



# Evaluation of CYGNSS Soil Moisture Data Product

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Daily Cyclone Global Navigation Satellite System (CYGNSS) Soil Moisture from 2017 to 2021

## Advantages

- Lower cost
- L band
- Fine resolution

## Potential Users



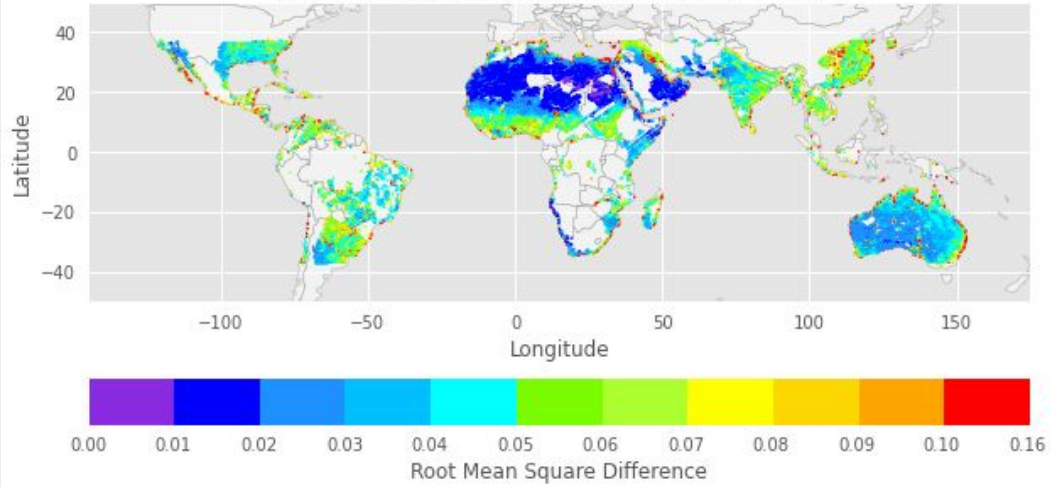
**NWC** | National  
Water  
Center



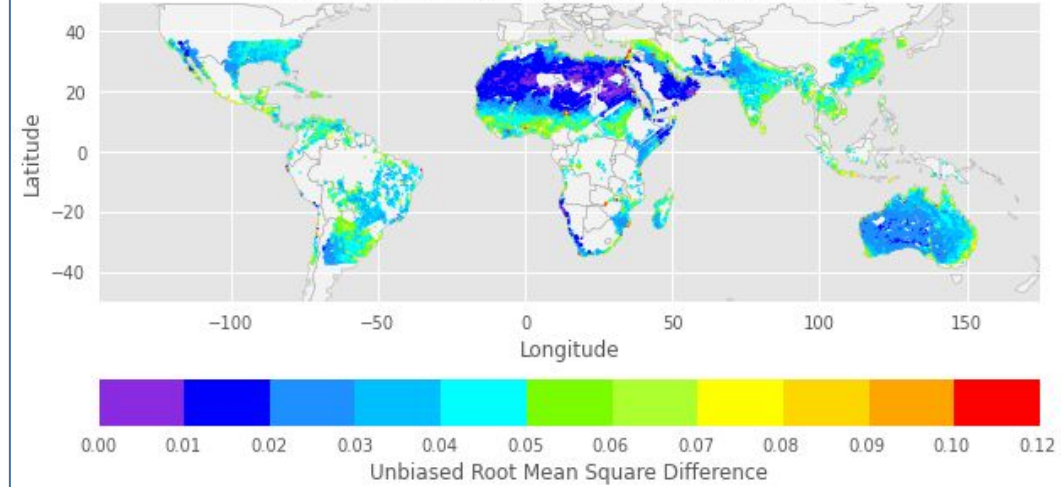
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SMAP Based RMSD from CYGNSS (AVG = 0.081)



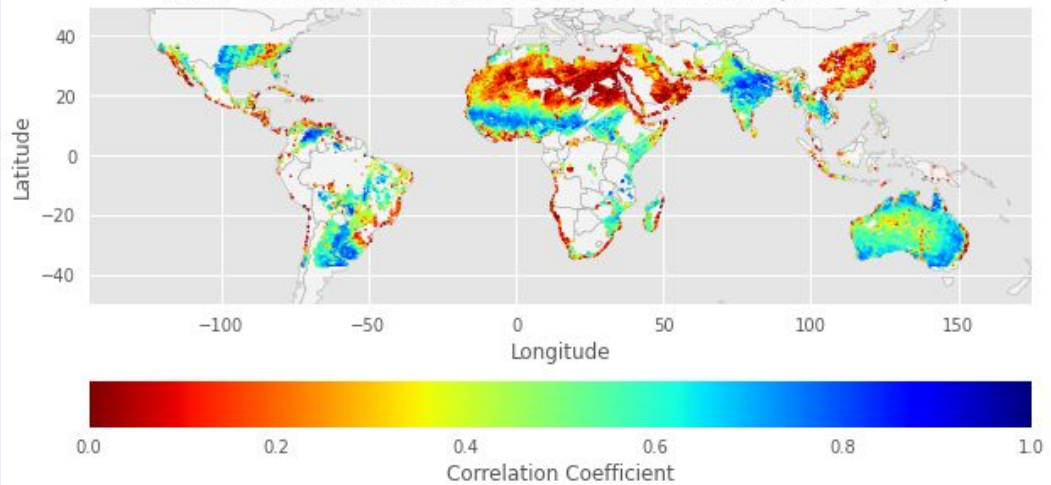
SMAP Based ubRMSD from CYGNSS (AVG = 0.062)



