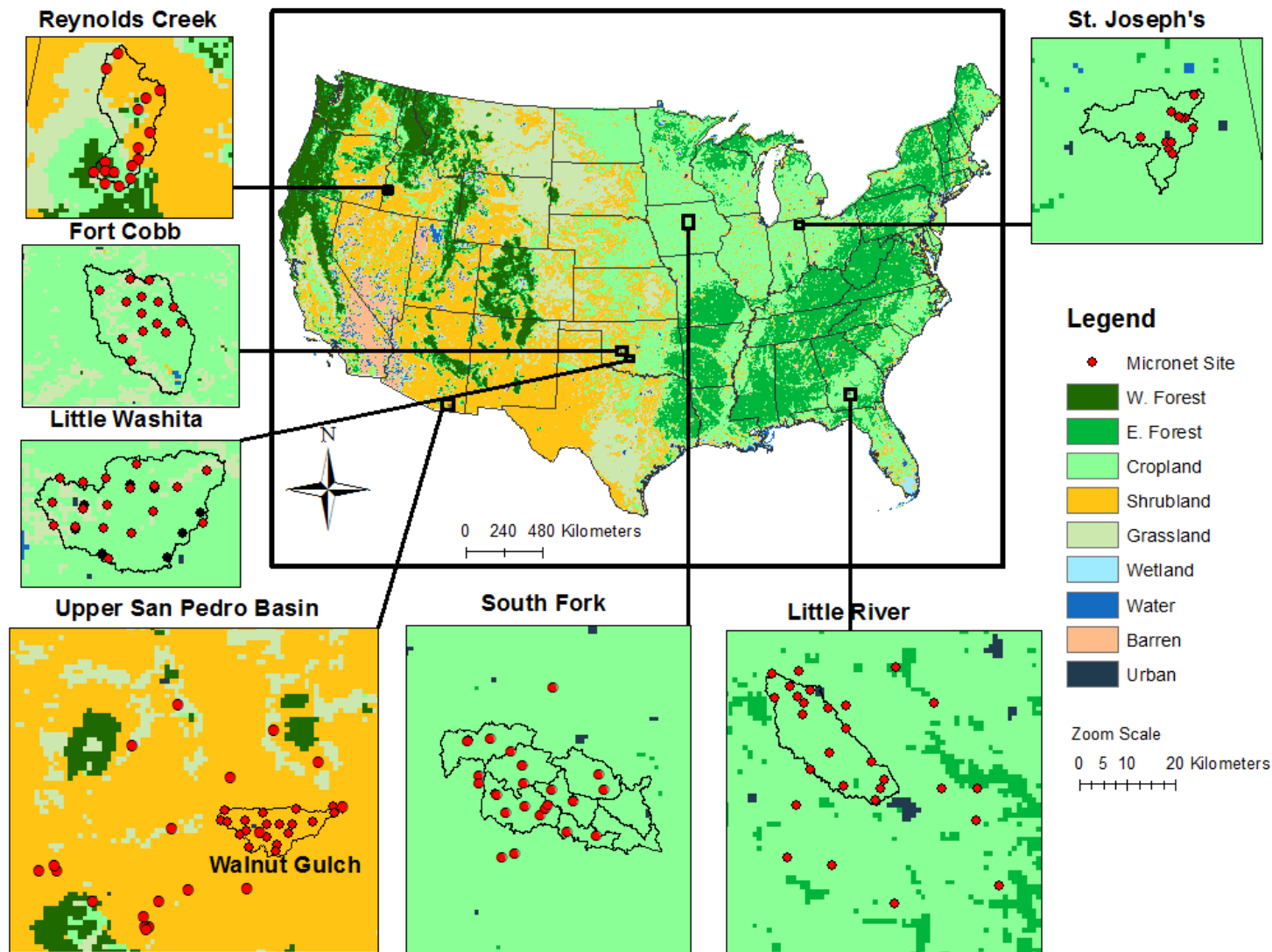


USDA-Agricultural Research Service Watershed Networks for the Calibration/Validation of SMAP



Mike Cosh, ARS USDA

HRSL-SWRC-SEWRL-NLAE-NSERL-GRL-NWRC



USDA-Agricultural Research Service Watershed Networks for the Calibration/Validation of SMAP

Watershed	Size km ²	# of Sites	Climate	Annual Precip in mm	Landscape	Topography	Latency	Met Data Available	Soil Moisture Soil Temperature Depths in cm	Large Scale Accuracy in m ³ /m ³
Little Washita, OK	610	20	Sub humid	750	Range/wheat	Rolling	Daily	Rainfall	5, 25, 45	0.010
Walnut Gulch, AZ	148/2700	19/54	Semiarid	320	Range	Rolling	Monthly	Rainfall	5, 15, 30	0.010
Little River, GA	334	33	Humid	1200	Row crop/forest	Flat	Monthly	Rainfall	5, 15, 30	<0.030
Fort Cobb, OK	813	15	Sub-humid	816	Row Crop/Range	Rolling	Daily	Rainfall	5, 25, 45	0.027*
South Fork, IA	1800	15	Humid	835	Row Crop	Flat	Monthly	Rainfall/Flux	5, 10, 20, 50	<0.040
St. Joseph's, IN	300	15	Humid	1010	Row Crop	Flat	Weekly	Rainfall	5, 20, 40, 60	N/A
Reynolds Creek, ID	238	19	Semiarid	500	Rangeland	Mountainous	> Monthly	Rainfall	5	N/A

