Validation of SMOPScdr Product using ISMN observations

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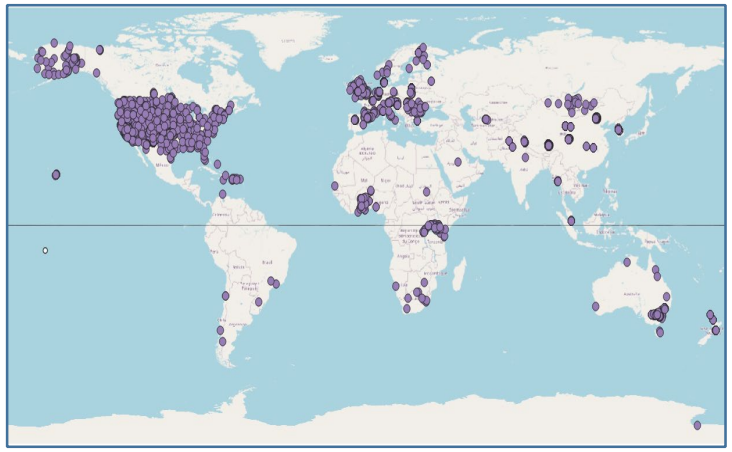
Objectives

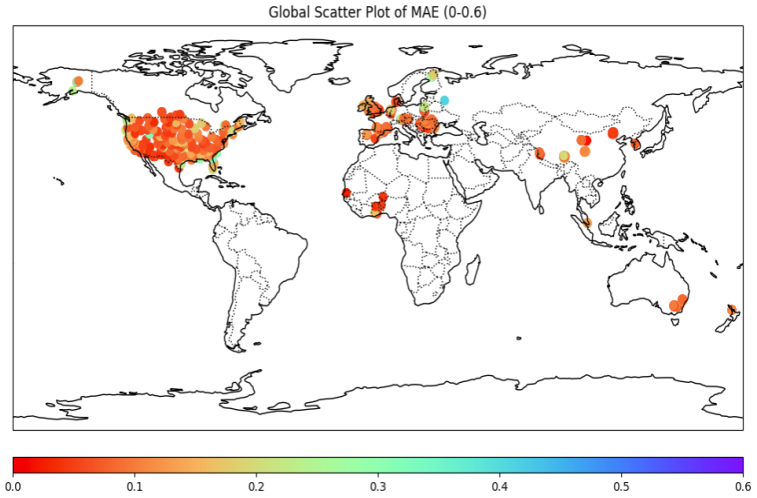
- Collection of ground observations from International Soil Moisture Network (ISMN);
- Preprocess and quality Control ISMN data;
- Validations of Soil Moisture Products System (SMOPS) with the quality-controlled ISMN soil moisture observations.

