

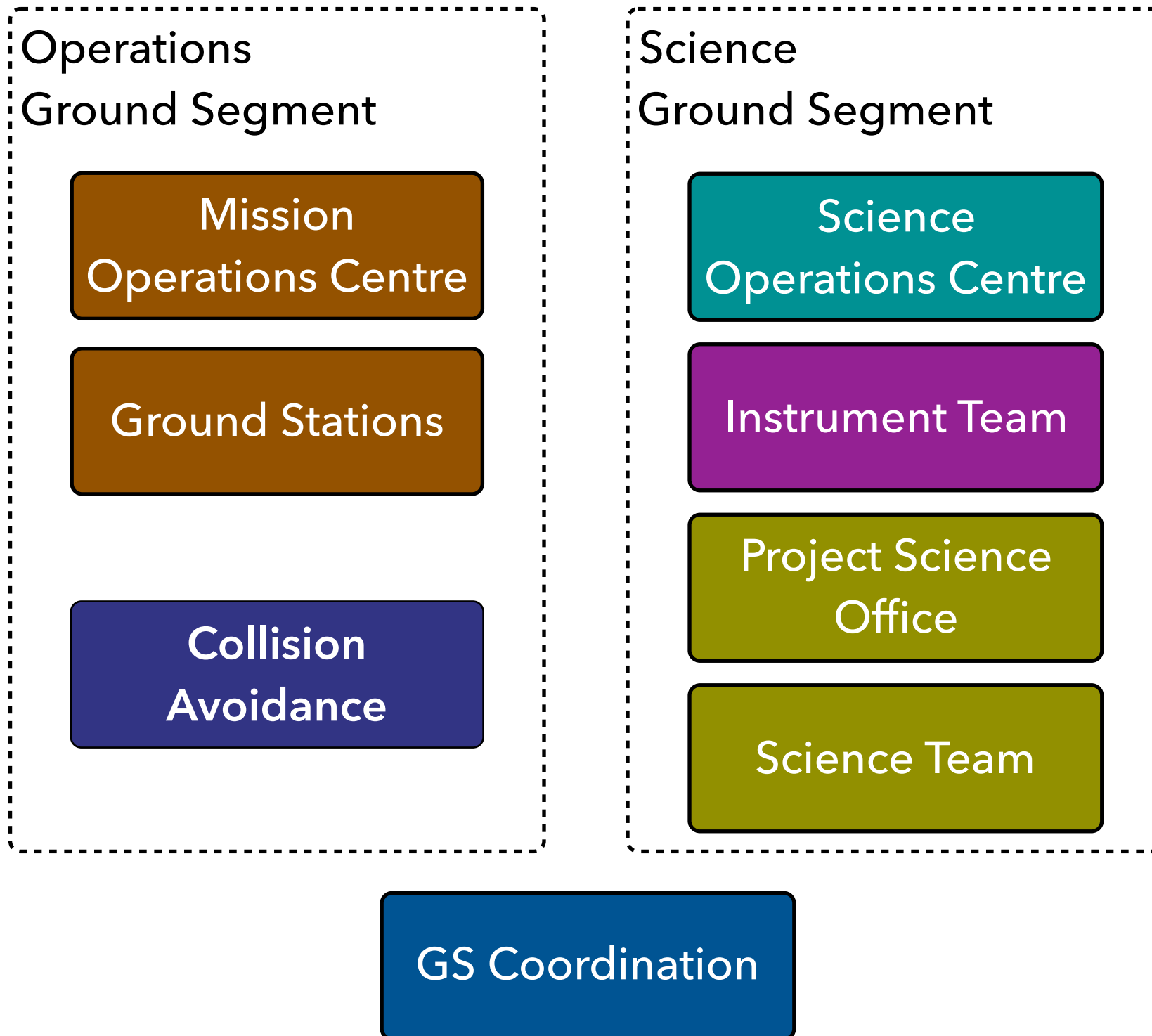


Science Data Flow

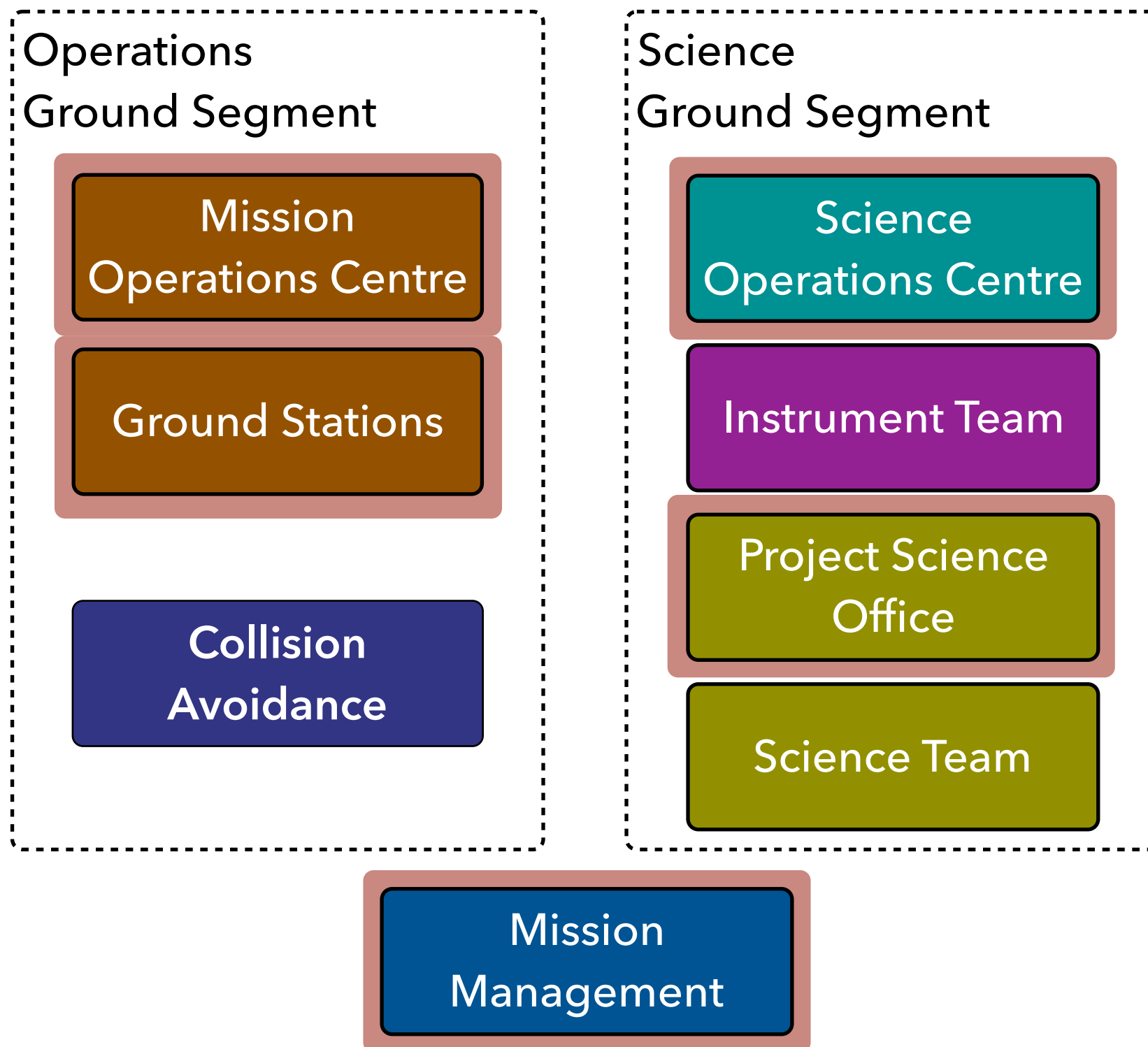
Mathias Beck

Ground Segment Coordination / SOC Development

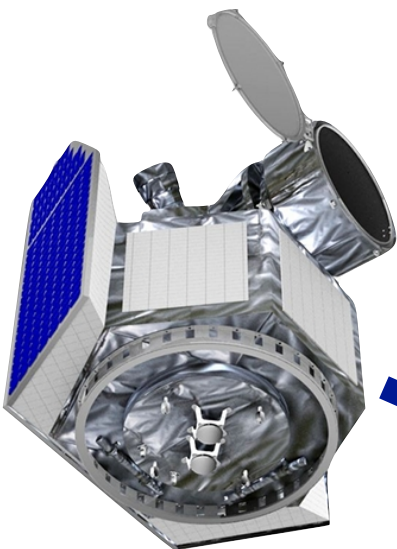
