ESA's Science Programme – How to Get Involved?

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How can I get involved in and benefit from ESA's Science Programme?

1. Propose observations with one of ESA's observatories
2. Exploit archival data from ESAC
3. Participate in an instrument consortium
4. Membership of a User Group, TAC, science team etc
5. Membership of a ESA Science Advisory Structure committee
6. Join ESA as a Research Fellow

Announcement of Observing Opportunities

Many ESA Science Missions have annual calls for observing proposals:

- INTEGRAL's 15th AO closed on 31 March 2017. 65 proposals were received with an oversubscription in time of 4.2. Next AO in 1 year.
- XMM-Newton's 17th AO will open on 22 August 2017 with a deadline of 6 October 2017. AO-16 had 442 proposals and an oversubscription of 6.3.
- CHEOPS 1st AO is expected 6 months before launch (so mid-2018). An Open Time Workshop to help potential proposers will be held on 26-27 July in Austria.
- JWST first GO call in November 2017 following GTO and DD-ERS calls

However, the competition will be very strong…..

Exploiting ESA's Data Archives

- The ESA archives at ESAC contain a treasure trove of information. They include all the public data from nearly all ESA's science missions

- You can download science-ready products such as calibrated images, lightcurves and spectra, as well as documentation and analysis software. Go to: https://www.cosmos.esa.int/web/esdc

- The archives are organised into three themes:
  - Astronomy
  - Heliophysics
  - Planetary

And data from "new" missions such as Solar Orbiter, BepiColombo etc will be added as they become available.

ESA Space Science Open Data Policy

Proprietary period for all science data (~1 year)

- To instrument teams when data is being produced by instrument teams
- To observer for observatory missions

Data then enter the public domain

- Freely accessible worldwide
- Being sometimes replicated in non ESA site (European / US data centres)

Data is made available to the scientific community through Internet

- Through a standard web browser and through scriptable APIs
- Search, preview, select and download

Exploiting ESA's Data Archives

Astronomy Science Archives


esasky


exosat


gaia


herschel


hubble space telescope


iso


lisa pathfinder


planck


xmm-newton

Exploiting ESA's Data Archives

Heliophysics Science Archives

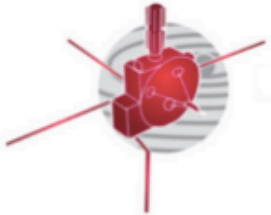

cluster


double star


ISS-SolACES*


proba-2


soho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Exploiting ESA's Data Archives

The Planetary Science Archive

cassini
huygens

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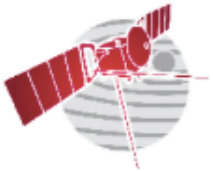

