

The *PLANCK* Newsletter

Issue 1

July 2001

From the "Editor"

J. Tauber

This is the first edition of the Planck Newsletter. I hope that it becomes a vehicle to spread useful and interesting information relevant to the Planck collaboration.

My plan is to try to issue an edition after each meeting of the Planck Science Team, i.e. at 3-4 month intervals. These meetings form natural "milestones" in the course of the Project, and also often generate items which are interesting for you to know.

This issue in fact already includes an important message to all of you regarding the proposals which you submitted recently.

You will easily see how hastily I put this first edition together ! Please help me to make it better by sending me suggestions on how to format it, what type of material to include, and also by sending me articles, notes, letters, etc. This newsletter is meant for you, and I hope that you will provide the bulk of material in it.

Please send any feedback directly to me at jtauber@astro.estec.esa.nl .

The Baseline Core Programme

A message from the Science Team

This message is to bring you up to date on developments regarding the Baseline Core Programme.

As you all know, the "proposal" submission process ended in early June. Since then the members of the Science Team (ST) have had a chance to take a preliminary look at their content and to discuss it at a meeting that took place on 19-20 June.

The collected scientific inputs form a very solid and current case for Planck. With three exceptions, all proposals submitted were planned at the ESTEC workshop, and have been accepted as part of the Baseline Core Programme. Of the three exceptions, one was withdrawn, the other two were not formally acceptable. Based on the proposals as submitted, some topics are somewhat short on DPC and Instrument Team representation. Suggestions for evolution of core teams will be made by the Science Team in September.

The accepted proposals are available in Livelink, under Planck General/General /Science/Baseline Core Programme..

The collected proposals will be molded into a new "Red Book". Named after the color of its cover, the Red Book was produced in 1996 at the end of the COBRAS/SAMBA Phase A study, and contained the coherent science case for the whole of Planck. Planck is now halfway between Phase A and launch. Over the past year we have been defining the preliminary core science programme, important results from BOOMERanG and DASI were released, and MAP was launched. It is time to update this coherent science case both for our own internal use as a summary of the Planck science program, and for external use, as a comprehensive statement of what Planck will do and why it is still important.

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The details of how this new book (color TBD) will be produced are still being discussed within the Science Team. It is likely that it will be organized into four broad chapters:

- 1- Cosmological parameters and primordial universe (including "C_l" and "non-gaussianity" science)
- 2- Secondary anisotropies and clusters
- 3- Extragalactic sources
- 4- Galactic and solar system science.

The book editors will be asked to gather the proposals submitted in each area and combine them coherently, avoiding the repetitions that would appear if they were simply accreted as they are. They will work with the coordinators of subtopics and other team members as needed. The new book will be attributed to "The Planck Collaboration", and an appendix will list everyone's name.

Following the ESTEC workshop in Jan/Feb a number of working groups were formed, in some cases to facilitate preparation of the proposals for the preliminary core science program. With that task completed, the number of working groups can be reduced and their operation streamlined, for example, by combining what were previously called "scientific" and "technical" working groups in the same area. The Science Team has agreed on the structure outlined at the top level below.

1. Systematic Effects (coordinated by Bersanelli and Lamarre) for which a kick off meeting was held after the last Planck Science Team meeting
2. Component Separation (Bouchet and De Zotti) for which a kick off meeting will likely be held after the next Planck Science Team meeting
3. Cosmological Parameters (Bouchet, Efstathiou, Lawrence, Novikov, and Vittorio)
4. Non Gaussianity (Martinez-Gonzales, Naselsky, and Turok)
5. Secondary Anisotropies and Clusters (Bartelmann, Gorski, and White)
6. Extragalactic Sources (Partridge and Rowan-Robinson)
7. Galactic and Solar System Science (Davies and Giard)

Further restructuring within each topic may be desirable and will be proposed by the topic and subtopic coordinators and group members. The emphasis should be very much on the work that needs to be done now so that we will be ready to reduce and analyze Planck data in 2007, not on what might be done later with those data.