Ground Segment Actors



Operational Actors



From space to ground



Science
Data rate

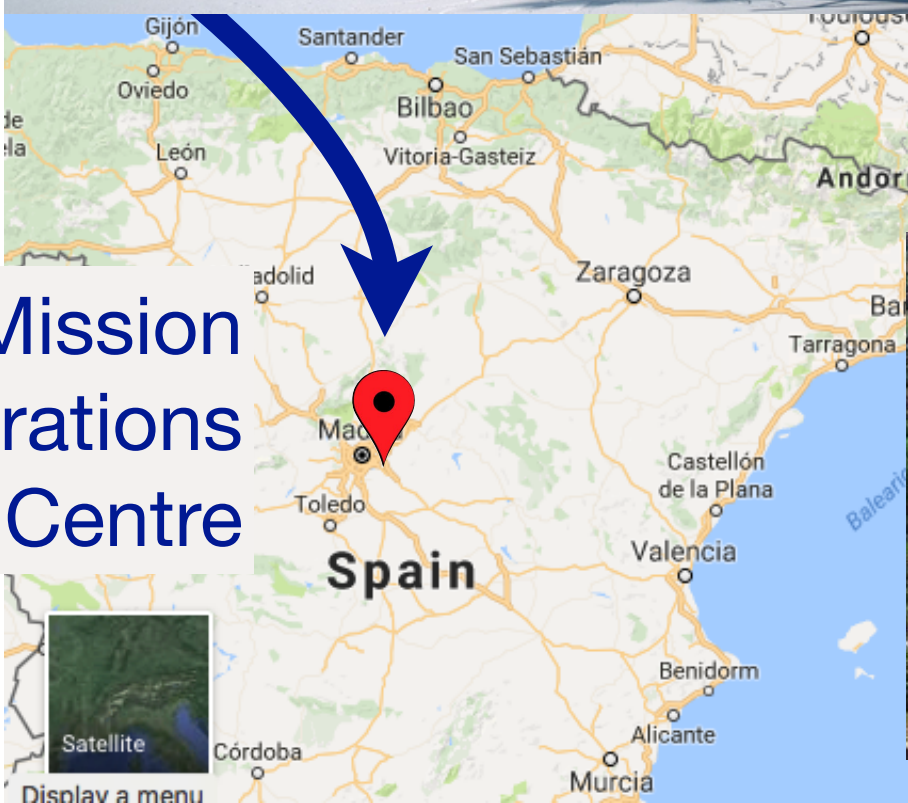
LEOP Ground station
Kiruna



