IEEC
Institut d'Estudis Espacials de Catalunya

LISA
Mission Update and Next Steps

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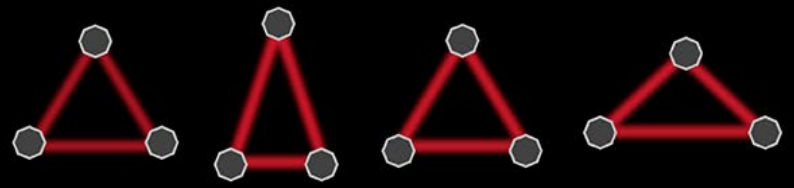
Generalitat de Catalunya
Universitat de Barcelona
UAB Universitat Autònoma de Barcelona
Universitat Politècnica de Catalunya BarcelonaTech
CSIC Consejo Superior de Investigaciones Científicas
Centre de: CERCA Centres de Recerca de Catalunya

LISA

LISA - LASER INTERFEROMETER SPACE ANTENNA

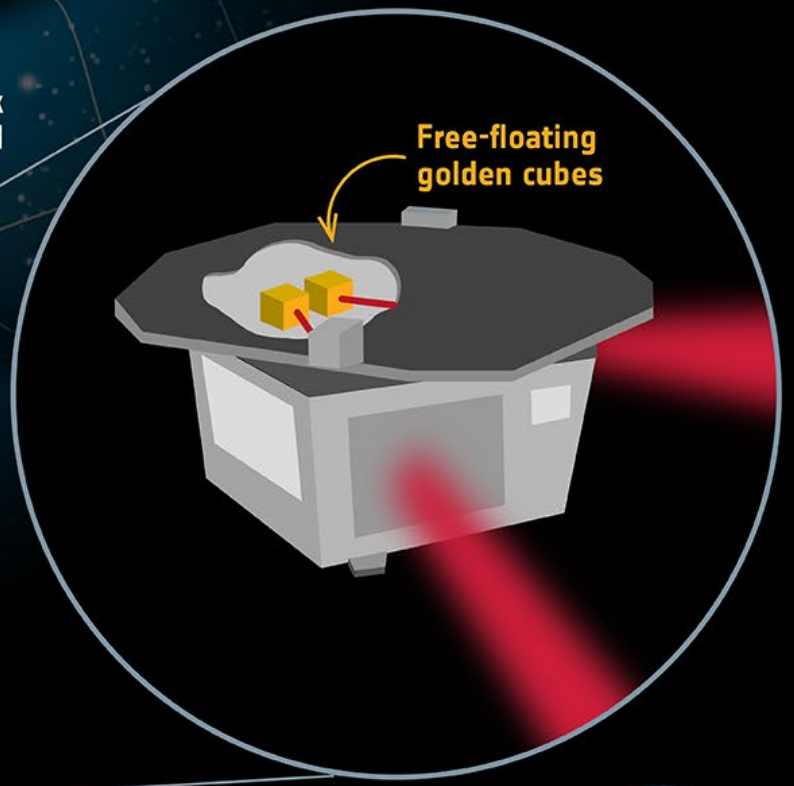
Gravitational waves are ripples in spacetime that alter the distances between objects. LISA will detect them by measuring subtle changes in the distances between **free-floating cubes** nestled within its three spacecraft.

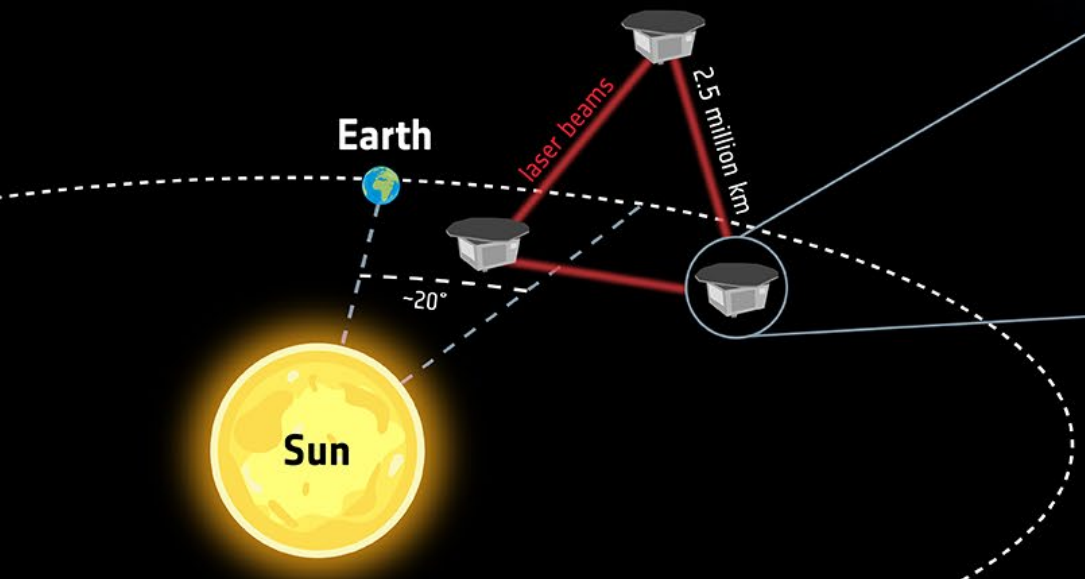
3 identical spacecraft exchange **laser beams**. Gravitational waves change the distance between the **free-floating cubes** in the different spacecraft. This tiny change will be measured by the laser beams.



