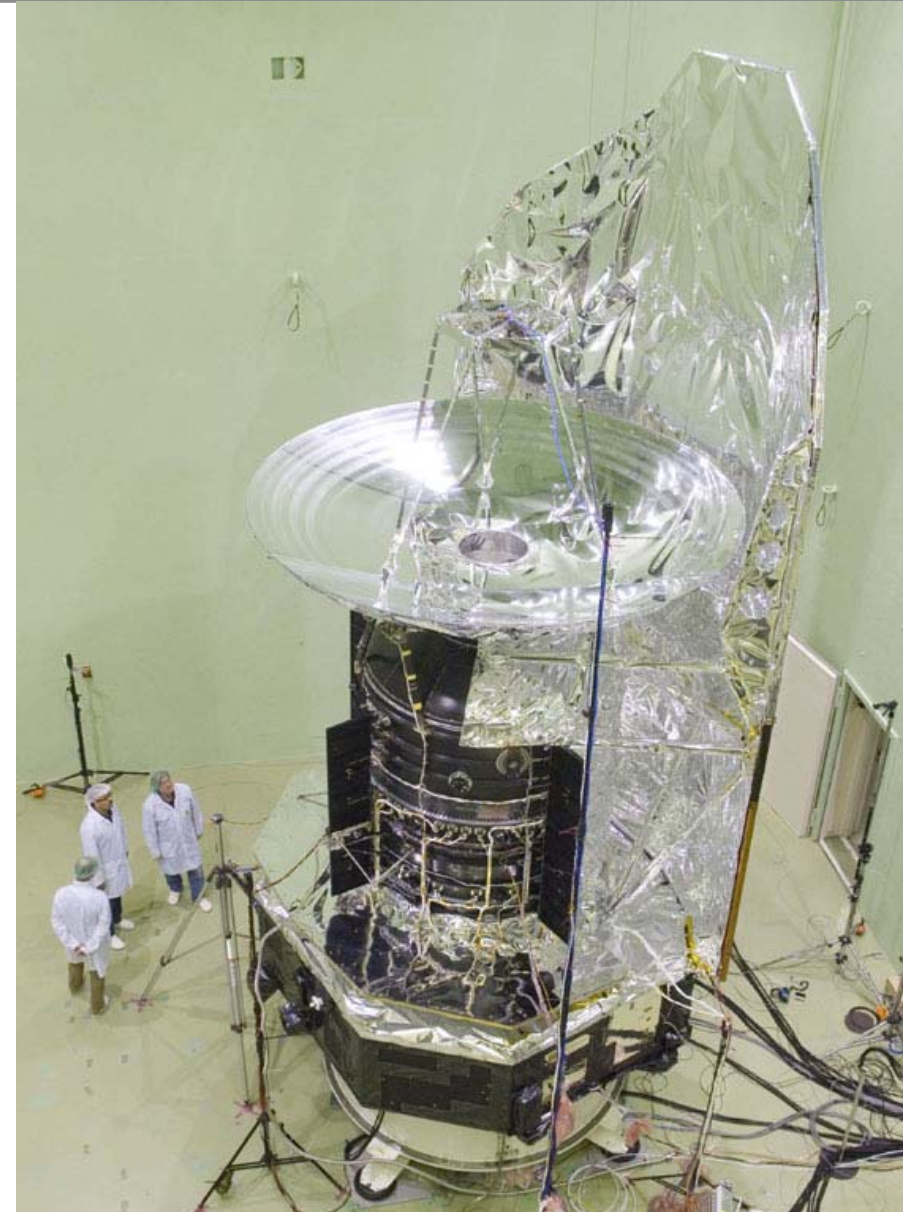


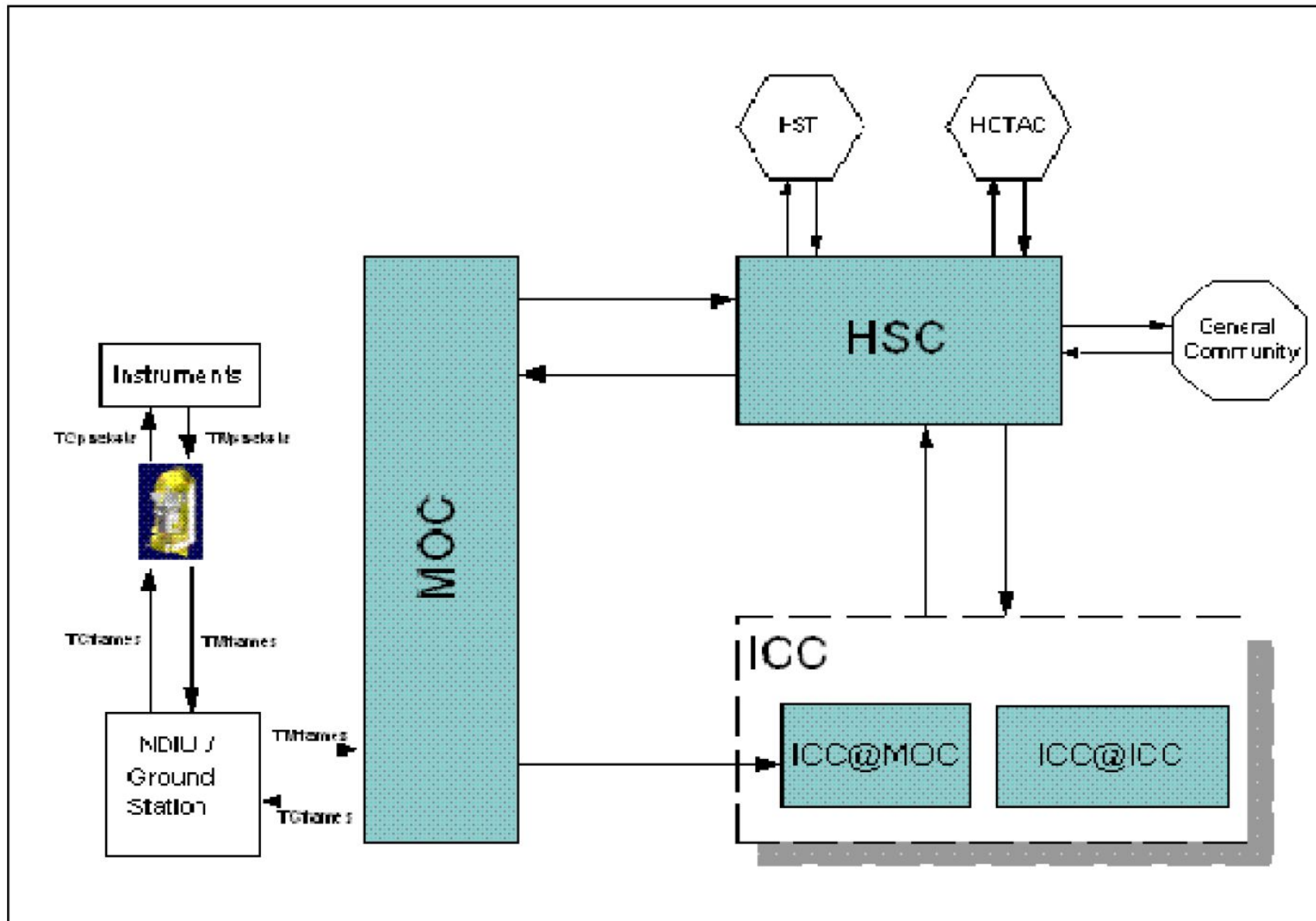
Community Support at the Herschel Science Centre

**Pedro García-Lario, on behalf of the
Herschel Community Support Group @ HSC**

- **Introduction**
- **The HSC web site**
- **User Registration**
- **The HSC Helpdesk**
- **Proposal Submission Tool (HSpot)**
- **Support to HOTAC**
- **Proposal Handling System (PHS)**
- **Mission Planning System (MPS)**