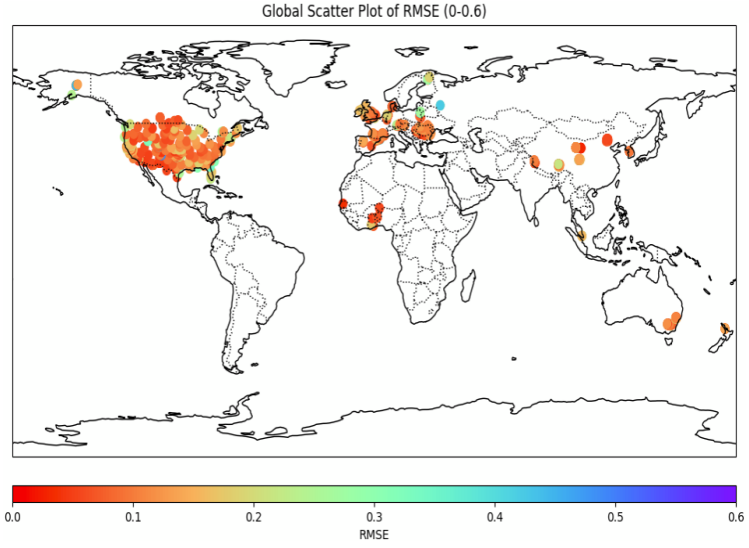
Results

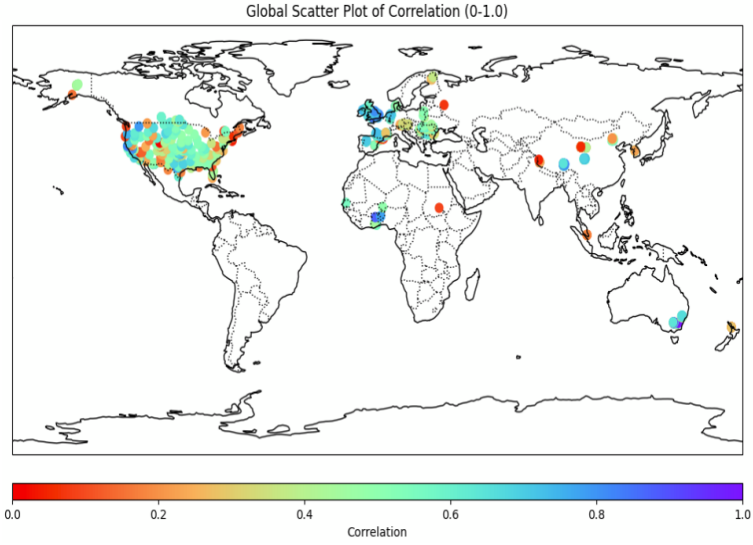
- ISMN exhibits geographical location affects the consistency of data;
- Validation results showed close alignment of in-situ and SMOPS data in term of their agreement;
- SMOPS shows a better performance during fall, spring, and summer over winter.

Overall Validation (2002/03-2024/06)



