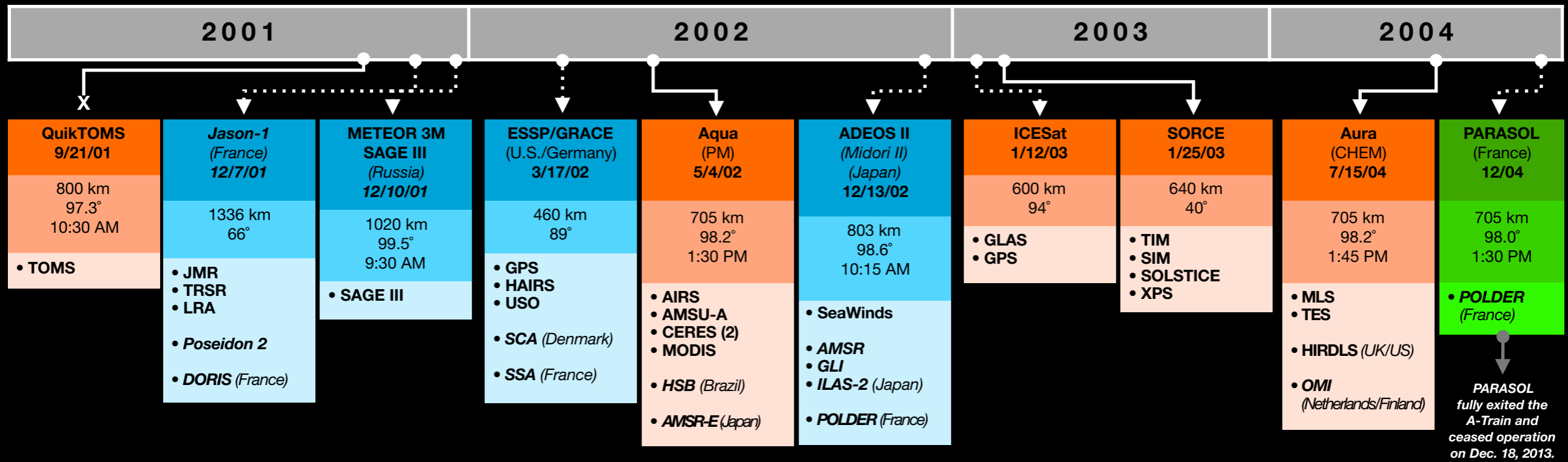
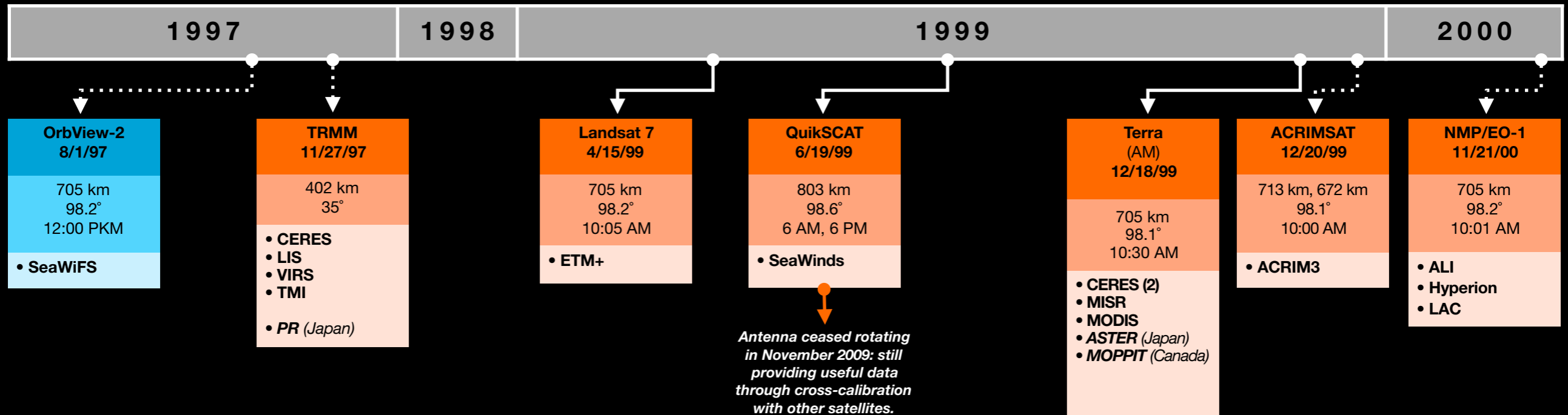


# Earth Science Mission Profile 1997 - 2004

Revised:  
November 9, 2017



Click the mission name below for a detailed description.



