



Decadal Survey on Earth Science: First Response of USGS

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Sustainable Land Imaging (SLI)



- Collaboration between NASA and DOI/USGS enabling the development of a multi-decade, spaceborne system providing users worldwide with high-quality, global, land-imaging measurements compatible with the existing 46-year Landsat record
 - NASA and DOI/USGS to collaborate in developing program strategy and architecture, identifying user needs, and defining mission requirements
- Under the SLI program, NASA and DOI/USGS will continue to work together to ensure sustainable access to land remote sensing observations for U.S. research and operational users
 - **Space systems-- NASA** will maintain responsibility for developing, launching and checking out space systems on-orbit before transferring to USGS for operations
 - **Ground systems-- DOI/USGS** will be responsible for developing and maintaining ground systems, to include operating on-orbit spacecraft, and collecting, archiving, processing and distributing SLI systems data to users

USGS-related Decadal Survey Recommendations

- 4.1: NASA, NOAA, and USGS should reduce barriers to applied uses of remote-sensing research and seek innovative ways to accelerate the transition of scientific research into societal benefits.
- 4.13: USGS should ensure that its process for understanding user needs is continued and enhanced throughout the life of the Sustainable Land Imaging (SLI) program.
- 4.14: NASA should constrain cost growth in the development portion of the Sustainable Land Imaging (SLI) partnership, and ideally reduce cost from one generation to the next. USGS should ensure budget growth is minimal, to avoid strain on the overall USGS budget.
- 4.15: Partnerships and user communities associated with Sustainable Land Imaging (SLI) program should be protected and continue to expand.

First Response from USGS – Recommendation 4.1

- 4.1: NASA, NOAA, and USGS should reduce barriers to applied uses of remote-sensing research and seek innovative ways to accelerate the transition of scientific research into societal benefits.
- **USGS Response: Agree. We need to work more closely with the NASA Applied Sciences Program, as the Decadal Survey suggests, perhaps co-sponsoring new application development. USGS is also moving ahead in the production of Landsat analysis-ready data, enabling the science and operational community of users to more easily access and use the data.**

First Response from USGS – Recommendation 4.13

- 4.13: USGS should ensure that its process for understanding user needs is continued and enhanced throughout the life of the Sustainable Land Imaging (SLI) program. The studies and surveys that USGS has done to document the scientific and operational uses of Landsat should be repeated at appropriate intervals, so that progress can be tracked, and these studies should be broadened to incorporate the other components of the SLI program.
- **USGS Response: Agree. The USGS Requirements, Capabilities and Analysis for Earth Observations (RCA-EO) project is a long-term activity established to help the USGS and other agencies take full advantage of U.S. and international Earth observation capabilities, and develop requirements-driven, prioritized investment decisions for new EO systems, products, and services.**

First Response from USGS – Recommendation 4.14

- 4.14: NASA should constrain cost growth in the development portion of the Sustainable Land Imaging (SLI) partnership, and ideally reduce cost from one generation to the next. USGS should ensure budget growth is minimal, to avoid strain on the overall USGS budget.
- **USGS Response: Agree with avoiding strain on overall USGS budget, although improvements in user need satisfaction from SLI advancements (spectral, spatial, temporal) may prove of sufficient value to justify increased costs.**

First Response from USGS – Recommendation 4.15

- 4.15: Partnerships and user communities associated with Sustainable Land Imaging (SLI) program should be protected and continue to expand. USGS should:
 - Ensure and continue to expand the benefits of SLI for its scientific and operational user communities.
 - In partnership with NASA, further evaluate ways to more effectively cooperate with or use emerging commercial capabilities for data archiving and dissemination and for imagery acquisition.
 - Work with NASA and international partners, continue to expand the use of international observation programs that complement and enhance SLI.
- **USGS Response: Agree. Working with NASA, we'll be considering commercial and international capabilities in the future SLI architecture. In particular, commercial data processing and distribution appear promising.**

First Response from USGS - Summary

- The report's recommendations for USGS seem well-considered and within our capability to accomplish.
- The report recognizes USGS's roles, responsibilities, and accomplishments with Landsat and land imaging generally, with a particularly positive focus on our requirements activities.
- Particular emphasis is placed on the well-functioning NASA-USGS partnership and the need for it to remain robust, healthy, transparent, and adequately funded within each agencies' respective budget capacities.
- The report seems to emphasize advanced remote sensing applications such as lidar and hyperspectral imaging ahead of multispectral imaging; also, not much attention was paid to thermal imagery for ET and other applications.
- The report recognizes the importance of the Landsat full, free, and open data policy and that of the Copernicus/Sentinel program.
- The report emphasizes the importance of commercial and international partnerships (especially Copernicus/Sentinel) in augmenting U.S. agencies' remote sensing capacity.

THANK YOU!