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ISLSCP II ECMWF Near-Surface Meteorology Parameters

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Revision date: May 29, 2014

Summary:

This data set for the ISLSCP Initiative II data collection provides meteorology data with fixed, monthly, monthly-6-hourly, 6-hourly, and 3-hourly temporal resolutions. The data were derived from the European Centre for Medium-range Weather Forecasts (ECMWF) near-surface meteorology data set, 40-year re-analysis, or ERA-40 (Simmons and Gibson, 2000), which covers the years 1957 to 2001. The data were processed onto the ISLSCP II Earth grid with a spatial resolution of 1-degree in both latitude and longitude, and span the common ISLSCP II period from 1986 to 1995.

The ECMWF forecast system is called the Integrated Forecasting System (IFS) and was developed in co-operation with Meteo-France. For ERA40 it is used with 60 levels from the top of the model at 10 Pa to the lowest level at about 10 m above the surface.

There are 289 compressed (.tar.gz) data files with this data set.

Additional Documentation:

This data set is one of the products of the **International Satellite Land-Surface Climatology Project, Initiative II (ISLSCP II)** data collection which contains 50 global time series data sets for the ten-year period 1986 to 1995. A complete description of the data, it's derivation, acknowledgements, and references provided by the ISLSCP II Data Management Staff is included with this data set as a companion file named [1_ecmwf_met_doc.pdf](#).

ISLSCP II is a consistent collection of data sets that were compiled from existing data sources and algorithms, and were designed to satisfy the needs of modelers and investigators of the global carbon, water and energy cycle. The data were acquired from a number of U.S. and international agencies, universities, and institutions. The data and documentation have undergone two peer reviews.

ISLSCP is one of several projects of Global Energy and Water Cycle Experiment (GEWEX) [<http://www.gewex.org/>] and has the lead role in addressing land-atmosphere interactions -- process modeling, data retrieval algorithms, field experiment design and execution, and the development of global data sets.

Data Citation:

Cite this data set as follows:

Beljaars, A.C.M., A.K. Betts, and E. Brown de Colstoun. 2014. ISLSCP II ECMWF Near-Surface Meteorology Parameters. In Hall, Forrest G., G. Collatz, B. Meeson, S. Los, E. Brown de Colstoun, and D. Landis (eds.). ISLSCP Initiative II Collection. Data set. Available on-line [<http://daac.ornl.gov/>] from Oak Ridge National Laboratory Distributed Active Archive Center, Oak Ridge, Tennessee, USA. <http://dx.doi.org/10.3334/ORNLDAAC/1222>

File Information:

The archived data sets for ISLSCP II have been organized by categories. This data set is in the Near-Surface Meteorology category.

Data Set Spatial Extent: Global

Westernmost Longitude: -180 W

Easternmost Longitude: 180 E

Northernmost Latitude: 90 N

Southernmost Latitude: -90 S

Projection: Geographic

Data Set Spatial Resolution: one degree in both latitude and longitude

Data File Format

There are 289 compressed data files (.tar.gz) with this data set. The data are structured so that the upperleft corner of the first pixel is located at 90 North latitude and 180 West longitude. Each pixel represents a 1 by 1-degree area. The files are in standard arc/info ascii grid format.

Table 1. Compressed file names and descriptions

Compressed File Names	Number of Files in Compressed File	Description
FIXED-FIELDS DATA FILES-There are 21 *.asc files for the years 1986-1995		
E40_fixed_1d_monthly.tar.gz	21	Data are year-independent for 10 variables. When extrapolated, the files are named E40_variable_fixed_1d_m00.asc. The variables include: Albedo background (AL) High vegetation fraction (CVH) Low vegetation fraction (CVL) Land/water mask (LMS) Logarithm of surface roughness length for heat (LSRH) Surface roughness length for momentum (SR) Low vegetation dominant type (TVL) High vegetation dominant type (TVH) Geopotential of model surface (Orography * g) (Z)
MONTHLY MEAN DATA FILES		
E40_monthly_analysis.tar.gz	5,004	Analysis files ("an" in file names for 15 variables, for the years 1986-1995. There are 15 subdirectories, one for each variable. The subdirectories are named E40_variable_1d_monthly. The variables include: Snow depth (SD) Snow albedo (ASN) Snow temperature (TSN) Snow density (RSN) Soil Moisture Layer 1 (SWL1) Soil Moisture Layer 1 (SWL2) Soil Moisture Layer 1 (SWL3) Soil Moisture Layer 1 (SWL4) Soil Temperature Layer 1 + Sea Surface Temperature (SST) over Ocean (STL1) Soil Temperature Layer 2 + SST (STL2) Soil Temperature Layer 3 + SST (STL3) Soil Temperature Layer 3 + SST(STL4) Sea Ice Fraction (CI) Soil Moisture Availability Index (Root Zone) (SMIR) Soil Moisture Availability Index (Bare Soil) (SMIB)
E40_monthly_precip.tar.gz:	1,920	Monthly precipitation averaged over four different forecast ranges, indicated by fc1 through fc4 in the file names for four variables. There are four subdirectories for the four variables named E40_variable_1d_monthly. The variables are Convective Precipitation Rate (CP) Large Scale Precipitation Rate (LSP) Total Precipitation Rate (TOTP) Snow Fall Rate (SF)
6-HOURLY DIURNAL FILES-The first file listed contains averaged data files (av in file names) file; all other files are analyses (an) files. There are a total of 12,350 files for 13 variables for the years 1985-1995.		
E40_10Sav_1d_diurnal6h.tar.gz	480	Average (av) files for horizontal wind speed at 10 m
E40_10Uan_1d_diurnal6h.tar.gz	926	U-component of wind speed at 10 m
E40_10Van_1d_diurnal6h.tar.gz	960	V-component of wind speed at 10 m
E40_2Dan_1d_diurnal6h.tar.gz	960	Dew point at 2 m level
E40_2Tan_1d_diurnal6h.tar.gz	960	Temperature at 2 m level
E40_Q57an_1d_diurnal6h.tar.gz	960	Specific humidity at level 57

