WG VII/3 - Information extraction from hyperspectral data

Report for 2009

Scientific activity

1) Establishing a ground based validation site for HSR: Makhtesh Ramon Israel, has suggested as a calibration/validation site and now is placed on the CEOS website: http://calval.cr.usgs.gov/sites_catalog_template.php?site=makh. In March 2009 it was visited by more than 80 scientists worldwide to be recognized by the HSR community.


3) Quality Layer indicator for hyperspectral remote sensing data has been established within the EUFAR program and will be available soon in the EUFAR homepage. This was done after sending questioners to many HSR users in Europe.

4) A new approach on how to better correct the atmosphere in a non stable HSR sensor utilization has been developed and will be soon be sent to publication

5) Dust properties (mineral fraction and specious) were generated from HSR data based on a new approach. (Chudnovsky, A., Ben-Dor, E., A. B. Kostinski, and I. Koren (2009), Mineral content analysis of atmospheric dust using hyperspectral information from space, Geophys. Res. Lett., 36, L15811.)

6) A new approach to correct for smile effect in Hyperion data over desert environment has been developed (Dadon A., E. Ben Dor and A. Karnieli (2010), Use of derivative calculations and minimum noise fraction (MNF) transform for detecting and correcting the spectral curvature effect (smile) in Hyperion images. IEEE Transactions on Geoscience and Remote Sensing(in press).
Errors in soil spectral measurements using ASD field spectrometer were studied. A paper is about to be submitted (Abstract submitted to the ASD IEEE Workshop).

Soil Spectral Group was established and aimed to collect soil spectra libraries worldwide (http://groups.google.com/group/soil-spectroscopy). So far spectral from 43 counties were gathered. Leader of the group is Raphael Viscarra Rossel.

Conferences and workshops:

One workshop was organized and executed: 6th EARSEL SIG IS (Chair: Eyal Ben Dor) in March 16-22 in Tel Aviv (180 attendances, see attached report, http://www.earsel6th.tau.ac.il/). Another workshop is scheduled to April 16-17 in GFZ Potsdam, Germany entitled: "Quantitative Applications of Soil Spectroscopy" (chaired by Eyal Ben Dor and Sabin Chabrillat: http://www.ccm.com.au/soil/).

Organization committee: The 7th EARSEL SIG IS in Edinburgh, 11th to 13th April 2011 (Eyal Ben Dor)

Scientific committee: The European Space Agency (ESA), the German Aerospace Center (DLR) together with the German Research Center for Geosciences (GFZ), and the Italian Space Agency (ASI) are organizing the Hyperspectral 2010 Workshop, to be held at ESA-ESRIN, in Frascati, Italy on 17-19 March 2010. (Eyal Ben Dor)

Books

1) Book Chapter on Hyperspectral Remote Sensing in Airborne Measurements – Methods and Instruments Manfred Wendisch and Jean-Louis Brenguier (Eds.) is under preparation by Ben-Dor, Muller, Maltus, Schlapfer, Plaza.

2) Book chapter on Hyperspectral Remote Sensing of Terrestrial Vegetation Prasad S. Thenkabail (Ed.)