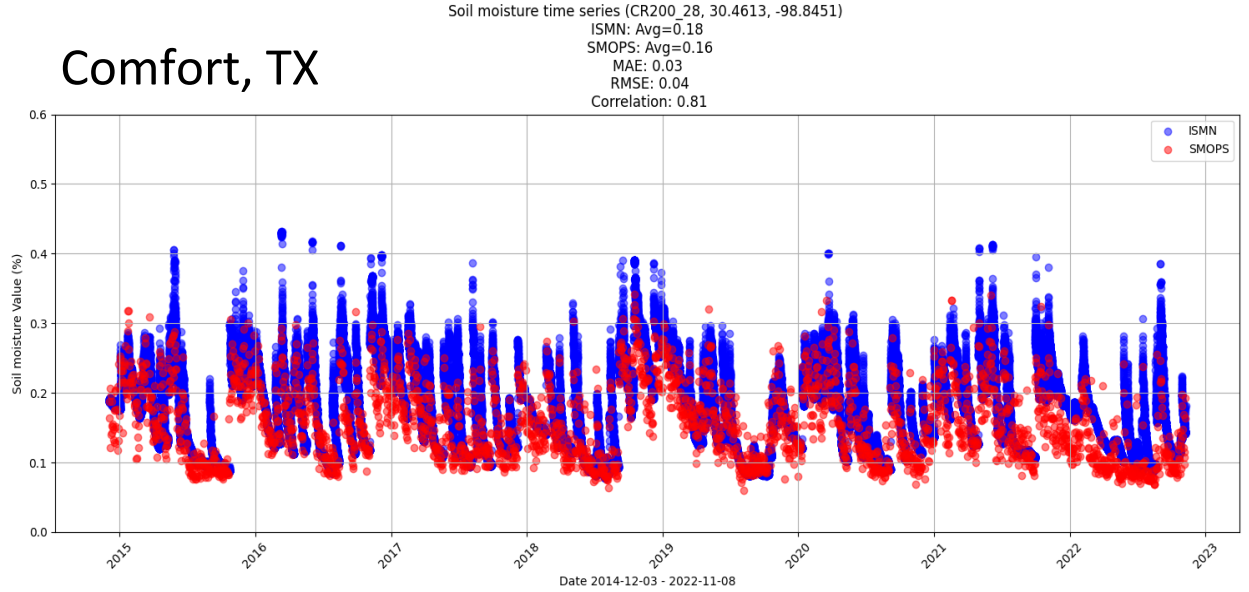




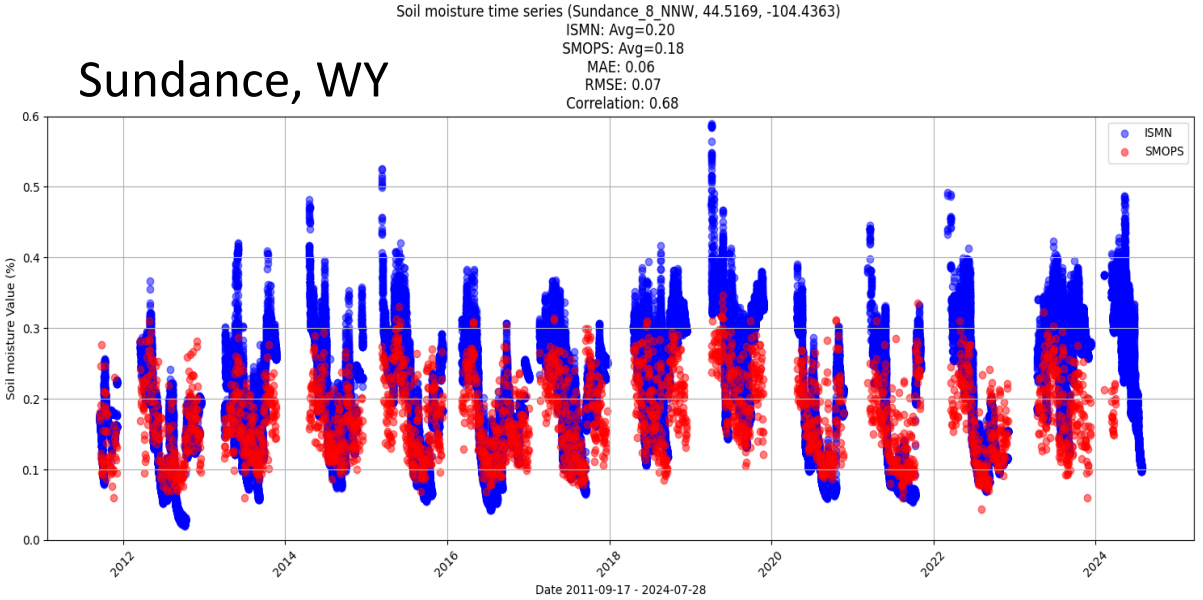


Typical Site Analysis

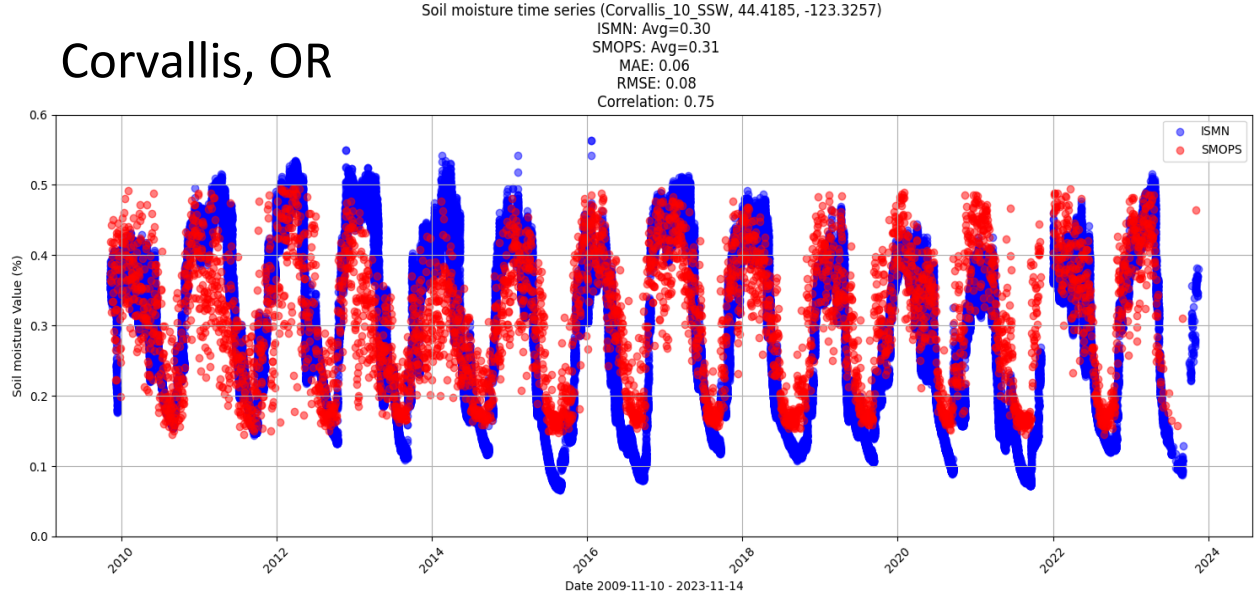
Comfort, TX



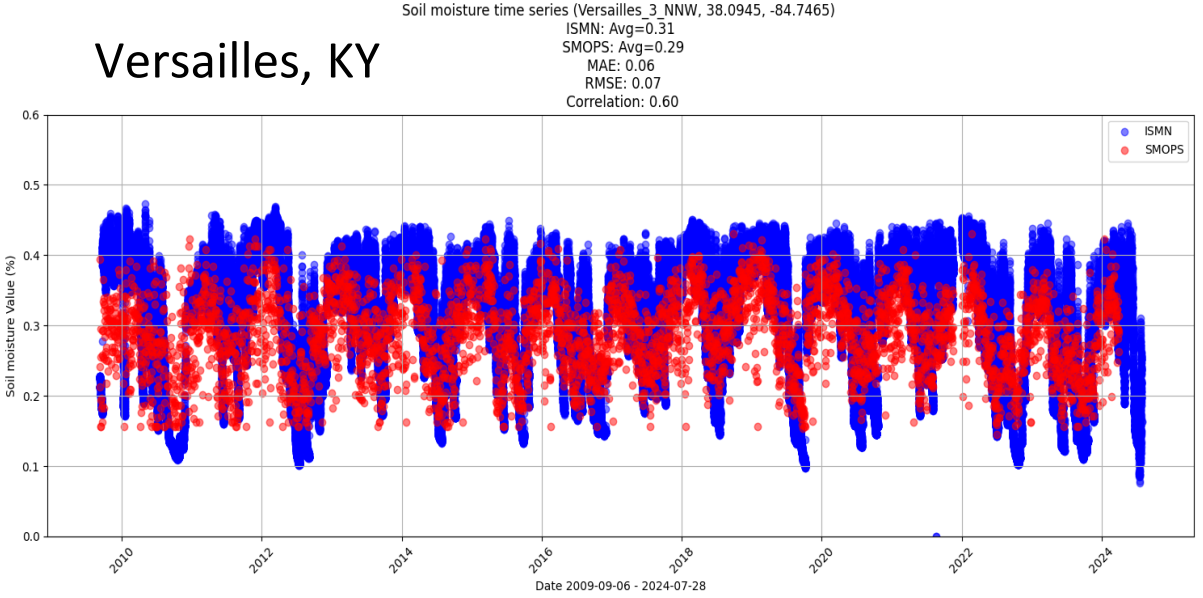
Sundance, WY



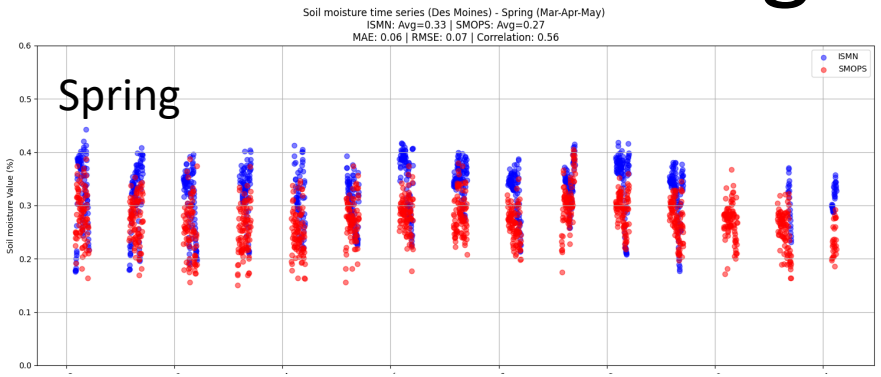
