



Descripción y Areas del Dpto. de Computación de ALMA (ADC)

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Gerente del Grupo de Software
Departamento de Computación ALMA
Joint ALMA Observatory





To operate and maintain high-quality computing services in a safe and secure manner continuously improving the ALMA observatory by:

- ✧ Having skilled and motivated staff
- ✧ Maximizing the level of availability and reliability of the computing systems
- ✧ Supporting ALMA stake holders
- ✧ Collaborating with the technical community

Allowing ALMA to contribute to mankind's knowledge by unveiling the mysteries of the universe.



ADC's Vision



To be recognized as a world-class reference in providing high-quality computing services for efficient astronomy data acquisition and delivery to the community.

To achieve this vision the department is committed to:

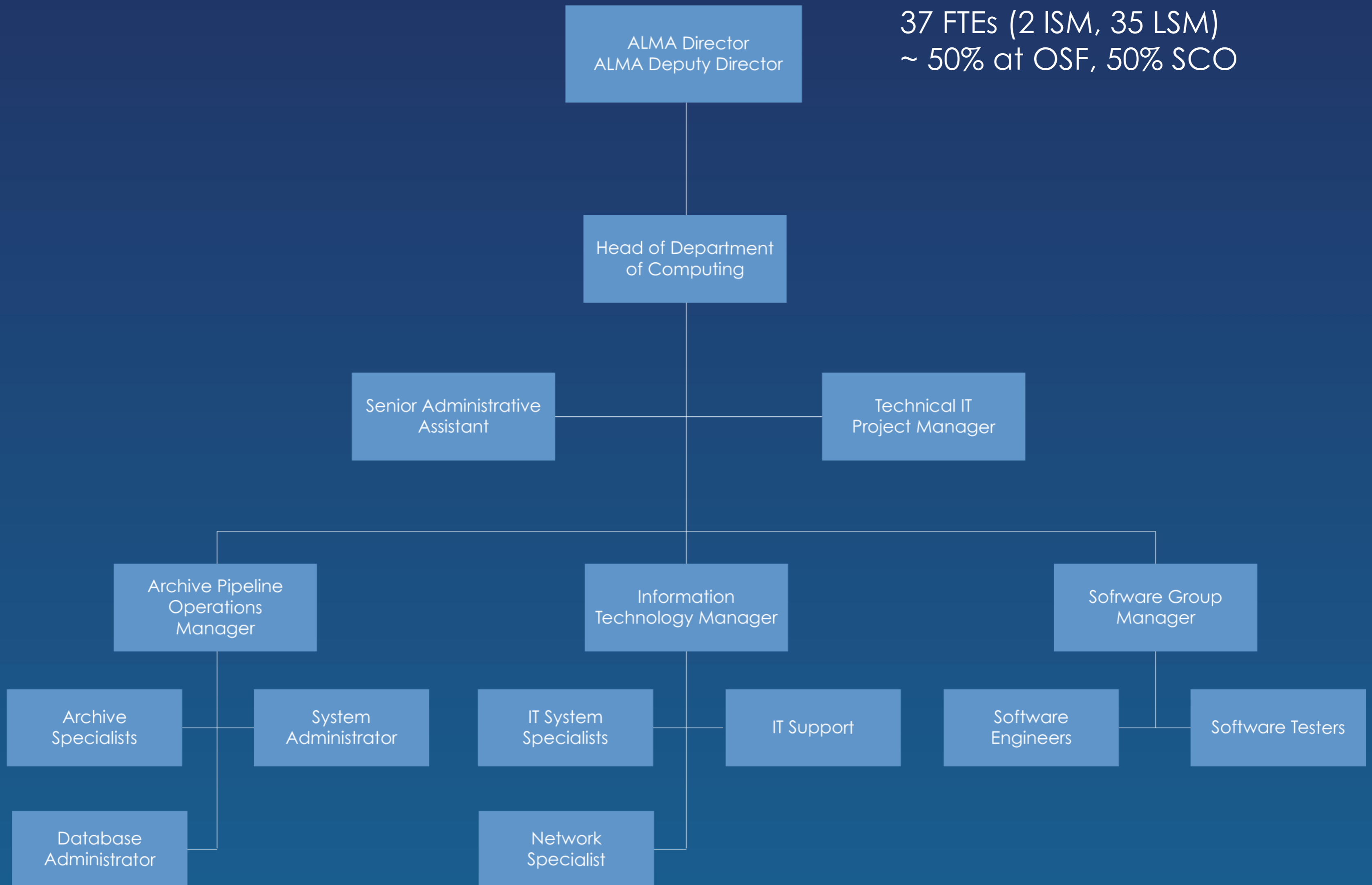
- Train and motivate its members to provide high quality and secure services to ALMA staff, visitors and scientific community-at-large.
- Operate, maintain, and continuously improve the observatory computing infrastructure and services to satisfy in full ALMA strategic goals



