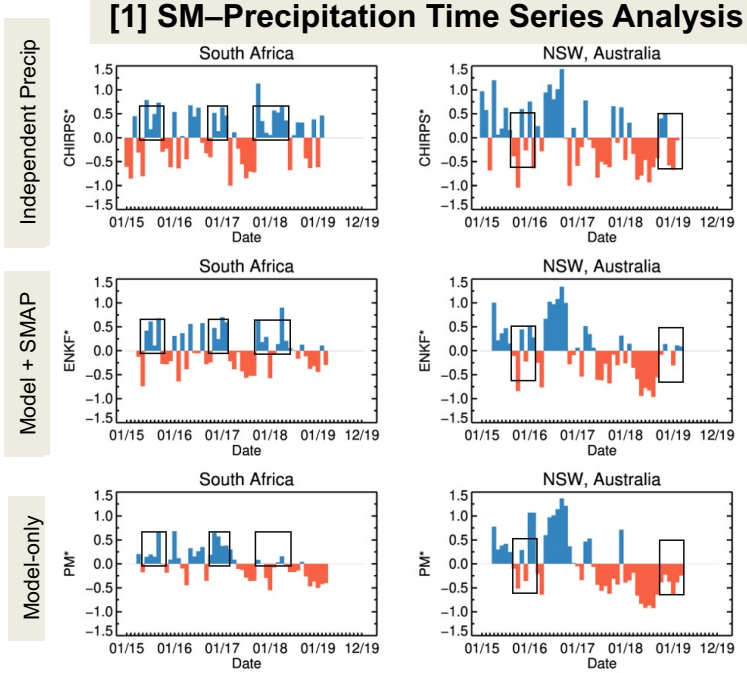
USDA FAS Global Crop Assessment Decision Support System Enhanced Using SMAP Data

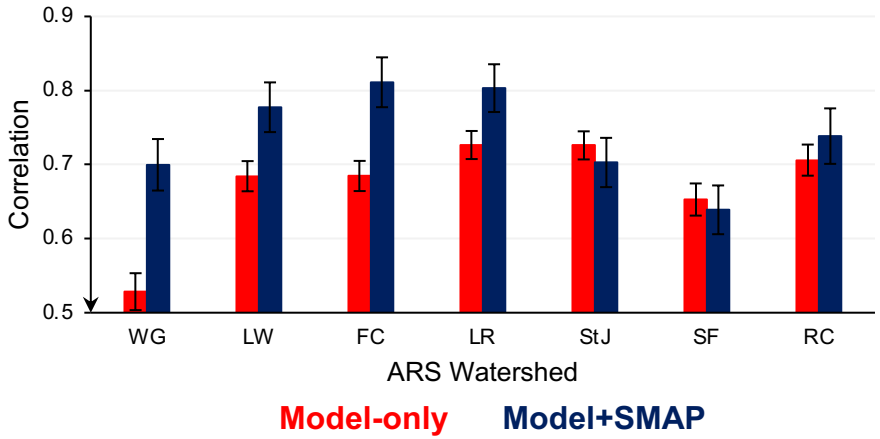
Problem: Root-zone soil moisture is critical for anticipating interannual variations in global agricultural product but – in many areas – cannot be adequately estimates by models.

[1] SM–Precipitation Time Series Analysis



During drought events, SMAP corrects modelled root-zone soil moisture for rainfall forcing errors.

[2] *In situ*-Model Soil Moisture Anomaly Correlation Analysis



SMAP improves the correlation-based skill of USDA FAS root-zone soil moisture estimates.

Finding: The assimilation of SMAP Level 3 soil moisture products greatly improves the ability of USDA FAS to operationally monitoring root-zone soil moisture at a global scale.

Impact: USDA FAS can better anticipate the impact of drought on global agricultural production.

Mladenova, Bolten, Crow, Sazib, Cosh, Tucker, Reynolds, 2019: Evaluating the operational application of SMAP for global agricultural drought monitoring, *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*.