Spacecraft not provided by NASA    Non NASA A-Train constellation member

Items in italics not funded by NASA.

<sup>1</sup> OrbView-2 is not provided or operated by NASA but is a data buy.

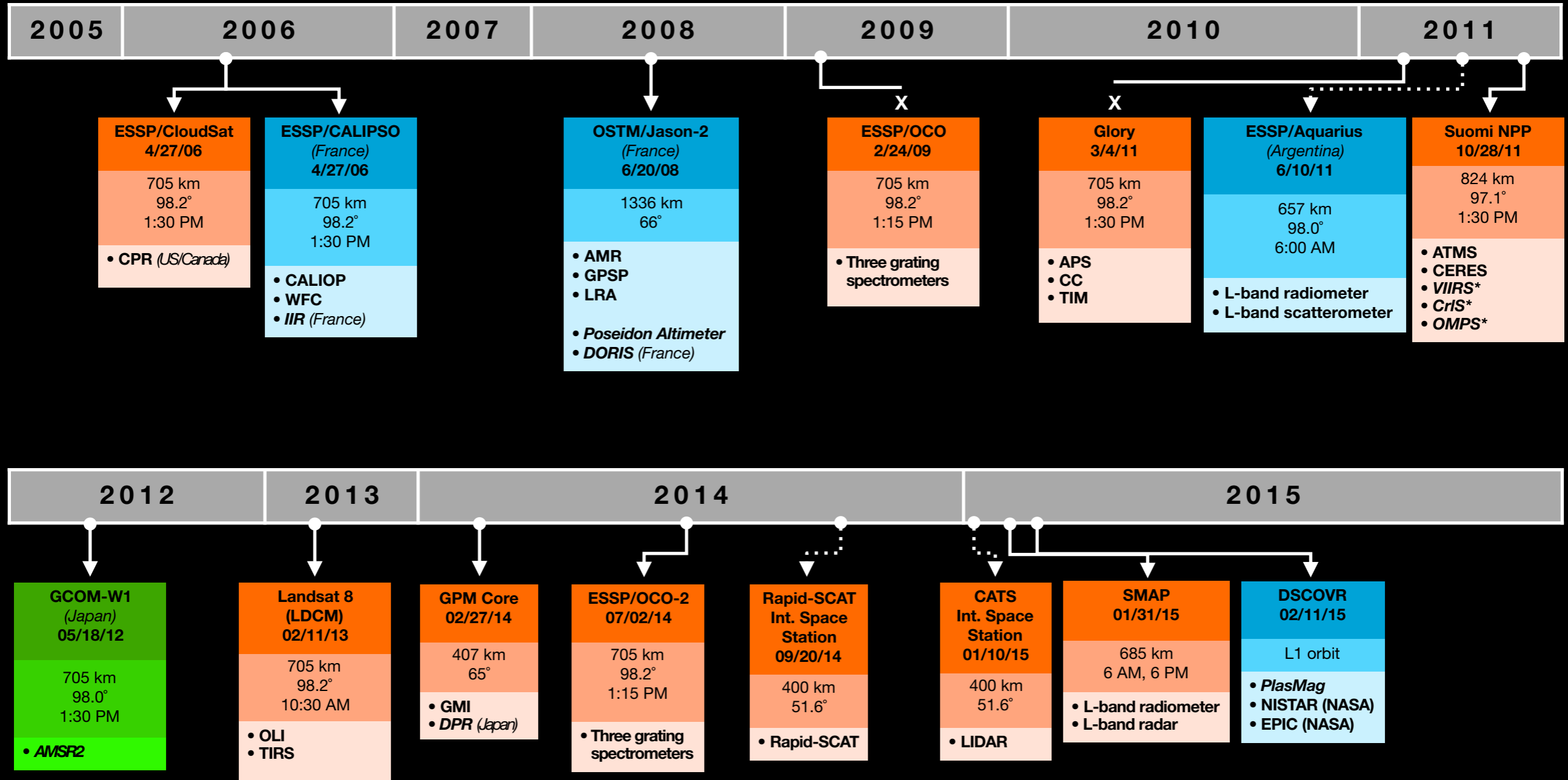


# Earth Science Mission Profile 2005 - 2015

Revised:  
November 20, 2017



Click the mission name below for a detailed description.



