



# IMPROVING PREDICTIONS AND MANAGEMENT OF HYDROLOGICAL EXTREMES

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IMPRES data

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## Appendix

### Institution: Federal Institute of Hydrology (BfG)

Data Description	
	<p>1) LARSIM-ME climate flow projections (1951-2100) forced by 16 realizations of RCP8.5-ECEARTH-RACMO a) no bias correction b) bias corrected with Quantile-Quantile Mapping,</p> <p>2) LARSIM-ME flow simulation forced by HYRAS observed meteorology (1951-2015) used as reference for climate flow projections,</p> <p>3) LARSIM-ME seasonal flow forecasts (1981-2016) forced by ECMWF-System4 seasonal re-forecasts and</p> <p>4) ECMWF-SEAS5 seasonal re-forecasts,</p> <p>5) LARSIM-ME reference flow simulation forced by EOBS observed meteorology (1981-2016) used to initialize seasonal flow forecasts,</p> <p>6) LARSIM-ME medium-range flow forecasts forced by ECMWF ENS reforecasts (2000-2016),</p> <p>7) LARSIM-ME reference flow simulation forced by real-time observed meteorological station data (2000-2017)</p> <p>for gauges Kaub, Koeln, Duisburg-Ruhrort (Rhine), Pfelling, Hofkirchen (Danube), Dresden, Magdeburg / Strombruecke, Neu-Darchau (Elbe)</p> <p>8) Short-to-medium range waterlevel ensemble forecasts consisting of 68 members for gauges Kaub, Koeln and Duisburg-Ruhrort located at the river Rhine (2008-2015). Waterlevel forecasts have been created by applying the hydrological model</p>





	<p>HBV134 for the Rhine basin forced by 51 ensemble members of ECMWF ENS extended, 16 members of COSMO-LEPS and the ECMWF-HRES meteorological forecast to create ensemble flow forecasts for the main tributaries of the river Rhine. This flow forecasts have been used as boundary conditions and lateral inflows for the hydrodynamic model SOBEK to calculate the waterlevel forecasts for gauges along the river Rhine.</p> <p>9) HBV134-SOBEK reference water level simulation forced by real-time observed meteorological station data (2008-2015) for gauges Kaub, Koeln and Duisburg-Ruhrort.</p>
<b>Approximate size</b>	1 Gb.
<b>Naming Convention</b>	<p>VAR_MF[_BC]_HM[_HN].nc</p> <p>VAR = Variable name: Q streamflow, H waterlevel</p> <p>MF = meteorological forcing: HYRAS, EOBS, System4, SEAS5, ENS, MM multi-model ensemble, OBS real time observations</p> <p>BC = Bias correction: QQMAP quantile-quantile mapping</p> <p>HM = hydrological model: LME (LARSIM-ME), HBV134</p> <p>HN = Hydrodynamic Model: SOBEK</p>
<b>Repository Address</b>	<a href="https://zenodo.org/communities/imprex/">https://zenodo.org/communities/imprex/</a>
<b>Access conditions</b>	The data can be downloaded from the online repository <a href="https://zenodo.org">https://zenodo.org</a>
<b>Software for accessing the data</b>	For reading the data the user needs software to access ncdf files, no software provided to read datasets as a large number of open software products to read ncdf files are available
<b>Conditions of use (Licence terms, price)</b>	The use of the data is free of charge. The data is licensed under Attribution-NonCommercial-ShareAlike International (CC BY-NC-SA).
<b>Long-term preservation</b>	Long-term preservation at <a href="https://zenodo.org">https://zenodo.org</a> . Additional storage in the data archive of the BfG. Minimum duration of the preservation at BfG 10 years from the end of the project.



**Institution: BSC**

<b>Data Description</b>	Météo-France System5 seasonal forecasts. 15 members. 1992-2012. From the EU-ROSIP ensemble.  Global fields. Precipitation, 2-metre temperature. DJF. JJA.
<b>Approximate size</b>	4GB
<b>Naming Convention</b>	VAR_DATE_LEAD_ENS.grb VAR_DATE_LEAD_ENS.nc  VAR = variable; DATE = forecast start date, LEAD = lead time, ENS = ensemble member.
<b>Repository Address</b>	ECMWF Meteorological Archival and Retrieval System (MARS).
<b>Access conditions</b>	Access via email to data.services@ecmwf.int. State in email the dataset, variables, forecast start times and lead times, and planned use of the dataset.
<b>Software for accessing the data</b>	No software provided to read datasets.
<b>Conditions of use (Licence terms, price)</b>	ECMWF terms and conditions for scientific research apply.
<b>Long-term preservation</b>	On ECMWF MARS (stored on tapes).





