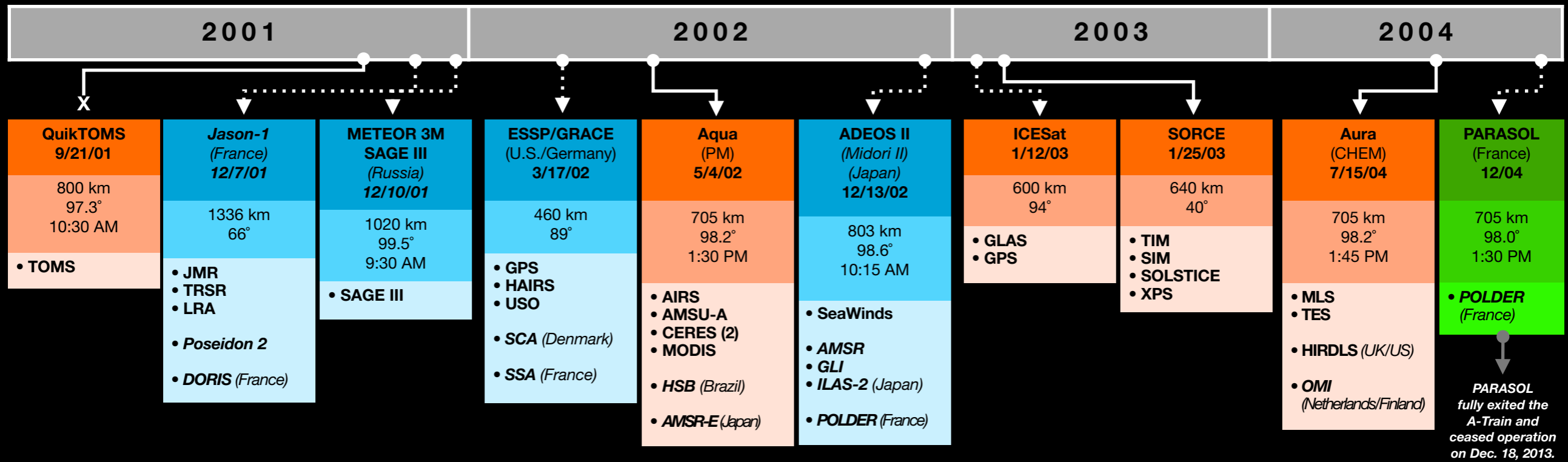
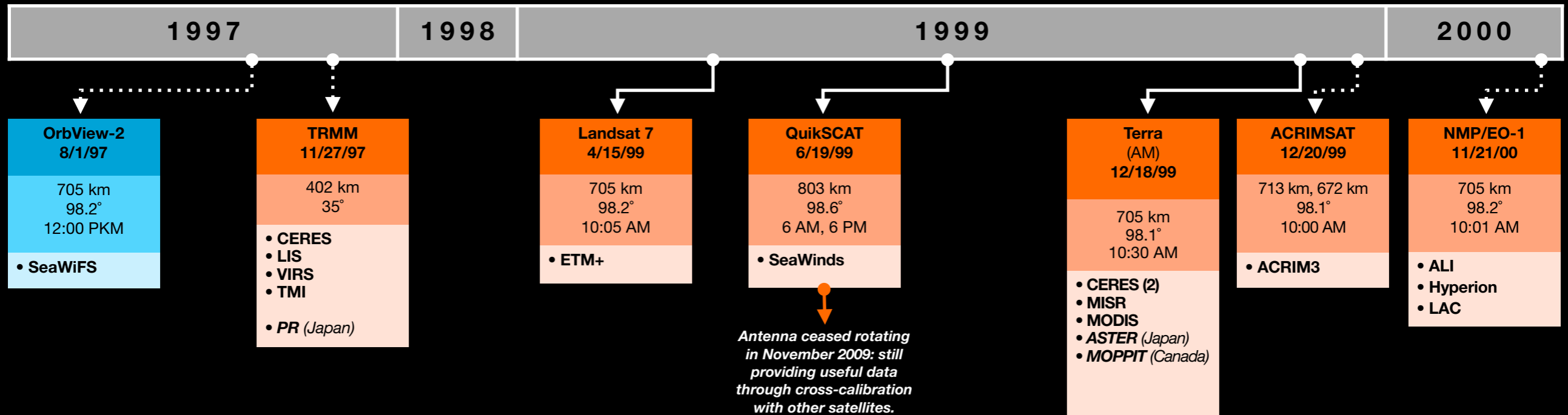


# Earth Science Mission Profile 1997 - 2004

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.

