<table>
<thead>
<tr>
<th>Year</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
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</thead>
<tbody>
<tr>
<td></td>
<td><strong>ESSP/CloudSat</strong> 4/27/06</td>
<td><strong>ESSP/CALIPSO</strong> (France) 4/27/06</td>
<td><strong>OSTM/Jason-2</strong> (France) 6/20/08</td>
<td><strong>ESSP/OCO</strong> 2/24/09</td>
<td><strong>Glory</strong> 3/4/11</td>
<td><strong>ESSP/Aquarius</strong> (Argentina) 6/10/11</td>
<td><strong>Suomi NPP</strong> 10/28/11</td>
</tr>
<tr>
<td></td>
<td>705 km 98.2˚ 1:30 PM</td>
<td>705 km 98.2˚ 1:30 PM</td>
<td>1336 km 66˚</td>
<td>705 km 98.2˚ 1:15 PM</td>
<td>705 km 98.2˚ 1:30 PM</td>
<td>657 km 98.0˚ 6:00 AM</td>
<td>824 km 97.1˚ 1:30 PM</td>
</tr>
<tr>
<td></td>
<td>• CPR (US/Canada)</td>
<td>• CALIOP</td>
<td>• AMR</td>
<td>• Three grating spectrometers</td>
<td>• APS</td>
<td>• L-band radiometer</td>
<td>• ATMS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• WFC</td>
<td>• GPSP</td>
<td>• L-band scatterometer</td>
<td>• CC</td>
<td>• L-band scatterometer</td>
<td>• CERES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• IIR (France)</td>
<td>• LRA</td>
<td>• Poseidon Altimeter</td>
<td>• TIM</td>
<td>• L-band radiometer</td>
<td>• PlasMag</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Poseidon Altimeter</td>
<td>• DORIS (France)</td>
<td>• Three grating spectrometers</td>
<td></td>
<td>• L-band radar</td>
<td>• NISTAR (NASA)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• EPIC (NASA)</td>
<td></td>
</tr>
</tbody>
</table>
Click the mission name below for a detailed description.

2016

Jason-3 (NOAA/EUMETSAT) 1/17/16
- AMR-2
- GPSP
- LRA
- Poseidon Altimeter
- DORIS (France)

GOES-R 11/18/16
- ABI
- EXIS
- GLM
- MAG
- SEISS
- SUII

CYGNSS (EVM-1) 12/15/16
- 8 micro-satellites using GPS signals to measure ocean surface wind speeds

SAGE-III Int. Space Station 2/19/17
- SAGE-III

LIS Int. Space Station 2/19/17
- Lightning Imaging Sensor

2017

JPSS-1 11/18/17
- ATMS
- CERES
- CrIS
- OMPS-Nadir
- VIIRS

TSIS-1 Int. Space Station 12/15/17
- TIM
- SIM

2018

GRACE-FO (U.S./Germany) 5/22/18
- ACC
- MWI
- LRI

ECOSTRESS (EVI-2) Int. Space Station 6/29/18
- ATLAS

ICESat-2 9/15/18
- IR radiometer

GEDI (EVI-2) Int. Space Station 12/5/18
- Lidar

OCO-3 Int. Space Station 5/4/19
- Three grating spectrometers

Sentinel-6 Michael Freilich (EUMETSAT) 11/21/20
- AMR-C (NASA)
- DORIS-NG (NASA)
- GNSS POD
- LRA (NASA)
- Poseidon 4 Altimeter
- TriG

2019

EMIT (EVI-4) 2021 Int. Space Station
- hyperspectral

2020

Landsat 9 9/27/21
- OLI-2
- TIRS-2

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

Items in italics not funded by NASA.
# Earth Science Mission Profile 2022 - 2031

Click the mission name below for a detailed description.

## 2022

<table>
<thead>
<tr>
<th>Mission</th>
<th>Year</th>
<th>Orbit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMIT (EVI-4)</td>
<td>2022</td>
<td>600 km, 30°</td>
<td>Ka-band radar interferometer (NASA/CNES/CSA)</td>
</tr>
<tr>
<td>TROPICS (EVI-3)</td>
<td>2022</td>
<td>857-890 km, 78°</td>
<td>Constellation of 12 identical 3U CubeSats, each with a 12-channel passive microwave spectrometer</td>
</tr>
<tr>
<td>SWOT</td>
<td>2022</td>
<td>833 km, 98.7°, 1:30 PM</td>
<td>ATMS, CrIS, OMPS-Nadir, OMPS-Limb (NASA)</td>
</tr>
<tr>
<td>JPSS-2</td>
<td>2022</td>
<td>470-650 km, &gt; 82°</td>
<td>Mini thermal infrared spectrometers on two CubeSat satellites</td>
</tr>
<tr>
<td>TEMPO (Hosted on Intelsat 40e)</td>
<td>2022</td>
<td>35786 km</td>
<td>UV and visible Offner Grating spectrometer</td>
</tr>
<tr>
<td>MAIA (EVI-3)</td>
<td>2022</td>
<td>TBD</td>
<td>Multi-spectral/angle polarimeter</td>
</tr>
<tr>
<td>GeoCarb (U.S./India)</td>
<td>2022</td>
<td>35786 km</td>
<td>L-band synthetic aperture radar (India)</td>
</tr>
<tr>
<td>NI-SAR (EVI-5)</td>
<td>2022</td>
<td>747 km, 98°</td>
<td>L-band synthetic aperture radar, S-band synthetic aperture radar (India)</td>
</tr>
</tbody>
</table>