<b>Data Description</b>	NCEP S2S database. Global field of 2m temperature, precipitation for 1996-2015.
<b>Approximate size</b>	60 Gb
<b>Naming Convention</b>	VAR_DATE.grb VAR = variable; DATE = forecast start date
<b>Repository Address</b>	<a href="http://s2sprediction.net/">http://s2sprediction.net/</a>
<b>Access conditions</b>	<a href="https://apps.ecmwf.int/datasets/data/s2s/licence/">https://apps.ecmwf.int/datasets/data/s2s/licence/</a>
<b>Software for accessing the data</b>	No software provided to read datasets.
<b>Conditions of use (Licence terms, price)</b>	<a href="https://apps.ecmwf.int/datasets/data/s2s/licence/">https://apps.ecmwf.int/datasets/data/s2s/licence/</a>
<b>Long-term preservation</b>	On ECMWF MARS (stored on tapes).



<b>Data Description</b>	<p>Multi-Source Weighted-Ensemble Precipitation dataset (MSWEP)</p> <p>MSWEP is a weighted combination of seven datasets; two based solely on interpolation of gauge observations (CPC Unified and GPCC), three on satellite remote sensing (CMORPH, GSMaP-MVK, and TMPA 3B42RT), and two on atmospheric model reanalysis (ERA-Interim and JRA-55). <a href="https://www.hydrol-earth-syst-sci.net/21/589/2017/">https://www.hydrol-earth-syst-sci.net/21/589/2017/</a></p> <p>Precipitation, daily 0.5 1996-2015.</p>
<b>Approximate size</b>	2 Gb
<b>Naming Convention</b>	<p>DATE.grb</p> <p>DATE = date</p>
<b>Repository Address</b>	<p><a href="http://www.gloh2o.org/">http://www.gloh2o.org/</a></p> <p><a href="https://platform.princetonclimate.com/PCA_Platform/index.html">https://platform.princetonclimate.com/PCA_Platform/index.html</a></p>
<b>Access conditions</b>	<a href="http://www.gloh2o.org/">http://www.gloh2o.org/</a>
<b>Software for accessing the data</b>	No software provided to read datasets.
<b>Conditions of use (Licence terms, price)</b>	Available for research purposes with registration
<b>Long-term preservation</b>	





<b>Data Description</b>	<p>Sensitivity experiments from FP7 SPECS project from MPI-ESM, ECMWF System4, CNRM-CM5, EC-Earth v2.3 and GloSea5. Seasonal forecasts, 10 members. 1992-2010.</p> <p>Global fields. Precipitation, 2-metre temperature. DJF. JJA.</p>
<b>Approximate size</b>	2GB
<b>Naming Convention</b>	<p>VAR_DATE.nc</p> <p>VAR = variable; DATE = forecast start date,</p>
<b>Repository Address</b>	JASMIN storage (BADC)
<b>Access conditions</b>	Register to JASMIN
<b>Software for accessing the data</b>	No software provided to read datasets.
<b>Conditions of use (Licence terms, price)</b>	
<b>Long-term preservation</b>	



<b>Data Description</b>	EC-Earth (3.0.1) seasonal forecasts at T511-ORCA25 and T255-ORCA1 resolution. 1993-2009. Start dates: May 1st and November 1st.  Sea surface temperature, mean sea level pressure, 500-hPa geopotential height, sea ice.
<b>Approximate size</b>	1.4TB
<b>Naming Convention</b>	VAR_DATE.nc  VAR = variable; DATE = forecast start date.
<b>Repository Address</b>	BSC archiving system.
<b>Access conditions</b>	Access via email to  louis-philippe.caron@bsc.es. State in email the dataset, variables, forecast start times and lead times, and planned use of the dataset.
<b>Software for accessing the data</b>	No software provided to read datasets.
<b>Conditions of use (Licence terms, price)</b>	BSC and EC-Earth terms and conditions for scientific research apply.
<b>Long-term preservation</b>	On BSC archiving system.







