

**NASA Science Mission Directorate
Research Opportunities in Space and Earth Sciences
NNH15ZDA001N-SEB
A.45 Earth Science Applications: Socioeconomic Benefits
Announcement and Selected Consortium**

NASA's Earth Science Division (ESD) has selected an organizational consortium for the solicitation *Earth Science Applications: Socioeconomic Benefits*. Within ESD, the Applied Sciences Program oversees this solicitation. The Applied Sciences Program supports applied science research and applications projects to enable innovative and practical uses of Earth observations that inform organizations' decisions, deliver economic and societal benefits from Earth observations, and that build key capabilities in the Earth science community and broader workforce.

The key objective of this solicitation is to advance analytic techniques to quantify the impacts (in economic and social terms) from uses of Earth observations in management, policy, and business decisions and activities. The solicitation also builds awareness in the Earth science community regarding socioeconomic impacts analysis, concepts, and methods. The solicitation requested a multisectoral, multidisciplinary consortium of organizations to pursue and achieve this endeavor.

The ESD Applied Sciences Program selected one out of a total of 20 proposals received in response to this solicitation. The total funding for this consortium, over a period of five years, is approximately \$3.5 million. The award is managed as a cooperative agreement with the ESD Applied Sciences Program.

We are pleased to announce the successful consortium selected through this solicitation, and the abstract from this team:

**Yusuke Kuwayama/Resources for the Future
Valuation of Applications Benefits Linked with Earth Science (VALUABLES)
Consortium
15-SEB15-0017**

Earth observations provide needed, data-driven insight to solve some of society's most pressing problems. Yet the value of these observations is poorly understood and a gulf exists between the social and Earth science professional communities best able to strengthen the valuation-science linkage. The Valuation of Applications Benefits Linked with Earth Science (VALUABLES) Consortium to be hosted at Resources for the Future will advance methods for the valuation of the applied benefits linked with Earth science.

Five goals will guide the Consortium's drive toward an unparalleled community of practice and greater acceptance and visibility of Earth sciences applied benefits:

- * Build an effective community to strengthen the valuation-Earth science bridge;
- * Provide community coordination with an active online presence and use of social media in tandem with opportunities for direct interaction and networking;

- * Advance the application of value of information methods through traditional and innovative ideation research mechanisms, with rigorous academic standards throughout;
- * Convey the value of applied benefits of Earth observations to new stakeholders in government, universities, the NGO community, and the interested public; and
- * Reframe how Earth observations values are realized and investment in observing systems made by asking "what are the compelling social questions and opportunities" that can and must be addressed through these technologies.

VALUABLES convenes a core team of nearly twenty social and Earth scientists. Their work will center on formal methods in the science of value of information (VOI), widely used in finance, engineering, information technology, risk assessment and management, and other business and scientific domains. A key feature of VOI science is grounding in decision theory. Insofar as the value of Earth observing data and information is precisely in decision making, VOI has intuitive appeal as well as scientific rigor.

Communications is often an afterthought in the research enterprise but VALUABLES integrates communications activities end-to-end, emphasizing web-based multimedia and experimentation with open innovation research in addition to traditional written products and workshops. Communications is also pivotal in conveying the salience of Earth science, the "so what" of VALUABLES, to stakeholders in NASA leadership, the social and Earth sciences communities at large, and the interested public.

We hasten to note that VOI must not be the only criterion for evaluating socioeconomic impact. For example, planetary science missions aimed at understanding our solar system have value that is not captured in a VOI analysis. Indeed, humankind has greatly benefited from the pursuit of knowledge for its own sake, without a view to obtaining directly actionable information. However, those missions able to yield actionable information can and should be valued in VOI terms.

VALUABLES supports NASA and the Notice of Research Announcement (NRA) in advancing national imperatives in the decadal survey and interim assessment of Earth sciences. The interim assessment and the NRA seek to move from ad hoc to intentional studies of applications benefits. By establishing a standing expert group, VALUABLES provides institutional continuity to meet this goal.

Other imperatives with which VALUABLES aligns include executive branch directives. With an emphasis on decision science, VALUABLES supports the Executive Order that agencies use behavioral science insights (how people make decisions and act on them) to better serve the American people. The open source innovation in VALUABLES assures social collaboration in scientific research, consistent with a requirement of the NRA, the objectives of NASA's Center for Excellence for Collaborative Innovation, and the President's commitment to open science and innovation.