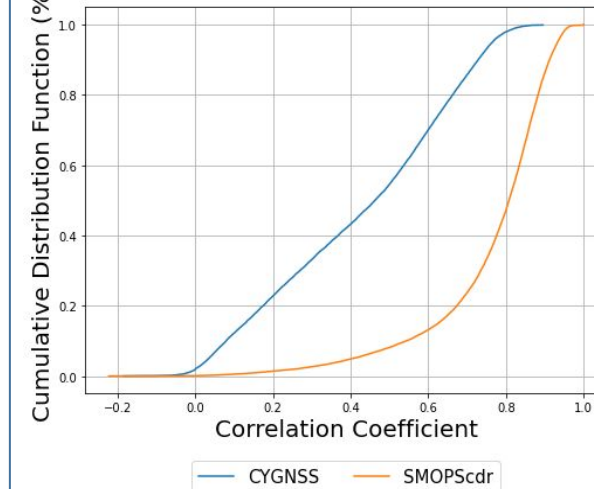
SMAP-based evaluations over the 2017-2021 time period

■ Worse  
■ Better

SMAP Based Correlation Coefficient from CYGNSS (AVG = 0.305)



SMAP-Based Correlation Coefficient



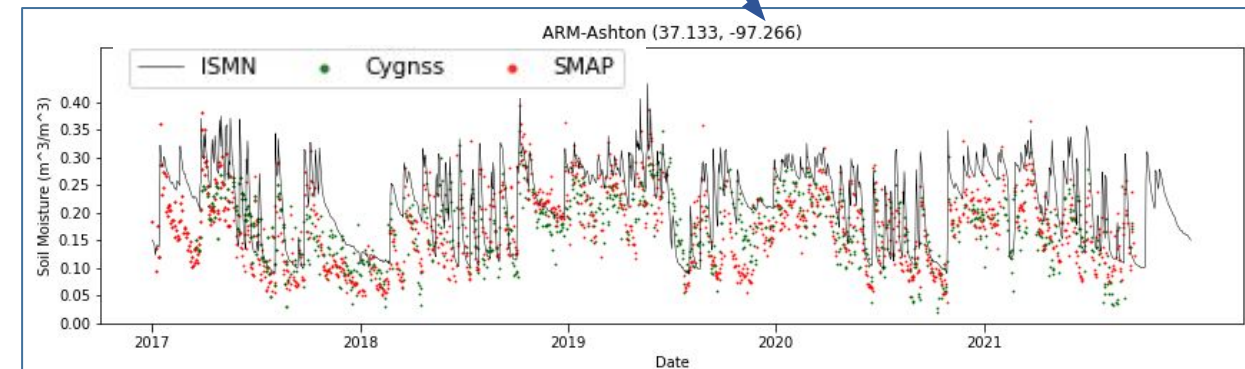
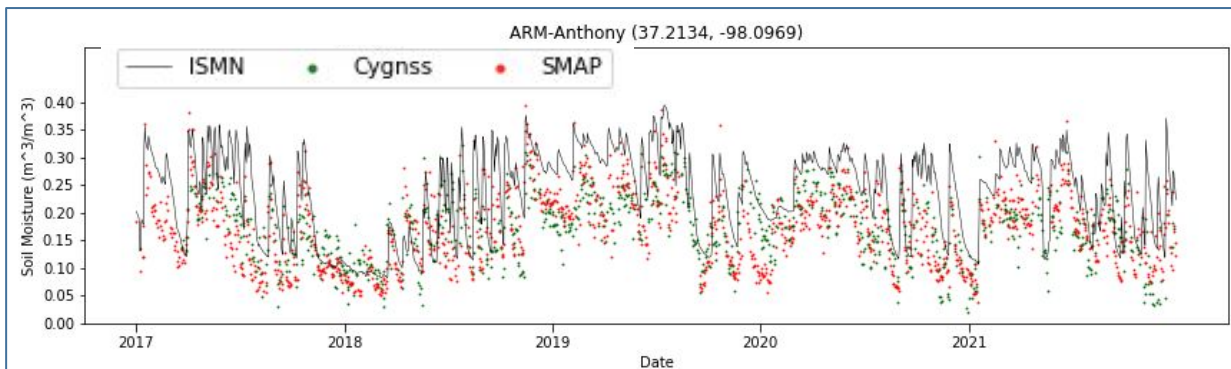
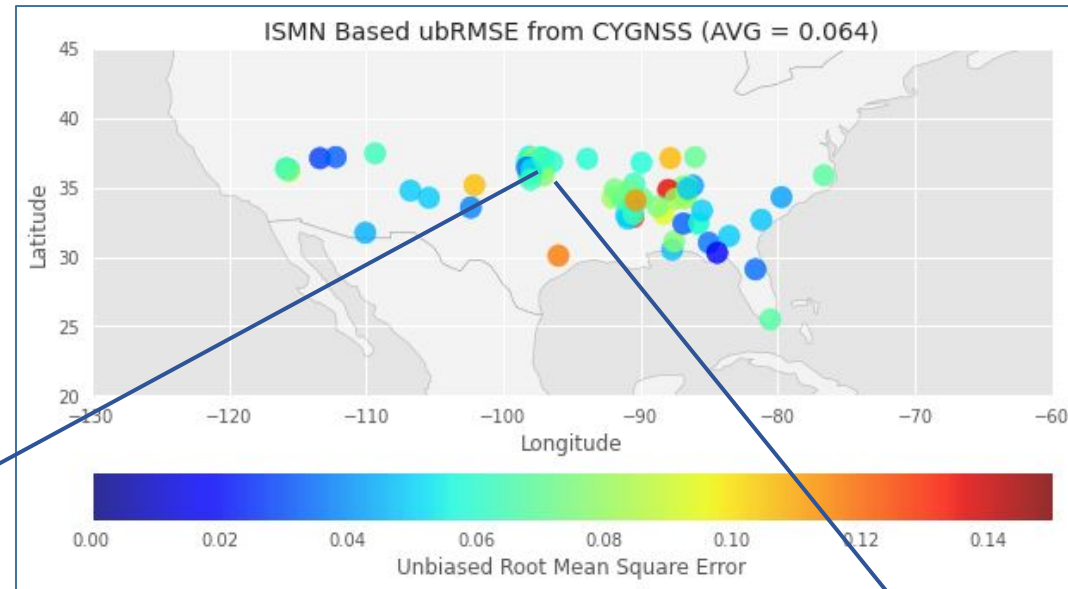
