

Data sets used for the evaluation	Source	Associated metrics
In situ measurements of soil moisture (USCRN; Bell et al., 2013)	https://www.ncdc.noaa.gov/crn	R (on both volumetric and anomaly time series) ubRMSD
In situ measurements of streamflow (USGS)	https://nwis.waterdata.usgs.gov/nwis	Nash–Sutcliffe efficiency (NSE), normalized information contribution (NIC) based on NSE, ratio of simulated and observed streamflow (Q)
In situ measurements of snow depth (GHCN; Menne et al., 2012a, b)	https://www.ncdc.noaa.gov/climate-monitoring/	R , bias and ubRMSD
In situ measurements of sensible and latent heat fluxes (FLUXNET-2015)	http://fluxnet.fluxdata.org/data/fluxnet2015-dataset/	R , RMSD
Satellite-derived surface soil moisture (ESA CCI SSM v4, Dorigo et al., 2015, 2017)	http://www.esa-soilmoisture-cci.org	R (on both volumetric and anomaly time series)
Satellite-derived leaf area index (GEOV1; Baret et al., 2013)	http://land.copernicus.eu/global/	R and RMSD
Satellite-driven model estimates of land evapotranspiration (GLEAM; Martens et al., 2017)	http://www.gleam.eu	R and RMSD
Upscaled estimates of gross primary production (GPP; Jung et al., 2017)	https://www.bgc-jenna.mpg.de/geodb/projects/Home.php	R and RMSD