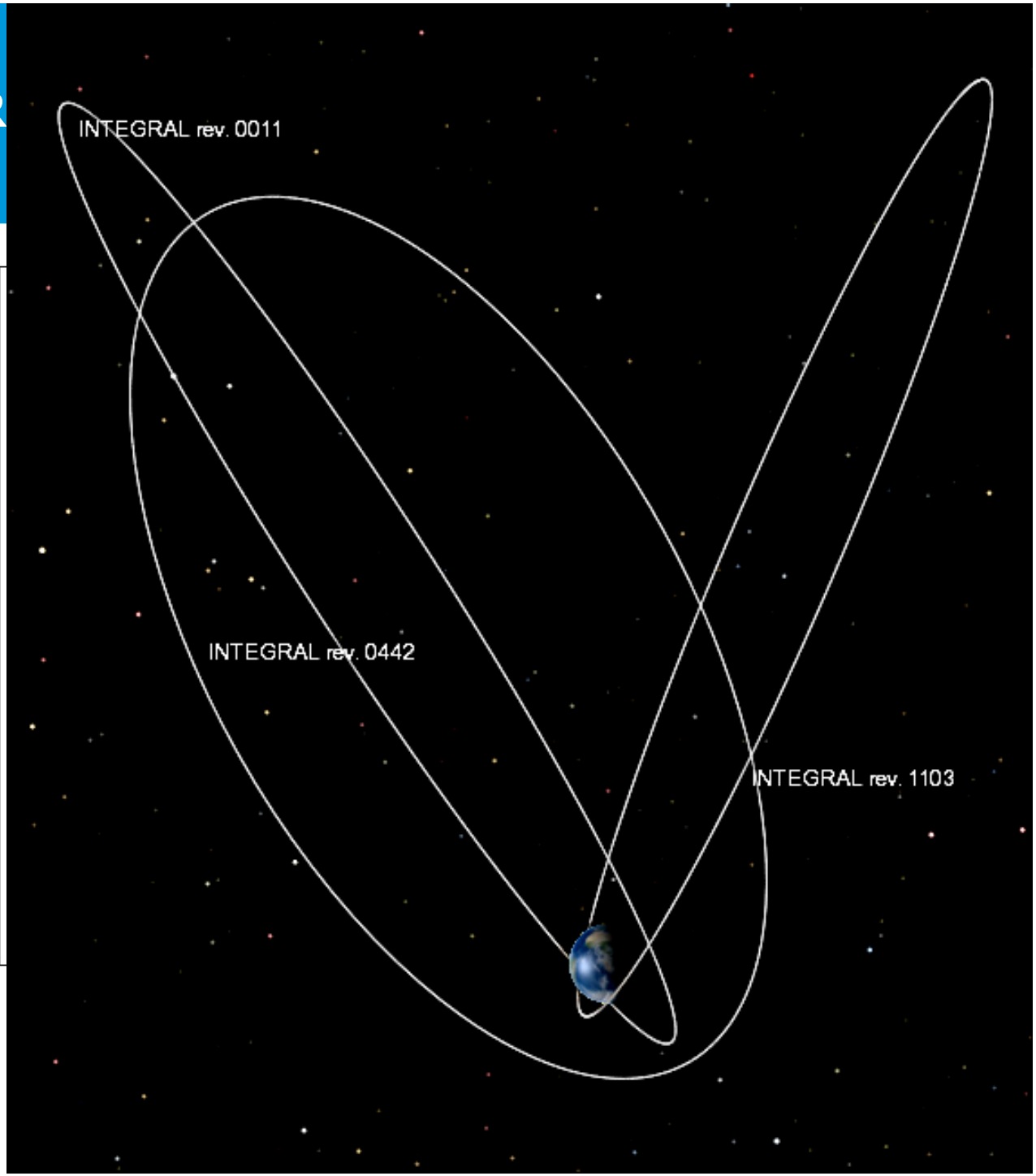


IBIS TELEMETRY USAGE



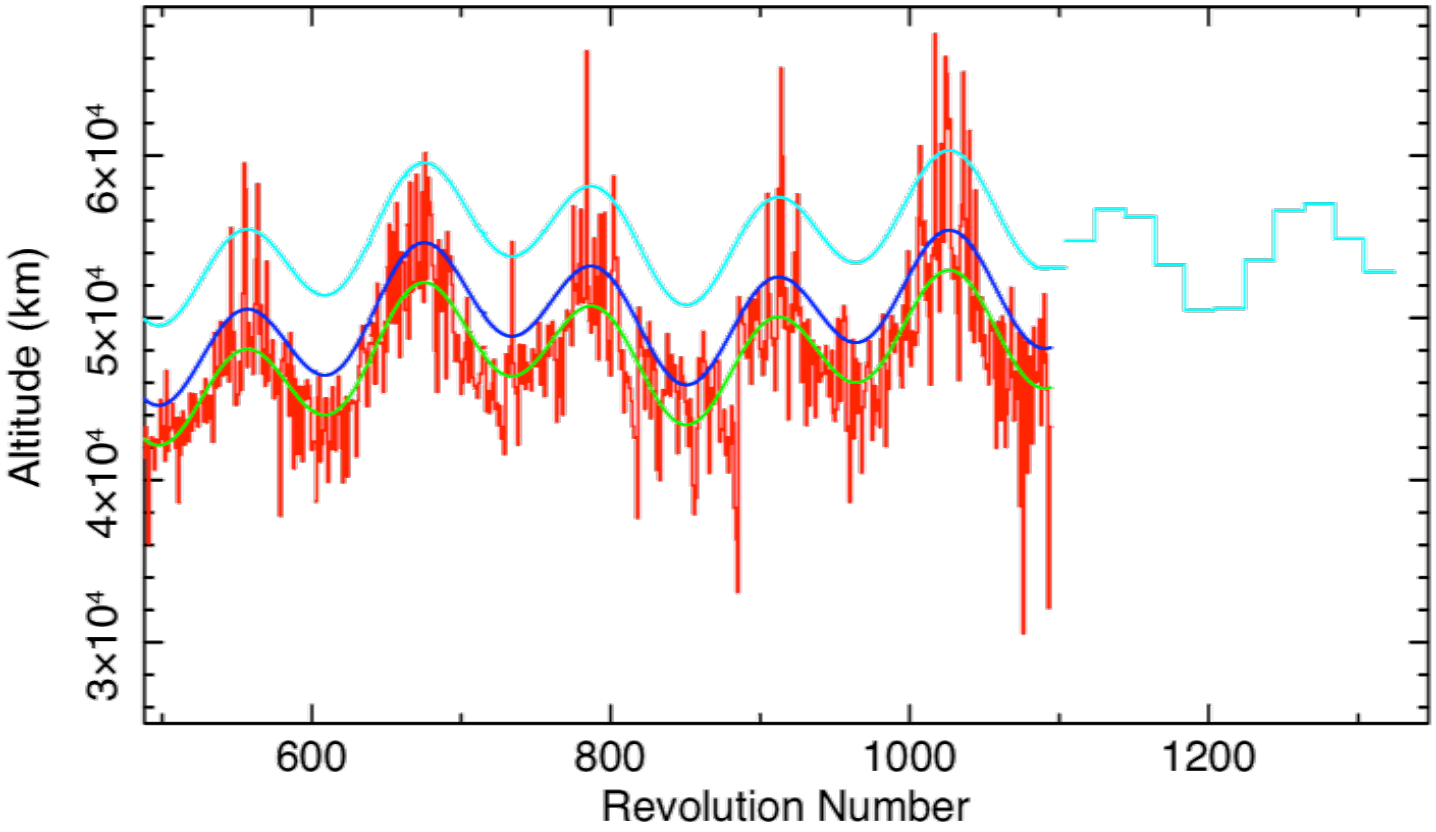
ORBIT EVOLUTION & R

- Perigee altitude currently at ~3300 km. Minimum of 2756.4 km was reached on 25 October 2011 – lowest value since revolution 3!
- No problems reported from instruments, but effects visible on solar arrays and startracker blemish pixels.
- Perigee altitude will improve again up to end 2015, but might be issue for long-term future.



RADIATION BELT EXITS

- G. Bélanger has repeated analysis of variation concen-trating on recent years. Based on electron counts.
- Proposed finer steps not yet used, playing it safe.
- Ongoing effort MOC/ SOC to characterize behaviour.



RADIATION DOSE EFFECTS

- Steep increase in proton radiation correlates with downturn in solar array output.
- Star-tracker 'blemish' pixels increasing. Could create issues for closed-loop slews.
  First survey in August not fully conclusive. Next foreseen after eclipse season in February.