

EUPORIAS WP23: Impact Models for impact predictions

- **AQUATOOL:** It is a Water Management Tool with different modules (SIMGES, OPTIGES, SIMRISK). [?Model URL: http://www.upv.es/aquatool/index_E.html](http://www.upv.es/aquatool/index_E.html)
- **MORDOR:** It is a hydrological model for catchments in France.
- **E-HYPE:** This model simulates water flow and substances on their way from precipitation through soil, river and lakes to the river outlet. The catchment is divided into sub-basins, which in turn are divided into classes depending on land use, soil type and elevation. This Pan-European hydrological model with high resolution is operational in the SMHI production environment. It is operational to deliver real-time and forecast hydrological and nutrient data from the entire European coastline. [?Model URL: http://www.smhi.se/en/2.575/Hydrology/european-hydrological-predictions-for-the-environment-1.12711](http://www.smhi.se/en/2.575/Hydrology/european-hydrological-predictions-for-the-environment-1.12711)
- **VIC (Variable Infiltration Capacity model):** It is a hydrological impact model. [?Model URL: http://www.hydro.washington.edu/Lettenmaier/Models/VIC/index.shtml](http://www.hydro.washington.edu/Lettenmaier/Models/VIC/index.shtml)
- **CGMS (Crop Growth Modelling System):** Is a detailed crop model with representation of specific crop varieties. [?Model URL: http://www.marsop.info/marsopdoc/cgms92/5_en.htm](http://www.marsop.info/marsopdoc/cgms92/5_en.htm)
- **LPJml:** This model will be used for hydrological impacts and agricultural impacts. [?Model URL: http://www.pik-potsdam.de/research/projects/lpjweb](http://www.pik-potsdam.de/research/projects/lpjweb)
- **JULES:** The Joint UK Land Environment Simulator. It is a community land surface model that has evolved from the Met Office Surface Exchange Scheme (MOSES).
- **GUESS:** Impact model used by University of Lund.
- **GLAM:** This model is used by University of Leeds.

All these Impact Models require different variables with different temporal frequencies as input data:

Variables	Time Frequency	Impact Models	Optional for	Comments
Precipitation	Max hourly rate	GUESS	-	
	Daily mean	AQUATOOL, E-HYPE, CGMS, LPJML, JULES, GUESS, GLAM, MORDOR, VIC	IC3	
	Monthly	-	IC3	
Air temperature	Daily mean	AQUATOOL, E-HYPE, CGMS, LPJML, JULES, GUESS, MORDOR, VIC	IC3	
	Daily maximum	CGMS, GUESS, GLAM, VIC	AQUATOOL, E-HYPE, MORDOR	
	Daily minimum	CGMS, GUESS, GLAM, VIC	AQUATOOL, E-HYPE, MORDOR	
	Monthly	-	IC3	
Skin temperature	Daily mean	Meteosat	-	
1.5M TEMPERATURE OVER TILES	Daily mean	-	GUESS	
	Daily maximum	-	GUESS	
	Daily minimum	-	GUESS	
Deep pore temperature	Daily mean	-	E-HYPE	
Specific humidity	Daily mean	JULES	AQUATOOL, GUESS, GLAM	
1.5M SPECIFIC HUMIDITY OVER TILES	Daily mean	-	GUESS	
Relative humidity	Daily mean	CGMS	E-HYPE	
Wind speed (at 10m)	Daily mean	CGMS, JULES, VIC	AQUATOOL, E-HYPE	
	Daily maximum	-	GUESS	
50 METRE WIND U-COMPONENT @ GRID	Daily mean	IC3	MORDOR	
	Monthly	IC3	-	
	Daily mean	IC3	MORDOR	
50 METRE WIND V-COMPONENT @ GRID	Daily mean	IC3	MORDOR	
	Monthly	IC3	-	
	Daily mean	IC3	MORDOR	
WIND DUST	Daily maximum	-	GUESS	
Surface air pressure	Daily mean	JULES	IC3, E-HYPE	
	Monthly	-	IC3	
Surface downwelling shortwave flux in air	Daily mean	CGMS, LPJML, JULES, GLAM, VIC	MORDOR	
Surface downwelling longwave flux in air	Daily mean	CGMS, LPJML, JULES, VIC	-	
CLEAR-SKY (H) DOWN SURFACE SW FLUX	Daily mean	IC3	GUESS	What does (H) refer to?
	Monthly	IC3	-	
Geopotential height at 700hPa	Daily at 12 UTC	MORDOR	-	
Geopotential height at 1000hPa	Daily at 12 UTC	MORDOR	-	
Surface snow amount	Daily mean	GUESS	-	
Snowfall flux	Daily mean	GUESS	E-HYPE	
GRIDBOX OUTFLOW	Daily mean	-	MetOffice	This variable needs clarification
NET PRIMARY PRODUCTIVITY	Daily mean	-	MetOffice	What does it mean?
NET PRIMARY PRODUCTIVITY ON PFTS	Daily mean	-	MetOffice	What does it mean?
NET DOWN SURFACE LW RAD FLUX (used for flux)	Daily mean	-	JULES	
DIFFUSE FLUX	Daily mean	-	JULES	
Ozone	Daily mean	-	JULES	
SUB-SURFACE RUNOFF RATE	Daily mean	-	AQUATOOL	
Surface Runoff	Daily mean	-	AQUATOOL	
Total Runoff	Monthly	-	AQUATOOL	Monthly?
Water sublimation flux	Daily mean	-	-	
Moisture in Upper Portion of Soil Column	Monthly	-	AQUATOOL	What does Upper Portion mean?, Monthly?
Total Soil Moisture Content	Daily mean	-	AQUATOOL	
TRANSPARATION-SOIL EVAP ON TILES	Daily mean	-	AQUATOOL	
Transpiration	Monthly	-	AQUATOOL	Monthly?
CANOPY THROUGHFALL RATE	Daily mean	-	AQUATOOL	
Evaporation from Canopy	Daily mean	-	AQUATOOL	
Water Evaporation from Soil	Monthly	-	AQUATOOL	Monthly?
Water Content of Soil Layer	Daily	-	GUESS	
Soil Frozen Water Content	Monthly	GUESS	AQUATOOL	Monthly?
	Daily	-	GUESS	
Soil Frozen Water Content	Monthly	GUESS	AQUATOOL	Monthly?