



NORTH AMERICAN ARC  
ALMA Regional Center

North American  
ALMA Science  
Center



# ALMA/NA Call for Development Studies: Process for Submission, Review and Funding

NAASC Memo #

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ABSTRACT

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## 1 Purpose

The purpose of this document is to outline the Process for the ALMA/NA Call for Development Studies (Cycle 4). It is based on the actual implementation of the Call in Cycles 2 and 3, on the recommendations of the ANASAC at its conclusion, and on the analysis of its outcome by the Development Team. This document is to be used as a reference by ALMA staff. It is not intended for public release. It will be complemented by specific instructions to the Study Reviewers.

## 2 Related Documents

### 2.1 Related Documents

The following list of documents is applicable to this document to the extent specified. In the case of applicable documents that are identified as “AD” numbers, the most recent version of the document is valid. For all reference documents that are identified as “RD” numbers, the version shown is valid.

<b>Ref. Doc.</b>	<b>Document title</b>	<b>ALMA Doc. number</b>
[AD 01]	AOP-D	

<b>Ref. Doc.</b>	<b>Document title</b>	<b>ALMA Doc. number</b>
[RD 01]	Principles for ALMA Development Program 28 July 2011	AEDM 2011-023-O (Rev2)
[RD 02]	Program Operating Plan FY2015 - FY2016	None
[RD 03]	Program Operating Plan FY2016	None
[RD-04]	ALMA/NA Call for Development Studies Cy3: Process for Submission, Review and Funding	None

## 2.2 List of Acronyms and Abbreviations

The list of acronyms and abbreviations used within this document are given below.

Acronym or Abbreviation	Definition
ACA	Atacama Compact Array
ALMA	Atacama Large Millimeter/Submillimeter Array
ARC	ALMA Regional Center
ADSC	ALMA Development Steering Committee
PI	Principal Investigator

## 3 Overview

As the ALMA Development Program is part of the overall operations plan, the summary given in chapter 2 of AOP-D and the detail in Chapter 13 of AOP-D provide the overall outline of the ADP. Further detail is provided in AEDM 2011-023-O 'Principles for ALMA Development Program'.

The ALMA Operations Plan provides for an ALMA Development Program to make technical upgrades to the telescope and develop new capabilities for it so that ALMA will be maintained as a state-of-art facility for millimeter/submillimeter astronomy over the course of its 30+ year projected life. While the international ALMA partnership decides and prioritizes development projects, the responsibility for the projects resides with the Executive partners. The **Development Program Manager** manages development Studies and Projects (in collaboration with the NRAO Program Management Department) within the NA partnership.

The **ALMA/NA Program Scientist** provides scientific leadership to the NA ALMA Development Program with assistance in completion of Studies of ALMA Upgrades within the North American Executive. The Program Scientist assists with issuance of new calls for both Studies and Projects, following through selection and implementation of the new Development Program. The Program Scientists are members of the Integrated Science Team. They coordinate Development activities involving scientific input including those from the ARCs and Executives.

Studies for ALMA Development upgrades typically progress through three successive phases of development, and correspond to an increasing level of technology readiness. The principal phases are:

- Conceptual study (including scientific justification, specification, and outline costing),
- Prototype/pre-production, and
- Rate production and implementation.

The North American ALMA partnership typically funds conceptual studies (hereafter referred to as “Studies”) on a yearly basis. Prototype/pre-production and rate production initiatives (hereafter referred to as “Projects”) are typically funded every two (2) years. Calls, proposal evaluation, and award of Studies and Projects are governed by different (albeit similar) processes. The following text describes the processes governing Studies anticipated for FY2016, the fourth cycle of Studies undertaken at ALMA/NA.

The fourth NA ALMA Development Study Period of Performance is planned to span 12 months. It is expected to start on or about August 15, 2016, commit funds by 1 September 2016 and finish by September 30, 2017. The Studies result in a report which is published in an ALMA Memo Series for dissemination. They constitute an input into the periodically held ALMA Development Coordination Workshop discussed in [RD01].

## 4 Eligibility

Investigators whose countries are members of the North American ALMA operations partnership will be able to apply for Cycle 4 ALMA Development Upgrade Studies.

## 5 Process

**Studies Process:** The ALMA Operations Plan provides funding for targeted exploratory research and feasibility studies aimed at facilitating or assessing the viability of possible development projects, including assessments of opportunities for collaboration. This Hardware Small Projects and Upgrades (OFF-002) budget line provides the funds available for the Cycle 4 NA ALMA Development Studies Program.

The North American ALMA Development Program Manager and Program Scientist, in coordination with the ADSC, issue a Call for Study Proposals on a yearly basis as funding becomes available. An independent review panel is established with NSF consent to evaluate and rank the proposals. The ranked list then receives consent from NSF and is incorporated into a recommendation to the NA ALMA Executive. The North American ALMA Development Program Office reviews, endorses (with or without modification) the recommendations of the independent review panel, and makes final recommendations to the North American ALMA Executive Office. The NA ALMA Executive establishes the ALMA/NA Development Study Plan after consultation with the ANASAC and ADSC. The NA ALMA Executive has funding authority, and responsibility, for executing the NA ALMA Development Studies plan.

