INTEGRAL Mission Status

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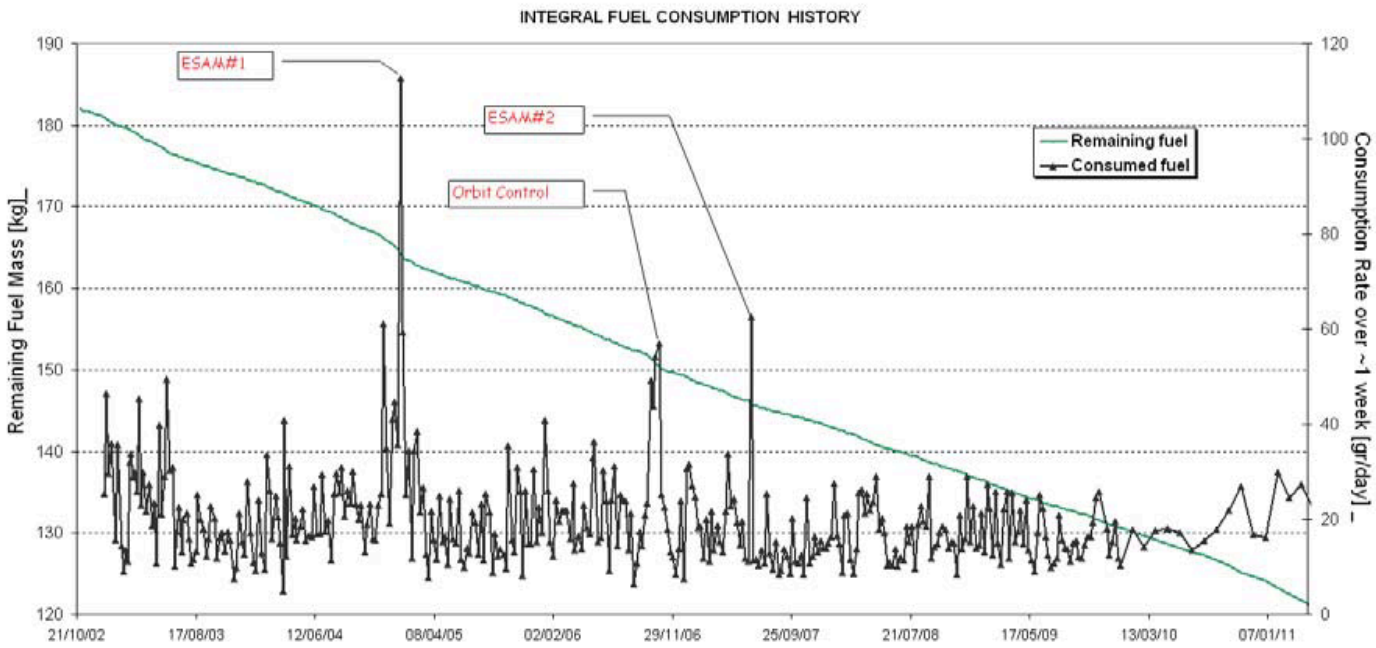
INTEGRAL User Group Meeting

