What is the Science Ready Data Products (SRDP) Initiative?

In the years leading up to the ngVLA, NRAO is improving the radio interferometry user experience for the VLA and ALMA. We are providing users with science quality data from both observatories and providing tools for data processing and discovery through a new archive interface. We aim to enable current ALMA and VLA users to focus more on science and less on data reduction. We also aim to broaden NRAO user community by reducing barriers (both expertise and computing infrastructure) to the use of radio interferometry data. This initiative is the pathfinder for producing science-ready data from the ngVLA.

**Status:** SRDP is currently in Pilot Operations with additional features added on an approximately yearly basis.

New NRAO Archive a prototype for ngVLA data interaction

Visit [https://archive-new.nrao.edu](https://archive-new.nrao.edu)

Current support model typically requires users to download visibility data and create images themselves and/or perform enhanced data reduction (e.g., self-calibration). ngVLA data volumes are expected to exceed the ability of individual users to process data themselves.

In the ngVLA era:

- Calibration pipelines will produce science-quality calibrations
- Quality Assurance (QA) process for all data
- Imaging pipelines will produce products specified by users
- Data products beyond those produced by default and as specified can be processed ‘on-demand’ using NRAO-provided computing infrastructure.

Current SRDP interface paves the way for this by providing:

- Calibrated ALMA and VLA data, restored on-demand using NRAO computing.
- Re-imaging capability for ALMA through archive, also using NRAO computing.
- Coming soon: Online data exploration using CARTA.

VLA SRDP Quality Assured Calibrations

- Pilot operations performing QA on A & B-ranked projects, X-band and higher frequencies, observed with standard calibration strategies
- QA includes additional flagging and possible pipeline re-runs
- Calibrated and QAed data will be ready for science imaging
- QA process will help drive further pipeline improvements
- SRDP and VLASS QA process will form basis for ngVLA QA

ALMA Custom Cube Imaging

- Customizable:
  - frequency or velocity axes
  - rest frequency
  - channel width
  - cube width
  - angular resolution (future)
- On-demand ngVLA image processing will follow a similar framework