

<http://smap.jpl.nasa.gov/>



# Workshop Goals

***Dara Entekhabi***

*Massachusetts Institute of Technology*

**SMAP Applications Workshop**

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National Aeronautics and  
Space Administration

Jet Propulsion Laboratory  
California Institute of Technology  
Pasadena, California

# Context Then

Start with a classic:

## ***From Research to Operations in Weather Satellites and Numerical Weather Prediction: Crossing the Valley of Death*** (2000)

National Academy Press

Address a major problem: Lack of effective capability to hand over to the operational community the capabilities developed in research.

Problem made possible because federal government organizes weather and environmental hazards mitigation services into:

1. Operations - production and dissemination of forecasts and warnings (public, private, civilian and military)
2. Research, systems development, and technology development

Opportunity for more rapid and cost effective advances if cooperation between the agencies and across purposes could be improved.



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# Context Now

## **Earth Science and Applications From Space: National Imperatives For The Next Decade And Beyond (2007)**

National Academy Press

Integrated assessment of Earth observation priorities for NASA, NOAA, USGS.

Define *new* paradigm to respond to

1. Declining Earth observing systems funding
2. Descopes in capabilities of systematic measurement systems

“endeavored to set a new agenda for Earth observations from space in which practical benefits to humankind play a role equal to that of the quest to acquire new knowledge about Earth.”

“create[s] a continuum between science and applications— illustrating again the necessity for multiple agencies to be involved intimately in the development of Earth science and applications from space”

Chapter 1: Earth Science: Scientific Discovery and Societal Applications



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# Opportunity Here

Ten years later some (but not all) of the dichotomies separating data streams for basic research and applied science have lesser contrast.

Both in hardware but much more importantly in practice, we need to change the way we plan and use observing systems.

SMAP is one of the first out of the gate for the Decadal Survey missions.

Chance to set the standard and bring about a new era, new generation.



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# SMAP Approach

Soil moisture figures significantly in a number of environmental hazards and events

Moreover SMAP is a low-frequency mapping *radar and radiometer* that senses the surface through the atmosphere regardless of illumination

Many applications that we have not even engaged.

But \$'s do not stretch to customize for (or even enable) the data-streams for many applications.

Our approach is to engage deeply and early with applications to enable as much as possible by leveraging baseline mission capabilities.

Listen and learn. Make all-out effort to be as much value to applications.



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## SMAP Applications Workshop:

1. Share information about SMAP applications
2. Inform the SMAP Mission about the challenges facing SMAP user
3. Provide the input required to write the **SMAP Applications Plan**.

## Small-group breakouts (4) to address three questions:

1. What are the known and potential SMAP applications?
2. How will SMAP products be used to realize applications? What are the ancillary data needs?
3. How can we engage the SMAP **Community of Practice**?

Each of the breakout sessions feeds into the next, plenary sessions between breakouts to hear the reports.



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# SMAP Community of Practice

1. Define SMAP Applied Science
2. Develop a community of end-users and decision makers that understand SMAP capabilities and are interested in using SMAP products
3. Reach out to end-users that are unfamiliar with SMAP capabilities but have potential to benefit from products
4. Identify several Early-Adopters who will partner to optimize their use of SMAP products, possibly as part of the SMAP Testbed and during SMAP calibration/validation
5. Provide information about SMAP applications to the broad science community
6. Facilitate feedback between SMAP communities and the SMAP Mission and Science Definition Team
7. Provide an example to other Decadal Survey Missions.