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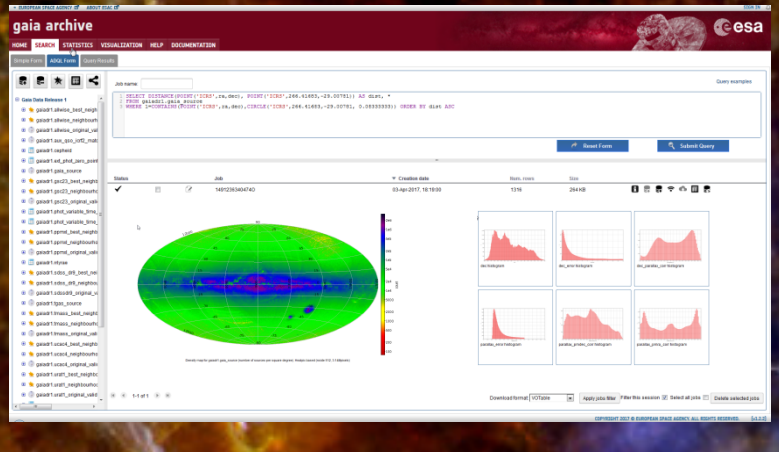
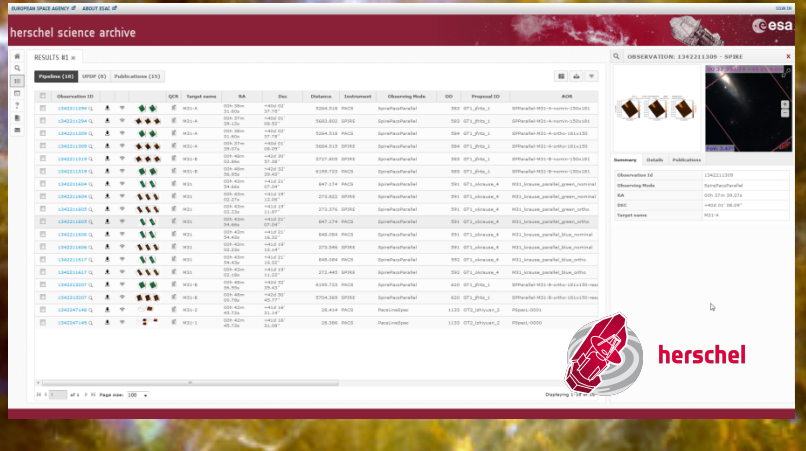
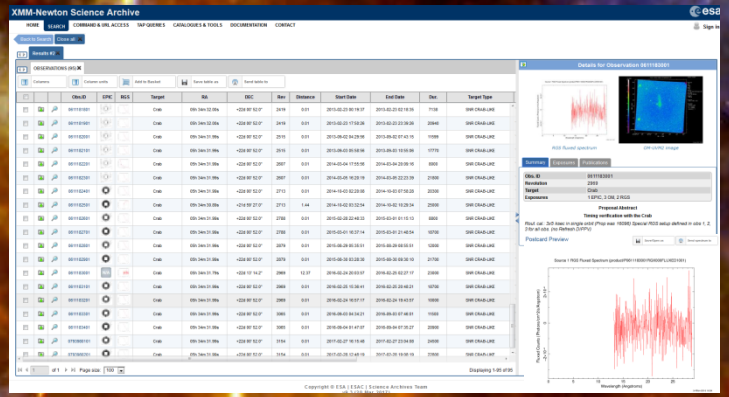
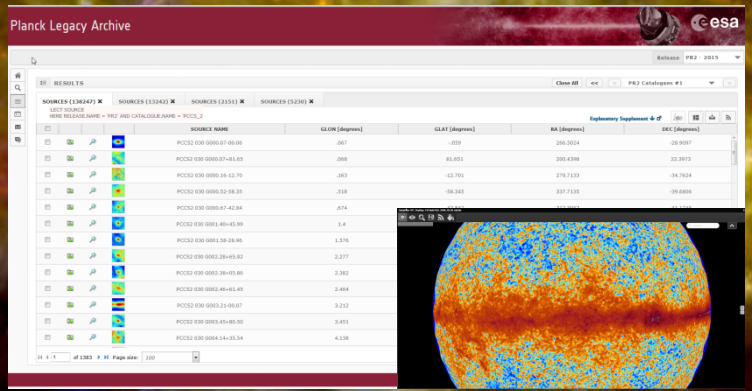
ESA main Astronomy Archives



