# NASA's MMS team assembles final observatory

May 30 2013

Magnetospheric Multiscale mission integration and test team members, seen here in white clean-room suits, integrate the fourth and final instrument deck onto the spacecraft deck/thrust tube assembly, which houses the propulsion module, officially making it an observatory. This clean room was designed and built for MMS to house all four spacecraft at once: Two additional observatories appear in the background. Credit: NASA

On May 20, 2013, the Magnetospheric Multiscale, or MMS, mission team at NASA's Goddard Space Flight Center in Greenbelt, Md.,

reached an unprecedented milestone. The team mated the instrument and spacecraft decks to form the fourth and final MMS observatory. This is the first time Goddard has simultaneously engineered this many observatories, or spacecraft, for a single mission.

"The logistics of building four of the same thing is a new challenge, one that really makes us push the boundaries of how we operate," said Brent Robertson the MMS deputy project manager at Goddard. "These are first generation, new science observatories, and we've built them all at the same time. It's been like a very intense game of musical chairs."

The large Goddard MMS clean room can hold all four spacecraft at once, and a detailed schedule keeps track of how the team is moving from task to task. The MMS team has cause for pride in their work: building four observatories for a single mission, when many don't have the chance to build four in an entire career.

Due to launch in late 2014, MMS will investigate how the sun and Earth's magnetic fields connect and disconnect, explosively transferring energy from one to the other – a fundamental physical process that occurs throughout the universe, known as magnetic reconnection. Using four spacecraft will provide MMS with the multipoint measurements needed to determine whether reconnection events occur in an isolated locale, everywhere within a larger region at once, or by traveling across space.

Provided by NASA's Goddard Space Flight Center