

**Colonel Francis J. Hale**  
**Inducted 2006**



Colonel Francis J. “Joe” Hale was born in Manila, Philippine Islands, on 24 October 1922. He graduated at age 15 from Woodrow Wilson High School in Washington, DC. Being too young to pursue immediately his dream of attending one of the service academies, he enrolled in classes at local universities. Having elected to enter West Point in 1941, he graduated with a Bachelor of Science degree on D-Day, 6 June 1944. Later, he would earn Master and Doctor of Science degrees from the Massachusetts Institute of Technology (MIT). His doctoral thesis examined the boundary layers of a magnetohydrodynamic (MHD) accelerator for use in space propulsion.

From the Army Corps of Engineers, Colonel Hale volunteered in autumn 1944 for parachute school at Fort Benning, Georgia. He served with a combat engineer battalion in Europe until mid-1945, retraining thereafter with the Army Map Service and, then, making maps in the Philippines. Major General Leslie Groves selected him in 1946 to serve in the Manhattan Engineer District, which then became the Armed Forces Special Weapons Project, at Sandia Base, New Mexico. He became deputy supervisor for the first military team to assemble atomic weapons and supervisor for the second such team. He spent five months on Eniwetok Island as a member of the Blast Measurements Group during Operation Sandstone, when the U.S. tested three atomic bombs.

Transferring to the U.S. Air Force (USAF) in 1948, Colonel Hale became a P-51 flight instructor. After three years at the AF Armament Center, Eglin AFB, Florida, where he became director of aeroballistics, he reported to the Western Development Division in January 1956. As deputy director of the Thor missile program under Colonel Ed Hall, he successfully advocated dropping the radio-inertial guidance system and concentrating on all-inertial guidance. With establishment of the Minuteman missile program, Colonel Hale became its first plans-and-programs officer, then Colonel Hall’s deputy program director. After Colonel Hale joined the

USAF Academy faculty as head of its Astronautics Department, Major General Richard Curtin summoned him to the Pentagon in 1962 to work on aerospace planning projects with representatives from DDR&E, USAF, other services, and other government agencies. He also served with representatives from Canada and the United Kingdom on a tripartite space committee, and he worked closely with ANSER Corporation on space-related issues.

Colonel Hale retired from active duty in 1965 and joined the engineering faculty at North Carolina State University. During 1972-73, as part of the National Science Foundation's Scientific, Engineering, and Economic Development (SEED) Program, he spearheaded development of an aerospace curriculum at Turkey's Middle East Technical University. In 1977-78, as a visiting professor, he assisted the US Military Academy with expansion of its engineering curriculum into aerospace. Prior to becoming technical director of the Department of Interior Desalination Test Facility at Wrightsville Beach, North Carolina, in 1982, he performed a dynamic analysis of a desalination process using techniques and equations developed for stabilizing and controlling spacecraft and aircraft. He authored several engineering textbooks, including *Introduction to Space Flight* (1994). From the mid-1990s onward, he developed and taught for the American Institute of Aeronautics and Astronautics home-study professional development courses in aircraft design and performance and in space flight.