



European ALMA Regional Center: Context and Core Services

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Talk Overview

- Joint ALMA Observatory
 - Summary of operations concepts, structure
- ALMA Regional Center (ARC)
 - Concepts and missions
- European ARC
 - The role of ESO
 - The role of the community

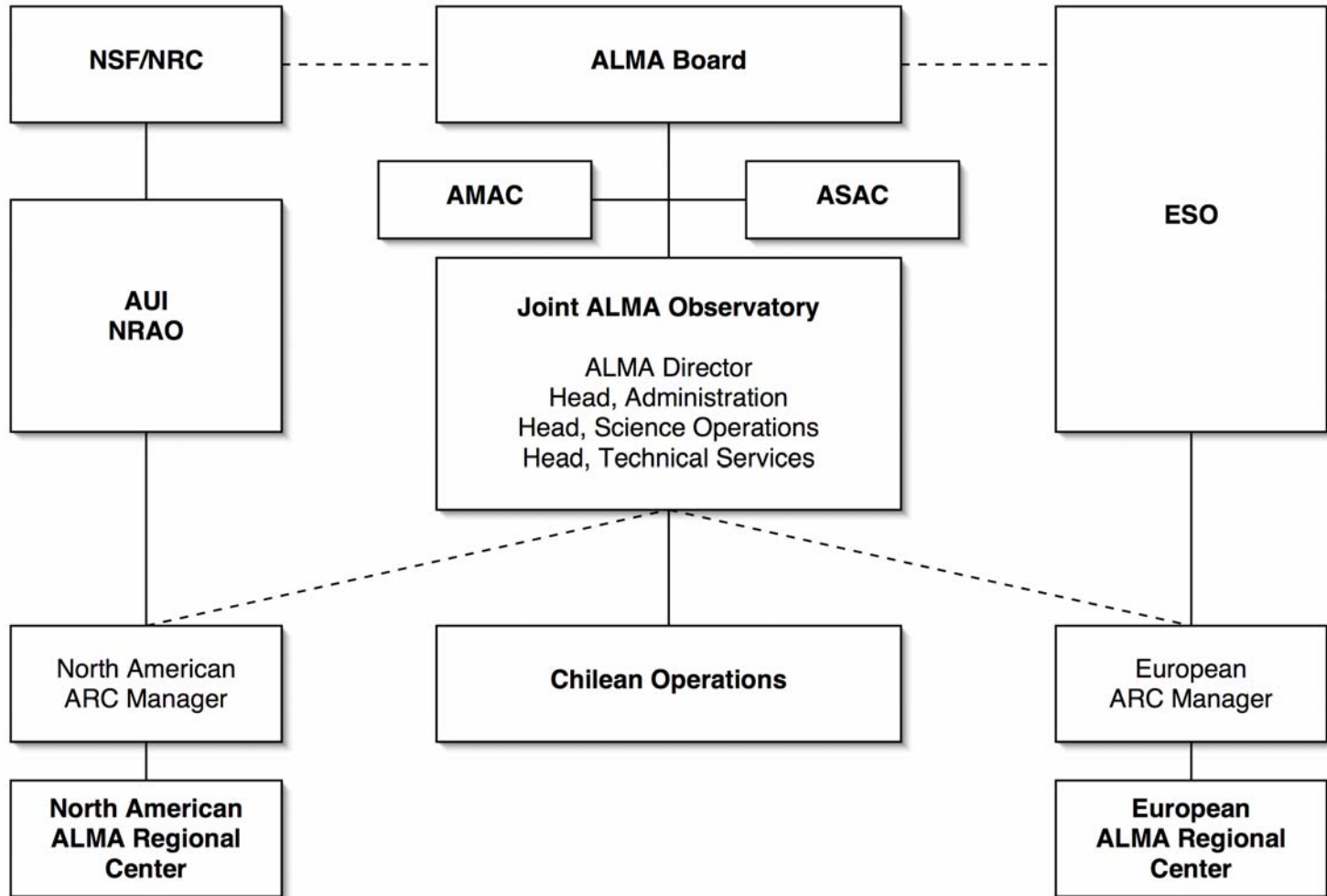


Joint ALMA Observatory

- Array Operations Site (AOS): 5000 m
 - Main array + Atacama Compact Array
- Operations Support Facility (OSF): 2800 m
 - Technical support, array operations center
- Santiago Central Office (SCO)
 - Master Archive node, master science pipeline
 - Offices for administration staff, science staff
- **ALMA Regional Center (ARC)**
 - Science and technical support services