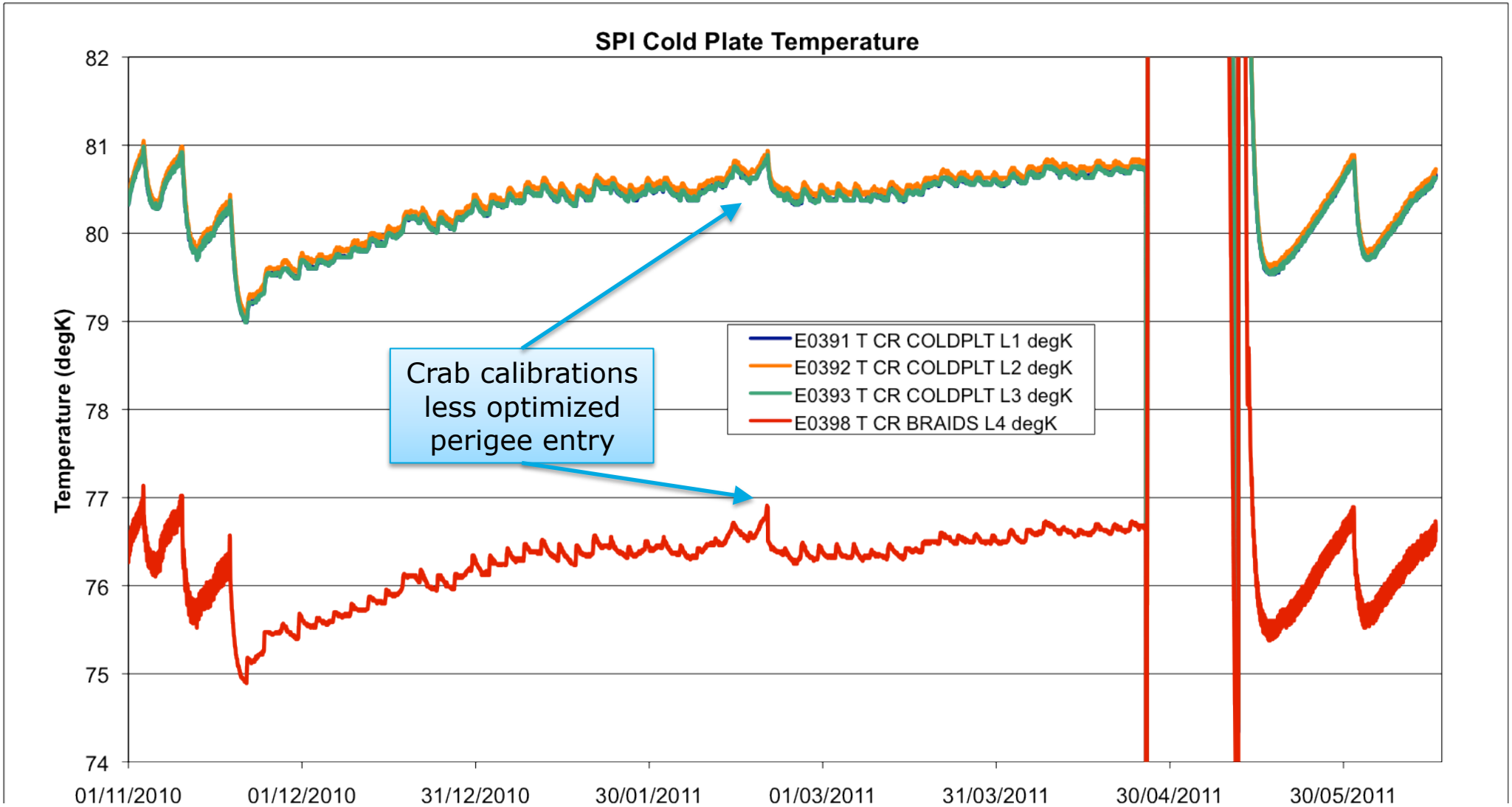
ESTEC – 16 June 2011

PLATFORM & PAYLOAD STATUS

- Platform (AOCS, Power, Thermal, OBDH) all working smoothly.
- Batteries reconditioned.
- Fuel consumption remains somewhat higher than in last years (~0.9 kg/m). Under study, but special perigee passage and complex scan patterns have some influence. Remaining fuel: ~120 kg.
- Instruments nominal.
- 17th SPI annealing went smoothly with good results.
- Continue to maintain SPI cooling plates in shadow also from Earth.

