2003 Genesis Mission Status Updates: April, May, June

June 27, 2003
The Genesis spacecraft continues its mission collecting solar wind material expelled from the Sun. Telemetry from the Genesis spacecraft indicates that all spacecraft subsystems are reporting nominal operation.

The Genesis Navigation Team released its final report on Station Keeping Maneuver SKM-4A performed on June 11. The report indicates the spacecraft performed 'as advertised' with the 1.274 meter-per-second change in velocity. Recent solar activity has called for the 'high solar speed' collector array to be deployed 47% of the time, and the E-Array, which handles coronal mass ejections, 46% of the time. The 'low solar speed' collector was unshaded the remaining 7%.

Genesis Vital Statistics:
688 days since launch.
282 days to planned completion of solar particle collection.
439 days to Genesis return to Earth.

June 20, 2003
The Genesis spacecraft continues its mission collecting solar wind material expelled from the Sun. Telemetry from the Genesis spacecraft indicates that all spacecraft subsystems are reporting nominal operation.

Recent solar activity has called for the 'high solar speed' collector array to be deployed 47% of the time, and the E-Array, which handles coronal mass ejections, 42% of the time. The 'low solar speed' collector was unshaded the remaining 11%.

Genesis Vital Statistics:
-- 682 days since launch.
-- 288 days to planned completion of solar particle collection.
-- 445 days to Genesis return to Earth.

June 16, 2003
The Genesis spacecraft continues its mission collecting solar wind material expelled from the Sun. Telemetry from the Genesis spacecraft indicates that all spacecraft subsystems are reporting nominal operation.

Last Wednesday the Genesis spacecraft performed a seven minute burn. This station keeping maneuver was a planned operation designed to keep the Genesis spacecraft within it designed orbit. Including the station keeping maneuver, total propellant used during the entire mission thus far are 17.67 kilograms.

Genesis's sample return capsule battery temperature is still below predicts, at about 50ºC. While the temperature is expected to increase as the spacecraft moves towards perihelion, the Genesis team is confident it will remain well within operational parameters for the remainder of the mission.

Recent solar activity has called for the 'high solar speed' collector array to be deployed 75% of the time, and the E-Array, which handles coronal mass ejections, 21% of the time. The arrays in the Bulk collection handled the remaining 4% of solar activity harvesting.

Genesis Vital Statistics:
-- 678 days since launch.
-- 292 days to planned completion of solar particle collection.
-- 449 days to Genesis return to Earth.

June 5, 2003
The Genesis spacecraft continues its mission collecting solar wind material expelled from the Sun. Telemetry from the Genesis spacecraft indicates that all spacecraft subsystems are reporting nominal operation.

The solar wind has been unusually 'windy' the past week or so. It is Genesis's ion and electron monitors job to keep a close 'eye' on these winds. On three occasions the monitors detected solar wind speeds that reached a level where the spacecraft's main computer will order the concentrator to 'standby mode 3'. In this mode the concentrator voltages are essentially turned down to zero until the high solar winds subside. This is done to protect the integrity of the solar samples. The high solar winds did not impact operational integrity of the spacecraft.

Genesis's sample return capsule battery temperature is still below predicts, at about 50ºC. While the temperature is expected to increase as the spacecraft moves towards perihelion, the Genesis team is confident it will remain well within operational parameters for the remainder of the mission.

On May 31 the spacecraft had a concentrator reset. A reset occurs when voltage running through the fine wires forming a rejection grid in the front of the spacecraft's sample concentrator sags below the intended voltage. The grid carries a positive charge in order to deflect hydrogen ions while allowing heavier oxygen ions to pass through. That concentrates oxygen, in proportion to hydrogen, reaching a collector tile. The spacecraft's systems successfully returned the voltage to its desired level within an hour.

Recent solar activity has called for the 'high solar speed' collector array to be deployed 41% of the time, and the E-Array, which handles coronal mass ejections, for the remaining 59%. There are three collector arrays aboard Genesis that are exposed to, or hidden from, the solar wind dependant on the wind regime encountered. Which collector

array is exposed is determined by the data received by sensitive ion and electron monitors located on the spacecraft's equipment deck. These monitors scrutinize the solar wind passing by the spacecraft and relay this information to the onboard computer, which in turn commands the collector arrays to deploy and retract as needed.

Genesis Vital Statistics:
668 days since launch.
302 days to planned completion of solar particle collection.
459 days to Genesis return to Earth.

