

Land Product Validation (LPV) Sub-group Meeting



Fernando Camacho – (EOLab/U. Valencia) – Chair
Vice Chair – Vacant
Subgroup meeting
02 Apr 2019

NEXT LPV TELECON 02 Jul 2019

Attendance

Participants

Fernando Camacho
Jaime Nickeson
Zhuosen Wang
Tomoaki Miura
Sylvain Leblanc
Carsten Montzka
Michael Cosh
Dominique Carrer
Pontus Olofsson
Joshua Gray
Hongliang Fang
Gareth Roberts

Excused

Glynn Hulley
Frank Götsche
Marie Weiss
Else Swinnen
Andrew Edwards
Luigi Boschetti
Laura Duncanson
John Armston
Mat Disney
Sophie Bontemps

Absent

Thomas Nagler
Jadu Dash
Ian Grant

Proposed agenda items

- Welcome
- Vice-Chair vacancy
- CEOS Work Plan (2019-2021)
- LPV Supersites (update)
- LPV Plenary at LPS, Milan – to review LPV Work Plan (2019-2021)
- Web Site Review and Listserv update, completion by June
- Focus Area Reporting

Vice Chair nominations/Holes

Please volunteer or ask around to help us find candidates!!!
You have the best access to the validation community.

We have lost two nominees for the Vice Chair position. Need to find a non-European vice-chair nominee.

We **STILL** have remaining vacancies in our LPV working group

- Need a volunteer to help with **Snow**
- And need a co-lead to work with Marie on **Fapar**

Again, **we need your assistance** to help us find candidates!!!

Please share with interested candidates

3-yr low-level responsibilities, then serve 3-yr term as Chair. The vice-chair supports and complements the duties of the chair. Activities of chair and vice-chair include:

- Ensure the transfer of knowledge and experience between the focus areas.
- Foster the development of new methods in validation.
- Coordinate validation activities with space agencies and other activities with satellite product validation components (eg. European Commission schemes).
- In collaboration with Secretariat, keep website updated (general pages) and ensure consistency in content and updates by focus areas.
- Organize a telecon every 2 months where focus area leads report to the chair and vice-chair about recent developments, including progress in standards development, workshops, and outreach. Prepare minutes.
- Organize LPV sub-group meetings (ideally 1 per year, at least 1 every 2 years).
- Organize special sessions at high-level conferences (e.g. AGU, EGU), contribute with LPV presentations.
- Publish articles on LPV activities and achievements.
- Represent LPV at the higher CEOS level, i.e. in the Working Group on Calibration and Validation (WGCV) that is held roughly every 9 months.
- Represent LPV in GCOS TOPC.
- Coordinate the development of new focus areas if need be.
- Compile LPV newsletter (at least 1 a year) to keep the general LPV mailing list informed.

CEOS LPV Work Plan (2019-2021)

CEOS LPV Work Plan (2019-2021) needs to be defined, discussed during the LPV plenary in Milan and presented to CEOS WGCV in July (Perth).

This is an opportunity to revise /define our strategy and actions for the next three years. Main goals:

- **Development of global validation best practices**
- **Engage the community in validation activities through workshop / sessions (1 every three years expected for each FA).**
- **Coordinate validation exercises and report results to users (papers)**
- **Communication: web site and newsletter (once a year)**

Excel file to fill by each group (to be presented and discussed in May).

<https://drive.google.com/file/d/1h0BIYf0FC6nTryabnT-e52UBQd28PYlz/view?usp=sharing>

