

Supplementary Figures and Tables

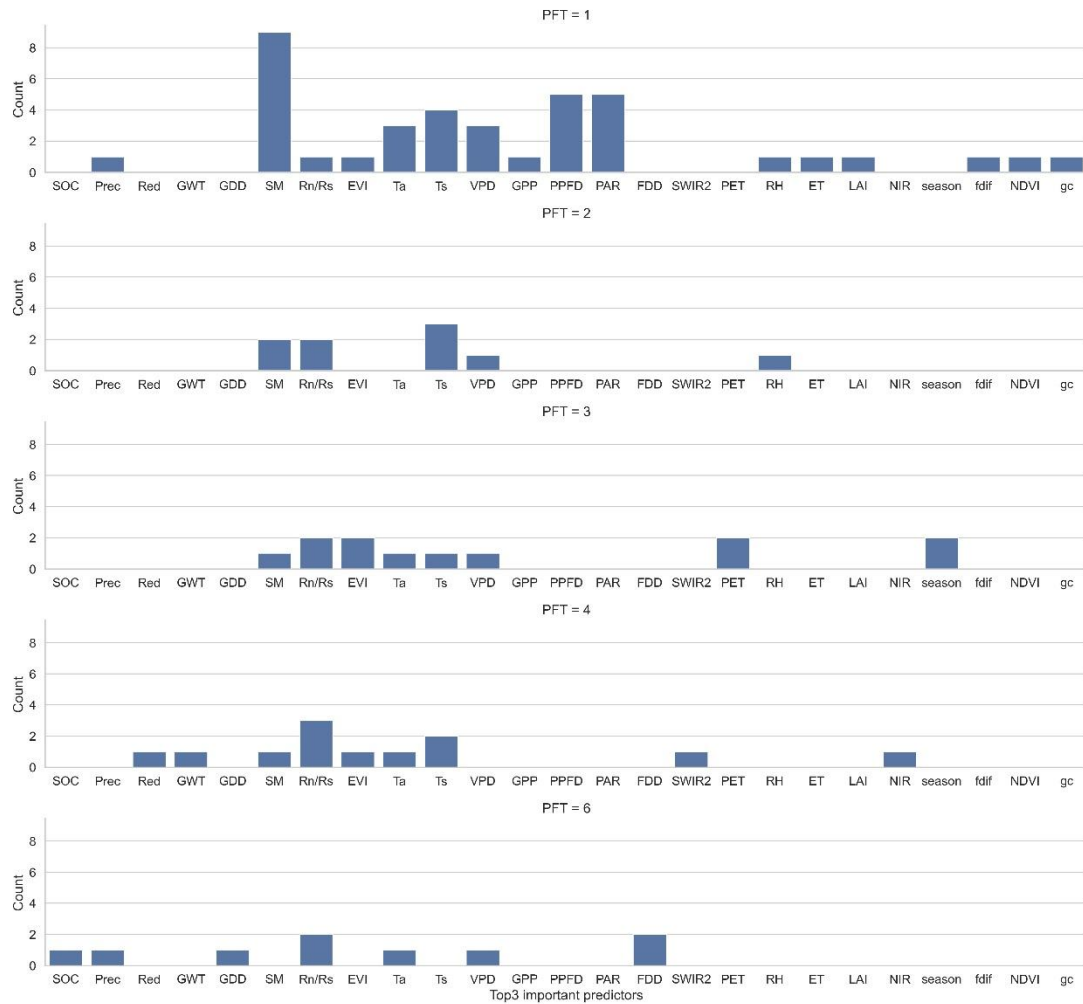


Figure S1. Counts of variables ranked in the top three for importance in different PFTs (1-forest, 2-grassland, 3-cropland, 4-wetland, 6-tundra). Predictors: growing degree days (GDD), freezing degree days (FDD), soil organic content (SOC), precipitation (Prec), red band (Red), groundwater table depth (GWT), growing degree days (GDD), soil moisture (SM), net radiation/solar radiation (Rn/Rs), Enhanced vegetation index (EVI), air temperature (Ta), soil temperature (Ts), vapor-pressure deficit (VPD), gross primary productivity (GPP), photosynthetic photon flux density (PPFD), photosynthetically active radiation (PAR), freezing degree days (FDD), short-wave infrared band (SWIR2), potential evapotranspiration (PET), relative humidity (RH), evapotranspiration (ET), leaf area index (LAI), the near-infrared band (NIR), the diffuse fraction (fdir), canopy conductance (gc).