## Institution: Deltares

<b>Data Description</b>	A high resolution (1.2x1.2km) gridded precipitation dataset with hourly time step that covers the whole Rhine basin for the period 1997-2015. Made from gauge data with the genRE interpolation scheme. See "genRE: A method to extend gridded precipitation climatology datasets in near real-time for hydrological forecasting purposes
<b>Approximate size</b>	3.21Gb
<b>Naming Convention</b>	Netcdf CF 1.6
<b>Repository Address</b>	<a href="https://doi.org/10.4121/uuid:c875b385-ef6d-45a5-a6d3-d5fe5e3f525d">https://doi.org/10.4121/uuid:c875b385-ef6d-45a5-a6d3-d5fe5e3f525d</a>
<b>Access conditions</b>	None
<b>Software for accessing the data</b>	No software provided to read datasets.
<b>Conditions of use (Licence terms, price)</b>	Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0)
<b>Long-term preservation</b>	<a href="https://doi.org/10.4121/uuid:c875b385-ef6d-45a5-a6d3-d5fe5e3f525d">https://doi.org/10.4121/uuid:c875b385-ef6d-45a5-a6d3-d5fe5e3f525d</a>

## Institution: Deltares

<b>Data Description</b>	Hourly gridded observation based estimates for energy related meteorological forcing variables for a gridded hydrological model of the Rhine basin: temperature, radiation and makkink potential evaporation.
<b>Approximate size</b>	61.6 Gb
<b>Naming Convention</b>	Netcdf CF 1.6
<b>Repository Address</b>	<a href="https://doi.org/10.4121/uuid:c875b385-ef6d-45a5-a6d3-d5fe5e3f525d">https://doi.org/10.4121/uuid:c875b385-ef6d-45a5-a6d3-d5fe5e3f525d</a>
<b>Access conditions</b>	None
<b>Software for accessing the data</b>	No software provided to read datasets.
<b>Conditions of use (Licence terms, price)</b>	Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0)
<b>Long-term preservation</b>	<a href="https://doi.org/10.4121/uuid:c875b385-ef6d-45a5-a6d3-d5fe5e3f525d">https://doi.org/10.4121/uuid:c875b385-ef6d-45a5-a6d3-d5fe5e3f525d</a>



**Institution: ECMWF**

<b>Data Description</b>	System4 seasonal forecasts (1981-2017), medium-range forecasts (2016-2019), re-forecasts (2016-2019). Global fields. Precipitation, 2-metre temperature, surface radiation, winds and humidity on pressure levels, water vapour flux extreme forecast index.
<b>Approximate size</b>	2 Tb.
<b>Naming Convention</b>	VAR_DATE_LEAD_ENS.grb VAR_DATE_LEAD_ENS.nc VAR = variable; DATE = forecast start date, LEAD = lead time, ENS = ensemble member.
<b>Repository Address</b>	ECMWF Meteorological Archival and Retrieval System (MARS).
<b>Access conditions</b>	Access via email to data.services@ecmwf.int. State in email the dataset, variables, forecast start times and lead times, and planned use of the dataset.
<b>Software for accessing the data</b>	No software provided to read datasets.
<b>Conditions of use (Licence terms, price)</b>	ECMWF terms and conditions for scientific research apply.
<b>Long-term preservation</b>	On ECMWF MARS (stored on tapes). Minimum duration of the preservation 5 years from the end of the project.





## Institution: FutureWater

<b>Data Description</b>	SPHY streamflow seasonal forecast output forced with System5 ECMWF hindcast dataset (1981-2010); SPHY streamflow output forced with Spain02 V4 dataset (1979-2010). Upper Tagus and Upper Segura river basins, Spain
<b>Approximate size</b>	600 KB.
<b>Naming Convention</b>	Pseudo_Obs_SPHY_Spain02_Output.csv SPHY_ECMWF_S5_Output.csv T0 = Forecast start date, LD = lead time, ENS = ensemble member.
<b>Repository Address</b>	<a href="https://zenodo.org/record/2593558#.XlpncfZFydl">https://zenodo.org/record/2593558#.XlpncfZFydl</a>
<b>Access conditions</b>	Open Access
<b>Software for accessing the data</b>	For reading the data the user needs data analysis software (e.g. Microsoft Excel, R)
<b>Conditions of use (Licence terms, price)</b>	Free of use
<b>Long-term preservation</b>	Minimum duration of the preservation is 5 years from the end of the project.



