

Major General Thomas D. Taverney
Inducted 2016



Major General Thomas D. Taverney graduated from the United States Air Force Academy in 1968 with a Bachelor of Science degree. He began his space career with the Office of Development Plans, Space and Missile Systems Organization at Los Angeles Air Force Base in California. Shortly after his arrival, he developed the Air Force position on the Russian Galosh missile system as an input to the Strategic Arms Limitation Treaty I (SALT I) negotiating team. In 1969, he was awarded the Air Force Scientific Achievement Award for demonstrating that a new guidance approach that he developed for the Miniature Homing Vehicle (MHV) would allow the MHV to successfully function as a prototype missile interceptor. He also developed a Kalman filter-based model of the guidance system and conducted extensive simulations. His efforts single-handedly revived the concept of hypervelocity space intercept and non-nuclear kill that gave birth to the modern Ballistic Missile Defense Program. The Army subsequently initiated a \$100 million program for terminal missile defense based on his revolutionary ideas.

In 1970, then First Lieutenant Taverney designed the first Air Force Airborne Anti-Satellite (ASAT) system. His design employed a modified MHV mounted on an AGM-78 Standard Anti-Radiation Missile (ARM) flying on a Convair F-106 Delta Dart. His initial concept came to the attention of the Chief of Staff of the Air Force and led to a formal Air Force program. The resulting program actually demonstrated a space intercept with an MHV on a modified Boeing AGM-69 Short Range Attack Missile (SRAM) launched from a McDonnell Douglas F-15 Eagle. The next year, Taverney was tasked to show that a Minuteman missile could be used in a defensive capacity, making it capable of performing a "dual role" of offense and defense. He modeled the Minuteman guidance system and concluded that it would only be effective approximately 25 percent of the time. This conclusion, although unpopular, saved the government millions of dollars by preventing the pursuit of an unworkable solution. His significant achievements were recognized in the *Who's Who in Aviation* (1972).

In 1972, the Air Force transferred then Captain Taverney to the Air Force Satellite Control Facility at Sunnyvale Air Force Station, California, where he served as a satellite command engineer and shift supervisor. In these capacities, Taverney and his team's innovative approaches mitigated two major potential satellite failures, ensuring critical satellite operations. As a Software Field Test Force Director, he led the organization's planning for transition to the backup Satellite Test Center in Santa Monica in the event of a disaster at Sunnyvale. Facing numerous technical complications, Captain Taverney led the first exercise that successfully commanded satellites from Santa Monica. In 1974, he received a Master of Science degree (University of Southern California) and graduated the following year from Squadron Officer School (Maxwell AFB, AL).

In August of 1976, Captain Taverney returned to Los Angeles AFB, this time with the Secretary of the Air Force Office for Special Projects, serving as Director of Operations and later as the Director of Launch Guidance. Taverney, who was responsible for the ground guidance for the radio-guided Titans, solved a major design problem for that system. When unexplained, intermittent failures in the Titan ascent guidance system grounded the Titan Space Launch System, Captain Taverney's team embarked on an around-the-clock failure analysis and completely disassembled the system. He quickly identified the problem (a scored tantalum that wrapped the cathode intermittently bent toward the score in the tantalum and hit the Beam Forming Electrode (BFE) and caused a short). His team developed a method for testing and validating the system in order to resume Titan launches. His efforts significantly reduced the downtime of the Titan launch system from an expected six months to a mere seven days. Also, during this time he led an effort of multiple trajectory builds and redundant ground systems that provided the basis for an outstanding record, with 41 of 41 successful radio-guided Titan launches.

Captain Taverney transitioned to the Air Force Reserve in 1981 and continued in the space industry as a civilian. During this time, he designed a real-time ground terminal for weather satellites which significantly enhanced capabilities. In 1986, he developed a simulator for the National Launch System (the predecessor of the Evolved Expendable Launch Vehicle, or EELV Program) that allowed rapid evaluation of alternative launch designs. The simulator, a personal computer-based system, allowed senior Air Force leadership to efficiently evaluate launch scenarios without waiting for contractors. That same year, Major Taverney became the first national Chairman of the National Security Industrial Association Committee on space. From December 1988 to August 1996, in his Air Force capacity, he served in a variety of leadership positions at Los Angeles AFB, California including Ground Processing and Ascent Guidance and Control, Engineering (Defense Support Program), and Ground Control Segment (Space Based Infrared System).

