

Newton Mission Status



Introduction

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Changes in ESA

- On 16 June (TBC) the Directorate of Science will join with the Exploration part of D/HME and become the Directorate of Science and Robotic Exploration (D/SRE).
- David Southwood has been appointed D/SRE until 30 April 2011.
- The ExoMars mission will become part of the Directorate's responsibilities.
- I am acting as Head of the Astronomy Science Operations Division (SCI-OA) at ESAC until 30 June 2008 (as well as Mission Manager and XEUS study scientist).

User Group and Staff Changes

- Welcome to Frank Haberl who joins the Newton UG.
- A number of changes to the SOC staff:
 - Leo Metcalfe has become the Herschel SCOM and has been replaced as SSM by Maria Santos-Lleo.
 - Maria's role as Head of the User Support Group and UG secretary has been taken over by Matthias Ehle.
 - Marcus Kirsch has left ESAC to join the Newton operations team at the MOC. His role as EPIC calibration scientist has been taken over by Matteo Guainazzi.

Mission Status

- Mission status is very good, with the spacecraft, instruments and ground segment all nominal. No serious anomalies since the last meeting.
- Major milestones in the last year include the approval of operations until 31 December 2012, the release of the 2XMM and EPIC catalogue and the good level of response to AO-7.
- At the end of 2008 April, 87 kg of fuel remain with usage of around 6 kg per year.
- The solar array is generating around 1950 W and between 800-1200 W are used.
- All other consumables are fine.



Mission Status

- At the time of the last UG meeting in June 2007, we had successfully completed the MEOR review. This set the scene for implementing the revised operations concept and submitting the next extension request to the SPC.
- Revised operations concept: a combined MOC team for Integral and XMM-Newton with one SPACON on shift for both missions and the ESAC instrument monitoring team replaced SPACON supported by radiation monitoring software. Provides a ~20% reduction in operating costs. Being implemented in steps.
- New operations concept has, in general, worked well with routine work loads that are well within the capabilities of a single SPACON.

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- A few cases where SPACONs did not follow procedures correctly. In particular, the EPIC CCD Substitution Heaters failed to be switched-off as part of the post-eclipse instrument re-activation. The EPIC CCD temps increased for nearly 4 hours, leading to max T of $-75\text{ }^{\circ}\text{C}$ and $-52\text{ }^{\circ}\text{C}$ for the MOS and pn. A dedicated cal observation showed that EPIC survived the T increase without any noticeable change in performance.
- Procedures have been tightened and additional training performed.
- New approach for handling ToOs has proved to work smoothly with no significant degradation in response time (5.5-6.0 hr).
- Most users will not have noticed the change to combined operations.

Mission Status

- Using the lower costs afforded by the combined operations, in November 2007, the SPC approved an extension of operations from 31 March 2010 to 31 December 2012. (This is 2+2 years for Integral).
- Extension subject to usual performance review in 2 years time.
- There is now a single SPC reporting line for Integral and Newton.
- ESAC real-time instrument monitoring team has been disbanded. No other reductions currently planned in e.g., SAS support or calibration teams.

Future Mission Extensions

- In 2007 the Science Programme Review Team (SPRT) reviewed all aspects of the management of the programme making a number of recommendations including:
 - Achieve a 60/40 split in development activities and "complementary" costs - mission operations, overheads etc.
 - Mission extensions should be considered competitively within a pre-allocated budget.
- Proposal for how this could be implemented will be discussed at the 2008 June SPC meeting at Aix en Provence.
- Currently missions extensions are considered on a case by case basis usually with a 2+2 year rolling horizon.

Future Mission Extensions

- Proposal is to create an overall operations plan which takes into account missions already in operations, those in development and study and future CV missions as well as planned mission extensions. Plan will be based on a dedicated budgetary envelope which will be within the SPRT target for 60/40 budget partitioning. Steps:
 - Present all missions that need extensions in the next 2 years to a high-level review to assess the scientific performance and priorities.
 - The SSAC would set priorities to guide the SPC and the operations plan would be constructed within the above constraints.
- Pending June SPC approval, it is proposed to start this new approach in time for the 2008 November SPC meeting.

Future Mission Extensions

- In 2008 November, it is *likely* that mission extension requests for HST (2 yrs), SOHO (3 yrs), Cluster and Double Star (3 yrs), Mars Express and Venus Express (2 yrs), Planck (1 yr), Herschel (1 yr) and Gaia (1 yr) will be requested.
- Integral and Newton should probably be included in above as we would normally have gone to the SPC in November 2009 for the next extension - which is within the 2 years of November 2008.
- However, with the latest 2.75 yr Newton extension, we don't really need the next extension approval until November 2010 (although would lose 1 SPC "margin") to maintain 2 year horizon.
- Discussions continuing to define best strategy for Newton and Integral.

STFC Funding Situation

- Newton was ranked in the 3rd (out of 4 categories) in a recent STFC review of operational facilities. Indication is that part of 3rd category facilities could be supported.
- Would like to thank members of the UG for their support for the mission as well as the UK PIs for so efficiently orchestrating letters of support from high-ranking UK astronomers not associated with the mission as well as their own letter pointing out the strategic importance of Newton to the ESA Science Programme.
- Awaiting developments. If the UK funding were to be substantially cut, ESA may have to take over some of the activities. We would do this in full consultation with the SSC and instrument team consortia and would need the help of the UG in defining the level of support that we would have to provide.