Organization



37 FTEs (2 ISM, 35 LSM)
~ 50% at OSF, 50% SCO





IT Group



- Manager: Christian Saldias
- Responsibilities
 - Help desk
 - Networking services
 - Users network
 - Observing network
 - Backbone link administration.
 - General Services
 - email, VoIP, printers, backups, etc.
 - Server infrastructure
 - Blade servers administration
 - Servers virtualization



Archive Pipeline Operation Group



- Manager: José Parra
- Responsibility
 - ALMA Archive administration
 - Oracle Database administration
 - APDM, ASDM (metadata + binary data)
 - Database replication
 - Pipeline infrastructure administration
 - HPC administration



Software Group



- Managers: Rubén Soto y Tzu-Chiang Shen
- Responsibilities
 - ALMA Software Integration
 - Releases management
 - Releases testing
 - Support to Observatory Operation
 - Telescope Monitoring & Configuration Database
 - Operation Environments Configuration
 - Primary Faults Analysis
 - DevOps
 - Development to Support Operation



Array Op S

- Antennas
- Power
- Fiber Optic Network
- Local Oscillator (Timing)
- Correlator



OSF

- Hotel
- Laboratories
- Maintenance
- Archive Stage
- Integration Center
- Array Control Center



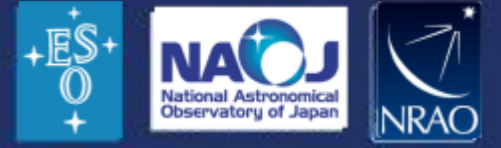
SCO

- Main Archive
- Data transmission to the ALMA Regional Centers
- Offices:
 - Science
 - Computing
 - Administration
 - Management