The Herschel Science Ground Segment



- Provide **information** to the Herschel astronomical user community mainly through the **HSC web site** (<http://herschel.esac.esa.int>)
 - also through periodic e-News and workshops
- Prepare and issue **'calls for proposals'**
 - including associated documentation and tools
 - supporting the community during the proposal submission process
 - supporting HOTAC members during the review process of proposals
 - informing proposers, management and the community of the results
- Maintain a 'central' **Helpdesk**, providing **assistance** to users at any time, on any aspect of the mission
- Operate the **Proposal Handling System (PHS)**
 - to maximise the scientific output from approved programmes, including tune-ups of proposals in between AOs

- Operate the **Mission Planning System (MPS)**
 - to adopt the most efficient scheduling strategy both in the long term and in the short term planning of observations
 - monitoring the overall execution status of programmes paying special attention to those with particular scheduling needs
- Provide scientific requirements on the **Herschel Science Archive**
- Participate in the **acceptance testing** of all subsystems above mentioned
 - including new versions of the Data Processing software (to better assist the community in their data reduction problems)
- **Training** the user community on every aspect of the mission through dedicated **Workshops**
 - Observation Planning Workshops
 - Data Processing Workshops

(usually mirrored by the NHSC for the US observers, as a coordinated effort)

- **5 Community Support Scientists**
 - Pedro García-Lario (Group Lead & Proposal Handling Scientist)
 - Eva Verdugo (Herschel Archive Scientist)
 - Rosario Lorente (Mission Planning Scientist)
 - Mark Kidger (HSpot Scientist)
 - David Ardila (NHSC Liaison Scientist)

- **4 Community Support Technical Assistants (rotating tasks)**
 - Alvaro Llorente (Mission Planning TA)
 - Mar Sierra (Proposal Handling TA)
 - NN1 (Helpdesk TA)
 - NN2 (Downlink/Duplications TA)

- **1 Webmaster & Helpdesk Integration Engineer**
 - Jean Matagne

- **5 Instrument Calibration Scientists**
 - Anthony Marston (Group Lead & HIFI)
 - David Teyssier (HIFI)
 - Bruno Altieri (PACS Photometry)
 - Roland Vavrek (PACS Spectroscopy)
 - Luca Conversi (SPIRE Photometry / Parallel Mode)
 - Ivan Valtchanov (SPIRE Spectroscopy)
- **1 Pointing & Spacecraft Environment Scientist**
 - Miguel Sánchez Portal
- .. plus the continuous support of all Instrument Control Centres (ICCs)
 - Ed Polehampton
 - Csaba Kiss
 - ...and many more!

The HSC web site (<http://herschel.esac.esa.int>)



Main interface with the community

- **Herschel General Information**
 - Latest News
 - Mission Overview
 - Science Instruments
 - Community Information
 - Conferences/Workshops
 - Press Releases
 - e-News
 - Useful Links
- **Herschel Announcement of Opportunity OT1**
 - Introduction
 - 'How to' step-by-step
 - Documentation
 - Tools
 - AO Latest News
- **Herschel Observing**
 - Observing Log
 - Observing Schedule
 - AOTs Release Status
 - Key Programmes
 - GT1 Programmes

Herschel Latest News

Herschel vibration testing completed. After the acoustics campaign and associated post-testing the Herschel spacecraft transferred to another part of the ESTEC Test Centre for the vibration runs. The actual testing on the shaker was performed period 20 June - 3 July 2008. In each of the three spacecraft axes, longitudinal (x) and transverse (z and y), four test runs conducted, at low, intermediate, and acceptance levels, followed by another low level run. The four pictures above show He on 26 June, positioned for z-axis vibration. For some additional pictures and a video on the x-axis shaking see also the [webpage](#). [July 2008]