* *Changes in distances travelled by the laser beams are not to scale and extremely exaggerated*

Powerful events such as **colliding black holes** shake the fabric of spacetime and cause gravitational waves





ESA | NASA
lisa

LISA

Scientific Payload

IEEC,CNES, AEI, UTN

Mission Specific Hardware needed to meet the Scientific Objectives.

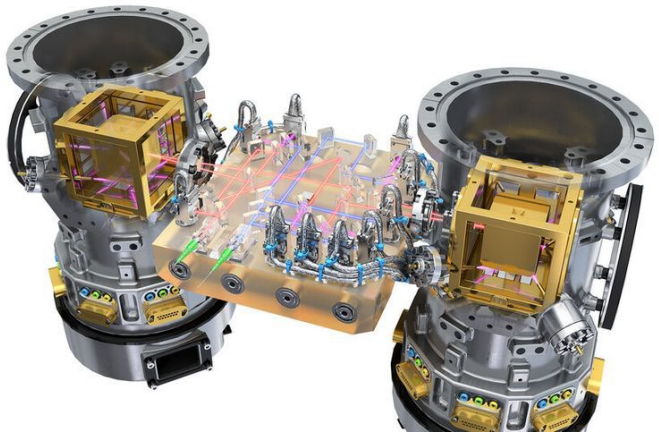


Image from LISA Pathfinder

Payload Mounted Within the Platform

Platform/ Spacecraft

Prime

All the other elements needed to support the mission as the platform, solar panels, OBC, etc.

Image from LISA Pathfinder

ESA Team

LISA Project Team @ ESA

Mission & Performance

- Martin Hewitson — Mission & Performance Manager
- Michele Armano — Scientific Performance Engineer
- Eric Joffre — Mission Perfo & Verification Engineer
- TBD — Scientists seconded from Consortium

Scientist

- Nora Luetzgendorf — Project Scientist
- Oliver Jennrich — Project Scientist

Spacecraft & AIT

- Christian Erd — Spacecraft Manager
- Elena Maiorano — Spacecraft Engineering Manager
- Felice Torelli — Functional Lead
- Frederic Bard — Electrical Lead
- Daniele Teti — MTP Lead
- Martin Gehler — DFACS & Mission Perfo Interface
- Claudio Casagrande (post PLATO) — AIT Manager
- Max Petrozzi-Ilstaad — Senior AIT
- TBC — TEC Support
- TBD — TEC Support