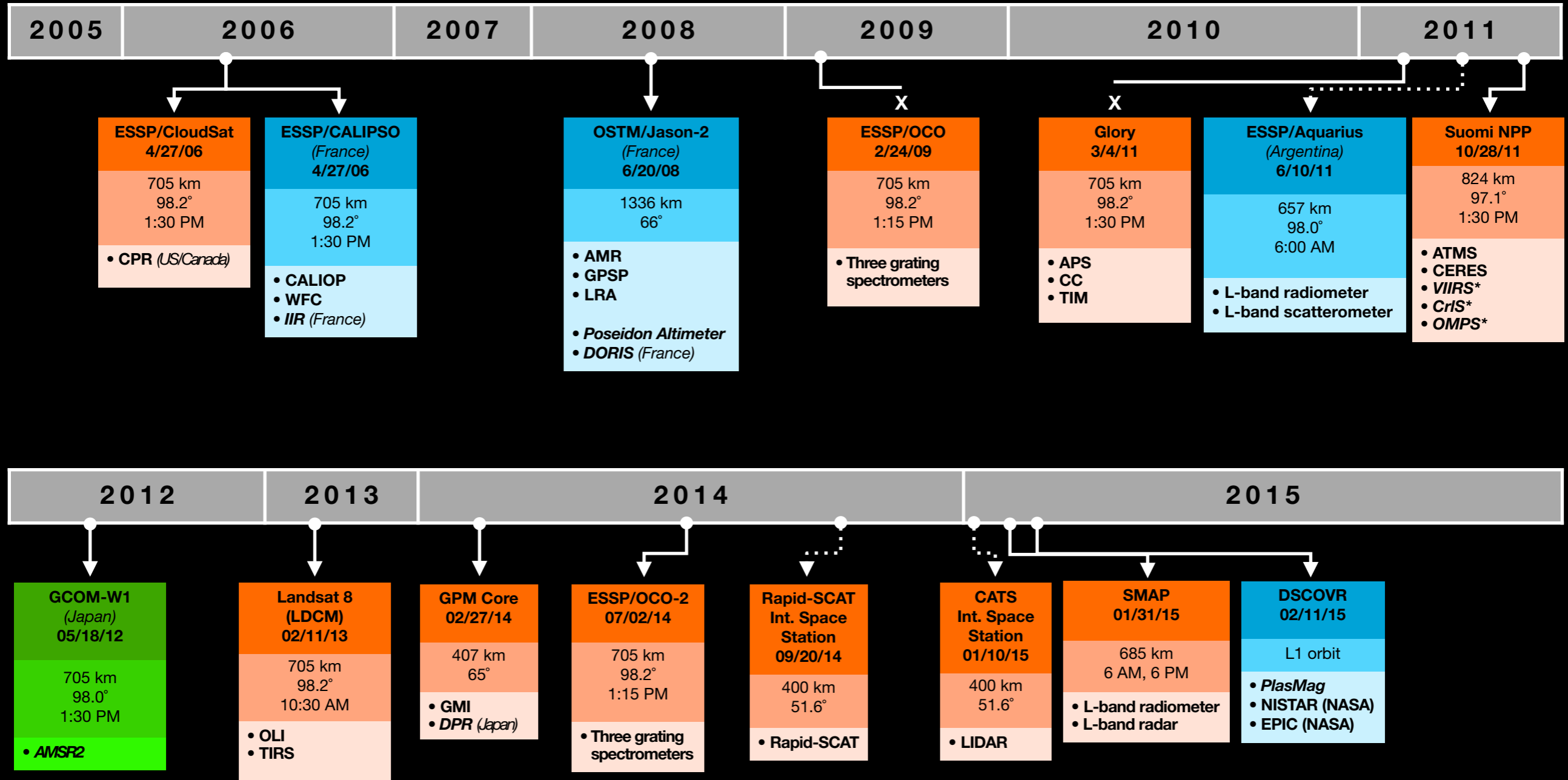


# Earth Science Mission Profile 2005 - 2015

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)