Herschel acoustic testing performed. Based on the availability of test facilities it was decided to perform acoustics testing vibration rather than, as initially foreseen, the other way round. In the pictures above Herschel is seen during the final preparations in the Large European Acoustic Facility (LEAF) in the ESTEC Test Centre. The left picture also provides a nice view of the local oscillator unit (LOU) radiator. The telescope cover has been removed which indicates that the start of test is imminent. The 'rings' which can be seen (in visible light) on the telescope primary mirror is a purely cosmetic effect acoustics testing runs were performed on 5-6 June 2008. [June 2008]

Herschel mechanical testing underway. After completing the EMC campaign mechanical testing of Herschel is now under way. The initial activities concerned PACS chopper and grating tuning which was performed with the spacecraft inclined at an angle of 20° (left two pictures). Then exceptionally Herschel was tilted 90° to perform SPIRE SMEC testing, and the telescope cover removed to perform an M1-M2 distance confirmation measurement (right two pictures) which will be repeated after the upcoming vibration and acoustics tests at spacecraft level have been performed; see also the [SciTech webpage](#). [May 2008]

The HSC web site (<http://herschel.esac.esa.int>)



- **Herschel Data**
 - Data Processing
 - Data Products
 - HIPE download
 - HSA Access
- **Herschel Publications**
 - Publishing Rules & Guidelines
- **Herschel User Services**
 - Services Overview
 - Helpdesk
 - Proposal Handling
 - Subscribe to Herschel eMail list
- **Herschel User Registration**
 - User Registration
 - Lost Password?

Herschel Latest News

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Done Now: Fair and 29°C Tonight: 19 °C Mon: 34 °C Tue: 3



Herschel General Information

Herschel Science Centre Home

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Science Instruments

Community Information

Conferences/Workshops

Press Releases

e-News

Useful links

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Science Archive

Herschel User Services

Services Overview

Helpdesk

Proposal Handling

Subscribe to Herschel eMail list

Herschel User Registration

User Registration

Lost/Broken Password ??

HERSCHEL

Exploring the formation of galaxies and stars Découvrir la formation des galaxies et des étoiles

Welcome to the **Herschel Astronomers' website** provided by the Herschel Science Centre (HSC) for the scientific community. For additional ESA and external Herschel related websites see [Useful links](#).

Herschel, short for the 'Herschel Space Observatory', is the fourth 'cornerstone' mission in the ESA science programme. It will perform photometry and spectroscopy in approximately the 55-672 μm range and is designed to observe the 'cool universe'; it has the potential of discovering the earliest epoch proto-galaxies, revealing cosmologically evolving AGN/starburst symbiosis, and unravelling the mechanisms governing the formation of stars and planetary systems, such as our own.

Herschel will be flown to the launch site later this year, and will be ready for launch in early 2009. The exact launch date is being negotiated with the launch services provider Arianespace. It will be operated as an observatory facility. Commencing about six months after launch it will offer three years of routine science observations. It will be available for the worldwide scientific community, with roughly two thirds of the observing time being 'open time', which will be allocated through a standard competitive proposal procedure.

Key Programme time allocation process completed!

- The Key Programme (KP) time allocation process has been completed for both guaranteed time (GT) and open time (OT) observations. In addition to the 21 KP GT programmes by coincidence also precisely 21 KP OT programmes have been awarded observing time. The contents of these programmes are described under [Key Programmes](#).
- The next Announcement of Opportunity (AO) for Herschel OT observations is planned for approximately 6 months after launch when inflight performance is in hand, see [Community Information](#).
- For the planning of Herschel observations use the various links provided under the heading 'Herschel Observing' on the left, here the most up-to-date manuals and tools are available. The material presented in the [Herschel observation planning workshop](#) held at ESAC on 20-21 September 2007 and the [Herschel Open Time Key Program Workshop](#) held in ESTEC, Noordwijk on 20-21 February 2007, can also be helpful but it must be remembered that this material represents that status at the time.



