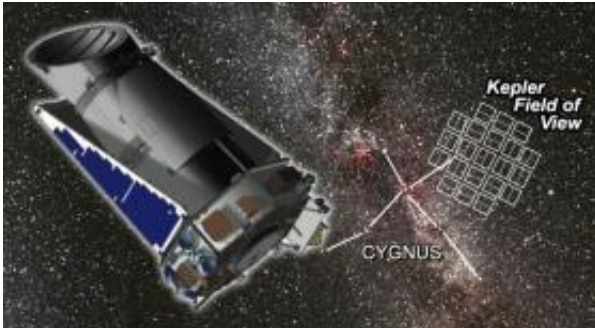


False alarm sent Kepler into safe mode: team

January 10 2011



Artist concept of Kepler in space. Image credit: NASA/JPL

The Kepler Project Team successfully returned the spacecraft to normal operations on Jan. 6, 2011. The team determined the condition was caused by unexpected noise in the signal from Kepler's sun sensors that erroneously indicated Kepler might be pointing too close to the sun. This was a false alarm, but the team treated it seriously.

The [Anomaly](#) Response Team narrowed down the probable cause for the sun sensor noise to a virtual ground circuit in a pair of onboard electronics boxes, called Subsystem Interface Boxes (SIB), referred to as SIB-1 and SIB-2. The engineering team determined that input from the sun sensors caused unexpected variations in the ground circuit. The circuit that experienced variations on Dec. 22, 2010, tripped the fault protection and caused Kepler to enter safe mode. This was the first and only time that Kepler experienced noise from its sun sensors. The team was able to determine that the noise is not related to any part failure and

is inherent to the design of the virtual ground circuit.

Having narrowed the cause to the design of this circuit, and understanding the extent of the vulnerability, the operations team concluded that it was safe to return to normal operations, including science data collection. They have sufficient workarounds to prevent a [safe mode](#) recurrence from this cause.

[Kepler](#) was not able to collect science data for the duration of the anomaly from Dec. 22, 2010, to Jan. 6, 2011. Engineers will continue to analyze telemetry from the event to determine if any further mitigations are possible and necessary. Kepler's next science data download is scheduled for February 2011.

Provided by JPL/NASA

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