Spacecraft not provided by NASA
Non NASA A-Train constellation member  
Other agency spacecraft of interest

Items in italics not funded by NASA.

\* Instrument provided jointly with the Integrated Program Office (IPO)

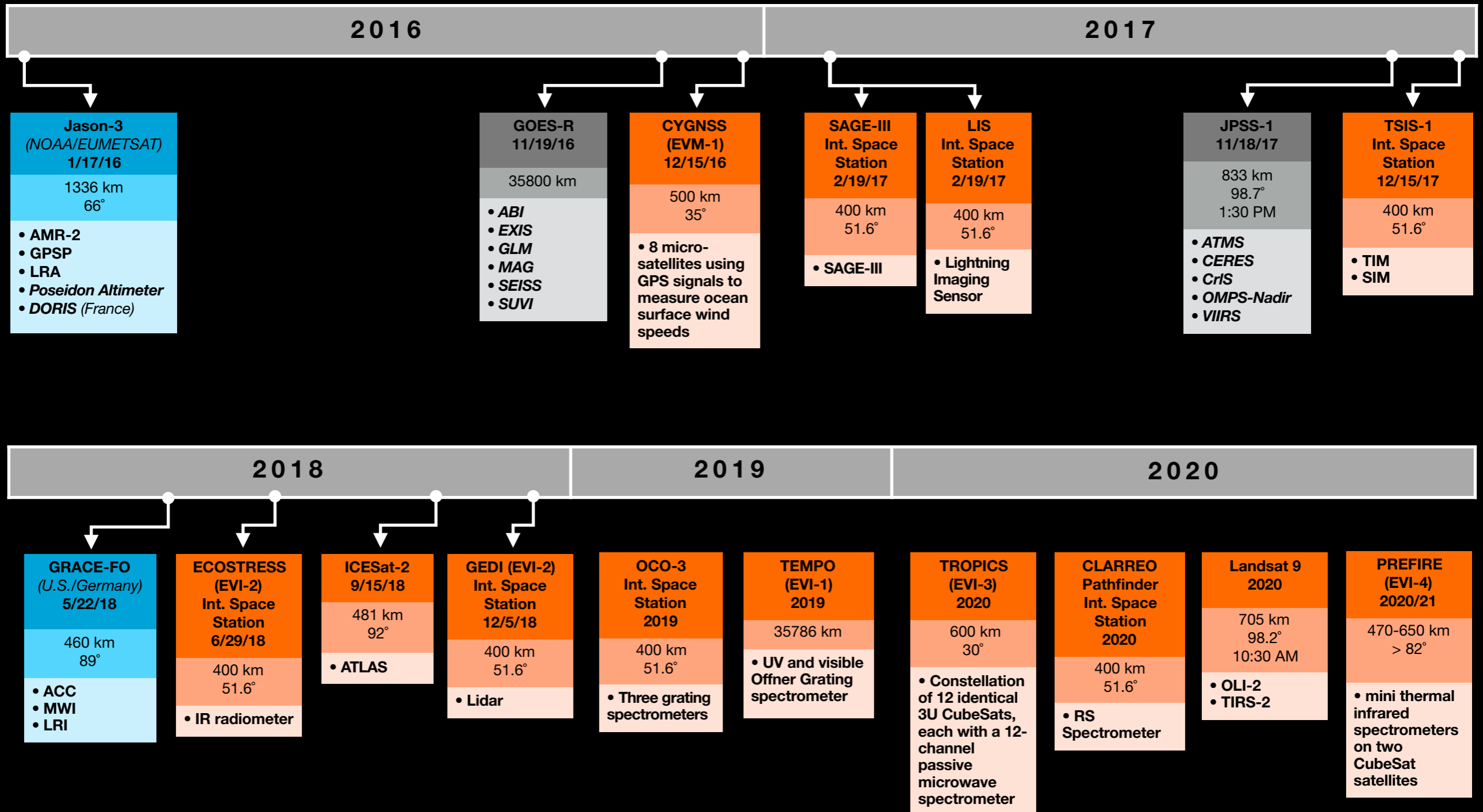
Currently in Operation  
 Future Mission  
X Launch Failure  
 No Longer in Science Operation

# Earth Science Mission Profile 2016 - 2020

Revised:  
December 7, 2018



Click the mission name below for a detailed description.