Mission Operations Centre
& Ground station
Torrejón (INTA premisses)



Mission
Operations
Centre



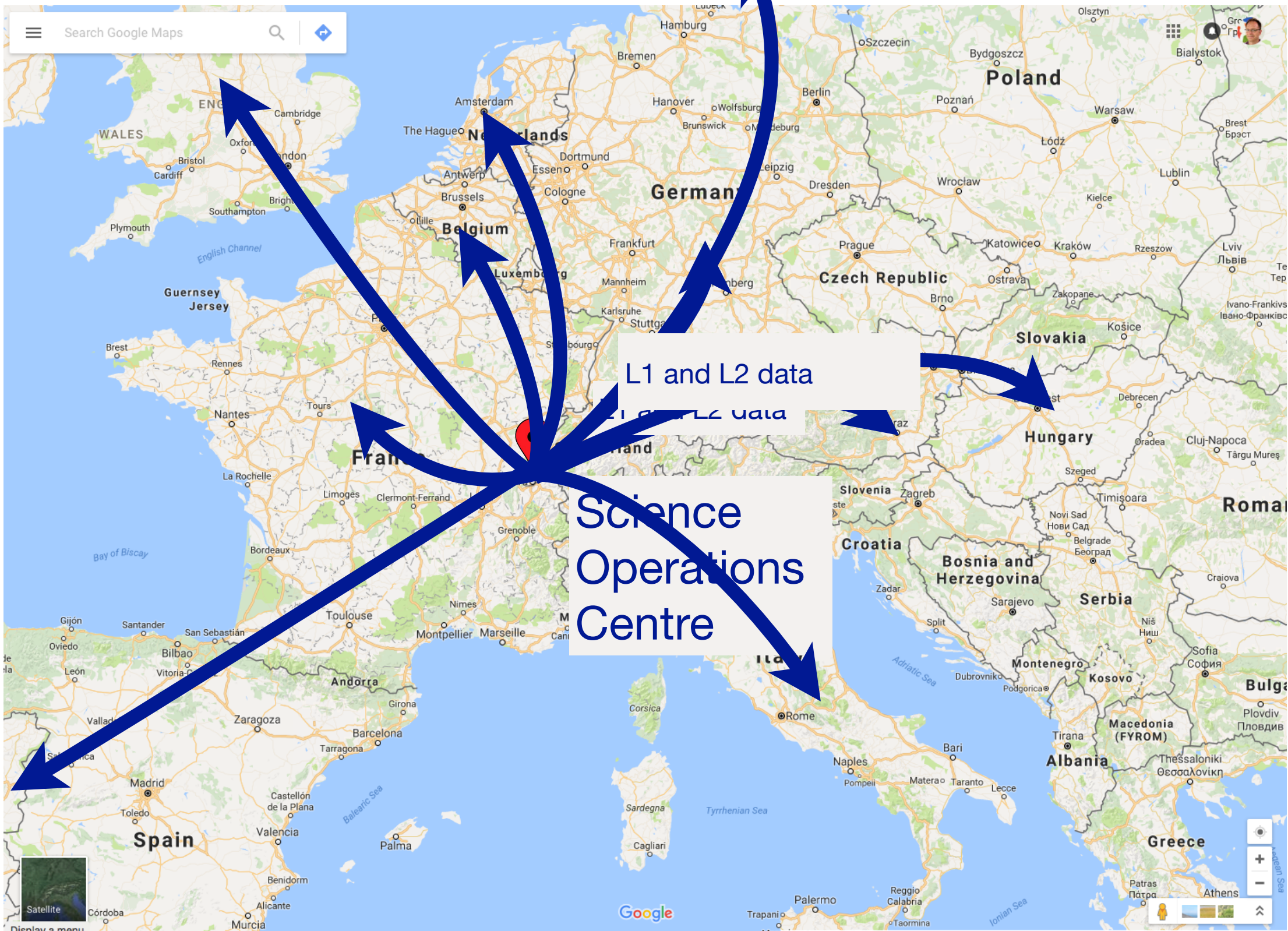
Back-up ground station
Villafranca (ESA/ESAC premisses)



