

ALTIUS Atmospheric Characterization Mission: from Bits to Science

Speaker

CARL-HENRIK DAHLQVIST

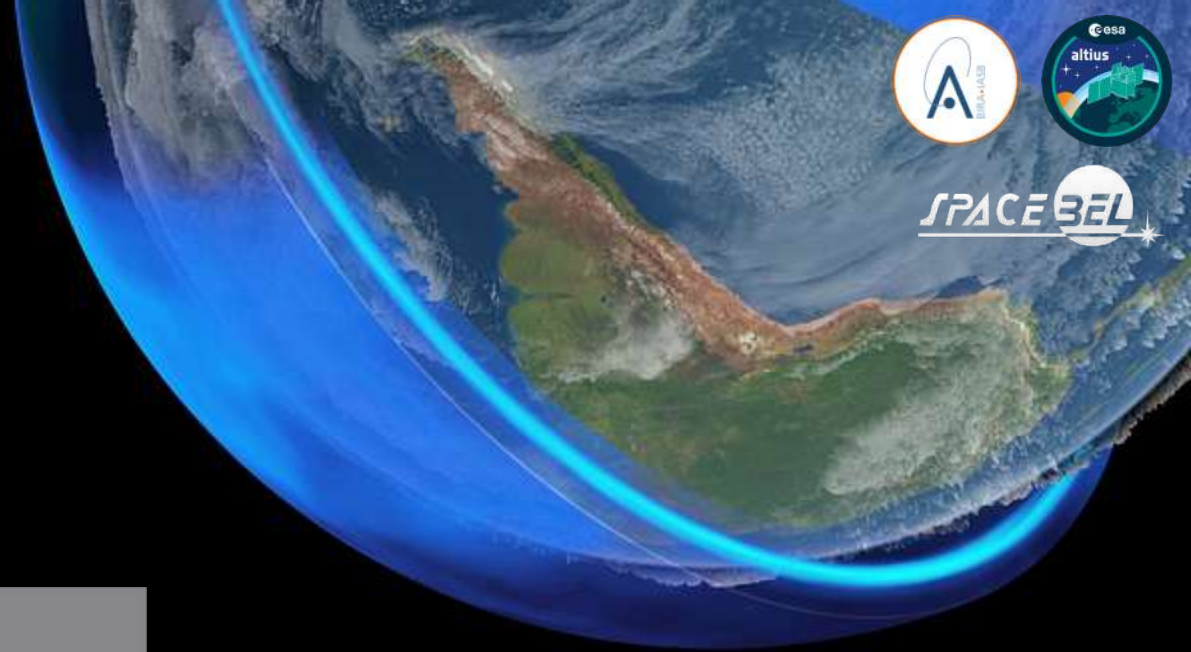
Physics Engineer - Spacebel



ALTIUS mission : from Bits to Science

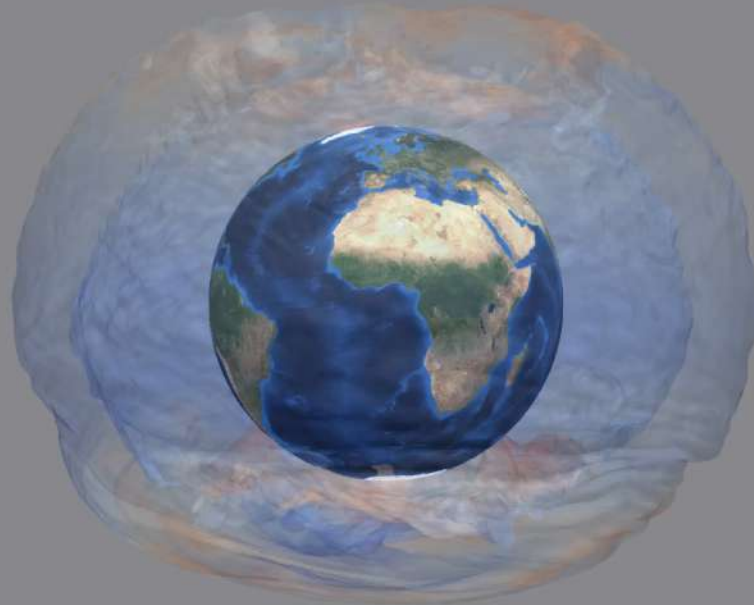


The ozone layer is vital...
for human beings
for animals
for vegetation and crops



