

European ALMA Regional Centre: Distributed user support

Martin Zwaan - ALMA Regional Centre Head

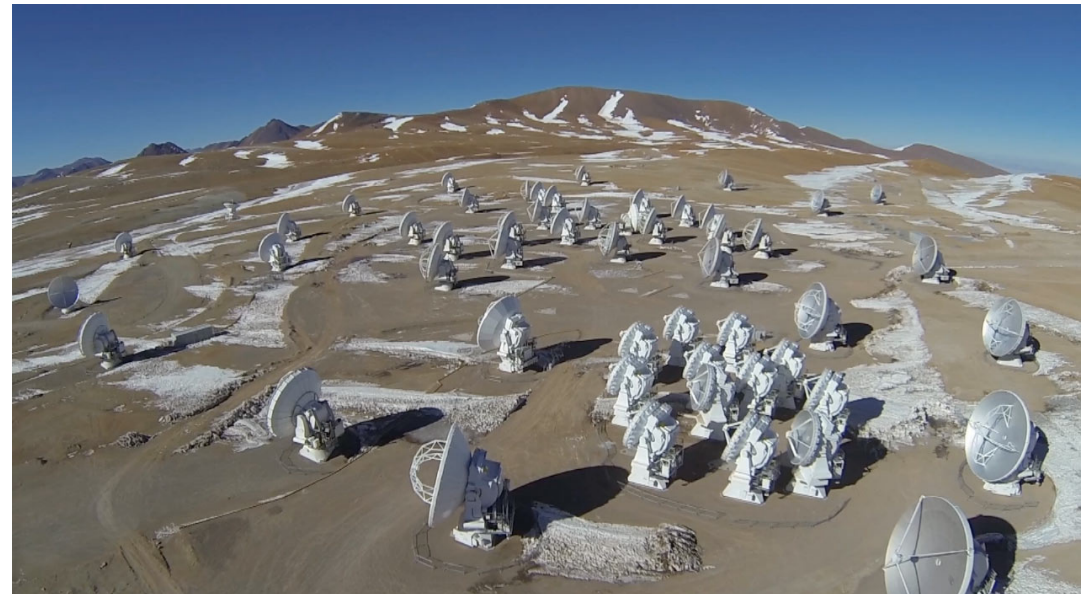
Evanthia Hatziminaoglou - ALMA Regional Centre Network Coordinator

A large, stylized blue arc that curves from the left towards the right, positioned behind the text.

EUROPEAN ARC
ALMA Regional Centre

What is ALMA?

- **A**taacama **L**arge **M**illimeter/submillimeter **A**rray
- International partnership of
 - **ESO** (European Organisation for Astronomical Research in the Southern Hemisphere)
 - **NSF** (U.S. National Science Foundation)
 - **NINS** (National Institutes of Natural Sciences of Japan)
 - in cooperation with the Republic of Chile.
- 66 antennas at 5000m altitude in northern Chile
- Construction: US\$1.4 billion
- Scientific observations started 2011
- 596 publications, 27 in Nature/Science



Hatziminaoglou, Zwaan, et al. 2015, ESO Messenger
arXiv:1601.04498

The European ALMA Regional Centre Network: A Geographically Distributed User Support Model

