cherenkov telescope array

Astrofisica con Specchi a Tecnologia Replicante Italiana

INAF ISTITUTO NAZIONALE DI ASTROFISICA NATIONAL INSTITUTE FOR ASTROPHYSICS

MIUR

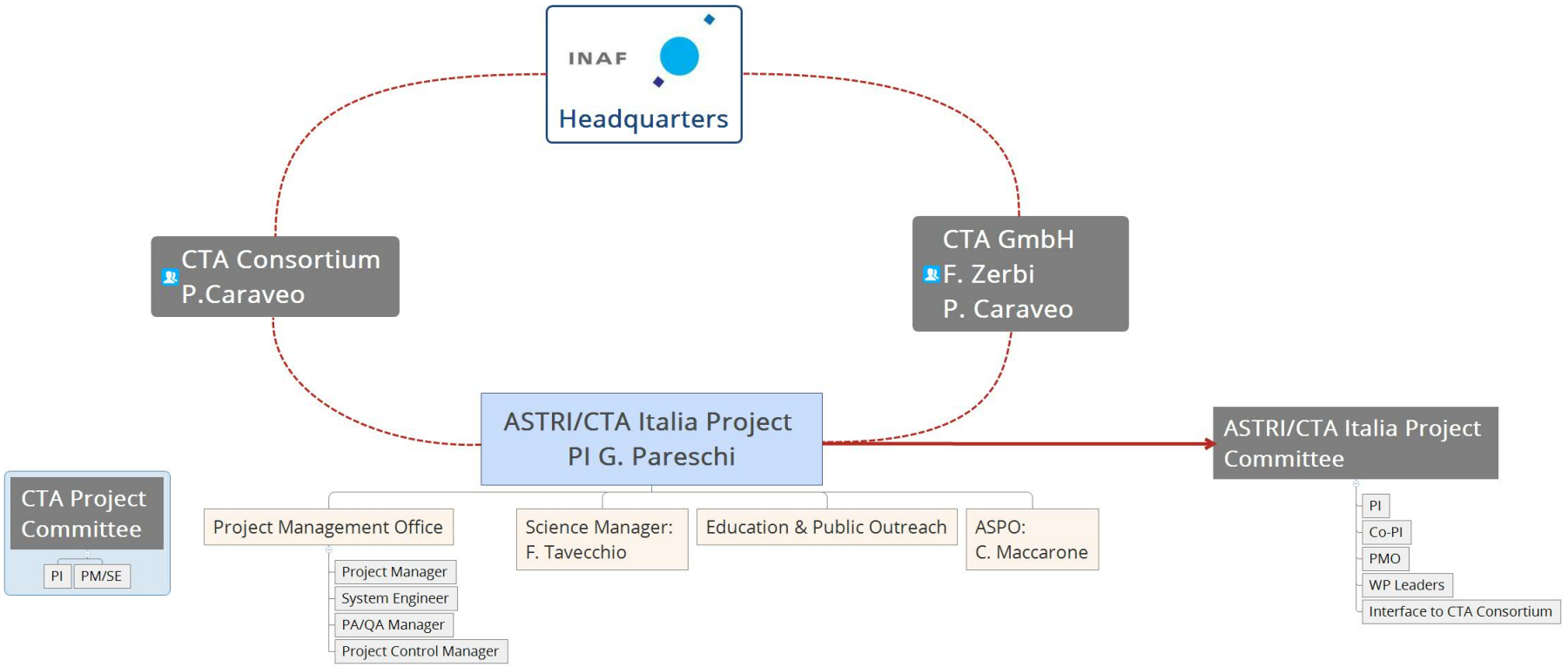
NORTH-WEST UNIVERSITY YUNIBESITI YA BOKONE-BOPHIRIMA NOORDWES-UNIVERSITEIT

Universidade de São Paulo

Il progetto ASTRI

Salvo Scuderi – INAF Catania