PA & Safety

- David Monteiro — Payload PA & Safety Manager
- TBC — TEC Support

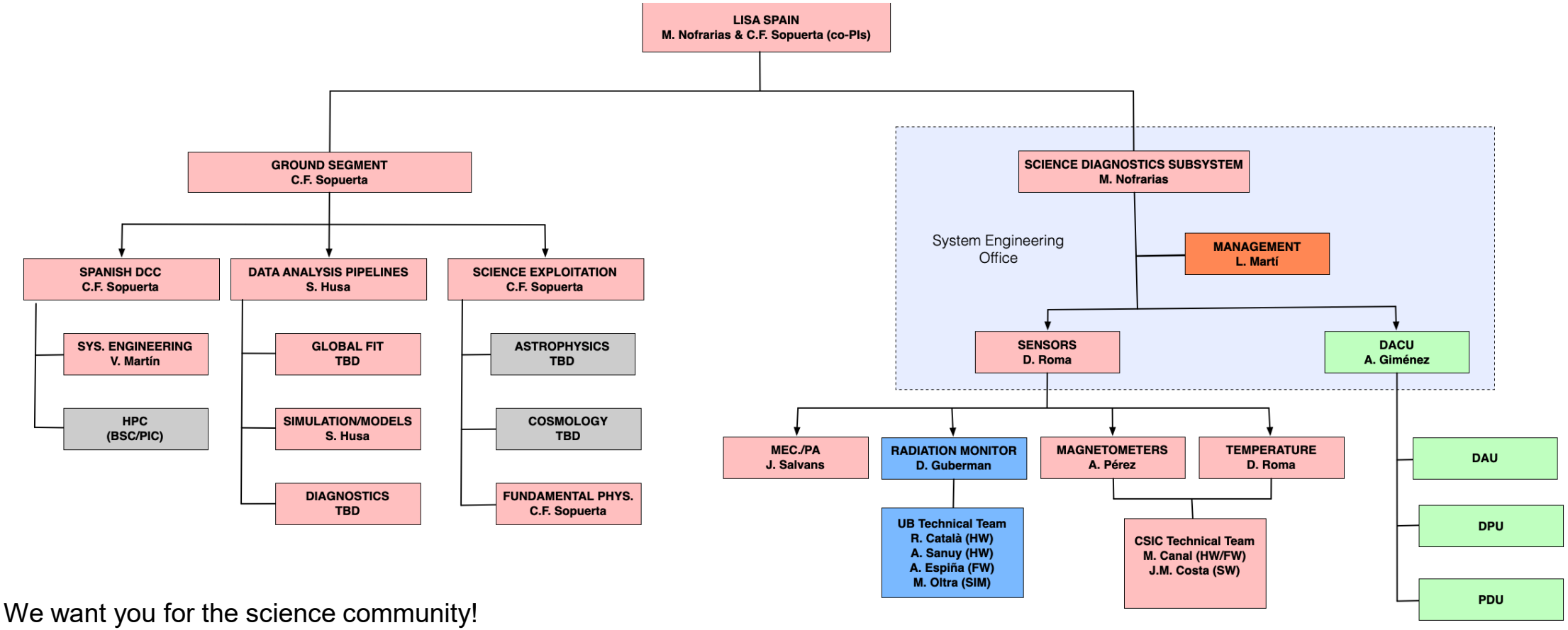
Payload

- Giorgia Crippa — Payload Manager
- Kirsten MacDonell — Payload Procurement Lead
- Yves Levillain — Payload System Lead
- Maurice te Plate — Senior Payload System Engineer
- Thomas Kanitz — Testing and Verification Engineer
- TBD — Opto-thermo mechanical Engineer
- Brian Shortt — Telescope Laser NASA
- Charlotte Emilie Pachot — IDS
- Giorgio Magistrati — GRS (& IDS-PMS)
- TBD — SDS & CAS
- TBC — Electrical Engineer
- Silvia Massetti — CPPA
- TBD — TEC support

Project Office

- Beverly Brown — Project Secretary & Documentalist
- Filippo Marliani — Project Manager
- Gizem Aribal — Scheduler
- Prisca Muehlmann — Project Contract Officer
- Pierluigi Rosato — Project Controller
- Marco Ermocida — Project Controller