Mechanisms to allow effective coordination between groups, as well as email exchange and discussion within groups will be investigated and put into place as soon as possible.

The Science Team expects that the top-level structure above will remain in place for at least a year. We emphasize that these working groups are open to anyone who wants to contribute. The progress and effectiveness of working groups will be assessed on a regular basis through mechanisms being developed by the Science Team, and the working group structure will be revised as appropriate.

We remind all of you that writing science cases was very useful but a small task when compared with Instrument or DPC work. As described in the Planck Scientist Policies document, data rights are acquired only by work in the Instrument and Telescope teams, the DPC teams, and the working groups. The evaluation of the amount of work done by members of the Planck collaboration will be done yearly starting at the end of this year. The Science Team will get the information on work done through two somewhat orthogonal channels, which must agree in total. The first channel is Instrument Scientists, DPC managers, and coordinators of working groups, who will account for work done in their areas. The second channel is the Co-Investigators, who will account for the Associated-Investigators associated with them. Being a member of a core team, or a coordinator of a topic, subtopic, or other area, or having any other title, will not give you Planck Scientist Status without the same contribution of about two years of work for Planck required for everyone. (See the Planck Scientist Policies document for details).

Hopefully this lengthy message has brought you up to date on developments regarding the scientific programme of Planck. The next milestone in this process will be the ST meeting in September; but this should not stop you from starting activity right away.

News on the spacecraft development

J. Tauber

As you probably already know, the industrial Prime Contractor for the Herschel and Planck satellites was selected in April of this year. This was announced to be “the largest space science contract ever”, since it covers two satellites and all industrial phases in one go.

Alcatel Space (Cannes) will be the Prime, and will at the same time be responsible for the development of the Planck Payload Module; while Alenia Spazio (Torino) will be responsible for the Service Module. Additional subcontractors will be selected in the coming months to provide many of the needed subsystems.

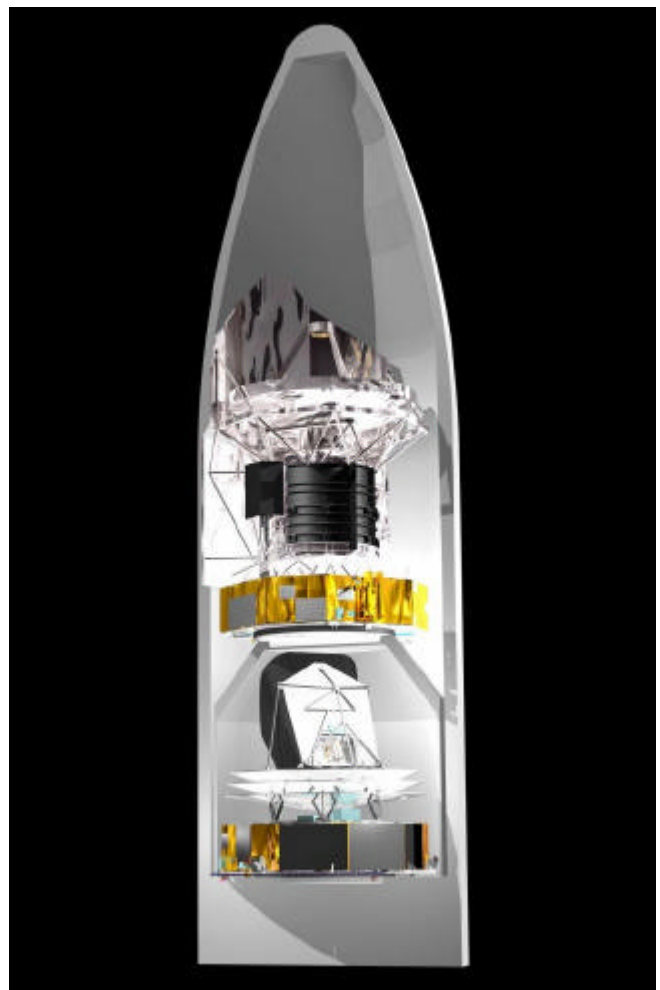
Several meetings have already taken place between Alcatel and the LFI and HFI teams to finalise all interfaces and therefore the baseline design of Planck. An important difference from the past is that the baseline configuration is no longer that of the “Carrier”, but rather a dual launch. This means that Herschel is no longer resting directly on Planck during launch, but rather on an adaptor attached to the Ariane rocket. The new configuration will allow for better straylight shielding and thermal environment. The picture at right shows a sketch of it.