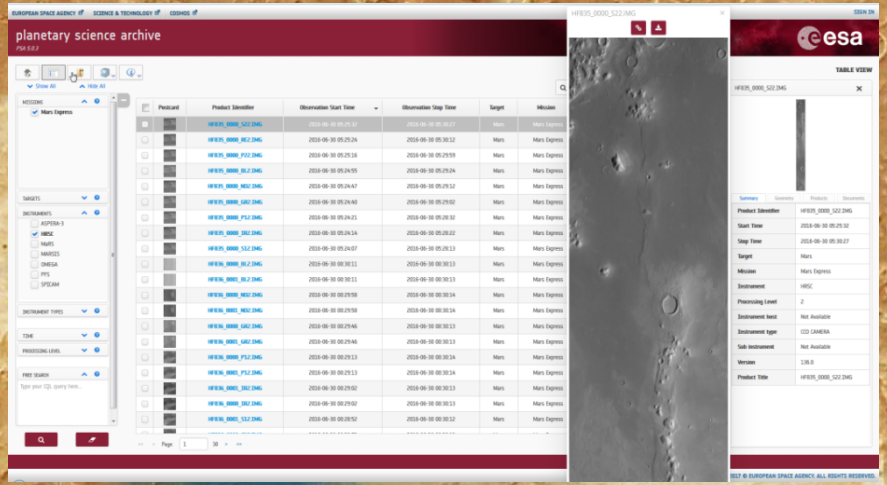


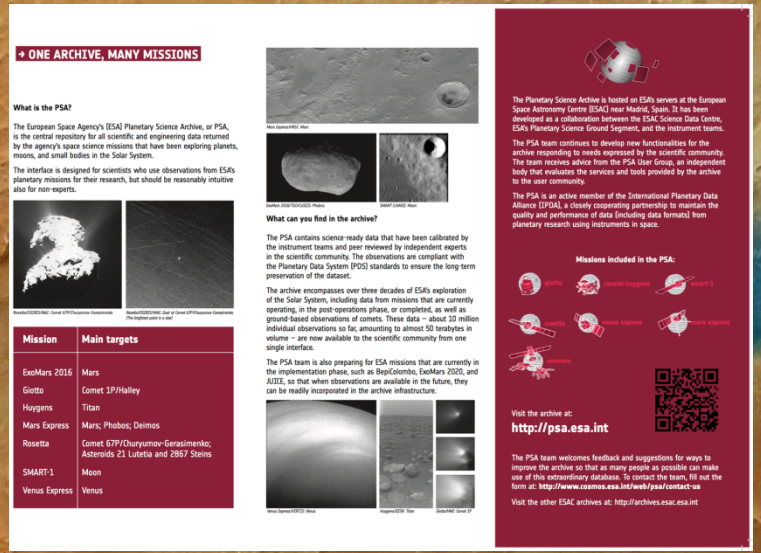


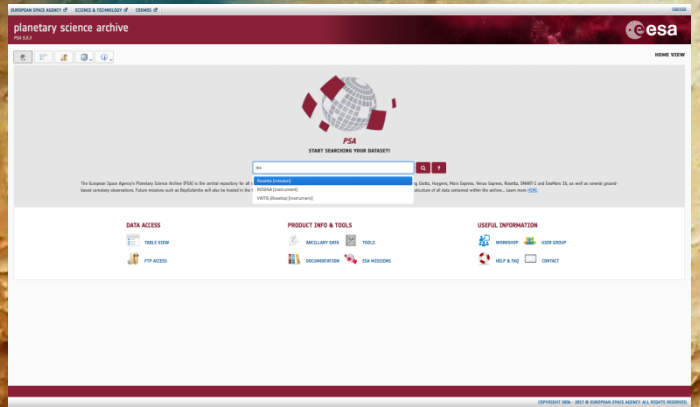


Planetary Science Archive – http://psa.esa.int

Planetary Science Archive







Index of ftp://psa.esac.esa.int/pub/mirror/

Up to higher level directory

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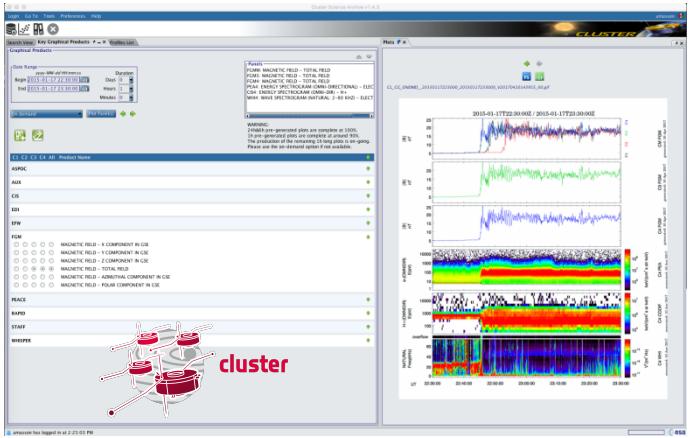
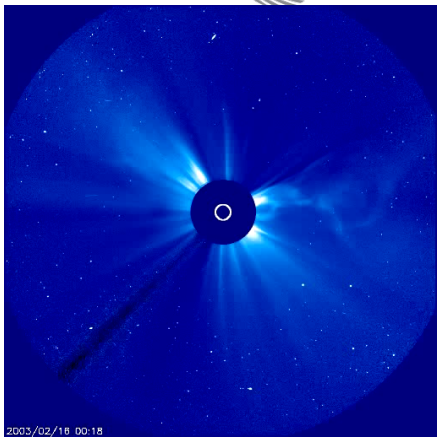