**Institution: Irstea**

<b>Data Description</b>	Input and output data for/from ValPrevi hydropower reservoir management model: <ul style="list-style-type: none"> <li>- Input data: synthetic reservoir inflow forecasts (daily discharges) of different quality (no bias, underestimation, over estimation, and under dispersion) for four different spread factors. 7-day medium-range forecasts (50 members; 2005-2008) over 10 catchments in France.</li> <li>- Output data (gain, release, spillage): output from the optimization (using the ensemble mean) and from the simulation (using observations)</li> </ul>
<b>Approximate size</b>	400 Mo
<b>Naming Convention</b>	<i>TBD</i>
<b>Repository Address</b>	Irstea-AN-HYDRO Archive (server)
<b>Access conditions</b>	Access via email to maria-helena.ramos@irstea.fr. State in email the needs and planned use of the dataset.
<b>Software for accessing the data</b>	Eg., Notepad (TXT files)
<b>Conditions of use (Licence terms, price)</b>	Irstea terms and conditions for scientific research apply.
<b>Long-term preservation</b>	On Irstea-AN-HYDRO Archive (server and backups). Minimum duration of the preservation: 5 years from the end of the project.





## Institution: KNMI

<b>Data Description</b>	<p>Present-day (1951-2000) and future (2026-2075) climate projections of bias-adjusted precipitation, temperature (daily mean/max/min) and potential evaporation for Belgian and French part of Meuse catchment</p> <p>Model: 16 Member RACMO-ECEARTH ensemble. Emission scenario: CMIP5-historical/RCP8.5 Horizontal resolution RCM: 12km Horizontal scale dataset: aggregated into 15 subcatchments Observational datasets used for bias-adjustment: KMI-HBV (pr) and EOBS-v14.0 (tas/tasmax/tasmin /evappot) Time resolution: 1-hourly.(pr) and daily (tas/tasmax/tasmin/evappot)</p>
<b>Approximate size</b>	1.4 Gb / 160 files.
<b>Naming Convention</b>	<p>Filename:</p> <pre>{par}_RACMO-fECEARTH-Member{mb}_{area}_obs- {obs_dataset}_{period}_{tres}_{vers}.nc par={pr/tas/tasmax/tasmin/evappot}_adjust mb=ensemble member={01,02,...,16} area={Meuse} (aggregated at sub-catchment scale) obs_dataset={HBV} (pr) / {EOBS} (tas/evappot) period={hist-1951-2000; futr-2026-2075} tres={1H} (pr) / {DD} (tas/tasmax/tasmin/evappot) vers={v2.0}(pr) / {v1.1-qq} (tas/tasmax/tasmin/evappot)</pre>
<b>Repository Address</b>	<p>KNMI data center (KDC) data.knmi.nl Name dataset: imprex_knmi_racmo_meuse ftp://data.knmi.nl/download/imprex_knmi_racmo_meuse/P20_TE11qq/</p>
<b>Access conditions</b>	Open access.
<b>Software for accessing the data</b>	NetCDF required to read data files.
<b>Conditions of use (Licence terms, price)</b>	CCO license /Free
<b>Long-term preservation</b>	In KDC. Minimum duration of the preservation 5 years from the end of the project.



