



NASA Astronomical Virtual Observatory

- High Energy Astrophysics Science Archive Research center (HEASARC)
- Infrared Science Archive (IRSA) (see also Gregory Dubois-Felsmann on IPAC)
- Mikulski Archive for Space Telescopes (MAST)
- NASA Extragalactic Database (NED)

At each archive independently:

- Inform
 - Many of our services are [VO-enabled](#) and [documented](#), with, e.g., [tutorial videos](#) and [notebooks](#) and [notebooks](#).
 - GitHub repos ([HEASARC](#), [NED/IRSA/IPAC](#), [MAST/STScI](#))
 - Live demos at AAS booths and sometimes other meetings.
 - [Newsletters](#) (or [MAST](#)), [RSS news feeds](#), Facebook ([HEASARC/Xspec](#), [IRSA](#), [MAST](#), and [NED](#)) and twitter ([@NASA_IRSA](#), [@MAST_news](#), [@NASANED](#)).
 - [Teachers Archival Research Program](#) and [NASA Community College Network](#)
 - [IRSA YouTube channel](#) (incl. NED)
- Collect
 - User groups (NASA requirement) give regular feedback on status and plans, various cadence.
 - User surveys at various cadence.
 - Numerous help desks answering questions every day.
 - Conference interactions and feedback
 - Local (IPAC, GSFC, ST) scientists as live testers, since we are imbedded in science facilities, as well as scientific collaborations elsewhere among the staff.
- Notes:
 - IRSA and NED are part of a larger astrophysics center (IPAC) as is MAST (Space Telescope Science Institute). As such, they may *a/so* communicate through additional means not necessarily listed here.

NAVO coordinated:

- Inform
 - [Web site](#) with generic VO information, API summaries, etc.
 - Live [workshops at each AAS meeting](#)
 - Online Python tutorial notebooks in [GitHub repo](#) (see [ADASS poster](#))
 - [Video introduction](#) to VO concepts and PyVO.
 - Scientists and developers work together on notebooks using realistic science use cases, and we learn about our services by using them authentically.
- Collect
 - Surveys after each workshop, which guide our upcoming development.
 - [GitHub repo](#) for workshop allows both questions and issue reports. Not much activity.
 - [Slack channel pyvo](#) on astropy Slack space. Not NAVO-specific but advertised at our workshops.