

# INTEGRAL Operations Coordination Group Meeting 3 - Feb. 2010

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INTEGRAL Operations Coordination Group Meeting #03  
ESOC  
23 February 2010

## Spacecraft and MOC Status

Presented by: R. Southworth (ESOC – OPS/OAI)

# INTEGRAL Operations Coordination Group Meeting 3 - Feb. 2010

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## FCT Status

### Spacecraft Operations Manager:

- Richard Southworth
- ESOC ext 3827 ([Richard.southworth@esa.int](mailto:Richard.southworth@esa.int))
- System and SVM issues

### Flight Control Team:

- Salma Fahmy: Deputy SOM, SPI, IBIS, PLM issues
- Carmen Lozano (replaces Federico di Marco): AOCS
- Mike Walker: JEM-X / OMC / IREM / Planning
- Stefano de Padova: Database / MCS
- Lindy Spiteri : Young Graduate Trainee

### Merging with XMM Team:

- SPACONs merged, 1 SPACON controlling both missions.
- Engineering on-call service merged, 1 engineer on call for both missions
- Familiarisation continuing.

## INTEGRAL Operations Coordination Group Meeting 3 - Feb. 2010

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### Status of MOC:

Interface to Stations is stable – no major changes foreseen,

Available Stations:

- Prime: REDU, DSS24 / 27
- Back-up: VIL2, Weilheim, Perth, Maspalomas

Interface to ISOC is stable – no changes foreseen, no significant problems.

- Data Transfer for SOC Archive implemented.

Interface to ISDC is stable – no changes foreseen, no significant problems.

- Occasional interruptions in NRT.
- Occasional Delay in supplying consolidated TM data

## INTEGRAL Operations Coordination Group Meeting 3 - Feb. 2010

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Status of MOC – Continued.

Interface to PIs is good.

- PI workstations still in use in ESOC.
  - Firewall installed for security, access from fixed IP addresses only
- IBIS Software maintenance Contract set up.
  - IBIS equipment installed in ESOC

Upgrade of DCA – planned for late 2010.

- Space identified for PI WS

Testing of LINUX based Control System.

- Solaris servers EoS in 2012
- Solaris clients EoS in 2011

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## Summary of Satellite Health

### Recent platform anomalies

- INT\_SC-261: RW3 Heater Spurious Switch-off
  - 2009-06-28
  - One off Event.
  - Impact: None, heater switched back on within minutes
- INT\_SC-266: Spurious Switch Off of RMU-A LCL
  - 2009-09-22
  - One off Event.
  - Impact: None, Unit switched back on within 24 seconds by On-board Monitoring task.