Last updated: Wednesday, 02-Jul-2008 18:33:54 CEST

Herschel User Registration

(<http://herschel.esac.esa.int/registration.shtml>)



- **Based on existing RSSD LDAP system**
 - Pre-registered users in the RSSD LDAP system do not need to enter their personal details again when they register as Herschel users
- **A *single door* to access all Herschel user services**
 - Submission of questions to Helpdesk
 - Subscription to Herschel mailing lists
 - Proposal submission using HSpot
 - Proposal handling information
 - Retrieval of data from HSA
- **To characterise the Herschel user profile**
 - We need to know who are our customers!
- **As of today there are close to ~1000 Herschel registered users in the database!**

- **Routinely operated by HSC staff since 2007**
 - Helpdesk tickets are distributed over ~12 different topic oriented departments
 - Nominal response time is ~48 hours (2 working days); frequently a few minutes only; sometimes consultation with external experts @ ICCs needed
 - 9 issues of the Herschel e-News distributed from the HSC Helpdesk in the last 2 years; the last one on 21 April 2010; also used for mass-mailings
 - Frequency of incoming questions variable from only a few per week in between AOs to increased peaks around calls for proposals of up to 50 tickets per day; also around major events like workshops organised at ESAC
- **Web tool based on a commercial software from [Kayako](#) Infotech Ltd.**
 - Same system used by NHSC and SPIRE ICC Helpdesks and by other ESA missions
 - Configurable alert system for staff members (including SMS)
 - For registered users only (no spam)
- **Latest Helpdesk ticket is [#2440](#), and counting...**

- Systematically organised by HSC in collaboration with NHSC staff
 - **Observation Planning Workshops**
 - 20-21 Sep 2007 @ ESAC – last KP call
 - 3-4 Jun 2010 @ ESAC – Cycle 1 OT call
 - **Data Processing Workshops**
 - 4-5 Dec 2008 @ ESAC – Pre-launch
 - 24-27 Mar 2009 @ ESAC – Hands-on
 - 14-16 Dec 2009 @ ESAC – SDP Hands-on
 - **Science Conferences/Workshops**
 - 17-18 Dec 2009 @ UPM-Montegancedo – SDP Initial Results
 - 4-7 May 2010 @ ESTEC - ESLAB Symposium 'Herschel First Results', with more than 400 participants

Proposal Submission System (HSpot and associated tools)



- **Regular and Large Proposals** are submitted using the **HSpot** tool
 - Based on SPOT (Spitzer Observing Planning Tool), extensively used by Spitzer over the years, adapted to Herschel
 - Available for download from the HSC web site
 - Easy installation using an installer script for multiple platforms
 - HSpot Users Guide available on-line from the Help button
 - Most recent user release is v5.0.2, used during Phase 1 Proposal Submission of Cycle 1 Open Time proposals
- **Additional tools** needed for proposal submission, **all of them** available from the HSC web page, are:
 - The **HerschelFORM PDFLaTeX package**, to generate the PDF file containing the scientific case of the proposal
 - The **Herschel Reserved Observations Search Tool (HROST)**, maintained by the SAT Group at ESAC, used to check for potential duplications with already approved observations in the Reserved Observation List by future proposers
 - The **Herschel Confusion Noise Estimator (HCNE)** to estimate the confusion noise level for the photometric bands of PACS and SPIRE instruments
 - The **Herschel Background Estimator (HBE)** to determine the total infrared brightness at a given sky position

- During the last KPGT and KPOT AOs each proposal was assigned to 1 primary referee and 2 secondary referees by the HCSG in coordination with the HOTAC Chair and the Project Scientist, avoiding potential conflicts of interest
- In parallel, proposals are assigned to at least two technical reviewers at the HSC for the generation of the Technical Report
 - One from the HCSG taking care of general issues
 - One or more from the ICS Group for instrument specific issues
- The following material is made available to the HOTAC referees through a dedicated web interface
 - the proposal PDF file
 - an Observation Summary File with a description of all AORs in the proposal
 - the xml file containing the AORs in HSpot compatible format
 - the Technical Report produced at the HSC, including duplication analysis
- HOTAC members provide ratings and comments to the received proposals using a web rating interface remotely and then at the meeting using a dedicated tool
- Final comments are made available to the PI of each proposal through the PHS web pages using another PHS application
- The system needs to be adapted to the existence of 4 dual panels, in contrast with the single panel format of the HOTAC for the KP AOs, and to the number of proposals that will be received in OT1, that may be an order of magnitude larger.