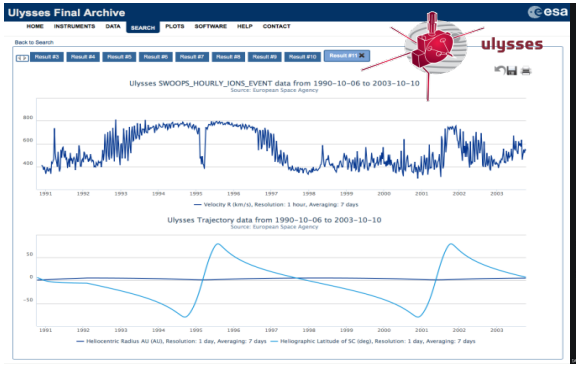
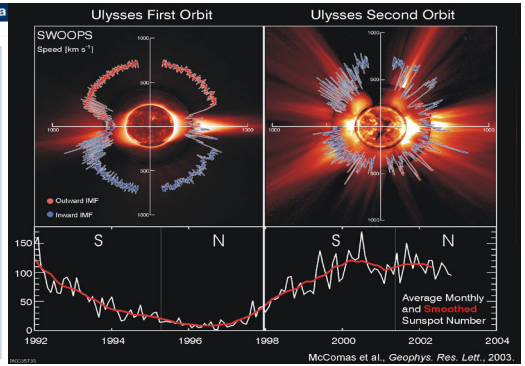
EARTH		11/09/09 00:00:00
ExoMars2016		09/11/16 18:42:00
GIOTTO		17/10/06 00:00:00
HST		17/10/06 00:00:00
INTERNATIONAL-ROSETTA-MISSION		14/10/16 03:00:00
MARS-EXPRESS		19/05/09 00:00:00
PSA		23/03/17 13:55:00
SMALL-MISSIONS-FOR-ADVANCED-RESEARCH-AND-TECHNOLOGY		20/08/10 00:00:00
VENUS-EXPRESS		15/09/10 00:00:00