## 2023

<table>
<thead>
<tr>
<th>Mission</th>
<th>Year</th>
<th>Orbit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLARREO Pathfinder Int. Space Station</td>
<td>2023</td>
<td>400 km, 51.6°</td>
<td>RS Spectrometer</td>
</tr>
<tr>
<td>TSIS-2 Int. Space Station</td>
<td>2023</td>
<td>400 km, 51.6°</td>
<td>TIM, SIM</td>
</tr>
<tr>
<td>PACE</td>
<td>2024</td>
<td>1336 km, 66°</td>
<td>Ocean Color Instrument, SPEXone (SRON/Arbus/TNO)</td>
</tr>
<tr>
<td>Sentinel-6B (EUMETSAT)</td>
<td>2025</td>
<td>833 km, 98.7°, 1:30 PM</td>
<td>AMR-C (NASA), DORIS-NG (NASA), GNSS POD, LRA (NASA), Poseidon 4 Altimeter, TriG</td>
</tr>
<tr>
<td>GLIMR (EVI-5)</td>
<td>2026</td>
<td>35786 km</td>
<td>Hyperspectral imager</td>
</tr>
<tr>
<td>JPSS-3</td>
<td>2027</td>
<td>833 km, 98.7°, 1:30 PM</td>
<td>ATMS, CrIS, OMPS-Nadir, OMPS-Limb (NASA)</td>
</tr>
<tr>
<td>Libera (EVC-1)</td>
<td>2027</td>
<td>833 km, 98.7°, 1:30 PM</td>
<td>ESR, Will fly on JPSS-3</td>
</tr>
</tbody>
</table>

## 2024

<table>
<thead>
<tr>
<th>Mission</th>
<th>Year</th>
<th>Orbit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sentinel-6A (EUMETSAT)</td>
<td>2024</td>
<td>1336 km, 66°</td>
<td>AMR-C (NASA), DORIS-NG (NASA), GNSS POD, LRA (NASA), Poseidon 4 Altimeter, TriG</td>
</tr>
</tbody>
</table>

## 2025

<table>
<thead>
<tr>
<th>Mission</th>
<th>Year</th>
<th>Orbit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLARREO Pathfinder Int. Space Station</td>
<td>2025</td>
<td>400 km, 51.6°</td>
<td>RS Spectrometer</td>
</tr>
<tr>
<td>PACE</td>
<td>2025</td>
<td>1336 km, 66°</td>
<td>Ocean Color Instrument, SPEXone (SRON/Arbus/TNO)</td>
</tr>
<tr>
<td>Sentinel-6B</td>
<td>2025</td>
<td>833 km, 98.7°, 1:30 PM</td>
<td>AMR-C (NASA), DORIS-NG (NASA), GNSS POD, LRA (NASA), Poseidon 4 Altimeter, TriG</td>
</tr>
</tbody>
</table>

## 2026

<table>
<thead>
<tr>
<th>Mission</th>
<th>Year</th>
<th>Orbit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>JPSS-3</td>
<td>2026</td>
<td>833 km, 98.7°, 1:30 PM</td>
<td>ATMS, CrIS, OMPS-Nadir, OMPS-Limb (NASA)</td>
</tr>
<tr>
<td>Libera (EVC-1)</td>
<td>2026</td>
<td>833 km, 98.7°, 1:30 PM</td>
<td>ESR, Will fly on JPSS-3</td>
</tr>
</tbody>
</table>

## 2027

<table>
<thead>
<tr>
<th>Mission</th>
<th>Year</th>
<th>Orbit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sentinel-6A</td>
<td>2027</td>
<td>1336 km, 66°</td>
<td>AMR-C (NASA), DORIS-NG (NASA), GNSS POD, LRA (NASA), Poseidon 4 Altimeter, TriG</td>
</tr>
<tr>
<td>JPSS-4</td>
<td>2031</td>
<td>833 km, 98.7°, 1:30 PM</td>
<td>ATMS, CrIS, OMPS-Nadir, OMPS-Limb (NASA)</td>
</tr>
</tbody>
</table>

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**Items in italics not funded by NASA.**

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

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Spacecraft not provided by NASA | Other agency spacecraft of interest
---|---

Current in Operation | Future Mission | Launch Failure | No Longer in Science Operation
<table>
<thead>
<tr>
<th>Mission Profile 1997 - 2004</th>
<th>Acronym List</th>
</tr>
</thead>
</table>

**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
### Mission Profile 2016 - 2031

<table>
<thead>
<tr>
<th>Acronym List</th>
</tr>
</thead>
</table>

**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*
- 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*

**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