Proposal Handling System (PHS)



- PHS is the system used by Herschel to organise and update the information associated to proposals and the observations (AORs) contained in these proposals
- Herschel proposals are stored in a database which is populated using HSpot and can be inspected/modified by the PHS Operator at any moment
- PIs and co-users of submitted proposals can also access the PHS system (read-only) through a dedicated web interface through which they can see the HOTAC comments on their proposal, and information at any moment about the status of execution of their AORs
- The current system has **successfully been used to handle proposals and AOR information in the last KP calls** supporting proposal submission in a 2 step process in which Phase 1 is needed for every proposal while Phase 2 is only applicable to accepted proposals
- The modified proposals in Phase 2 are then resubmitted through HSpot, the end result being a list of committed observations which form the **'Reserved Observations List'**

Mission Planning System (MPS)



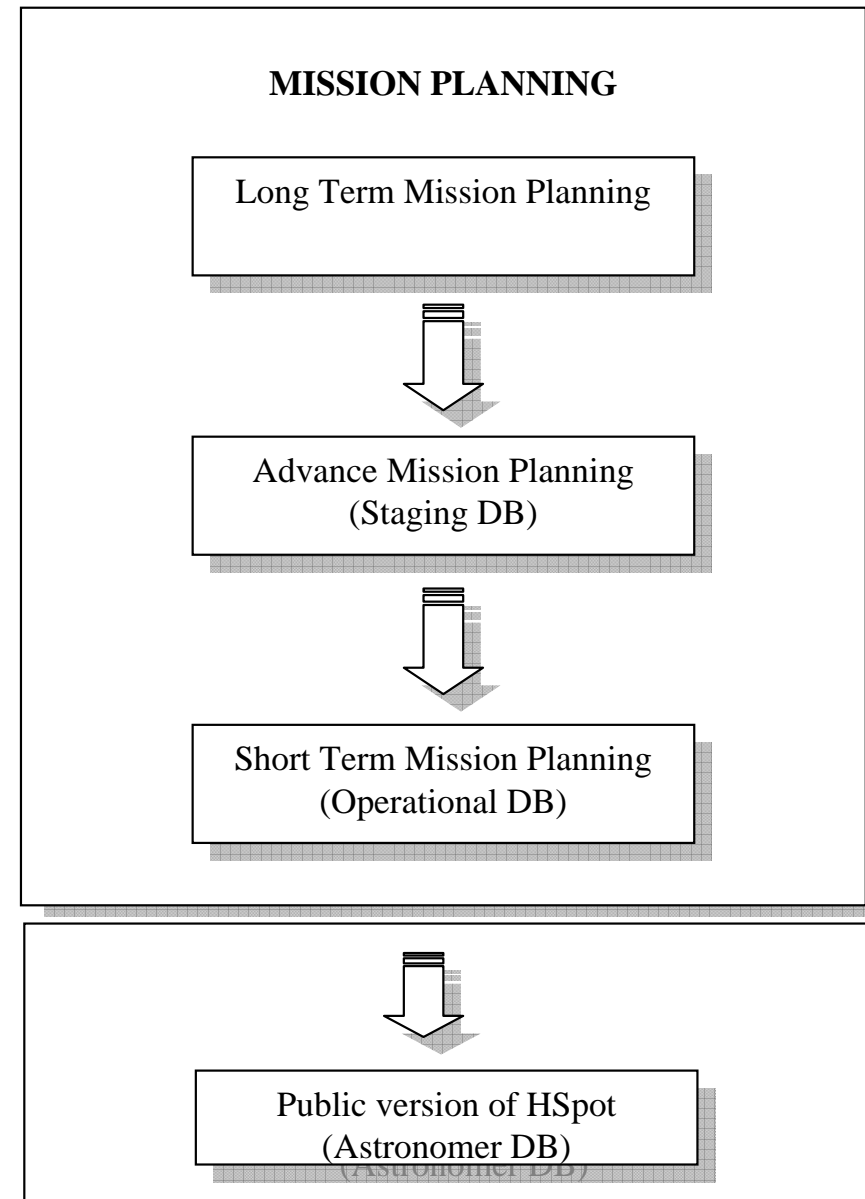
- With the current contents of the Operational Database we have enough number of AORs (~11650) to cover 11257.7 hours of Herschel observing time, equivalent to ~57% of the nominally available Herschel routine mission science time.
- The Mission Planning System (MPS) is the operational system in charge of **maximising the efficiency** of the Herschel mission by designing the most adequate scheduling strategy.
- Considering the instrument scheduling restrictions associated to the operations of the different sub-instruments onboard Herschel in combination with the statistics of approved AORs and sub-instrument usage the following **default scheduling cycle of 14 days** has been implemented



