Variables	Frequency	Aggregation	EUP_MP21	EUP_MP22	EUP_MP23	EUP_MP24	Sources, notes, etc	Available at EUSTAR/ Universal Webcast	Available on DVD, or referenced	Available in SPECS	Comments
Air temperature	Daily	mean			ERA, Hp, Hp2, HD2, UEIC	(AQUATOOL, A-3 HYP), (CSAR, LFJ4x4, LFJ4x4, JULIES, JULIES), MORDOR, (ICS)	VORTEX, ENMA	Yes, (mean2424)	Yes, (tmp2m)	Yes, (tav)	
Air temperature	Daily	minimum			T< 27°C, C1	(CSAR, HoFrA, HoAA, (AQUATOOL, (A-3 HYP)), (MORDOR)	GLIDEICE	Yes, (min2424)	Yes, (tmin)	Yes, (tminmx)	
Air temperature	Daily	maximum			Hi, FWI	(CSAR, HoFrA, HoAA, (AQUATOOL, (A-3 HYP)), (MORDOR)	GLIDEICE, ENMA	Yes, (max2424)	Yes, (tmax)	Yes, (tminmx)	
Air temperature	Monthly	mean				(ICS)		Yes, (mean2424)	Yes, (tmp2m)	Yes, (tav)	
Precipitation	Daily	mean			CDIP, Hyf	(AQUATOOL, A-3 HYP), (CSAR, LFJ4x4, JULIES, JULIES, JULIES), MORDOR, (ICS)	GLIDEICE, ICS	Yes, (tp)	Yes, (prmsl)	Yes, (pr)	Convert Data to mm, which is preferred?
Precipitation	Monthly					(ICS)		Yes, (tp)	Yes, (prmsl)	Yes, (pr)	
Surface downwelling shortwave flux in air	Daily	mean				(CSAR, LFJ4x4, JULIES, (SLAM, (MORDOR))	GLIDEICE, ENMA, ICS	Yes, (rsnd)	Yes, (dswrfs)	Yes, (rsds)	
Surface downwelling longwave flux in air	Daily	mean				(CSAR, LFJ4x4, JULIES		Yes, (rsnl)	Yes, (dlwrfs)	Yes, (rsds)	
Wind speed (at 10m)	Daily	mean			FWI	(CSAR, JULIES, (AQUATOOL, (A-3 HYP))	VORTEX, ENMA	Yes, (Derived U0, V0)	Yes, (Derived uvm, vvm)	Yes, (Derived uvm, vvm)	VORTEX and ENMA really need u0 + v0 components
Wind speed (at 10m)	Daily	maximum				(SLAR [32])		Yes, (Derived U0, V0)	Yes, (Derived uvm, vvm)	Yes, (Derived uvm, vvm)	
Wind speed (at 10m)	Monthly	mean			CFU			Yes, (Derived U0, V0)	Yes, (Derived uvm, vvm)	Yes, (Derived uvm, vvm)	
Geopotential 500mb	Daily	mean					VORTEX, ENMA	Yes, (z4500)	No, (Derived z500)	No, (proxy: quantity z500)	
u component 500mb West wind	Daily	mean					VORTEX	Yes, (u4500)	Yes, (Derived u500)	No, (Proxy: quantity u500)	
v component 500mb South wind	Daily	mean					VORTEX	Yes, (v4500)	Yes, (Derived v500)	No, (Proxy: quantity v500)	
u component 500mb East wind	Daily	mean					VORTEX	Yes, (u4500)	Yes, (u4500)	No, (Proxy: quantity u500)	
v component 500mb North wind	Daily	mean					VORTEX	Yes, (v4500)	Yes, (v4500)	No.	
Geopotential height at 1000mb	Daily	At 12 UTC	X			MORDOR		Yes, (Derived Z0)	Yes, (gpm700)	No.	
Geopotential height at 1000mb	Daily	At 12 UTC	X			MORDOR		Yes, (Derived Z0)	Yes, (gpm1000)	No.	
Surface Runoff	Daily	mean				(AQUATOOL)		Yes, (rns)	Yes, (sswf)	No.	
