

International Earth Surface Working Group - IESWG



Co-chair: Gianpaolo Balsamo (ECMWF)
Co-chair: Benjamin Ruston (NRL-Monterey)

This current group has convened 3 meetings;
Contribute and lead special issues;
convene a seminar series;
and preparations are underway for the 4th meeting

Events	Partner*	Location	Date
1 st	SMAP Weather Focus Session	Monterey, CA, USA	19-20Jul2017
2 nd	EUMETSAT Land-SAF	Lisboa, Portugal	26-28Jun2018
3 rd	Global Cryosphere Watch (WMO/ESA)	Montréal, Canada	15-17Jul2019
--	Invited Seminar Series and Discussions	Virtual	Sep-Nov2021
4 th	TBD	Helsinki, Finland	TBD Apr2022

*to broaden exposure and understand breadth of issues; ILSWG has partnered in each of the 3 previous in-person meetings

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Goal: Gather requirements specific to surface observations to enhance both our understanding and ability to monitor the components of the Earth system.

Foster uptake of Earth Observations for land, vegetation, and snow

Objectives of the IESWG include (for full details see IESWG ToR):

- Use of Earth Observation (EO)-data for Cryosphere and Biosphere modelling relevant to study processes at the land-atmosphere interactions;
- Use of EO-data for parameter optimization including those for the land surface, vegetation and snow and the resulting surface emissivity/reflectance spectra;
- Land Data Assimilation Systems (LDASs) both current state and recent developments; sensitivity studies of surface model parameters to remotely sensed data;
- Radiative transfer and emissivity/reflectivity model development: VIS/IR/MW, review of current parameterization for forward modelling surface boundary;
- Retrievals of land surface parameters: product characteristics and performances;

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Activities:

Published Special Issue: Advancing Earth Surface Representation via Enhanced Use of Earth Observations in Monitoring and Forecasting Applications (2019)

https://www.mdpi.com/journal/remotesensing/special_issues/earthsurface_RS

Overview Article: Balsamo, G.; et. al. Satellite and In Situ Observations for Advancing Global Earth Surface Modelling: A Review. *Remote Sens.* **2018**, *10*, 2038. <https://doi.org/10.3390/rs10122038>

New Special Issue: Remote Sensing of Land Surface and Earth System Modelling (closed finalizing reviews)

https://www.mdpi.com/journal/remotesensing/special_issues/Land_Surface_Earth_System_Modeling

IESWG has:

- *coordinated a roadmap to highlight largest deficiencies and experiments designed to understand and prioritize research and development*
- *documented the current state of the land surface models and data assimilation systems*
- *an effort underway working towards coordinating a climatology of surface sensitive L-band radiances*
- *worked towards creating a community-wide adopted set of validation metrics, particularly scoring coupled interactions and energy budget closures.*