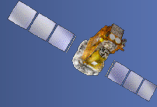


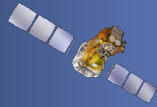
Mission extension 2010

ESA[★] status of preparations

★ ESA = PS

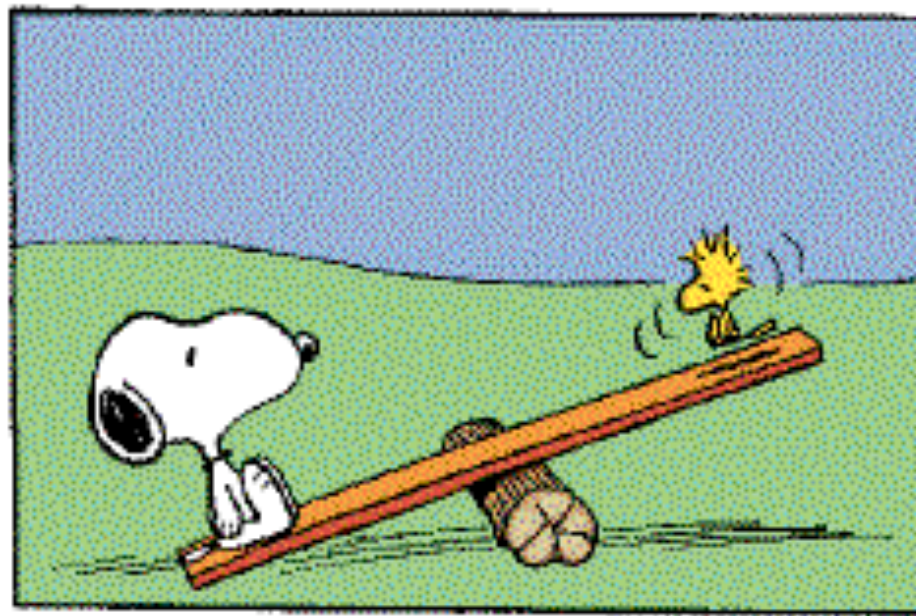


- INTEGRAL's science operations budget approved until 31 Dec 2012, subject to review towards the End of 2010
- New extension request in Fall 2010 should contain:
 - ✧ Science case
 - ✧ Brief technical status report on flight & ground segments, outreach, stats...
 - ✧ Budget (request for CaC update indications for 2013/2014) and items of cost reduction (if applicable, ...well... we've been through that....)
- Goal: Why do we need 7.3 M€ per year and what can we return to the community ?

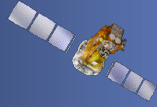


Extending INTEGRAL operations by one year :

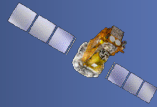
1%
of INTEGRAL
(as-built) costs,
= 7.3 M€/year



~15%
extra science,
= 24 Msec



- Science case: modified approach (see IUG meeting April 2009)
 - 1) Demonstrate science impact of INTEGRAL to date
 - 2) Demonstrate expected return from future observations
 - 3) Take into account comments from advisory bodies to earlier presentation(s)
- ❖ **VERY** strong science case is required because all eight missions in operations (HST, XMM, SOHO, Cluster, INTEGRAL, Planck, MEX, VEX) will present their case at the same time, all asking for new money !
- CW co-ordinates preparation together with the IUG “godfathers”, who will prepare the three main science categories:
 - Compact Objects: Tomaso Belloni & Jörn Wilms
 - Nucleosynthesis: Roland Diehl
 - Extragalactic Sources, GRB, CXB: Pietro Ubertini
 - Also, all IUG members should actively contribute as well as other members of the science community (e.g. M. Revnivtsev)



What will be prepared ?

- $\leq 20\%$ Introduction & summary
(*> p/l status, outreach, pubs, AO stats in non-science part, TBD*)
- $\geq 80\%$ Science case proper

Per each of the 3 science “categories”, two parts (A&B):

A: “Impact to date” (25%) :

✧ Summary of selected key results (since launch), most recent ones first

B: “Expected return” (75%) :

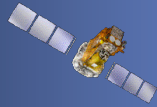
✧ Provide clear account where future measurements will be most productive beyond $\sqrt{\text{time}}$ improvements

✧ What will be learned from extension ?

✧ Avoid focus of incremental science

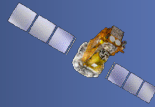
✧ If possible, tackle ‘criticism’ (“small community”, “less broad nature of science”)

✧ Where applicable, include INTEGRAL \leftrightarrow other on-going (Fermi, Swift, AGILE...) missions, future (launch ~2012) missions (*Nustar*, Astro-H), and ground-based observatories (H.E.S.S. etc). For example compare INTEGRAL and SIWFT/BAT surveys.



Science Case Format and Evaluation Process (Kessler, Dec 2009) – **TBC** -

- Preparation of a **written science case** (max 6 pages including MM stuff plus annexes, unlimited in length)
- Submission of written science case plus annexes to SSAC/AWG/SSEWG for evaluation (possibly with external referees) prior to AWG meeting
- AWG receive **(brief) presentations** from PS/MM, essentially to clarify issues and to respond to questions on the written material. SSAC members will be encouraged to attend the WG discussion.
- SSAC receive AWG (and SSWEG) recommendations in addition to the full documentation that they had previously received and make an overall recommendation.
- SPC receives proposal from Executive plus SSAC/AWG/SSEWG recommendations and the 6-page science cases.



Work Schedule (updated)

- October 2009: CW contacted godfather's with a plan. Godfathers agreed.
- Feb 2010: Godfathers to prepare first draft and send to CW (~ complete for **A**, ~ draft /placeholders for **B**)
- End Feb 2010: CW to compile/homogenize V1.0
- Mar/Apr 2010: Review V1.0 and update to V2.0 (~ complete for **B**)
- May 2010: **CW to circulate V2.0 to full IUG for review/comments**
- June – Aug 2010: Update V2.0 and finalize science case paper
- TBD Sep 2010: Submit science case paper to AWG
- Aug/Sep 2010: Prepare brief ppt for AWG to summarize/highlight written science case, to clarify issues, answer questions
- October 2010: AWG meeting/SSAC meeting
- November 2010: SPC decision