



Title: Science Ready Data Products Project Charter	Authors: Treacy, Kern, Ball	Date: 05/02/2018
Document No: 530-SRDP-001-MGMT		Version: 3.01

Science Ready Data Products

Project Charter

Project: 530

Draft

PREPARED BY	ORGANIZATION
Bob Treacy, Jeff Kern, Lewis Ball	NRAO

APPROVALS V3.0	ORGANIZATION	SIGNATURE
Jeff Kern	NRAO SRDP, Project Director	see SharePoint workflow for approvals
Lewis Ball, Sponsor	NRAO SSR AD	
Tony Beasley	NRAO Director	
APPROVALS V2.0	ORGANIZATION	SIGNATURE
Jeff Kern	NRAO SRDP, Project Director	see SharePoint workflow for approvals
Lewis Ball, Sponsor	NRAO SSR AD	
Brian Glendenning	NRAO, DMS AD	
Mark McKinnon	NRAO, NM Ops AD	
Phil Jewell	NRAO NA ALMA Director	
Laura Lockledge	NRAO, Budget AD	
Lory Wingate	NRAO, PMD AD	
Tony Beasley	NRAO Director	

CHANGE RECORD

VERSION	DATE	SECTIONS	CHANGE DESCRIPTION
1.00	4/6/2017		For approval workflow
2.00	4/10/2017	Sec 1, Sec 3.2, Sec 3.4	edits introduced during workflow
2.01	02/07/2018		re-baseline for delay with CoDR
2.02	02/26/2018		Phase I / 2 Deployment dates
3.0	03/29/2018		Release version, 4/15/2018 split approval block to reflect V3.0 approvers
3.01	5/2/2018		



Title: Science Ready Data Products Project Charter	Authors: Treacy, Kern, Ball	Date: 05/02/2018
Document No: 530-SRDP-001-MGMT		Version: 3.01

I OVERVIEW

The Science Ready Data Products (SRDP) project is an initiative designed to remove a significant amount of burden and overhead from the user that is associated with data calibration and imaging, allowing NRAO users to focus much less on data reduction and much more on the cutting-edge science enabled by the VLA and ALMA. As such, SRDPs are an important means of expanding the NRAO user base. Development of SRDPs is a key deliverable under AUJ's Cooperative Agreement with the NSF and the Program Operating Plan, supported by internal funding.

Science Ready Data Products is a functional definition, and part of the SRDP project is to refine the technical definition. Science Ready Data Products span the range from calibrated visibilities, through imaged and de-convolved data cubes, to "value added" products such as source catalogs and moment maps.

The high-level goal of the SRDP project is to maximize NRAO's science impact, especially along the scientific directions highlighted by the Astro2010 Decadal Survey *New Worlds, New Horizons*, and to be accessible to the broadest cross-section of the U.S. and international astronomy community.

The SRDP project (in collaboration with existing observatory management structures) will develop and implement the software tools, scientific heuristics, and operations structures to deliver science quality data product to the NRAO user community, both as it exists now, and the foreseen expansion of the community to include non-traditional radio astronomers.

2 SCOPE AND PURPOSE

The scope of this document is to present a high-level view of project objectives and requirements, deliverables, risk, preliminary budget, milestone schedule, and to identify key stakeholders. Approval of this document constitutes authorization to proceed with execution of all stated objectives. A more detailed project plan shall be developed following approval of the Project Charter.

3 PROJECT DESCRIPTION

3.1 Authorization and Management

The following persons are authorized to execute the stated objectives:

- ❖ Project Director (PD): Jeff Kern
- ❖ Project Manager (PM): Robert Treacy
- ❖ Program Manager: Michael Shannon
- ❖ Project Sponsor: Lewis Ball

Project Management and System Engineering strategies will follow an appropriately scaled profile of the PMD SOPs as jointly determined between the PD and PM, along with accepted best practices and processes established within contributing departments.

Project decisions rest with the Project Director. Decisions needing further authority shall be taken first to the Project Sponsor and coordinated with the Program Manager if further escalation is warranted. Delegation of



Title: Science Ready Data Products Project Charter	Authors: Treacy, Kern, Ball	Date: 05/02/2018
Document No: 530-SRDP-001-MGMT		Version: 3.01

authority within the project will be described in the project management plan. Decisions with impact to the approved baseline (scope, budget, and schedule) or other impact **outside** the project, is subject to review by the NRAO Change Control Board in accordance with observatory policy.

3.2 Scope of the Project

The SRDP project encompasses the definition, development, and deployment of science ready capabilities for the VLA and ALMA telescopes. (NRAO’s SRDP project for ALMA will extend the delivery of ALMA data beyond the commitments of the international partnership in order to provide added value to the North American user base.) At conclusion, the delivery of science ready products will be an ongoing portion of observatory operations, and routine processes will be in place to ensure the continued improvement and expansion of SRDP quality and scope.

