NASA is sending a new Earth-research spacecraft into orbit to measure and map the moisture within our planet's soil.

The Soil Moisture Active Passive mission will use remote-sensing instruments to create global maps of Earth's soil moisture – helping us better understand water and carbon cycles.

SMAP will get a boost into polar orbit aboard a United Launch Alliance Delta II rocket launching from Vandenberg Air Force Base in California.

The first stage of the Delta II pulled into Building 836 on July 23, 2014. It was offloaded and moved to the Horizontal Processing Facility at the launch site.

On August 4, 2014, the first stage moved out to the Mobile Service Tower at Space Launch Complex 2. A crane lifted the booster into the vertical position, then the interstage adapter was installed on the top.

The rocket's three solid rocket motors were attached to the first stage on August 18,
and two days later, the booster was topped with the second stage.

Once inside Astrotech, SMAP was put through a series of inspections and tests to ensure it’s ready to perform during its three-year mission.

The spacecraft wrapped up its preflight processing in mid-November.

Final preparations began in the new year. SMAP was joined to its launch vehicle hardware on January 7, and during the following days, it was bagged in a protective cover and placed into a canister for the move to Space Launch Complex 2.

The observatory was transferred to the launch complex and hoisted into place atop the Delta II rocket on January 13, and secured inside the protective payload fairing later the next week.

Each of these milestones sets the stage for success as NASA sends its newest satellite on its mission to map Earth’s soil moisture.