Two issues that are being hotly discussed are: the long recovery time required in case of failure of a cryocooler or glitch of the spacecraft; and the impact of the attitude control performance (aka pointing) on the quality of the final data. The first issue could have a major impact on the operations of Planck and has already resulted in some design modifications to the instruments. The second issue could have an impact on the science return.

The next milestone in the spacecraft development is the so-called System Requirements Review, in which ESA ensures that all system-level requirements have been well defined and taken into account. This Review will take place in September.

Planck Workshop on Image Processing: From Time-ordered Data to Component Maps

A workshop with the title above was hosted by the CNR Institute for Information Processing on July 4-6 in Pisa. The programme concentrated on methods for mapping, harmonic analysis, and component separation. The meeting was attended by about 50 people, consisting not only of members of the Planck Consortia, but also of a number of statisticians, mathematicians, and image processing experts not normally involved in astrophysical problems. The meeting was considered useful and informative, and a summary of the presentations will be put on-line by the organisers. The coordinators of the CTP and component separation Working Groups who were present made a point of asking the Planck participants to start coordinating their activities more closely via the Working Groups.



USEFUL "PUBLIC RELATIONS" MATERIALS

VIEWGRAPHS

We all occasionally have to give a talk or seminar on Planck. A set of generic viewgraphs on Planck which can be used for this purpose can be found in Livelink under Planck General/General/Public relations .

PICTURES

Some pictures showing Planck in its latest (dual launch) configuration can be found on the Planck Web pages (<http://astro.estec.esa/Planck>) under Picture Gallery.

LOGO

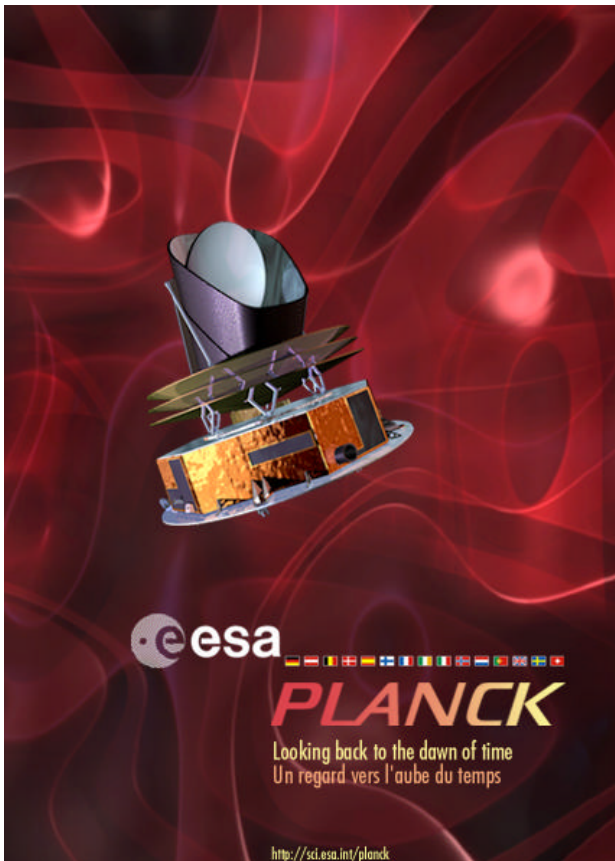
The famous Planck logo can also be found at the same place as the pictures ! Do use it ...

