Variables	Frequency	Aggregation	EUP_MP22	EUP_MP23	EUP_MP23	SPECX, APR-1	Available at SYSTEM4 seasonal timeband	Available at CFS, all (referenced)	Available at SPECX	Comments
Air temperature	30 Sam, 2pm and 9pm (local time)	point	PET				Yes, (Sharegd: 30)	Yes, (Sharegd: (mp2m)	Yes, (Sharegd: tas)	
Air temperature	Daily	mean	DSS, HI, Hq, KDD, LDEC		AQUATOOL, (e-HYPE, COMS, LPJmL, GLES, GUESS, MORDOR, ICS)	VORTEX, ESM-A	Yes, (mean2D1)	Yes, (mp2m)	Yes, (tas)	
Air temperature	Daily	minimum	Tr-17°C, C		COMS, GUESS, GLAM, (AQUATOOL, (E-HYPE), MORDOR)	ULEIDS	Yes, (min2D)	Yes, (tmin)	Yes, (tasmin)	
Air temperature	Daily	maximum	HI, PWI		COMS, GUESS, GLAM, (AQUATOOL, (E-HYPE), MORDOR)	ULEIDS, ESM-A	Yes, (max2D)	Yes, (tmax)	Yes, (tasmax)	
Air temperature	Monthly	mean			(ICS)		Yes, (mean2D2)	Yes, (mp2m)	Yes, (tas)	
Precipitation	Daily	mean	DSP, Hyl		AQUATOOL, (e-HYPE, COMS, LPJmL, GLES, GUESS, GLAM, MORDOR, ICS)	ULEIDS, ICS	Yes, (tp)	Yes, (prsatd)	Yes, (pr)	Accumulated or flux, which is preferred?
Precipitation	Monthly				(ICS)		Yes, (tp)	Yes, (prsatd)	Yes, (pr)	
Surface downwelling shortwave flux in air	Daily	mean			COMS, LPJmL, GLES, GUESS, (MORDOR)	ULEIDS, ESM-A, ICS	Yes, (sw4)	Yes, (dswrfs)	Yes, (rsds)	
Surface downwelling longwave flux in air	Daily	mean			COMS, LPJmL, GLES		Yes, (sw4)	Yes, (dlwrfs)	Yes, (rlds)	
Wind speed (at 10m)	Daily	mean	PWI		COMS, GLES, (AQUATOOL), (E-HYPE)	VORTEX, ESM-A	Yes, (Demand:10u, 10v)	No, (Demand:uwnd, vwnd)	Yes, (Demand:uas, vas)	VORTEX and ESM-A really want u/v components
Wind speed (at 10m)	Daily	maximum			(GUESS)		Yes, (Demand:10u, 10v)	No, (Demand:uwnd, vwnd)	Yes, (Demand:uas, vas)	
Wind speed (at 10m)	Monthly	mean	CPU				Yes, (Demand:10u, 10v)	No, (Demand:uwnd, vwnd)	Yes, (Demand:uas, vas)	
Geopotential 850mb	Daily	mean				VORTEX, ESM-A	Yes, (z850)	Yes, (Demand:z850)	No, (proxy monthly: uwnd850)	
U-component 850mb Wind speed	Daily	mean				VORTEX	Yes, (u850)	Yes, (uwnd850)	No, (Proxy: monthly uwnd850)	
V-component 850mb Wind speed	Daily	mean				VORTEX	Yes, (v850)	Yes, (vwnd850)	No, (Proxy: monthly vwnd850)	
U-component 925mb wind speed	Daily	mean				VORTEX	Yes, (u925)	Yes, (uwnd925)	No.	
V-component 925mb wind speed	Daily	mean				VORTEX	Yes, (v925)	Yes, (vwnd925)	No.	
Geopotential height at 700hPa	Daily	At 12 UTC			WORDOR		Yes, (Demand:z700)	Yes, (ggm700)	No.	
Geopotential height at 1000hPa	Daily	At 12 UTC			WORDOR		Yes, (Demand:z1000)	Yes, (ggm1000)	No.	
