

# Relative merits recognition of nine mainstream satellite-based soil moisture products at the global scale

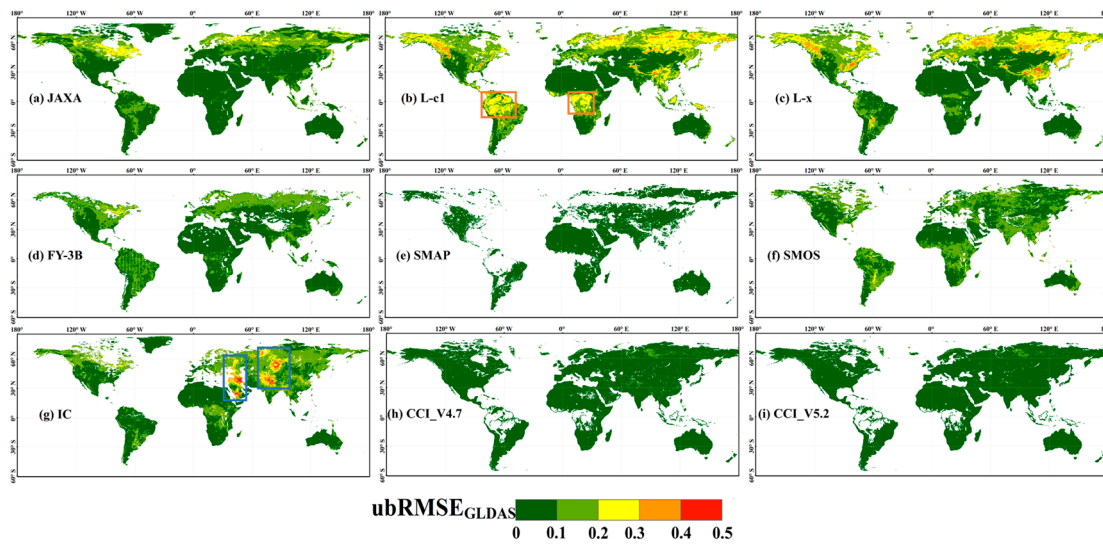
**Table S1** List of soil moisture evaluation sites at the global scale adopted in this study.

Network	Country	Continent	Station Number	Depth used (cm)	References/links
North America	USA	North America	35	2.5-10	Cook, 2016
BNZ-LTER	Alaska		12	5-10	<a href="http://www.lter.uaf.edu/">http://www.lter.uaf.edu/</a>
FLUXNET-AMERIFLUX	USA		8	0-10	<a href="http://ameriflux.lbl.gov/">http://ameriflux.lbl.gov/</a>
SCAN	USA		239	5-10	Schaefer et al., 2007
SNOTEL	USA		441	5-10	Leavesley et al., 2008
SOILSCAPE	USA		171	4-10	Moghaddam et al., 2010
USCRN	USA		115	5-10	Bell et al., 2013
RISMA	USA		25	0-10	Ojo et al., 2015
COSMOS	USA	North America/Europe /South America/Africa/ Australia	109	0-10	Zreda et al., 2008
PBO_H2O	USA	North America/South America/Africa	159	0-5	Kristine et al., 2008
BIEBRZA_S-1	Poland	Europe	30	5-10	Musial et al., 2016
FR_Aqui	France		5	1-10	Wigneron et al., 2018
HOBE	Denmark		32	0-5	Bircher et al., 2012
REMEDHUS	Spain		24	0-5	Gonzalez-Zamora et al., (2018)
RSMN	Romania		20	0-5	<a href="http://assimo.meteoromania.ro">http://assimo.meteoromania.ro</a>
SMOSMANIA	France		23	5-10	Calvet et al., 2016
TERENO	Germany		5	5	Zacharias et al., 2011
CTP_SMTMN	China	Asia	57	0-10	Yang et al., 2013

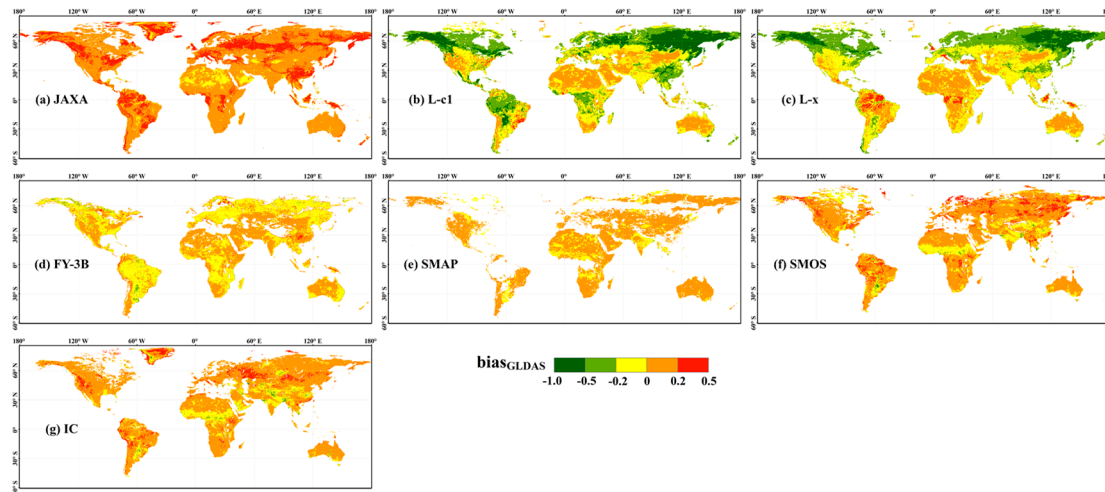
LAB-net	Chile	South America	4	7-10	Mattar et al., 2016
OZNET	Australia	Australia	38	0-8	Smith et al., 2012

**Table S2** The IGBP land cover classification.

Subclass	IGBP legend	Acronym	Class
Evergreen Needleleaf Forests	1	ENF	Forest
Evergreen Broadleaf Forests	2	EBF	
Deciduous Needleleaf Forests	3	DNF	
Deciduous Broadleaf Forests	4	DBF	
Mixed Forests	5	MF	
Closed Shrublands	6	CS	Shrublands
Open Shrublands	7	OS	
Woody Savannas	8	WS	Woodlands
Savannas	9	SA	
Grasslands	10	GR	Grasslands
Permanent Wetlands	11	PW	/
Croplands	12	CR	Croplands
Cropland/Natural Vegetation Mosaics	14	CNVM	
Urban and Built-up Lands	13	UBL	Unvegetated
Permanent Snow and Ice	15	PSI	
Barren	16	BA	
Water Bodies	0	WB	/
Unclassified	255	UC	/



**Fig. S1.** Spatial distribution of ubRMSE ( $\text{m}^3/\text{m}^3$ ) against GLDAS for each product. The regions with distinct spatial patterns were outlined with orange boxes for Lc1 and blue boxes for IC.



**Fig. S2.** Same as Fig. S1, but for bias ( $\text{m}^3/\text{m}^3$ ).

## References Supplementary

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