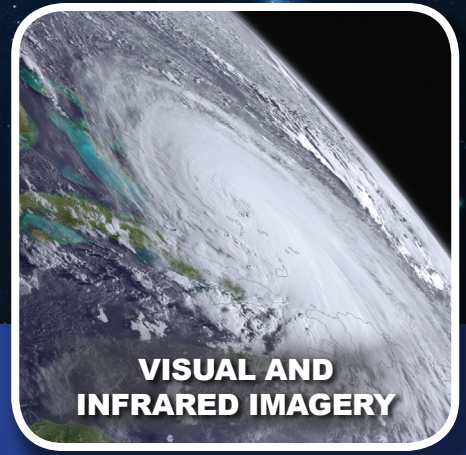


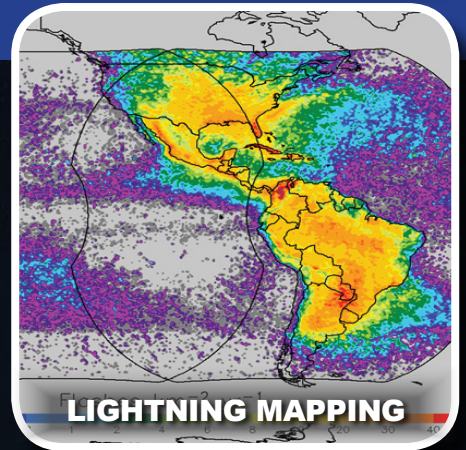


# GOES-R Series

NOAA's next generation of geostationary weather satellites



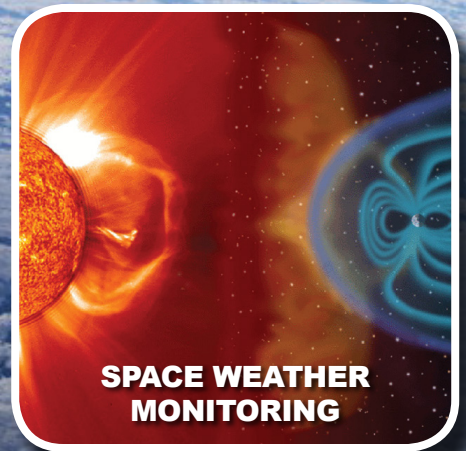
**VISUAL AND INFRARED IMAGERY**



**LIGHTNING MAPPING**



**SOLAR IMAGING**

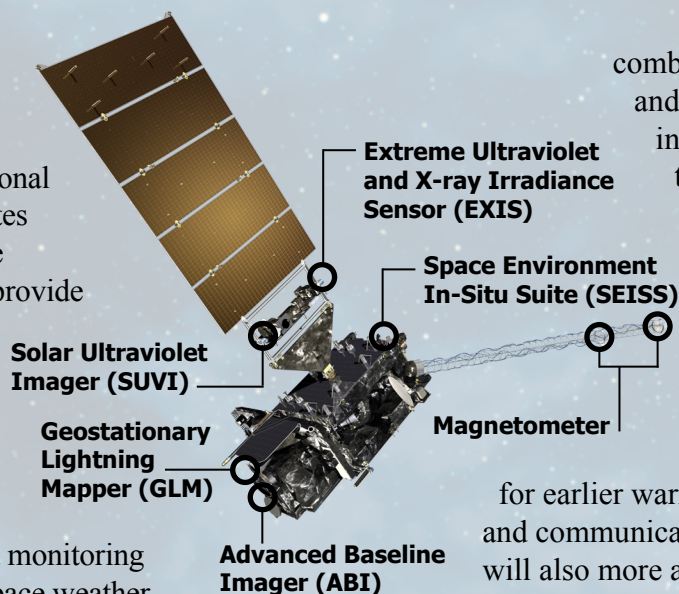


**SPACE WEATHER MONITORING**



## Mission

NOAA's next generation of Geostationary Operational Environmental Satellites (GOES), known as the GOES-R Series, will provide advanced imagery and atmospheric measurements of Earth's Western Hemisphere, real-time mapping of lightning activity, and improved monitoring of solar activity and space weather. Scheduled for launch in 2016, GOES-R will be known as GOES-16 once it reaches orbit. The GOES-R Series (GOES-R, S, T and U) represents the first major technological advancement in geostationary observations since 1994 and will extend the availability of the GOES system through 2036.



combination with radar, other satellite data, and surface observations, total lightning information from GOES-R has great potential to increase lead time for severe thunderstorm and tornado warnings.

GOES-R will also host a suite of instruments to significantly improve detection of approaching space weather hazards. The satellites will provide advanced imaging of the sun and detection of solar eruptions

for earlier warning of disruption to power utilities and communication and navigation systems. GOES-R will also more accurately monitor energetic particles and the magnetic field variations that are associated with space weather for better assessment of radiation hazards and mitigation of damage to orbiting satellites, communications, and power grids.

## Benefits

The GOES-R Series will provide critical atmospheric, hydrologic, oceanic, climatic, solar and space data, significantly improving the detection and observation of environmental phenomena that directly affect public safety, protection of property, and our nation's economic health and prosperity. GOES-R will be revolutionary for weather forecasting – like going from black and white television to HDTV.



## Monitoring Weather on Earth and in Space

The satellites will carry a suite of instruments to improve monitoring of both terrestrial and space weather. The GOES-R imager will scan the Earth five times faster with four times the image resolution and three times the number of channels as current GOES for more accurate and reliable weather forecasts and severe weather warnings. GOES-R can provide images of weather patterns, hurricanes and severe storms as frequently as every 30 seconds.

GOES-R will carry the first operational lightning mapper flown in geostationary orbit which will measure both in-cloud and cloud-to-ground lightning. Used in

- ✓ Improved hurricane track and intensity forecasts
- ✓ Increased thunderstorm and tornado warning lead time
- ✓ Earlier warning of ground lightning strike hazards
- ✓ Better detection of heavy rainfall and flash flooding risks
- ✓ Better monitoring of smoke and dust
- ✓ Improved air quality warnings and alerts
- ✓ Better fire detection and intensity estimation
- ✓ Improved transportation safety and aviation flight route planning
- ✓ Improved warnings for communications and navigation disruptions and power blackouts
- ✓ More accurate monitoring of energetic particles responsible for radiation hazards