CEOS LPV Work Plan 2019-2021

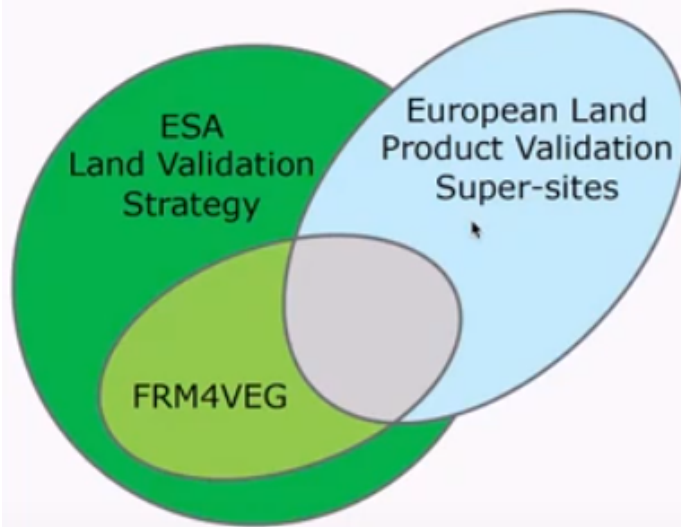
Group	Lead / PoC	ID	Action	Status	Start	Deadline	Description
Chair	F.Camacho	LPV Supersites	Update LPV supersites over Europe and expand over Asia	Open	2019	2021-Q1	Update LPV Supersites in Europe according to ESA FRM4Veg & FLEX, and GBOV instrumented sites. Expand over Asia. Reas
Chair	F.Camacho	ICOS sites	Investigate usefulness of ICOS data	Open	2019	2020-Q1	Assess the quality of data delivery by ICOS and usefulness for validation of satellite products
Chair	F.Camacho	AGU/EGU sessions	Chair special sessions on land product validation at AGU and EGU	Open	2019	2021-Q4	Promote special sessions on Land Product Validation at AGU or EGU (or both) to gather the recent advances on validation n results
Secretariat	J. Nickenson / All	Web updates	Update web page	Open	2019	2019-Q2	Update the web with the inputs of each FA (once a year)
Secretariat	J. Nickenson / All	LPV Newsletter	Send LPV newsletter to LPV list members	Open	2019	2019-Q3	Prepare and deliver the LPV newsletter (once a year)
Biomass	L.Duncanson	CARB-16	Cal/val and production of biomass products from CEOS missions	Open	2017	2019-Q4	Development of a coordinated cal/val strategy across NASA and ESA biomass missions that rationalizes protocols, data sha the establishment of round-based carbon super-sites.
Biomass	L.Duncanson	CARB-16-2018-2	Biomass validation paper	Open	2018	2018-Q4	Background paper for the ISSI special issue on the need for biomass product validation and an outline of the CEOS WGCV Bic Protocol.
Biomass	L.Duncanson	CARB-16-2018-3	CEOS WGCV biomass protocol	Open	2018	2019-Q3	CEOS WGCV biomass validation protocol
Biomass	L.Duncanson	CARB-16-2018-5	Establishment of ground-based carbon super-sites	Open	2018	2019-Q4	Establishment of ground-based carbon super-sites

Supersites : Coordination European meeting

- A coordination meeting was conducted on 14 February with representatives of ESA (FRM4Veg(S2,S3,PV), SMOS, S3, and FLEX) and EC GBOV.
- FRM4Veg



ESA future activities and plans



FRM4VEG Phase 2 ...
 (end 2019 – beg. 2021 -> 2 yrs)

FRM4VEG project is conceived as the **starting point of ESA contribution** to the **development of an European Land Product Validation Super-sites network.**

- EC GBOV investing in 3 super sites 2019 (Valencia AS, ICOS Hanich, ASS Tumbarumba + additional in 2020 – FRM4Veg protocol to be implemented.
- FLEX cal/val sites to align with FRM4Veg at least for some sites.
- LPV Action (FC)- revise and update LPV supersites over Europe

LPV Plenary at LPS – define LPV Work Plan

At the Living Planet Symposium :
15th May 2019, Milan (It), morning
time (9-14).

At Milano Congressi (room TBC, ESA)



- Road map for the new chair period: The LPV WP (2019-2021).
- Starting from the current status of each FA, defining an action plan for the next three years (protocol developments, cal/val data coordination, workshops, communication). Attendance of at least 1 representative for FA is confirmed (except snow).
- LPV Work Plan should be mainly defined internally in response to CEOS agencies validation needs. Key items are also adopted from CEOS Work Plan (CARB actions).

Annual Web Site and Listserv Review

- We are beyond our due date for annual review of the focus area pages.
- Aim is to complete this exercise in a reasonable time frame. Deadline target is June.
- Each focus area please review all of your pages and products and send me updates. These are not meant to be static pages.
- Please make sure all your information is current!
- I will distribute community and product spreadsheets to each focus area for update.
- Please help us to get this completed!! THANKS!

Focus Area Reports

- FAPAR
- Fire/Burn Area
- LAI
- Phenology
- LST&E
- Surface radiation
- Soil Moisture
- Vegetation Indices
- Snow
- Biomass
- Land Cover

Fapar

Newsletter (LAI+fAPAR) to be sent in April:
symposiums, validation experiments, Products. Currently contacting
people to get the latest news.

Ground validation for HR products:

- Different validation projects (P2S2, GBOV, FRm4VEG) but also many ground campaigns conducted within project with other objectives
- We (Hongliang and myself) are looking for some solutions to provide a platform where people could share their measurements (either by link or by posting their data). I am currently in discussion with my institute which proposes a solution for a datasharing platform.