HRSL-SWRC-SEWRL-NLAE-NSERL-GRL-NWRC

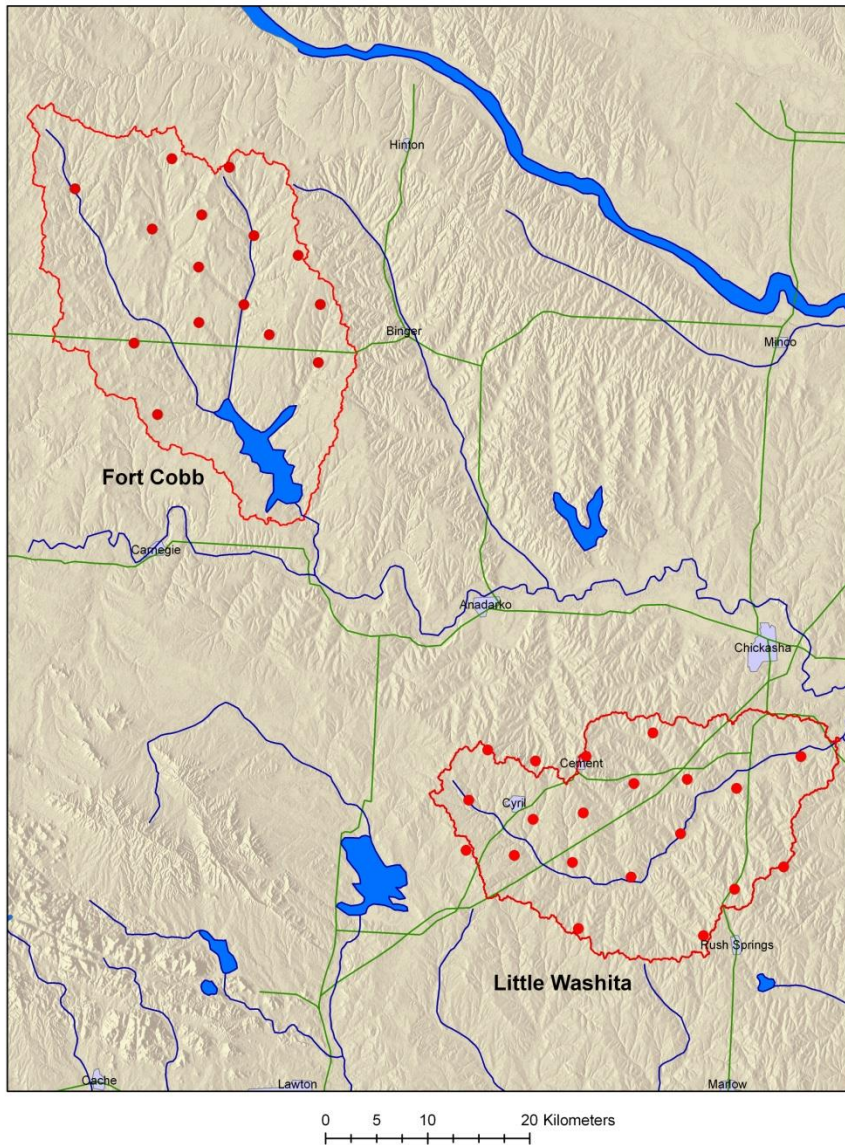


USDA-Agricultural Research Service Watershed Networks for the Calibration/Validation of SMAP

Watershed	# of Sites	Latency	Met Data Available	Soil Moisture Soil Temperature Depths in cm	Large Scale Accuracy in m ³ /m ³	Arithmetic Scaling	Voronoi (Thiessen) Scaling	Model Scaling	3 km Scale	9 km Scale	36 km Scale
Little Washita, OK	20	Daily	Rainfall	5, 25, 45	0.010	FTP	FTP	pending	-	X	X
Walnut Gulch, AZ	19/54	Monthly	Rainfall	5, 15, 30	0.010	FTP	FTP	pending	X	X	X
Little River, GA	33	Monthly	Rainfall	5, 15, 30	~0.03	FTP	FTP	pending	-	X	X
Fort Cobb, OK	15	Daily	Rainfall	5, 25, 45	~0.027	FTP	FTP	pending	-	X	X
South Fork, IA	15	Monthly	Rainfall/Flux	5, 10, 20, 50	0.023	FTP	FTP	pending	X	X	X
St. Joseph' s, IN	15	Weekly	Rainfall	5, 20, 40, 60	N/A	FTP	FTP	pending	-	X	-
Reynolds Creek, ID	19	> Monthly	Rainfall	5	N/A	FTP	FTP	pending	-	X	-