Spacecraft not provided by NASA

Other agency spacecraft of interest

Items in italics not funded by NASA.

Future mission launch dates indicate agency baseline commitment (ABC) schedule confidence levels.

Currently in Operation

Future Mission

Launch Failure

No Longer in Science Operation

# Earth Science Mission Profile 2021 - 2023

Revised:  
May 22, 2018



Click the mission name below for a detailed description.

## 2021

**JPSS-2**  
2021

833 km  
98.7°  
1:30 PM

- *A-DCS*
- *ATMS*
- *CrIS*
- *OMPS-Nadir*
- *OMPS-Limb (NASA)*
- *SARSAT*
- *SEM-N*
- *VIIRS*

**Sentinel-6A**  
*(EUMETSAT)*  
2021

1336 km  
66°

- *AMR-C (NASA)*
- *DORIS-NG (NASA)*
- *GNSS POD*
- *LRA (NASA)*
- *Poseidon 4 Altimeter*
- *TriG*

**NI-SAR**  
*(U.S./India)*  
2021

747 km  
98°

- *L-band synthetic aperture radar*
- *S-band synthetic aperture radar (India)*

**MAIA**  
*(EVI-3)*  
2021

TBD

- *Multi-spectral/angle polarimeter*

**GeoCARB**  
2021/2022

35786 km

- *scanning IR slit spectrometer*

**EMIT**  
*(EVI-4)*  
2021/2022  
Int. Space Station

400 km  
51.6°

- *hyperspectral*

## 2022

**SWOT**  
2022

857-890 km  
78°

- *Ka-band radar interferometer (NASA/CNES/CSA)*
- *Nadir altimeter (CNES)*
- *Microwave radiometer (NASA)*
- *POD (GPS, DORIS, LRA) (NASA/CNES)*

## 2023

**PACE**  
2022/2023

- *Ocean color spectrometer*
- *Polarimeter (TBD)*

Spacecraft not provided by NASA

Other agency spacecraft of interest

Items in italics not funded by NASA.

Future mission launch dates indicate agency baseline commitment (ABC) schedule confidence levels.



Currently in Operation



Future Mission



Launch Failure



No Longer in Science Operation

## ACRIMSAT

- ACRIM3 - Active Cavity Radiometer Irradiance Monitor

## ADEOS II (Midori II)

- AMSR - Advanced Microwave Scanning Radiometer
- GLI - Global Imager
- ILAS-2 - Improved Limb Atmospheric Spectrometer 2
- POLDER - Polarization and Directionality of the Earth's Reflectances

## Aqua

- AIRS - Atmospheric Infrared Sounder
- AMSU-A - Advanced Microwave Sounding Unit-A
- CERES - Clouds and the Earth's Radiant Energy System
- MODIS - Moderate Resolution Imaging Spectroradiometer
- HSB - Humidity Sounder for Brazil
- AMSR-E - Advanced Microwave Scanning Radiometer for EOS

## Aura

- HIRDLS - High Resolution Dynamics Limb Sounder
- MLS - Microwave Limb Sounder
- OMI - Ozone Monitoring Instrument
- TES - Tropospheric Emission Spectrometer

## ESSP/GRACE

### *Earth System Science Pathfinder/Gravity Recovery And Climate Experiment*

- GPS - Black-Jack Global Positioning System Receiver
- HAIRS - High-Accuracy Inter-satellite Ranging System
- SCA - Star Camera Assembly
- SSA - SuperStar Accelerometer
- USO - Ultra Stable Oscillator

## ICESat

- GLAS - Geoscience Laser Altimeter System
- GPS - Global Positioning System

## Jason-1

- JMR - Jason Microwave Radiometer
- TRSR - Turbo Rogue Space Receiver
- LRA - Laser Retroreflector Array
- DORIS - Doppler Orbitography and Radiopositioning Integrated by Satellite
- Poseidon-2 Altimeter