ASTRI: Organizzazione generale

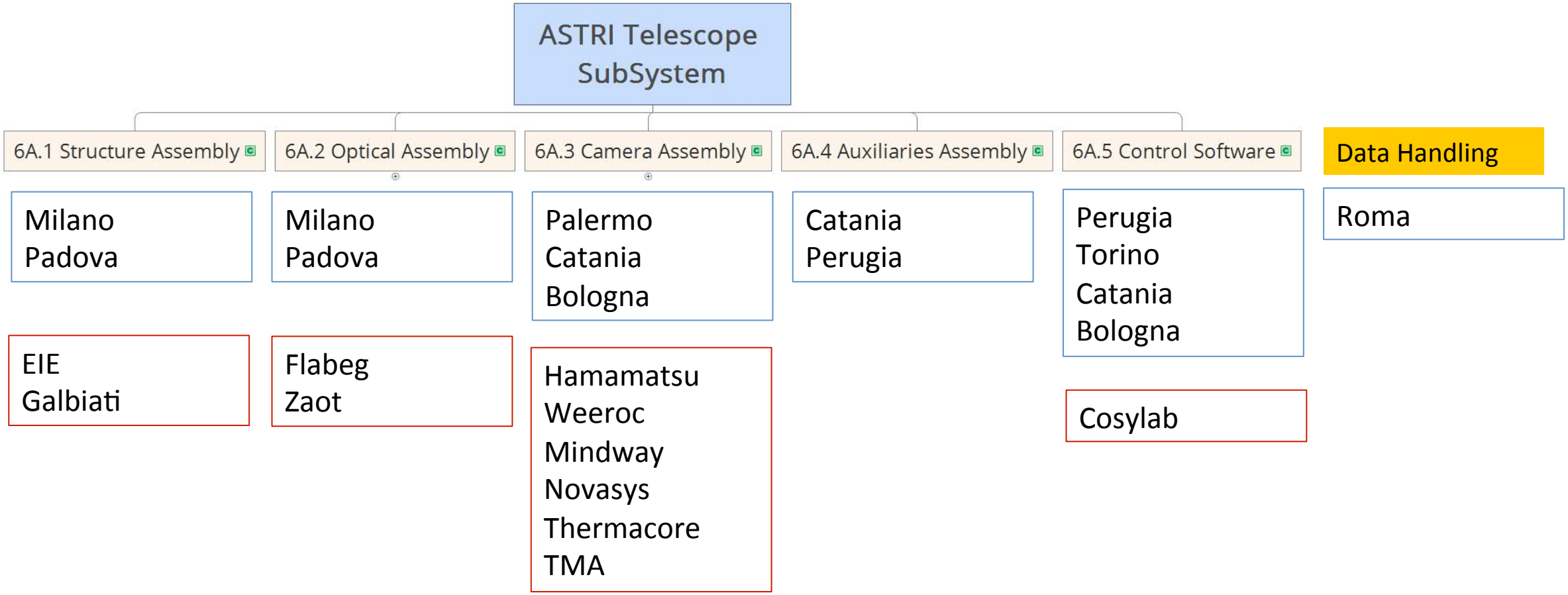


ASTRI Project Committee

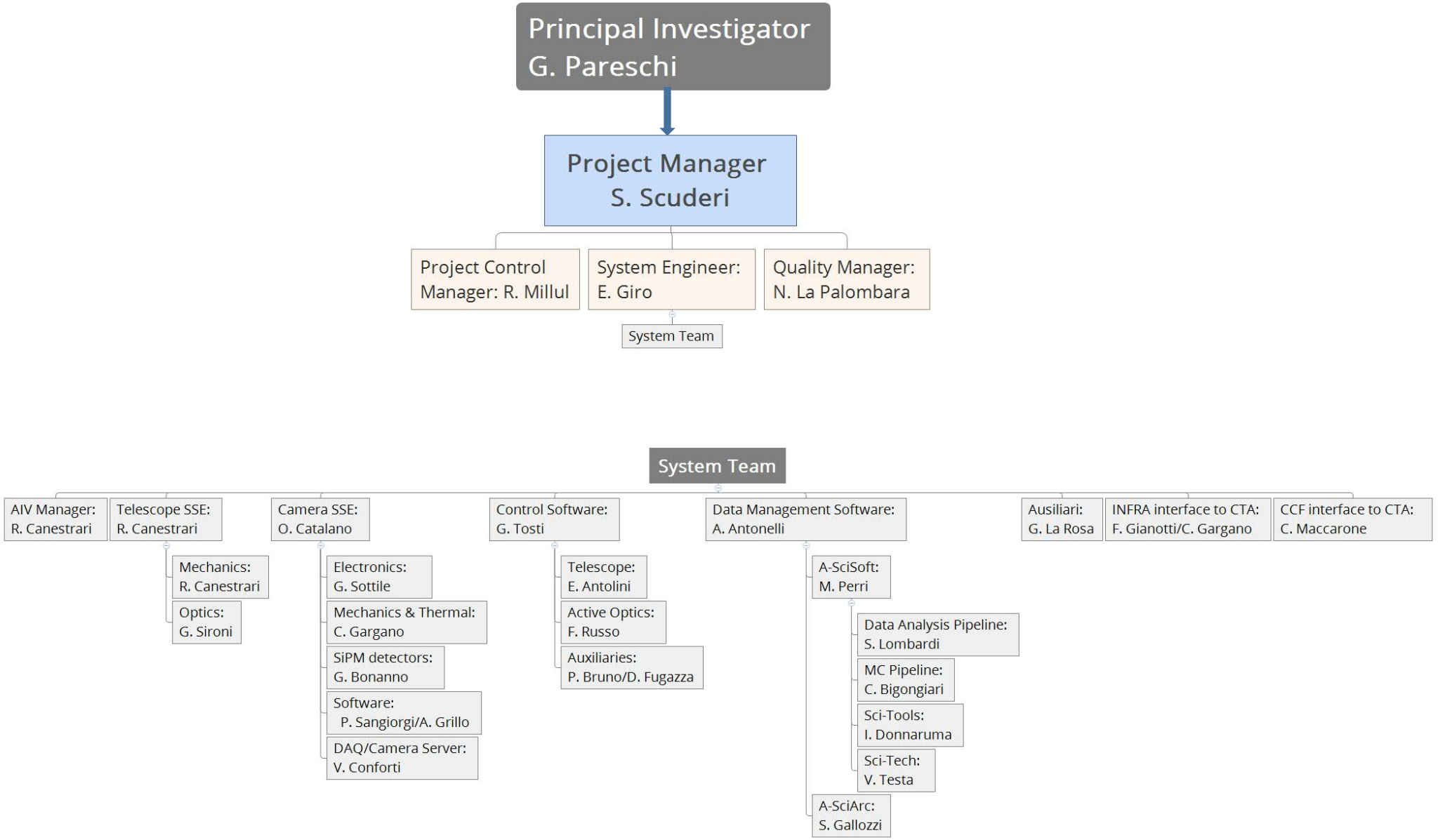
PMO
- Principal Investigator – Giovanni Pareschi (OAB)
- Project Manager – Salvo Scuderi (OACT)
- System Engineer – Enrico Giro (OAPD/OAB)
- Project Control Manager – Rachele Millul (IASFMI)
- QA Manager – Nicola La Palombara (IASFMI)

- Project Scientist – Fabrizio Tavecchio (OAB)
- SSE Telescope & AIV Manager – Rodolfo Canestrari (OAB/IASFPA)
- SSE Camera Cherenkov – Osvaldo Catalano (IASFPA)
- SSE Control Software – Gino Tosti (UNIPG)
- SSE Data Management Software – Angelo Antonelli (OA Roma)
- Deputy AIV Manager – Giorgia Sironi (OAB)
- ASPO Manager: Cettina Maccarone