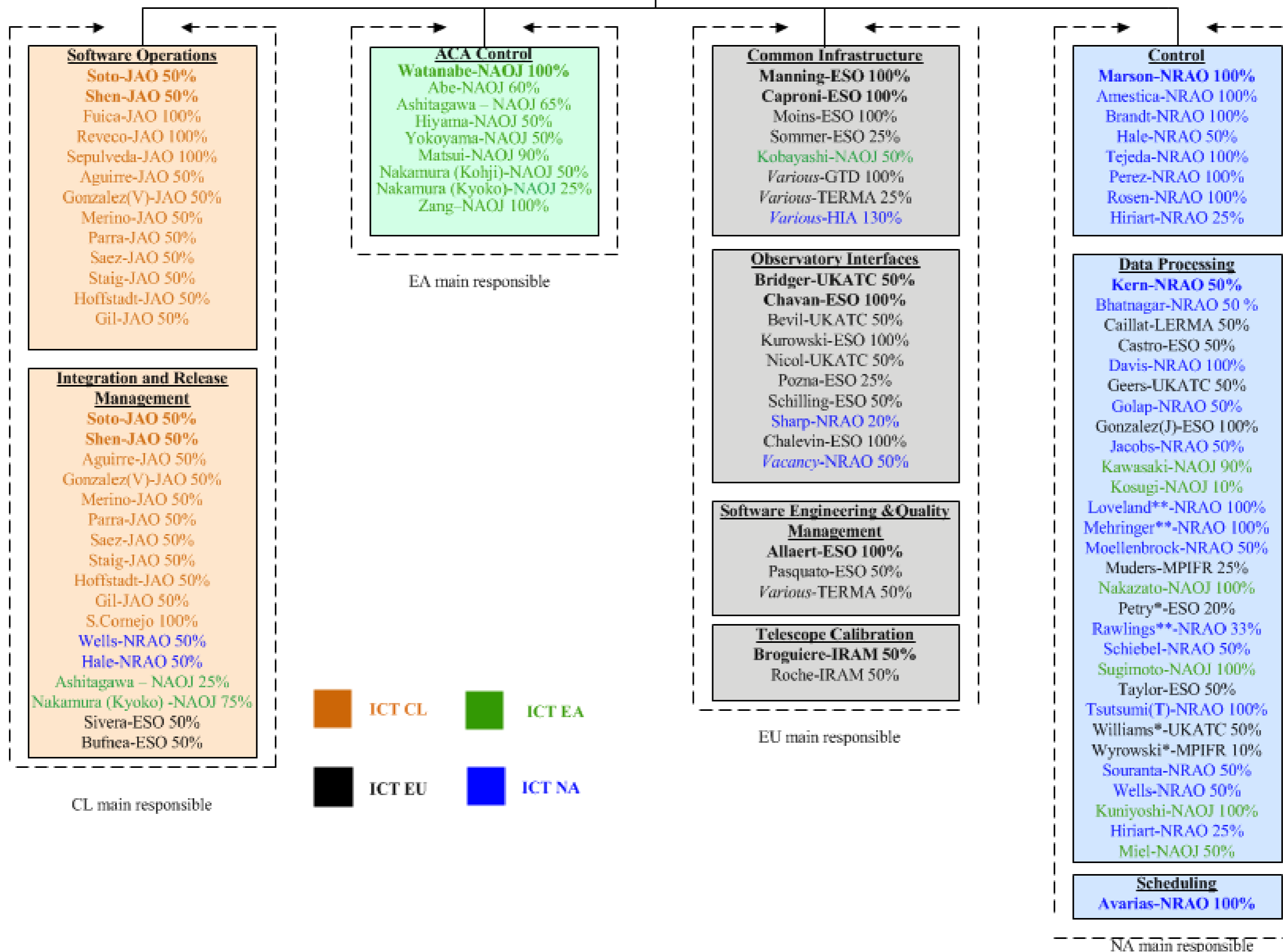
ALMA: Observatorio de clase mundial



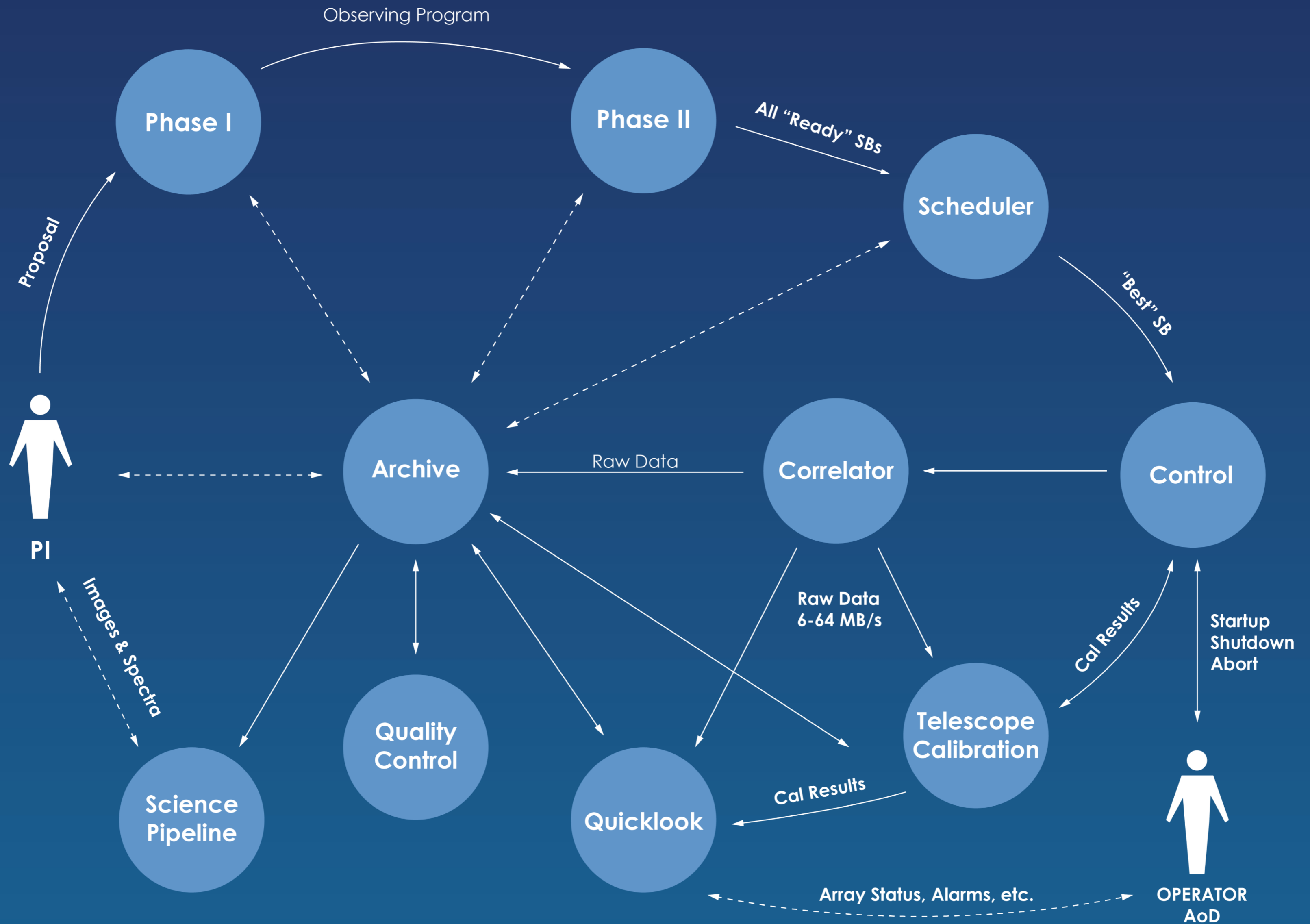


ALMA Integrated Computing Team June 2015

ICT Management
Ibsen-JAO 100%
 Kosugi-NAOJ-70%
 Schmid-ESO 100%
 Griffith-NRAO 50%
Deputies
 Soto-JAO
 Watanabe-NAOJ
 Chavan-ESO
 Kern-NRAO

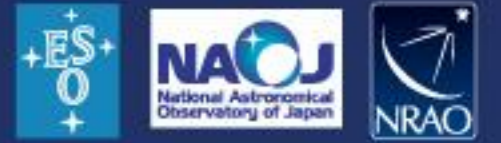


* EU ARC/ESO Contribution
 ** NA ARC Contribution





Colaboraciones Académicas y ALMA



- ✧ Colaboraciones de largo plazo (formales e informales) con universidades chilenas desde el año 2006:
 - ✧ U. Técnica Federico Santa María, U. Chile, U. Católica del Norte, U. Bio-Bio, U. Católica, ...
 - ✧ ... **y Universidad de la Frontera a partir de hoy!**
- ✧ (Un número significativo de) Prácticas de Verano desde el año 2006
- ✧ (Un número significativo de) Memorias y Tesis de Grado desde el año 2007
- ✧ Co-participación en proyectos CONICYT entre 2006 and 2010
- ✧ Presencia visible en conferencia nacionales e internacionales: Astro-Engineering Workshop 2012 and 2013, Astroinformatics 2014, SPIE, ADASS, ICALEPS

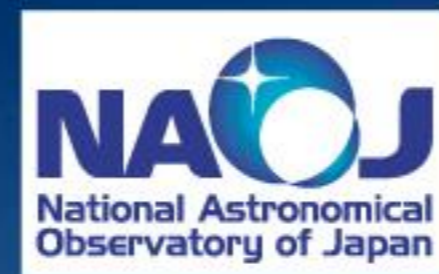


Leading to Future Opportunities



- ✧ Infrastructure development
 - ✧ Networks and data centers able to cope with transmission, storage and processing of massive data sets
- ✧ Research in Astronomy, Computing Science, and Engineering
 - ✧ Astronomical Instrumentation
 - ✧ Real-time Control Systems
 - ✧ High volume data visualization and data mining
 - ✧ Network optimization
 - ✧ Remote Operations and Virtual Presence
 - ✧ Human Computer Interaction
- ✧ And a number of topics for undergraduate diploma work

Muchas Gracias!



The Atacama Large Millimeter/submillimeter Array (ALMA), an international astronomy facility, is a partnership of Europe, North America and East Asia in cooperation with the Republic of Chile. ALMA is funded in Europe by the European Organization for Astronomical Research in the Southern Hemisphere (ESO), in North America by the U.S. National Science Foundation (NSF) in cooperation with the National Research Council of Canada (NRC) and the National Science Council of Taiwan (NSC) and in East Asia by the National Institutes of Natural Sciences (NINS) of Japan in cooperation with the Academia Sinica (AS) in Taiwan. ALMA construction and operations are led on behalf of Europe by ESO, on behalf of North America by the National Radio Astronomy Observatory (NRAO), which is managed by Associated Universities, Inc. (AUI) and on behalf of East Asia by the National Astronomical Observatory of Japan (NAOJ). The Joint ALMA Observatory (JAO) provides the unified leadership and management of the construction, commissioning and operation of ALMA.