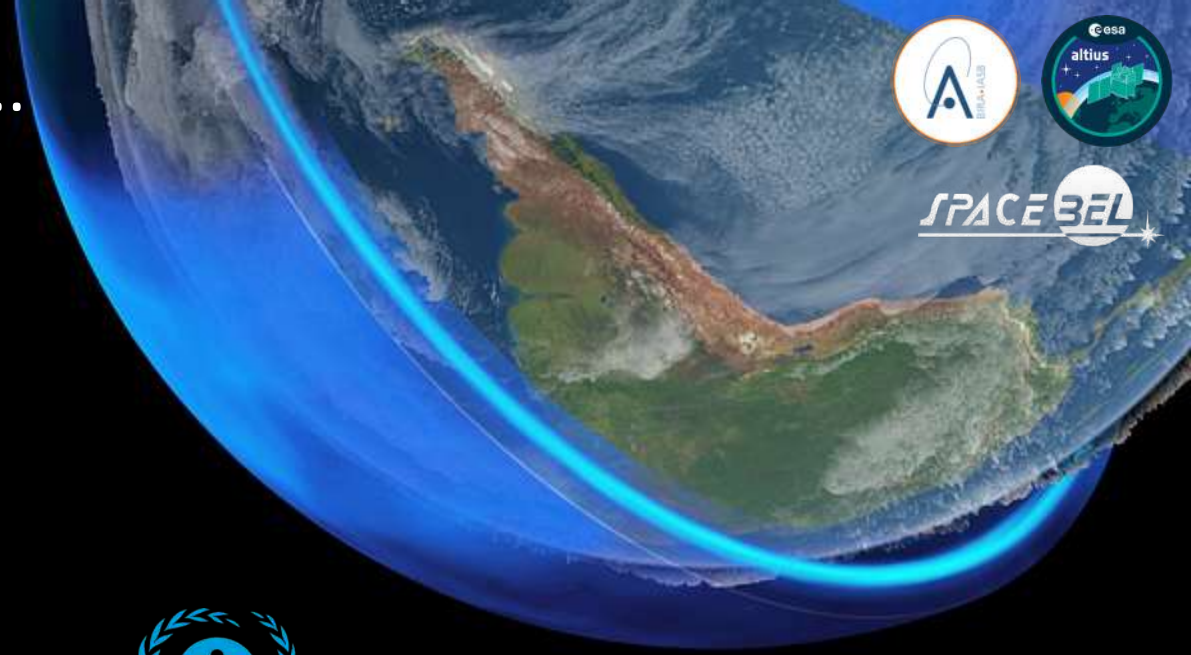
Ozone hole development 2023

12 mPa ozone partial pressure isosurface