FOR THE LAYMAN

Non-technical material on Planck has been written by the Herschel/Planck journalist, Monica Gonzalez Salomone, together with Jan Tauber. You can find it under the PR portal of ESA's Science Directorate (<http://sci.esa.int>). Any suggestions to improve this material are welcome !

POSTERS

A new generations of Planck posters is being prepared. Below is one of two posters which will be printed shortly.



News on the development of the instruments and DPCs

A good place to find a brief summary of the status of development of instruments and DPCs is in the minutes of the Planck Science Team meetings, which are published on Livelink a few weeks after the meetings occur.

In Livelink, look under:

Planck General/General/Science Team.

Internal Publications

Many people within Planck have been generating useful and interesting technical notes on a variety of subjects, ranging from hardware design to data compression algorithms. It is often difficult to publish these notes in the mainstream journals, as the editors feel that they address a very restricted audience. And yet they represent valuable work which should at least be publicized and made available to interested Planck collaborators. The Science Team has therefore asked for a special area to be put aside in Livelink to hold and make available these publications. One or more Editors will be nominated to manage this resource. Potential papers should be sent to one of the Editors, who will review it or appoint an appropriate referee. The criteria used by the reviewer(s) to accept papers will include: relevance to the Planck community, scientific and/or technical correctness, completeness, and appropriate acknowledgment of contributions. For the moment the three Consortium PIs and the Project Scientist will act as Editors. **Please send your contributions to any of them.**

If enough high quality material is available over time, the possibility exists of commissioning at regular intervals special editions dedicated to Planck from a journal such as Astronomy and Astrophysics.

Reviews

Reviews are an integral (if painful) part of the development of any big project. As overall Project Manager for Planck, ESA reviews at periodic intervals the status of development of the instruments, the spacecraft, the Data Processing Centres (DPCs), and the Ground Segment of Planck. These come in addition to any internal reviews planned by the development teams, and to reviews requested by the national funding agencies; although by adequate planning attempts are made to combine reviews whenever possible. ESA reviews of the instrument and DPC development occur at roughly yearly intervals. Both Planck instruments, and both Planck DPCs, have been up to now formally reviewed twice. The last instrument review occurred in February of 2001, at a time when the instrument detailed design phase (the so-called phase B) is near its end, and the construction phase begins. The last DPC review took place in mid-May 2001; this review in fact included not only the DPCs themselves, but also other parts of the "Science Ground Segment" such as the Mission Operations Centre (MOC) and the Planck Science Office (PSO). The reviews result in the production of a copious amount of documents describing the system under review, and of course a Review Report which summarises the main findings and recommendations of the review board. These documents can be found in the Livelink system and because they are up-to-date and complete, they are a good place to start learning about aspects of Planck that you may be unfamiliar with.



CALENDAR OF (SOME) EVENTS

SCIENCE TEAM MEETING

DATE: 24-25 SEPT. 2001

PLACE: OAP, PADOVA

LFI CONSORTIUM MEETING

PLACE: MÜNCHEN

DATE: 17-19 OCT. 2001 (TBC)

HFI INSTRUMENT WG MEETING

PLACE: CARDIFF

DATE: 3-5 SEPT. 2001 (TBC)

HFI CONSORTIUM MEETING

PLACE: ORSAY

DATE: 22-23 OCT. 2001 (TBC)

SYMPOSIUM ON ASTROPHYSICAL POLARISED FOREGROUNDS

PLACE: BOLOGNA

DATE: 9-12 OCT. 2001

URL: [HTTP://SPORT.TESRE.BO.CNR.IT/POL2001/](http://SPORT.TESRE.BO.CNR.IT/POL2001/)

SCIENCE TEAM MEETING

DATE: 6-7 DEC. 2001

PLACE: PASADENA