

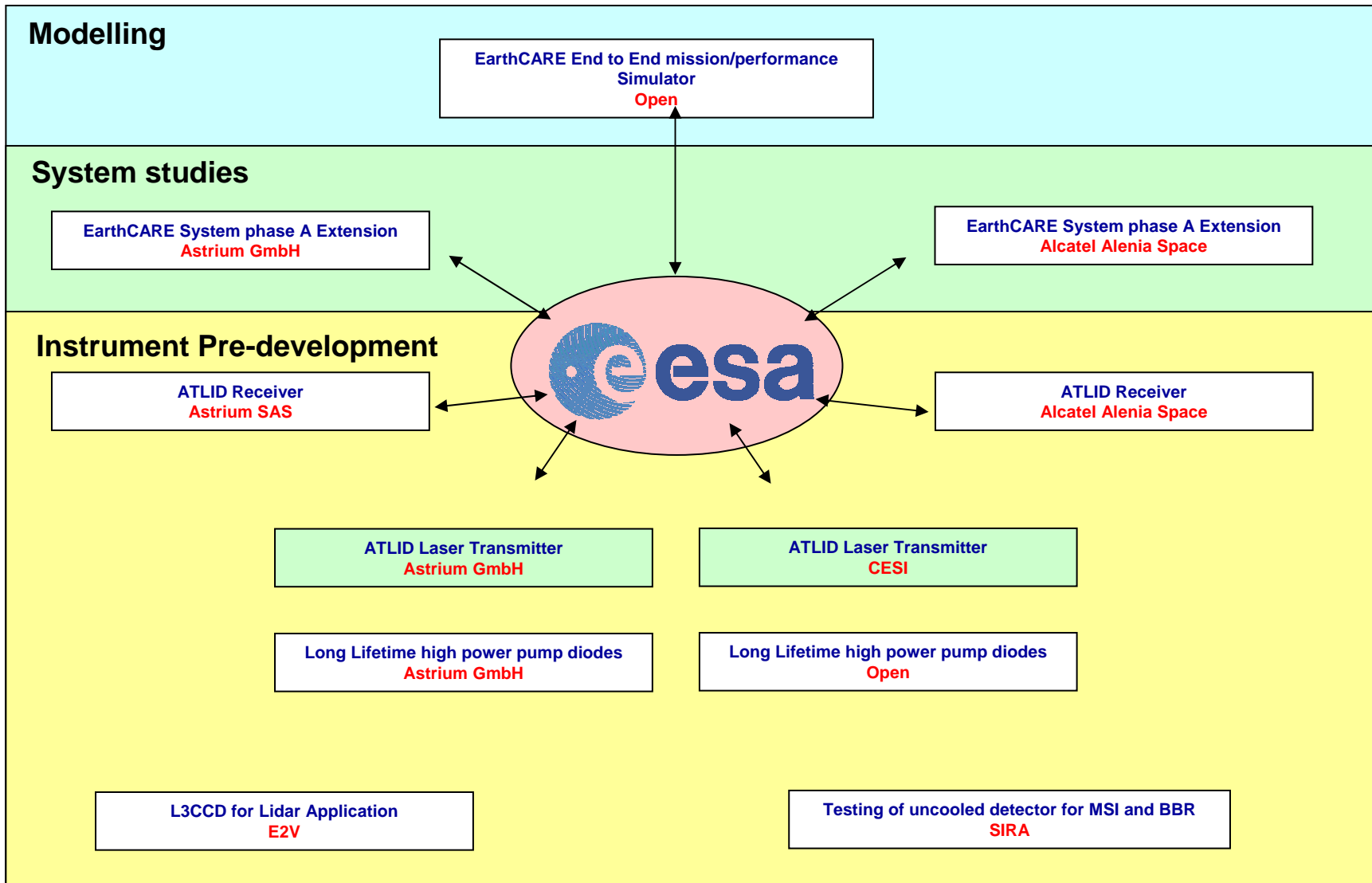
“ESA ESA/PB-EO(2004)51” Earth Observation Envelope Programme Proposal for Selection of Earth Explorer Missions

Cost-to-Completion: 390-440 M€

- Based on two industrial phase A studies
- 2004 economic conditions
- All costs from start of phase B to end of operations

Proposals with optical active sensors

Name	Mission Objectives	Main payload
SPACEWAVES	Global water vapour fields from ground to the lower stratosphere	Water Vapour DIAL Fourier Transform Interferometer Multi spectral imager (TBC)
A-SCOPE	Global carbon cycle, regional CO2 fluxes	Option 1 Laser Absorption Spectroscopy sensor (LAS) HSRL Atmospheric Lidar Option 2 Pulsed CO2 DIAL Fluorescence imaging spectrometer
LVTM	Global vegetation structure and biomass as well as topographic variations of the Earth surface	Full waveform backscatter lidar Multi-Angle, Multi-Spectral Imager
ACCURATE	Trends in climate and chemistry UTLS processes, GCMs, NWP	LEO-LEO radio occultation SWIR laser in LEO-LEO occultation constellation of ≥ 4 satellites



❑ ATLID Laser Source pre-development

- The ATLAS PDM shall be representative of the ATLAS FM with the exception of:
 - Laser electronics, which shall be functionally representative but could be based on laboratory ones,
 - Mechanical interfaces,
 - The seeder unit, which could be based on laboratory equipment,
 - Space qualification of pump laser diodes and of any sub-system developed in this activity.

- Study duration: 18 months

- Technical requirements:
 - 70Hz – 30 mJ ↔ 100Hz – 23 mJ
 - Wavelength tunability ↔ Fixed wavelength
 - Optical-optical efficiency(*): 6%

(*) defined as the ratio of the output average optical power at 355nm to the average optical power emitted by the laser diodes. This does not include seeder power, electronics power or thermal control, but applies to the whole laser head.