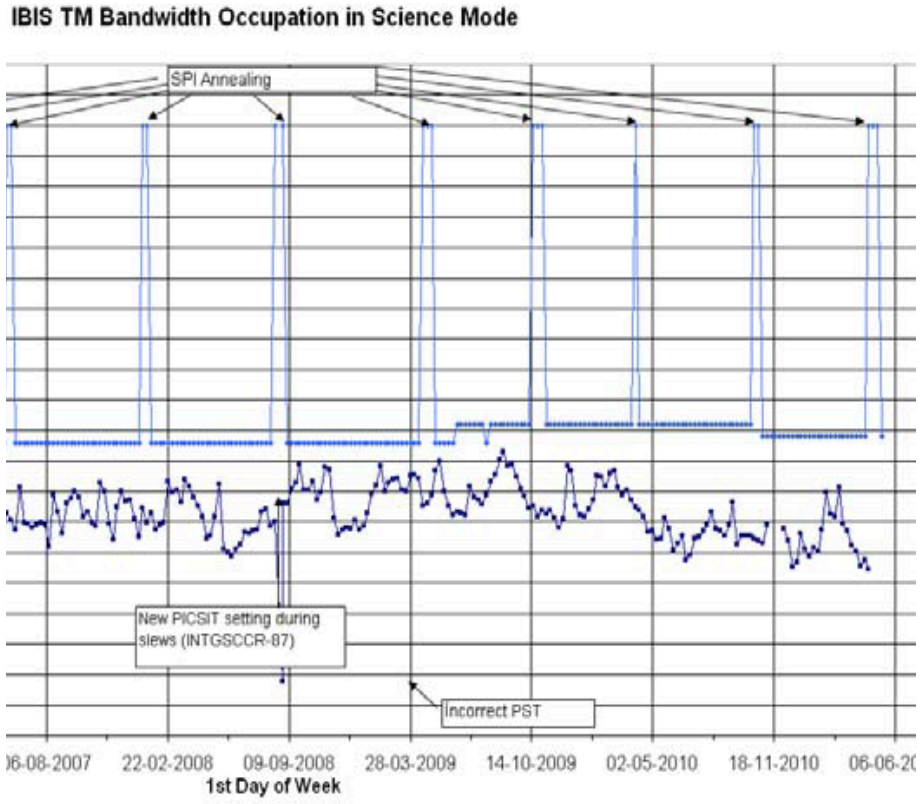


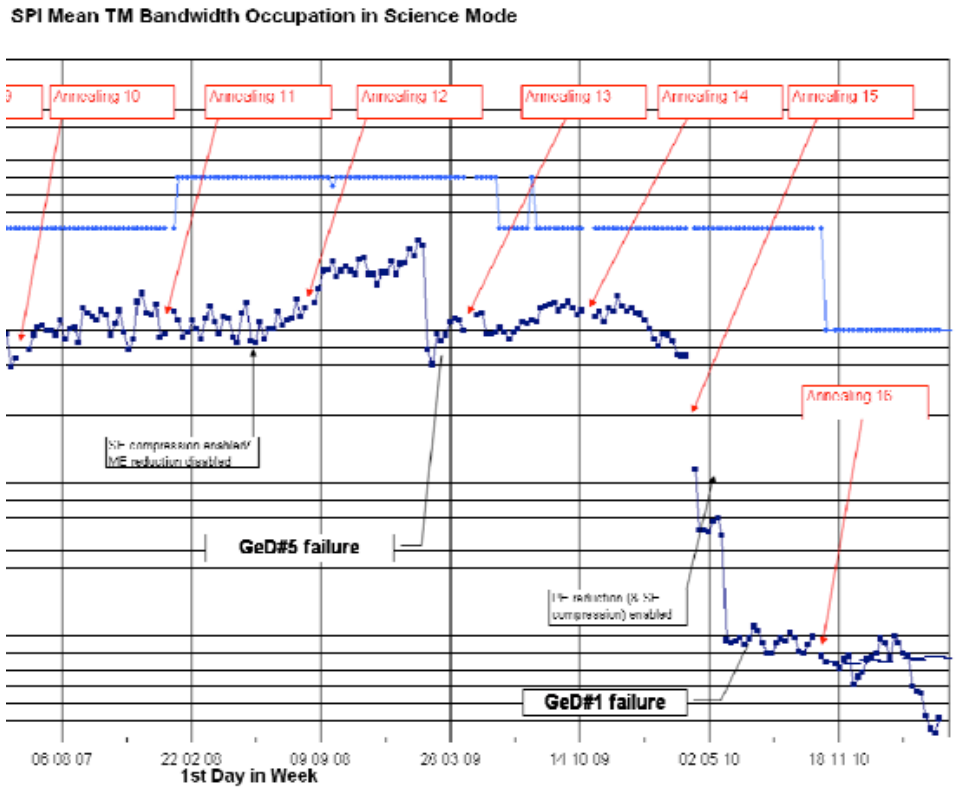
PLATFORM & PAYLOAD STATUS: SPI COLD PLATE



BACKGROUND & TELEMETRY

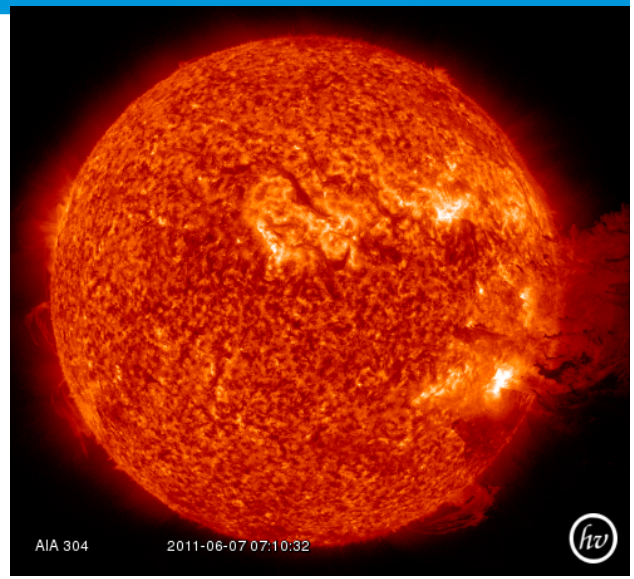
- Background slowly decreasing further in all high-energy instruments, due to more active Sun.





