Space Systems Group Leader Tye Brady (center) is pictured with Jet Propulsion Laboratory (JPL) Director Dr. Charles Elachi (left) and NASA Associate Administrator of the Science Mission Directorate Dr. Edward J. Weiler after receiving NASA's Exceptional Public Service Medal. (Picture taken by Tom Wynne, provided by JPL)

Integrated Systems Development and Test Group Leader Sean Buckley (center) is pictured with Jet Propulsion Laboratory (JPL) Director Dr. Charles Elachi (left) and NASA Associate Administrator of the Science Mission Directorate Dr. Edward J. Weiler after receiving NASA's Exceptional Public Service Medal. (Picture taken by Tom Wynne, provided by JPL)

Brady and Buckley Honored by NASA with Exceptional Public Service Medal June 9, 2009

Space Systems Group Leader Tye Brady and Integrated Systems Development and Test Group Leader Sean Buckley each received the Exceptional Public Service Medal (EPSM) at the NASA Honor Award Ceremony held June 9, 2009, at the Jet Propulsion Laboratory in California. Both were recognized for their roles in "the development of the Inertial Stellar Compass [ISC] for the New Millennium Program Space Technology 6 (ST6)," Brady for "outstanding technical leadership" and Buckley for "outstanding technical contributions." The EPSM is a prestigious award given to nongovernment employees for exceptional contributions to NASA's mission.

Designed by Draper Laboratory, the ISC is the world's first complete spacecraft attitude determination system to use a microelectromechanical system (MEMS) gyro. The ISC combines an active pixel star camera and Draper-made tuning-fork MEMS gyros with a microprocessor to provide a full 3-axis attitude determination system in a low power (3.6 W) and low-mass (2.9 kg) package, less than one-half the power and mass of conventional systems. Requiring no more than power and an occasional clock update from the host spacecraft, the ISC initializes upon startup, acquires and identifies stars from its own star catalog, and uses its "lost in space" algorithms to determine the direction in which it is pointing. Using its MEMS gyros, the ISC continues to propagate this attitude even at high slew rates and at times of optical interference from the sun, moon, or Earth.

Launched into space on Dec. 16, 2006, aboard the TacSat-2 spacecraft, the ISC was first powered on December 27, beginning a series of tests that validated the system's operation under a wide range of conditions. A fully successful on-orbit ISC validation campaign was completed in June of 2007. The ISC continued its exceptional performance throughout the duration of the TacSat-2 mission, which completed in December 2007.

Brady was the lead technical engineer for the development and design of the Inertial Stellar Compass. He holds an international and U.S. patent for the ISC design and was responsible for all technical matters through the duration of the project. Currently he is the technical director of the Autonomous Landing and Hazard Avoidance Technology (ALHAT) project at Draper which is developing for NASA a next-generation lunar landing system capable of safe and highly precise global lunar landing.

Buckley was the lead for validation of Kalman filter on ISC's breadboard hardware, gyro calibration, and system validation tests on the rate table. He supported night sky testing and environmental tests, and he worked with the TacSat-2 team on the spacecraft ICD, spacecraft integration, and mission operations. Currently he is the lead on Trident MK6 MOD1 subsystem design verification testing.