HRSL-SWRC-SEWRL-NLAE-NSERL-GRL-NWRC

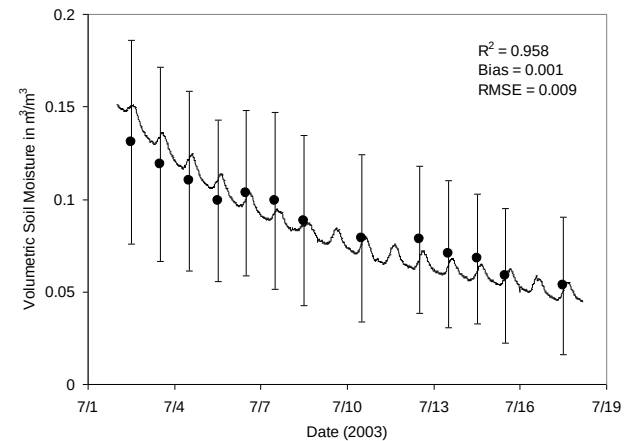
USDA-Agricultural Research Service Watershed Networks for the Calibration/Validation of SMAP



Little Washita, OK -
20 Stations @ 5, 25, 45 cm

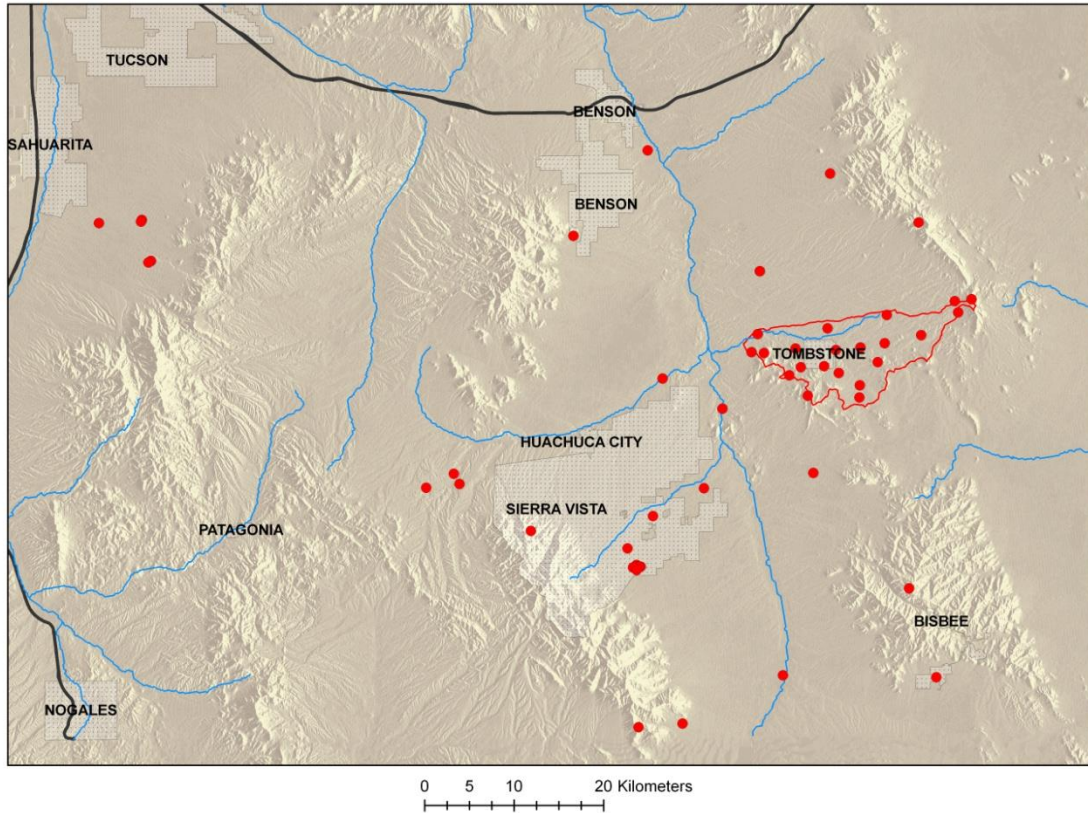
Fort Cobb, OK –
15 Stations @ 5, 25, 45 cm

Lead Scientist: Pat Starks, GRL





USDA-Agricultural Research Service Watershed Networks for the Calibration/Validation of SMAP



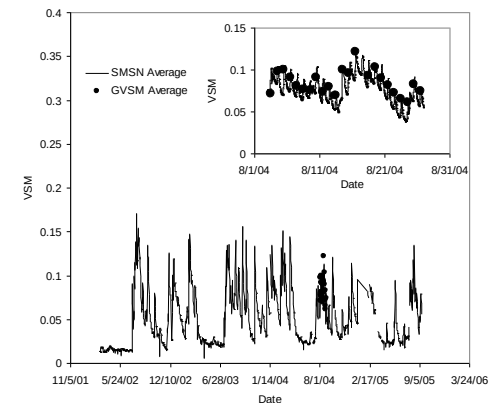
Walnut Gulch, AZ -
19 Stations @ 5, 15, 30 cm

