



LAND PRODUCT VALIDATION

SUBGROUP REPORT

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WGCV-30 Brazil June 2009

Outline

- *Objectives*
- *structure*
- *accomplishments and ongoing activities*
- *planed activities*
- *recommendations*

Mission Statement & Goals

- to foster **quantitative validation** in a traceable way of *higher level global land products* derived from remote sensing data and relay results so they are relevant to users
- to increase the **quality and efficiency** of global satellite product validation *via* developing and promoting international standards and protocols for field sampling, scaling, error budgeting, data exchange
- to provide feed-back to international structures (GEO/GEOSS) for :
 - requirements and achievements on product accuracy and quality assurance
 - definitions of future mission

Products targeted

- Land cover with GOFC-GOLD
- Fire (active, burnt area) with GOFC-GOLD
- Biophysical characteristics (LAI, fAPAR, fCover, chlorophyll, phenology?)
- Energy (albedo, short and long wave fluxes)
- **New products**
 - Land Surface Temperature (with IVOS)
 - Soil (moisture, type)
 - Biomass? In discussion with GOFC-GOLD

Products not targeted

- Net Ecosystem Exchange/Productivity (NEE/NEP)
- Evapotranspiration

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LPV structure

- **A structural problem:**

- biophysical products are not as close to sensors as radiometric calibration is!!
- Community is large and scattered: more focus on product families corresponding to a better identified (unified?) community (land cover, fire, biophys. , energy, soil, LST ...)

→ Need for a structure better representing the diversity of products with leads belonging

LPV structure

The new structure:

sub-groups by product family with leads from the community if possible from different continents

- **Land-Cover:** M. Herold & M. Friedl
- **Fire:** K. Tansey & L. Boschetti
- **Vegetation:** R. Fernandes, S. Plummer, J. Nightingale
- **LST:** A. Pinheiro & J. Sobrino
- **Soil:** W. Wagner & T. Jackson

LPV structure

- **Role of the sub-group leads:**

- Convey information from the specific products community towards CEOS/WGCV/LPV.
- Report plans/advances/problems in the validation (and calibration when applicable) of the specific products to be presented at the CEOS/WGCV plenary meetings.
- Help organize (approximately once every 2 years) a dedicated (or topical) meeting on the validation of these products.
- Provide information to update the LPV web site: new releases of products, validation exercise, reports, publications, workshops and meetings.
- When desirable, participate to the CEOS Working Group on Calibration and Validation plenary meeting to directly report progresses and submit recommendations towards space agencies.

The web tools

- LPV web page maintained by J. Nickeson



The screenshot shows the NASA Goddard Space Flight Center website. At the top, there is a NASA logo and the text "GODDARD SPACE FLIGHT CENTER" and "+ NASA Homepage". Below this is a banner for the "CEOS WORKING GROUP ON CALIBRATION & VALIDATION" and "Land Product Validation Subgroup". The banner includes a navigation menu with links: Home, Landcover, Biophysical, Surface Rad, LST/Emissivity, Fire/Burn, and Soil Moisture. Below the menu are two small images: one of a person holding a magnifying glass over a globe, and another of a person standing in a field. To the right of the images, it says "Current LPV Chair: Frédéric Baret (INRA)" and "Vice-Chair: Sebastien Garrigues (CNES)". In the center, there is a circular logo for the "CEOS WGCV Land Product Validation Subgroup" featuring a globe and a magnifying glass. To the left of the logo, under the heading "Announcing...", there is a list of events: "The International Conference on Land Surface Radiation and Energy Budgets, Beijing, March 18-20, 2009.", "Mark your calendars!!! 4th Global Vegetation Workshop, Missoula, MT, June 16-18, 2009", and "The Globcover product and validation report are now available via the POSTEL web". To the right of the logo, under the heading "LPV Mission", it says "To foster quantitative validation of higher-level global land products derived from remote sensing data and to relay results so they are relevant to users".