May 30, 2003
The Genesis spacecraft continues its mission collecting solar wind material expelled from the Sun. Telemetry from the Genesis spacecraft indicates the spacecraft is in overall good health.

Recent solar activity has called for the 'high solar speed' collector array to be deployed 75% of the time, the 'low solar speed' array deployed 14% of the time and E-Array for the remaining 11%. There are three collector arrays aboard Genesis that are exposed to, or hidden from, the solar wind. One collector array is designated for each of the three solar wind regimes. Which collector array is exposed is determined by the data received by sensitive ion and electron monitors located on the spacecraft's equipment deck. These monitors scrutinize the solar wind passing by the spacecraft and relay this information to the onboard computer, which in turn commands the collector arrays to deploy and retract as needed.

Genesis Vital Statistics:
661 days since launch.
309 days to planned completion of solar particle collection.
466 days to Genesis return to Earth.

May 23, 2003
The Genesis spacecraft continues its mission collecting solar wind material expelled from the Sun. Telemetry from the Genesis spacecraft indicates the spacecraft is in overall good health and as of the morning of May 23, the spacecraft was about 1.25 million kilometers (.77 million miles) from Earth.

Recent solar activity has called for the 'high solar speed' collector array to be deployed 53% of the time and the 'low solar speed' array deployed for the remaining 47%. There are three collector arrays aboard Genesis that are exposed to, or hidden from, the solar wind. One collector array for each of the three solar wind regimes. Which collector array is exposed is determined by the data received by sensitive ion and electron monitors located on the spacecraft's equipment deck. These monitors scrutinize the solar wind

passing by the spacecraft and relay this information to the onboard computer, which in turn commands the collector arrays to deploy and retract as needed.

The Genesis team completed an in-flight test of the spacecraft's battery. The team's battery experts will be analyzing the data over the next few weeks. Preliminary indications are that the battery has not 'aged' as much as was expected.

The latest series of computer commands for Genesis were uplinked on Friday, May 16th, and went active last Tuesday, May 20.

Genesis Vital Statistics:
- 654 days since launch.
- 316 days to planned completion of solar particle collection.
- 473 days to Genesis return to Earth.

April 25, 2003
The Genesis spacecraft continues its mission collecting solar wind material expelled from the Sun. Telemetry from the Genesis spacecraft indicates the spacecraft is in overall good health and as of the morning of April 25, the spacecraft was about 1.371 million kilometers (.852 million miles) from Earth.

Recent solar activity has called for the 'high solar speed" collector array to be deployed 100% of the time. There are three collector arrays aboard Genesis that are exposed to, or hidden from, the solar wind. One collector array for each of the three solar wind regimes. Which collector array is exposed is determined by the data received by sensitive ion and electron monitors located on the spacecraft's equipment deck. These monitors scrutinize the solar wind passing by the spacecraft and relay this information to the onboard computer, which in turn commands the collector arrays to deploy and retract as needed.

Genesis Vital Statistics:
— 626 days since launch.
— 344 days to planned completion of solar particle collection.
— 501 days to Genesis return to Earth.

April 14, 2003
The Genesis spacecraft continues its mission collecting solar wind material expelled from the Sun. Telemetry from the Genesis spacecraft indicates the spacecraft is in overall good health and as of the morning of April 14, the spacecraft was about 1.473 million kilometers (.915 million miles) from Earth.

2003 Genesis Mission Status Updates: April, May, June

On April 4, the Genesis flight team performed a 'concentrator rejection grid test.' This test demonstrated a new maximum voltage of 2120 V for the rejection grid and was a complete success.

Recent solar activity has called for the 'high solar speed' collector array to be deployed 60% of the time. The low-speed array has been deployed 26% of the time and holding down the fort in last place has been the 'E-Array' which has been unshaded 14% of the time. The 'E-Array' is deployed when sensors on the spacecraft detect a coronal mass ejection.

There are three collector arrays aboard Genesis that are exposed to, or hidden from, the solar wind. One collector array for each of the three solar wind regimes. Which collector array is exposed is determined by the data received by sensitive ion and electron monitors located on the spacecraft's equipment deck. These monitors scrutinize the solar wind passing by the spacecraft and relay this information to the onboard computer, which in turn commands the collector arrays to deploy and retract as needed.

Genesis Vital Statistics:
— 615 days since launch.
— 355 days to planned completion of solar particle collection.
— 512 days to Genesis return to Earth.