

Table S1. List of predictors used in different product setup

Name	Short Name	Source/Dataset	Unit
Air temperature	Tmean	ERA5-Land	K
Skin temperature			K
Precipitation	prcp		m
Precipitation 3-month lag	prcp-lag3		m
Vapor pressure deficit	vpd		kPa
Potential ET	PET		m
Surface reflectance Band 1 (red)	b1	MCD43C4	
Surface reflectance Band 2 (nir)	b2		
Surface reflectance Band 3 (blue)	b3		
Surface reflectance Band 4 (green)	b4		
Surface reflectance Band 5 (SWIR1)	b5		
Surface reflectance Band 6 (SWIR2)	b6		
Surface reflectance Band 7 (SWIR3)	b7		
Normalized Difference Vegetation Index (NDVI)	NDVI		
kNDVI ^a	kNDVI		
Enhanced Vegetation Index (EVI)	EVI		

Normalized Different Water Index (NDWI) ^b	NDWI		
CI _{Green} ^c	GCI		
NIR _v ^d	NIR _v		
Percentage of snow cover	percent_snow		%
Fraction of photosynthetically active radiation (fPAR)	Fpar	MCD15A3H (after 2002/07)	-
Leaf Area Index (LAI)	Lai	MOD15A2H (before 2002/07)	-
Daytime land surface temperature	LST_Day	MYD11A1 (after 2002/07)	K
Nighttime land surface temperature	LST_Night	MOD11A1 (before 2002/07)	K
All-sky daily average SIF	CSIF-SIFdaily	CSIF	mW m ⁻² nm ⁻¹ sr ⁻¹
Photosynthetic Active Radiation (PAR)	BESS-PAR	BESS PAR	W/m ²
Diffuse PAR	BESS-PARdiff		W/m ²
Shortwave downwelling radiation	BESS-RSDN		W/m ²
Evapotranspiration	ET	ALEXI	mm
Soil moisture	ESACCI-sm	ESACCI Soil Moisture	%
Plant Function Type (one-hot encoding)	MCD_PFT	MCD12Q1	-
Climate zone (one-hot encoding)	koppen	Koppen-Geiger	-

Atmospheric CO ₂ concentration	CO2_concentration	ESLR	ppm
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