Standing Committee for Science Priorities (CSP) status

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Chair of the IVOA Committee for the Science Priorities

The CSP of the IVOA

Who is in the CSP?

- Members of the science community and active astronomy projects.

Members

- Members: Mark Allen, **Chenzhou Cui**, **Raffaele D'Abrusco**, Gregory Dubois-Felsmann, **Janet Evans**, Pepi Fabbiano, Minh Huynh, Mark Lacy, **Marco Molinaro**, Ada Nebot, Kai Lars Polsterer, **Judy Racusin**, Enrique Solano, Rachana Bhatawdekar and Rosie Bolton
- Chairs: Francesca Civano (chair), Vandana Desai (vice-chair)

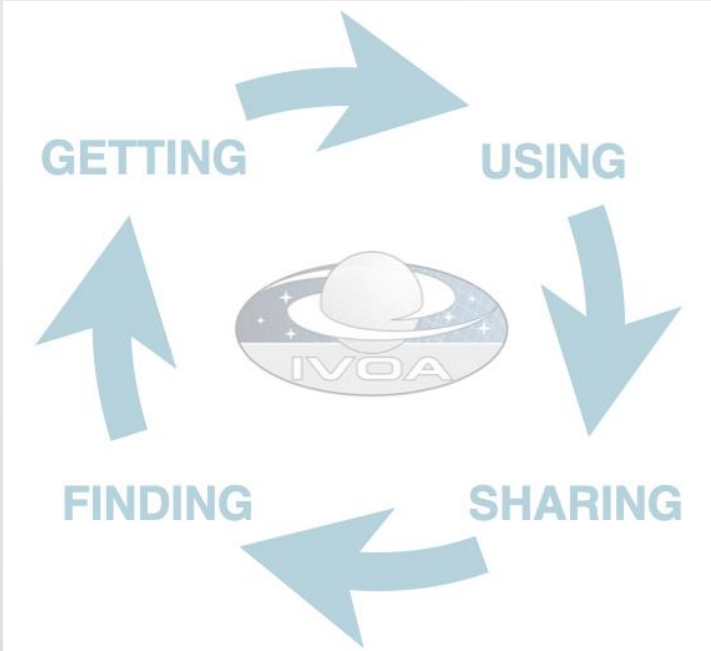
http://ivoa.net/twiki/bin/view/IVOA/IvoaSciencePriorities

Goal of the CSP

What is the goal of the CSP?

- Sustain the scientific impact of the VO as an interoperable ecosystem to support science

- Ensure continuous engagement of the international astronomical community



Community

- The astronomy community comprises missions that are active or under development, operating observatories, astronomical archives, and teams of astronomers performing research and disseminating data products to the community.

Activities of the CSP

Recommend scientific priorities and scientific requirements

- Driven by scientific use cases that are developed in cooperation with the scientific community.
- Will influence the development of new protocols which will be developed by the IVOA and coordinated by the TCG

Ensure community engagement

- Encourage engagement, adoption and feedback of implementations by the international astronomical community
- Support VO members in developing tutorials, technical and scientific workshops and scientific training materials.

Science Priority Areas

Pathways to Habitable Worlds

- JWST, DKIST
- Ground-based ELTs equipped with high-resolution spectroscopy, high-performance AO, high-contrast imaging
- Future: HWO

New Windows on the Dynamic Universe

- Rubin, Euclid and Roman … ELT
- COSI, UVEX, ULTRASAT
- next generation radio observatories
- updates to current ground-based GW facilities and LISA
- high energy neutrino observatories
- Einstein Probe

Unveiling the drivers of galaxy growth

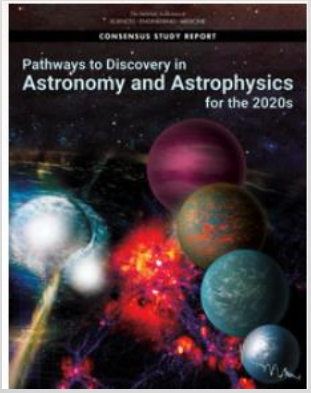
- JWST, Rubin, Roman, Euclid, SPHEREX
- progress in numerical simulations
- ELT