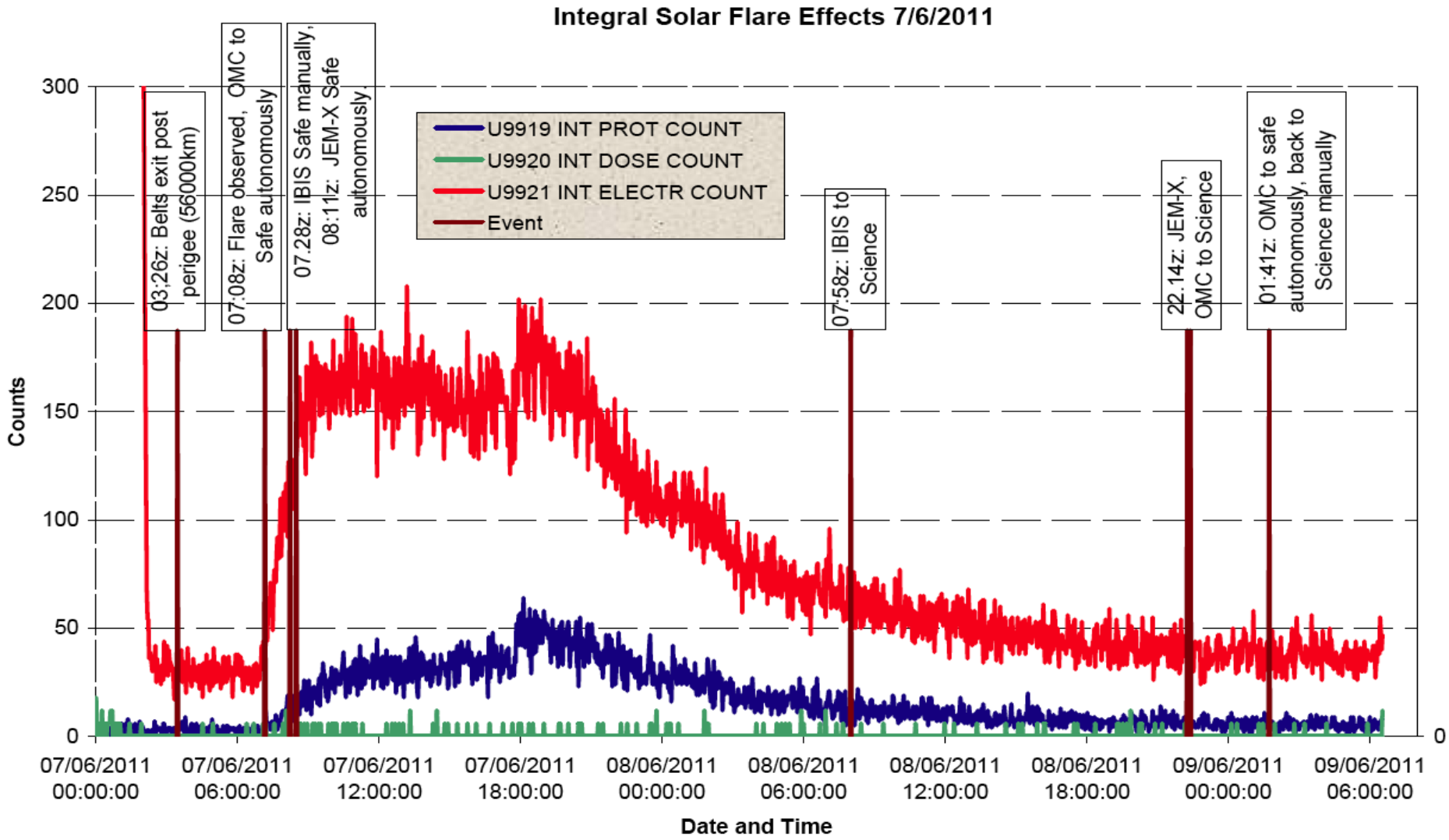
A VERY ACTIVE SUN

- Solar eruption on 7 June 2011, 06:41; M2 class flare and CME.
- From 07:08, quickly rising rates in IREM counters.
- OMC + JEM-X autonomously to Safe; IBIS commanded to Standby. SPI remained operational.
- On 8 June 2011, reactivation of IBIS in the morning, JEM-X and OMC during evening. OMC operations briefly interrupted by proton spike during night.