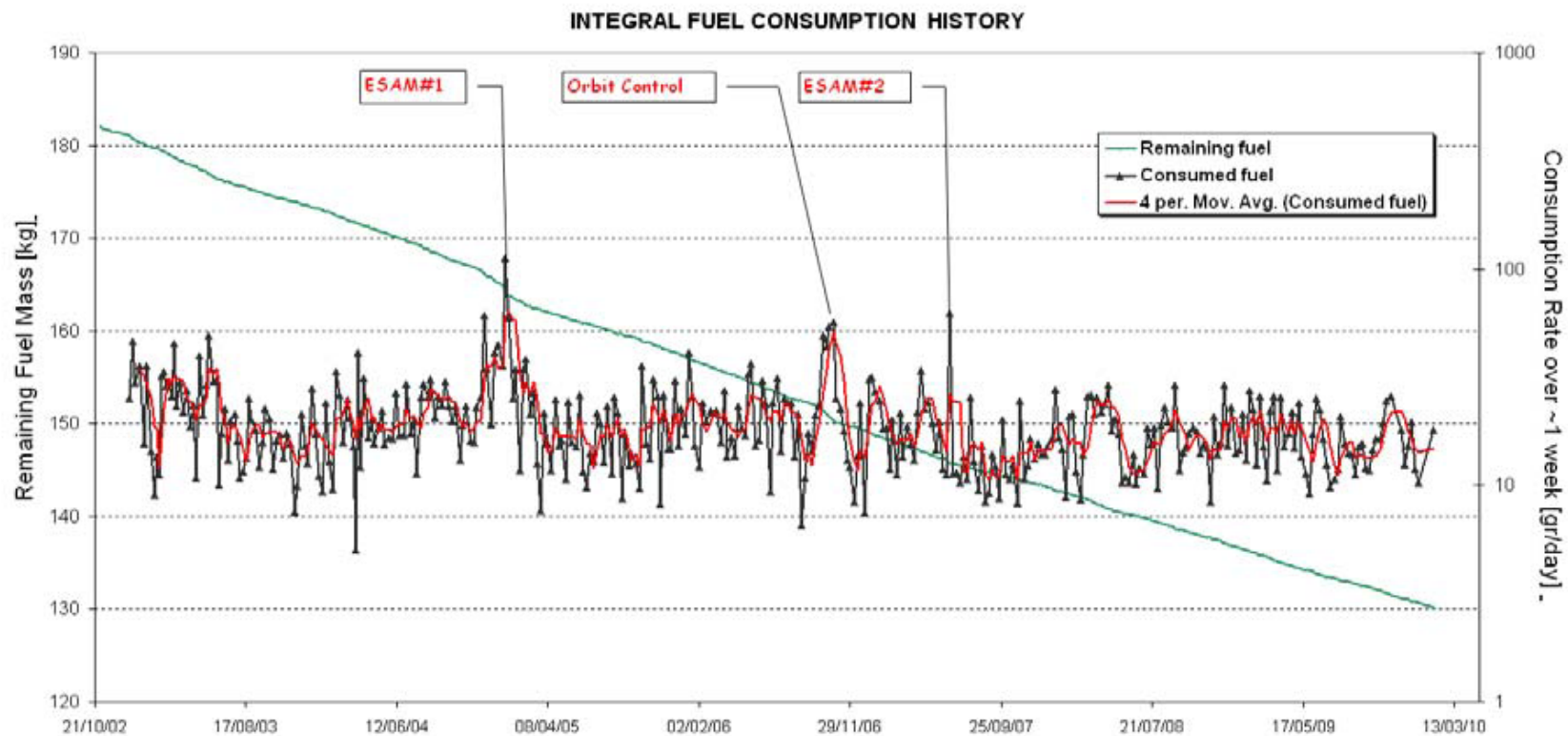
### Transmitter switch off at Perigee:

- Due to evolving perigee Integral will start to break ITU regulations
- TX will probably be switched off below 5000km.
- Exact strategy is tbd