**Institution: KNMI**

<b>Data Description</b>	<p>Present-day (1951-2000) and future (2026-2075) climate projections of bias-adjusted precipitation, temperature (daily mean/max/min) and potential evaporation the Netherlands (gridded dataset)</p> <p>Model: 16 Member RACMO-ECEARTH ensemble. Emission scenario: CMIP5-historical/RCP8.5 Horizontal resolution RCM: 12km Horizontal scale dataset: gridded @ 12km Observational datasets used for bias-adjustment: HYRAS (pr) and EOBS-v14.0 (tas/tasmax/tasmin /evappot) Time resolution: 1-hourly.(pr) and daily (tas/tasmax/tasmin/evappot)</p>
<b>Approximate size</b>	44 Gb / 160 files
<b>Naming Convention</b>	<p>Filename:</p> <p>{par}_RACMO-fECEARTH-Member{mb}_{area}_obs-{obs_dataset}_{period}_{tres}_{vers}.nc</p> <p>par={pr/tas/tasmax/tasmin/evappot}_adjust mb=ensemble member={01,02,...,16} area={NL-grid} (gridded: rotated pole coordinate) obs_dataset={HYRAS} (pr) / {EOBS} (tas/evappot) period={hist-1951-2000; futr-2026-2075} tres={1H} (pr) / {DD} (tas/tasmax/tasmin/evappot) vers={v2.0}(pr) / {v1.1-qq} (tas/tasmax/tasmin/evappot)</p>
<b>Repository Address</b>	<p>KNMI data center (KDC) data.knmi.nl</p> <p>Name dataset: imprex_knmi_racmo_nlgrid</p> <p>ftp://data.knmi.nl/download/imprex_knmi_racmo_nlgrid/P20_TE11qq/</p>
<b>Access conditions</b>	Open access.
<b>Software for accessing the data</b>	NetCDF required to read data files.
<b>Conditions of use (Licence terms, price)</b>	CCO license /Free
<b>Long-term preservation</b>	In KDC. Minimum duration of the preservation 5 years from the end of the project.





## Institution: KNMI

<b>Data Description</b>	<p>Present-day (1951-2000) and future (2026-2075) climate projections of bias-adjusted precipitation, temperature (daily mean/max/min) and potential evaporation for German and Swiss part of the Rhine catchment</p> <p>Model: 16 Member RACMO-ECEARTH ensemble.</p> <p>Emission scenario: CMIP5-historical/RCP8.5</p> <p>Horizontal resolution RCM: 12km</p> <p>Horizontal scale dataset: aggregated into 134 subcatchments</p> <p>Observational datasets used for bias-adjustment: HYRAS (pr) and EOBS-v14.0 (tas/tasmax/tasmin /evappot)</p> <p>Time resolution: 1-hourly.(pr) and daily (tas/tasmax/tasmin/evappot)</p>
<b>Approximate size</b>	9.2 Gb / 160 files
<b>Naming Convention</b>	<p>Filename:</p> <p>{par}_RACMO-fECEARTH-Member{mb}_{area}_obs-{obs_dataset}_{period}_{tres}_{vers}.nc</p> <p>par={pr/tas/tasmax/tasmin/evappot}_adjust</p> <p>mb=ensemble member={01,02,...,16}</p> <p>area={Meuse} (aggregated at subcatchment scale)</p> <p>obs_dataset={HYRAS} (pr) / {EOBS} (tas/evappot)</p> <p>period={hist-1951-2000; futr-2026-2075}</p> <p>tres={1H} (pr) / {DD} (tas/tasmax/tasmin/evappot)</p> <p>vers={v2.0}{pr} / {v1.1-qq} (tas/tasmax/tasmin/evappot)</p>
<b>Repository Address</b>	<p>KNMI data center (KDC) data.knmi.nl</p> <p>Name dataset: imprex_knmi_racmo_rhine</p> <p>ftp://data.knmi.nl/download/imprex_knmi_racmo_rhine/P20_TE11qq/</p>
<b>Access conditions</b>	Open access.
<b>Software for accessing the data</b>	NetCDF required to read data files.
<b>Conditions of use (Licence terms, price)</b>	CCO license /Free
<b>Long-term preservation</b>	In KDC. Minimum duration of the preservation 5 years from the end of the project.



**Institution: KNMI**

<b>Data Description</b>	Present-day (1951-2000) and future (2026-2075) climate projections of wind-induced surge along Dutch North Sea coast. Hourly time series of WAQUA surge, WAQUA tide , harmonic tide. Surge model: WAQUA. Atmospheric forcing: 16 Member RACMO-ECEARTH ensemble. Horizontal Resolution WAQUA: 8x8km <sup>2</sup> Temporal resolution WAQUA output: 1-hourly Temporal resolution atmospheric forcings: 3hourly.
<b>Approximate size</b>	21 Gb / 256 files
<b>Naming Convention</b>	Filename: WAQUA-fRACMO-ECEARTH- Member{mb}_{station}_{yi-yf}-1H_v1.1.nc mb=ensemble member={01,02,...,16} yi-yf=period={1951-2000,2026-2075} stations={delfzijl,denoever,harlinge,hoekvanh, ijmuiden,kornwerd,lauwerso,vlissing}
<b>Repository Address</b>	KNMI data center (KDC) data.knmi.nl Name dataset: imprex_knmi_waqua_racmo ftp://data.knmi.nl/download/imprex_knmi_waqua_racmo/v1.1/
<b>Access conditions</b>	Open access.
<b>Software for accessing the data</b>	NetCDF required to read data files.
<b>Conditions of use (Licence terms, price)</b>	CCO license /Free
<b>Long-term preservation</b>	In KDC. Minimum duration of the preservation 5 years from the end of the project.







