

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

Tzu-Chiang Shen

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:

- A Having skilled and motivated staff
- Adamizing 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



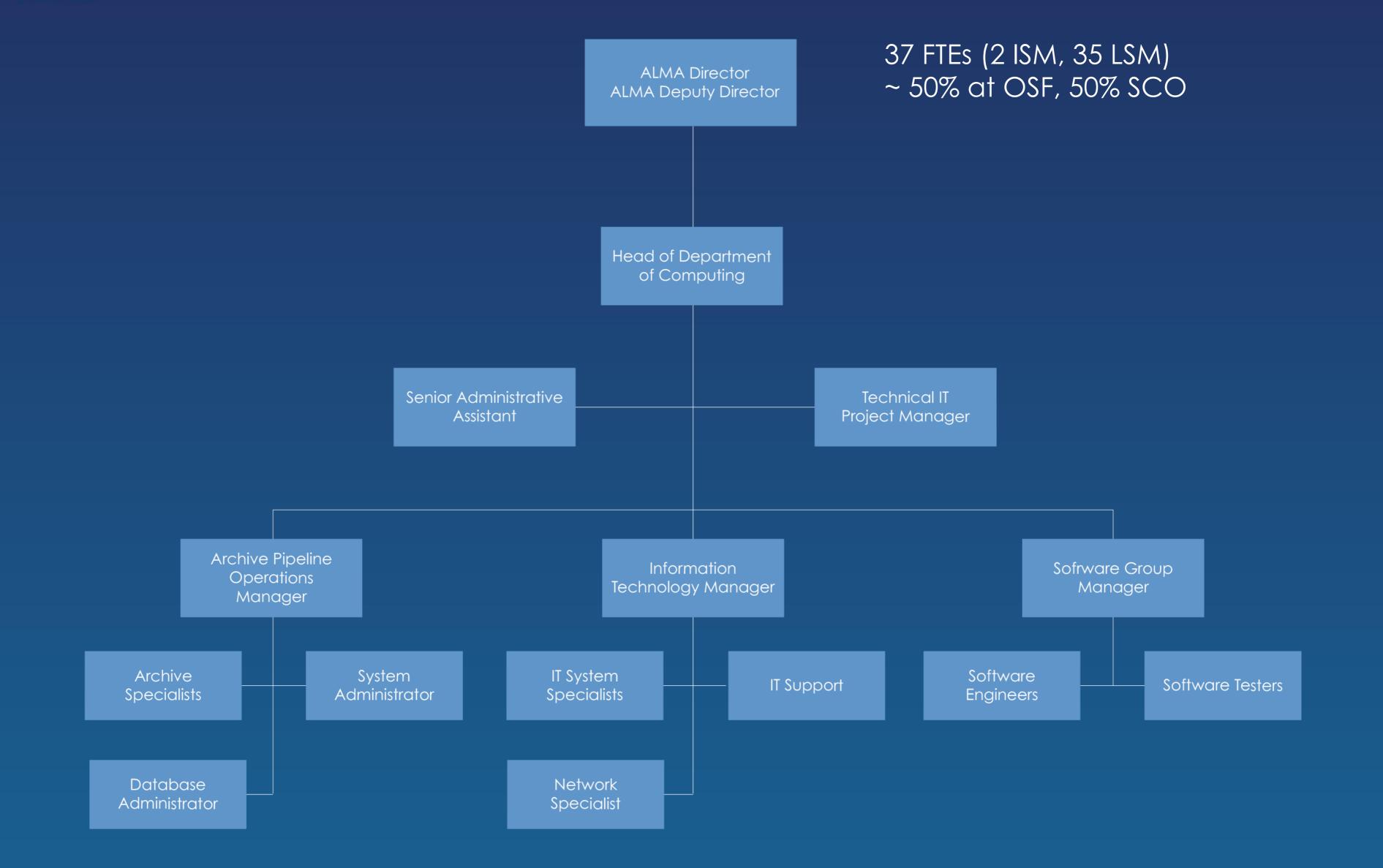
To be recognized as a world-class reference in providing high-quality computing services for efficient astronomy data acquisition and delivery to the community.

