

The Integrator

INCOSE North Star Chapter



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North Star Newsletter

INCOSE North Star Newsletter Communication

This year's newsletter features a series of articles on INCOSE Working Groups. The August article is on Global Earth Observatory Systems of Systems (GEOSS).

Eileen Arnold, Editor BAE Systems

"The intellect has little to do on the road to discovery. There comes a leap in consciousness, call it intuition or what you will, and the solution comes to you and you don't know how or why." -- Albert Einstein

Systems Engineering at its Best! INCOSE's GEOSS WG

In 2003, ministers at the first Earth Observations Summit declared their intention to establish a system of comprehensive, coordinated, and sustained Earth observation. This system became the Global Earth Observations System of Systems (GEOSS). In 2005, ministers created the intergovernmental Group on Earth Observations (GEO) to implement GEOSS. GEO then adopted the GEOSS 10-Year Implementation Plan and Reference Document (hereinafter, "GEOSS Plan").

GEO recognizes that national systems and international programs coordinate or manage Earth observation systems under existing mandates. Accordingly, the GEOSS Plan asserts that GEOSS must be a "system of systems". The GEOSS Architecture is the primary mechanism to achieve such synergy among the contributed GEOSS components.

Wildland Fire Warning ,Synergy Example:

In areas with wildlands, emergency managers, as well as electric power companies and park managers, need early warning of fire outbreaks. Accurate observations, forecasts, and maps are essential to mobilize

Chapter President's Corner

Elliot Abrons, BAE Systems

INCOSE offers its members an opportunity to acquire new skills through a number of venues. The annual international symposium features papers, panel presentations, and tutorials. Regional conferences hosted by chapters offer a shorter venue and are attractive to those interested in less travel and expense. The quarterly publication *INSIGHT* features a theme topic in each issue. Most technical committee and working groups have focused discussions through e-mail reflectors that provide an opportunity to work with INCOSE members in 16 countries. At the local level, our North Star chapter holds 9 or 10 monthly meetings featuring speakers on timely Systems Engineering topics. There is no need to be a member to attend our meetings. Our one-day tutorials are an excellent value compared to the cost of most training. The fees include an INCOSE membership unless you are already a member, whereby the membership fee is subtracted out. We'd appreciate hearing your inputs to ensure that our meetings and tutorials meet your need to stay abreast of advancements being made in Systems Engineering and to help you prosper in the ever changing engineering workforce environment. The most effective way to provide your input is become a member of the leadership committee. It is not necessary to be an officer. You just need to attend our leadership meetings, express your opinions, and cast your vote as to the direction you think the chapter should be moving. If you are interested please contact me at elliott.abrons@incose.org.

North Star Chapter Website

<http://www.incose.org/northstar>

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protection efforts when there is a threat to people, wildlife, power facilities, and other property. But, many different data systems provide observations, many different models generate forecasts, and many different mapping systems hold information that managers need to display. A major challenge for GEOSS is to tackle interoperability barriers specific to Earth observations: arranging for open and rapid data sharing, combing observations from different sources, turning data into information through models and other analysis tools, arranging for rapid acquisition of observations as events unfold, and so on.

Just as an architect may design a city with diverse components such as housing, factories, and offices, the architects of GEOSS must accommodate diverse components. GEOSS component systems encompass many scientific disciplines. GEOSS components also range from primary data collection systems to systems for creation or distribution of information products. GEOSS component systems span scales from national to global, and employ observing techniques from in situ to remote sensing. Most significant from an architect's perspective is that GEOSS component systems do not have common management. In the wildland fire scenario described above, real-time fire warnings must be interoperable with routine monitoring and background maps. Alerting systems must be interoperable across a range of communications media. Interoperability among diverse systems is based on separate systems interoperating through standard interfaces and other interoperability arrangements. Finally, warnings for any hazard can be communicated across all available media using the standard format for alerts.

Standards and Other Interoperability Arrangements: GEOSS overall is made up of contributed systems operating within their own mandates. GEOSS adds value to these component systems to the extent they leverage each other's resources through standard interfaces and other interoperability arrangements. That synergy among diverse and independent systems is how GEOSS makes Earth observation data and information more accessible, comparable, and understandable. As stated in the GEOSS Plan: "The success of GEOSS will depend on data and information providers accepting and implementing a set of interoperability arrangements, including technical specifications for collecting, processing, storing, and disseminating shared data, metadata, and products."

With particular attention to international standards and common interoperability arrangements, the GEOSS Architecture and GEOSS Clearinghouse are enabling GEO Members and Participating Organizations, such as INCOSE to cooperate in realizing GEOSS. The resulting system of systems is simplifying access to all manner of

relevant resources for all users worldwide.

Approach:

- Conform to the ISO/IEC 19793 Viewpoint correspondences for the information language and profiles provided for each specification type
- Develop a Use Case for each scenario in the Enterprise Specification and associate at a minimum an Activity Diagram and Sequence Diagram to each use case. Use this a basis for other specifications
- Develop in a UML Capable tool in one repository
- Capture inputs from each contributor in the repository and integrate into the model
- Produce each specification in HTML Format

GEOSS Working Group Charter:

Promote shared understanding and advancement of systems engineering practices and principles in the earth observation community.

For an overview of GEOSS and to see what tasks are needing volunteers, access the following site: <http://www.incose.org/practice/techactivities/wg/geoss/>

For additional information access the GEO web site at <http://www.earthobservations.org/index.html>

Or contact James.Martin@incose.org.

WELCOME, NORTH STAR NEW MEMBERS!

Name	Company	Title
Jim Busacker	Medtronic	Sr. Principal SE
Mathew Johnson	Boston Scientific	SE
Eric Larson	3M	Sr. Tech Supervisor

2007 Meeting Calendar

20 September	Model-Driven Development	Medtronic
11 October	SE Certification	ATK
8 November	Joint with IEEE	Habitat for Humanity
13 December	Member Holiday Party + Guest	