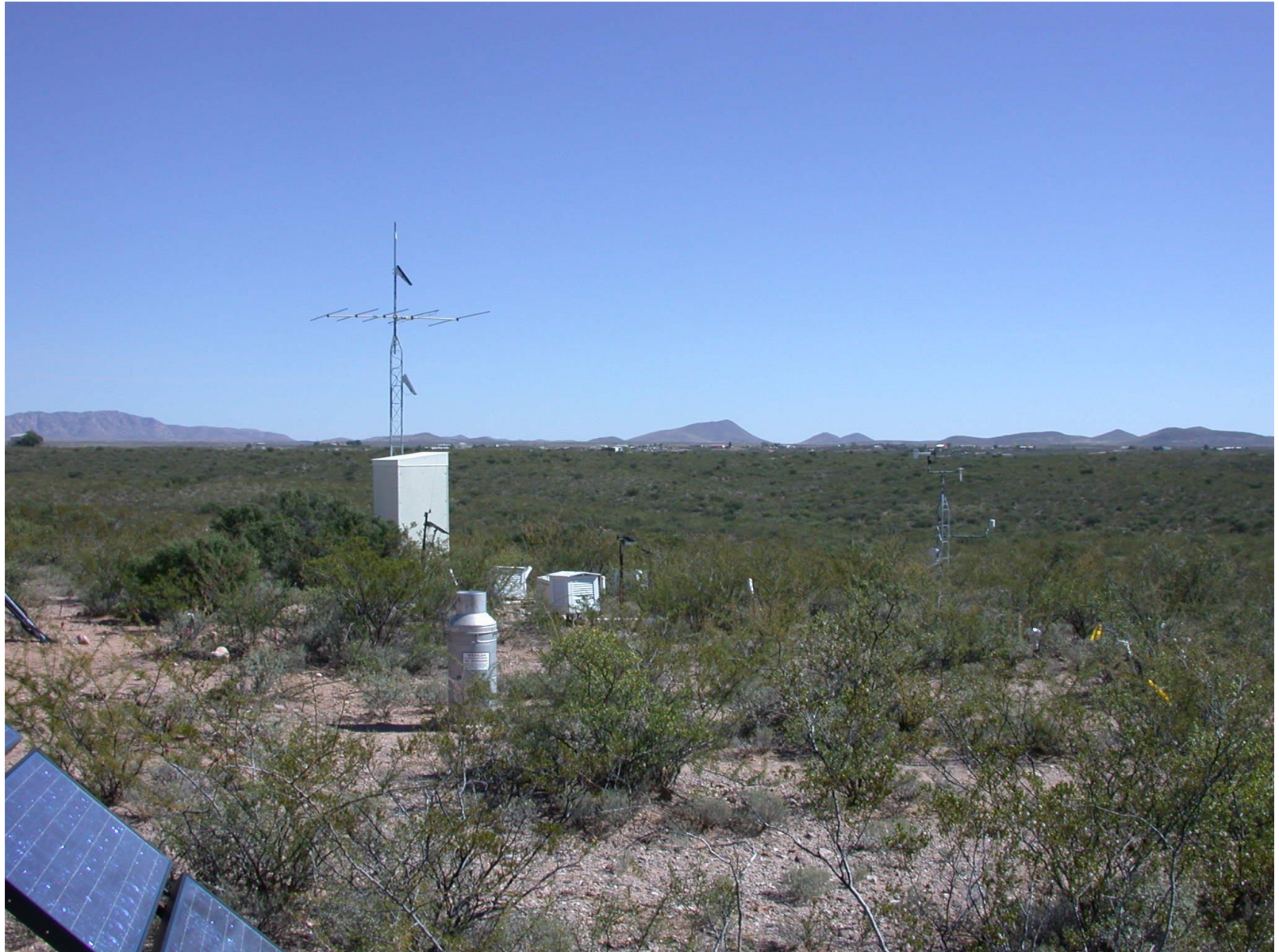
Upper San Pedro, AZ –
31 Stations @ 5, 15, 30 cm