Water Content of Soil Layer	Daily	mean			(GUESS)		Yes, (Demand: swv1, swv2, swv3, swv4)	Yes, (Proxy: soilm1, soilm2, soilm3, soilm4)	No.	Total?
Water Content of Soil Layer	Monthly				GUESS, (AQUATOOL)		Yes, (Demand: swv1, swv2, swv3, swv4)	Yes, (Proxy: soilm1, soilm2, soilm3, soilm4)	No.	Monthly?
Surface Runoff	Daily	mean			(AQUATOOL)		Yes, (snr)	Yes, (sorroff)	No.	
Sea level pressure	Daily	mean				VORTEX	Yes, (mslp)	No. (Proxy:psmsl)	Yes, (psl)	
Dew point temperature	Daily	mean	LEDC		(E-HYPE)		Yes, (2d)	No. (Proxy:q2m, tmp2m, psmsl)	Yes, (tdps)	
Total Runoff	Monthly				(AQUATOOL)		Yes, (ro)	No.	Yes, (mrro)	Monthly?
Snowfall flux	Daily	mean			GUESS, (E-HYPE)		Yes (sf)	No.	Yes, (prsn)	
Water Evaporation from Soil	Daily				(GUESS)		Yes, (e)	No.	Yes, (flvbsn)	What exactly does include? Sublimation
Water Evaporation from Soil	Monthly				GUESS, (AQUATOOL)		Yes, (e)	No.	Yes, (flvbsn)	Sublimation? Monthly?
Sea surface temperature	Daily	mean				VORTEX	Yes, (sst)	No.	No. (Proxy: monthly.nc)	
SUB-SURFACE RUNOFF RATE	Daily	mean			(AQUATOOL)		Yes, (srx4)	No.	No.	According to the Aquatool documentation, they are only available from 1981-1993 and 2000-2010 (mixture of sources)
Geopotential 500mb	Daily	mean				VORTEX, ESM-A	Yes, (z500)	No.	No.	
WIND GUST	Daily	maximum			(GUESS)		Yes, (10fg)	No.	No.	
Precipitation	45 noon	Accumulated in the last 24h	PWI				No.	Yes, (prsatd)	Yes, (pr)	
Surface air pressure	Daily	mean			(GUESS, (ICS, (E-HYPE)		No. (Proxy:mslp)	Yes, (psmsl)	No. (Proxy:psl)	
Surface air pressure	Monthly				(ICS)		No. (Proxy:mslp)	Yes, (psmsl)	No. (Proxy:psl)	
Specific humidity	Daily	mean			(LEIDS), (AQUATOOL), (GUESS), (GLAM)		No.	Yes, (q2m)	No.	
Moisture in Upper Portion of Soil Column	Monthly				(AQUATOOL)		No. (Proxy:swv01)	Yes, (soilm01)	No.	What does Upper Portion mean?, Monthly?
Cloud area fraction	Daily	mean				ESM-A	No. (Proxy:tcc)	No.	Yes, (cfl)	
Total Soil Moisture Content	Daily	mean			(AQUATOOL)		No. (Proxy:swv1, swv2, swv3, swv4)	No. (Demand:soilm1, soilm2, soilm3, soilm4)	Yes, (mrsos)	
Relative humidity	30 Sam, 2pm and 9pm (local time)	point	PET				No. (Proxy:2d)	No. (Proxy:q2m, tmp2m, psmsl)	No. (Proxy:hbm)	
Relative humidity	45 noon local standard time or daily mean	point	PWI				No. (Proxy:2d)	No. (Proxy:q2m, tmp2m, psmsl)	No. (Proxy:hbm)	
Relative humidity	Daily	mean			COMS, (E-HYPE)		No. (Proxy:2d)	No. (Proxy:q2m, tmp2m, psmsl)	No. (Proxy:hbm)	
Wind speed (at 10m)	30 Sam, 2pm and 9pm (local time)	point	PET				No (Proxy:10u, 10v)	No. (Proxy:uwnd850, vwnd850)	No. (Proxy:uas, vas)	
Wind speed (at 10m)	45 noon local standard time	point	PWI				No. (Proxy:10u, 10v)	No. (Proxy:uwnd850, vwnd850)	No. (Proxy:uas, vas)	
Surface downwelling longwave flux in air	30 Sam, 2pm and 9pm (local time)	point	PET				No. (Proxy: daily sw4)	No. (Sharegd:dlwrfs)	No.	