## Landsat 7

- ETM+ - Enhanced Thematic Mapper Plus

## METEOR 3M/SAGE III

- SAGE III - Stratospheric Aerosol and Gas Experiment III

## NMP/EO-1

### *New Millennium Program/Earth Observing-1*

- ALI - Advanced Land Imager
- Hyperion - Hyperspectral Instrument
- LAC - Linear Etalon Imaging Spectral Array (LEISA) Atmospheric Corrector

## OrbView-2

- SeaWiFS - Sea-viewing Wide Field-of-view Sensor

## PARASOL

### *Polarization & Anisotropy of Reflectances for Atmospheric Sciences coupled with Observations for a Lidar*

- POLDER - Polarization and Directionality of the Earth's Reflectance

## QuikScat

### *Quick Scatterometer*

- SeaWinds

## QuikTOMS

- TOMS - Total Ozone Mapping Spectrometer

## SORCE

### *Solar Radiation and Climate Experiment*

- TIM - Total Irradiance Monitor
- SIM - Spectral Irradiance Monitor
- SOLSTICE - Solar Stellar Irradiance Comparison Experiment
- XPS - XUV Photometer System

## Terra

- ASTER - Advanced Spaceborne Thermal Emission and Reflection Radiometer
- CERES - Clouds and the Earth's Radiant Energy System
- MISR - Multi-angle Imaging Spectroradiometer
- MODIS - Moderate Resolution Imaging Spectroradiometer
- MOPITT - Measurements of Pollution in the Troposphere

## **TRMM**

### *Tropical Rainfall Measuring Mission*

- CERES - Clouds and the Earth's Radiant Energy System
- LIS - Lightning Imaging Sensor
- VIRS - Visible and Infrared Scanner
- TMI - TRMM Microwave Imager
- PR - Precipitation Radar

**CATS***Cloud-Aerosol Transport System*

- LIDAR

**DSCOVR***Deep Space Climate Observatory*

- PlasMag - Plasma-Magnetometer
- NISTAR - National Institute of Standards and Technology Advanced Radiometer
- EPIC - Earth Polychromatic Imaging Camera

**ESSP/Aquarius**

- LBR - L-Band Radiometer
- LBS - L-Band Scatterometer

**ESSP/CALIPSO***Cloud-Aerosol Lidar and Infrared Pathfinder Satellite Observations*

- CALIOP - Cloud Aerosol Lidar with Orthogonal Polarization
- IIR - Imaging Infrared Radiometer
- WFC - Wide Field Camera

**ESSP/CloudSat**

- CPR - Cloud Profiling Radar

**ESSP/OCO-2 (also ESSP/OCO)***Orbiting Carbon Observatory*

- Three high-resolution grating spectrometers

**GCOM-W1***The Global Change Observation Mission-Water*

- AMSR2 - Advanced Microwave Scanning Radiometer

**Glory**

- APS - Aerosol Polarimetry Sensor
- CC - Cloud Camera
- TIM - Total Irradiance Monitor

**GPM Core Observatory***Global Precipitation Measurement*

- DPR - Dual Frequency Precipitation Radar
- GMI - GPM Microwave Imager

**LDCM Landsat Data Continuity Mission (Landsat 8)**

- OLI - Operational Land Imager
- TIRS - Thermal Infrared Sensor

**OSTM/Jason-2***Ocean Surface Topography Mission/Jason-2*

- DORIS - Doppler Orbitography and Radio-positioning Integrated by Satellite
- TRSR - Turbo Rogue Space Receiver
- LRA - Laser Retroreflector Array
- Poseidon-3 Altimeter
- AMR - Advanced Microwave Radiometer
- GPSP - Global Positioning System Payload

**Rapid-SCAT (International Space Station)**

- Rapid Scatterometer

**Suomi NPP***Suomi National Polar-orbiting Partnership*

- ATMS - Advanced Technology Microwave Sounder
- CERES - Clouds and the Earth's Radiant Energy System
- CrIS - Cross-Track Infrared Sounder
- OMPS-Nadir - Ozone Mapping and Profiler Suite
- VIIRS - Visible/Infrared Imager/Radiometer Suite

