Earth Science Informatics Technical Committee

Chairs:
Rahul Ramachandran, NASA/MSFC
Peng Yue, Wuhan University

Standards Group:
Siri Jodha S. Khalsa, University of Colorado

GRSS AdCom Meeting

Quebec City, July, 2014
The scope of the original DAD TC was essentially limited to the data lifecycle.

Knowledge generation lifecycle:
- Depicts the sequence of processes involved in knowledge generation
- Useful in identifying where data and information can be enhanced or even lost
- Evolving – Data, Technology, Policy, End User

Standards play important roles at each stage.
Earth Science Informatics Topics

- Data and information policies, stewardship, preservation, provenance and quality
- Knowledge representation (ontologies, vocabularies, semantic web)
- Cyberinfrastructures
- Data discovery and access
- Tools supporting spatial and temporal
- Emerging information technologies (Big Data)
IGARSS 2014 Invited Sessions

- Advancing Science through Management of the Geospatial Data Lifecycle
- **Highlighting the role standards play at each stage in the sequence of processes by which knowledge is generated from geoscience observations, simulations and analysis**
  - Joint ESI TC and OGC session
  - Session Type: Oral
  - Time: Tuesday, July 15, 13:30 - 15:10
  - Location: 2104-AB
  - Session Chairs: Siri Jodha Khalsa, University of Colorado and Rahul Ramachandran, NASA Marshall Space Flight Center
IGARSS 2014 Invited Sessions

- Implications of Big Data to Remote Sensing
  - Explore the emerging “big data” technologies for processing and analysis of remote sensing data sets
    - Session Type: Oral
    - Time: Tuesday, July 15, 15:40 - 17:20
    - Location: 2104-AB
    - Session Chairs: Rahul Ramachandran, NASA Marshall Space Flight Center and Peng Yue, Wuhan University

- Research Data Alliance Big Data Analytics Working Group Activities
Publications

- **GRSM Article**
  - “Earth Science Informatics Comes of Age” - Siri Jodha S. Khalsa, Senior Member, IEEE, Rahul Ramachandran, Member, IEEE
  - The article discusses the rationale for changing the focus of this TC from Data Archiving and Distribution to Earth Science Informatics, and the role of standards

- **Special Issue:**

- **ESI Member contributions to IEEE EarthZine magazine**
Member Contributions: Miscellaneous

- Conference contributions
  - 2013 International Conference on Agro-Geoinformatics (Agro-Geoinformatics 2013), 12-16 August 2013, Fairfax, VA, USA (IEEE publication)
  - Upcoming 2014 International Conference on Agro-Geoinformatics (Agro-Geoinformatics 2014), 11-14 August 2014, Beijing, China

- Open source tool activities:
  - ESI TC is promoting the development of open source tools for geospatial data analysis.
    » GeoJModelBuilder (http://sourceforge.net/projects/geopw/), an open source geoprocessing modelling tool, contributes to the 2013 Europa Challenge (http://eurochallenge.como.polimi.it/).
    » GeoQoS (http://sourceforge.net/projects/geoqos/), a tool for QoS-aware geoprocessing, contributes to the 2014 Europa Challenge (http://eurochallenge.como.polimi.it/).
Open Geospatial Consortium Membership

- GRSS is now an official member of the OGC
- Khalsa attended the OGC Technical Committee meetings at the WMO headquarters
- Current OGC activities of interest to GRSS include
  - Transactional web processing and web coverage services enabling control of workflows and dataset updates via the web
  - A met/oceo application profile of WCS that enables operations like curtain and corridor subsetting of 3D and 4D arrays
  - Data quality: attaching user feedback to a data products, extending UncertML to allow for non-numeric measures of uncertainty, data quality in crowdsourcing systems, and improvements to cityGML relating to quality.

- Seeking volunteers for various Working Groups
Other Standards-Related Activities

- GRSS liaison (Khalsa) is tracking select ISO/TC211 standards projects
  - Content and encoding rules for imagery and gridded data
  - XML schema implementation of metadata and quality standards
  - Calibration and validation of remote sensing imagery sensors – Part 2: Lidar
  - Co-Chair of ISIS TC contributed to Part 1 of the above and invited lead author to IGARSS session on cal/val

- Cooperative European-US (COOPEUS) on standards for eScience
  - Khalsa supported a “Hands-on Workshop for registering and accessing COOPEUS Research Infrastructures through the GEOSS Common Infrastructure (GCI)”
ESI TC Meeting Highlights

- **New Initiatives**
  - Workshop on Data Science
  - Collaborating and participating in OGC ‘Plugfest’ on testing interoperability of systems (client/servers)

- **Future Sessions**
  - Semantic Web, Big Data, Internet of Things (Sensor Web), Standards in Action, Disaster, Data Publication and Citation

- **Special Issue**
  - Big Data