Corvallis, OR

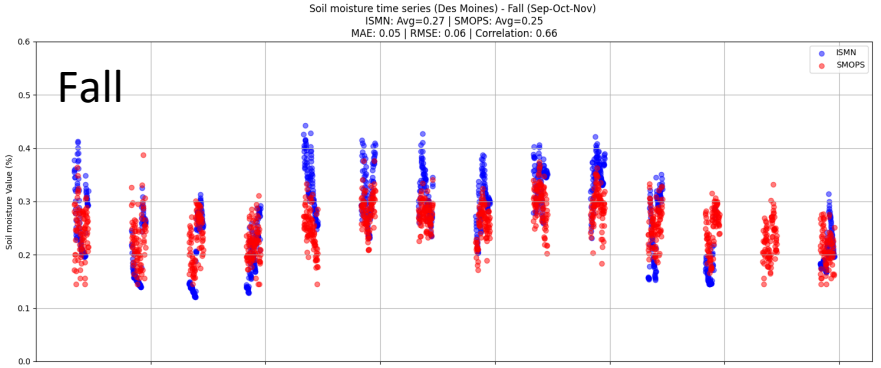


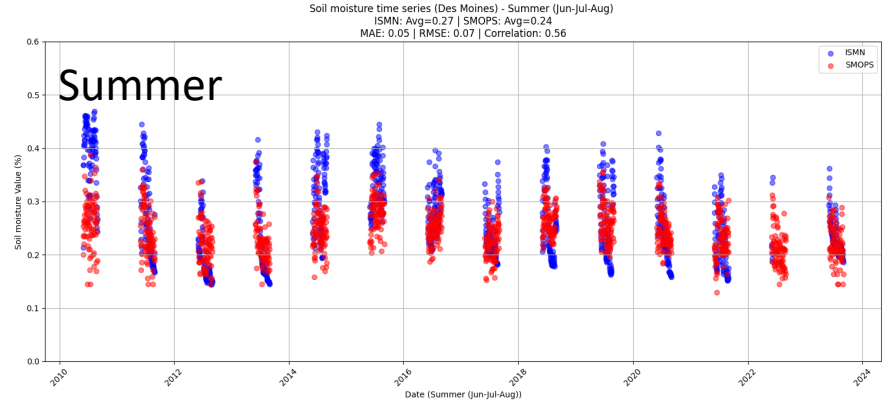
Versailles, KY

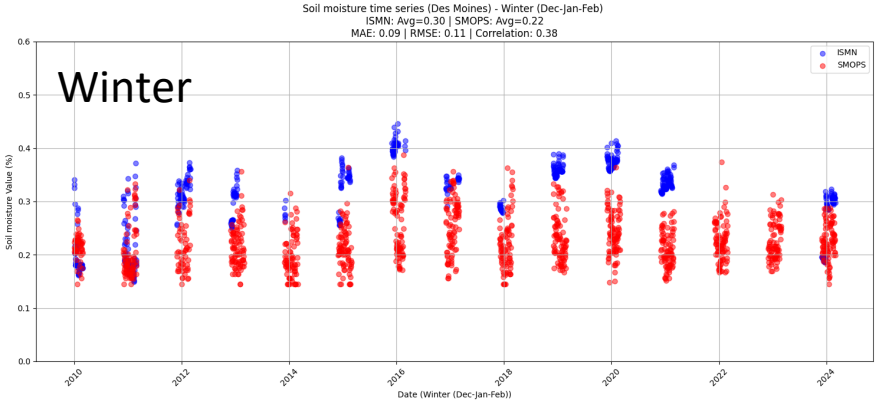


Factors in affecting the satellite Data







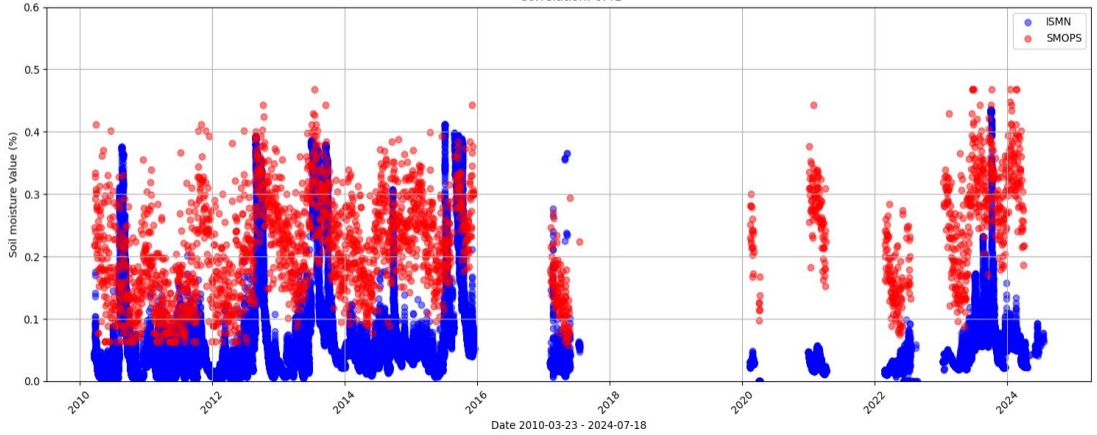


Climate factor: seasonal variation in the farming area, larger bias in winter.

Des Moines, Iowa

Geography factor: *Desert region*: Strong evaporation and ground absorption.

Sebring, FL



Geography factor: *lower latitude coastal sites*: Frequent precipitation, strong wind.

Mercury, NV