ESA Heliophysics Archives





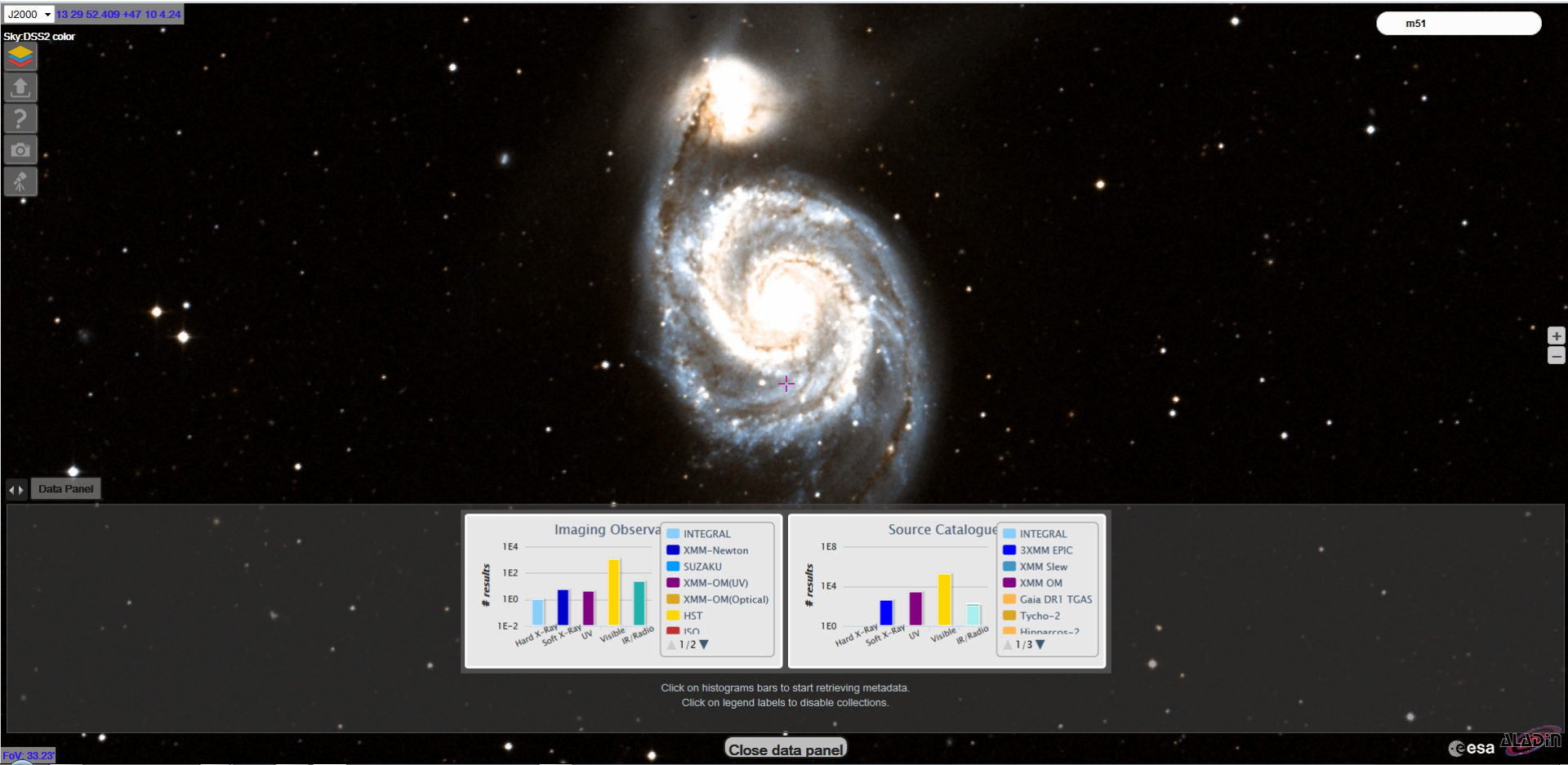




ESA Sky

- ESA Sky (https://sky.esa.int) is the multi-mission interface to the astronomy mission archives for ALL users.
- You don’t need to be an expert to use ESA Sky!
- Provides a multi-wavelength view of the sky through accessing the data from individual archives
- Exploration!
- Similar “overarching” approaches are being developed for the planetary and heliospheric archives

ESASky Concept: Explore, compare, select, download



ESA Sky Conclusion

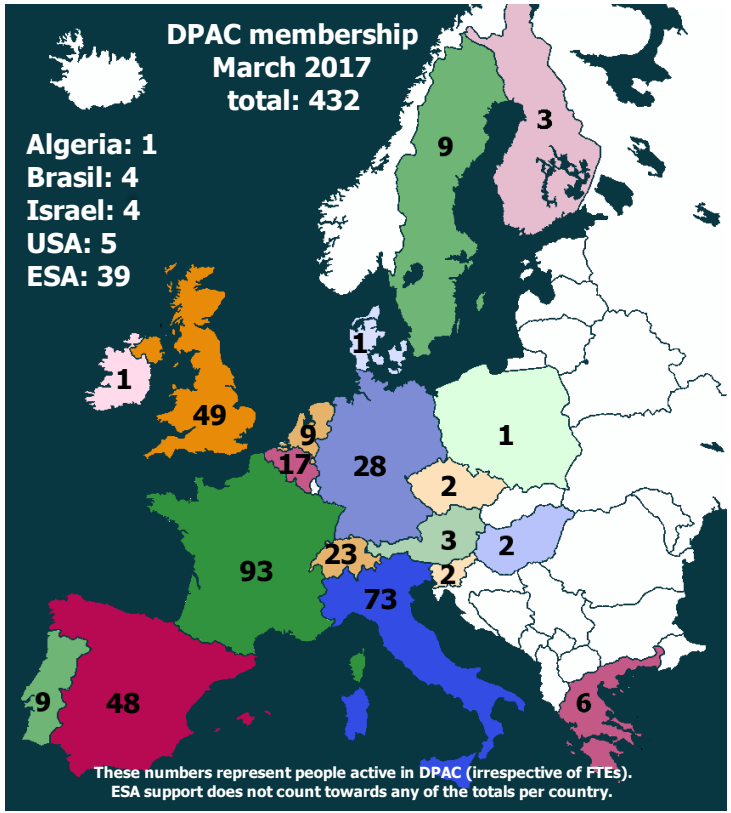
ESASky is a new open-science data portal for astronomical data from ESA's science missions. You are invited to use it and provide feedback to improve it!

http://sky.esa.int

Instrument Consortia

An example:

- The Gaia DPAC is the consortium responsible for the (very complex) data processing for the mission
- Over 400 members. Euclid is even bigger!
- The chart to the right, shows the DPAC membership distribution
- Bring expertise to consortia.



ESA Announcements of Opportunity

Go to https://www.cosmos.esa.int and then click on Announcements

ESA Needs Help!

ESA often needs the advice of external expert bodies:

- Time Allocation Committees (TACs) for observatory missions. In the last XMM-Newton AO, there were 5 East European TAC members (from HU, CZ, EE, PL, RO) out of 70.
- User Groups or Science Working Teams for individual missions
- Conference Organising Committees. Scientists from PL and CZ are on the organising committee of the last XMM-Newton workshop

Members are selected from active users of the data

ESA Needs Scientific Advice!

