USDA-ARS Temporary Soil Moisture Network in SMAPVEX12

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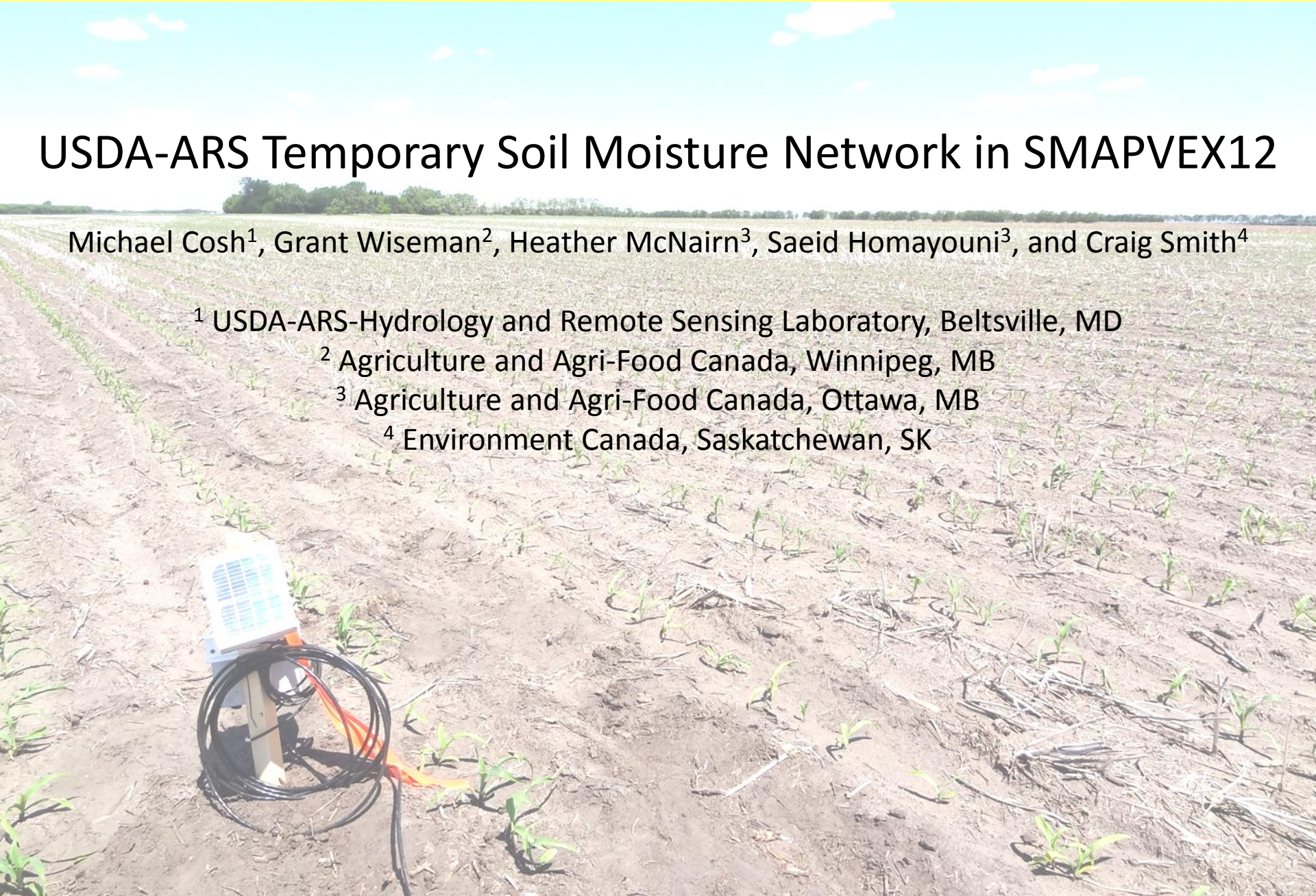
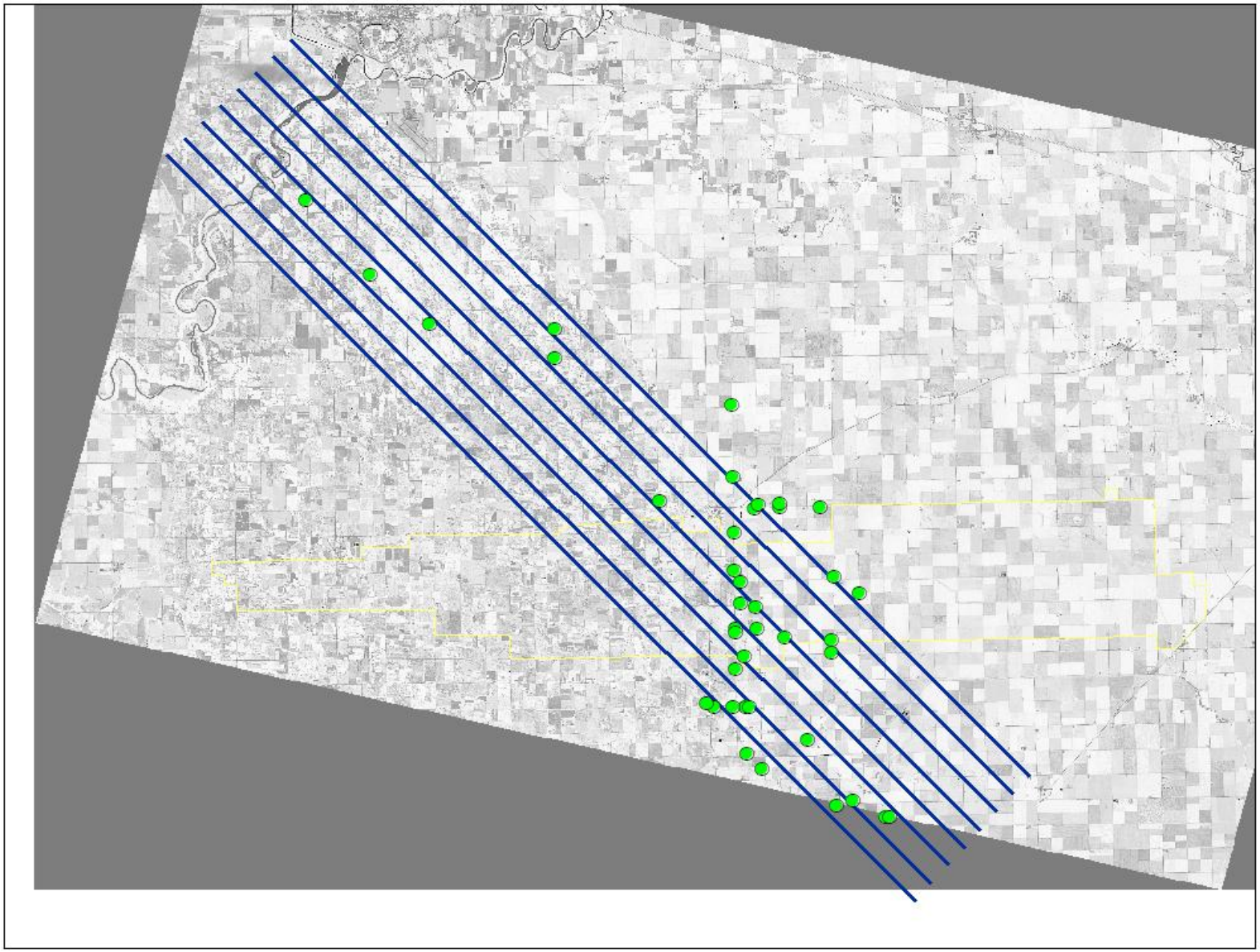