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European ARC nodes

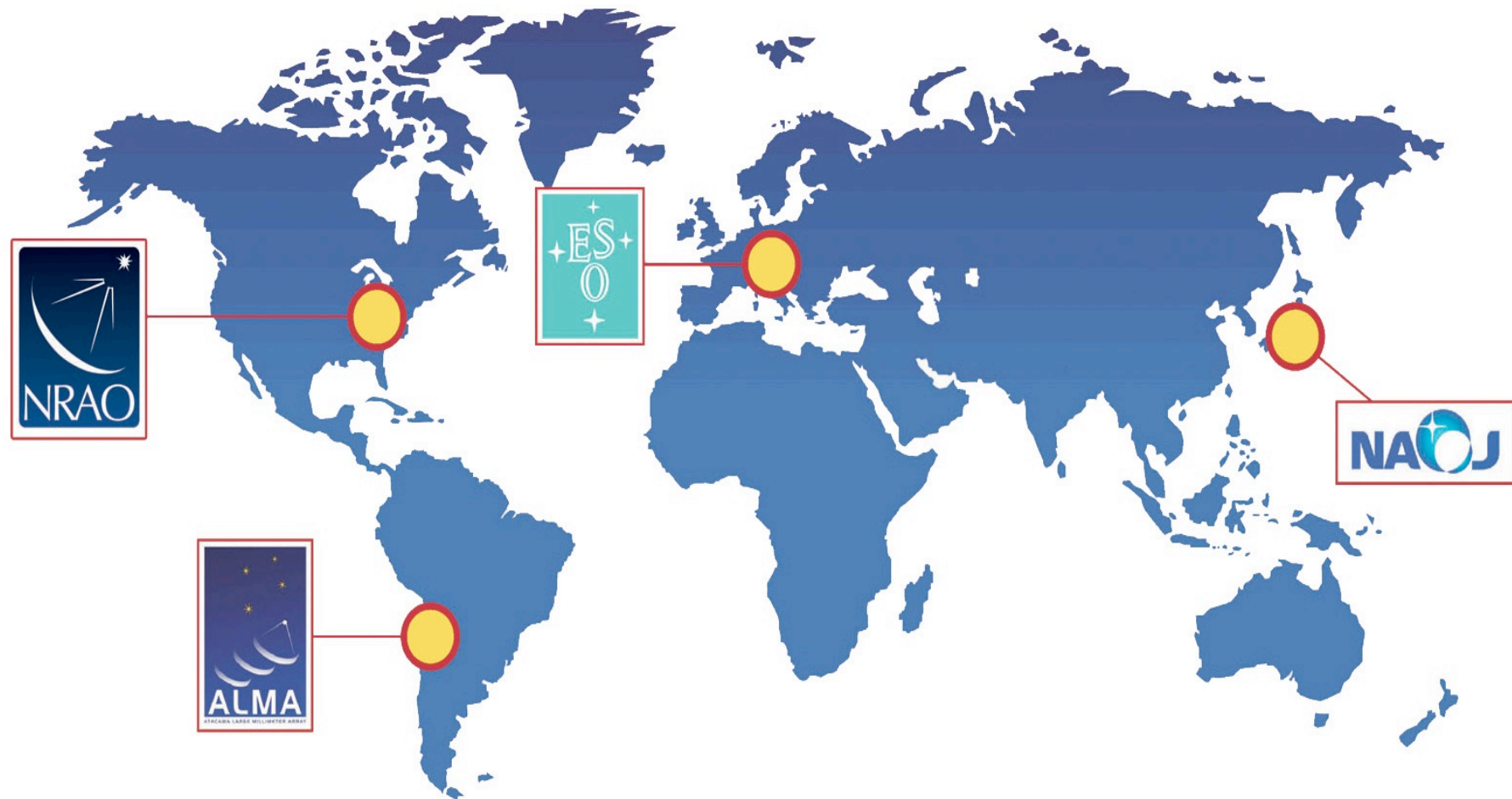


Figure 1. The locations of all the European ARC nodes are shown on a map of Europe and including the Centre of Expertise in Lisbon.

organised effort to provide the European ALMA user community with uniform expert support to enable optimal usage and scientific output of the ALMA facility. The

ARC model with a central, coordinating node at ESO and a number of smaller nodes in the community. The ESO Scientific Technical

