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

Mike Cosh (USDA)

May 5, 2011

HRSL-SWRC-SEWRL-NLAE-NSERL-GRL-NWRC
<table>
<thead>
<tr>
<th>Watershed</th>
<th>Size km²</th>
<th># of Sites</th>
<th>Climate</th>
<th>Annual Precip in mm</th>
<th>Landscape</th>
<th>Topography</th>
<th>Latency</th>
<th>Met Data Available</th>
<th>Soil Moisture Soil Temperature Depths in cm</th>
<th>Large Scale Accuracy in m³/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little Washita, OK</td>
<td>610</td>
<td>20</td>
<td>Sub humid</td>
<td>750</td>
<td>Range/wheat</td>
<td>Rolling</td>
<td>Daily</td>
<td>Rainfall</td>
<td>5, 25, 45</td>
<td>0.010</td>
</tr>
<tr>
<td>Walnut Gulch/Upper San Pedro, AZ</td>
<td>148/2700</td>
<td>21</td>
<td>Semiarid</td>
<td>320</td>
<td>Range</td>
<td>Rolling</td>
<td>Monthly</td>
<td>Rainfall</td>
<td>5, 15, 30</td>
<td>0.010</td>
</tr>
<tr>
<td>Little River, GA</td>
<td>334</td>
<td>33</td>
<td>Humid</td>
<td>1200</td>
<td>Row crop/forest</td>
<td>Flat</td>
<td>Monthly</td>
<td>Rainfall</td>
<td>5, 15, 30</td>
<td>N/A</td>
</tr>
<tr>
<td>Fort Cobb, OK</td>
<td>813</td>
<td>15</td>
<td>Sub-humid</td>
<td>816</td>
<td>Row Crop/Range</td>
<td>Rolling</td>
<td>Daily</td>
<td>Rainfall</td>
<td>5, 25, 45</td>
<td>0.027*</td>
</tr>
<tr>
<td>Walnut Creek/South Fork, IA</td>
<td>1800</td>
<td>9 &amp; 6</td>
<td>Humid</td>
<td>835</td>
<td>Row Crop</td>
<td>Flat</td>
<td>Monthly</td>
<td>Rainfall/Flux</td>
<td>5</td>
<td>N/A</td>
</tr>
<tr>
<td>St. Joseph’s, IN</td>
<td>300</td>
<td>9+</td>
<td>Humid</td>
<td>1010</td>
<td>Row Crop</td>
<td>Flat</td>
<td>Weekly</td>
<td>Rainfall</td>
<td>5, 20, 40, 60</td>
<td>N/A</td>
</tr>
<tr>
<td>Reynolds Creek, ID</td>
<td>238</td>
<td>19</td>
<td>Semiarid</td>
<td>500</td>
<td>Rangeland</td>
<td>Mountainous</td>
<td>&gt; Monthly</td>
<td>Rainfall</td>
<td>5</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**HRSL-SWRC-SEWRL-NLAE-NSERL-GRL-NWRC**
Little Washita, OK -
20 Stations @ 5, 25, 45 cm

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

Lead Scientist: Pat Starks, GRL

\[ R^2 = 0.958 \]
\[ \text{Bias} = 0.001 \]
\[ \text{RMSE} = 0.009 \]
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
Little River, GA –
33 Stations @ 5, 15, 30 cm
334 km² domain
Agricultural Row Crop & Forest
Low Topography

Lead Scientists: David Bosch, SEWRL

HRSL-SWRC-SEWRL-NLAE-NSERL-GRL-NWRC
Walnut Creek, IA –
9 Temporary Sites @ 5 cm
South Fork, IA –
6 Stations @ 5, 50 cm
Row Crop: Corn & Soybean
Low Topography
~150 & 700 km² domains

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

HRSL-SWRC-SEWRL-NLAE-NSERL-GRL-NWRC
Reynolds Creek, ID –
19 Stations @ 5, 20, 45, 60 cm
Mountainous rangeland
~238 km² domain
High Topography
Lead Scientist:
Mark Seyfried, NWRC