Soil Moisture Active Passive Validation Experiment 2012
SMAPVEX12

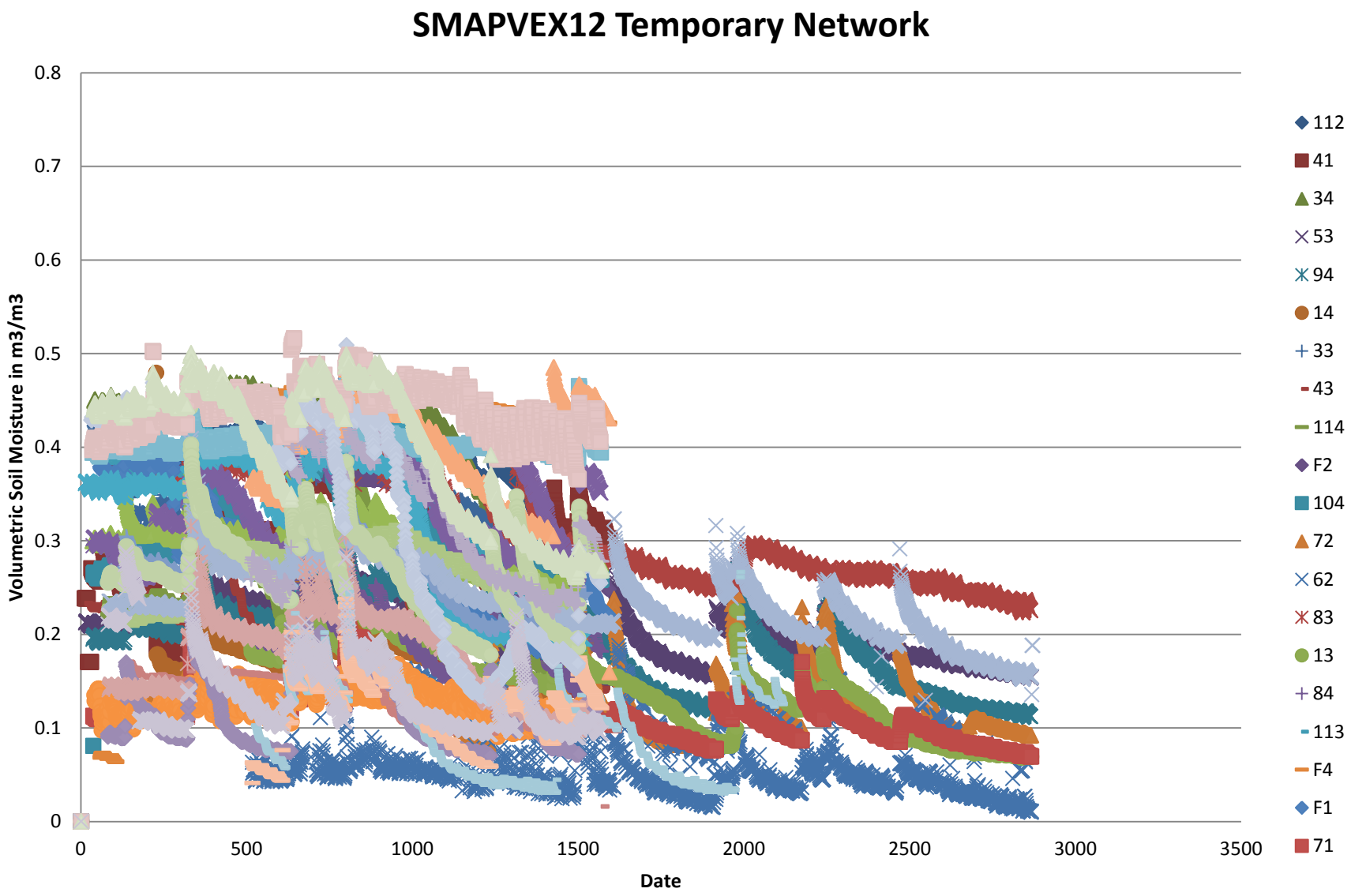


Soil Moisture Active Passive Validation Experiment 2012
SMAPVEX12

- temporary soil moisture stations were installed: USDA 40, MAFRI 4
- USDA probes at a depth of 5 cm, MAFRI probes at 5, 20, 50, 100 cm
- soil moisture and temperature recorded hourly on data loggers
- installed after seeding, removed before harvest
- over 525,000 readings during SMAPVEX