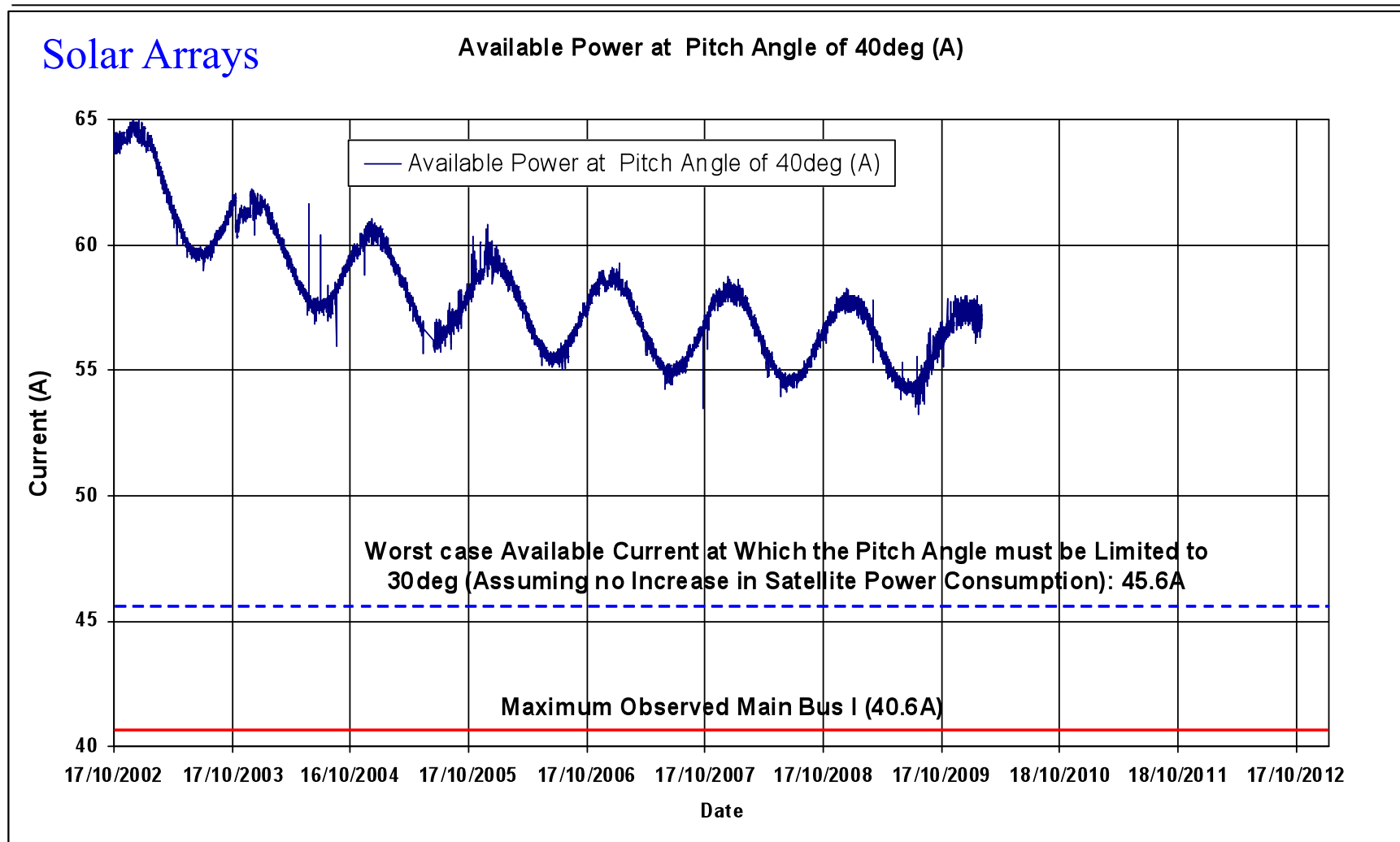
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## Fuel Consumption

- Used about 50kg since LEOP, about 130kg remaining.
- Average Consumption unchanged.