High-Level Organization





Operations Startup

- Operations startup milestones (subject to change!)
 - 2005 Q4: first antenna in Chile (Board-controlled)
 - 2006 Q2: 3-antenna interferometer at high-site
 - 2007 Q1: First Call for Proposals
 - 2007 Q3: Science Operations begin (Board-controlled)
- Initial capabilities (goals)
 - 6 - 8 antennas
 - At least two receiver bands
 - Baselines up to at least one (1) kilometer in length
 - ...and then array grows with time!



Operations Concepts for Users

- Service Mode only
 - Phase 2 process, Scheduling Blocks, dynamic scheduling
 - User support in the local region (Europe or North America)
- End-to-end data flow system
 - Proposal-to-Archive
 - Observatory-based Calibration Plan + Quality Assurance process
 - Basic product: calibrated, deconvolved images (after first two years)
 - Data processing & imaging software released from start
 - ALMA Archive containing all information flowing from observatory



ARC: Core Services

Funded within bi-lateral ALMA operations budget

- Scientific support services
 - Proposal & observation preparation user support
 - Basic data analysis support
 - ALMA Archive operations: host copy, data package delivery
 - OSF Astronomer-on-Duty shifts
- Technical support services
 - ALMA module repair (i.e. receiver cartridges)
 - Software maintenance



ARC: Enhanced Services

*Not funded within bi-lateral ALMA operations budget...
but highly (!) desirable*

- Research support activities
 - Extended archive & data processing support
 - Examples: one-on-one data processing support in a dedicated physical location, specialized pipeline versions, re-processing of large and/or complex datasets, advanced simulation development
 - Support for special projects
 - Examples: public surveys, legacy (large) programs
 - Science community development
 - Examples: Non-ESO post-doctoral fellowships, training schools & workshops