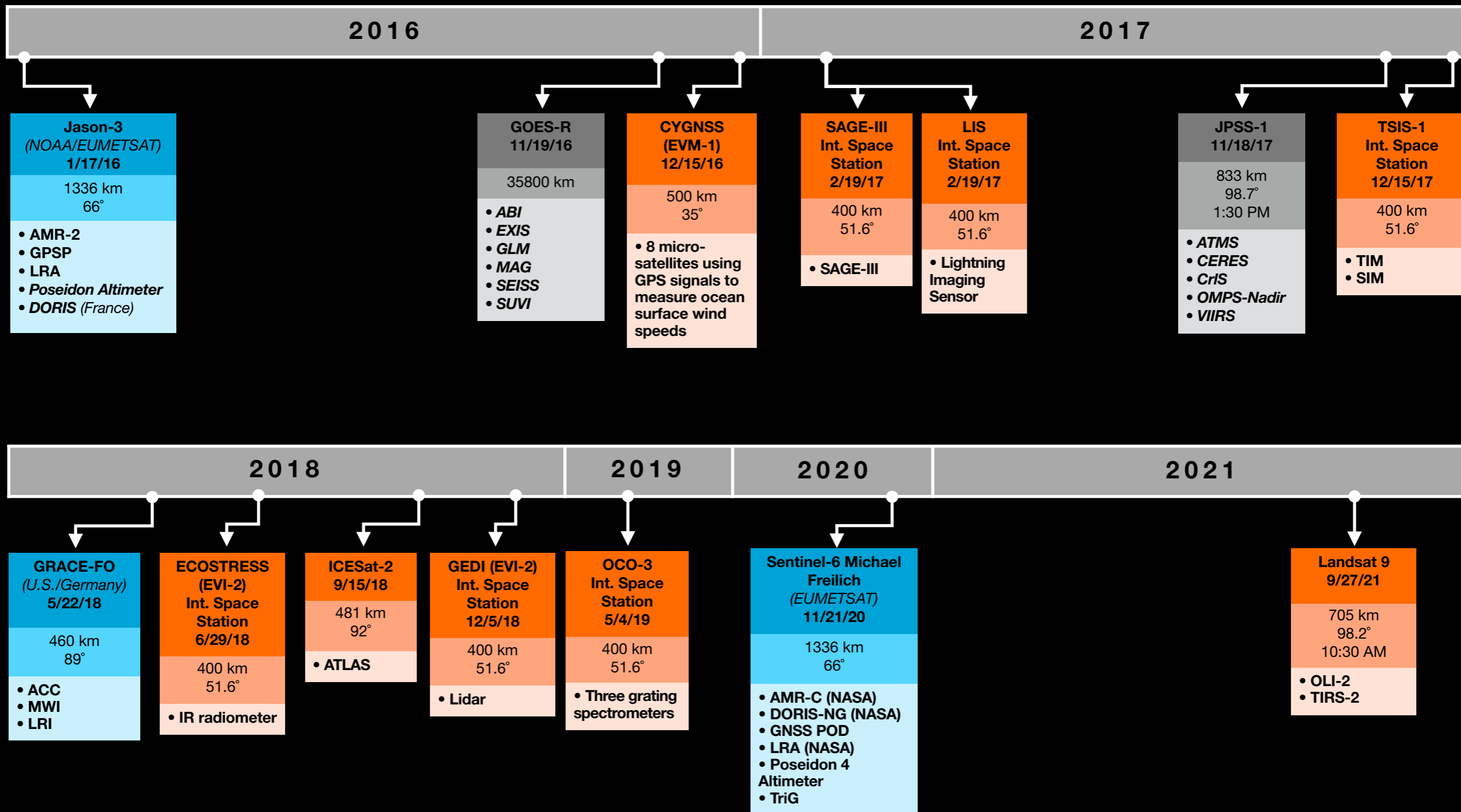
Currently in Operation  
 Future Mission  
 Launch Failure  
 No Longer in Science Operation

# Earth Science Mission Profile 2016 - 2021

Revised:  
October 4, 2021



Click the mission name below for a detailed description.