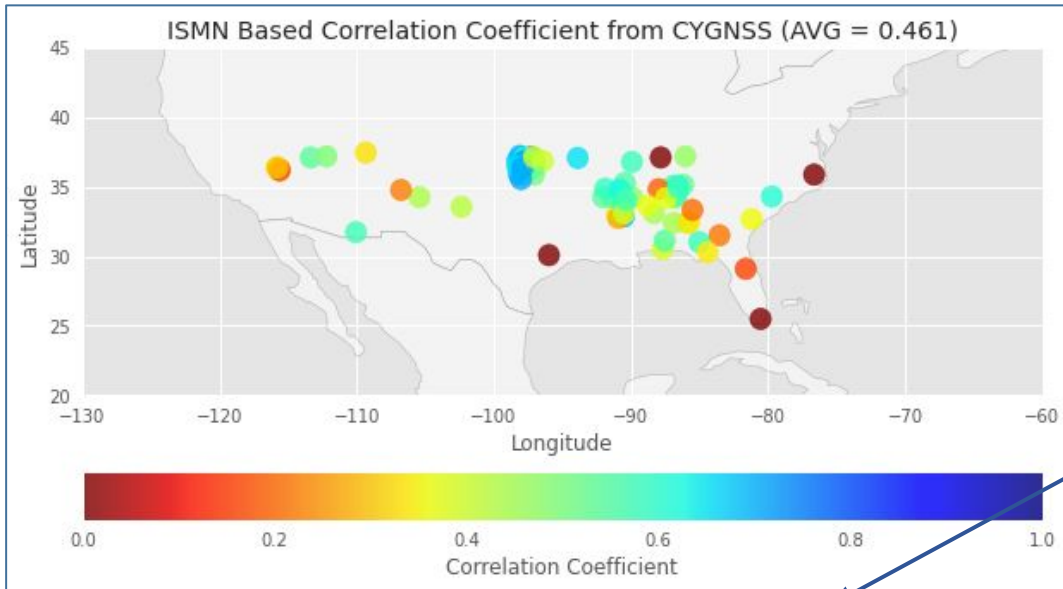
- Modest performance in arid and wet areas
- Weaker consistency with SMAP than SMOPS
- Refinement is recommended while integrating the CYGNSS into SMOPS

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Validations  
with ISMN  
observations  
from 2017 to  
2021



- **CYGNSS has weaker performance during winter**