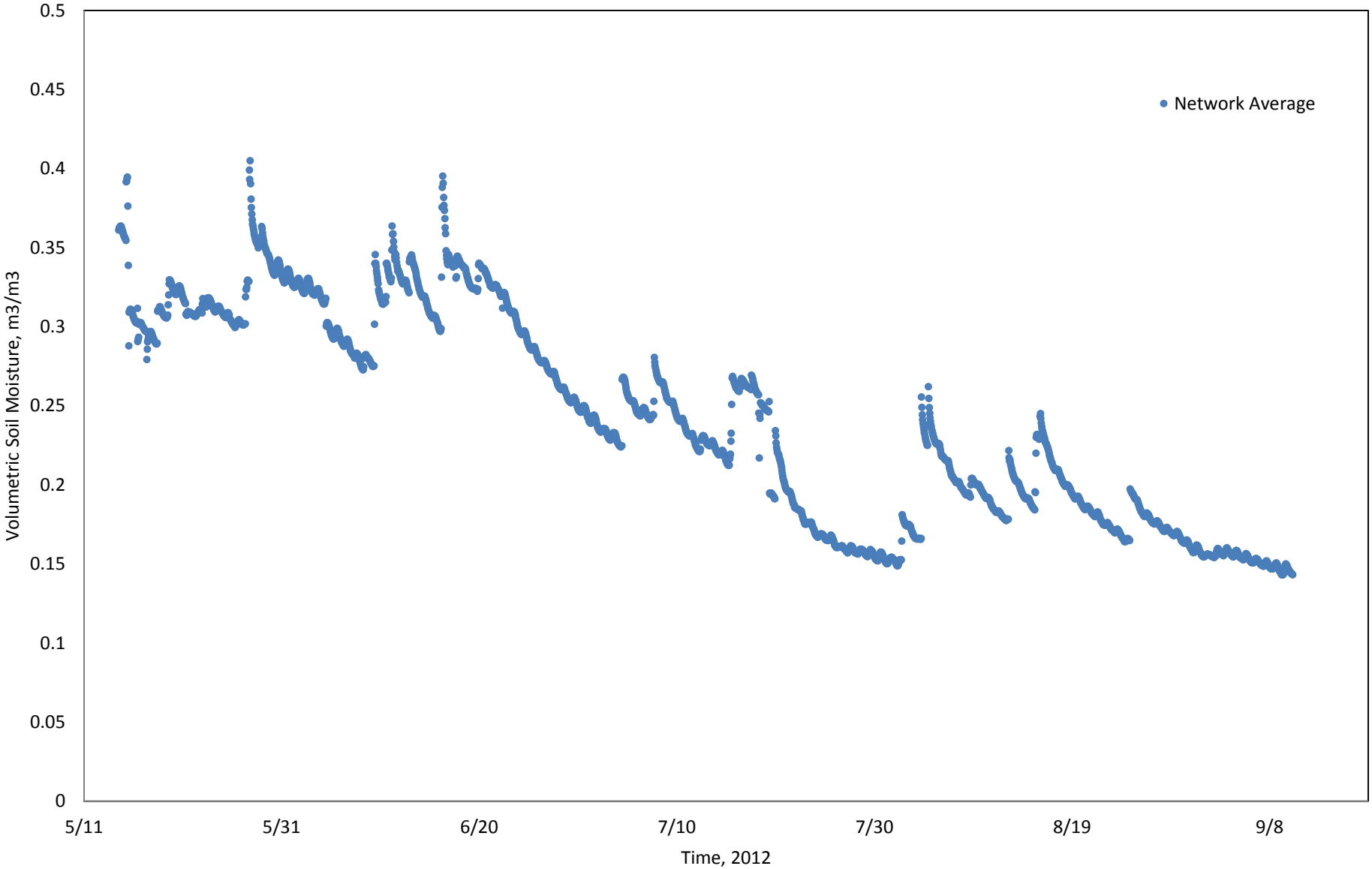
Soil Moisture Active Passive Validation Experiment 2012
SMAPVEX12