coloured by total column ozone

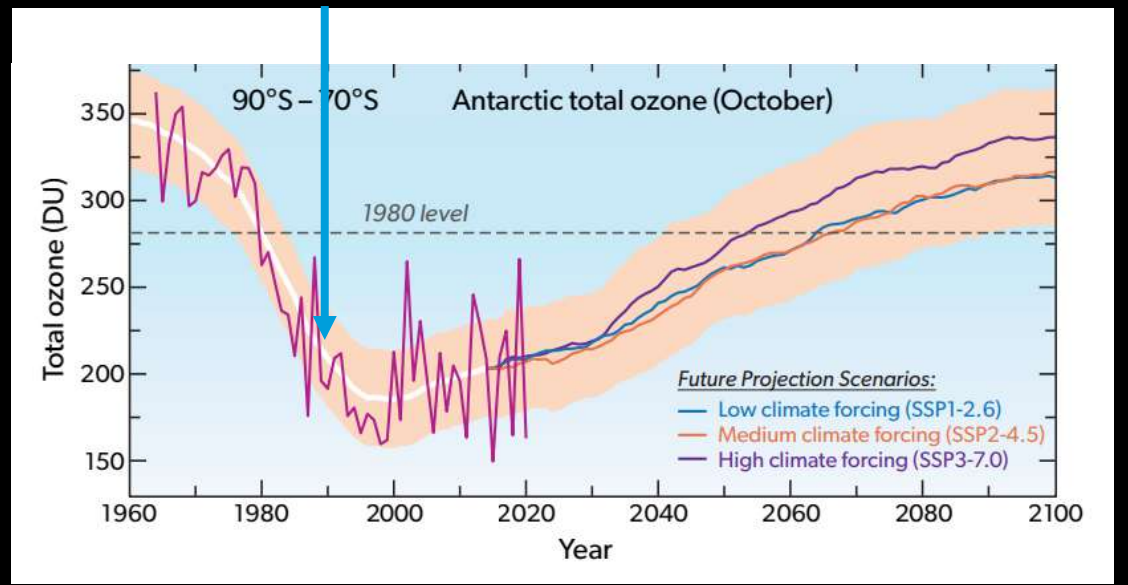
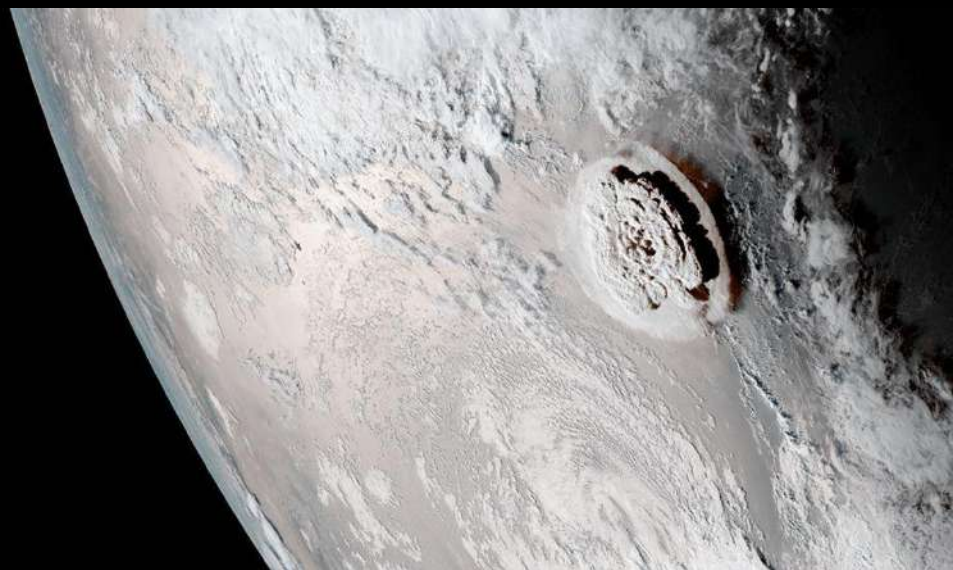