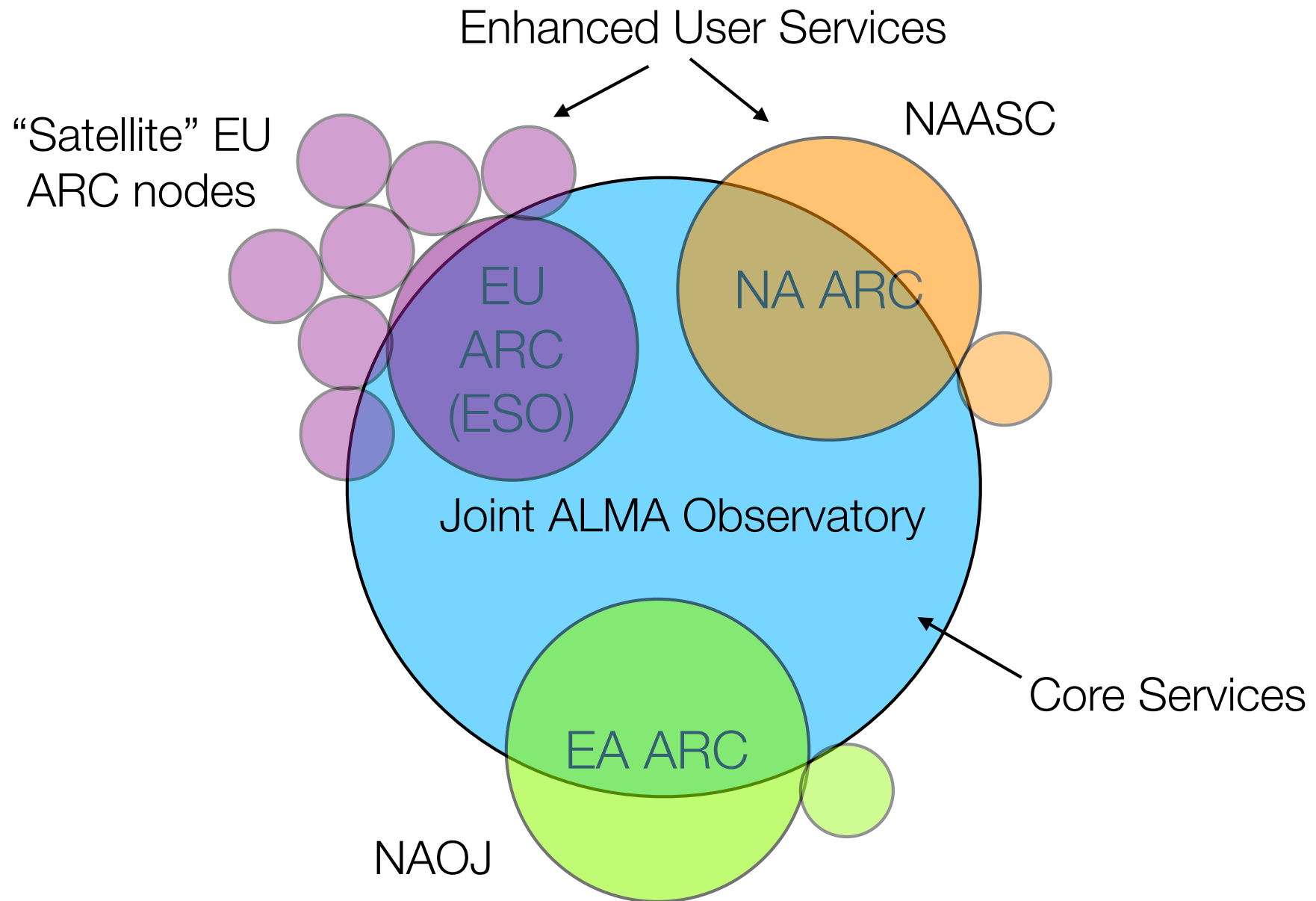
ALMA Science Operations Centres



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ARC = Alma Regional Centre
JAO = Joint ALMA Observatory