The Call will be preceded by announcements at the AAS meeting (as occurred in January 2016), in the NRAO eNews (March 2016 issue), in the AAS Newsletter and in direct email correspondence with all those involved in the previous Calls (Nov 2011, May 2013

and March 2015). An Informational Workshop will be held on Development, 'ALMA in the Coming Decade', to be webcast for ease of attendance by both remote and on-site participants. An open telecon to answer questions about the Call will be held; queries at the telecon will be included in the FAQ posted at the Call website. The schedule for the Call and associated events is given in Section 7.6.

## **6 Expectations**

Investigators need to be aware of the capabilities of the Array and of the opportunities for upgrading ALMA. These opportunities will be outlined in the Cycle 4 Call for Proposals documentation. Independent Reviewers will be instructed to take these opportunities into account when ranking proposals.

## **7 The Proposal Review Process**

### **7.1 Number of proposals and projects**

A total of \$1.0M will be available for funding Studies during the Cycle 4 Development Program. The NRAO expects to fund several Studies in Cycle 4; no individual Study will be funded in excess of \$200K.

The Cycle 4 Call for Study Proposals will be released according to the schedule in 7.6.

The practice of inviting prospective proposers to submit Notices of Intent is continued for Cycle 4 as it provides useful input for reviewing the proposals.

### **7.2 The Review**

Proposals will be assessed on the basis of the overall scientific merit of the proposed investigation and its potential contribution to the advancement of ALMA's capabilities for the advancement of scientific knowledge, as well as on the extent to which the planned studies are technologically ready for study.

#### **7.2.1 Stage 1: Independent Review Panel**

The review panel will consist of highly qualified members of the astronomical community who were proposed by the ALMA North American Science Advisory Committee (ANASAC) membership, who had been members of ANASAC in the past or who had expertise in areas covered by study proposals. None of the review panel members will be affiliated with the NRAO to avoid conflict of interest. They will have expertise in science, software, and various hardware components including mm-wave instrumentation. A goal in the identification and recruitment of panel members was to capture the diversity of the community including reviewers from members of the North American ALMA Operations Partnership. Summaries of the titles, investigators and affiliations of the proposers will be circulated among the reviewers to determine conflicts of interest which may not be apparent. Proposals will be assigned to reviewers for whom no conflict of interest is determined.

### 7.2.2 Stage 2: Review Meeting Preparation

After receipt of reviews the review scores will be renormalized and combined into a uniform ranking. A spreadsheet will be produced illustrating the ranking, giving individual review scores anonymously, along with mean scores and standard deviations for both reviewers' reports and for the projects. A dividing line will be proposed for the reviewer teleconference demarking the top ranked proposals, with the division at the point at which the requests meet the anticipated budget. The proposals will also be scored by throwing out individual high and low scores, for comparison.

### 7.2.3 Stage 2: Review Teleconference Meeting

Reviewers attend a teleconference on the schedule given in 7.9 during which the results of the ranking will be discussed. Attention will focus on the division line between the top ranked and lower ranked proposals. Attention will also be given the balance between non-hardware proposals and hardware proposals. Reviewers will be given a final chance to submit revisions to their reviews and/or ranking.

Proposals will then be reranked. The final ranked list, which we expect will contain on the order of a half dozen studies, will be sent to NSF for consent.

## 7.3 Consensus Reports

After the teleconference ALMA/NA Development Program personnel will review and consolidate consensus reports for consent.

## 7.4 Report to the NA ALMA Executive, NSF, ANASAC and ADSC

A ranked list of Studies recommended for funding will be forwarded to the NA ALMA Executive for approval. Although this list will closely follow the recommendations of the panel, long term goals and objectives of the NA ALMA Executive will help shape the final approved list.

The approved ranked list of Studies recommended for funding will be forwarded to NSF for consent.

The approved and consented ranked list of Studies will be presented to the ALMA/NA Science Advisory Committee. This is an informational meeting; note that the ANASAC is appointed by the NRAO Director and provides recommendations for reviewers for the Study Proposals and therefore must be isolated from the actual review and approval process.

The NA ALMA Executive has funding authority, and responsibility, for executing the NA ALMA Development Studies plan. The Executive will, through its membership on the ALMA Development Steering Committee, apprise the ADSC of the proposals which it intends to support.

## 7.5 Implementation of the Call for Development Studies Outcome

The approved and consented list of Studies will be funded for the US FY2016.

## 7.6 ALMA/NA Call for Development Studies Cycle 4 Timeline

The Cycle 4 ALMA/NA Call for Development Studies will proceed according to the following timeline:

- March 1, 2016 Release of Call for ALMA/NA Development Study Proposals
- March 9 Informational Workshop 'ALMA Development'
- March 15 Notice of Intent due
- May 2 Proposal Deadline
- May 16 Proposals sent for Stage 1 assessments
- June 30 Panel reports due
- July 1 Final consensus telecon
- July 8 Final consensus report preparation
- July 12 Final ranking submitted to NRAO and NSF for consensus
- July 30 Notification of PIs
- Aug 11 ANASAC informational meeting
- September 1, 2016 Start of Cycle 4 funding