Spacecraft not provided by NASA
Other agency spacecraft of interest

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

Items in italics not funded by NASA.

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

# Earth Science Mission Profile 2022 - 2031

Revised:  
February 4, 2022



Click the mission name below for a detailed description.

2022

2023

<b>EMIT (EVI-4) 2021</b> Int. Space Station 400 km 51.6° • hyperspectral	<b>TROPICS (EVI-3) 2022</b> 600 km 30° • Constellation of 6 identical 3U CubeSats, each with a 12-channel passive microwave spectrometer	<b>JPSS-2 2022</b> 833 km 98.7° 1:30 PM • ATMS • CrIS • OMPS-Nadir • OMPS-Limb (NASA) • SARSAT • SEM-N • VIIRS	<b>TEMPO (Hosted on Intelsat 40e) 2022</b> 35786 km • UV and visible Offner Grating spectrometer	<b>MAIA (EVI-3) 2022</b> TBD • Multi-spectral/angle polarimeter	<b>GeoCarb (EVM-2) 2023</b> 35786 km • scanning IR slit spectrometer	<b>PREFIRE (EVI-4) 2023</b> 470-650 km > 82° • mini thermal infrared spectrometers on two CubeSat satellites	<b>SWOT 2023</b> 857-890 km 78° • Ka-band radar interferometer (NASA/CNES/CSA) • Nadir altimeter (CNES) • Microwave radiometer (NASA) • POD (GPS, DORIS, LRA (NASA/CNES))	<b>NI-SAR (U.S./India) 2023</b> 747 km 98° • L-band synthetic aperture radar • S-band synthetic aperture radar (India)	<b>CLARREO Pathfinder Int. Space Station 2023</b> 400 km 51.6° • RS Spectrometer
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2024

2025

2026

2027

2031

<b>TSIS-2 2024</b> 600 km 97.7° • TIM • SIM	<b>PACE 2024</b> • Ocean Color Instrument • SPEXone (SRON/Airbus/TNO) • HARP2 (UMBC)	<b>Sentinel-6B (EUMETSAT) 2026</b> 1336 km 66° • AMR-C (NASA) • DORIS-NG (NASA) • GNSS POD • LRA (NASA) • Poseidon 4 Altimeter • TriG	<b>GLIMR (EVI-5) 2026</b> 35786 km • hyperspectral imager	<b>INCUS (EVM-3) 2027 (notional)</b> • three smallsats	<b>JPSS-3 2027</b> 833 km 98.7° 1:30 PM • ATMS • CrIS • OMPS-Nadir • OMPS-Limb (NASA) • SARSAT • SEM-N • VIIRS	<b>Libera (EVC-1) 2027</b> 833 km 98.7° 1:30 PM • ESR • Will fly on JPSS-3	<b>JPSS-4 2031</b> 833 km 98.7° 1:30 PM • ATMS • CrIS • OMPS-Nadir • OMPS-Limb (NASA) • SARSAT • SEM-N • VIIRS
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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.



**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

**INCUS***Investigation of Convective Updrafts***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***JPSS-3***Joint Polar Satellite System***JPSS-4***Joint Polar Satellite System***Landsat 9**

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

**Libera**

- ESRs - Electrical Substitution Radiometers

**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*****Plankton, Aerosol, Cloud, ocean Ecosystem***

- Ocean Color Instrument - spectrometer
- SPEXone - spectro-polarimeter
- HARP2 - hyper-angular rainbow polarimeter

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

- Miniaturized thermal infrared spectrometers on two CubeSat satellites

**Sentinel 6 Michael Freilich**

- 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 (hosted on Intelsat 40e)*****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