Surface downwelling shortwave flux in air	30 Sam, 2pm and 9pm (local time)	point	PET				No. (Proxy: daily sw4)	No. (Sharegd:dswrfs)	No.	
Cloudiness (in octas)	30 Sam, 2pm and 9pm (local time)	point	PET				No. (Proxy:tcc)	No.	No. (Proxy: cfl)	
Relative humidity at 300mb	Daily	mean				VORTEX	No. (Proxy:r14)	No.	No.	
Ozone	Daily	mean			(LEIDS)		No. (Proxy:O3, Ozone mass mixing ratio / kg/kg, Total column ozone)	No.	No.	3 needs clarification
Skin temperature	Daily	mean			Mikkelsenks		No.	No. (Proxy: tsrpsfc)	No.	
Air temperature	45 noon local standard time	point	PWI				No.	No.	No.	
Total Soil Moisture Content (vol% 1kg/m3)	Daily	mean			(GUESS)		No.	No.	No.	
Total Soil Moisture Content (vol% 1kg/m3)	Daily	maximum			(GUESS)		No.	No.	No.	
Total Soil Moisture Content (vol% 1kg/m3)	Daily	minimum			(GUESS)		No.	No.	No.	
Precipitation	hourly rate	maximum			GUESS		No.	No.	No.	
Small-Wide wind component in x-dirn	Daily	mean			ICS, (MORDOR)		No.	No.	No.	
Small-Wide wind component in y-dirn	Monthly				ICS		No.	No.	No.	
Small-Wide wind component in z-dirn	Daily	mean			ICS, (MORDOR)		No.	No.	No.	
Small-Wide wind component in z-dirn	Monthly				ICS		No.	No.	No.	
U-component 100-metre wind speed	Daily	mean				VORTEX, ESM-A, ICS	No.	No.	No.	
V-component 100-metre wind speed	Daily	mean				VORTEX, ESM-A, ICS	No.	No.	No.	
Surface snow amount	Daily	mean			(GUESS)		No.	No.	No.	
Surface moisture	Daily	mean	LEDC				No.	No.	No.	What does it refer to? Humidity? Water-in soil?
CLEAR-SKY (!) DOWN SURFACE SW FLUX	Daily	mean			ICS, (GUESS)		No.	No.	No.	What does (!) refer to?
CLEAR-SKY (!) DOWN SURFACE SW FLUX	Monthly				ICS		No.	No.	No.	
Water sublimation flux	Daily	mean			(E-HYPE)		No.	No.	No.	
1.5M SPECIFIC HUMIDITY OVER TILES	Daily	mean			(GUESS)		No.	No.	No.	
GRIDBOX OUTFLOW	Daily	mean			(WaterBy)		No.	No.	No.	This variable needs clarification
INT.FRWATT PRODUCTIVITY	Daily	mean			(WaterBy)		No.	No.	No.	What does it mean?
INT.FRWATT PRODUCTIVITY (MONTH)	Daily	mean			(WaterBy)		No.	No.	No.	What does it mean?
NET DOWN SURFACE LW RAD (Downward Radiation)	Daily	mean			(LEIDS)		No.	No.	No.	
SWFLXSB FLUX	Daily	mean			(LEIDS)		No.	No.	No.	
Water Transpiration (vol% 1kg/m3)	Daily	mean			(AQUATOOL)		No.	No.	No.	
Evaporation from Canopy	Daily	mean			(AQUATOOL)		No.	No.	No.	
Interception losses (vol% 1kg/m3)	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				ULEIDS, ESM-A, ICS	No.	No.	No.	3 needs clarification. Horizontal?