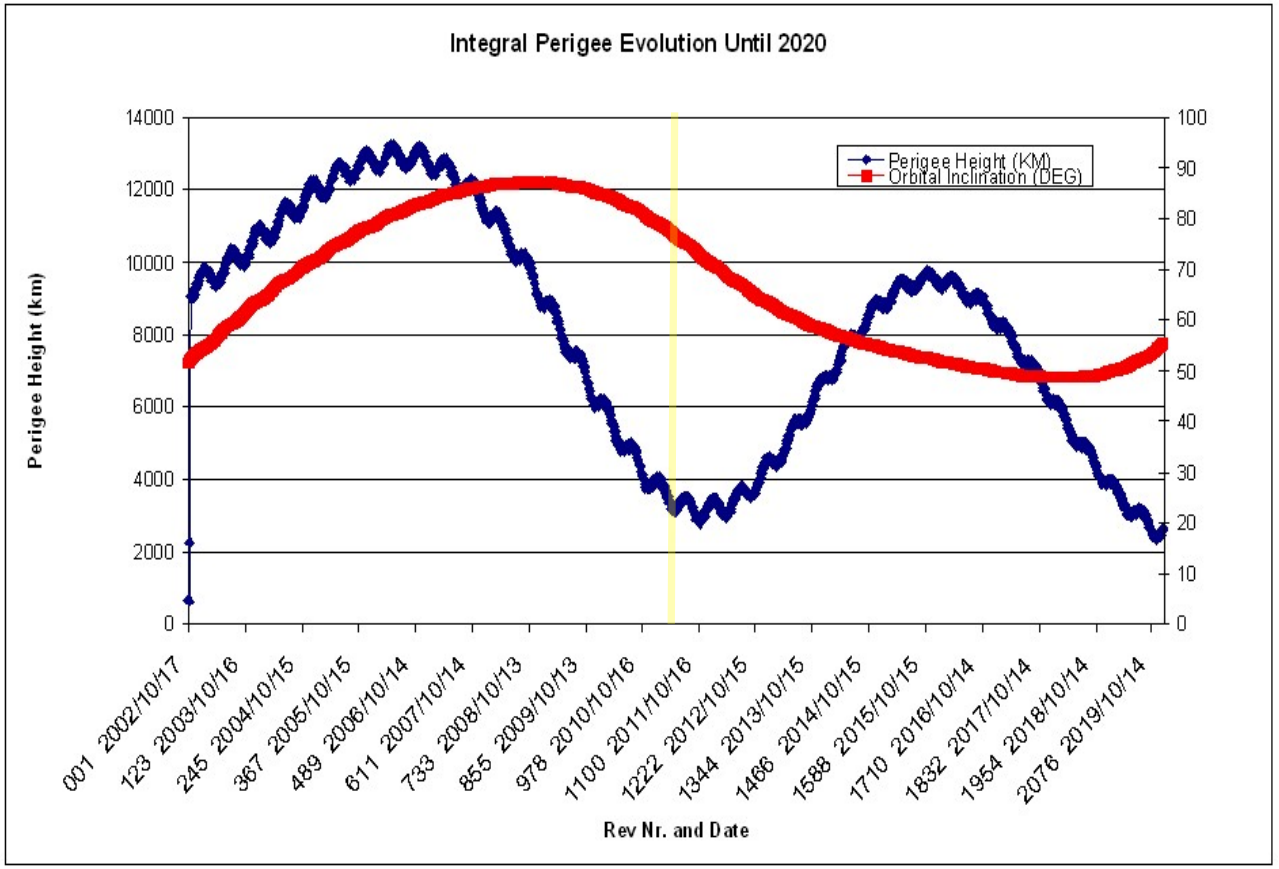
			Off time
Solar Flare	07/06/2011 07.08	DOY 158	
JEMX-1 auto to Safe	07/06/2011 08.11	DOY 158	
JEMX-2 auto to Safe	07/06/2011 08.11	DOY 158	
OMC auto to Safe	07/06/2011 07.08	DOY 158	
IBIS manual to Standby	07/06/2011 07.28	DOY 158	
IBIS to Science	08/06/2011 07.58	DOY 159	25hrs
JEM-X1 to Science	08/06/2011 22.14	DOY 159	39hrs
JEM-X2 to Science	08/06/2011 22.14	DOY 159	39hrs
OMC to science	08/06/2011 22.20	DOY 159	39hrs
OMC to Safe due to radiation spike	09/06/2011 01.41	DOY 160	
OMC to science	09/06/2011 01.44	DOY 160	1hr

