



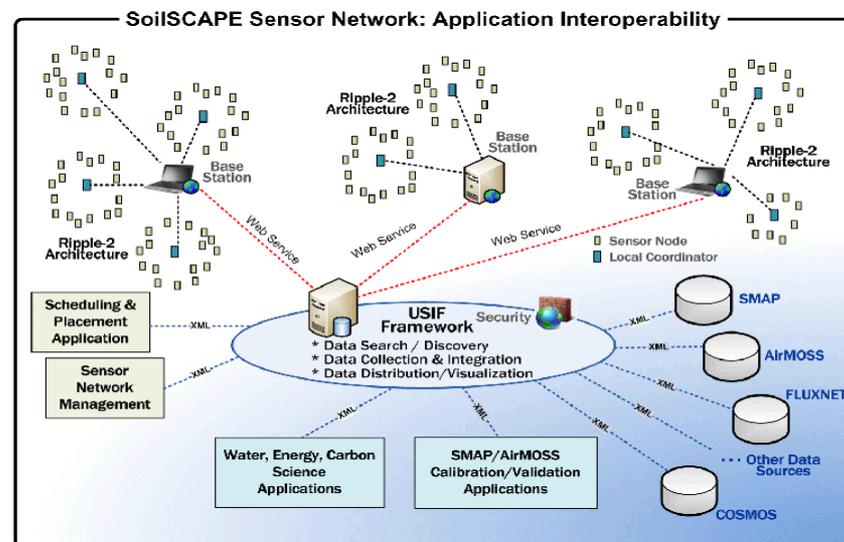
Land Information System for SMAP and AirMOSS Missions

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Objective

Develop information technologies for enhancing science return and science data quality from SMAP and AirMOSS missions by:

- Developing Soil moisture Sensing Controller And Optimal Estimator (SoilSCAPE) large-scale ground-based sensor web technologies for near-real-time validation of, and product generation from, coarse satellite observations of heterogeneous landscapes
- Developing a generalized information system framework for integrating the diverse temporal and spatial data and models needed to generate and validate NASA mission products



Approach

Develop generalized SoilSCAPE framework including:

- Flexible energy management to meet mission lifetime requirements
- Distributed management of wireless sensor network operations; include adaptive scheduling of sensor nodes

Apply the framework to SMAP and AirMOSS target environments (and, potentially, other missions) via an open architecture solution

Develop a unified science information system framework for interoperability and security including:

- Data collection and integration
- Distributed data and metadata search and discovery
- Data dissemination for science support

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Key Milestones

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|--|-------|
| • Deploy generalized SoilSCAPE network (Canton, OK) | 10/12 |
| • Develop and integrate search and discovery tool with SoilSCAPE | 08/13 |
| • Deploy generalized network at Tonzi Ranch (Sacramento, CA) | 08/13 |
| • Develop data and metadata collection and integration tool | 02/14 |
| • Develop network management tool | 05/14 |
| • Integrate SoilSCAPE with all tools developed above | 09/14 |
| • Integrate faulty sensor detection into management tool | 12/14 |
| • Integrate schedule-enabled sensor nodes in full network | 02/15 |
| • Integrate AirMOSS data into all applicable tools | 03/15 |
| • Develop data dissemination and metadata publishing application | 04/15 |
| • Develop SoilSCAPE open architecture | 06/15 |
| • Integrate SMAP simulation with all applicable tools | 09/15 |

TRL_{in} = 4 TRL_{current} = 7