A glimpse of space exploration and the challenges of life away from Earth

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Universities Space Research Association (USRA)
USRA

- USRA was founded at the suggestion of the National Academy of Sciences.

- One hundred five universities participate in space research for NASA, including space life sciences research.
NASA Centers

Ames Research Center
Johnson Space Center
Dryden Flight Research Center
Jet Propulsion Laboratory
Stennis Space Center
Glenn Research Center
Goddard Space Flight Center
Marshall Space Flight Center
Langley Research Center

Map of NASA Centers across the United States.
Project Mercury
1961-1963

Project Gemini
1965-1966
Space Shuttle Program (1981-present)
Mission Control

Boeing 747 carrying shuttle back to KSC (Overflying JSC)
International Space Station (ISS)
ISS

The new observation cupola (STS 132, May 2010)

The new observation cupola: Shuttle in STS130 docked to the ISS (Feb 2010)
Microgravity
Flight Analogs

Bed rest

Parabolic flight
Flight Analogs

Desert Research and Technology Studies (RATS)

Antarctica
Flight Analogs

NEEMO: NASA Extreme Environment Mission Operations
Surface Rover prototype
Roundup
Lyndon B. Johnson Space Center

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When humans and robots join forces
Life challenges: Radiation
Life challenges: bone loss and muscle deconditioning
Cardiovascular risks
Nutrition
Space Suits

ACES

EMU
The future?