148 & 2700 km² domain

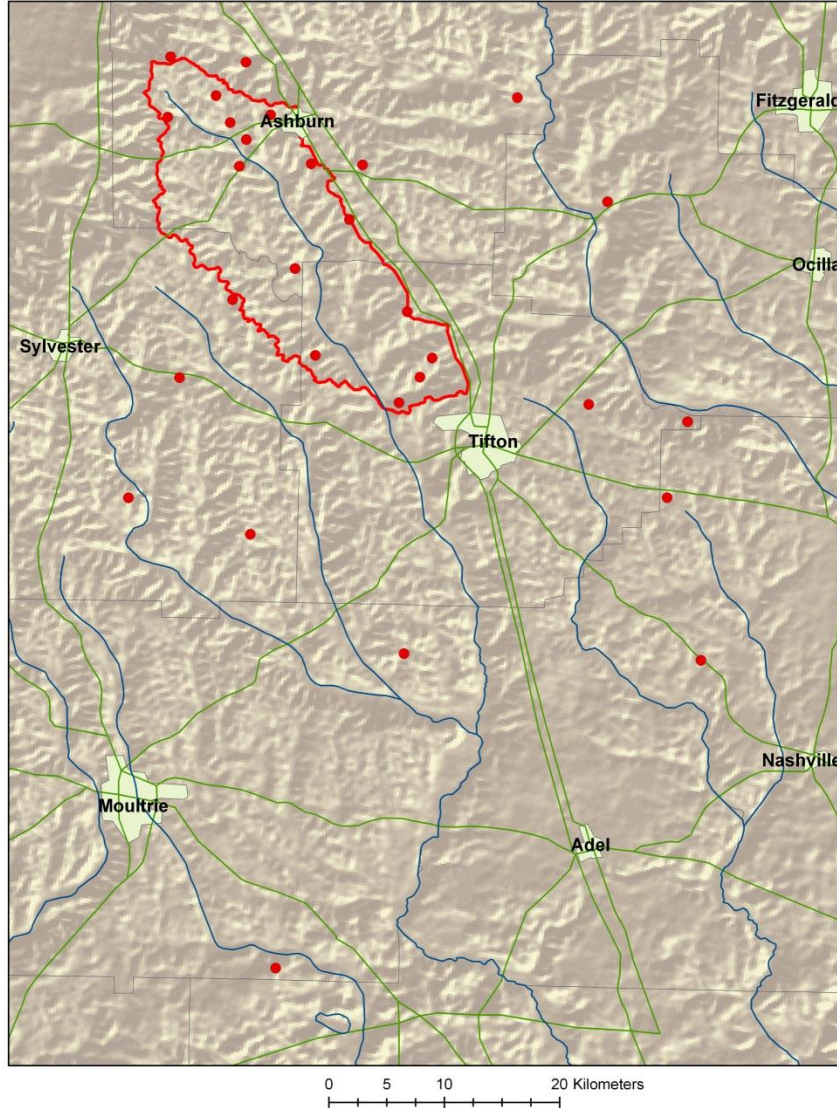
Rangeland & Shrub

Lead Scientists: Susan Moran and Dave Goodrich, SWRC





USDA-Agricultural Research Service Watershed Networks for the Calibration/Validation of SMAP



Little River, GA –
33 Stations @ 5, 15, 30 cm

334 km² domain

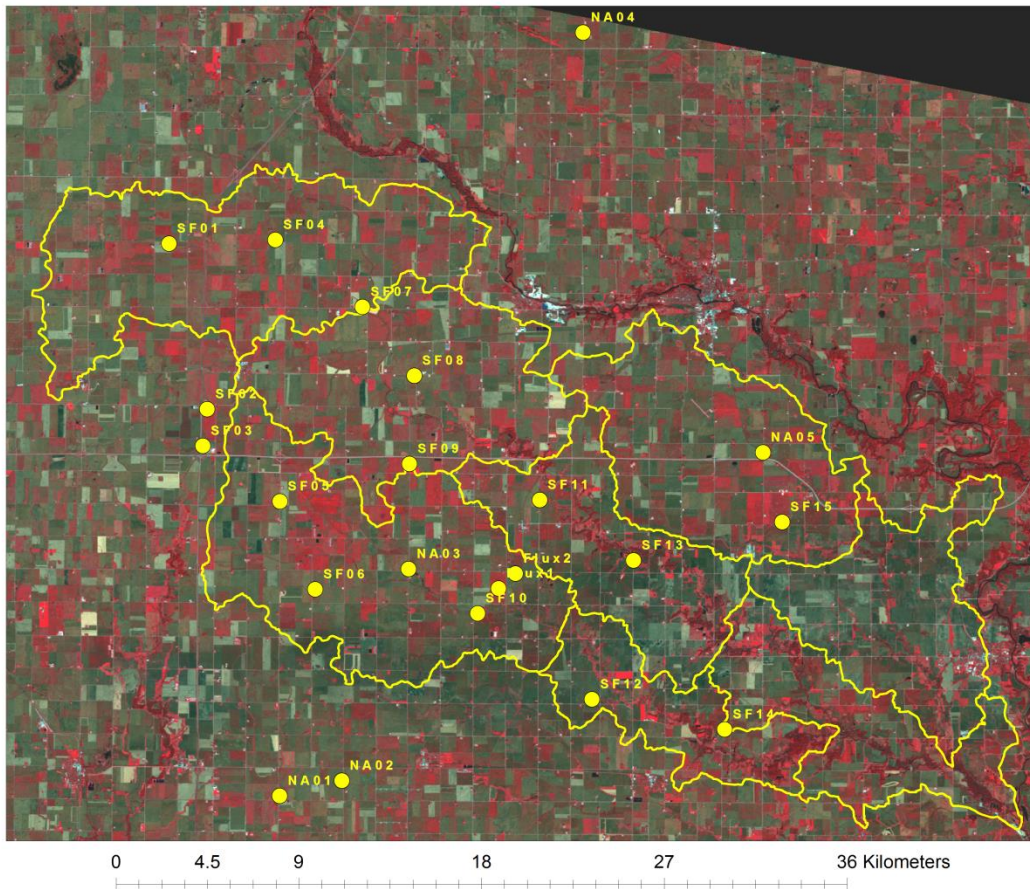
Agricultural Row Crop & Forest

Low Topography

Lead Scientists: David Bosch, SEWRL



USDA-Agricultural Research Service Watershed Networks for the Calibration/Validation of SMAP