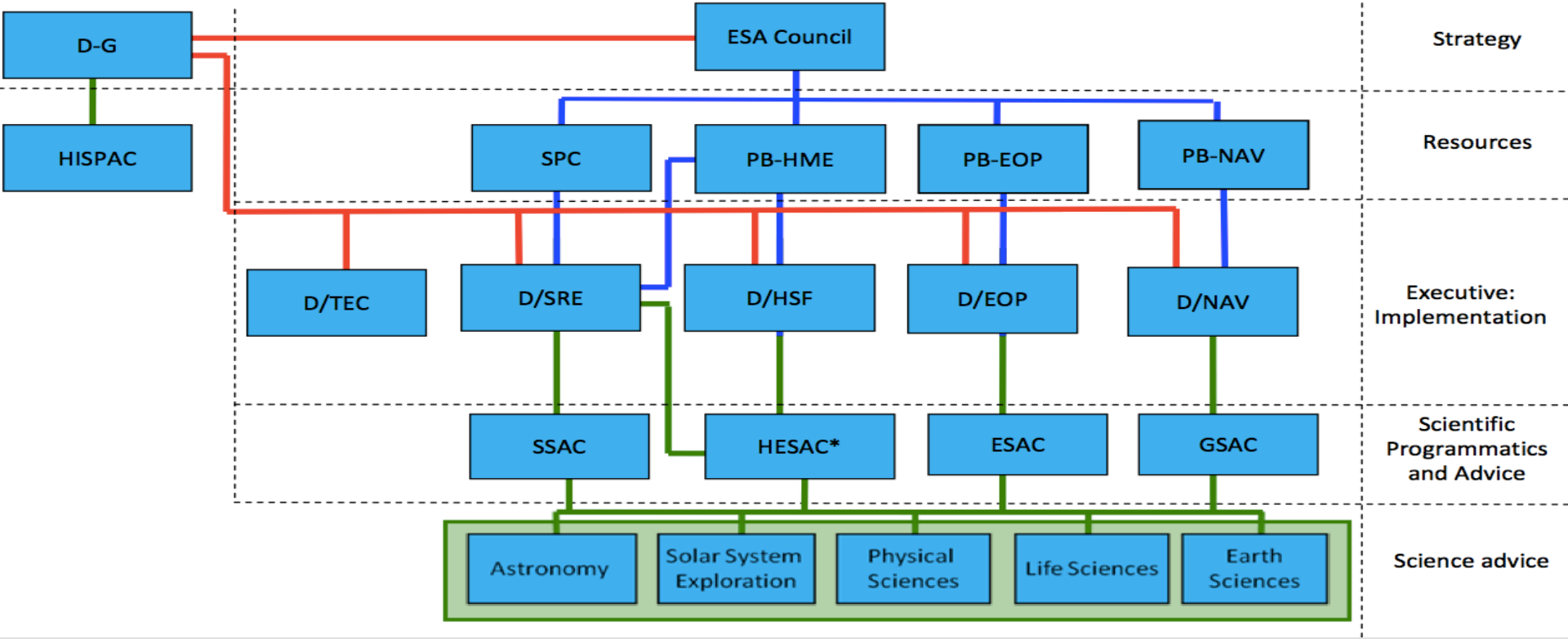
ESA's Science Advisory Structure:

- The Working Groups who are experts in Astronomy (AWG) Solar System and Exploration (SSEWG) and the Physical Sciences (PSWG) first provide science evaluations.

- The Space Science Advisory Committee (SSAC) which is the senior advisory committee.

Members serve for 3 years. We are always looking for leading astronomers and space scientists who are wiling to serve.

ESA'S Advisory Structure



ESA Research Fellow Programme

- This is ESA's "Post Doctoral Research Programme". See: https://www.cosmos.esa.int/web/science-faculty/research-fellowship

- Research Fellows (RFs) are young scientists staying for two (or possibly three) years at ESAC or ESTEC.

- A major advantage is that RFs do not have functional duties, so can spend the vast majority of their time doing science

- The next annual recruitment round closes on **2 October 2017**. We normally recruit around 8 new RFs each year.

- A similar programme exists for Master degree graduates (The Young Graduate Trainee programme).