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 communityat-large.
- Operate, maintain, and continuously improve the observatory computing infrastructure and services to satisfy in full ALMA strategic goals









IT Group

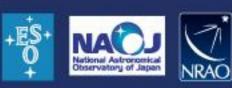




- Manager: Christian Saldias
- Responsibilities
 - Help desk
 - Networking services
 - Users network
 - Observing network
 - Backbone link administration.
 - General Services
 - email, VoIP, printers, backups, etc.
 - Server infrastructure
 - Blade servers administration
 - Servers virtualization



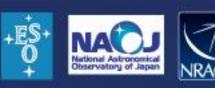
Archive Pipeline Operation Group



- 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



Joint ALMA Observatory











Correlator

AOS Technical Building

OSF
Hotel
Laboratories
Maintenance
Archive Stage
Integration Center
Array Control Center



Main Archive Data transmision

to the ALMA Regional

Centers

Offices:

-Science

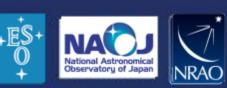
-Computing

-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%

<u>Deputies</u>

Soto-JAO

Watanabe-NAOJ Chavan-ESO Kern-NRAO

Software Operations

Soto-JAO 50% Shen-JAO 50% Fuica-JAO 100% Reveco-JAO 100% Sepulveda-JAO 100% Aguirre-JAO 50% Gonzalez(V)-JAO 50% Merino-JAO 50% Parra-JAO 50% Saez-JAO 50% Staig-JAO 50% Hoffstadt-JAO 50% Gil-JAO 50%

Integration and Release Management

Soto-JAO 50% Shen-JAO 50% Aguirre-JAO 50% Gonzalez(V)-JAO 50% Merino-JAO 50% Parra-JAO 50% Saez-JAO 50% Staig-JAO 50% Hoffstadt-JAO 50% Gil-JAO 50% S.Cornejo 100% Wells-NRAO 50% Hale-NRAO 50% Ashitagawa – NAOJ 25% Vakamura (Kyoko) -NAOJ 75% Sivera-ESO 50% Bufnea-ESO 50%

CL main responsible

ACA Control Watanabe-NAOJ 100%

Abe-NAOJ 60% Ashitagawa - NAOJ 65% Hiyama-NAOJ 50% Yokoyama-NAOJ 50% Matsui-NAOJ 90% Nakamura (Kohji)-NAOJ 50% Nakamura (Kyoko)-NAOJ 25% Zang-NAOJ 100%

EA main responsible

ICT CL

ICT EU

ICT EA

ICT NA

Common Infrastructure

Manning-ESO 100% Caproni-ESO 100% Moins-ESO 100% Sommer-ESO 25% Kobayashi-NAOJ 50% Various-GTD 100% Various-TERMA 25% Various-HIA 130%

Observatory Interfaces

Bridger-UKATC 50% Chavan-ESO 100% Bevil-UKATC 50% Kurowski-ESO 100% Nicol-UKATC 50% Pozna-ESO 25% Schilling-ESO 50% Sharp-NRAO 20% Chalevin-ESO 100% Vacancy-NRAO 50%

Software Engineering & Quality

Management Allaert-ESO 100% Pasquato-ESO 50% Various-TERMA 50%

Telescope Calibration Broguiere-IRAM 50% Roche-IRAM 50%

EU main responsible

Control

Marson-NRAO 100% Amestica-NRAO 100% Brandt-NRAO 100% Hale-NRAO 50% Tejeda-NRAO 100% Perez-NRAO 100% Rosen-NRAO 100% Hiriart-NRAO 25%

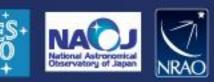
Data Processing Kern-NRAO 50% Bhatnagar-NRAO 50 % Caillat-LERMA 50% Castro-ESO 50% Davis-NRAO 100% Geers-UKATC 50% Golap-NRAO 50% Gonzalez(J)-ESO 100% Jacobs-NRAO 50% Kawasaki-NAOJ 90% Kosugi-NAOJ 10% Loveland**-NRAO 100% Mehringer**-NRAO 100% Moellenbrock-NRAO 50% Muders-MPIFR 25% Nakazato-NAOJ 100% Petry*-ESO 20% Rawlings**-NRAO 33% Schiebel-NRAO 50% Sugimoto-NAOJ 100% Taylor-ESO 50% Tsutsumi(T)-NRAO 100% Williams*-UKATC 50% Wyrowski*-MPIFR 10% Wells-NRAO 50% Kuniyoshi-NAOJ 100% Hiriart-NRAO 25% Miel-NAOJ 50%

