

Impact of Data Assimilation (DA) on Continental Soil Moisture Ensemble Forecasting

Authors: K. Bahramian – A. Shokri – E. Vogel – S. Tian – L. J. Renzullo - R. C. Pipunic – J. Lerat – W. Sharples – C. Donnelly

Background:

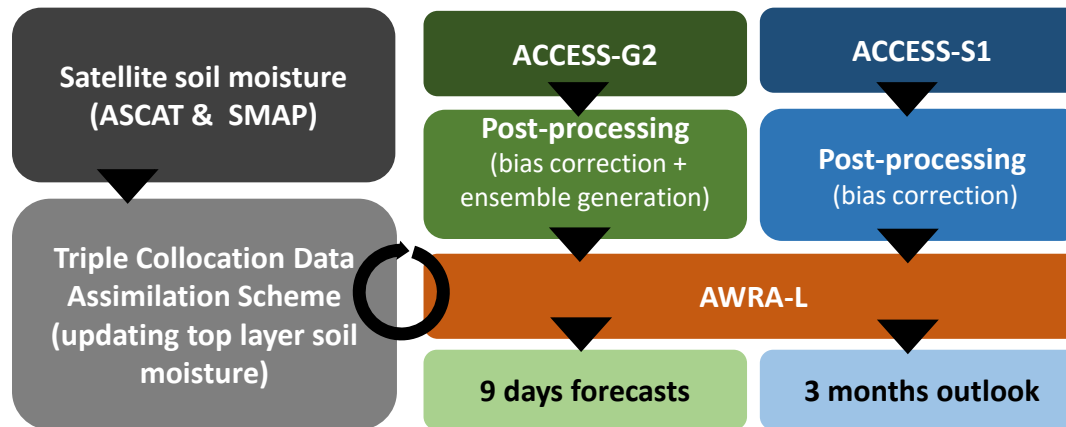
Seasonal hydrological soil moisture forecasts are beneficial for agriculture, water resources management, disaster risk reduction.

- DA improves AWRA-L model predictions when forced with historical climate data (AWAP).

Question:

What is the impact of DA on AWRA-L model predictions when forced with forecast data?

Our Method:

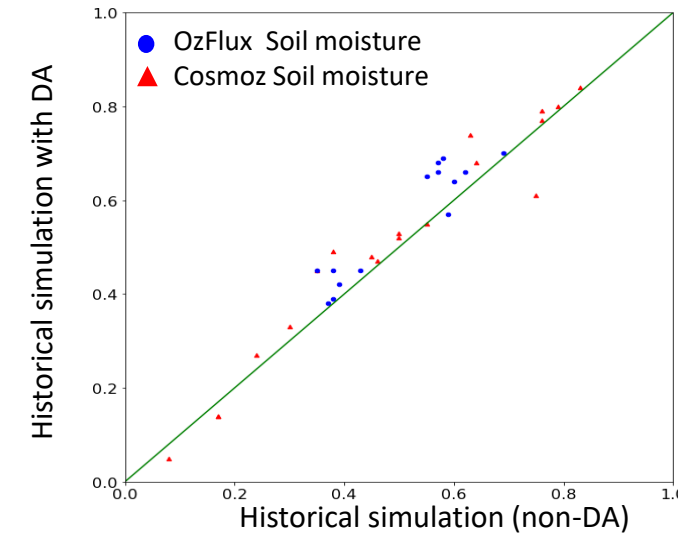


Results:

Data assimilation improves soil moisture forecasts

Impact persistence length:

- Top layer soil moisture (0 - 10 cm) => ~ 3-9 days
- Root-zone layer soil moisture (0 -100 cm) => ~ 14-16 weeks



Impact of DA on correlation of historical seasonal simulation with in-situ soil moisture observations

