



Space Life and Physical Sciences Research and Applications (SLPSRA)

The Committee on Biological and Physical Sciences in Space March 28, 2017

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Director, Space Life and Physical Sciences
Human Exploration & Operations Mission Directorate

Research Portfolio Guided by Decadal Survey



Research that enables space exploration:

scientific research in the life and physical sciences that is needed to develop advanced exploration technologies and processes, particularly those that are profoundly affected by operation in a space environment.

Research enabled by access to space:

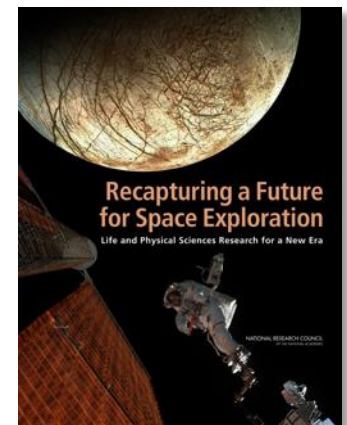
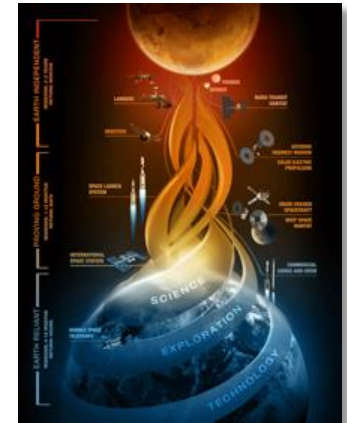
scientific research in the life and physical sciences that takes advantage of unique aspects of the space environment to significantly advance fundamental scientific understanding

- **Vision**

- We lead the space life and physical sciences research community to enable space exploration and benefit life on Earth

- **Mission**

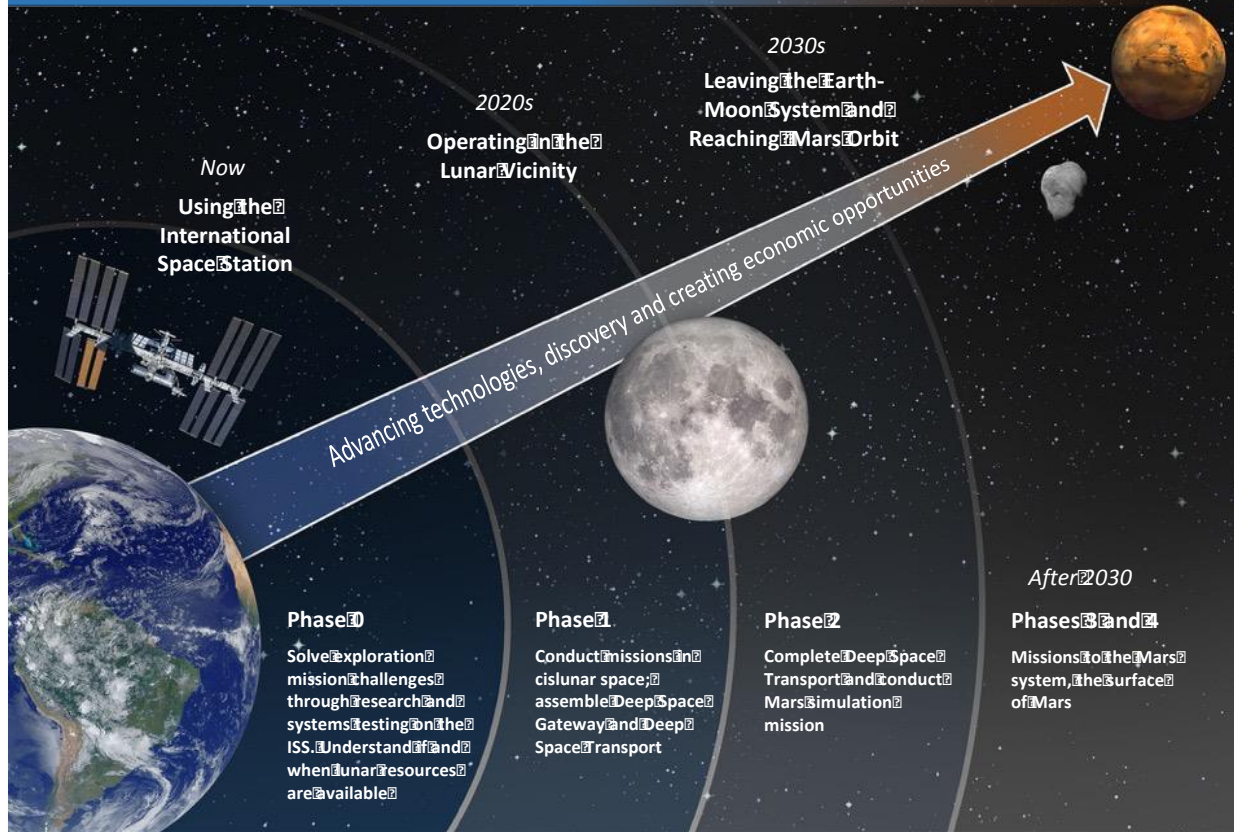
- **Enable exploration** to expand the frontiers of knowledge, capability, and opportunity in space
- **Pioneer scientific discovery** in and beyond Low Earth Orbit to drive advances in science, technology, and space exploration to enhance knowledge, education, innovation, and economic vitality



For Exploration Beyond LEO



Exploring Space In Partnership



Enabling Exploration

Examples:

- Human Research
- Plant Science
- Gravitational Biology
- Combustion
- Fluid Physics

Implementation: Open Science



- Maximize community participation in the **formulation** of investigations where feasible
 - Co-Principal Investigator Teams
 - Topical Teams
 - Science Definition Teams
- **Disseminate and reuse** data, tools, and samples post-project
 - Timely data deposition
 - With space flight metadata
 - With unique analysis tools
 - Platforms
 - GeneLab
 - Physical Science Informatics
 - Life Sciences Data Archive



Implementation: Partnerships



- Enrich content
 - Needed to Enable Exploration (Pull)
 - E.g., Advanced Exploration Systems, Space Technology Mission Directorate
 - Needed to Pioneer Scientific Discovery (Adopters)
 - E.g., CASIS, NIH, NIST, NSF, other government agencies; international partners; industry
- Facilitate execution
 - Access new platforms
 - Leverage SLPSRA resources



Partnering with the NIH



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION



DEPARTMENT OF HEALTH & HUMAN SERVICES
National Institutes of Health

SUBJECT: Letter of Intent between the National Aeronautics and Space Administration and the National Institutes of Health



Dava J. Newman, Ph.D.
Deputy Administrator
National Aeronautics and Space Administration

12 JAN 17

Date



Francis S. Collins, M.D., Ph.D.
Director
National Institutes of Health

JAN 13 2017

Date

Conclusion



- SLPSRA continues to implement an updated interpretation of the Decadal Survey to shape current and future content
 - Enable exploration (emphasis on R&TD pull)
 - Pioneer scientific discovery (emphasis on subsequent Adopters)
- Open Science and partnerships are key to implementation
- Risks of human spaceflight are being better understood and mitigated
- Scientific papers aligned with the Decadal Survey are being published and the results shared at national conferences
- Efforts continue to cultivate opportunities to
 - Enable exploration
 - Identify potential adopters of LEO for research