## Institution: SMHI

<b>Data Description</b>	HARMONIE-AROME numerical weather prediction forecasts for use in hydrological models. Data are for (1) a Southern European limited area domain for eight cases (20111101-20111105, 20130612-20130619, 20130721-20130728, 20140622-20140625, 20140628-20140705, 20140724-20140731, 20141005-20141011, 20150910-20150916). Forecasts of 3h accumulated precipitation (unit:kg/m <sup>2</sup> ) and 2-metre temperature (unit: K) produced 4 times a day up to +48 h with an output interval. Data is also for (2) a Scandinavian domain for two cases ( 20130908-20140625, 20150718-20150809). Forecasts of 3h accumulated precipitation (unit:kg/m <sup>2</sup> ) and 2-metre temperature (unit: K) produced 2 times a day up to +96 h.
<b>Approximate size</b>	100 Gb.
<b>Naming Convention</b>	harmonie_VAR_DATE_00toLEAD.nc VAR = variable (Prec or T2m), DATE = forecast start date, LEAD = lead time (48 or 96).
<b>Repository Address</b>	Swedish National Supercomputer Centre (NSC) tape storage system.
<b>Access conditions</b>	Access via email to <a href="mailto:rossby.data@smhi.se">rossby.data@smhi.se</a> . State in email the dataset of interest.
<b>Software for accessing the data</b>	No software provided to read the data set.
<b>Conditions of use (Licence terms, price)</b>	Freely available for scientific research.
<b>Long-term preservation</b>	Stored on tapes at Swedish National Supercomputer Centre (NSC). Minimum duration of the preservation is 10 years from the end of the project.



**Institution: SMHI**

<b>Data Description</b>	<p>Data from HCLIM-ALADIN and HCLIM-AROME regional climate models applied over two limited-area domains; (1) Scandinavia and (2) South-western Europe. For each domain simulations are made for ten summer months, each month simulated twice: i) historically by downscaling the ERA-Interim reanalysis and ii) in a surrogate climate change setting, with a two-degree warming of the ERA-Interim boundary conditions. The simulated months are:</p> <p><b>Scandinavia:</b> June 2000, July 2002, August 2004, July 2005, July 2007, August 2008, July and August 2010, June and July 2011;</p> <p><b>South-western Europe:</b> September 2000, July 2001, August and September 2002, September 2005, September 2006, September 2009, August and September 2010, July 2011.</p> <p><i>For each simulation the following variables are available:</i></p> <p><b>Precipitation</b> (units kg/m<sup>2</sup>, time resolution HCLIM-ALADIN 1 hour; 15 min HCLIM-AROME), <b>T2m</b> (units K, time res 1 h), <b>MSLP</b> (units Pa, time res HCLIM-ALADIN 1 h, HCLIM-AROME 3 h), <b>2m spec humidity</b> (units kg kg<sup>-1</sup>, time res 1 h), <b>water vapor path</b> (HCLIM-AROME only; units kg m<sup>-2</sup>, time res 1 hour).</p> <p><i>At pressure levels (hPa) 350, 500, 600, 700, 775, 850, 900, 950, 1000:</i> <b>geopotential</b> (units m<sup>2</sup>/s<sup>-2</sup>, time res HCLIM-ALADIN 1 h, HCLIM-AROME 6 h), <b>temperature</b> (units K, time res HCLIM-ALADIN 1 h, HCLIM-AROME 3 h), <b>spec humidity</b> (units kg kg<sup>-1</sup>, time res HCLIM-ALADIN 1 h, HCLIM-AROME 3 h).</p>
<b>Approximate size</b>	Ca 1.8 Tb.





