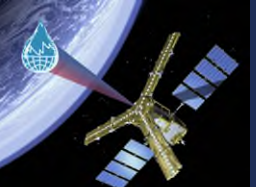


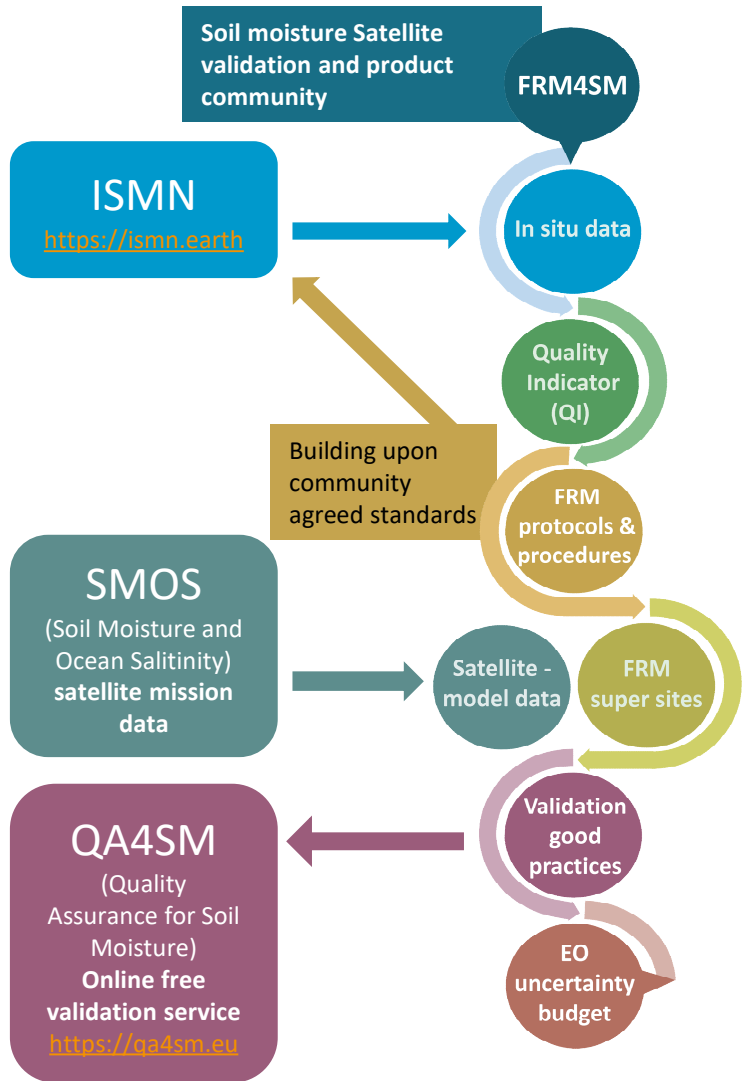
FRM4SM

Fiducial Reference Measurement for Soil Moisture || May 2021 – May 2023

Irene Himmelbauer¹, **Moritz Staudinger**¹, **Tobias Hasjan**¹, Daniel Aberer¹, Alexander Gruber¹, Wolfgang Preimesberger¹, Pietro Stradiotti¹, Wouter Dorigo¹, Monika Tercjak², Alexander Boresch², Arnaud Mialon³, Francois Gibon³, Philippe Richeaume³, Yann Kerr³, Raul Diez Garcia⁴, Raffaele Crapolicchio⁴, Roberto Sabia⁴, Klaus Skipal⁴, Philippe Goryl⁴



In situ soil moisture uncertainty budget --- making ISMN data traceable



DOIs for ISMN downloads --> more traceability for the ISMN

FAIR principles (Findable, Accessible, Interoperable, Reproducible)

- Problem: we do not want to outsource ISMN data download
- **Working Group on Data Citation (WGDC) – resolves this issue**
- **Professor Andreas Rauber** (Co chair of WGDC, Informatics Department TUW)



