

National Aeronautics and Space Administration

Earth System Science Pathfinder Program Office Executive Summary

Spring 2023



Recent project and investigation news and highlights:

(Please click on [hyperlinks](#) for more information)

- The **EVI-4** project **EMIT** (Earth Surface Mineral Dust Source Investigation) was launched on July 14, 2022 and is currently operating from the International Space Station. EMIT is mapping sand and dust storms globally to help climate scientists better understand how different minerals heat or cool the planet, as described in a [recent article on CNN](#). In addition, an unplanned capability of the instrument is the ability to identify [huge plumes of methane](#) from “super-emitters”. Methane is a powerful greenhouse gas, and this new development will allow researchers to identify the global location of methane leaks within EMIT’s ground track. Details of this capability are discussed at a NASA telecon [at this link](#). The EMIT PI is Dr. Rob Green from the Jet Propulsion Laboratory.
- The **EVS-3** investigation **IMPACTS** (Investigation of Microphysics and Precipitation for Atlantic Coast Threatening Storms) was recently [highlighted on NPR’s All Things Considered](#). The feature describes the experience of flying along with the science team on the P3-B during one of the project’s recent flights out of Wallops Island Flight Facility. IMPACTS is using a variety of airborne remote sensing instruments to identify key processes that control snowfall within winter snowstorms. The goal is to ultimately improve forecasting of snowfall to provide more accurate warnings of impacts such as major disruptions to transportation, commerce, and public safety. The IMPACTS PI is Dr. Lynn McMurdie from the University of Washington.
- The **EVS-3** investigation **S-MODE** (Sub-Mesoscale Ocean Dynamics Experiment) is beginning their final deployment off the coast of San Francisco during March and April this year. The project is investigating the likely important contributions that sub-mesoscale ocean dynamics such as eddies, and whirlpools make to the vertical exchange of nutrients and heat energy between the ocean and the atmosphere. This exchange is one of the critical drivers of climate change. For insights and experiences of several team members during the previous deployment this past Fall of 2022, [check out the multiple blog posts](#) as part of NASA’s Earth Expeditions! The S-MODE PI is Dr. Tom Farrar from Woods Hole Oceanographic Institution.

Upcoming Launches!!

EVI-1 TEMPO (*Tropospheric Emissions: Monitoring of Pollution*)

The instrument will be hosted on Intelsat 40e, a geostationary communications satellite. Launch is scheduled in April 2023 on a Space-X Falcon 9 from Cape Canaveral, FL.

EVI-3 TROPICS (*Time-Resolved Observations of Precipitation structure and storm Intensity with a Constellation of Small sats*)

Four TROPICS Cube Sats will be launched by Rocket Lab’s Electron rockets no earlier than May 2023.