But it has been
perturbed by the
accumulation of
chlorine compounds

Restoring the ozone layer will take decades...
and will be impacted by the global warming



and natural events



Monitoring O₃ layer for

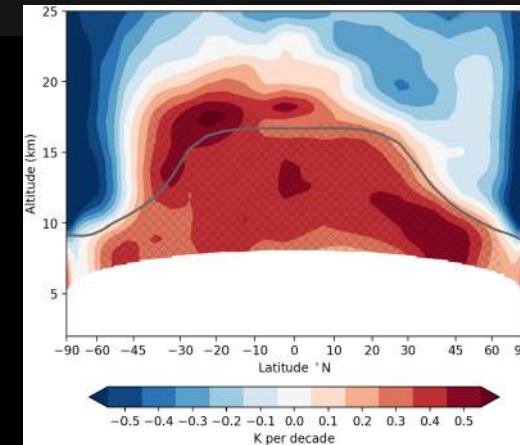
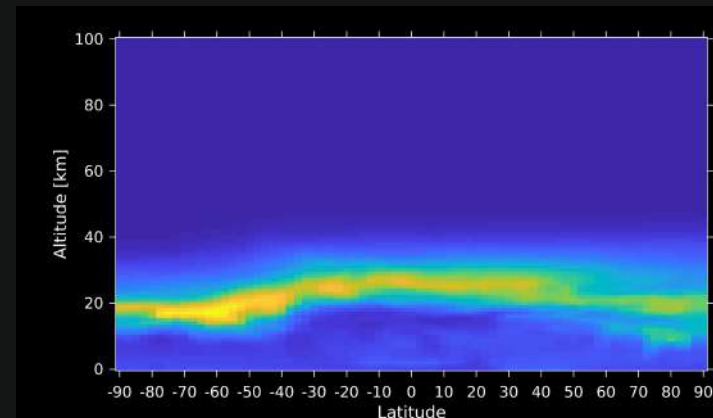
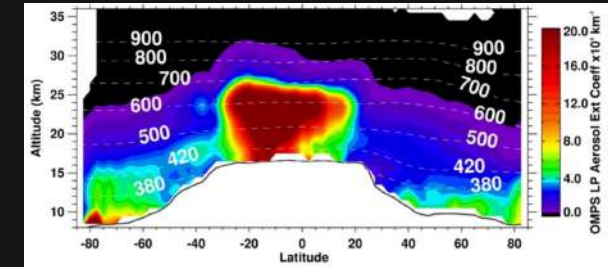
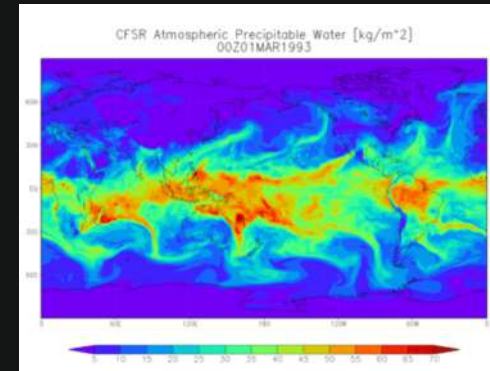
- Numerical weather prediction models
- Atmospheric composition models
- O₃ layer recovery trends
- Understanding natural processes (wildfires, eruption, solar activity)
- Connecting with climate change research

Monitoring other species

Aerosols, water vapor, temperature, NO₂, NO₃, BrO, OCIO, PSC, PMC



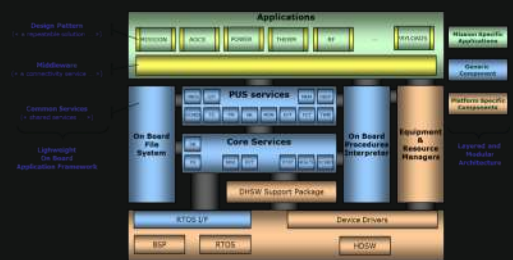
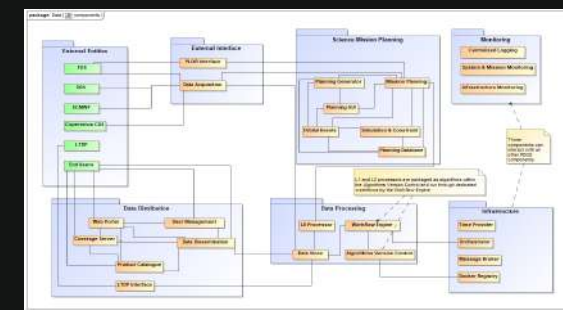
Altius contribution