Although ALMA core and VLA Sky Survey are independent groups in the observatory, it is anticipated that routine pipeline operations will eventually be executed under the SRDP project leadership. Details of the interfaces, and timelines for this transition will be defined in the Project Management Plan.

Ultimate success is measured by the quantity, quality, and continued use of SRDP products by the user community. Responsibility for community engagement and use of the SRDP products lies outside the SRDP project with the NRAO SSR Department. Programmatic success is measured by the degree to which the enumerated goals and objectives have been met, and how closely the project follows and completes within the approved baseline.

3.3 Deliverables

- Reports to Directors Office and other entities as defined under the project communications plan
- Project documentation as defined in Project Management Plan, PM Plan, Schedule, Budget, issue logs, etc.
- An Operations Plan for SRDP (as an ongoing activity), including staff size by job category, operational duties by job category, and operational procedures (including responses to failures of automated processes).
- Software to automatically retrieve the raw observational data from the Archive and make it available on high performance computing platforms, either at NRAO or remote processing facilities.
- Software pipelines which automatically produce generally publishable derived data products (most notably calibration tables, flagging tables, and images) as well as sufficient logging and QA information for operations staff and users to assess the quality of the pipeline outputs.
- Software infrastructure to allow users to tune the processing steps to produce data products optimized for their particular science goals.
- Data product registration and ID allocation policies and software to allow SRDP data products to be properly cited and tracked.

3.4 Stakeholders

A complete stakeholder registry will be defined as part of the project initiation phase. A partial list of stakeholders will include:

AUI Corporate
NSF NRAO Program Manager
NRAO Director’s Office
NRAO NM Ops AD
NA ALMA Operations AD
NA ARC Manager

NRAO SSR AD
NRAO DMS AD
NRAO Scientific Information Services
NRAO PMD AD
NRAO Telescope Operations
NRAO Data Analysts



Title: Science Ready Data Products Project Charter	Authors: Treacy, Kern, Ball	Date: 05/02/2018
Document No: 530-SRDP-001-MGMT		Version: 3.01

Radio Astronomer User Community
Non-Radio Astronomer User Community
VLASS

Education and Public Outreach AD
ngVLA

3.5 Budget

A complete project budget and funding model will be developed by the SRDP project as part of project initiation.

- Project Office Labor:
 - Project Director (1.0 FTE): ICC in the SSR Department
 - Project Manager (0.5 FTE): Tracked as SRDP subsidiary to PMD departmental budget
- Hardware for the SRDP prototyping, testing, and operations will be provisioned and maintained by the DMS Department.
- Contributed labor will be used for heuristics development and operations, details and staffing levels to be defined in project management plan.
- Implementation of project requirements assigned to DMSD will be managed and resourced by DMSD.
- Estimation of operational implementation and sustainability

3.6 System Specification Schedule and Milestones (*)

The milestones listed below are a preliminary estimate of initial milestones for the project. Requirements, deployment, and review (as warranted) will be held on an approximately yearly cycle. A more detailed scope and schedule will be developed as part of the project initiation phase.

- 2017 Mar SRDP Director Hired
- 2018 Jan: Presentation at annual AAS meeting
- 2018 May: End of project Initiation phase
- 2018 May: Conceptual Design Review
- 2018 July Phase 1 deployment
- 2019 July Phase 1 review
- 2020 July Phase 2 deployment

3.7 Risk

Risk will be further detailed in project document Risk Register. Summarization of top level risk included below.

- Resource Risk - The SRDP project does not have direct oversight of critical project resources, careful planning and communication with line management of other NRAO departments is essential. Competition for key people, particularly among ngVLA, VLASS, NAASC, and SRDP must be mitigated.
- Requirements Risk – Defining achievable consensus requirements in collaboration with a heterogeneous user community. Functionality will evolve with subsequent release cycles. Careful stakeholder and expectation management as well as due diligence in requirements gathering and validation processes will be necessary to ensure satisfactory and transparent capture and prioritization of requirements is achieved.
- Acceptance Risk – Although established at other wavelengths, the SRDP initiative is a first for general purpose use at radio wavelengths. Building community acceptance and trust requires transparency and engagement.



Title: Science Ready Data Products Project Charter	Authors: Treacy, Kern, Ball	Date: 05/02/2018
Document No: 530-SRDP-001-MGMT		Version: 3.01

3.8 Project Outcome

Project deliverables are itemized in Section 3.3, however this list does not fully capture a successful outcome for the project. The deliverables establish new capability which will be incorporated into operational processes over time. The operational processes will mature as the capability progressively matures through successive deployments. A successful outcome for the project will be difficult to measure and project closure is somewhat of a soft target. The Project Office will establish metrics to track the effectiveness, quality, and maturity of the data products, as well as the processes; as the SRDP protocols are integrated into observatory operations.