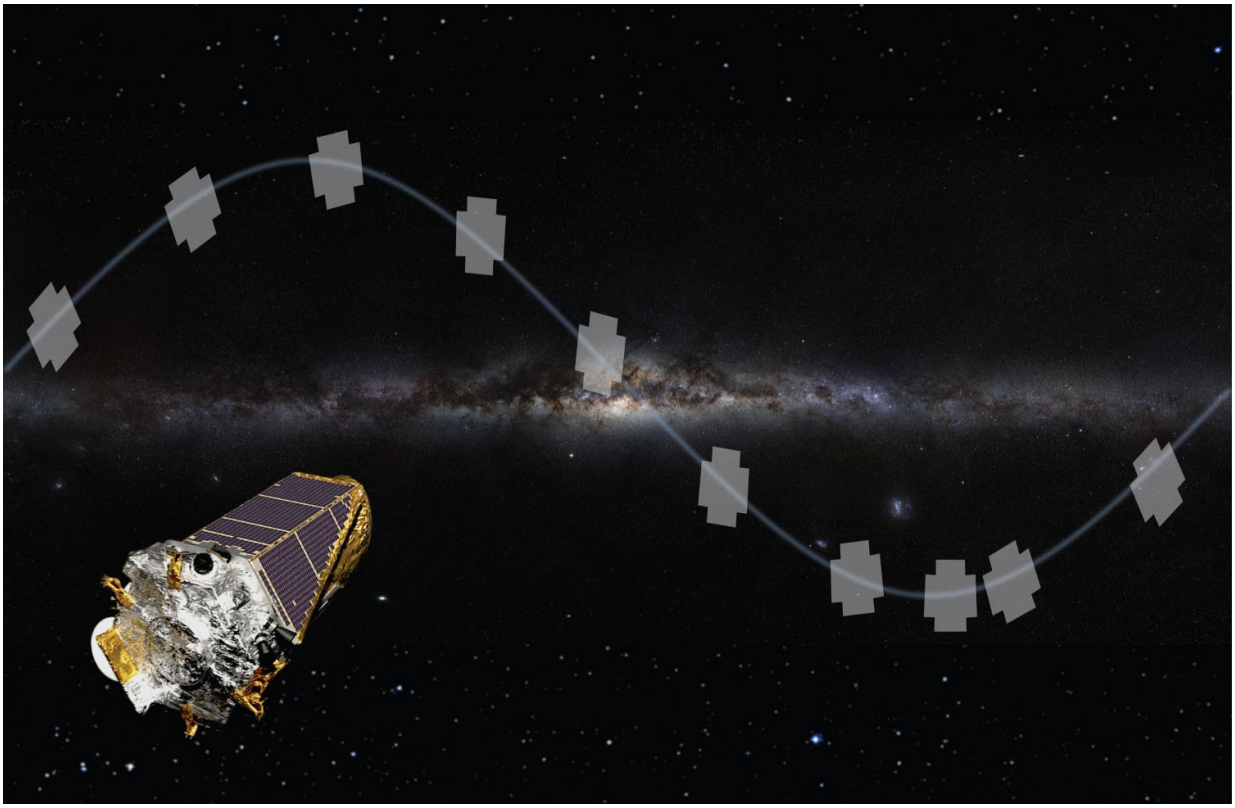
Kepler remains stable as health check continues

April 15 2016, by Charlie Sobeck



Credit: NASA

The Kepler spacecraft remains stable as the process of returning it to science continues. The cause of the anomaly, first reported on April 8, remains under investigation.

Since Sunday morning the spacecraft has remained safely "parked" in a stable pointed configuration called Point Rest State. In this state, fuel usage remains low and the communication link to Earth is good. As of Tuesday, mission operations engineers had downlinked all the necessary data from Kepler to triage the situation and plan the steps toward recovery.

The recovery to science began with a thorough assessment of the data, which took a couple days, after which the team had learned all they could about the state of the spacecraft from the data. It was then time to turn back on and test the components deemed low-risk to spacecraft health. Testing begins on the Kepler spacecraft simulator at the flight planning center at Ball Aerospace in Boulder, Colorado. With the ground-based simulation a success, NASA researchers were ready to conduct the tests on Kepler, 75 million miles away. The engineers sent the instructions, along with commands for the spacecraft to protect itself and enter a safe operating mode if there was a problem, and waited for the spacecraft to report back.

The spacecraft returned a response that is the equivalent of 'so far, so good.' It did not experience any faults from switching on the components, and all the data suggest the components are working normally. The spacecraft is another step closer to returning to scientific observations for the K2 mission.

The photometer – Kepler's camera – and the solid state recorder are powered on. The subsystem interface box, which is the interface between the spacecraft sensors and the main computer, was only briefly powered on for an initial assessment, but should be back online early next week. The team will continue recovering the components, as they are deemed safe and low-risk to the spacecraft.

Over the weekend, NASA's Deep Space Network (DSN) will remain in

contact with the spacecraft while the team gets some much-needed rest. To watch the worldwide array of antennae communicate with the spacecraft, tune-in to DSN Now.

The recovery started slowly and carefully, as researchers initially merely tried to understand the situation and recover the systems least likely to have been the cause. Over the last day and a half, researchers have begun to turn the corner, by powering on more suspect components. With just one more to go, the team expects that they will soon be on the home stretch and picking up speed towards returning to normal science operations.

Provided by NASA