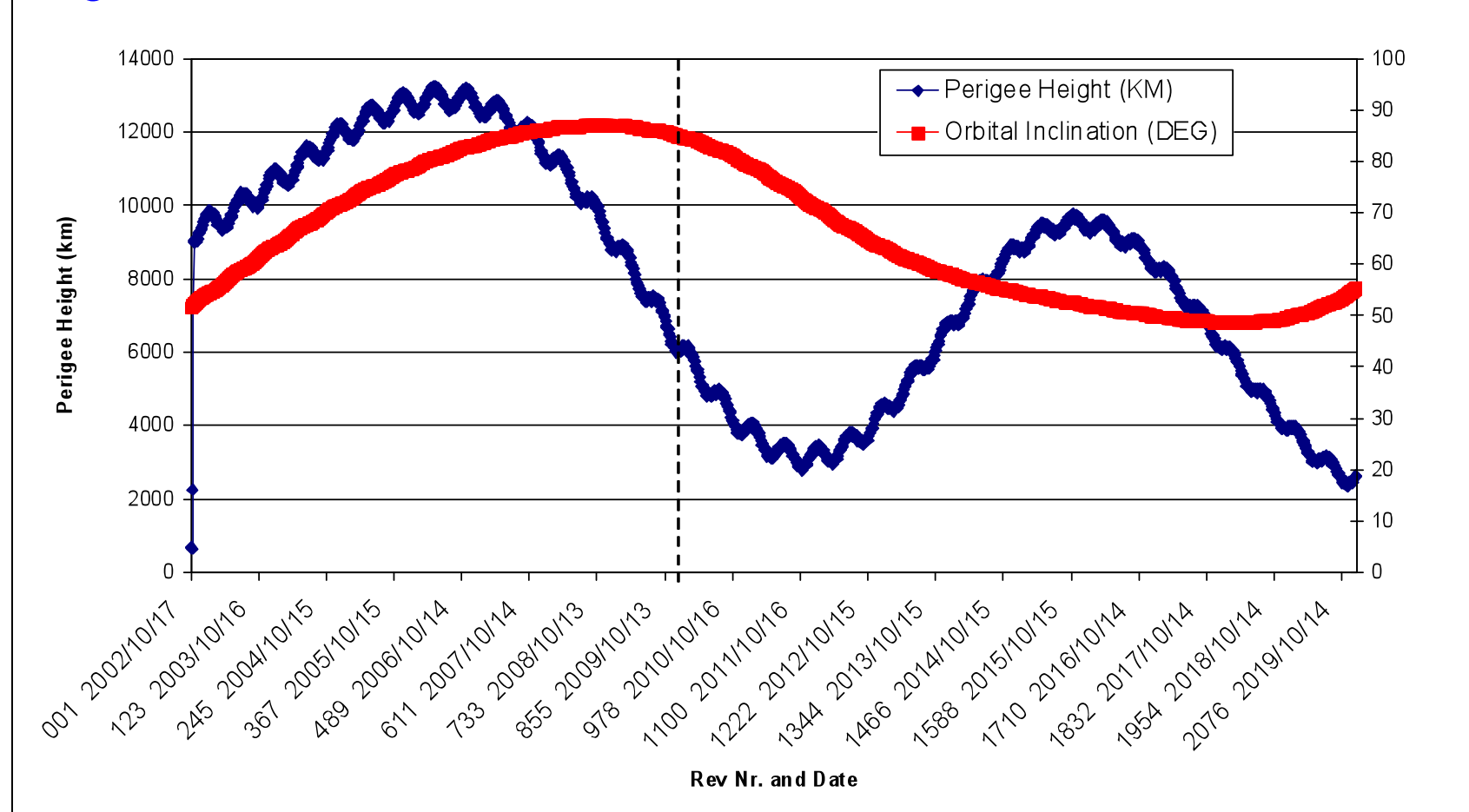


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Perigee Altitude Evolution Integral Perigee Evolution Until 2020





