



MEDSCOPE

MEDiterranean Services
Chain based On climate PrEdictions

ERA4CS Joint Call on Researching and Advancing Climate Services Development – Topic B
(GRANT AGREEMENT 689029)

European Climate Observations, Monitoring and Services initiative (2)

Milestone M4.2

*List of variables, specific locations and frequency
needed from WP3 for each application sector*

Table of Contents

Introduction	3
Data needed for Task 4.1 - Renewable energy	4
Data needed for Task 4.2 - Hydrological products	6
Data needed for Task 4.3 - Agriculture and forestry	9

Introduction

This document gathers all the data requirements for the different sectoral applications that will be developed in WP4. Each WP4 partner provided information on the needed variables, temporal resolution and spatial domain that is deemed necessary to produce the sectoral application demonstrations. There is one table for each single application, and the tables have been grouped by sector: energy, hydrology and agriculture.

Data needed for Task 4.1 - Renewable energy

Partner: BSC					
Variable	Frequency	Spatial resolution	Domain	Format (e.g., NetCDF, ...)	Type (e.g., all members, ensemble mean, PDF ...)
surface wind speed	sub-daily (hourly, 3-hourly or at least 6-hourly)	Native model resolution	Global, but at least covering North Atlantic, Europe and Mediterranean basin.	NetCDF	All members

Partner: Meteo-France (same need for T4.2 and T4.3)					
Variable	Frequency	Spatial resolution	Domain	Format (e.g., NetCDF, ...)	Type (e.g., all members, ensemble mean, PDF ...)
Mean (near surface) Air temperature	Daily and sub daily (as fine as hourly if possible: at least 3h)	5,5 km	UERRA Domain (Europe and North Africa)	NetCDF	All members
Total precipitation	Daily and sub daily (as fine as hourly if possible: at least 3h)	5,5 km	UERRA Domain (Europe and North Africa)	NetCDF	All member
Relative Humidity or absolute humidity or dew-point temperature	Daily and sub daily (as fine as hourly if possible: at least 3h)	5,5 km	UERRA Domain (Europe and North Africa)	NetCDF	All member
Wind speed	Daily and sub daily (as fine as hourly if possible: at least 3h)	5,5 km	UERRA Domain (Europe and North Africa)	NetCDF	All member
Direct Incoming Short Wave radiation	Daily and sub daily (as fine as hourly if possible: at least 3h)	5,5 km	UERRA Domain (Europe and North Africa)	NetCDF	All member
Scattered Incoming Short Wave Radiation	Daily and sub daily (as fine as hourly if possible: at least 3h)	5,5 km	UERRA Domain (Europe and North Africa)	NetCDF	All member

Incoming Long Wave Radiation	Daily and sub daily (as fine as hourly if possible: at least 3h)	5,5 km	UERRA Domain (Europe and North Africa)	NetCDF	All member
Surface Pressure	Daily and sub daily (as fine as hourly if possible: at least 3h)	5,5 km	UERRA Domain (Europe and North Africa)	NetCDF	All member

Data needed for Task 4.2 - Hydrological products

Partner: AEMET					
Variable	Frequency	Spatial resolution	Domain	Format (e.g., NetCDF, ...)	Type (e.g., all members, ensemble mean, PDF ...)
Mean (near-surface) Air Temperature	Daily	5 km	Iberian Peninsula	NetCDF	All members
Maximum (near-surface) Air Temperature	Daily	5 km	Iberian Peninsula	NetCDF	All members
Minimum (near-surface) Air Temperature	Daily	5 km	Iberian Peninsula	NetCDF	All members
Total Precipitation	Daily	5 km	Iberian Peninsula	NetCDF	All members
Soil moisture	Daily	5 km	Iberian Peninsula	NetCDF	All members
Snow depth	Daily	5 km	Iberian Peninsula	NetCDF	All members
Evapotranspiration (ETP)	Daily	5 km	Iberian Peninsula	NetCDF	All members
Relative Humidity	Daily	5 km	Iberian Peninsula	NetCDF	All members
Wind Speed	Daily	5 km	Iberian Peninsula	NetCDF	All members
Surface Pressure	Daily	5 km	Iberian Peninsula	NetCDF	All members
Ground Temperature	Daily	5 km	Iberian Peninsula	NetCDF	All members

