

# Advanced Data Products

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# ALMA 2030 (Roadmap)

- *The archive is an integral piece of the observatory. An archive that is easy to use for the non-expert, and goes beyond being simply a repository for PI data is a great potential multiplier for the impact of ALMA. [...] Thus the archive may be what ultimately determines the productivity of ALMA.*
- *In order for the archive to be productive, [...] it needs to contain fully reduced science-grade data products. In addition, the archive should contain value-added products either automatically generated (for example, lists of “detected lines” in the target), or user submitted post publication.*
- **Recommended development paths**
  - **1. Improvements to the ALMA Archive: enabling gains in usability and impact for the observatory.**

# Astronet 2021 (Computing panel report)

- *The motivation for ground-based observational facilities [...] to produce science-ready data products has grown very significantly over the last two decades.*
- *“science-ready” data products and tools to address them now represent the key outputs of facilities [...] and deserve further attention.*
- *In the context of data preservation, archives are no longer just a way to store and access raw data. They increasingly expose advanced products [...] to optimise the user experience and their scientific content and objectives have significantly evolved over the last decade.*
- ***Advanced Data Products [...] should be considered as a key component at all phases of the development, operation and post operations lifecycles.***

# ESO/ALMA ADP initiative

- In the context of this initiative, ADPs are archive products of scientific value that are **not currently produced** by ALMA or planned to be in the future.
  - These “science-optimized” products can be of any type: images, spectra, catalogs, etc.
- Our goal with this initiative is to explore, plan and eventually implement a process for developing and generating those ADPs, and making them available to the community.
  - We have formed a WG to define the long-term strategy.
  - There is an on-going ALMA development study, focusing on a real ADP, to gain experience.
  - Our purpose with this call is to start involving the community. **Please note however that our resources will be limited for this round of ADP studies.**

# ADP study

- The goal of an ADP study is to develop a **prototype software pipeline** for the generation of the ADP.
  - The study will also need to define in detail the procedures to run the ADP pipeline and assess quantitatively the quality of the final products.
- Once the study is successfully completed and reviewed, the deployment and execution of the ADP pipeline in operations, as well as any software development required in connection with those, will be the responsibility of ESO.

# Call for proposals 2022

- Proposals for any type of ADP are welcome.
- Important considerations
  - ADP study proposals will be **reviewed together** with standard development study proposals, so they need to follow the same requirements.
  - Due to our limited resources, we will only accept proposals focusing on the generation of a **single type of ADP** that can be applied to a **wide range** of ALMA (observing) projects.
  - Proposals should clearly describe the **impact/benefit** of the ADP for the community, the research and development that is required for the delivery of a prototype pipeline, and the **estimated resources** (both in person and hardware) that will be required for the operations.
  - **We recommend all interested teams to contact us to ask if their ideas would be within the scope of the present CfP.**