Land Product Validation (LPV)
Sub-group Update

Gabriela Schaepman-Strub (University of Zurich) - Chair
Miguel Román (NASA GSFC) – Vice-Chair
Jaime Nickeson (NASA GSFC) - Support

Contributions by LPV focus area co-leads

WGCV-39
6-8 May 2015, DLR, Berlin, Germany
Achievements since WGCV-38

1. Progress of LPV contributions to CEOS WP 2014-16

2. Meetings and outreach

3. LPV collaborations

4. Focus area updates

5. Goals 2015
1. Progress CV11 & 12 (CEOS WP 2014-16)

- CV-11 extensively addressed in 2014 (website restructuring), since WGCV-38 minor updates, level of activity depending on focus area -> discussion of strategy with focus areas in May/June 2015

- CV-12 ongoing, 8 sites submitted for Sentinel-2 (ESA, F. Gascon)

| CV-11: Validation of terrestrial ECV products | Q1 2015 – Q4 2016 | The validation of terrestrial ECV products is in line with activities carried out in WGCV-Land Product Validation (LPV). The validation of ECVs covered within WGCV-LPV shall be strengthened. This includes (a) an update of validation stage, (b) ECV-specific synthesis of a state-of-the-art validation approach for each terrestrial variable with corresponding references and protocols, (c) ECV-specific identification of a golden standard for validation, and (d) continuation of development of ECV-specific validation protocols, including a community review process and updates. Results of each step will be made public via the WGCV-LPV website and finally the Cal/Val portal. | WGCV |
| CV-12: Evaluation of validation supersites and new validation approaches | Q2 2015 | Evaluation of well-characterized supersites with data continuity prospects for validation purposes that allow for testing of products, algorithms, and validation strategies through radiative transfer modeling. | WGCV |
2. Meetings and Outreach

• AGU’14
  – successful session, LPV presentation, next session planned for AGU’16

• EGU’15
  – Validation session merged BG2.9, CL5.1 - Earth observation for monitoring and modeling the global energy, water and carbon cycles over land using model-data integration
  – good mix of contributions, attendance, agreement to organize validation session again in 2016
  – LPV oral presentation

• NASA Carbon Cycle & Ecosystems Joint Science Workshop, April 2015
  – LPV poster

• ISRSE Berlin next week
  – LPV presentation
3. LPV Collaborations - CEOS

1. CEOS WGCV cross-cutting action contribution
   – Representation of LPV by E. Vermote (NASA)

2. CEOS WG Climate
   – Informal meeting on collaboration between WG Climate and WGCV/LPV during Climate Symposium, Oct. 14, Darmstadt
   – WG-Climate-CGMS working group meeting, March 2015, Geneva, Switzerland
     • LPV presentation on validation work and information available for ECVs
     • Potential for collaboration for gap analysis (LPV website information)
3. Other LPV Collaborations

1. GCOS TOPC, 16-17 March 2015, Birmensdorf, Switzerland
   - LPV update presented
   - Land surface temperature discussion (input on product improvement by NERC/EARTHTEMP, NASA JPL) -> action on TOPC chair (Koni Steffen) and G. Schaepman-Strub to set up a small working group to come up with a suitable definition for LST

2. ICOS
   - Informal meeting with ancillary measurement leads (Jan. 2015, Zurich), strengthening ICOS-LPV collaboration.
   - Several LPV focus area leads subscribed to ICOS mailing list to improve interaction. Mires protocol out, data call for grasslands.

3. QA4ECV
   - Traceability chains for 3 land and 3 atm. ECVs available on the website http://www.qa4ecv.eu/ecvs/
## 4. Focus Area Update