Three ALMA Regional Centres



European ARC nodes



EUROPEAN ARC
ALMA Regional Centre

Lisbon

Grenoble

ESO Garching

Ondrejov

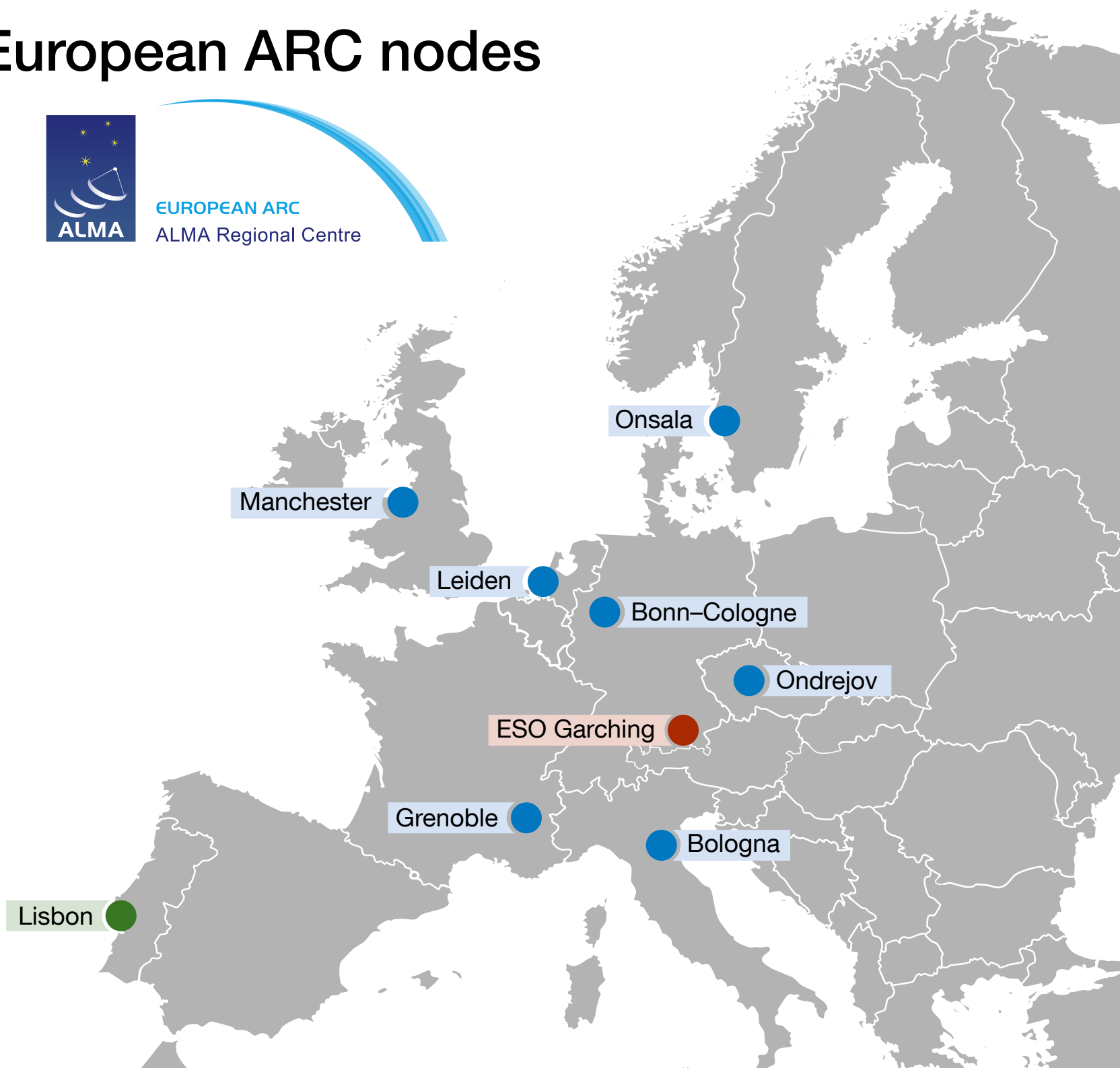
Bonn-Cologne

Leiden

Manchester

Onsala

Bologna



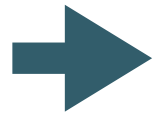
Background: European ALMA Regional Centre set-up

- Distributed user support **favoured by community** in 2002
- Call for '**Statements of Interest**' was issued 2004
- 6 institutes replied with National Funding Agencies support
- **Memorandum of Understanding** was signed in 2007
- Management: **ARC Coordinating Committee (ACC):**
 - Representatives from all nodes plus ESO
 - Two people at ESO tasked with coordination of network



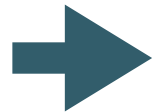
High level perspective for the ARC network

- Provide optimal user support to European community
- Strengthen European ALMA community
- Broaden access to ALMA science



Make ALMA accessible to European astronomers and optimise scientific return

- Provide expert assistance towards ALMA commissioning and optimisation
- Provide tools to users and observatory



Contribute to ‘making ALMA work’

ARC network makes optimal use of
existing expertise!