ASTRI: Product Breakdown Structure

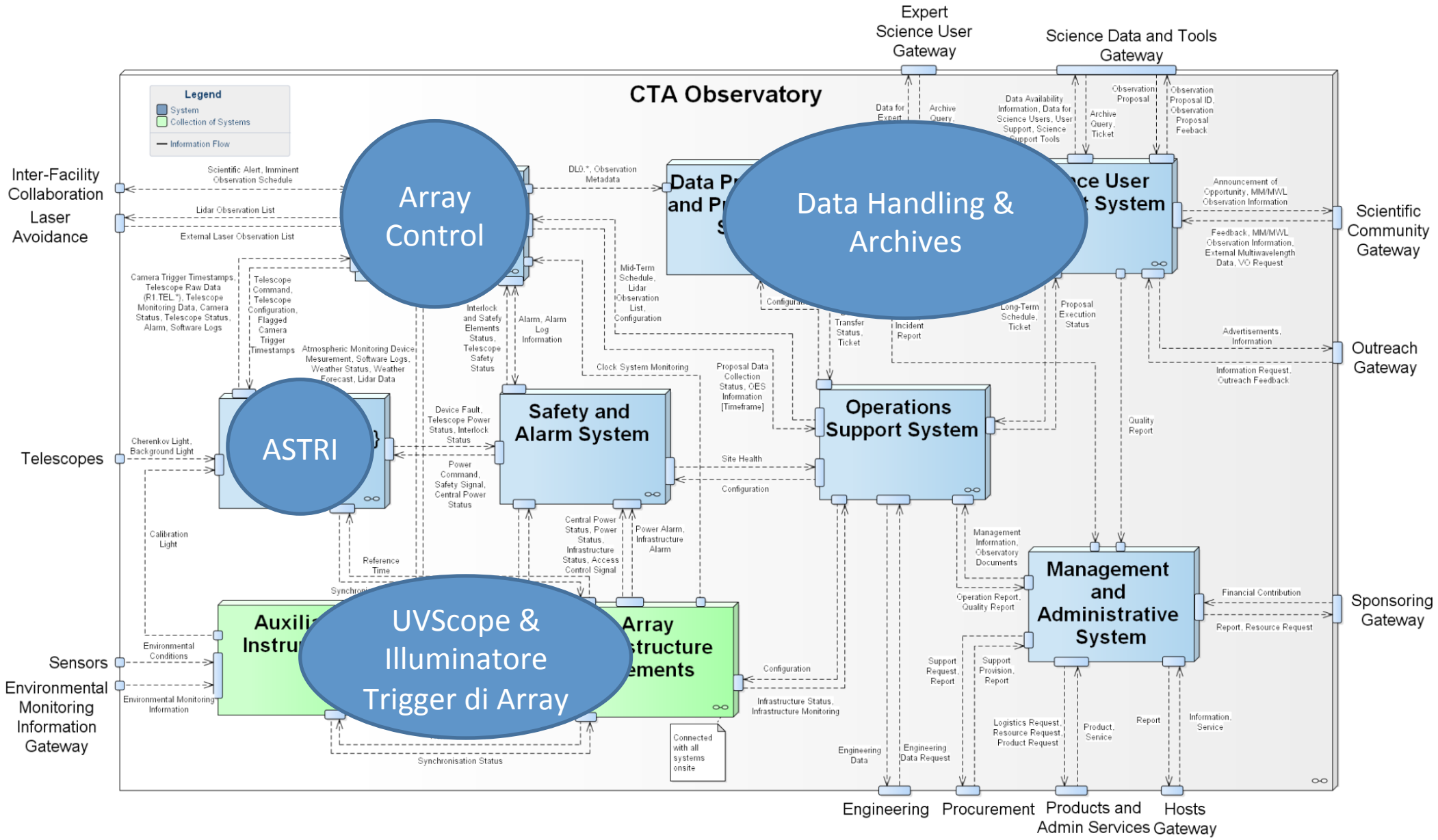


ASTRI: Organization Breakdown Structure



ASTRI: Personale non staff

- Elisa Antolini – Software di controllo – AdR – UniPerugia
- Vito Conforti – DAQ Camera – TD – IASFBO
- Federico Russo – Software di controllo – OATo - AdR
- Salvo Garozzo – Firmware Camera – OACT – AdR
- Giuseppe Romeo – Caratterizzazione Camera – OACT – AdR
- Davide Marano – Firmware Camera – OACT – AdR
- Alessandro Grillo – Software di controllo – OACT – TD
- Carmelo Gargano – Termomeccanica Camera – IASFPA – TD
- Domenico Impiombato – Caratterizzazione Camera – IASFPA – Borsa di Studio
- Pierluca Sangiorgi – Software di controllo – IASFPA – TD
- Rodolfo Canestrari – AIV Manager – OAB – TD
- Giorgia Sironi – Ottiche – OAB – AdR
- Ciro Bigongiari – Montecarlo – OARoma/SSDC – TD
- Saverio Lombardi – Data Handling – OARoma/SSDC -TD
- Fabrizio Lucarelli – Data Handling – SSDC – TD
- Francesco Visconti – Data Handling – SSDC – Post Doc
- Martina Cardillo – Data Handling – IAPS - AdR
- Giovanni Piano – Data Handling – IAPS – AdR
- Rachele Millul – Project Management – OAB – TD