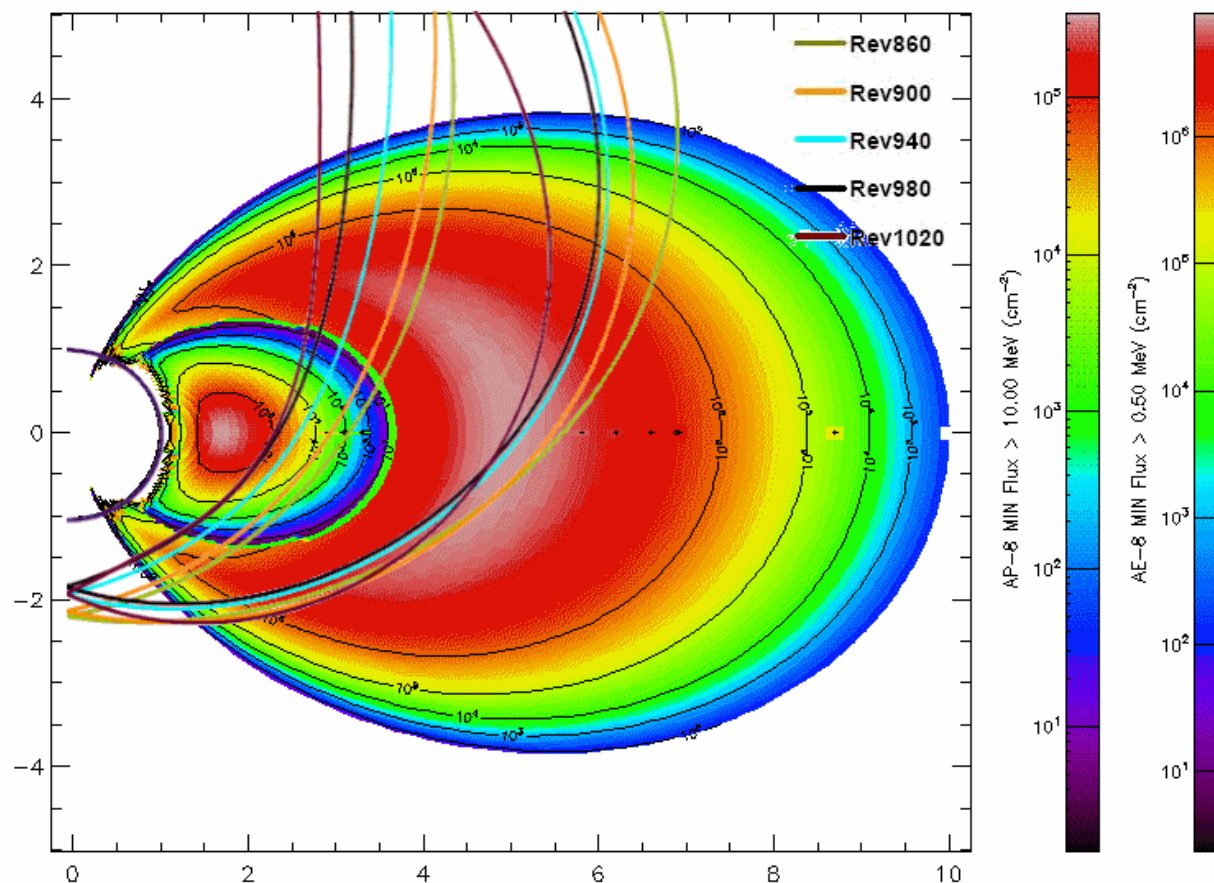
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## Perigee Altitude Evolution – Proton belts

No indications of problems so far.

FCT is monitoring Satellite behaviour carefully.

PIs / ISDC should also monitor Satellite PLM behaviour.