A VERY ACTIVE SUN

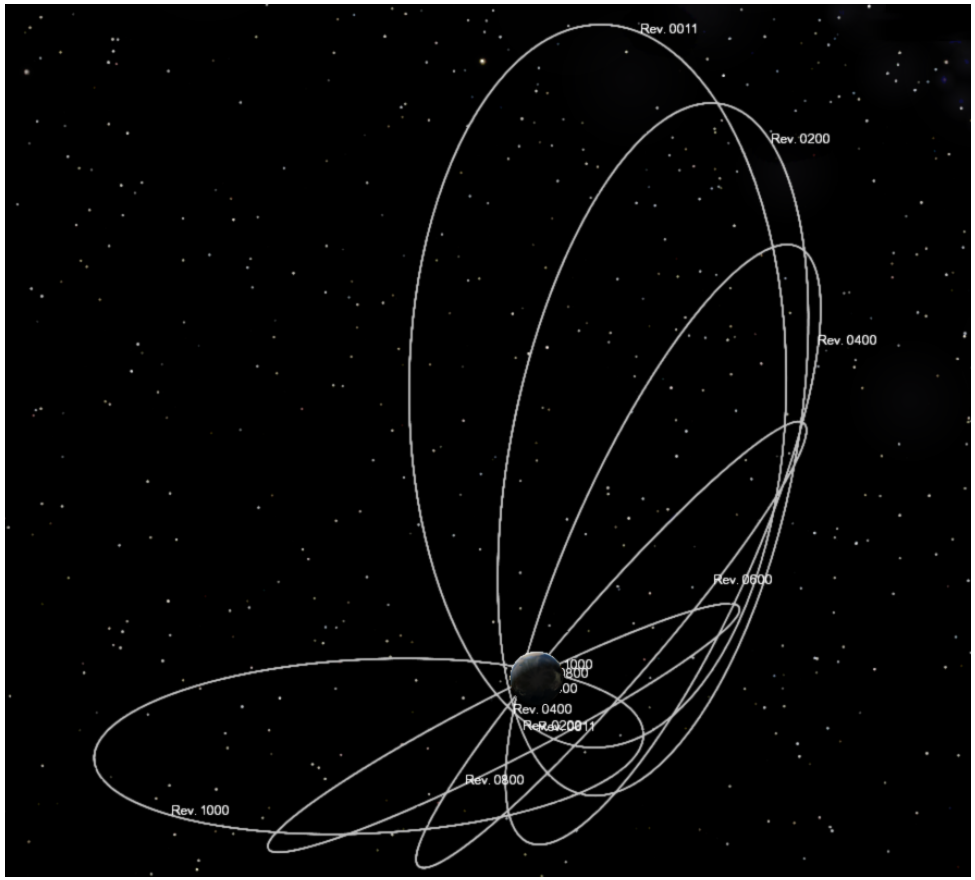


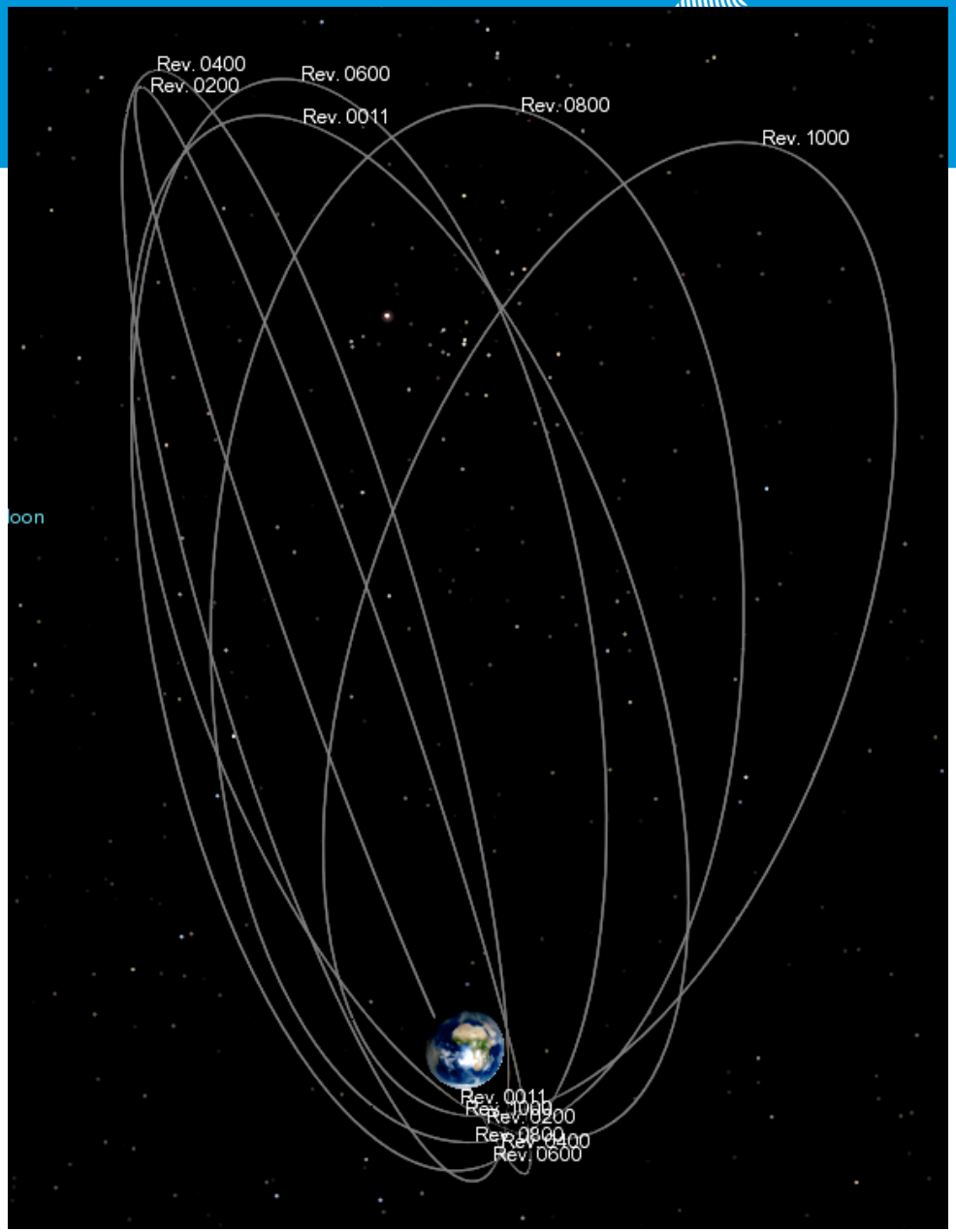
ORBIT EVOLUTION & RADIATION DOSE

- Perigee altitude currently at ~3300 km. Minimum of ~2800 km will be reached in October 2011.
- No problems reported from instruments, but effects visible on solar arrays and probably startrackers.
- Perigee altitude will improve again up to end 2015, but might be issue for long-term future.