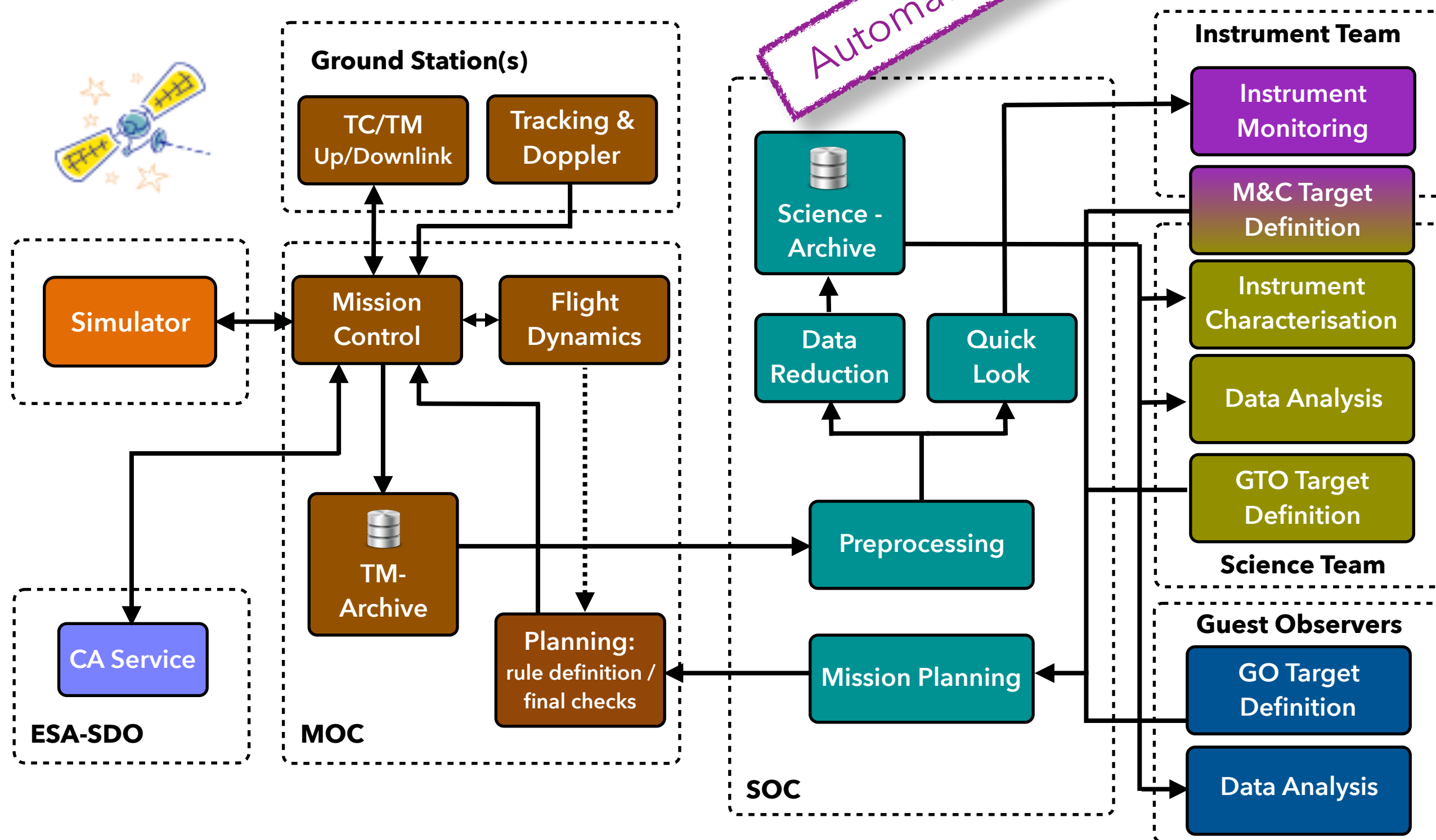
Towards the SOC



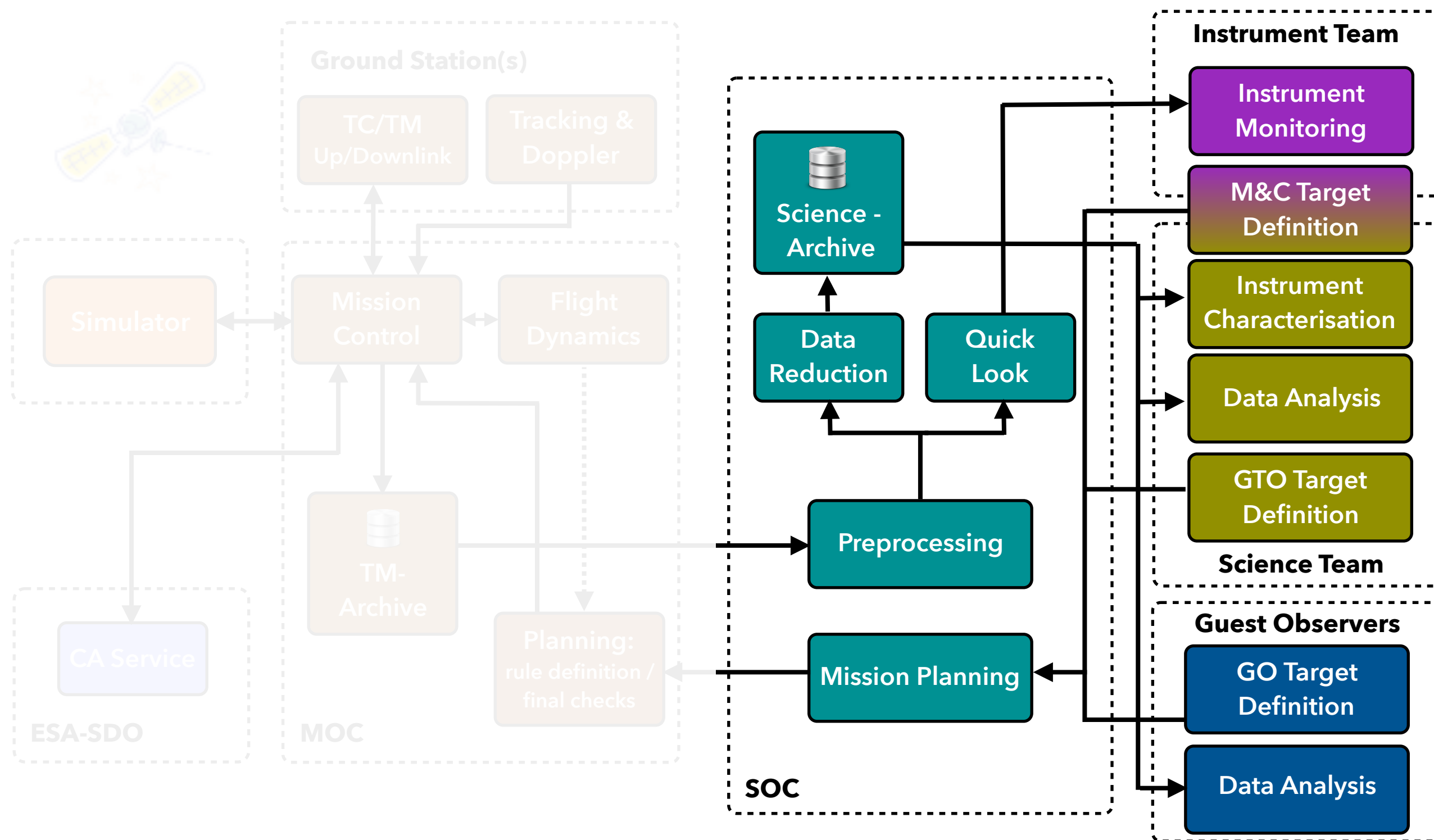
Final destination: GTO / GO



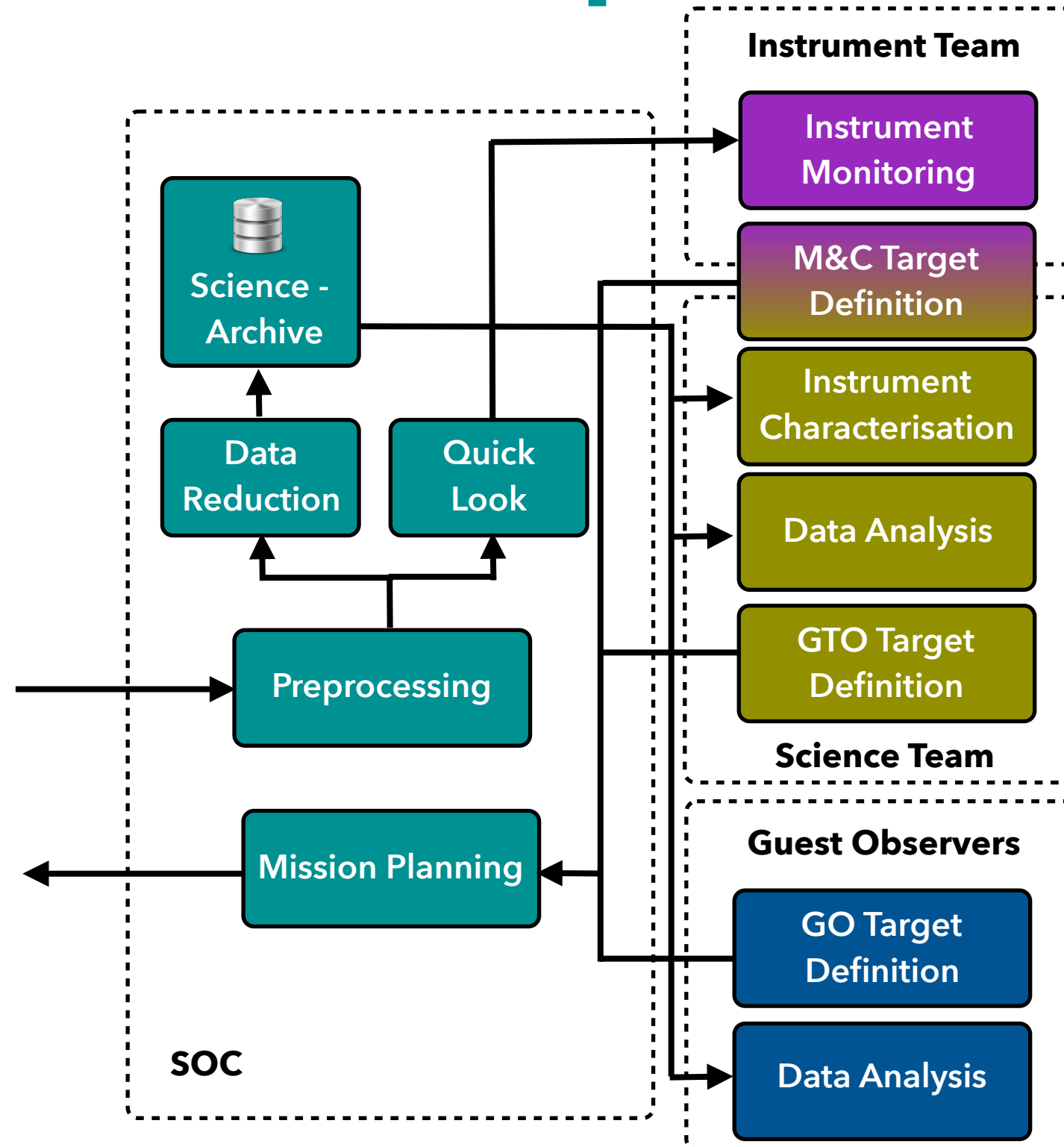
Operational Concept



Science Operations



Science Operations



Observing programmes

- Guaranteed Time Observations (GTO) - 80%

- Science Team



by D.Queloz

- Guest Observers (GO) - 20%

- Science community



by K.Isaak

- Director Discretion (ESA, CMC-PI) - 25 of 20%

- Monitoring and Characterisation (M&C)

- Science Team (Instrument Team)



