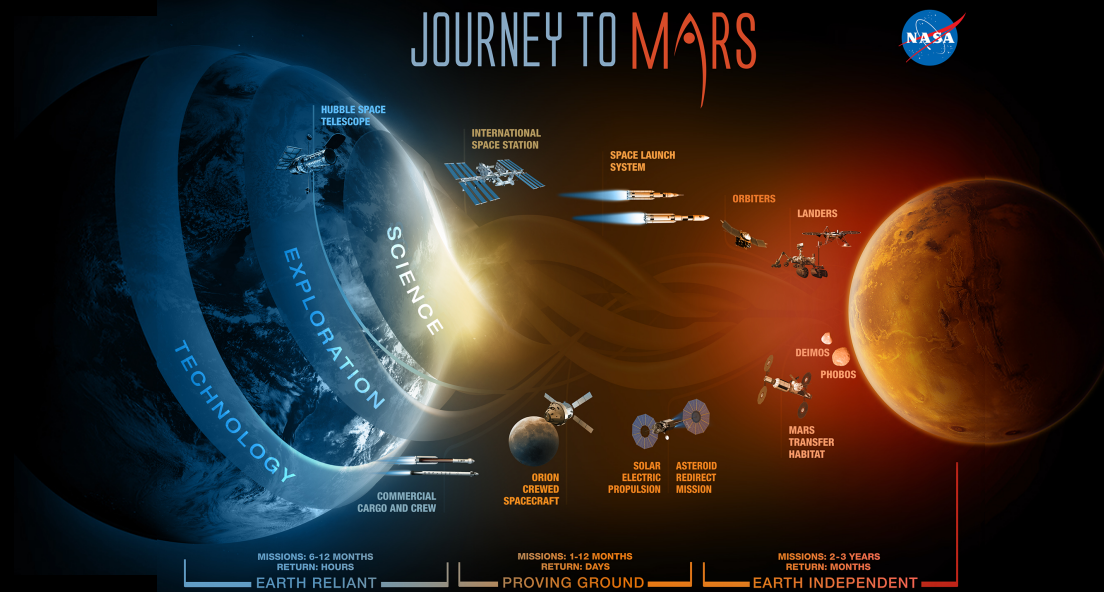


NASA'S Journey to Mars and Beyond



Dr. Dava Newman

National Aeronautics and Space Administration, Deputy Administrator

NASA is on a journey to Mars, and we are closer to reaching the Red Planet with human explorers than we have ever been in our history. Across the country, and around the world, NASA and its partners are working right now on the technologies and missions that will enable human “boots on Mars” in the 2030s. We are testing advanced technologies for the next giant leaps of exploration. From solar electric propulsion to cutting edge life support systems, to the first crops grown in space, the journey to Mars is already unfolding in tangible ways across NASA today for tomorrow.

NASA's strategic approach involves developing capabilities in three stages – from missions close to Earth involving commercial partners and the International Space Station, advancing to missions in Earth–Moon orbit, or deep space, using the Space Launch System and Orion spacecraft, and finally moving on to Mars, where explorers will be practically independent from spaceship Earth. The innovation required to achieve a human mission to Mars cuts across science, human exploration and technology. It builds on what has gone before, while driving the next advances. Our journey to Mars inspires educators, students and the public by investing in new leaders ready to realize the audacious journey.



Dr. Dava Newman was nominated by President Barack Obama in January 2015 and confirmed by the U.S. Senate in April 2015 to serve as the Deputy Administrator of the National Aeronautics and Space Administration. She began her duties with the agency on May 18, 2015.

Prior to her tenure with NASA, Newman was the Apollo Program Professor of Astronautics at the Massachusetts Institute of Technology (MIT) in Cambridge. Her expertise is in multidisciplinary research that encompasses aerospace biomedical engineering.

Newman's research studies were carried out through space flight experiments, ground-based simulations, and mathematical modeling. Her latest research efforts included: advanced space suit design, dynamics and control of astronaut motion, socio-technical systems analysis and space policy. She also had ongoing efforts in assistive and wearable technologies to augment human locomotion here on Earth.

Newman is the author of *Interactive Aerospace Engineering and Design*, an introductory engineering textbook published by McGraw-Hill, Inc. in 2002. She also has published more than 250 papers in journals and refereed conferences. She has served on numerous National Academies' studies and panels on human spaceflight, human-robotic interaction and active learning for engineering and design education.

Newman earned her Ph.D. in aerospace biomedical engineering and Master of Science degrees in aerospace engineering and technology and policy from MIT. She earned her Bachelor of Science degree in aerospace engineering from the University of Notre Dame.