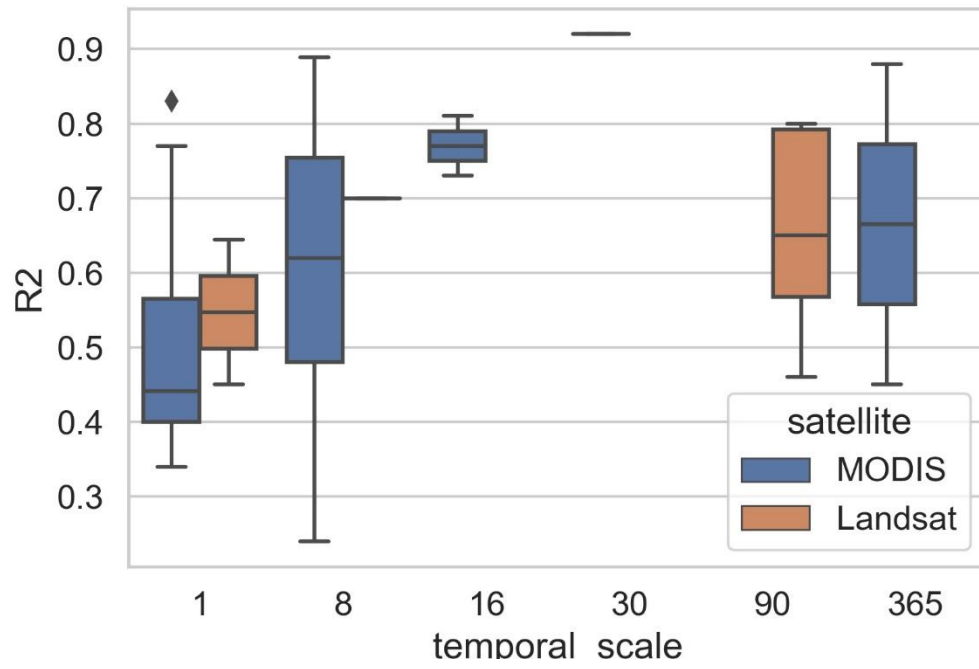


Figure S2. The performance of the models with MODIS and Landsat data used across temporal scales.

Table S1. Journal filters for quality control of studies.

Agriculture/Forestry Journals	Hydrology/Meteorology Journals	Biology/Ecology Journals	Remote Sensing Journals	Other Journals
Agricultural and Forest Meteorology, Agriculture Ecosystems and Environment, Agricultural Water Management	Journal of Hydrology, Journal of Hydrometeorology, Agricultural Water Management, Hydrological Processes, Hydrology and Earth System Sciences, Advances in Water Resources, Journal of Geophysical Research Atmospheres, Water Resources Research, Atmospheric Chemistry and Physics	Biogeosciences, Journal of Geophysical Research Biogeosciences, Global Change Biology, Global Biogeochemical Cycles, Ecological Modelling, Ecological Applications, Ecosystems, Plant Cell and Environment, Biogeochemistry, Functional Ecology	Remote Sensing of Environment, IEEE Transactions on Geoscience and Remote Sensing	Science of The Total Environment, Geophysical Research Letters, Geoscientific Model Development, Environmental Research Letters, Scientific Data, Environmental Pollution, Journal of Environmental Management

Table S2. The papers included in this meta-analysis.

Papers included in the meta analysis	Berryman et al., 2018; Braybrook et al., 2021; Cho et al., 2021; Cleverly et al., 2020; Cui et al., 2021; Evrendilek, 2013; Fu et al., 2014, 2009; Huemmrich et al., 2019; Ichii et al., 2017; Jung et al., 2011; Kato and Tang, 2008; Kondo et al., 2015; Krasnova et al., 2019; Liu et al., 2016, 2018; Lucas-Moffat et al., 2018; Madani et al., 2017; Melesse and Hanley, 2005; Moffat et al., 2010; Mueller et al., 2010; Papale and Valentini, 2003; Park et al., 2018; Reed et al., 2021; Reitz et al., 2021; Ryu et al., 2018; Schubert et al., 2010; Stiegler et al., 2019; Sun et al., 2020, 2019; Teklemariam et al., 2010; Tian et al., 2017; Tramontana et al., 2016; Ueyama et al., 2013; Virkkala et al., 2021; Xiao et al., 2008; Zeng et al., 2020; Zhang et al., 2014; Zhou et al., 2020
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