by R.Alonso

Planning Approach

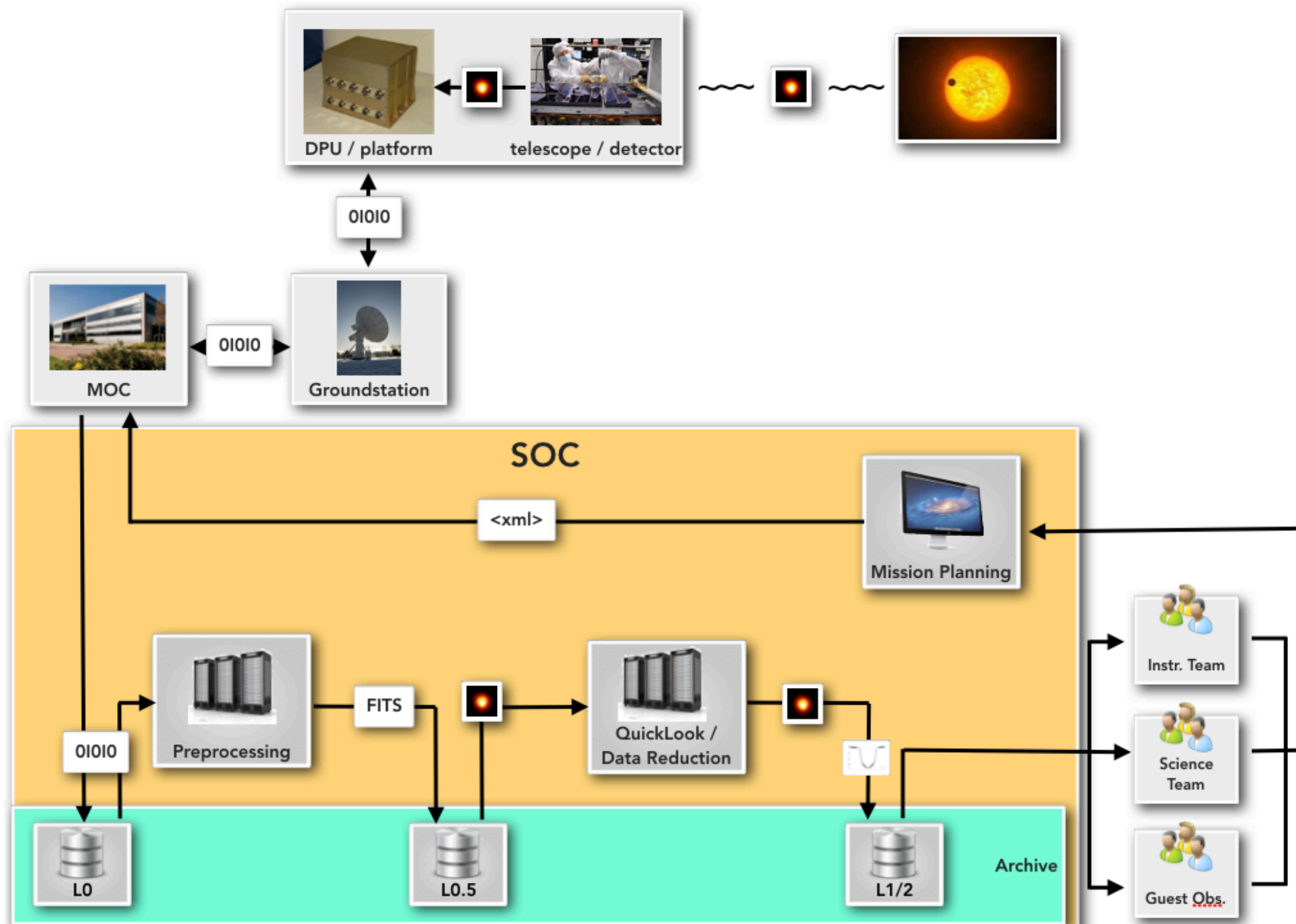
- Longterm plan covering the AO period
- Short-term schedule covering 1 week
- *ObservationRequests* from all programs (GTO, GO/DDT, M&C)
- *PlatformRequests*
- Schedule optimisation
- Validation by MOC



