

Ambitious Inquiry into the Moon's Evolution Relies on AGI's STK & Astrogator Products

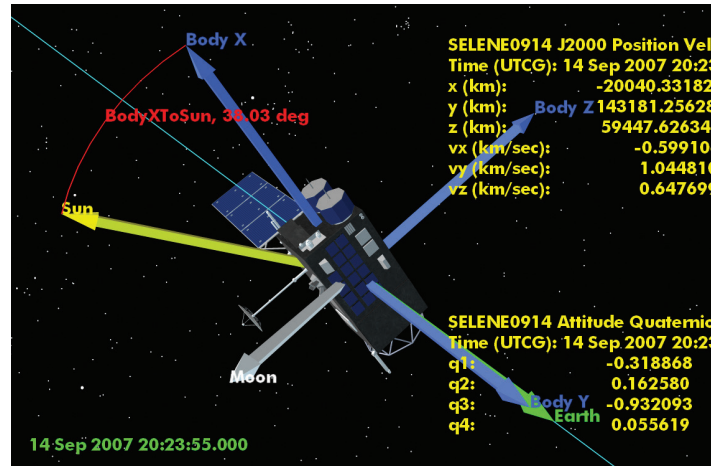
AGI Software supports JAXA's Kaguya Mission

BACK TO THE MOON: Japanese Aerospace Exploration Agency's Selenological and Engineering Explorer "Kaguya" is Japan's first large lunar explorer. While the Apollo program made major strides in space flight and returned a wealth of scientific data in the form of soil mechanics, solar wind, and heat flow, JAXA hopes the explorer will provide insight into the Moon's origin and evolution. JAXA's Flight Dynamics Division employed AGI's analysis software to assess the accuracy of its newly developed SELENE Flight Dynamics System.

DOUBLE-CHECKING THE NUMBERS: JAXA needed to run Collision Analysis (COLA) to ensure the explorer did not pass closely to a manned orbital object. Since preliminary analysis showed a large estimated maximum error, a number of cases had to be run and analyzed. JAXA used STK's 3D visualization capabilities to quickly perform trade studies on the cases.

"During critical mission phases, STK Astrogator reconfirms orbital maneuver plans and monitors attitude parameters. Since this was the first mission for the SELENE Flight Dynamics System, we felt more secure when two tools showed the same results. AGI software showed very similar solutions to ours; considering the Earth, Sun, and Moon gravity properly. Comparing the orbit propagation, solar phase angle, and other variables between these two programs greatly reduced the risk of human error and potential program bugs."

— CHIKAKO HIROSE, ENGINEER, JAXA FLIGHT DYNAMICS DIVISION



When the Japanese Aerospace Exploration Agency (JAXA) needed to confirm Collision Analysis (COLA) results generated by its newly developed flight dynamics system, they used AGI software to compare the graphical and analytical output of both systems. As a result, they saved significant time deciding which cases to analyze.

STK CONFIRMS THE NUMBERS: Calculations derived from AGI's STK Professional Edition and Conjunction Analysis Tools augmented the 3D visualization. The output was compared with JAXA's internally developed system. JAXA developed the SELENE Flight Dynamics System specifically for this major lunar mission. STK Astrogator—AGI's trajectory design and spacecraft maneuvering software—confirmed the results. During critical mission phases, STK Astrogator reconfirmed orbital maneuver plans and monitored attitude parameters.