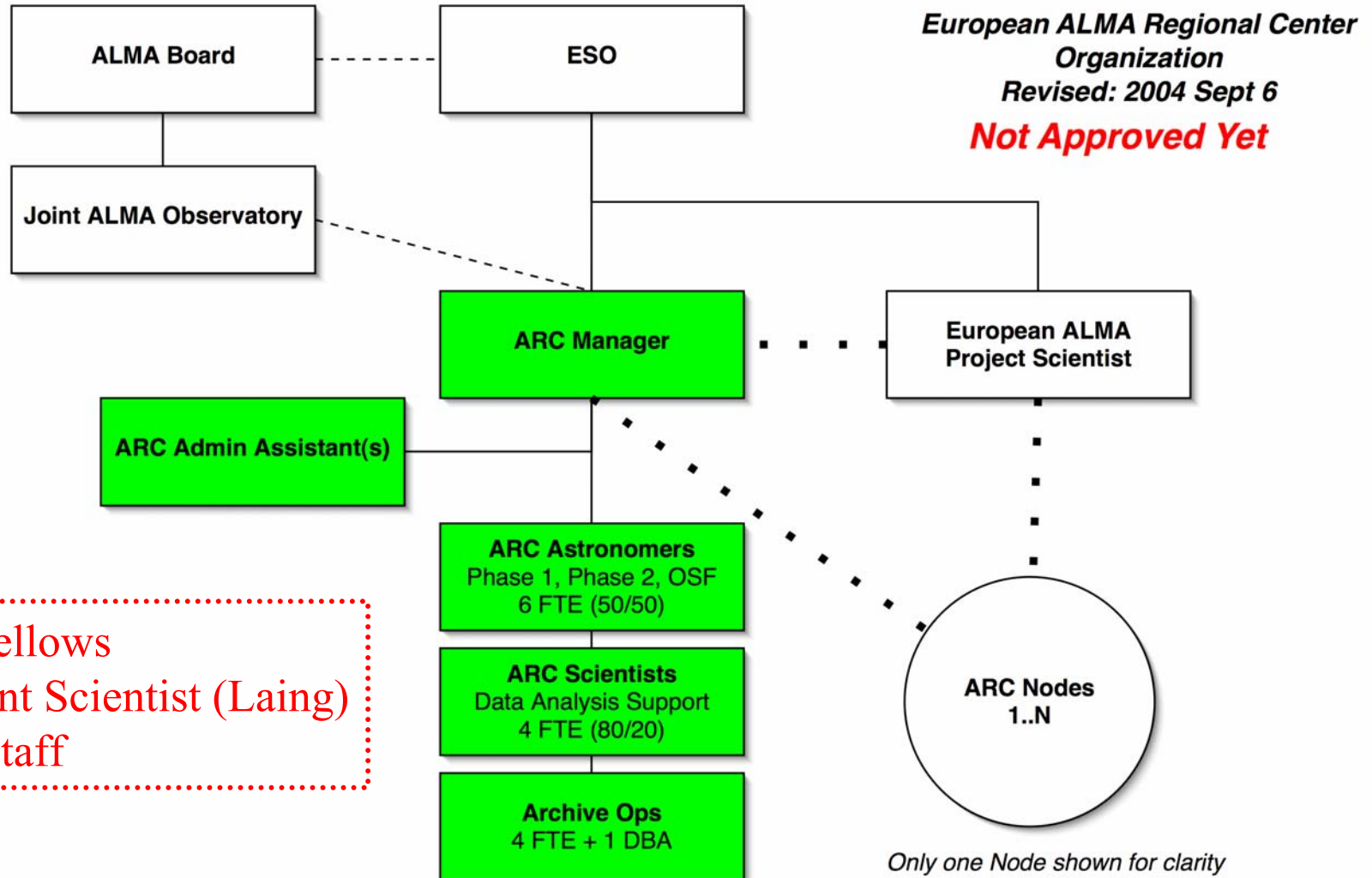
ARC Implementation Models

Organization of ARC responsibility of the regional Executive

- North American
 - All ARC functions co-located in Charlottesville
 - Name: North American ALMA Science Center (NAASC)
 - Head: Paul Vanden Bout
 - Reported NRAO goal: request NSF funds for core and enhanced services
 - Status of request unclear, outcome not known until 2005
- Japanese
 - Current planning unknown
 - Details of operations interfaces still under discussion
- Europe
 - Core services based at ESO/Garching (funding: ESO Long-Range Plan)
 - Enhanced services based in the community (funding: under development)