NASA GODDARD SPACE FLIGHT CENTER + NASA Homepage

CEOS WORKING GROUP ON CALIBRATION & VALIDATION
Committee on Earth Observation Satellites
Land Product Validation Subgroup

Home Landcover Biophysical Surface Rad LST/Emissivity Fire/Burn Soil Moisture

Current LPV Chair: Frédéric Baret (INRA)
Vice-Chair: Sebastien Garrigues (CNES)

Announcing...

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LPV Mission

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- WIKI site for exchanges within sub-groups

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- ***Accomplishments and ongoing activities***
- *Planned activities*
- *Recommendations*

Previous workshops

- 1) **7-8 June 2001** LAI Intercomparison
ESA Frascati, Italy
- 2) **23-24 October 2002** Land Product Validation Workshop on Surface Albedo
Boston MA USA
- 3) **16 August 2004** EOS LAI Intercomparison Activity Results
Missoula, MT USA
- 4) **27-28 October 2005** Global Vegetation Continuous Fields Validation Workshop
Brookings, SD USA
- 5) **27-28 April 2005** LPV workshop on albedo
Vienna, Austria
- 6) **7 August 2006** LPV workshop on long-term VI record
Missoula Montana
- 7) **8-10 August 2006** Long term global monitoring using moderate resolution satellites
Missoula Montana
- 8) **23 March 2007** LPV workshop on LAI and fAPAR products
Davos, Switzerland
- 9) **30 Sept. – 3 October 2008**. LPV special session within CEOS/WGCV-29 plenary
Avignon, France
- 10) **14-15 October 2008** GOFC-GOLD Land cover Symposium
Jena, Germany
- 11) **18-20 March 2009**. Special albedo session within the “International Conference on Land Surface Radiation and Energy Budgets: Observations, Modeling and Analysis”
Beijing, China

Main accomplishments

- The focus was mainly put on the set up of the new structure of the LPV group
- Proposition for a draft guideline for burnt area validation
- Improved links with GOFC-GOLD
- Validation of the GLOBCOVER land cover classification
- completion of the internal engine of OLIVE (On Line Interactive Validation Exercise) with extension on albedo products
- Advances on the characterization of the uncertainties attached to 'sites' measurements
- Set up of 4 sites for continuous LAI and fAPAR (and albedo) validation sites (3x3 km²)

Publications

- ***ISRSE, Stresa May 2009. The GOF-C-GOLD/CEOS land cover harmonization and validation initiative: Technical design and implementation framework.*** M. Herold, C. Woodcock, S. Stehman, F. Baret, M.A. Wulder, and C. Schmullius
- ***ISRSE, Stresa May 2009. Global validation of EOS land products, lessons learned and future challenges: A MODIS case study.*** J. Nightingale, J. Nickeson, C. Justice, F. Baret, S. Garrigues, R. Wolfe, E. Masuoka

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Planned activities

- **Future meetings**

- LPV sub-group meeting, 15th June 2009 Montana
- Fire products, Leicester, 8-11 September 2009
- LST September 2010, Valencia,

- **Validation guideline documents**

- To be defined at the Montana meeting. Some already ongoing.

- **Other**

- Publish BEMANIP2 for vegetation and albedo products intercomparison
- Complete and publish validation on LAI and fAPAR @ 3x3 km²
- Implementation of OLIVE
- More to come after the Montana meeting ...

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- *objectives and structure*
- *accomplishments and ongoing activities*
- *contribution to GEO tasks*
- *planed activities*
- ***recommendations***

Recommendations

- **Encourage agencies to implement the previous recommendations including:**
 - Recommend agencies to support the continuity and expansion of product validation activities to be able to quantify the associated uncertainties and allow fusion between similar products
 - *ESA (TRUTH?) other agencies??*
 - Need support for implementation of the 'on line validation tool' in the CAL/VAL portal
 - *ESA was asked to support this activity but ???*