Fire/Burned Area

- Planned completion of a fire radiative power (FRP) protocol is currently this upcoming fall
- Preparing lists of updates for the web site
- Gareth planning to attend LPV Plenary, but not LPS, can Fernando check on access to venue?

LAI

- Special LAI/FAPAR session in IGARSS'19 (<https://igarss2019.org/>)
 - Half-session oral presentations (5). One other moved to poster session.
 - Registration opens on Mar 29, 2019.
 - Attendants could meet at lunch.

- FAPAR focus area lead Dr. M. Weiss visited Beijing, China (Mar 19-29, 2019)
 - Gave talks in various institutes about “Derivation of global vegetation products from European medium resolution sensors”
 - MODIS, GEOV2, and GLASS LAI representatives met and discussed current product uncertainties and further validation activities
 - Discussed about a platform to share global decametric resolution reference LAI.

- Publications
 - *Remote Sensing* special issue “Remote Sensing of Biophysical Parameters” (deadline: May 22, 2020). Editors: J. GarcíaHaro (U. Valencia), H. Fang (CAS), and M. Campos-Taberner (U. Valencia)
http://www.mdpi.com/journal/remotesensing/special_issues/Biophysical_Parameters
 - Elsevier about to launch new journal in April: *Science of Remote Sensing*

Phenology

- MODIS Land Cover Dynamics (MCD12Q2) [C6 now on LPDAAC](#)
- New pub comparing MCD12Q2 C6 and VIIRS LSP (accepted in RSE)

Moon, M., X. Zhang, G. Henebry, L. Liu, J.M. Gray, and M. Friedl. (2018). Long-term continuity in land surface phenology measurements: A comparative assessment of the MODIS Land Cover Dynamics and VIIRS Land Surface Phenology products. *Remote Sensing of Environment*. *accepted*

LST & Emissivity (1/2)

- Stage-1 validation of ECOSTRESS LST product complete (paper in progress).
- Stage-1 validation of MODIS and VIIRS LST products complete (Stage-2 in progress with additional global sites).
- Taking the Temperature of the Earth book complete and in print by June.
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Surface Radiation (1/2)

Protocol

The albedo validation best practice protocol has been posted to the web site and assigned a DOI. It is currently being printed for distribution at the LPV plenary and the WGCV plenary.

- Wang, Z., Schaaf, C., Lattanzio, A., Carrer, D., Grant, I., Román, M., Camacho, F., Yu, Y., Sánchez-Zapero, J. & Nickeson, J. (2019). Global Surface Albedo Product Validation Best Practices Protocol. Version 1.0. In Z. Wang, J. Nickeson & M. Román (Eds.), Best Practice for Satellite Derived Land Product Validation (p. 45): Land Product Validation Subgroup (WGCV/CEOS), doi: 10.5067/DOC/CEOSWGCV/LPV/ALBEDO.001

New Products / Validation Datasets

- Ten-day surface Albedo, derived from METOP-B AVHRR. Product is pre-operational and will be operational very soon. Data available only from 2015 until now. Reprocessing from 2006 planned in 2020. Paper of inter-comparison with MODIS and VGT (Lellouch et al. in prep).
- ECMWF/C3S: Processing of the first collection of albedo from 1981 until 2014 (based on NOAA/AVHRR and VGT series). Data will be available to the users summer 2019. Preparation now of the second collection for 2020.

Surface Radiation (2/2)

Living Planet Symposium presentations

- Benhadj, I., et al. Land Biosphere Essential climate variable products from Copernicus Climate Change Service (C3S): Surface albedo, LAI, fAPAR, Land Cover and Fire.
- Wang, Z. Roman, M., Schaaf, C., Nickeson, J., Camacho, F., Carrer, D., Yu, Y., Grant, I. & Stachura, M. Evaluation of satellite-derived land surface albedo products and development of CEOS/WGCV/LPV albedo protocol.

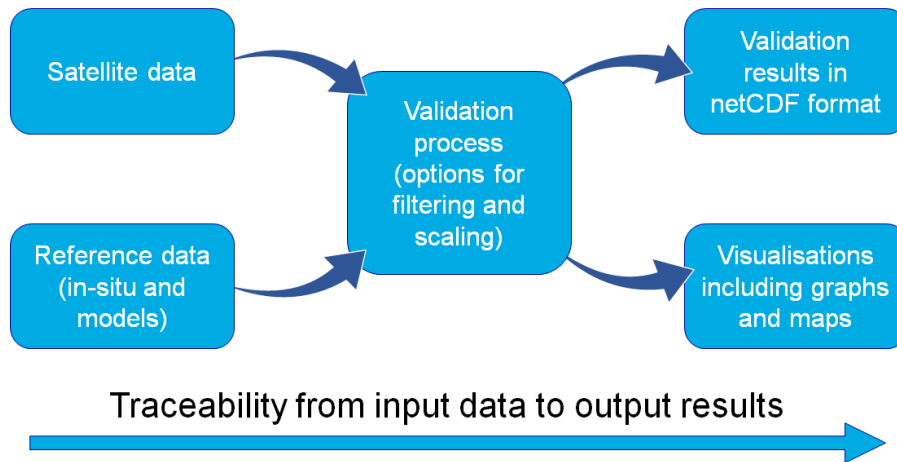
Workshop announcement:

Montreal 15-17 July 2019 - 3rd International Surface Working Group (ISWG3)
<http://cimss.ssec.wisc.edu/iswg/meetings/2019>

(The International Surface Working Group (ISWG) will: Update recommendations to further the coordination and exploitation of Earth Observation data of terrestrial surfaces and land-atmosphere interactions; Update recommendations consistently with the evolution of available satellite systems and how to fill potential gaps in future observations; Prepare for the 48th Coordinated Group for Meteorological Satellites (CGMS) to present the ISWG initiatives and its outcomes.)

Soil Moisture

- QA4SM is still in testing. <https://qa4sm.eodc.eu/>



- NISAR/UAVSAR 12 day repeat campaign is set to begin at the end of April
- ASAR L+S campaign to accompany UAVSAR in summer months
- Expansion of U.S. networks for soil moisture have been funded, including a Next Generation Water Monitoring System.
- ESA Copernicus L-band SAR candidate rehearsal campaign SARSENSE in Germany starting end of April

Vegetation Indices (1/3)

- A summary of the last workshop available are a website to be checked first by the participants
- A Copernicus validation web portal (<https://gbov.acri.fr/> Jadu Dash) as another validation data source.

Snow (1/2)

GLOBLAND - Copernicus Global Land Service (CGLS): Prototype global Sentinel-3 SLSTR products are developed and are under evaluation.

ESA SNOW-CCI: User requirement WS (29 Nov 2018, Vienna) for global snow extent products (from optical sensors) and snow water equivalent products (SWE) from passive MW data for climate applications was held and product specifications have been agreed. Daily global products for 1981 -> onwards are scheduled. Requirement and product specification document will be made available at ESA Snow_CCI web page. A global Landsat / Sentinel-2 reference snow extent data set is in compilation for validation of snow extent product.

Note: Snow_CCI Presentation at EGU, Thursday, 11.4. 2019.)

EEA High resolution snow and ice service (planned to start 2019/2020)

high resolution snow extent products from Sentinel-2 data for Europe, processing in real time. (more details upcoming).

Snow (2/2)

- **SEOM S1 4 Sci – Development of a PanEuropean SAR / Optical Snow cover and Melt extent products:** Prototype products for EUROPE are available for melting period 2017 and 2018. Validation of melt extent in mountain terrain (Alps) applies high resolution snow reference data (Landsat, S2) and temperature data. In low elevated plains in central Europe, validation is challenging

Upcoming Symposia related to progress and validation of snow Products:

EGU, Vienna, 7–12 April **2019:**

- Several sessions related to snow (CR3)

ESA Living Planet Symposium (Milano, 13-17 May 2019):

- A2.03: Snow in Earth Climate System (Thursday afternoon)
- A2.02: Alpine Snow (Friday morning)

Above Ground Biomass

- Review paper on the importance of biomass product validation is under review at Surveys in Geophysics with ‘minor revisions’
- GEDI officially started collecting science data last week and has already collected about 50 million waveforms (although most of these were not during the ‘science collection’ period)
- New ABoVE project focused on biomass mapping with ICESat-2 in the boreal funded, with Duncanson as PI. The algorithms developed in this project should enable truly global biomass mapping for the year 2020.
- Biomass protocol is in its final draft stages, we are having a telecon with the team literally during the LPV telecon to discuss editing tasks to complete.
- List of biomass super-sites is being developed by the multi-mission biomass cal/val group (which meets monthly representing GEDI, ICESat-2, NISAR, ESA BIOMASS, relevant projects and field plot networks). Hopefully could be endorsed in a similar way to LPV supersites, would be good to discuss at Living Planet

Land Cover

- *The BioCarbon Fund Initiative for Sustainable Forest Landscapes (ISFL)*
- Meeting last week in DC
- Colombia, Ethiopia, Indonesia and Zambia
- Extension of REDD+ to include “sustainable agriculture, as well as smarter land-use planning, policies and practices”
- Sampling-based estimation of area and map accuracy
- <https://www.biocarbonfund-isfl.org/>