Expert Science User Gateway
Science Data and Tools Gateway
CTA Observatory
Legend
System
Collection of Systems
Information Flow
Inter-Facility Collaboration
Laser Avoidance
Telescopes
Sensors
Environmental Monitoring Information Gateway
Scientific Community Gateway
Outreach Gateway
Sponsoring Gateway
Engineering
Procurement
Products and Admin Services
Hosts Gateway
Array Control
Data Handling & Archives
ASTRI
UVScope & Illuminatore Trigger di Array
Safety and Alarm System
Operations Support System
Management and Administrative System
Scientific Alert, Imminent Observation Schedule
Lidar Observation List
External Laser Observation List
DL0.*, Observation Metadata
Camera Trigger Timestamps, Telescope Raw Data (R1.TEL.*), Telescope Monitoring Data, Camera Status, Telescope Status, Alarm, Software Logs
Telescope Command, Telescope Configuration, Flagged Camera Trigger Timestamps
Atmospheric Monitoring Device Mesurement, Software Logs, Weather Status, Weather Forecast, Lidar Data
Interlock and Safety Elements Status, Telescope Safety Status
Alarm, Alarm Log Information
Mid-Term Schedule, Lidar Observation List, Configuration
Clock System Monitoring
Proposal Data Collection Status, OES Information [Timeframe]
Cherenkov Light, Background Light
Calibration Light
Device Fault, Telescope Power Status, Interlock Status
Power Command, Safety Signal, Central Power Status
Site Health
Configuration
Central Power Status, Power Status, Infrastructure Status, Access Control Signal
Power Alarm, Infrastructure Alarm
Reference Time
Synchronisation
Environmental Conditions
Environmental Monitoring Information
Infrastructure Status, Infrastructure Monitoring
Connected with all systems onsite
Synchronisation Status
Engineering Data
Engineering Data Request
Management Information, Observatory Documents
Operation Report, Quality Report
Support Request, Report
Support Provision, Report
Logistics Request, Resource Request, Product Request
Product, Service
Report
Information, Service
Financial Contribution
Report, Resource Request
Data for Expert
Archive Query
Data Availability Information, Data for Science Users, User Support, Science Support Tools
Archive Query, Ticket
Observation Proposal
Observation Proposal ID, Observation Proposal Feeback
Announcement of Opportunity, MM/MWL Observation Information
Feedback, MM/MWL Observation Information, External Multiwavelength Data, VO Request
Advertisements, Information
Information Request, Outreach Feedback
Transfer Status, Ticket
Incident Report
Long-Term Schedule, Ticket
Proposal Execution Status
Quality Report

Attività nel Project Office di CTA

- Gino Tosti – Gruppo di ingegneria di sistema (riconosciuto IKC INAF)
- Fulvio Gianotti – Consulente per INFRA – Gruppo monitoraggio ICT
- Andrea Bulgarelli – Consulente per Use Cases

Due Siti

image credit:
Gabriel Pérez Diaz, IAC

In fact, the expectation for the rate of gamma rays is only one per metre squared per year from a bright source, or one per metre squared per century from a faint source. To improve its ability to detect gamma rays, CTA will split more than 100 telescopes between two array locations – one in the northern hemisphere and one in the southern hemisphere to explore the entire sky.

Northern Hemisphere Site

CTA's northern hemisphere site is located on the existing site of the Instituto de Astrofisica de Canarias' (IAC's) Observatorio del Roque de los Muchachos on the island of La Palma, a Spanish island in the Canary Islands. At 2,200 metres altitude and nestled on a plateau below the rim of an extinct volcanic crater, the site currently hosts the two MAGIC Cherenkov telescopes. The northern hemisphere array will be composed of 19 telescopes and will focus on CTA's low- and mid-energy ranges from 20 GeV to 20 TeV.

Threshold
- 4 LST
- 5 MST

Baseline
- 4 LST
- 15 MST

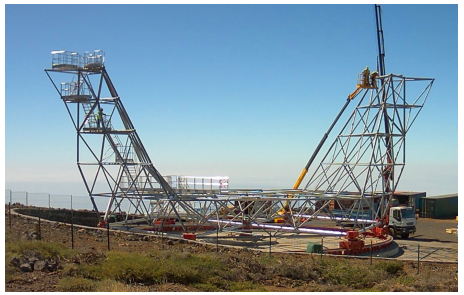
Southern Hemisphere Site

The southern hemisphere site is less than 10 km southeast of the European Southern Observatory's (ESO's) existing Paranal Observatory in the Atacama Desert in Chile, which is considered one of the driest and most isolated regions on earth – a dark paradise for stargazers. The southern hemisphere array will span the entire energy range of CTA, covering gamma-ray energies from 20 GeV to more than 300 TeV with 99 telescopes spread over 4 square kilometres.

Threshold
- 15 MST
- 50 SST

Baseline
- 4 LST
- 25 MST
- 70 SST

ASTRI: Organization Breakdown Structure



Real

- CTA telescope
  - Large-Sized
  - Medium-Sized
    - MST
      - NectarCAM
      - FlashCam
    - SCT
  - Small-Sized
    - SST-1M
    - ASTRI
      - ASTRI Cam.
      - CHEC Cam.
    - GCT