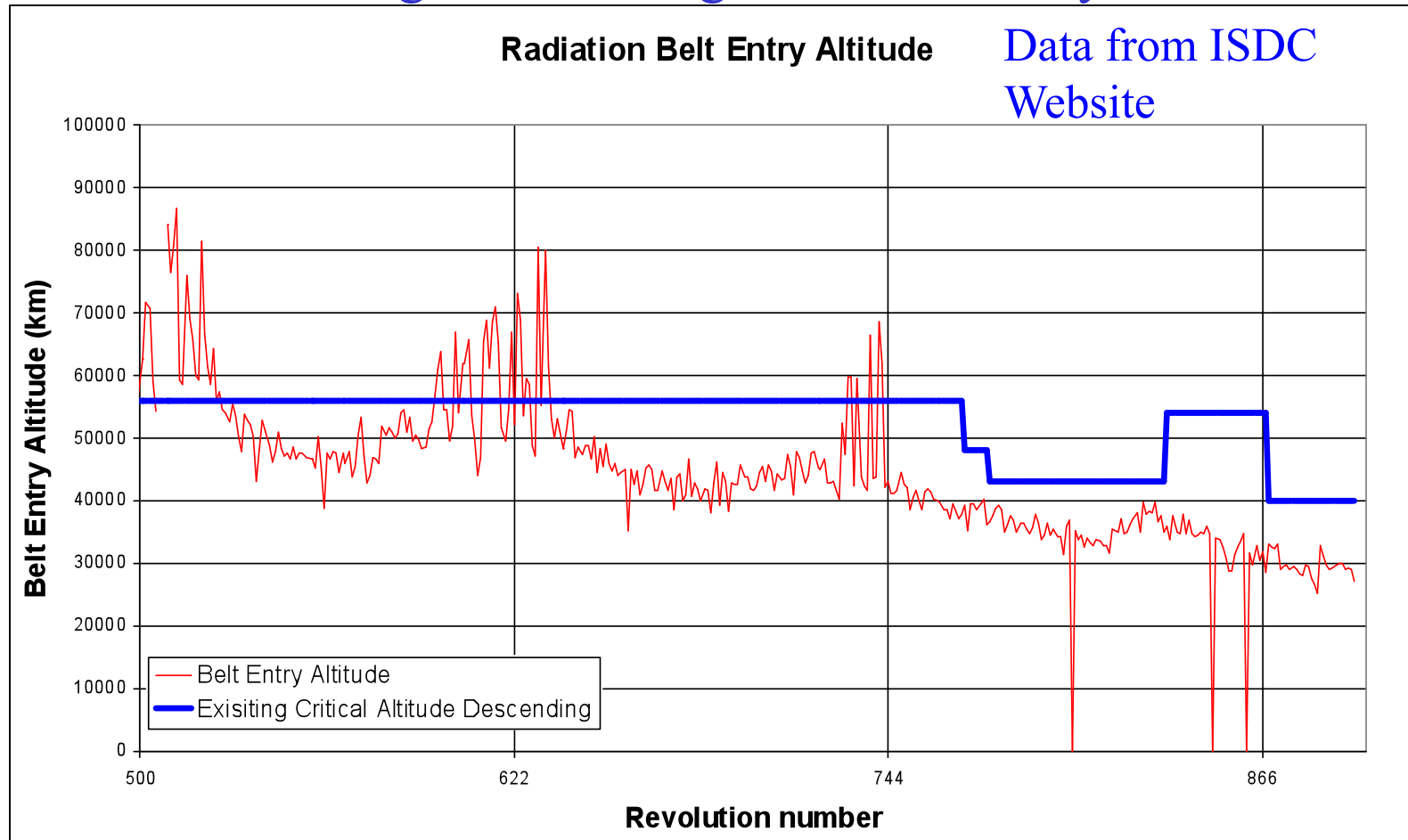


### Seasonal and Long Term Changes in Belts Entry / Exit Altitude.

- Monitoring of Belts Entry Altitude in TM shows clearly seasonal and long term variation.
- CRIT\_INST\_ALT\_DESC reduced from 54000km to 40000km from revolution 869 onwards.
- Gain of about 1.5 hours observing time / revolution.
- Possible scope for further reduction – see plot
- CRIT\_INST\_ALT\_ASC, currently no change planned, evolution to be monitored – see plot.
- Effects of perigee evolution influence this.
- Duration of belts decreases, but intensity of belts passage increases (Proton).

