



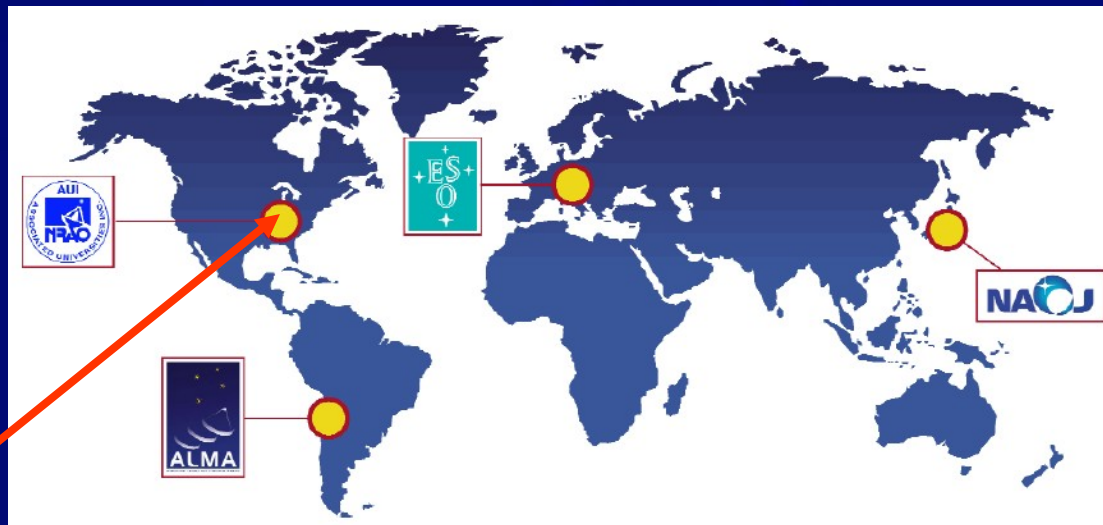
The North America ALMA Science Center (NAASC)

Crystal Brogan
(University of Hawaii/NAASC)