European ALMA Regional Center: Science support services



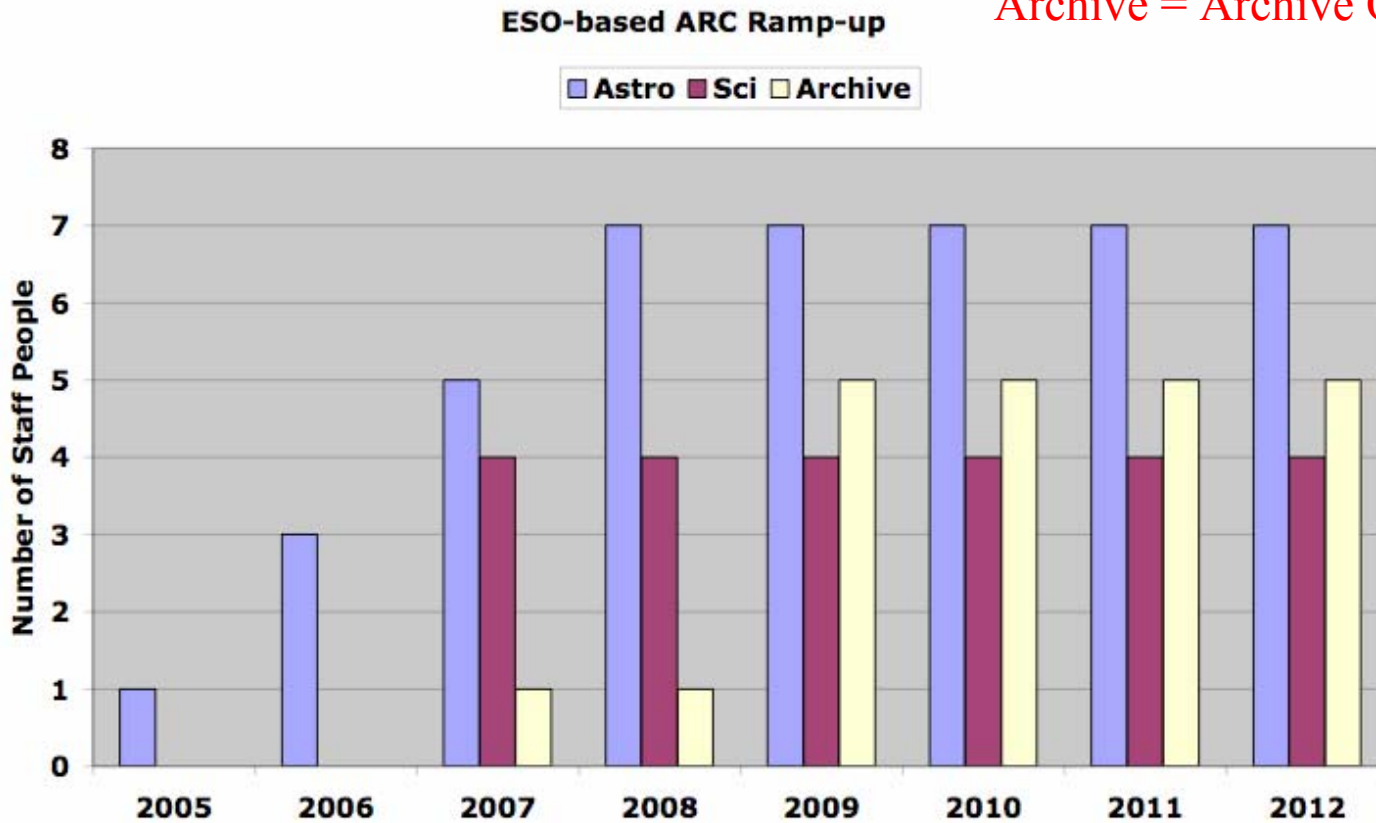


ESO-based ARC Staff Ramp-up

Astro = User Support

Sci = Data Analysis Support

Archive = Archive Operations





ESO-based Community Outreach

- ALMA Community Day - annual (?)
- ALMA Familiarization Workshops
 - Workshop 1: Proposal Preparation Workshop
 - 1 day, 1 month before first proposal submission
 - System status, capabilities, tools, user support services, etc
 - Workshop 2: Data Processing Workshop
 - 1 - 2 days, synchronized with first PI data releases
 - Calibration issues, data products, data processing tools, etc.
 - On Day 2: chance to work on real data
 - Workshop 3: repeat Workshop 2 every 12 - 18 months as appropriate



Community-based ARC Activity

To provide enhanced user support services, ESO (as endorsed by ESAC, STC, and Council) has proposed:

“...a network consisting of a small number of science support centers, operating in a highly collaborative manner and making optimum use of the existing European millimeter wave and aperture synthesis expertise.” (From ESO Request for Expressions of Interest)

Tom Wilson will provide more details in his talk.



Summary

- ALMA operations planning is well advanced
- European ALMA Regional Center shall be established
- **Euro-ARC will be an ESO/community collaboration**
- ESO-based ARC resources have been budgeted
- ESO-based ARC build-up will commence in 2005
- Collaboration with community still under development
 - See Wilson talk