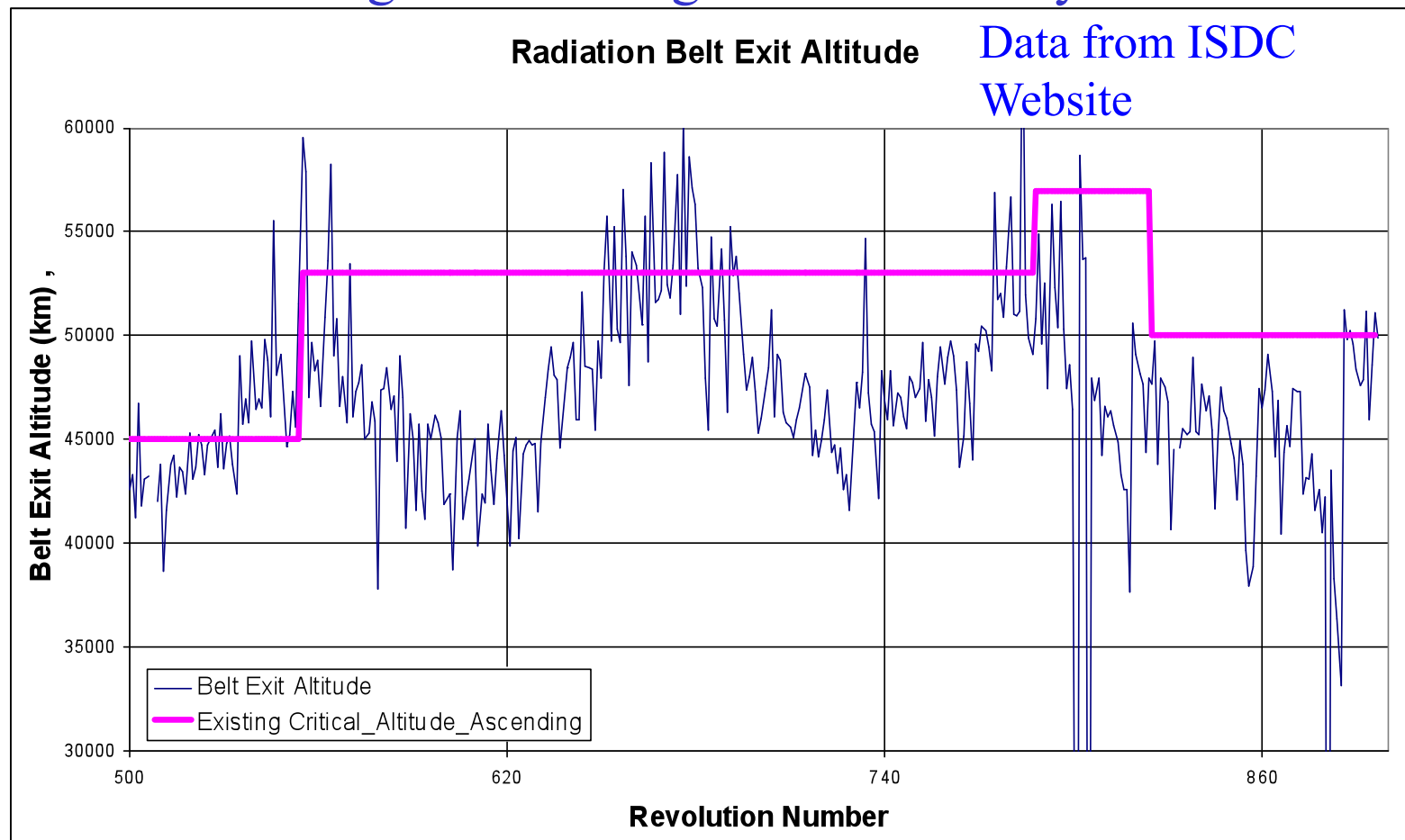
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## Seasonal and Long Term Changes in Belts Entry / Exit Altitude.