Data Science

- Big data, cloud resources
- The rise of science platforms

Heliophysics and Solar System

- Data archives



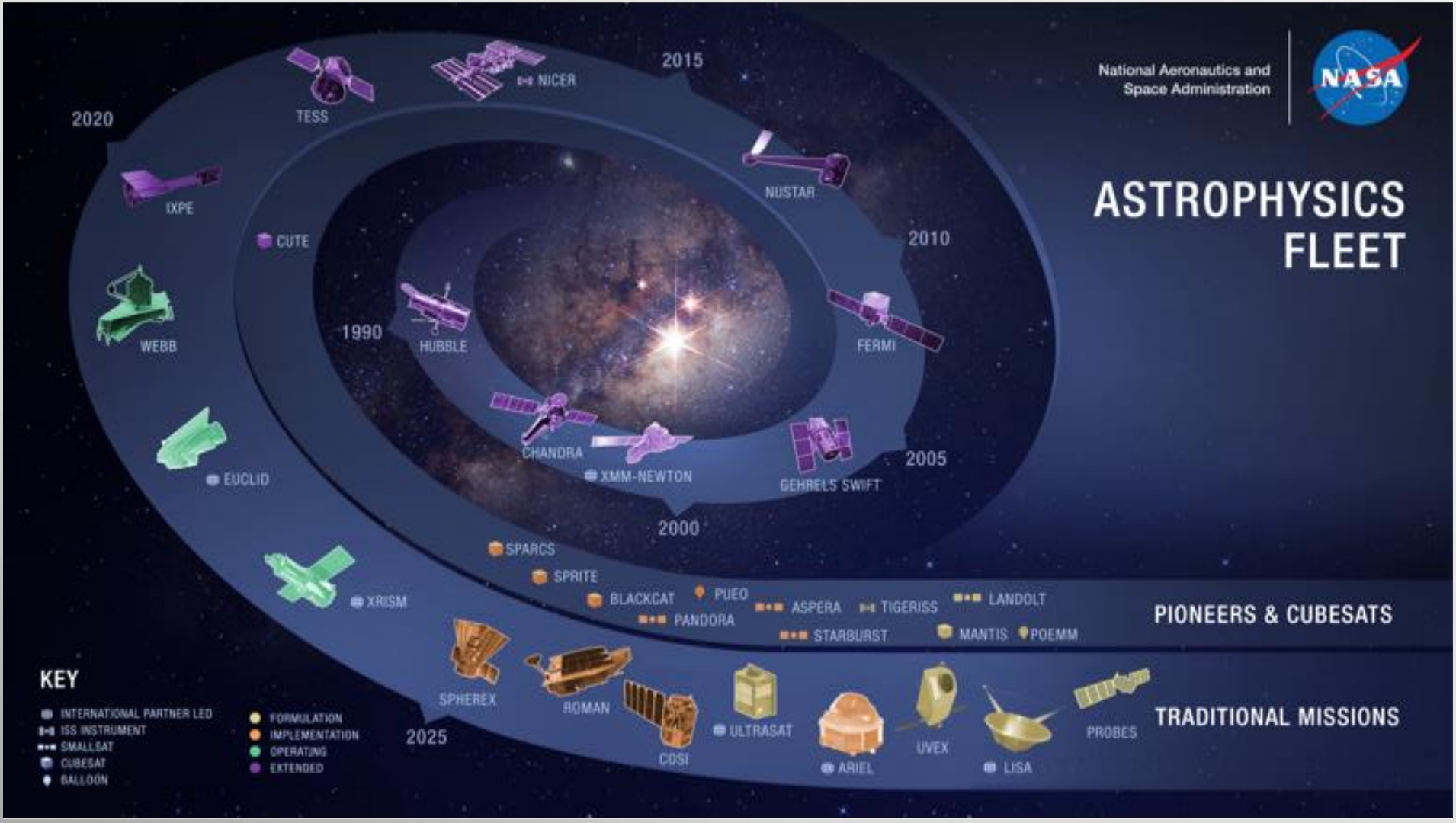
Important considerations

- Identify the current main science cases in the community
- Engage with large and small projects
- Ensure IVOA is building standards, data models and provide coordination and information to those groups building tools and services responding to these science cases
- Ensure right balance for these standards
  - Not too generic, not too specific
  - Implementable standards, while not too simplistic
  - Need for new standards, or updating existing standards
  - Addressing new data types, new areas in astronomy

Activities at the last Interop

- Plenary Session in Malta on **High Energy and Time Domain** with the goal of hearing from high-energy projects about their involvement in IVOA and their use of standards.
  - Topics covered:
    - How does your project make their data discoverable? Are data from your project in the IVOA registry? Are there problems in the IVOA Obscore definition preventing or limiting it?
    - What data products are used in your data analysis and are they interoperable with data from other projects? Do you use a data model?
    - What do you use for an alert system? Do you use VOevent, and if not, can you address the issues you see?
    - How do you coordinate rapid follow up observations currently? Are the Observing plan of your project/mission available externally and is there coordination of your project/mission among the HE projects? Are you familiar with the IVOA ObsLocTAP protocol and ObjObsSAP working draft of the IVOA?
  - Session outcomes:
    - Approval of the High Energy Interest Group
    - Promoting the HEIG work on obscore extension
- Organized a session focusing on VOevent and how to move towards a VOevent 3.0

Data management challenges and solutions



Data management challenges and solutions

Topic of discussion: data management challenges and solutions, focusing on recent and upcoming missions and how IVOA can be a resource

Missions: Euclid, Roman, SPHEREX and COSI

For missions already launched

- Brief overview of mission
- What are the major data management issues faced by the data management team, archive, users?
- What solutions have you adopted and have those worked?
- What lessons have you learned?
- What are the outstanding issues that the IVOA could be helpful with?

For mission in development/to be launched:

- Brief overview of mission
- What are the major data challenges that you foresee: data size, archive, users?
- Are you considering data standards and aligning with IVOA?