Promoted to Colonel (1 Apr 96), he led an independent review of the Advanced Research and Global Observation Satellite (ARGOS) program, which was the most expensive and complex research satellite in the Space and Missile Center portfolio at the time. The review deemed that ARGOS was not ready to launch without further testing. While this delayed launch activity, the vehicle was retested, resulting in the discovery of 62 items that required correction, which would have caused a mission failure if this testing had not occurred. When finally launched, ARGOS

exceeded all technical and longevity requirements. Upon promotion to Major General, he was assigned as the Mobilization Assistant (MA) to the Commander, Air Force Space Command (AFSPC). In this capacity, General Taverney provided technical and managerial assistance to the Commander to support the AFSPC mission of global military space operations.

In November 2001, during operations Noble Eagle and Enduring Freedom, General Taverney returned to active duty to assure the last Titans flew out successfully and that EELV was brought to operational capability. General Taverney changed the EELV program from a commercially focused approach to a modified "Military Assurance" level of launch operations. He also labored through numerous problems - such as rotational cavitation and Martensitic Transformation - in order to ensure all critical assets successfully reached their orbit in time to support the nation's warfighters. As we moved from a time of many launch vehicles, we were moving to a period of only EELV, though EELV had two launch families (Atlas V and Delta IV). During this period General Taverney developed the concept of retaining both launch families instead of down selecting. This concept of two launch providers became the concept of "Assured Access to Space."

In 2005 General Taverney was tasked with going to the AOR to support the development of Space warfighting doctrine. He served an essential role in the planning for Joint Warfighter Space and led periodic reviews concerning AFSPC's support to the warfighter. Finally, he served as the Senior Certified Director of Space Forces (DS4) in the command, a role requiring unprecedented dedication and technical expertise to help develop space warfighting doctrine. Between March and October 2006, Major General Taverney served as AFSPC Vice Commander. He represented the command for the Moorman Commission that addressed reorganization of America's national security space community and provided a renewed focus on the future of national security space efforts. He helped lead the command through significant Air Force manpower and budget cuts successfully defending AFSPC manpower and budgets to assure space capabilities were not impacted. He retired on 1 Oct 06.

Although retired from military service, General Taverney continued to play an active role in the space industry serving on advisory boards for SMC and AFSPC. He was inducted in the Space Operations Hall of Fame (2010). He became a senior vice president with Science Applications International Corporation (SAIC), now Leidos, leading numerous significant space EO/IR payload developments. Among these was the successful Commercially Hosted Infrared Program (CHIRP). This program received the Aviation Week Program Excellence award and NASA Stellar achievement award (2012), and was recognized by C4ISR Journal as one of the year's biggest breakthroughs in networks, sensors, and intelligence. General Taverney is the recipient of the General Bernard Schriever "Lifetime Achievement Award" (2014).

He continually provides thoughtful contributions to space-related journals and publications. For example, he has published web-based articles in SpaceNews: "With Stability Achieved, the Future of Space is Now" (August 5, 2015) and "Financial Pressures Could Push Air Force Back to TSPR" (December 10, 2012), as well as engaging commentary such as, "The Pull of Mars on Our Spirit of Exploration" (September 30, 2013), "Incredible Shrinking Research Investments" (October 6, 2014), and "The 'S' Word: The Beginning, Not the End" (May 6, 2013). He has also published many articles for The Space Review: "How Military Space Programs Need to Deal

with Change” (June 8, 2015), “Protecting Critical Space Capabilities from Physical and Fiscal Threats” (March 10, 2014), and “Working towards a Space Code of Conduct” (April 16, 2012).