Partner: CNR					
Variable	Frequency	Spatial resolution	Domain	Format (e.g., NetCDF, ...)	Type (e.g., all members, ensemble mean, PDF ...)
Mean (near-surface) Air Temperature	Daily and sub-daily*	5 km	Domain 1 Domain 2 Domain 3	NetCDF	All members

Maximum (near-surface) Air Temperature (if possible)	Daily and sub-daily*	5 km	Domain 1 Domain 2 Domain 3	NetCDF	All members
Minimum (near-surface) Air Temperature (if possible)	Daily and sub-daily*	5 km	Domain 1 Domain 2 Domain 3	NetCDF	All members
Total Precipitation	Daily and sub-daily*	5 km	Domain 1 Domain 2 Domain 3	NetCDF	All members
Relative Humidity or absolute humidity or dew-point temperature	Daily and sub-daily*	5 km	Domain 1 Domain 2 Domain 3	NetCDF	All members
Wind Speed	Daily and sub-daily*	5 km	Domain 1 Domain 2 Domain 3	NetCDF	All members
Incoming Short Wave Radiation	Daily and sub-daily*	5 km	Domain 1 Domain 2 Domain 3	NetCDF	All members
Reflected Short Wave Radiation	Daily and sub-daily*	5 km	Domain 1 Domain 2 Domain 3	NetCDF	All members
Incoming Long Wave Radiation	Daily and sub-daily*	5 km	Domain 1 Domain 2 Domain 3	NetCDF	All members
Surface Pressure	Daily and sub-daily*	5 km	Domain 1 Domain 2 Domain 3	NetCDF	All members
Ground Temperature	Daily and sub-daily*	5 km	Domain 1 Domain 2 Domain 3	NetCDF	All members
Skin temperature (ts)	sub-daily	5 km	Domain 1 Domain 2 Domain 3	Netcdf	all members
Soil temperature upper layer (tsl)	sub-daily	5 km	Domain 1 Domain 2 Domain 3	Netcdf	all members
Snow water equivalent (snw)	daily	original model res.	North-western Italy	Netcdf	all members
Snow depth (sd)	daily	original model res.	North-western Italy	Netcdf	all members

snow temperature (tsn)	daily	original model res.	North-western Italy	Netcdf	all members
snowfall (prsn)	daily	original model res.	North-western Italy	Netcdf	all members

* As fine as hourly if possible; temperature, precipitation and radiation should at least be 3 hourly.

** Domain 1: top-left corner 45°20'23"N-07°05'44"E; bottom-right corner 45°16'40"N-07°12'19"E (Upper reach of the Stura di Ala Valley, Balme-TO, 59 km²).

Domain 2: top-left corner 45°31'49"N-07°22'35"E; bottom-right corner 45°30'44"N-07°24'52"E (Ciardoney Glacier Basin, Ronco Canavese-TO, 5.9 km²).

Domain 3: top-left corner 45°56'02"N-07°51'12"E; bottom-right corner 45°52'08"N-07°58'40"E (Upper reach of the Sesia Valley, Alagna-VC, 69 km²).

Partner: RMI					
Variable	Frequency	Spatial resolution	Domain	Format (e.g., NetCDF, ...)	Type (e.g., all members, ensemble mean, PDF ...)
Mean air temperature	Daily	5-7 km*	~104 km ² *	GRIB, HDF5, BUFR, ...	all members
Maximum air temperature	Daily	5-7 km	TBD	GRIB, ...	all members
Minimum air temperature	Daily	5-7 km	TBD	GRIB, ...	all members
Total precipitation	Daily	5-7 km	TBD	GRIB, ...	all members
Relative humidity	Daily	5-7 km	TBD	GRIB, ...	all members
Wind speed	Daily	5-7 km	TBD	GRIB, ...	all members
Pressure	Daily	5-7 km	TBD	GRIB, ...	all members
Solar radiation	Daily	5-7 km	TBD	GRIB, ...	all members
Sunshine duration or cloud cover	Daily	5-7 km	TBD	GRIB, ...	all members

* Current applications in Belgium: domains of 17 10⁴ km² (Meuse) and 19 10⁴ km² (Scheldt) and their major sub-basins at spatial resolution of 7 km. Planned case-study: Aliakmon river basin in Greece (39-42°N, 20-23°E) at spatial resolution of 5 km.

