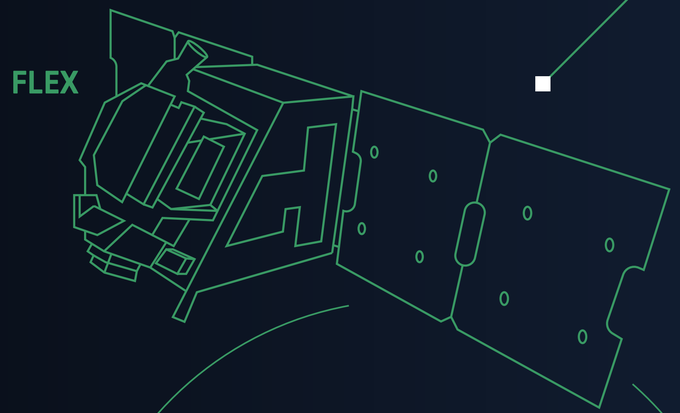
About
# FLEX

As we are challenged by human-induced environmental changes, **ESA's family of Earth Explorer missions observe our planet to reveal crucial information about Earth's system**. Using cutting-edge technology, the upcoming Earth Explorer missions advance the quest to understand Earth as a system and the complex interactions within it. **FLEX is the eighth Earth Explorer selected for development**




## Aim

FLEX will help address one of our biggest challenges: **understanding the health of Earth's vegetation, which is critical to improving food security and agriculture**

FLEX will yield global maps of chlorophyll fluorescence which can be used to derive information about photosynthesis. This can be used indirectly to improve understanding of the carbon and water cycles

The mission aims to predict future trends in the global carbon cycle, by using plant fluorescence to monitor light absorption in vegetation and then translate this information into carbon assimilation data

## Innovation

As plants convert carbon dioxide and sunlight into energy-rich carbohydrates, the process of photosynthesis involves a faint fluorescence

At the moment, photosynthetic activity cannot be measured from space, but FLEX's novel sensor will observe this faint glow

**FLEX will be the first satellite capable of measuring the fluorescence emitted during the photosynthesis process to estimate plant health and stress from space**

## What

The FLuorescence EXplorer – or FLEX – satellite will **provide information about photosynthetic activity to shed light on the functioning of Earth's vegetation**

## Who

Thales Alenia Space is the prime contractor for the design, test and build of the satellite, overseeing the development of the FLORIS instrument, built by Leonardo

## Instrument

FLEX will carry the high-resolution Fluorescence Imaging Spectrometer (FLORIS), which will acquire data in the 500–780 nm spectral range

photosynthetic activity to shed light on the functioning of Earth's vegetation

**Fluorescence Imaging Spectrometer (FLORIS)**

HD 500-700 nm

**1st satellite** capable of measuring **fluorescence emitted during photosynthesis process**

## Curiosity

FLEX will orbit in tandem with one of the Copernicus Sentinel-3 satellites, taking advantage of its optical and thermal sensors to provide an integrated package of measurements

## FLEX mission page

earth.esa.int/eogateway/missions/flex