<table>
<thead>
<tr>
<th>Category</th>
<th>Leader 1</th>
<th>Leader 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snow cover (T5)*, Ice</td>
<td>Thomas Nagler (ENVEO, Austria)</td>
<td>Tao Che (Chinese Academy of Sciences)</td>
</tr>
<tr>
<td>Surface radiation (Reflectance, BRDF, Albedo (T8)*)</td>
<td>Crystal Schaaf (U. Massachusetts)</td>
<td>Pending</td>
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<tr>
<td>Land cover (T9)*</td>
<td>Pontus Olofsson (Boston University)</td>
<td>Martin Herold (Wageningen University, NL)</td>
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<tr>
<td>FAPAR (T10)*</td>
<td>Arturo Sanchez-Azofeifa (U. Alberta)</td>
<td>Nadine Gobron (JRC, IT)</td>
</tr>
<tr>
<td>Leaf area index (T11)*</td>
<td>Oliver Sonnentag (U. Montreal)</td>
<td>Stephen Plummer (Harwell, UK)</td>
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<tr>
<td>Fire (T13)*</td>
<td>Luigi Boschetti (University of Idaho)</td>
<td>Kevin Tansey (University of Leicester, UK)</td>
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<tr>
<td>Land surface temperature</td>
<td>Simon Hook (NASA JPL)</td>
<td>Jose Sobrino (University of Valencia, SP)</td>
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<td>Soil moisture*</td>
<td>Tom Jackson (USDA)</td>
<td>Wolfgang Wagner (Vienna Uni of Technology, AT)</td>
</tr>
<tr>
<td>Land surface phenology</td>
<td>Matt Jones (U of Montana)</td>
<td>Jadu Dash (University of Southampton, UK)</td>
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Supported by Jaime Nickeson, NASA GSFC
Focus Area Updates (Selected)

Telecons since WGCV-38
• November, January, March
• Now using Adobe connect for increased communication possibilities

Land Cover
• Workshop and material compilation on training for land cover accuracy assessment in planning for 2015 (many support requests)

Land Surface Temperature
• Development of global lake temperature monitoring system in progress
• Several upcoming meetings with validation component
  – 4th meeting of the EarthTemp Network, 8-10 June 2015, U. of Reading
  – 3rd ESA GlobTemperature User Consultation Meeting, June 11-12 2015, U. of Reading
Snow
Validation activities by SNOWPEX (ESA funded) [http://snowpex.enveo.at/]

- Intercomparison of global snow extent products of 2 years is proceeding; 13 products (out of 14) received by now, 5 global SWE products.
- Global reference data set for validation in compilation, consisting of
  - Snow extent from high resolution sensors (Landsat)
  - In-situ data set of key regions in compilation.

Validation activities in China (Tao Che)
- Extensive field work for snow product validation in Dec’14 and Jan’15 (NW China).
- Snow depth measurements around meteorological stations (greent) to evaluate representativeness of station (point to pixel).
- Data and geolocation will be shared with snow research community.
FAPAR

- Collaboration with NPL on PAR sensor calibration and longtime drift assessment (about 40 calibrated sensors will be employed in Costa Rica, Germany, England, Brazil)
- FPAR data from enviro-net.org publicly available

Phenology

- 3rd International Phenology Validation workshop as side event to Phenology conference, October 5-8 2015, Turkey.
5. LPV Goals 2015

1. Paper
   • Intercomparison and validation framework, update of validation stage definition
   • Validation methodology and standards
   • Validation stage for each variable
   • Current limitations and ways forward

2. Consolidate strategy for each focus area
   • May-June focus-area-specific telecons

3. Increase exchange of methodology between focus areas

4. Supersite selection

5. Planning of LPV subgroup meeting (Q1 2016)

6. Preparation of chair/vice-chair transition (Q1 2016)
LPV Focus-area Specific Strategy Meetings

Time frame

May – July 2015 -> doodle will be sent out

Aims

1. Review validation stage and activities (focus area co-leads)
2. Define next validation steps (focus area co-leads and LPV chair/co-chair)
3. Define goals and action items for 2015/2016 (focus area co-leads and LPV chair/co-chair)
   e.g. protocol writing, GCOS interaction, focus-area specific meeting, fiducial reference data
4. Review organisation and contributions to focus area (terms, organisation)

Participants

1. Focus area co-leads
2. Gabriela (chair), Miguel (vice-chair), Jaime (support)
3. Guests (proposed by co-leads and chair)
Validation Data - Phenocam in Siberia
Switching from SWE to IWE