

ISPRS VIII/5 Workshop Report for
**Towards global, publicly-accessible geoscience composition maps
from remote sensing data**

Sponsoring organizations: The 15th Australasian Remote Sensing Conference Organising Committee, the Surveying and Spatial science Institute of Australia and the ISPRS.

Date: ¼ day (PM), 15th September, 2010
(http://www.15.arspc.com/images/program_final_bs_10.9.10.pdf)

Site: The Alice Springs Convention Centre, Alice Springs, Northern Territory, Australia (pictured right).



Background. Two impediments currently challenging global-scale mapping and monitoring of the composition of the non-vegetative component of the Earth's land surface (e.g. soils and rocks) at high spatial (~30 m pixel resolution) are the paucity of suitably designed satellite-based sensors and the time taken between launch of such satellites and the public delivery of derived geoscience information products. The lost opportunities for the global community not having public access to standard, high spatial resolution, global surface compositional information, include:

- Hydrocarbon and mineral resource exploration and exploitation, especially in Africa, Asia and South America where successful applications would assist local economies;
- Soil mapping and monitoring, especially recognising more favourable conditions for food production as well as managing any emerging soil degradation issues (www.globalsoilmap.net); and
- Water catchment management, especially recognising impermeable versus porous soil cover for managing surface versus subs-surface water flow (www.earthobservations.org/geoss_wa_wpa.shtml).

Scope: The aim of this workshop was to begin the process of collectively developing a shared vision and strategy for better capturing continental-scale (global), publicly-accessible, geoscience information (especially geology and soils) from current and future field, airborne and satellite (multi- and hyper-) spectral data. The focus being on the Australian government geosurveys to help generate a successful test case for then extending to the global opportunity (through GEO?)

Program: The workshop program covered:

Open discussion (led by Tom Cudahy)

- Roles/aspirations of the government geosurveys in EO geoinformation
- Do we want/need to go national/global?
- What are some of the key geoscience information products required by our geoscience community

Presentation Matilda Thomas (Geoscience Australia) - ASTER geoscience tools for Australia: applications for regional mapping. *Using archived ASTER satellite data to generate publicly accessible country-scale geoscience maps.*

Presentation Trude King (USGS) - Resource Mapping in Afghanistan Using HyMap Data – *1st country-scale hyperspectral (airborne) geoscience mapping survey.*

Open discussion (led by Tom Cudahy)

- Standards, transferable, traceable, JPEG or measured data - what is achievable?
- Information delivery systems – seamless and interoperable?
- How do we go National/global?
- Can we better design geoscience information needs into the specifications of future instruments?
- The next steps?

Number of participants: 28

Number of countries represented: Australia (including most of the government geosurveys), United States, Namibia, Canada, Saudi Arabia.

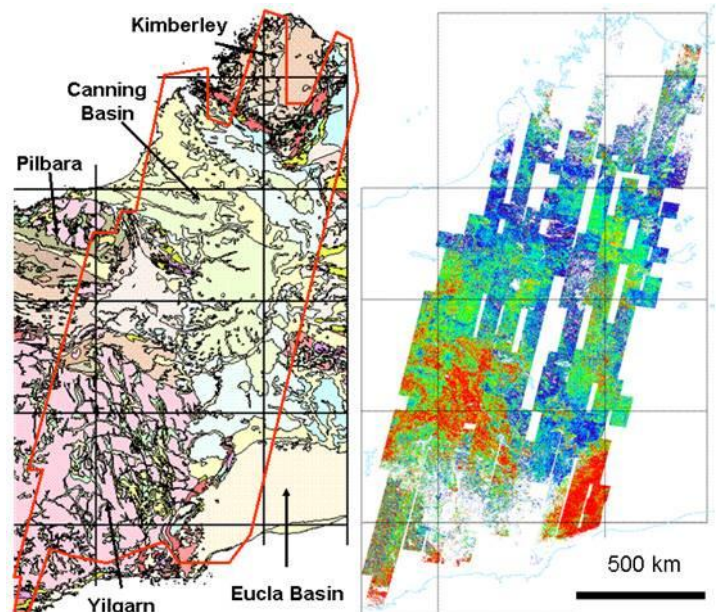
Social events: Informal, workshop delegate dinner.

(Picture: left to right). Dave Hudson and Leo Lymburner from Geoscience Australia, Tom Cudahy and Ivor Kahimise from the Geological Survey of Namibia)



Science Outcomes:

- publicly accessible GIS-compatible geoscience products are most valuable as most users do not possess skills in image processing but instead simply want to import spatial information into their GIS systems for analysis;
- Need for national/international geoscience product standards (picture: published 1M scale geology and an ASTER mosaic of iron oxide content – 800 scenes);
- Government geosurveys are best placed to deliver these standard geoscience information products to their respective user communities;
- Key products include the composition and abundance of clay and iron oxide minerals as well as dry (and green) vegetation;



- Australian geosurvey representatives agree to establish a publicly accessible Australian ASTER geoscience map;
- Other countries, such as Namibia, keen to see the same established; and
- Next steps – using a successful Australian ASTER geoscience map case history for taking to international level.

Challenges:

- Access to global coverage of geoscience-tuned remote sensing data;
- Create geoscience value from existing global archives (e.g. ASTER);
- Preparation for next generation of hyperspectral satellite data;
- Establish international geoscience products standards (traceable and error analysis);
- Ensure national and global coordination; and
- Acceptance and implementation of global geoscience mapping programs (e.g. GEO).

Proceedings: See related extended abstracts from 15ARSPC (<http://www.15.arspc.com/proceedings>)

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