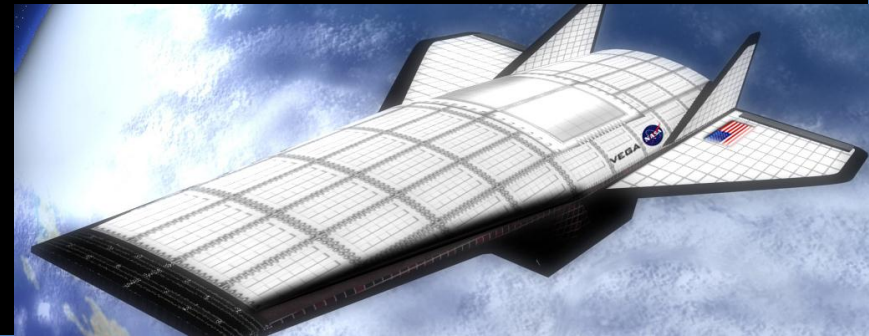
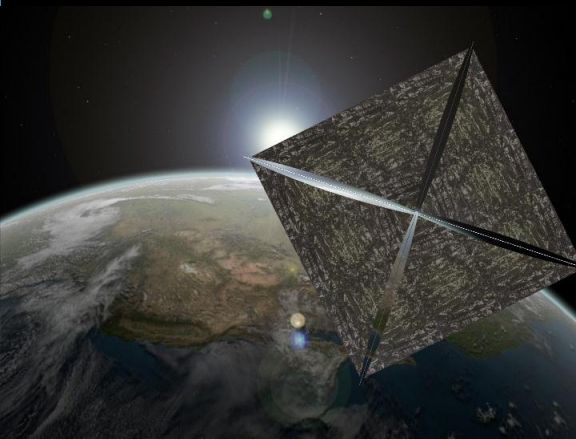


The Future of NASA

David Spencer
March 31, 2011



NASA Period of Transition

- Changing mission for human exploration
 - End of the space shuttle era
 - Pending completion of International Space Station
- Commercialization
 - Commercially-developed launch vehicles for astronauts and cargo
 - Crew transportation vehicles
 - Private sub-orbital ventures
 - Inflatable space habitats
- New science priorities for robotic planetary exploration (2011 Planetary Science Decadal Survey)
 - Mars sample acquisition for future return to Earth
 - Europa orbiter
 - Uranus probe

Recent NASA Administrators

Historical Context



Dick Truly, GT '59 ('89-'92) Post-Challenger shuttle return to flight



Dan Goldin ('92-'01) Faster-better-cheaper



Sean O'Keefe ('01-'05) Fiscal responsibility; Post-Columbia return to flight



Mike Griffin ('05-'09) Constellation program



Charles Bolden ('09-present) Space shuttle retirement

Space Flight Grand Challenges

< 10 yrs

- 1) Quantify the causes, trends and effects of long-term climate change
- 2) Discovery and study of Earth-like planets around distant stars
- 3) Return samples from planets, moons, comets and asteroids

10 – 20 yrs

- 1) Establish a permanent human outpost on the Moon
- 2) Accurately forecast the emergence of major natural disasters
- 3) Robotic exploration of Europa's saltwater oceans and Titan's organic-rich environment

20 – 30 yrs

- 1) Identify life beyond Earth in our solar system
- 2) Develop system for detecting and deflecting comets and asteroids that threaten Earth
- 3) Human exploration of asteroids, comets, Mars system

NASA's Vision & Mission Statement (2011)

- The NASA Vision:
 - To reach for new heights and reveal the unknown so that what we do and learn will benefit all humankind
- The NASA Mission
 - Drive advances in science, technology, and exploration to enhance knowledge, education, innovation, economic vitality, and stewardship of the Earth