Sea level pressure	Daily	mean					VORTEX	Yes, (msl)	No, (Proxy: psurf)	Yes, (pa)	
Dew point temperature	Daily	mean			UEIC	(E-HYPE)		Yes, (Td)	No, (Proxy:t2m, tmp2m, pwater)	Yes, (tdpm)	
Total Snowfall	Monthly					(AQUATOOL)		Yes, (rs)	No.	Yes, (snow)	Monthly?
Snowfall flux	Daily	mean				(SUBES, (E-HYPE)		Yes (sd)	No.	Yes, (prsn)	
Water Evaporation from Soil	Daily					(SLAR [32])		Yes, (e)	No.	Yes, (Fvlwr)	*Point out if they include transpiration
Water Evaporation from Soil	Monthly					(SUBES, (AQUATOOL)		Yes, (e)	No.	Yes, (Fvlwr)	Convert to mm, Monthly? Daily?
Water Content of Soil Layer	Daily	mean				(SLAR [32])		Yes, (Derived: swv1, swv2, swv3, swv4)	No. (Proxy: swfc0, swfc0, swfc0, swfc0)	No.	Total?
Water Content of Soil Layer	Monthly					(SUBES, (AQUATOOL)		Yes, (Derived: swv1, swv2, swv3, swv4)	No. (Proxy: swfc0, swfc0, swfc0, swfc0)	No.	Monthly?
Sea surface temperature	Daily	mean					VORTEX	Yes, (sst)	No.	No. (Proxy: soundsp tem)	
Soil surface runoff rate	Daily	mean				(AQUATOOL)		Yes, (sswf)	No.	No.	Assuming in mm/day, because in Europe they use only mm/day, and not mm/s, which are more precise
Geopotential 500mb	Daily	mean					VORTEX, ENMA	Yes, (z4500)	No.	No.	
Wind Gust	Daily	maximum				(SLAR [32])		Yes, (10fg)	No.	No.	
Precipitation	24 mean	(Accumulation is the last 24h			FWI			Yes	Yes, (prmsl)	Yes, (pr)	
Total Soil Moisture Content	Daily	mean				(AQUATOOL)		Yes, (Derived: swv1, swv2, swv3, swv4)	Yes, (Derived: swfc0, swfc0, swfc0, swfc0)	Yes, (swvol)	
Surface air pressure	Daily	mean				(SLAR, (ICS, (E-HYPE)		Yes, (Proxy:msl)	Yes, (prmsl)	No, (Proxy:psfc)	
Surface air pressure	Monthly					(ICS)		Yes, (Proxy:msl)	Yes, (prmsl)	No, (Proxy:psfc)	
Specific humidity	Daily	mean				(SLAR, (AQUATOOL, (AQUATOO, (SLAR)		Yes	Yes, (q2m)	No.	
Moisture in Upper Portion of Soil Column	Monthly					(AQUATOOL)		No, (Proxy:swv0)	Yes, (swfc1)	No.	What does 'Upper Portion of Soil Column' Mean? Monthly?
Surface downwelling longwave flux in air	24 7am, 10am and 10pm (local time)	point			PIST			No, (Proxy: daily swd)	No, (Missing:rlds)	No.	
Surface downwelling shortwave flux in air	24 7am, 10am and 10pm (local time)	point			PIST			No, (Proxy: daily swd)	No, (Missing:rsds)	No.	