Mission Planning System (MPS)



- **Timeline of MPS activities, following cycles of 21 days**
 - LTMP is run at the end of every cycle
 - PSF files from MOC and calibration proposals from ICCs are received 3-4 weeks in advance to the OD
 - Advance MP is performed first in the staging database 3 weeks in advance to the OD
 - Short Term Mission Planning is then run on the Operational DB 14 days in advance of the OD
- **Replanning only under exceptional circumstances**



Mission Planning System (MPS)



Histogram of Time Usage per OD ODs 0170 - 0290

Operations Windows include orbit manoeuvres, reaction wheel biasing etc. **and HIFI switch-on!**

“Not used” time includes thermal stabilisation times and other operationally required inactive periods.



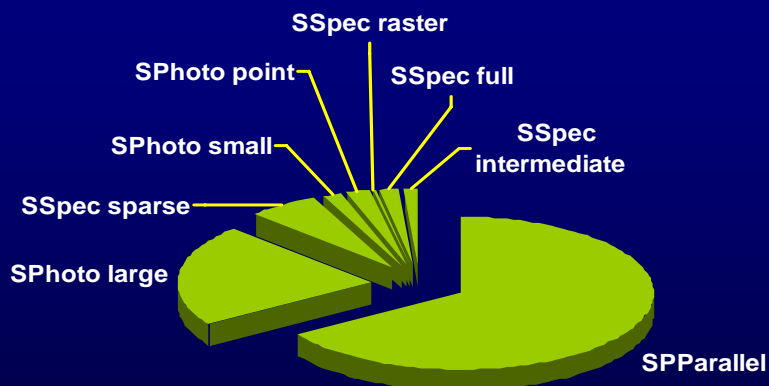
- Slew Time
- Not used time
- Lost Time
- Operations Windows
- Observation Time

- Gradual transition from PV to Routine Science Phase (RSP) through the Science Demonstration Phase (SDP) with rolling release of AOTs have been a major challenge
- Initial plans strongly changed due to HIFI malfunction in early August and gradual release of a significant number of observing modes after end of PV Phase
- **AOT Release Telecons and associated release notes**
 - HSC/ICC telecons where all aspects associated to the release of a new observing mode are discussed (uplink and downlink), with particular emphasis on updates to AORs/ need for interaction with users
- **KP Release telecons with proposal PIs**
 - Before releasing their AORs for scheduling
 - to review the results of SDP observations and lessons learned;
 - to discuss possible modifications to their KP observations
 - to confirm the release of (parts of their) KP for RSP execution
 - Very well received by KP PIs

