

BESM BRICS Variable list

Variable	Unit	Monthly	Note	Arq. name CLUA	Arq. name cgcm119 e cgcm120
Zonal component of wind (multi-level)	m s ⁻¹	Yes	Preferable Vertical level at least: Surface, 850mb, 200mb, 500 mb	u10m uvel850 uvel500 uvel200	u10t uvmt (850, 500, 200 hPa)
Meridional component of wind (multi-level)	m s ⁻¹	Yes	Preferable Vertical level at least: Surface, 850mb, 200mb, 500 mb	v10m vvel850 vvel500 vvel200	v10t vvmt (850,500, 200 hPa)
Vertical integrated water vapor transportation and flux		Monthly value but calculated from daily data;	Follow the variables similar with ERA5 reanalysis	adve	vertical_w aterflux
Vertical pressure velocity (multi-level)	Pa s ⁻¹	Yes		omeg850 omeg500 omeg200	omtm.pas cal (18 levels)
Air temperature (multi-level)	K	Yes		temp850 temp500 temp200	atmt (18 levels)
Surface air temperature (Ts)	K	Yes, daily Ts and Tmax & Tmin are required for heatwave analysis	Monthly mean	tp2m	t2mt

Geopotential height (multi-level)	m	Yes	At least at surface, 500hpa, 200hpa, 100hpa	zgeo500 zgeo200 zgeo100	ghmt (1000, 500, 200, 100)
Surface air pressure	Pa	Yes		psfc	psmt.pascal
Specific humidity (multi-level)	kg kg ⁻¹	Yes		umes850 umes500 umes200	shmt (18 levels)
Precipitation	mm d ⁻¹ or, kg m ⁻² s ⁻¹	Daily data would be better to quantify the PDF distribution	Monthly mean	prec	prec
Evaporation	mm d ⁻¹ or kg m ⁻² s ⁻¹	Yes		evap	evap
TOA incoming shortwave radiation	W m ⁻²	Yes		iswf	iswf
TOA outgoing shortwave radiation (total-sky, clear sky)	W m ⁻²	Yes		roce swtc	roce swtc
TOA outgoing longwave radiation (OLR) (total-sky, clear sky)	W m ⁻²	Yes		role lwtc	role lwtc
Surface downwelling shortwave radiation (total-sky, clear sky)	W m ⁻²	Yes		ocis ocic	ocis ocic
Surface downwelling longwave radiation (total-sky, clear sky)	W m ⁻²	Yes		olis olic	olis olic
Surface upwelling shortwave radiation (total-sky, clear sky)	W m ⁻²	Yes		oces swgc	oces swgc
Surface upwelling longwave radiation (total-sky, clear sky)	W m ⁻²	Yes		oles oles	oles
Surface sensible heat flux (total-sky, clear sky)	W m ⁻²	Yes		cssf	cssf
Surface latent heat flux (total-sky, clear sky)	W m ⁻²	Yes		clsf	clsf

Soil moisture	kg kg ⁻¹ or, %	Yes		ussl (Soil wetness of surface) uzrs (Soil wetness of root zone) uzds (Soil wetness of drainage zone)	ussl (Soil wetness of surface) uzrs (Soil wetness of root zone) uzds (Soil wetness of
Soil temperature	K	Yes		dstp	
Sea surface temperature	K	Yes		tsfc	
Cloud amount	%	Yes	Low, middle and high cloud	cbnv (total cloud cover)	