The Tri- Partner ALMA Project



NAASC: North America ALMA Science Center, Charlottesville, VA

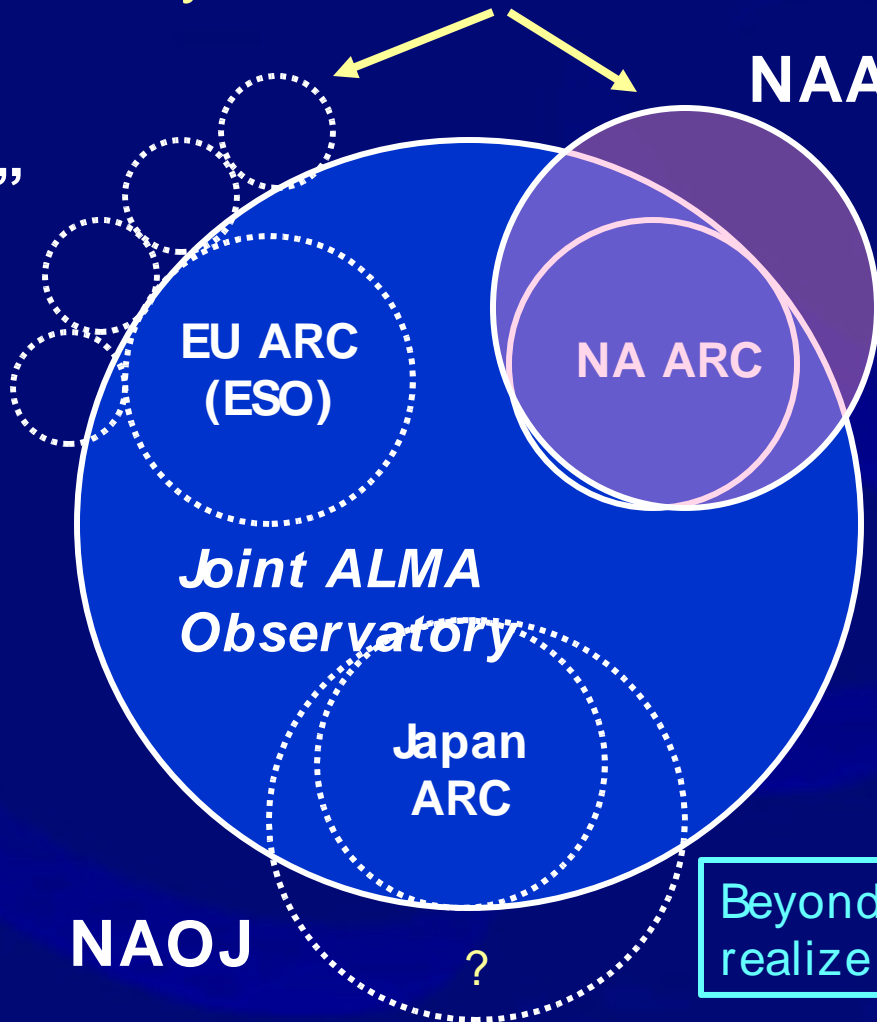


ALMA Operations: Three ALMA Regional Centers - ARC

“Beyond ARC” User Services

NAASC

“Satellite”
EU ARCs



ARCs provide basic user interface, as well as basic archive, software, and hardware maintenance and development

Beyond ARC is needed to provide advanced user support, algorithm development, student programs, EPO, grants

Beyond ARC is essential for NA to realize the full benefits of ALMA

NAOJ

?



NAASC ARC Functions

End to end proposal submission, review coordination, scheduling preparation, cookbooks, calibrator and spectral line databases, quality assurance, NA mirror archive

User friendly web- based access

Helpdesk based problem resolution

North America pipeline and off- line data reduction software maintenance and development

Pipeline will produce science- ready images for basic ALMA observing modes (off- line data reduction in early years)

North America hardware maintenance and development

NA deliverables like Band 3 & 6 Receivers



NAASC Beyond ARC Functions

Advanced data reduction user support

Hands-on user support

Make full power of ALMA user friendly at all levels of experience

Education and Public Outreach

Student Pre-doc and Post-doctoral Fellowship programs

Summer schools and science workshops

First NAASC workshop: “*From Z-Machines to ALMA*” Jan. 13-14

Advanced data reduction algorithm development

PI grants program (i.e. like *Chandra*, *HST*, *Spitzer*)

Strong Decadal panel support



NAASC Staffing Plan

- ~ 20 Engineering
- ~ 25 Computing
- ~ 5 Archive support
- ~ 15 Astronomers
- ~ 15 Post- doc/ Students
- ~ 10 EPO
- ~ 5 Chilean Affairs
- ~ 5 Management/ Administrative
- = ~100

Comparison (excluding spacecraft functions)

- *Chandra* ~150
- *HST* ~350
- *Spitzer* ~120

NAASC Ramp up 2008



Getting the Time...

Phase I: Proposals are submitted using ALMA Observing Tool

NAASC issues calls, provides documentation, proposal preparation and submission help, as well as coordinating refereeing process

Regional Program Review Committee ranks proposals (~*HST* & *Spitzer*)

Proposed to ALMA Board that an International Review Committee resolves conflicts (maybe only large projects?)

Phase II: Successful PIs submit observing program using the Observing Tool

NAASC helps with observation planning and verifies observing schedule

The Observing Tool



Single Field Map Test (R3.0) - Alma Observing Tool [R3.0] Perspective 1

File Edit Search Options Help

Editors
Visual Forms Catalog

Visualisation

Observed Frequency

CO(2-1)

Frequency in Target Frame

Reset << >> Zoom To band Pan to Line

+ -

Best USB BBC 0 USB BBC 1 USB BBC 2 USB BBC 3 USB

Best LSB BBC 0 LSB BBC 1 LSB BBC 2 LSB BBC 3 LSB

Best BBC 0 BBC 1 BBC 2 BBC 3

Receiver Bands

BBC Centre Frequencies

Basebands

Other lines

Side Bands

Transmission

Frequency Setup

Rest Frequency GHz Line Catalogue

Transition

Receiver Band

LO₁ Frequency GHz

BaseBand Configurations



Getting the Data...

