

Dr. Marshburn came to Houston's Johnson Space Center in November 1994 as a flight surgeon, assigned to Space Shuttle Medical Operations and to the joint US/Russian Space Program. From February 1996 to May 1997 he served as a flight surgeon for NASA personnel deployed to the Cosmonaut Training Center, Star City, Russia, followed by work in the Center for Flight Control in Korolev, Russia, in support of the NASA 4 Expedition to the Mir Space Station. From July 1997 to August 1998 he was co-chair of Medical Operations for the Shuttle/Mir Space Program. From 1998 to 2000, he was deputy Flight Surgeon for Neuronal (STS-98) and lead Flight Surgeon for the STS-101 mission to the International Space Station.

After spending 10 months as a NASA Representative to the Harvard/MIT Smart Medical Systems Team of the National Space Biomedical Research Institute in Boston, Massachusetts, he worked as the lead Flight Surgeon for Expedition 7 to the ISS in 2003, supporting from Russia, Kazakhstan, and Houston. Until he was selected as an astronaut candidate, Dr. Marshburn served as Medical Operations Lead for the space station. Activities included development of the biomedical training program for flight surgeons and astronaut crew medical officers, and managing the station's Health Maintenance System.

Selected by NASA in May 2004, Dr Marshburn completed astronaut candidate training in February 2006. Training included scientific and technical briefings, intensive instruction in shuttle and International Space Station systems, physiological training, T-38 flight training, and water and wilderness survival training. He was qualified for various technical assignments within the Astronaut Office and future flight assignments as a mission specialist.

Dr. Marshburn first flew in Space on board the Space Shuttle Endeavor during the STS-127 Mission in July 2009. While logging more than 376 hours in space, and 18 hours and 59 minutes of EVA in three spacewalks, he assisted in the delivery and installation of the Japanese-built Exposed Facility (JEM-EF) and the Experiment Logistics Module Exposed Section (ELM-ES) to the International Space Station.

He later served on the ISS as a long duration crewmember during ISS Expeditions 34/35 (December 19, 2012 to May 14, 2013). While onboard the station, he logged more than 146 days in space and 5 hours and 30 minutes of spacewalk time in an emergency spacewalk to replace a leaking ammonia pump.