<b>Naming Convention</b>	VAR_YYYYMM.nc VAR = variable name, YYYY = simulation year, MM = simulation month.
<b>Repository Address</b>	Swedish National Supercomputer Centre (NSC) tape storage system.
<b>Access conditions</b>	Access via email to <a href="mailto:rossby.data@smhi.se">rossby.data@smhi.se</a> . State in email the dataset of interest.
<b>Software for accessing the data</b>	No software provided to read the data set.
<b>Conditions of use (Licence terms, price)</b>	Freely available for scientific research.
<b>Long-term preservation</b>	Stored on tapes at Swedish National Supercomputer Centre (NSC). Minimum duration of the preservation is 10 years from the end of the project.

## Institution: SMHI

<b>Data Description</b>	E-HYPE hydrological model-based seasonal re-forecasts of river discharge. Data are for the pan-European domain over the period 1993-2015. Forecasts of monthly averages of river discharge (m <sup>3</sup> /s) initialized every month and extending up to 7 months into the future.
<b>Approximate size</b>	20 Gb (for the entire pan-European domain)
<b>Naming Convention</b>	River flow (monthly mean).nc Ensemble members: from 415 to 465. Unit: monthly means (m <sup>3</sup> /s). Subid: the ID of the subbasin.
<b>Repository Address</b>	<a href="http://www.hypeweb.smhi.se">www.hypeweb.smhi.se</a>
<b>Access conditions</b>	Open access via the <a href="http://www.hypeweb.smhi.se">www.hypeweb.smhi.se</a> for single points. Regular delivery requires subscription linked to a cost. Can be ordered through <a href="http://www.hypeweb.smhi.se">www.hypeweb.smhi.se</a>
<b>Software for accessing the data</b>	Open and interactive web interface.
<b>Conditions of use (Licence terms, price)</b>	License Creative commons Attribution - ShareAlike 4.0 International (CC BY-SA 4.0).
<b>Long-term preservation</b>	Operational system managed and sustained at SMHI.



**Institution: TUC**

<b>Data Description</b>	<p>Discharge seasonal forecasts based on ECMWF System4 (1981-2003) and GLOSEA5 (1996-2003) for the Koutsoulidis catchment as input to the Faneromeni reservoir, Crete, Greece. The location of the Koutsoulidis catchment as well as the methodology of data development and validation are described in the open access publication by Grillakis et al., 2018 (<a href="https://www.mdpi.com/2073-4441/10/11/1593">https://www.mdpi.com/2073-4441/10/11/1593</a>)</p> <p>Seasonal forecasts of Standardized Precipitation Index (SPI) based on ECMWF System4 (1981-2009) and GLOSEA5 (1996-2009) for the Messara catchment as described in the in the open access publication by Grillakis et al., 2018 (<a href="https://www.mdpi.com/2073-4441/10/11/1593">https://www.mdpi.com/2073-4441/10/11/1593</a>)</p>
<b>Approximate size</b>	1 Mb.
<b>Naming Convention</b>	Filenames are self-descriptive LT = lead time in months, r = ensemble member
<b>Repository Address</b>	<a href="https://zenodo.org/communities/impres/">https://zenodo.org/communities/impres/</a>
<b>Access conditions</b>	Open access
<b>Software for accessing the data</b>	[For reading the data the user needs OpenOffice or Microsoft excel or software]
<b>Conditions of use (Licence terms, price)</b>	Creative Commons Attribution 4.0 international
<b>Long-term preservation</b>	On ZENODO open data platform. Minimum duration of the preservation 5 years from the end of the project.





## Institution: UK Met Office

<b>Data Description</b>	GloSea5 seasonal re-forecasts (1993-2016): <ul style="list-style-type: none"><li>• Precipitation</li><li>• Mean Sea Level Pressure</li></ul>
<b>Approximate size</b>	40 Gb
<b>Naming Convention</b>	
<b>Repository Address</b>	GloSea5 hindcasts available on the Copernicus Climate Data Store (CDS)
<b>Access conditions</b>	Access via the CDS <a href="https://cds.climate.copernicus.eu#!/home">https://cds.climate.copernicus.eu#!/home</a>
<b>Software for accessing the data</b>	See the CDS download tools
<b>Conditions of use (Licence terms, price)</b>	See the CDS licence terms (Free)
<b>Long-term preservation</b>	Minimum duration of 5 years