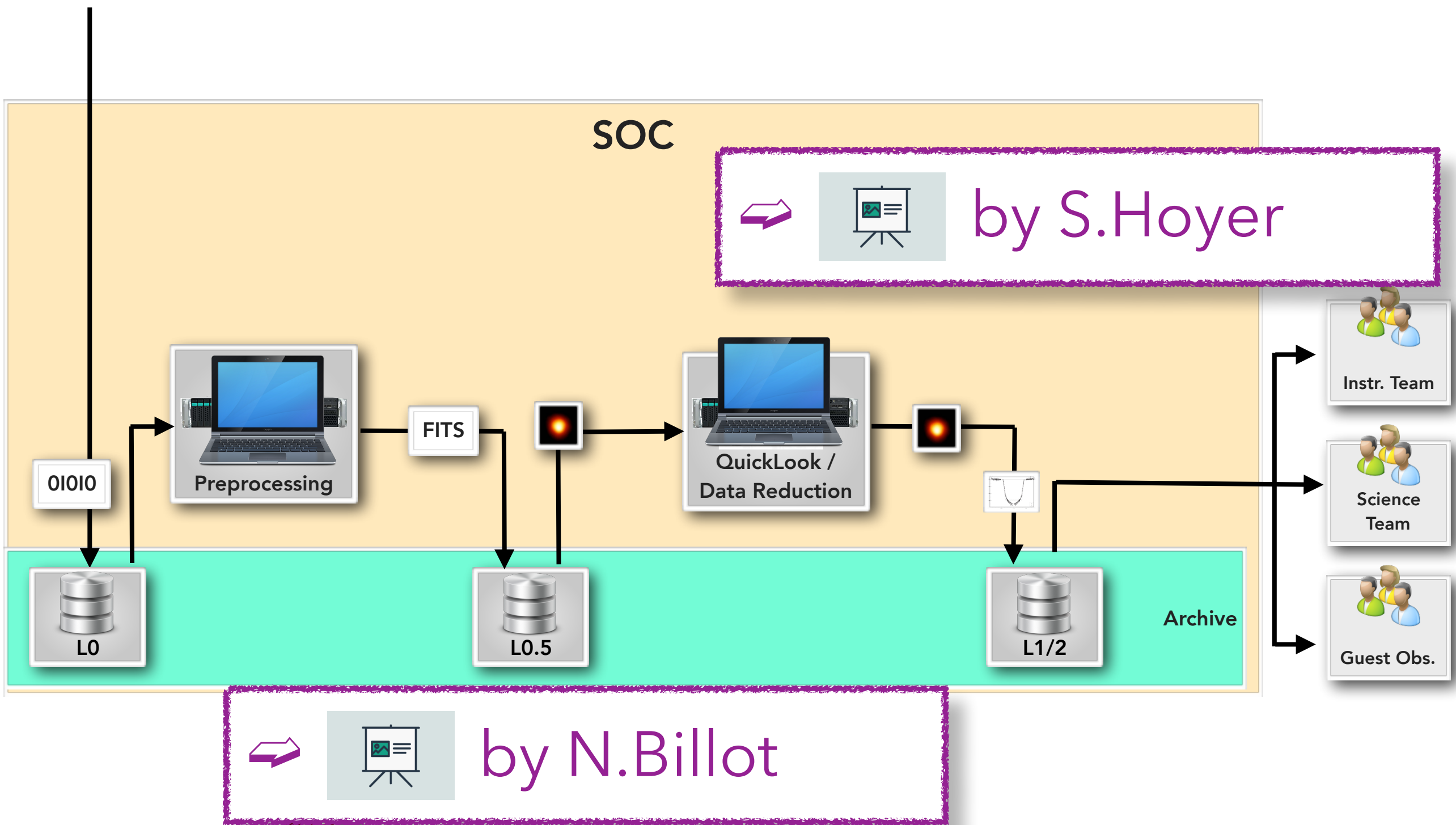
by N.Billot

➡ Email-notification sent to PI after telecommands have been uploaded to spacecraft

Data Processing - 1/2



Data Processing - 2/2



Data Products 1/5





- Level 0
 - Telemetry data (binary)
- Level 0.5 - output of Preprocessing
 - RAW images (FITS)
 - Housekeeping data - instrument and AOCS (FITS)

Data Products 2/5

- Level 1 - output of Data Reduction
 - CALibrated and CORrected images (FITS)
- Level 2 - output of Data Reduction
 - Lightcurves (FITS)



Data Products 3/5

- AUXiliary data
 - Orbit data
- REFerence files - aka calibration files
 - PSF, flat field, bad pixels, ...
- From on-ground   by A.Deline
- Inflight updates from M&C observations   by R.Alonso

Data Products 4/5

- Quality reports - automatically generated by
 - Preprocessing @ technical level
 - per pass and visit
 - QuickLook @ platform + instrument level
 - per pass and visit
 - Data Reduction @ end user level
 - per visit

Data Products 5/5

- Instrument Science Reports (ISR) derived from Monitoring and Characterisation observations



by R.Alonso

Archive 1/2

- Primary archive site

⇒ Automatic notification to PI when the data is available in the archive

⇒ 1 month to provide *Visit Problem Report (GTO & GO)*

- (Passive) mirror site
- Longterm archive > 10 years after end of mission



Archive 2/2



CHARACTERISING EXOPLANET SATELLITE

ARCHIVE
BROWSER



^ Target Based Query

Target Name

Target RA (deg)

Target Spectral Type

by N.Billot

Login

Login →

Observation Based Query

Reference Files Query

Submit Query

Reset

esa



 UNIVERSITÉ
DE GENÈVE

A word cloud shaped like a speech bubble, containing various terms related to data analysis. The most prominent words are "DATA" and "ANALYSIS" in large, bold, black letters. Other significant words include "PHASE", "QUALITY", "STRUCTURE", "IMPORTANT", "INITIAL", "MEASUREMENT", "FOCUSES", "TECHNIQUES", "EXPLORATORY", "PREDICTIVE", "STATISTICAL", and "BUSINESS INFORMATION". The words are in various sizes, colors (black, blue, and grey), and orientations, creating a dynamic and informative visual representation of data analysis concepts.

Questions ?

