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CURRENT STATUS, APPLICATIONS AND BENEFITS OF THE JOINT POLAR SATELLITE SYSTEM

Abstract

The Joint Polar Satellite System (JPSS) is the United States flagship mission in Low Earth Orbit (LEO). The mission includes several Earth observing sensors which are the backbone for operational satellite meteorology around the globe. The third in the series, NOAA21 was successfully launched on November 10, 2022 from Vandenberg Space Force Base. The Suomi National Polar-orbiting Partnership (Suomi-NPP), NOAA-20 and NOAA21 satellites together increase the availability of data and products to operational forecasters. These satellites when teamed with European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) Metop sensors result in an impressive amount of data and products multiple times a day to users for their operational use. The combination of high-temporal-resolution data from geostationary satellites with higher spectral and spatial resolution data from JPSS satellites is providing new opportunities for exploiting National Oceanic and Atmospheric Administration (NOAA) satellites in unique and innovative ways to predict, detect, and monitor extreme weather and natural disasters.

The JPSS baseline consists of the advanced microwave and infrared sounders (ATMS, CrIS) which are part of the critical back bone of atmospheric observations for numerical weather prediction along with those from Metop satellites. The accuracy of short and medium-range weather forecasts have significantly improved with the assimilation of CrIS and ATMS data. The visible and infrared imager (VIIRS) provides environmental products such as snow/ice cover, volcanic ash, forest fires, droughts and surface temperature that are important decision aids for forecasters. The advanced Ozone Mapping and Profiler Suite (OMPS) is vital to track the health of the ozone layer and measures the concentration of ozone in the Earth's atmosphere.

In FY 2022, NOAA established the Low Earth Orbit (LEO) program, which sets the stage for managing future polar and other low earth orbit satellite observations as a loosely coupled programs. The LEO program will complement the current, ongoing programs of record and develop the next generation of missions that follow JPSS program. This presentation will provide status of the current JPSS mission as well as highlight next generation LEO mission planning at NOAA. Some recent examples of applications from JPSS data are described.