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ARC network concepts

- **Contracts**

- There are **no contractual obligations** between ESO or ALMA and the ARC nodes
- Collaboration is based on **trust** and **Memorandum of Understanding**

- **Finance**

- ESO does **not provide financial support** for the ARC nodes
- ARC nodes **seek their own funding**

- **Observing time**

- ARC nodes do **not benefit from guaranteed time** on ALMA

Symbiotic nature of network: ESO can provide excellent user support, ARC nodes build up expertise and secure funding



Challenges for the ARC network

- Each ARC node operates under
 - **different local structure**
 - organisation, embedded in observatory/university,...
 - **different funding structure**
 - condition from funding agencies, funding horizons
 - **different mandate**
 - ranging from ‘ARC nodes can only do user support’ to ‘ARC nodes should support ALMA’
 - ranging from ‘just support ALMA users’ to ‘be part of general support body (LOFAR, PdB,..)’

Yet, tasks, responsibilities and timelines must be harmonised and synchronised throughout network



Methods of interaction

Mailing lists

Wikis

Monthly
telecons

Face-to-face
meetings

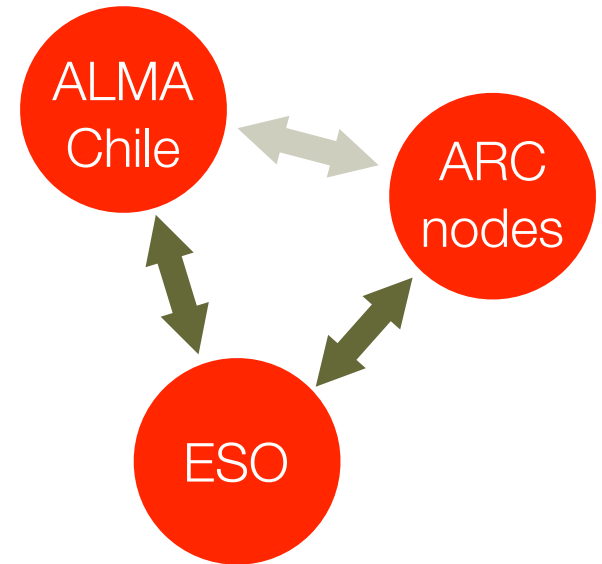
Helpdesk and
JIRA

ARC all hands meeting
Lisbon, Portugal, 4 to 7 October 2016



Main challenge for distributed network: communication

- **Interaction is more difficult in a distributed team!**
- **Use all possible methods of interaction**
- **Information flow**
 - ARC nodes one extra step removed from observatory: **try building direct links**
 - Try and keep misunderstandings to a minimum and resolve rapidly those that arise
- **Trust**
 - Difficult to build – easy to destroy
 - Everybody needs to feel part of the project
- **Views on communication vary within the network**



Funding challenges for the ARC network

- Most ARC node activities are **supported through local funding agencies**
 - Funding levels likely to continue for next few years
 - Funding agencies expect high quality support to regional users
 - Funding agencies may expect type of support to evolve
 - ARC nodes need large user base!
- ARC nodes continuously need to apply for funding, **funding horizon varies**
- ARC nodes need to **adapt to local needs** to be eligible for funding

Continued need to convince governing bodies, funding agencies and users of the need for a distributed network



Collaboration and ownership

- Global ALMA project **must consider ARC nodes an integral part of ALMA**
 - Involvement in commissioning activities
 - Involvement in observatory activities
 - Development programs (new receivers, software, etc)
 - Direct links between observatory and ARC nodes!



Adapt to changes

- **Internal factors**

- **Operational model evolves:** tasks shift from observatory to ARC to nodes
- Use as an opportunity, but can cause tension with funding agencies etc.

- **External factors**

- Needs of scientific community change
- Funding agencies' requirements change

Flexibility is essential



Final remarks

- European ARC network is a success!
 - ARC review by external committee in 2015 was very positive
 - ALMA user support questionnaires: ARC node support receives highest grades
 - Feedback received from users who visit the ARC nodes is very good
- Optimal way to use **existing expertise**
- Need to **invest in good communications**
- **Recognition of skills and efforts** is essential
- Need **flexibility**