South Fork, IA –
15 Stations @ 5, 10, 20, 50 cm

Row Crop: Corn & Soybean
Low Topography

~150 & 700 km² domains

Lead Scientists: John Prueger, NLAE
& Mike Cosh, HRSL

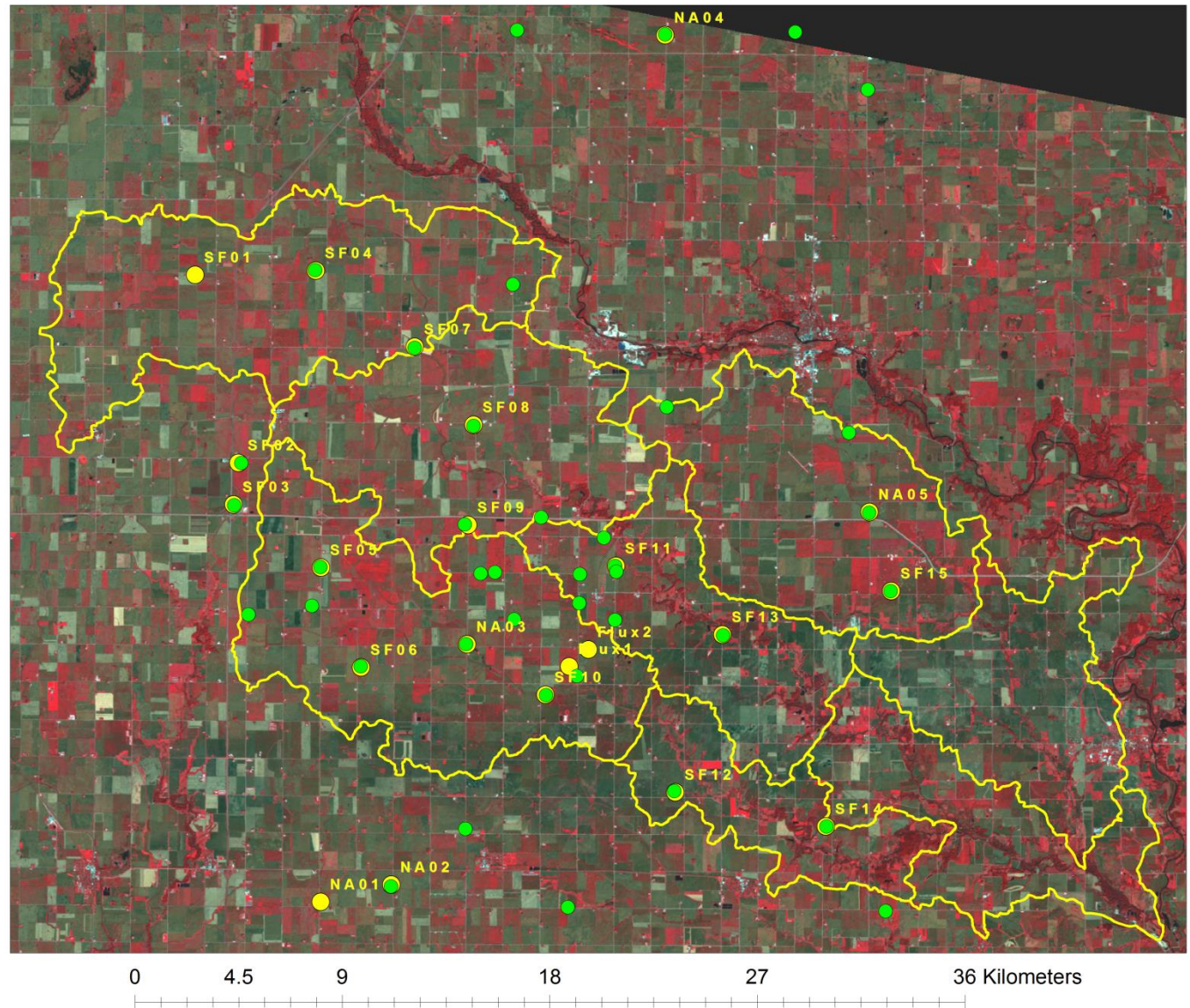


IOP

May to Sept 2014

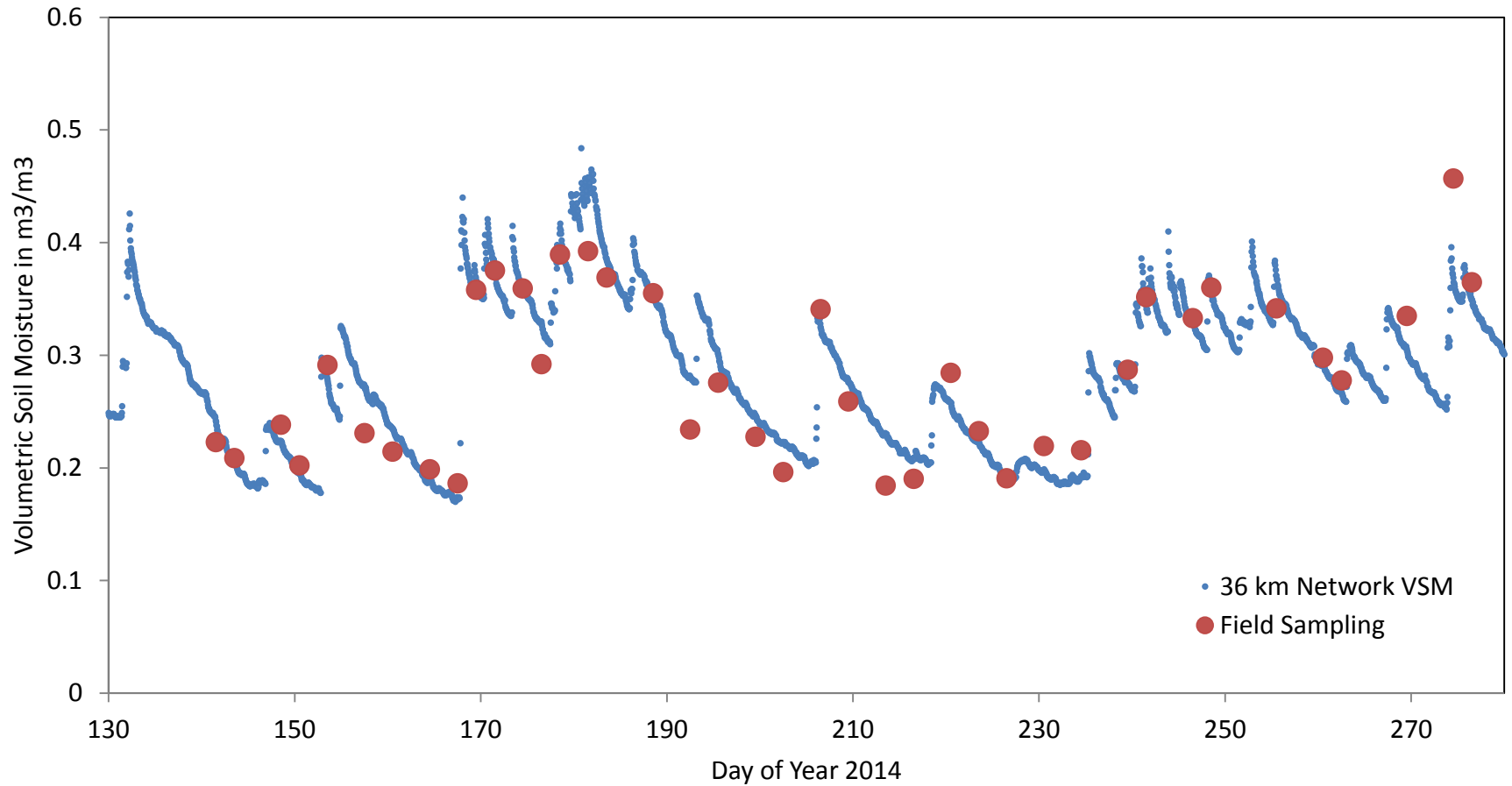
40 sites

