

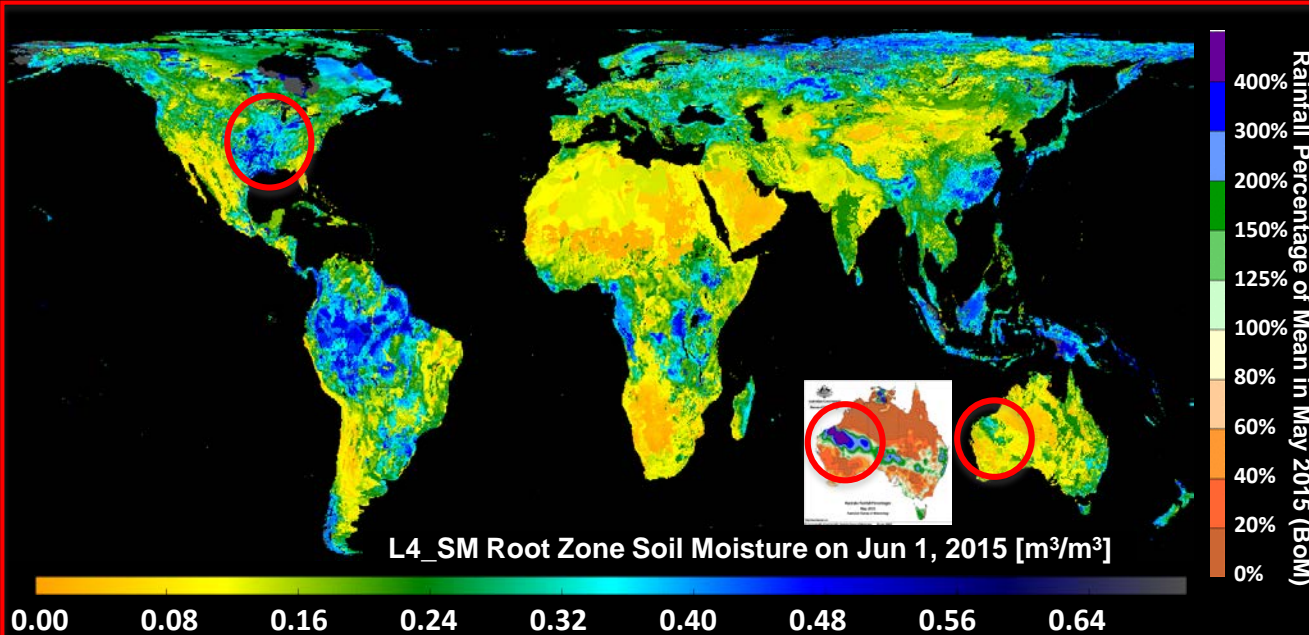


# SMAP Level 4 Surface and Root Zone Soil Moisture (L4\_SM)

Merging SMAP observations into the GEOS-5 land data assimilation system to estimate root zone soil moisture.

The L4\_SM data product offers:

- Global coverage
- 9 km resolution
- 3-hourly frequency
- ~2.5-day latency



L4\_SM root zone soil moisture on Jun 1, 2015 captures exceptionally wet conditions in Texas, Oklahoma, Kansas and parts of the US Midwest resulting from record rainfalls during May 2015. Also shown is an unusual soil moisture gradient in Western Australia, which is consistent with locally observed rainfall percentages for May 2015 (inset).

Soil Moisture Layer	Horiz. Scale	Number of Reference Pixels	ubRMSE [ $\text{m}^3 \text{m}^{-3}$ ]	
			L4_SM	95% Conf. Interval
Surface	9 km	17	0.036	0.020
	36 km	10	0.031	0.017
Root Zone	9 km	8	0.023	0.032
	36 km	6	0.024	0.042

Initial validation vs in situ data indicates that L4\_SM surface & root zones soil moisture meets the mission accuracy requirement (unbiased RMSE  $< 0.04 \text{ m}^3/\text{m}^3$ ).

References:

<http://gmao.gsfc.nasa.gov>  
<http://nsidc.org/data/smap>