Data needed for Task 4.3 - Agriculture and forestry

Partner: INRA 1/2					
Variable	Frequency	Spatial resolution	Domain	Format (e.g., NetCDF, ...)	Type (e.g., all members, ensemble mean, PDF ...)
Mean air temperature	Daily	25 km	All the mediterranean region	NetCDF	All members
Maximum air temperature	Daily	25 km	All the mediterranean region	NetCDF	All members
Minimum air temperature	Daily	25 km	All the mediterranean region	NetCDF	All members
Total precipitation	Daily	25 km	All the mediterranean region	NetCDF	All members
Relative humidity (or related)	Daily	25 km	All the mediterranean region	NetCDF	All members
Wind speed	Daily	25 km	All the mediterranean region	NetCDF	All members
Wind direction	Daily	25 km	All the mediterranean region	NetCDF	All members
Global radiation	Daily	25 km	All the mediterranean region	NetCDF	All members

Sunshine duration or cloud cover	Daily	25 km	All the mediterranean region	NetCDF	All members
Atmospheric incoming radiation	Daily	25 km	All the mediterranean region	NetCDF	All members

Partner: INRA 2/2					
Variable	Frequency	Spatial resolution	Domain	Format (e.g., NetCDF, ...)	Type (e.g., all members, ensemble mean, PDF ...)
Mean air temperature	Daily	5-10 km	All the French mediterranean region	NetCDF	All members
Maximum air temperature	Daily	5-10 km	All the French mediterranean region	NetCDF	All members
Minimum air temperature	Daily	5-10 km	All the French mediterranean region	NetCDF	All members
Total precipitation	Daily	5-10 km	All the French mediterranean region	NetCDF	All members
Relative humidity (or related)	Daily	5-10 km	All the French mediterranean region	NetCDF	All members
Wind speed	Daily	5-10 km	All the French mediterranean region	NetCDF	All members
Wind direction	Daily	5-10 km	All the French mediterranean region	NetCDF	All members

Global radiation	Daily	5-10 km	All the French mediterranean region	NetCDF	All members
Sunshine duration or cloud cover	Daily	5-10 km	All the French mediterranean region	NetCDF	All members
Atmospheric incoming radiation	Daily	5-10 km	All the French mediterranean region	NetCDF	All members

Partner: CMCC-IAFES					
Variable	Frequency	Spatial resolution	Domain	Format (e.g., NetCDF, ...)	Type (e.g., all members, ensemble mean, PDF ...)
Mean (near-surface) Air Temperature	Daily and sub-daily*	25-5 km	All mediterranean region / Sardinia	asci, txt or netcdf	all members
Maximum (near-surface) Air Temperature (if possible)	Daily and sub-daily*	25-5 km	All mediterranean region / Sardinia	asci, txt or netcdf	all members
Minimum (near-surface) Air Temperature (if possible)	Daily and sub-daily*	25-5 km	All mediterranean region / Sardinia	asci, txt or netcdf	all members
Total Precipitation	Daily	25-5 km	All mediterranean region / Sardinia	asci, txt or netcdf	all members
Relative Humidity or Vapour Pressure Deficit	Daily and sub-daily*	25-5 km	All mediterranean region / Sardinia	asci, txt or netcdf	all members
Wind speed and direction (mean/max)	Daily and sub-daily*	25-5 km	All mediterranean region / Sardinia	asci, txt or netcdf	all members

Global radiation	Daily	25-5 km	All mediterranean region / Sardinia	NetCDF	All members
Short wave radiation	Daily	25-5 km		ascii, txt or netcdf	
soil texture (sand silt and clay percentages)	Initialization	5 km		ascii, txt or netcdf	
soil depth	Initialization	5 km		ascii, txt or netcdf	
latitude	Initialization	5 km		ascii, txt or netcdf (if not in netcdf file)	
longitude	Initialization	5 km		ascii, txt or netcdf (if not in netcdf file)	
tree density	Initialization	5 km		ascii, txt or netcdf	
species name	Initialization	5 km		ascii, txt or netcdf	
tree age	Initialization	5 km		ascii, txt or netcdf	
tree height	Initialization	5 km		ascii, txt or netcdf	
diameter at breast height	Initialization	5 km		ascii, txt or netcdf	

** As fine as hourly if possible; temperature, precipitation and radiation should at least be 3 hourly.*