2x week





USDA-Agricultural Research Service Watershed Networks for the Calibration/Validation of SMAP

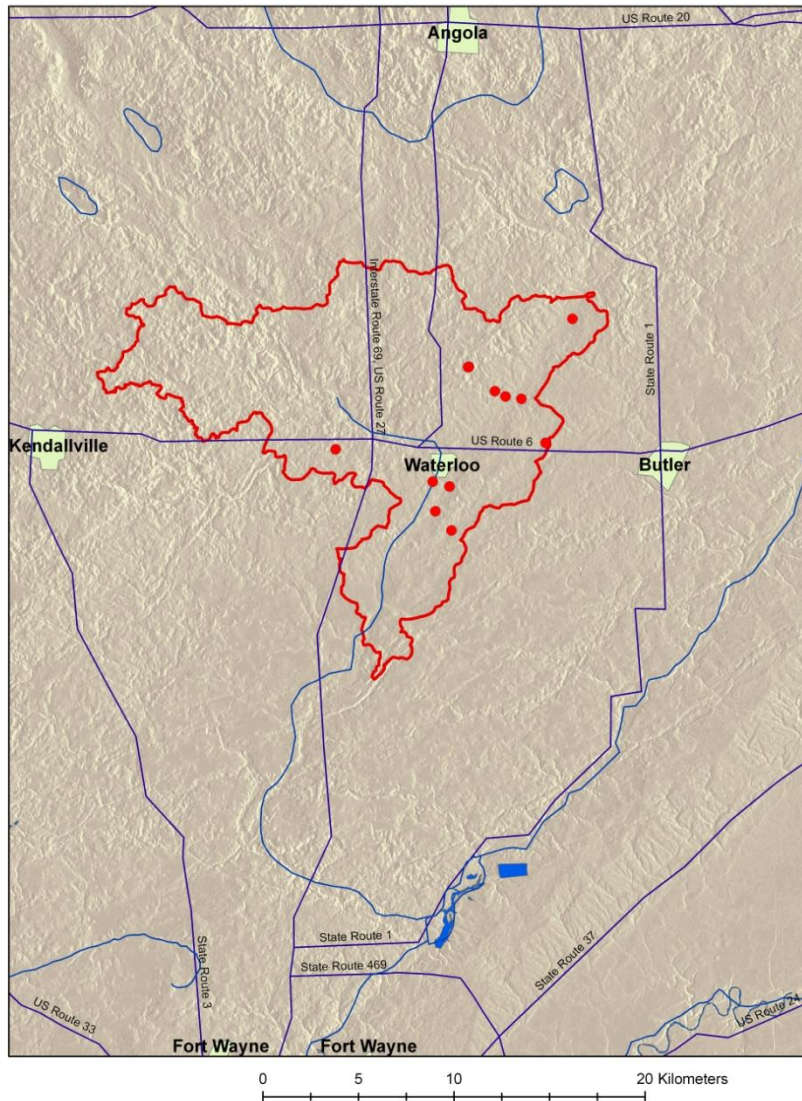


RMSE ~0.023

HRSL-SWRC-SEWRL-NLAE-NSERL-GRL-NWRC



USDA-Agricultural Research Service Watershed Networks for the Calibration/Validation of SMAP