Queue based dynamic scheduling

Programs are composed of 30- 60 min scheduling blocks

Raw data passed through multi-tiered quality assurance

Combination of on- site duty astronomer, NAASC staff, and automated checks

Data proceeds to pipeline and archiving

Data available from NAASC within ~2 weeks (TBD)

Pipeline products (images and calibrated u- v data), raw data, and off- line data processing software made available to PIs by the NAASC

- Pipeline available towards end of construction

Expert hands- on data reduction help from NAASC staff provided on request, helpdesk also available



Pipeline and Off-line Data Reduction Software

CASA (Common Astronomy Software Applications)

CASA has subsumed AIPS++

CASA is written in C++, Java, and Python

GBT + VLA



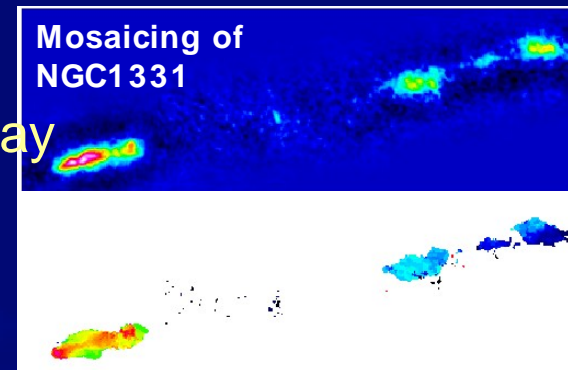
Conversion of AIPS++ Glish user interface to Python ongoing
Internal & External testing ongoing

Completed tests (1) Basic imaging, (2) Mosaicing, and (3) Single dish + interferometric data combination using VLA, BIMA, and PdBI datasets

CASA demos planned for Calgary, AAS (June 2006)

CASA release early 2007

Pipeline testing and development underway





Current Projected Timeline



1 Continue Prototype System Testing, Socorro

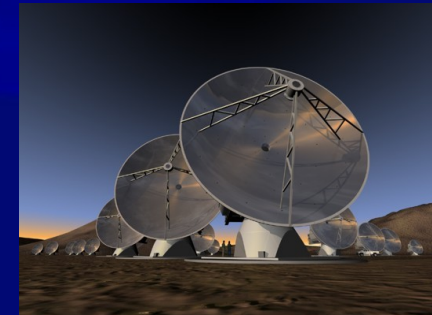
2006 NAASC testing of observing tool, offline reduction software, pipeline heuristics

Early 2007 First antenna arrival and testing at ALMA site

Early 2009 Commissioning Begins with 3- element array

Late 2009 Call for Shared Risk Proposals

- 6+ antennas, 2+ bands, continuum & spectral line, 1km baselines
- Off line data reduction



2012 Pipeline images for standard modes

2012 Baseline ALMA Construction Complete



Community Input into the operations of the Global ALMA project and North American ALMA Science Center



Community Input

International community input into the ALMA project (via the ALMA Board) is through the ALMA Science Advisory Committee (**ASAC**)

<http://www.alma.nrao.edu/committees/ASAC/>

North American community input into the ALMA project and operation of the NAASC (via the NRAO director) is through the ALMA North American Science Advisory Committee

(ANASAC)

<http://www.cv.nrao.edu/naasc/admin.shtml>



The ALMA North America Science Advisory Committee (ANASAC)

Andrew Baker, U. Maryland

John Bally, U. Colorado

Andrew Blain, Caltech

Crystal Brogan, U. Hawaii/NRAO

Chris Carilli, NRAO

Richard Crutcher, U. Illinois, **Chair**

Xiaohui Fan, U. Arizona

Jason Glenn, U. Colorado

Mark Gurwell, CfA

Paul Ho, CfA

Doug Johnstone, NRC Canada

Lee Mundy, U. Maryland

Joan Najita, NOAO

Jean Turner, UCLA

Jonathan Williams, U. Hawaii

Christine Wilson, McMaster U.

Mel Wright, U.C.-Berkeley

Min Yun, U. Mass Amherst

= here at AAS
also member of ASAC

<http://www.cv.nrao.edu/naasc/admin.shtml>



Operations Issues under Discussion

Project Wide:

Regional & International TAC operation
Early/ Demonstration Science

<https://wikio.nrao.edu/bin/view/ALMA/AlmaSac>

U.S. Specific:

User Grants Program

- Patterned after NASA programs (HST, Spitzer, Chandra..)
- High-priority recommendation by Decadal Survey



Questions?