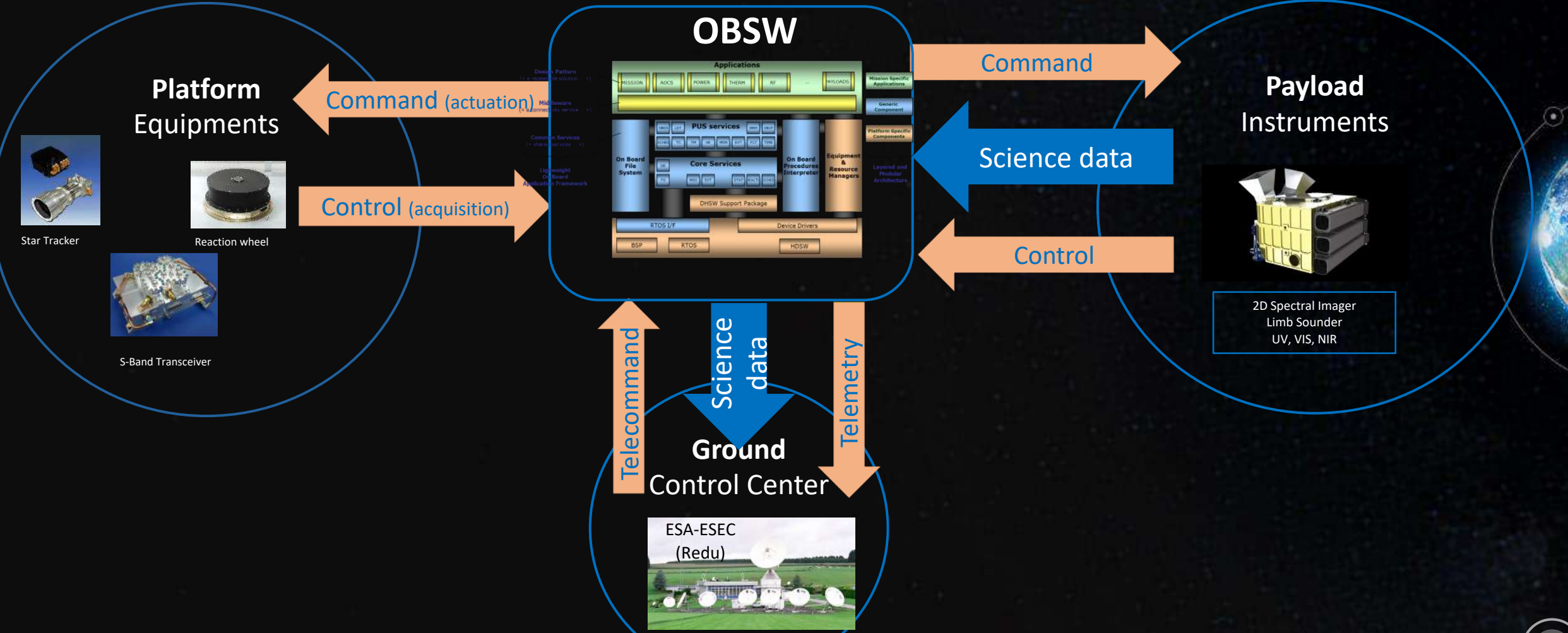
With Altius we want to see **more** and **better** than before!

Hence, the many **challenges** in terms of **instrument**, **platform** and **payload data management** !