Soil Moisture Active Passive Validation Experiment 2012
SMAPVEX12

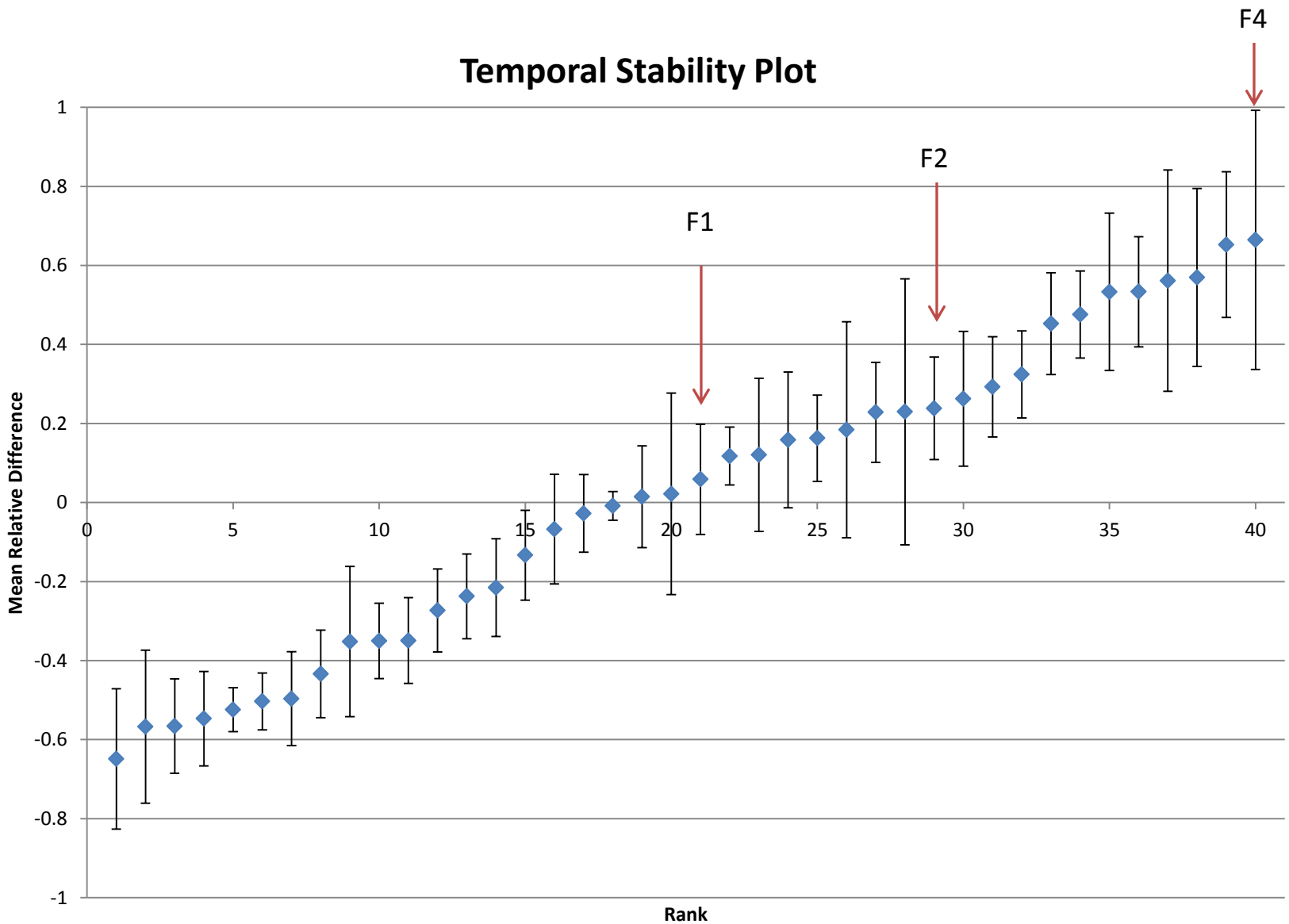


Soil Moisture Active Passive Validation Experiment 2012
SMAPVEX12

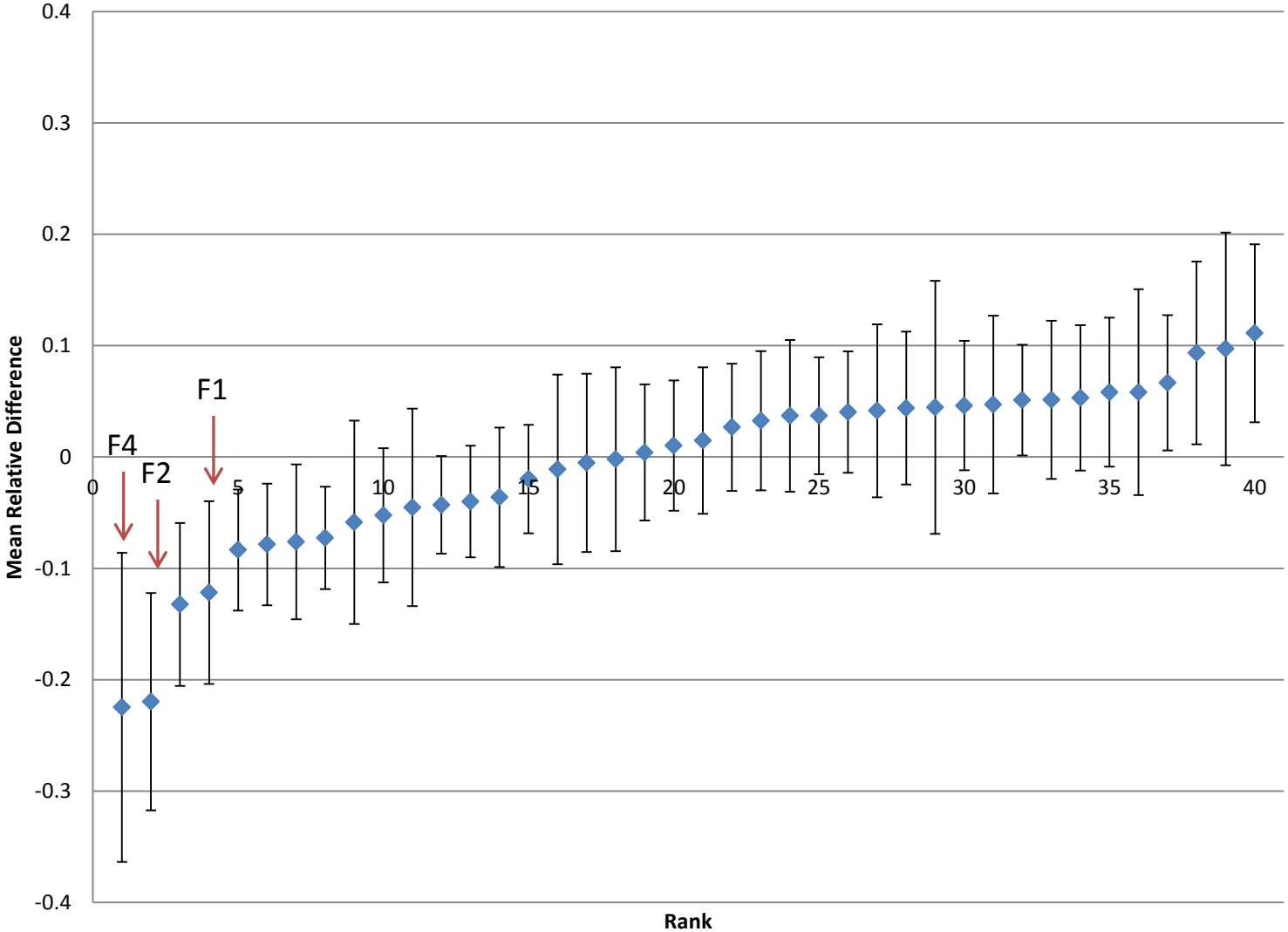
SMAPVEX12 Temporary Network