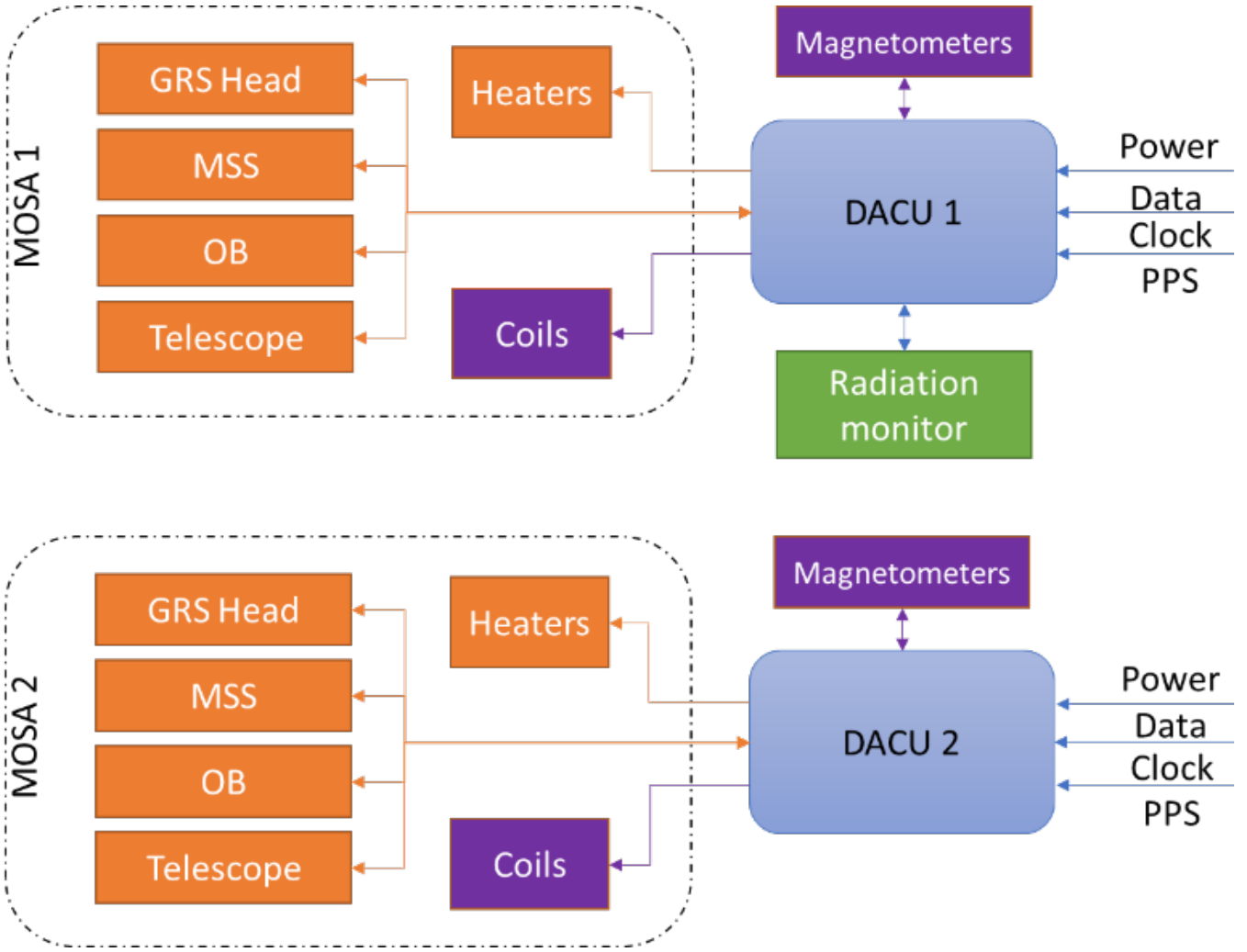
Spanish Contribution



We want you for the science community!