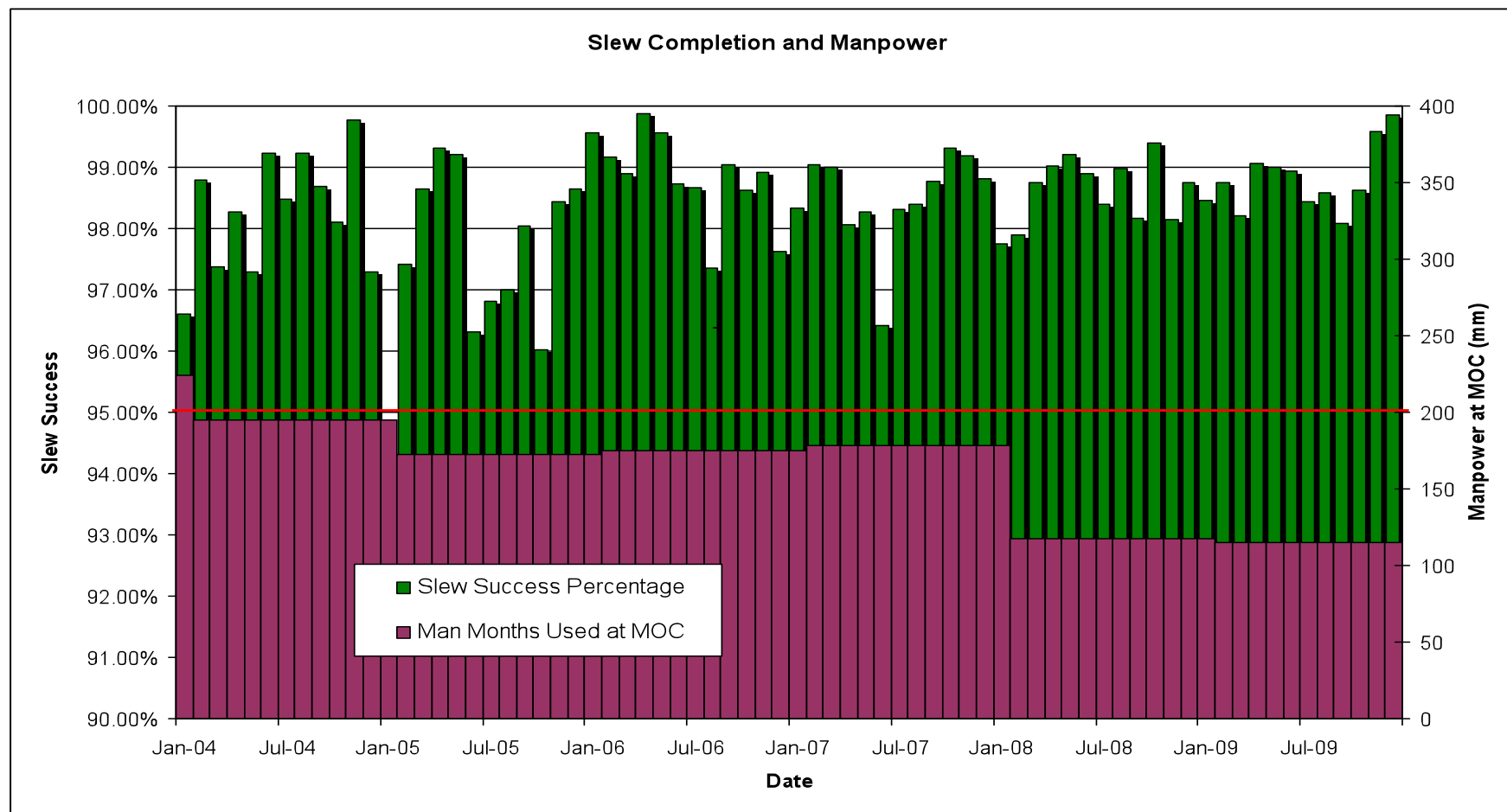
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## Seasonal and Long Term Changes in Belts Entry / Exit Altitude.



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## Mission Performance: Slews completed & Manpower used.



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### Performance:

- Slews completed is a measure of entire ground segment **RT reliability and Stability**: FDS, MCS, Communications, Stations.

FCT Reductions offset by automation and experience.

- The higher level of manpower available in the earlier part of the mission was put to good use to improve procedures, overcome problems and increase reliability.

Standard Operations OK.

Anomaly Recovery Times slower.

Change implementation slower.

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