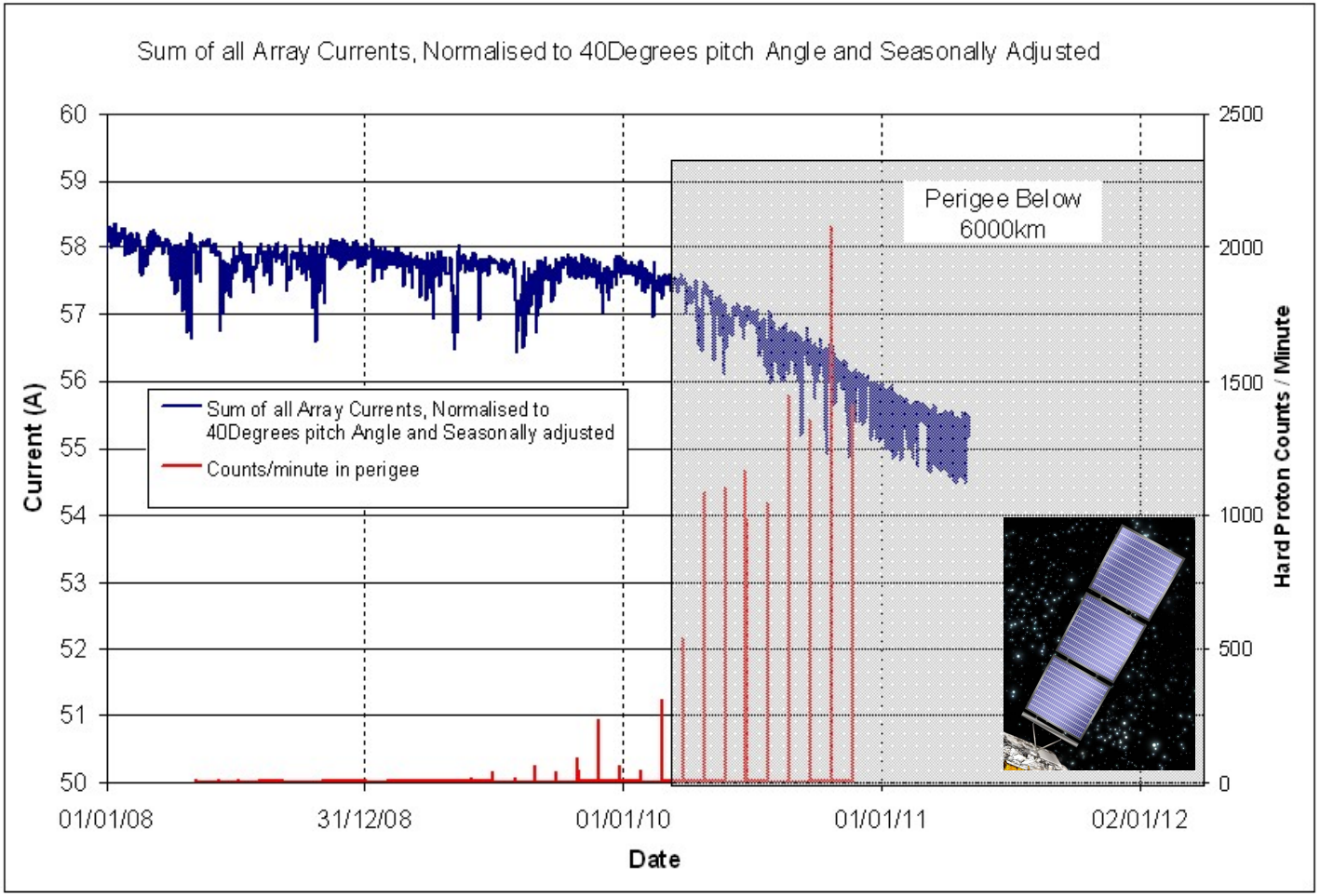
ORBIT EVOLUTION





RADIATION DOSE EFFECTS

- Steep increase in proton radiation correlates with downturn in solar array output.
  ⇒ TEC study
- Also apparently number of star-tracker 'blemish' pixels increasing. Could create issues for closed-loop slews.
  ⇒ Blemish pixel survey in August.

