The International Soil Modeling Consortium

Integrating and advancing soil systems modeling, data gathering, and observational capabilities.

ISMC Goals and Mission:

- Bring together leading experts in modelling soil processes within all soil disciplines
- Promote integration of soil modelling expertise in other disciplines (like climate and ecology)
- Perform soil model intercomparison studies from field to globe
- Integrate societal and environmental considerations into soil and ecosystem functioning

Report of Findings

International meeting, Nov 5-7, 2018 at Wageningen University & Research, The Netherlands

- Research is needed to integrate new satellite tools into soil models, and to reconcile the discrepancies between model and data scales.
- The dynamic nature of soil properties is becoming recognized, but not feedbacks needed to fully understand the role of soil in climate and the biosphere. Research is needed to better include these relationships.
- New soil databases and "Big Data" approaches are quickly gaining popularity, becoming ready for sharing amongst different scientific communities and disciplines.
- Cold-region soils and processes are not fully captured in current land surface models.
- Significant efforts are being undertaken to quantify soil carbon stocks and to understand their dynamics and impact on the environment; these understandings need to be included into soil hydrologic models to better project potential future impacts.

Why Are these Findings Important?

- Improved soil models allows for better soil resource assessment, and risk and land management decisions.
- The international soil modeling community, now 500+ persons strong, is making significant and focused headway to better understand how to incorporate soil properties and soil processes into soil, land surface and global climate simulation models.
- The quality of predictions from climatic and biospheric models depends on our understanding of soils and how soil processes interact with other compartments of Earth's atmosphere and land surface.
- Results from the recent international meeting charted a forward path for better connecting soils to computer models, such as earth system models and crop growth models.
- These models represent a tool to be used by policy and civic institutions to better quantify and value the unseen benefits that soils and related processes provide.

Where Do We Go From Here?

- The soil modeling community needs to remain actively engaged with the climate and biosphere communities and show how adding soil processes to computer models can improve predictions.
- Modelers need to inform other scientific and stakeholder groups, as well as decision makers how they can benefit from our work. **Our knowledge can and should be used now; it is up to us to reach out.**

Who Can I Contact for More Information?

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