St. Joseph's River, IN –
9 Stations @ 5, 20, 45, 60 cm

Agricultural Row Crop

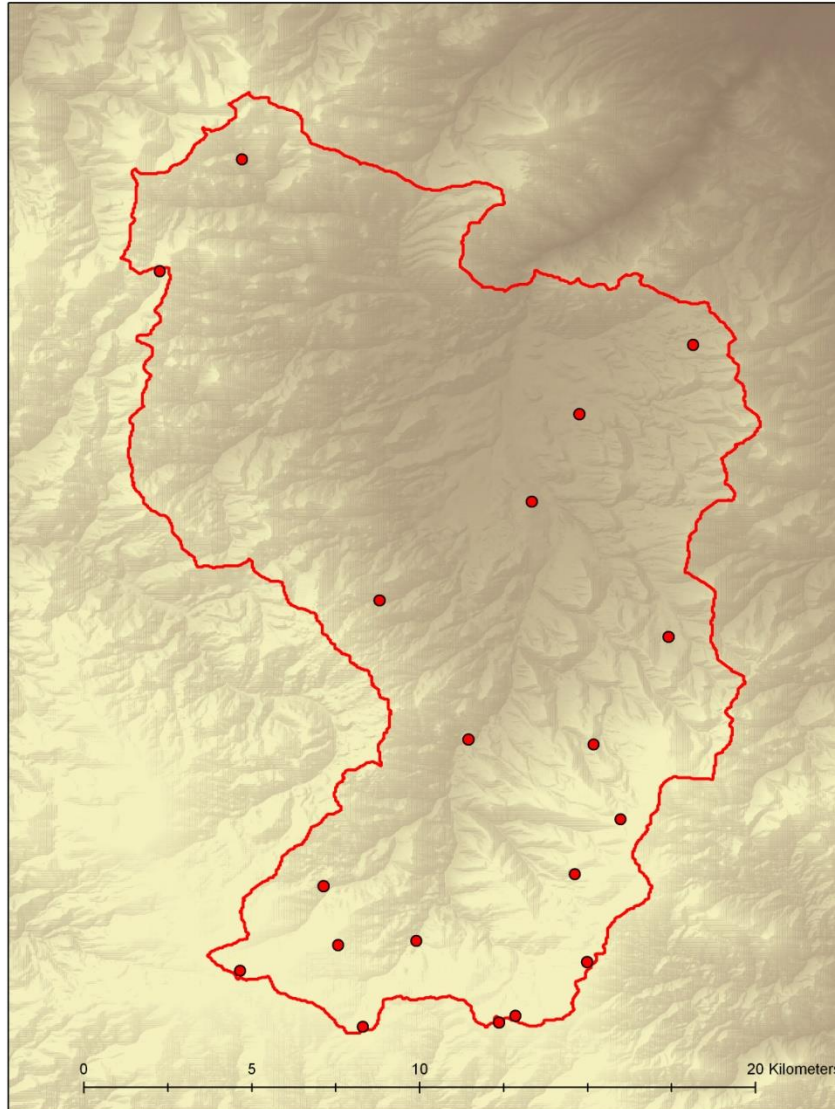
~300 km² domain

Low Topography

Lead Scientist:
Gary Heathman, NSERL
& Mike Cosh, HRSL



USDA-Agricultural Research Service Watershed Networks for the Calibration/Validation of SMAP



Reynolds Creek, ID –
19 Stations @ 5, 20, 45, 60 cm

Mountainous rangeland

~238 km² domain

High Topography

Lead Scientist:
Mark Seyfried, NWRC





USDA-Agricultural Research Service Watershed Networks for the Calibration/Validation of SMAP

Watershed	# of Sites	Latency	Met Data Available	Soil Moisture Soil Temperature Depths in cm	Large Scale Accuracy in m ³ /m ³	Arithmetic Scaling	Voronoi (Thiessen) Scaling	Model Scaling	3 km Scale	9 km Scale	36 km Scale
Little Washita, OK	20	Daily	Rainfall	5, 25, 45	0.010	FTP	FTP	pending	-	X	X
Walnut Gulch, AZ	19/54	Monthly	Rainfall	5, 15, 30	0.010	FTP	FTP	pending	X	X	X
Little River, GA	33	Monthly	Rainfall	5, 15, 30	~0.030	FTP	FTP	pending	-	X	X
Fort Cobb, OK	15	Daily	Rainfall	5, 25, 45	~0.027	FTP	FTP	pending	-	X	X
South Fork, IA	15	Monthly	Rainfall/Flux	5, 10, 20, 50	0.023	FTP	FTP	pending	X	X	X
St. Joseph' s, IN	15	Weekly	Rainfall	5, 20, 40, 60	N/A	FTP	FTP	pending	-	X	-
Reynolds Creek, ID	19	> Monthly	Rainfall	5	N/A	FTP	FTP	pending	-	X	-

HRSL-SWRC-SEWRL-NLAE-NSERL-GRL-NWRC