Soil Moisture Active Passive Validation Experiment 2012
SMAPVEX12

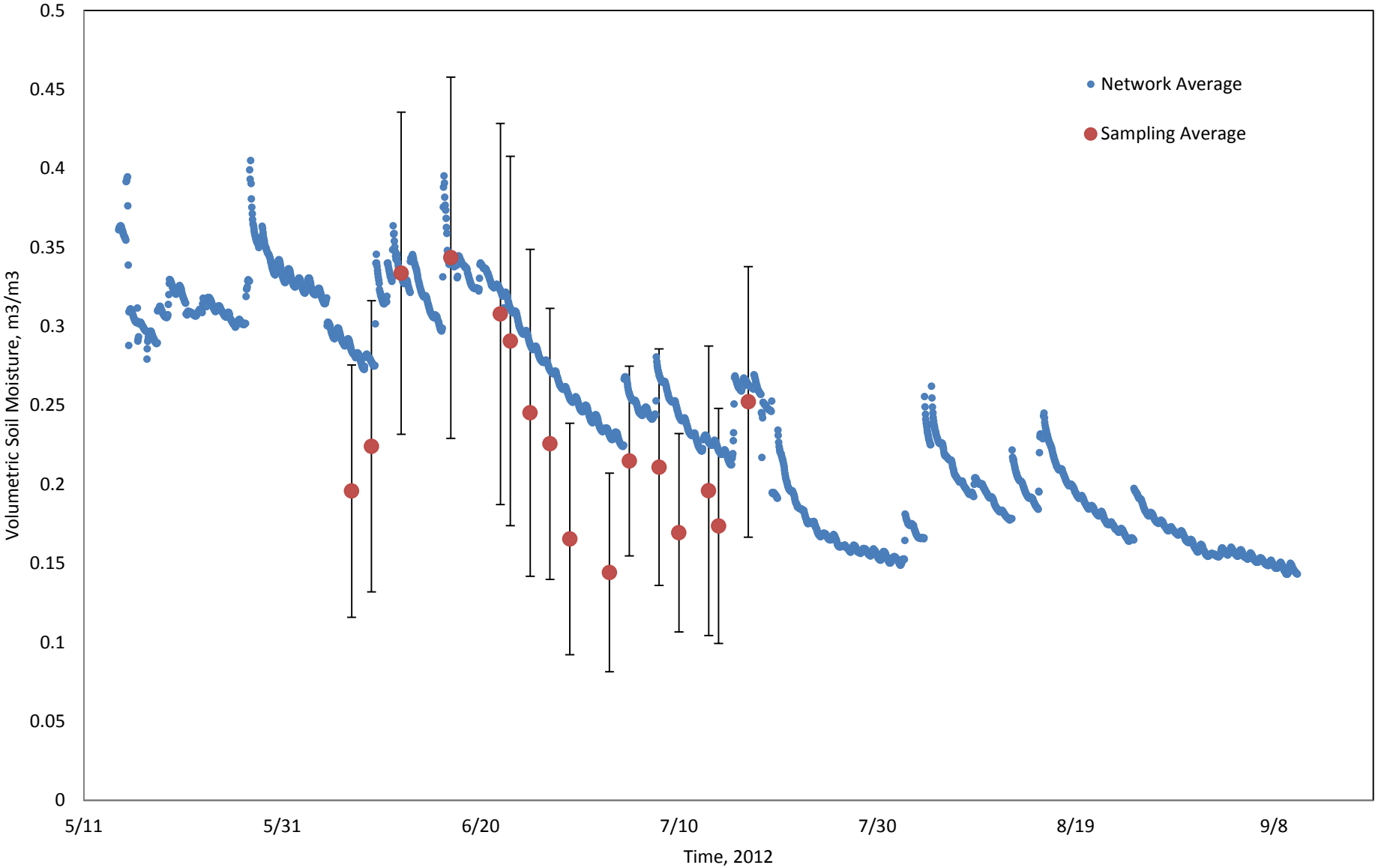


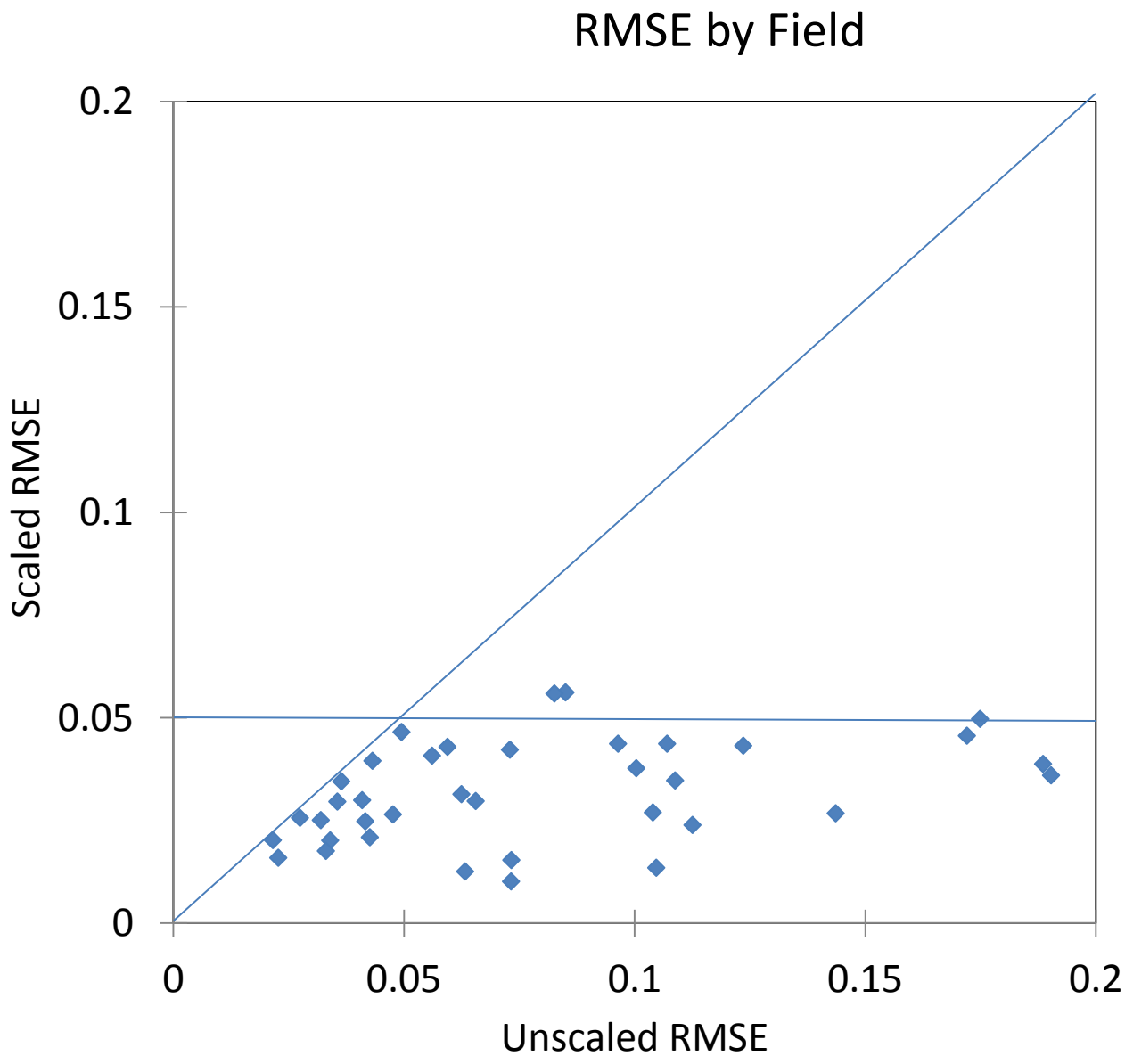
Temporal Stability of Soil Temperature



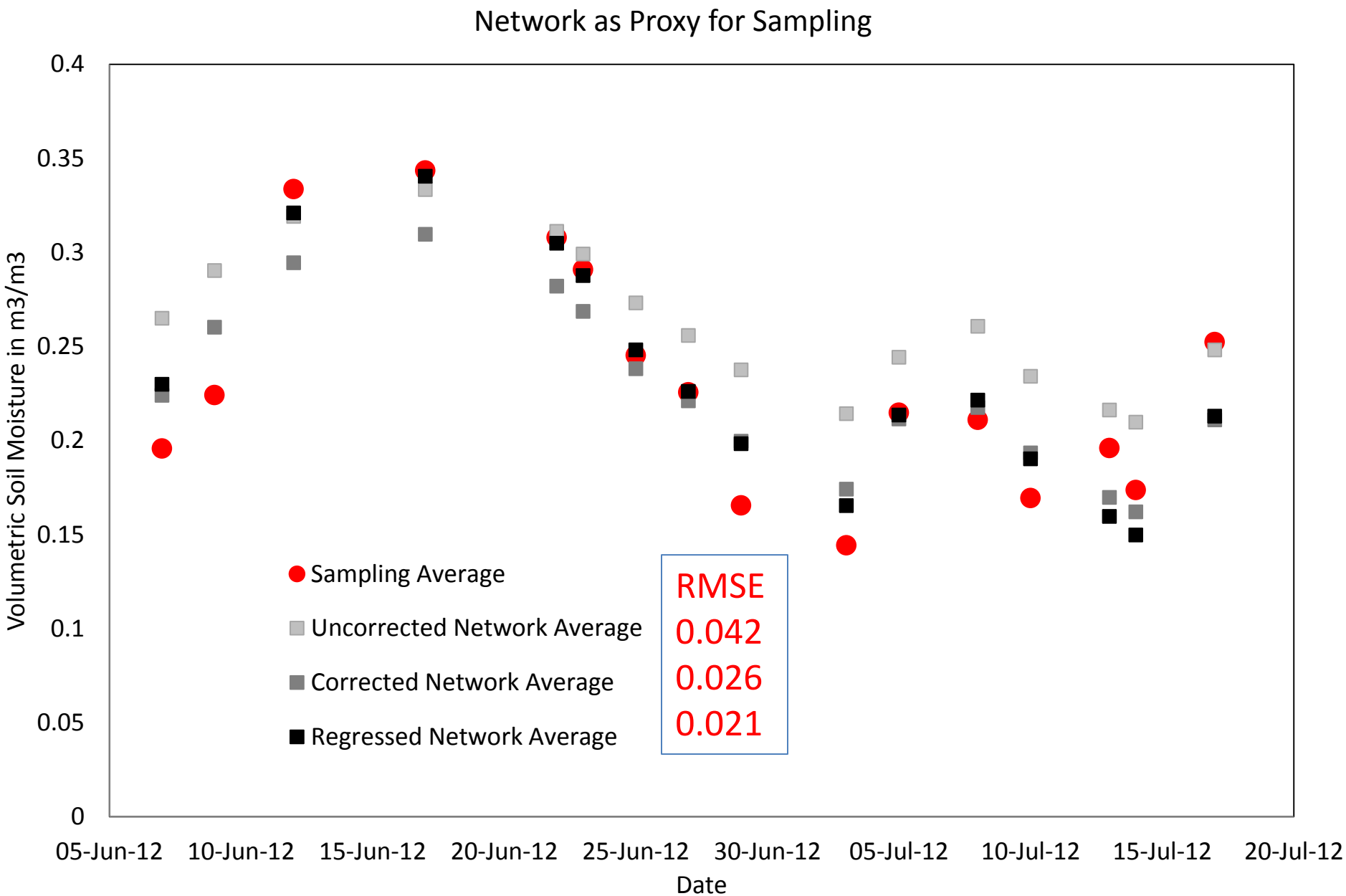
Soil Moisture Active Passive Validation Experiment 2012
SMAPVEX12

SMAPVEX12 Temporary Network




RMSE by Field
Scaled RMSE
0.2
0.15
0.1
0.05
0
0
0.05
0.1
0.15
0.2
Unscaled RMSE

Soil Moisture Active Passive Validation Experiment 2012
SMAPVEX12



Conclusions

-Temporally stable soil moisture patterns.

- Temporary Network estimates to an accuracy of 0.042 m^3/m^3 but with field scale calibration 0.026 m^3/m^3. Full scaling of the network average gives an rmse of 0.022 m^3/m^3.

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