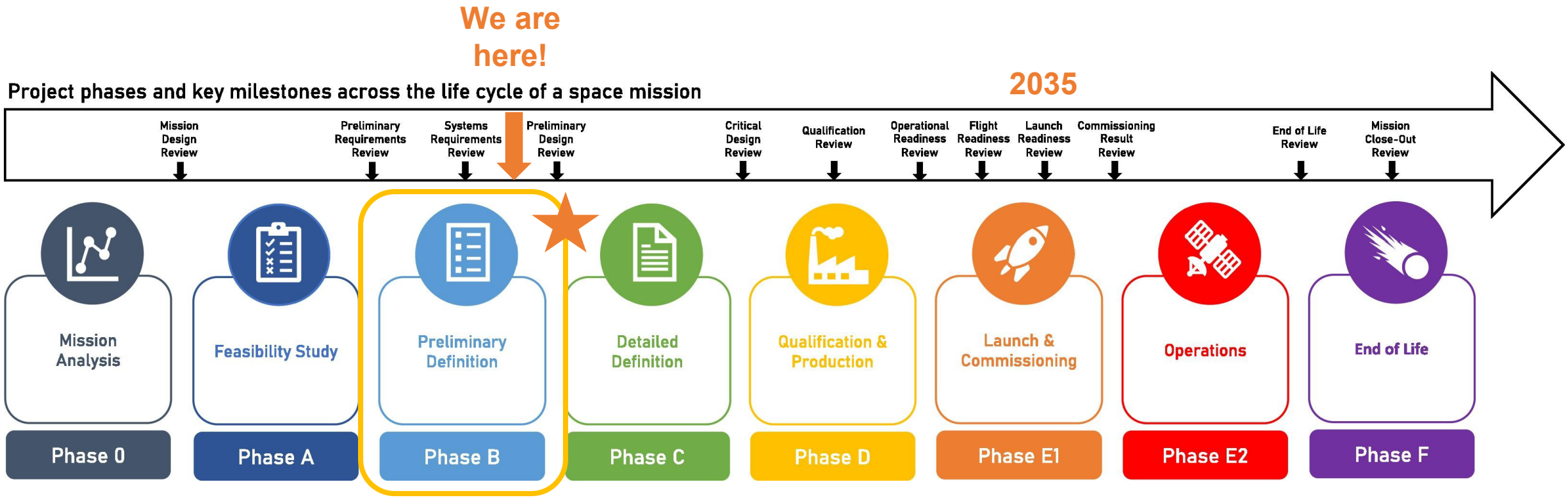
SDS

1. Characterize and monitor:
   a. MOSA thermal environment [DDS.FUN.00040]
   b. TM magnetic environment in low frequency and audio frequency [DDS.FUN.00060, DDS.FUN.00070]
   c. TM radiation environment [DDS.FUN.00100]
2. Generate science data information during science mode (time series for the temperatures and magnetometers and histograms for coils and RM) [DDS.FUN.00140]



Mission Phases

LISA adopted in January 2024!

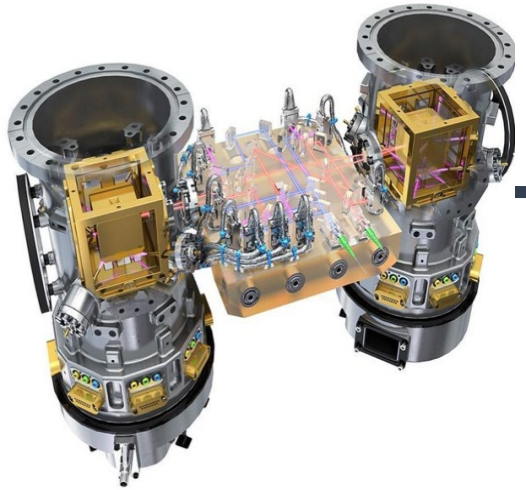


Models SDS

	DACU	MTM	RM	Heat/Coil	PT	NTC
STM	✓					
EBBM	✓	✓	✓			
QM	✓	✓	✓	✓	✓	✓
FM	✓	✓	✓	✓	✓	✓
FS	✓	✓	✓	✓	✓	✓

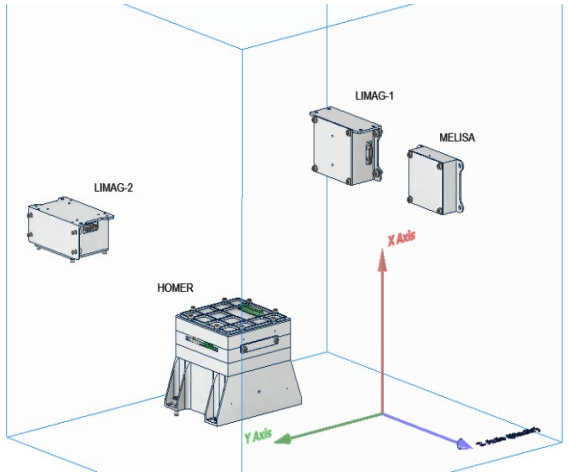
ILIADA

2015



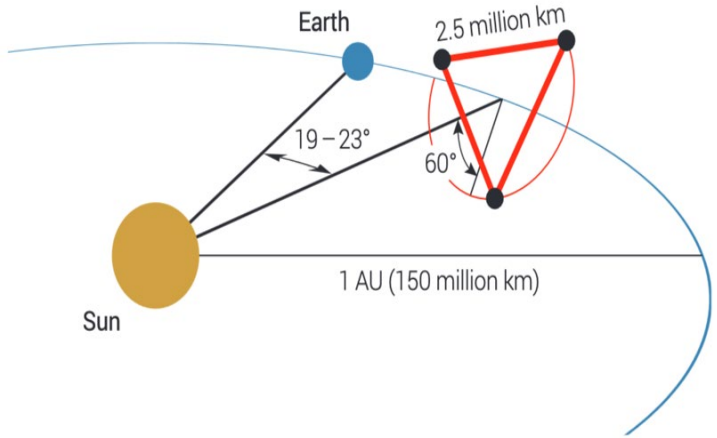
LISA PATHFINDER

2026



ILIADA

2035



LISA

Conclusion

- This year we will focus on raising the TRL of the technologies by developing an IOD While developing our current prototypes to space graded hardware

- Working on consolidating the GSE for the Spanish contribution.