SPACE SEGMENT

OBSW > Architecture & Interfaces



Ground Segment

PDGS > Objectives

- Determine precisely **satellite orbit**
- Command **maneuvers** to keep desired orbit
- Define **pass planning** and send **commands**
- Receive **platform information** and **monitor** satellite state
- Command **observations** (attitude, instrument configuration)
- **Receive** and **treat** scientific observations
- **Disseminate** scientific products to the community
- **Monitor** instrument and system state
- **Calibrate** the instruments

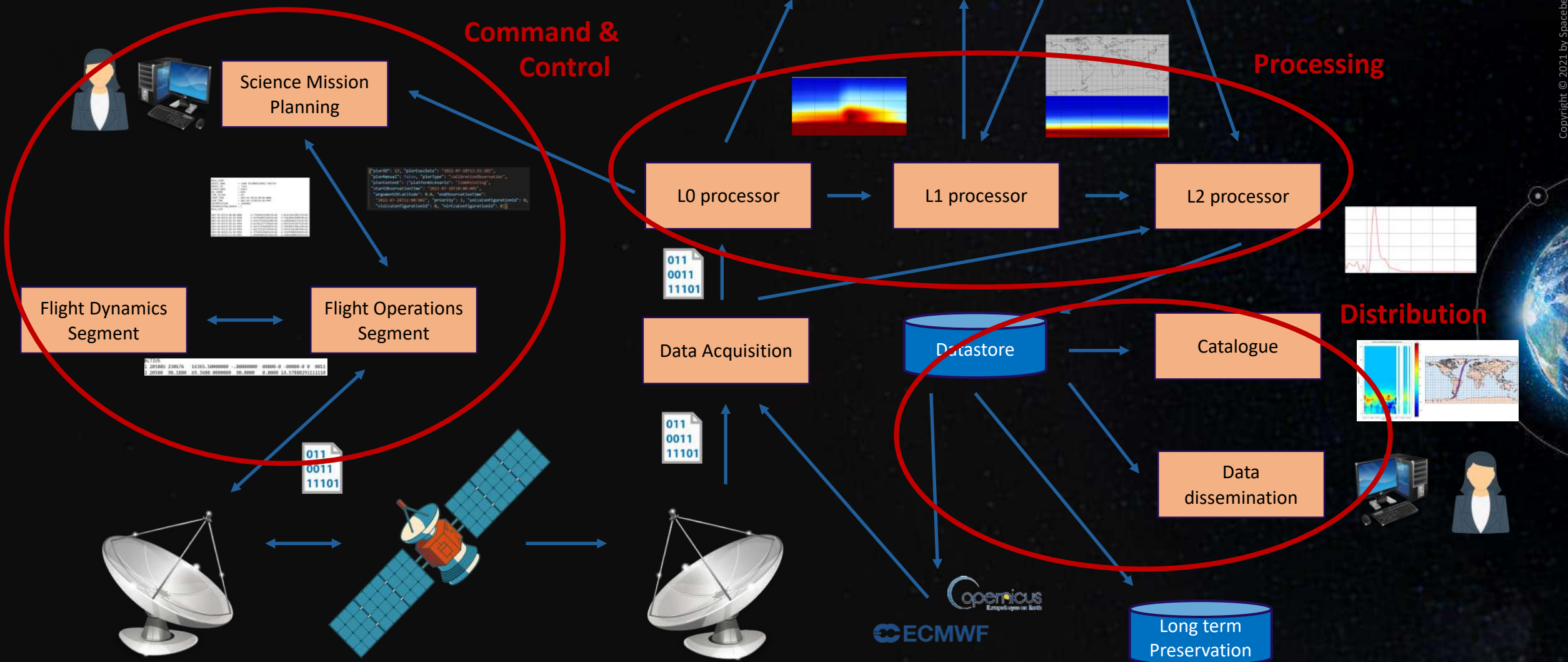
Flight **D**ynamics **S**egment

Flight **O**perations **S**egment

Payload **D**ata **G**round **S**egment

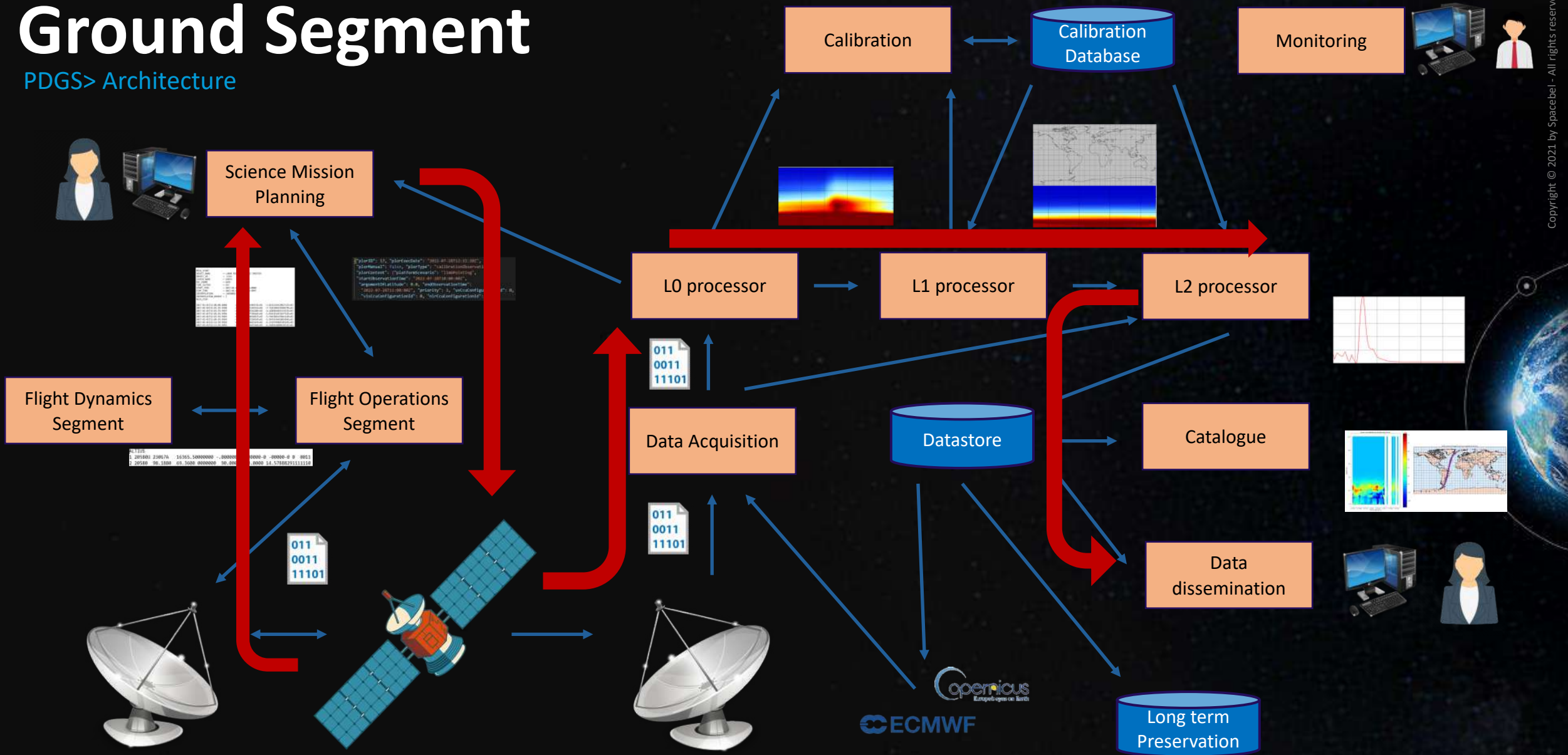
Ground Segment

PDGS > Architecture



Ground Segment

PDGS > Architecture



Any questions?



Sponsors

Switch ^{to}
Space 4