**SMAP***Soil Moisture Active Passive*

- L-Band Radiometer
- L-Band Radar



**CYGNSS (EVM-1)*****Cyclone Global Navigation Satellite System (Earth Venture-2)***

- 8 micro-satellites using GPS signals to measure ocean surface wind speeds

**ECOSTRESS*****ECOsysteM Spaceborne Thermal Radiometer Experiment on Space Station***

- Infrared radiometer

**EMIT (EVI-4)*****Earth Surface Mineral Dust Source Investigation******Earth Venture Instrument***

- Hyperspectral instrument

**EVM-2*****Earth Venture Full Orbital Mission*****GEDI*****Global Ecosystem Dynamics Investigation***

- Lidar

**GeoCARB*****Geostationary Carbon Cycle Observatory***

- scanning IR slit spectrometer

**GOES-R*****Geostationary Operational Environmental Satellite-R Series***

- ABI - Advanced Baseline Imager
- EXIS - Extreme Ultraviolet and X-Ray Irradiance Sensor
- GLM - Geostationary Lightning Mapper
- MAG - Magnetometer
- SEISS - Space Environment In Situ Suite
- SUVI - Solar Ultraviolet Imager

**GRACE-FO*****Gravity Recovery And Climate Experiment-Follow-on***

- ACC - Accelerometer
- MWI - Microwave Instrument
- LRI - Laser Ranging Interferometer

**ICESat-2**

- ATLAS - Advanced Topographic Laser Altimeter System

**Jason-3**

- DORIS - Doppler Orbitography and Radio-positioning Integrated by Satellite
- TRSR - Turbo Rogue Space Receiver
- LRA - Laser Retroreflector Array
- Poseidon-3 Altimeter
- AMR-2 - Advanced Microwave Radiometer
- GPSP - Global Positioning System Payload

**JPSS-1*****Joint Polar Satellite System***

- ATMS - Advanced Technology Microwave Sounder
- CERES - Clouds and the Earth's Radiant Energy System
- CrIS - Cross-Track Infrared Sounder
- OMPS-Nadir - Ozone Mapping and Profiler Suite
- VIIRS - Visible/Infrared Imager/Radiometer Suite

**JPSS-2*****Joint Polar Satellite System*****Landsat 9**

- OLI-2 Operational Land Imager-2
- TIRS-2 Thermal Infrared Sensor-2

**LIS**

- LIS - Lightning Imaging Sensor

**MAIA*****Multi-Angle Imager for Aerosols***

- Multi-spectral/angle polarimeter

**NI-SAR**

- InSAR - Interferometric Synthetic Aperture RADAR (Radio Detection and Ranging)



## **OCO-3**

### *Orbiting Carbon Observatory*

- Three high-resolution grating spectrometers

## **PACE (Pre-ACE)**

### *Pre-Aerosol, Clouds, and ocean Ecosystem*

- Ocean color/aerosol spectrometer
- Polarimeter (International partnership TBD)

## **PREFIRE**

### *Polar Radiant Energy in the Far Infrared Experiment*

- Miniaturized thermal infrared spectrometers on two CubeSat satellites

## **Sentinel 6A**

- AMR-C - Climate Quality Microwave Radiometer
- DORIS-NG - Doppler Orbitography and Radio-positioning Integrated by Satellite-NG
- GNSS POD Receiver
- LRA - Laser Retroreflector Array
- Poseidon-4 Altimeter - Poseidon-4 SAR Radar Altimeter
- TriG - TriG Receiver for Radio Occultation

## **SAGE-III (International Space Station)**

- Stratospheric Aerosol and Gas Experiment - III

## **SWOT**

### *Surface Water Ocean Topography*

- KaRIn - Ka-band radar interferometer
- Nadir Altimeter
- Microwave Radiometer
- POD (GPS, DORIS, LRA)

## **TEMPO**

### *Tropospheric Emissions: Monitoring of Pollution*

- UV and Visible Offner Grating Spectrometer

## **TROPICS**

### *Time-Resolved Observations of Precipitation structure and storm Intensity with a Constellation of Smallsats*

- 12 identical 3U CubeSats, each with a 12-channel passive microwave spectrometer

## **TSIS-1**

### *Total and Spectral Solar Irradiance Sensor*

- Total Irradiance Monitor
- Spectral Irradiance Monitor

## **TSIS-2**

### *Total and Spectral Solar Irradiance Sensor*

- Total Irradiance Monitor
- Spectral Irradiance Monitor