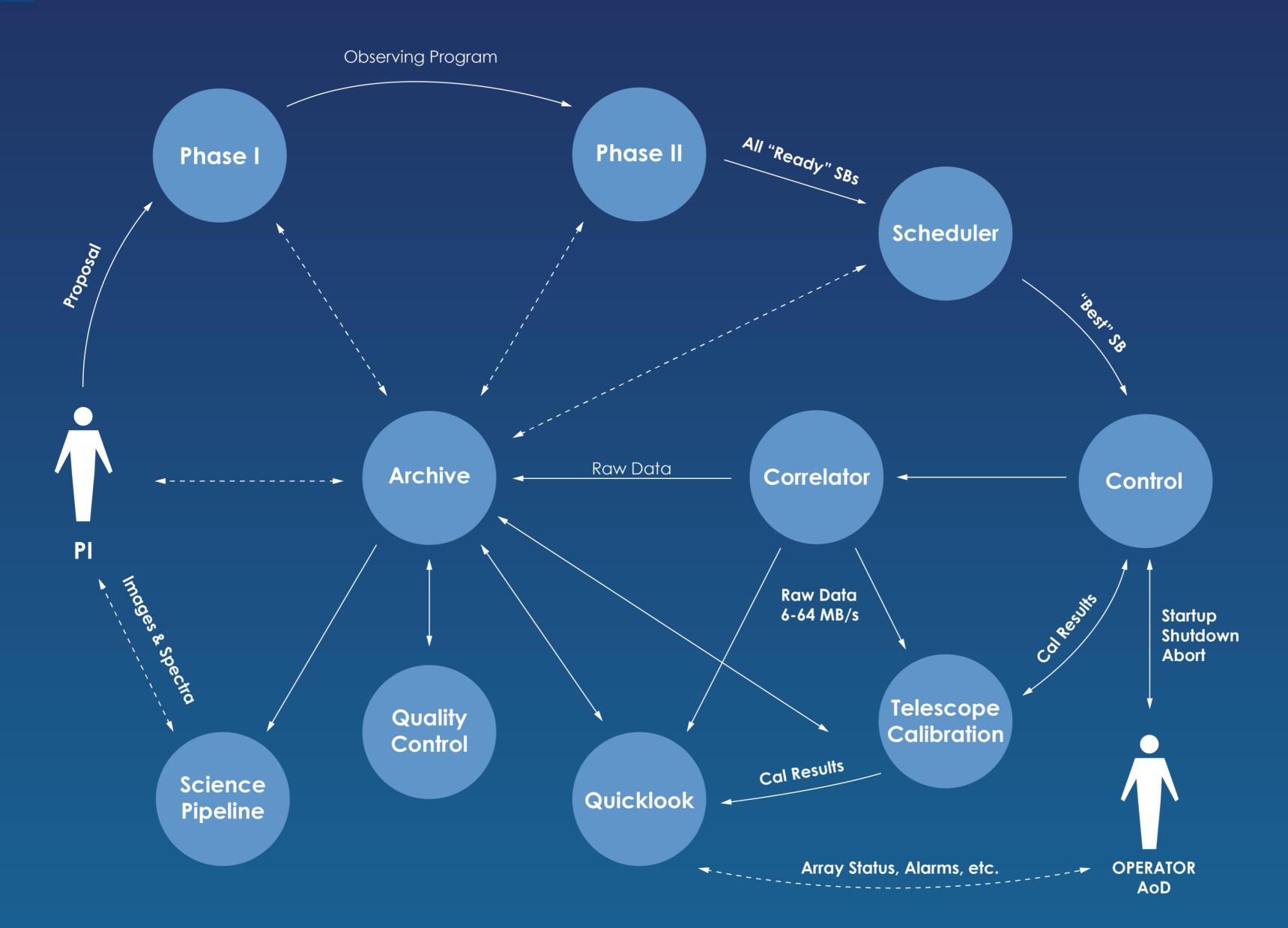
* EU ARC/ESO Contribution ** NA ARC Contribution

Scheduling Avarias-NRAO 100%

NA main responsible

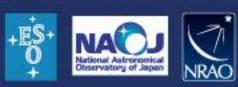








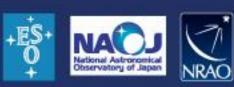
Colaboraciones Académicas y ALMA



- Colaboraciones de largo plazo (formales e informales) con universidades chilenas desde el año 2006:
 - \$\Delta U. Técnica Federico Santa María, U. Chile, U. Católica del Norte, U. Bio-Bio, U. Católica, ...
- ♦ (Un número significativo de) Prácticas de Verano desde el año 2006
- ♦ 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



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.