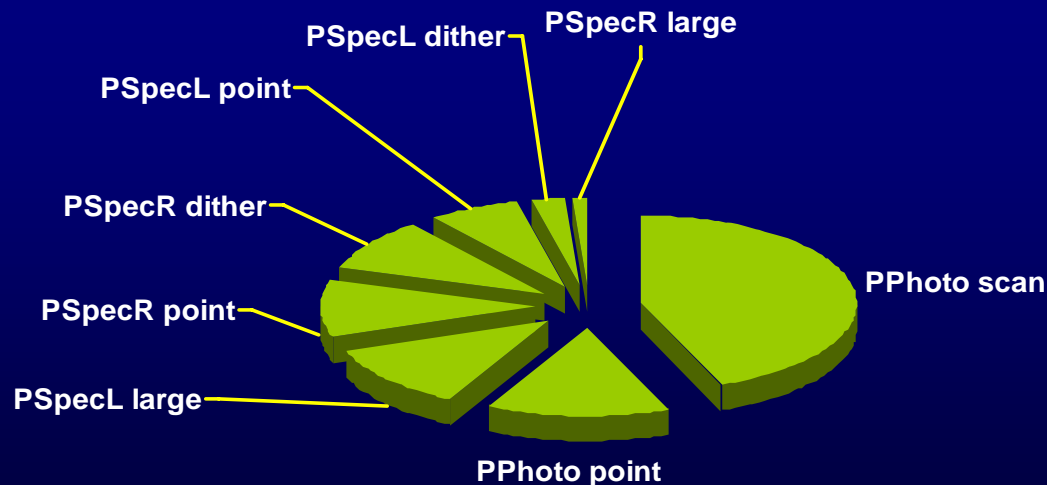
AOT Release Status



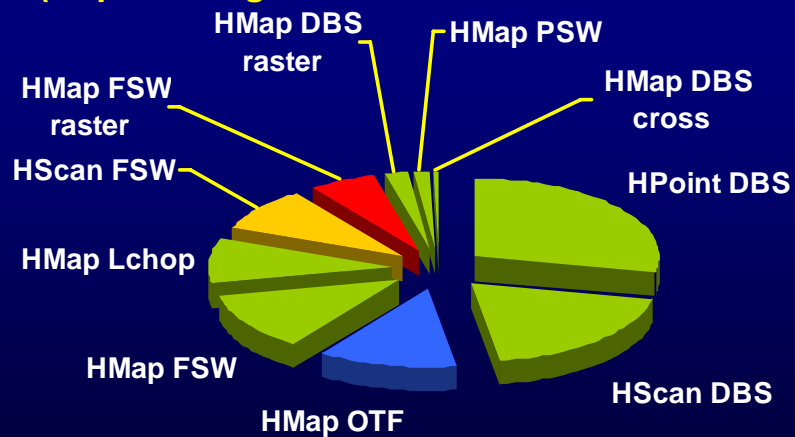
SPIRE AOT uplink release
(as percentage of allocated KP time = 3436.7 hrs)



PACS AOT uplink release
(as percentage of allocated KP time = 5360.1 hrs)



HIFI AOT uplink release
(as percentage of allocated KP time = 2403.9 hrs)



- All observing modes have been characterised; HSpot front-end adapted to final implementation; documentation updated for the AO
- Some observing modes have been deprecated
- Some observing modes have been modified or special recommendations have been provided to the users on how best execute these AORs
- Some new observing modes have been designed

You will learn more during the Workshop!

Important URLs

Herschel Latest News:

http://herschel.esac.esa.int/latest_news.shtml

HSpot download web site:

ftp://ftp.sciops.esa.int/pub/hspot/HSpot_download.html

HIPE download web site

http://herschel.esac.esa.int/HIPE_download.shtml

Herschel Observing Log

<http://herschel.esac.esa.int/observing/LogReport.html>

Herschel Observing Schedule

<http://herschel.esac.esa.int/observing/ScheduleReport.html>

Herschel Science Archive

<http://archives.esac.esa.int/hsa/hsa.html>



THANKS