Going FAIR [1] / making data traceable without outsource the data

- Query based **Persistent Identifiers (PIDs)** attached to download query not to data [3]
- Versioning of own systematic --- full reproducibility &/or change detection [3]
- Recommendations for different levels on how to achieve traceability [2]

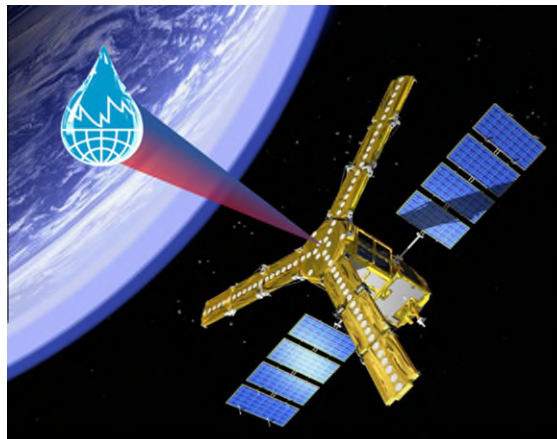
ISMN is currently restructured towards:

- DOI system of data download requests = queries not data itself
- Data and data accessibility stays within ISMN (no onward distribution of the data)
- Versioning of data changes [2]&[3]:

- full reproducibility of soil moisture data
- Metadata currently evaluated, either:
 - Full reproducibility
 - OR
 - Change detection: giving indication when and what has changed

References ISMN system currently built upon:

- [1] <https://www.go-fair.org/fair-principles/>
- [2] <https://zenodo.org/record/1406002/files/datacitation.pdf?download=1>
- [3] <https://hdr.mitpress.mit.edu/pub/si7wzxxa/release/1>



Thank you for your attention!

<https://project-frm4sm.geo.tuwien.ac.at/>

Contact

Project lead, QA4SM: Boresch@awst.at

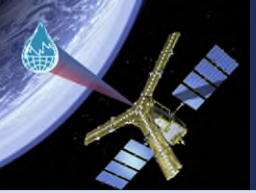
Science lead: wouter.dorigo@tuwien.ac.at

SMOS expert: arnaud.mialon@univ-tlse3.fr

ESA main contact: Raffaele.Crapolicchio@esa.int

ISMN coordination and EO scientist: irene.himmelbauer@tuwien.ac.at

Irene Himmelbauer¹, Moritz Staudinger¹, Tobias Hajszan¹, Daniel Aberer¹, Alexander Gruber¹, Wolfgang Preimesberger¹, Pietro Stradiotti¹, Wouter Dorigo¹, Monika Tercjak², Alexander Boresch², Arnaud Mialon³, Francois Gibon³, Philippe Richeaume³, Yann Kerr³, Raul Diez Garcia⁴, Raffaele Crapolicchio⁴, Roberto Sabia⁴, Klaus Skipal⁴, Philippe Goryl⁴



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- [2] Dorigo et al. (2013): *“Global Automated Quality Control of In situ Soil Moisture data from the International Soil Moisture Network”*. <https://doi.org/10.2136/vzj2012.0097>
- [3] Gruber et al. (2020): *“Validation practices for satellite soil moisture retrievals: What are (the) errors?”*. <https://doi.org/10.1016/j.rse.2020.111806>
- [4] Gruber et al. (2013): *“Characterizing Coarse-Scale Representativeness of in situ Soil Moisture Measurements from the International Soil Moisture Network”*. <https://doi.org/10.2136/vzj2012.0170>
- [5] Kerr et al. (2016): *“Overview of SMOS performance in terms of global soil moisture monitoring after six years in operation, Remote Sensing of Environment”*. <https://doi.org/10.1016/j.rse.2016.02.042>.
- [6] Bircher et al. (2012): *“A soil moisture and temperature network for SMOS validation in Western Denmark”*. <https://doi.org/10.5194/hess-16-1445-2012>
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- [8] Montzka et al. (2020). *“Soil Moisture Product Validation Good Practices Protocol”*. DOI: 10.5067/doc/ceoswgcv/lpv/sm.001