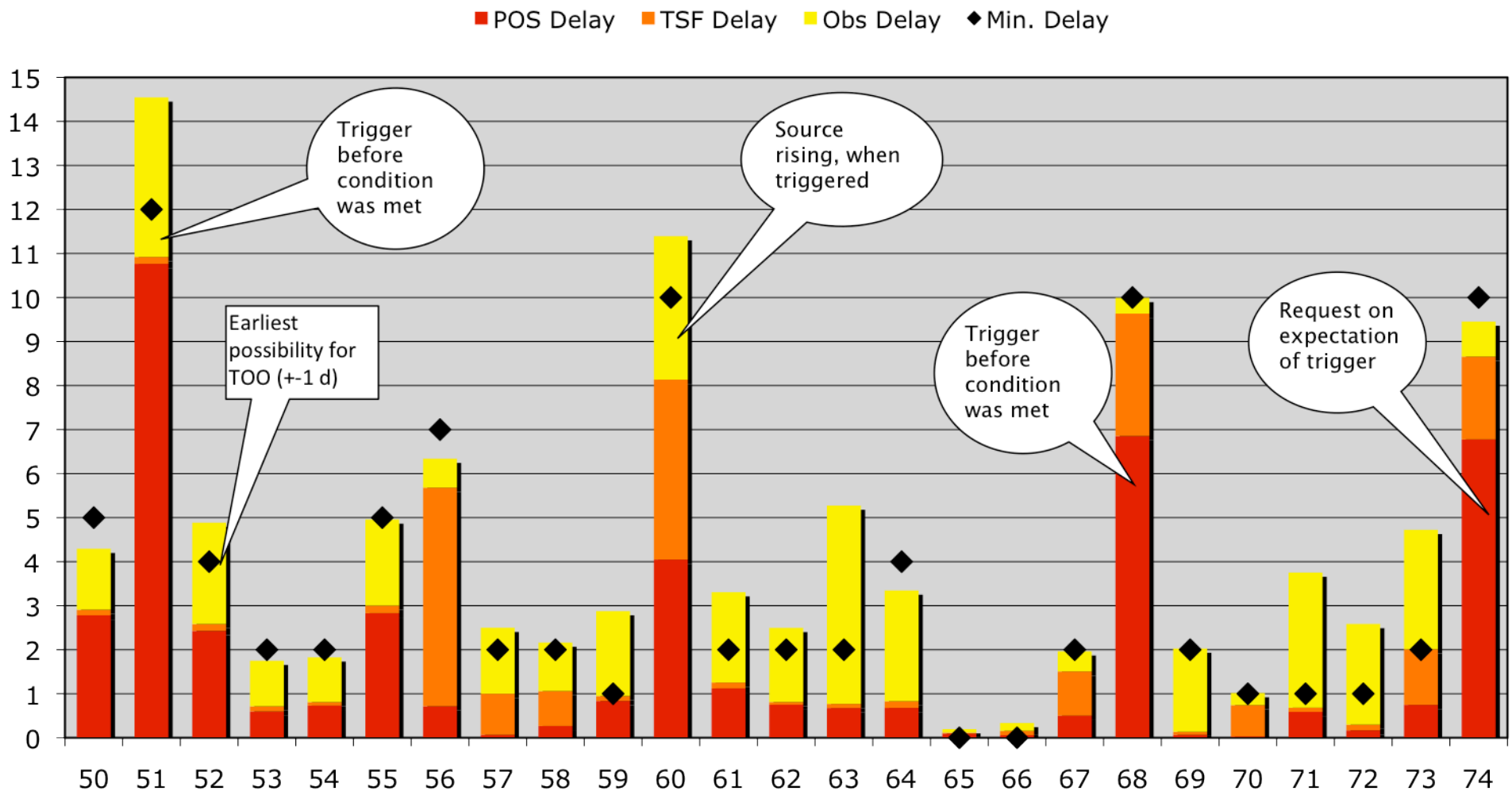


SOC & MOC NEWS

- Jutta Hübner joined the MOC as new SOE (replacement of Salma Fahmy) end of April.
- Marnix Bindels will leave ISOC end of August; recruitment for replacement is ongoing ⇒ *software support somewhat more limited in coming months.*
- Orbit evolution + SPI shadowing + complex scan patterns frequently lead to multiple iterations SOC/MOC before finding a valid reaction wheel solution.
- Ongoing work to optimize strategy for radiation belt exits.
- Several problems with NRT data flow from Redu and/or to ISDC for different reasons.
- Continuing issues with occasional interference at Redu.
- Lines MOC-ISDC upgraded.
- Major work on updating archive infrastructure at ESAC.
- AO-9 observing proposal TAC meeting went smoothly.

TOO IMPLEMENTATION

Delays between trigger and observation



RADIATION BELT EXITS

- Early activation of ISGRI in Rev 1006 led to degraded science data in early revolution. Raised exit altitude in 2 steps, avoiding further trouble.
- Discussed at IOCG. MOC & SOC have ongoing effort to better understand & predict radiation belt exit (& entry) attitude.
- Clear periodicity of 346±18 d (year + orbit rotation)
- Less clear mid- and long-term trends with time scales of several years and decades.
- Evolution will be followed further, also using other indicators.