Closed stone fractions	Daily	mean					ENMA	No, (Proxy:msl)	No.	Yes, (sd)	
Air temperature	24 7am, 10am and 10pm (local time)	point			PIST			No, (Proxy: 2t@h)	No, (Proxy: tmp2m@h)	No, (Proxy: tavg@h)	
Relative humidity	24 7am, 10am and 10pm (local time)	point			PIST			No, (Proxy:2d)	No, (Proxy:q2m, tmp2m, pwater)	No, (Proxy:rdpm)	
Relative humidity	24 mean local standard time (at 2m) daily mean	point			FWI			No, (Proxy:2d)	No, (Proxy:q2m, tmp2m, pwater)	No, (Proxy:rdpm)	
Relative humidity	Daily	mean				(CSAR, (E-HYPE)		No, (Proxy:2d)	No, (Proxy:q2m, tmp2m, pwater)	No, (Proxy:rdpm)	
Wind speed (at 10m)	24 7am, 10am and 10pm (local time)	point			PIST			No, (Proxy:10u, 10v)	No, (Missing:uvm, vvm)	No, (Proxy:uvm, vvm)	
Wind speed (at 10m)	24 mean local standard time	point			FWI			No, (Proxy:10u, 10v)	No, (Missing:uvm, vvm)	No, (Proxy:uvm, vvm)	
Cloudiness (in octas)	24 7am, 10am and 10pm (local time)	point			PIST			No, (Proxy:tcc)	No.	No. (Proxy: cl)	
Relative humidity at 500mb	Daily	mean					VORTEX	No, (Proxy:r4)	No.	No.	
Ozone	Daily	mean				(SLAR [32]		No, (Proxy:O3, Total column ozone, missing value: 1.3e3, Total column ozone)	No.	No.	It needs distribution
Skin temperature	Daily	mean				Mitrinovica		No.	No. (Proxy: tmpsfc)	No.	
Air temperature	24 mean local standard time	point			FWI			Yes	No.	No.	
1.5M Temperature over Sea	Daily	mean				(SLAR [32])		Yes	No.	No.	
1.5M Temperature over Sea	Daily	maximum				(SLAR [32])		Yes	No.	No.	
1.5M Temperature over Sea	Daily	minimum				(SLAR [32])		Yes	No.	No.	
Precipitation	hourly rate	maximum				(SUBES)		Yes	No.	No.	
10 meter wind component 10 gust	Daily	mean				(ICS, (MORDOR)		Yes	No.	No.	
10 meter wind v component 10 gust	Monthly					(ICS		Yes	No.	No.	
10 meter wind u component 10 gust	Daily	mean				(ICS, (MORDOR)		Yes	No.	No.	
10 meter wind v component 10 gust	Monthly					(ICS		Yes	No.	No.	
u component 100 meter wind speed	Daily	mean				VORTEX, ENMA, ICS		Yes	No.	No.	
v component 100 meter wind speed	Daily	mean				VORTEX, ENMA, ICS		Yes	No.	No.	
Surface water pressure	Daily	mean				(SUBES		No.	No.	No.	
Surface moisture	Daily	mean			UEIC			No.	No.	No.	What does it refer to? Impurity? Water in soil?
Clear-sky (O) down surface SW flux	Daily	mean				ICS, (SLAR [32]		No.	No.	No.	What does (B) refer to?
Clear-sky (O) down surface SW flux	Monthly					(ICS		No.	No.	No.	
Water evaporation flux	Daily	mean				(E-HYPE		Yes	No.	No.	
1.5M Specific humidity over Sea	Daily	mean				(SLAR [32]		No.	No.	No.	
Surface runoffrate	Daily	mean				(SWetBoy)		No.	No.	No.	Site sensitive needs distribution
Net primary productivity	Daily	mean				(SWetBoy)		No.	No.	No.	What does it mean?
Net primary productivity as PPTN	Daily	mean				(SWetBoy)		No.	No.	No.	What does it mean?
Net down surface LW rad. flux (used for Ind)	Daily	mean				(SLAR [32]		No.	No.	No.	
Diffuse flux	Daily	mean				(SLAR [32]		No.	No.	No.	
Energy through rate	Daily	mean				(AQUATOOL)		No.	No.	No.	
Evaporation from Canopy	Daily	mean				(AQUATOOL)		No.	No.	No.	
Transpiration rate on leaf	Daily	mean				(AQUATOOL)		No.	No.	No.	
Transpiration	Monthly					(AQUATOOL)		No.	No.	No.	Monthly?
Soil Frozen Water Content	Monthly					(AQUATOOL)		No.	No.	No.	Monthly?
Total Radiation (Global Horizontal Radiation)	Daily	mean					GLIDEICE, ENMA, ICS	No.	No.	No.	It needs distribution Horizontal?