E40_Q60an_1d_diurnal6h.tar.gz	960	Specific humidity at level 60
E40_T57an_1d_diurnal6h.tar.gz	960	Temperature at level 57
E40_T60an_1d_diurnal6h.tar.gz	960	Temperature at level 60
E40_U57an_1d_diurnal6h.tar.gz	960	U-component of wind speed at level 57
E40_U60an_1d_diurnal6h.tar.gz	864	U-component of wind speed at level 60
E40_V57an_1d_diurnal6h.tar.gz	960	V-component of wind speed at level 57
E40_V60an_1d_diurnal6h.tar.gz	960	V-component of wind speed at level 60
E40_LNPan_1d_diurnal6h.tar.gz	480	Surface Pressure
6-HOURLY FILES- Analyses data (an) in file names). The data are for the years 1985-1995		
E40_2Dan_1d_6hourly.tar.gz	14,608	Dew point at 2 m level
E40_2Tan_1d_6hourly.tar.gz	14,608	Temperature at 2 m level
3-HOURLY FILES (Forecasts)- The data are for 27 variables for the years 1985-1995, for a total of 270 data files (27 variables x 10 years).		
E40_CP_1d_3hourly_YYYY.tar.gz	29,216	Convective Precipitation Rate
E40_EWSS_1d_3hourly_YYYY.tar.gz	29,216	U stress
E40_2D_1d_3hourly_YYYY.tar.gz	29,216	Dew point at 2 m level
E40_2T_1d_3hourly_YYYY.tar.gz	29,216	Temperature at 2 m level
E40_NSSS_1d_3hourly_YYYY.tar.gz	29,216	V stress
E40_Q57_1d_3hourly_YYYY.tar.gz	29,216	Specific humidity at level 57
E40_Q60_1d_3hourly_YYYY.tar.gz	29,216	Specific humidity at level 60
E40_RO_1d_3hourly_YYYY.tar.gz	29,216	Runoff Rate
E40_SKT_1d_3hourly_YYYY.tar.gz	29,216	Skin Temperature
E40_SLHF_1d_3hourly_YYYY.tar.gz	29,216	Surface latent heat flux
E40_SSHF_1d_3hourly_YYYY.tar.gz	29,216	Surface sensible heat flux
E40_STRD_1d_3hourly_YYYY.tar.gz	29,216	Surface LW downward
E40_T57_1d_3hourly_YYYY.tar.gz	29,216	Temperature at level 57
E40_U57_1d_3hourly_YYYY.tar.gz	29,216	U-component of wind speed at level 60
E40_U60_1d_3hourly_YYYY.tar.gz	29,216	U-component of wind speed at level 60
E40_T60_1d_3hourly_YYYY.tar.gz	29,216	Temperature at level 60
E40_V57_1d_3hourly_YYYY.tar.gz	29,216	V-component of wind speed at level 57
E40_V60_1d_3hourly_YYYY.tar.gz	29,216	V-component of wind speed at level 60
E40_LSP_1d_3hourly_YYYY.tar.gz	28,976	Large Scale Precipitation Rate
E40_10U_1d_3hourly_YYYY.tar.gz	28,968	U-component of wind speed at 10 m
E40_10V_1d_3hourly_YYYY.tar.gz	29,216	V-component of wind speed at 10 m
E40_SSR_1d_3hourly_YYYY.tar.gz	29,216	Surface net SW radiation
E40_STR_1d_3hourly_YYYY.tar.gz	29,216	Surface net LW radiation
E40_SSRD_1d_3hourly_YYYY.tar.gz	29,216	Surface SW downward
E40_SP_1d_3hourly_YYYY.tar.gz	28,652	Surface pressure
E40_E_1d_3hourly_YYYY.tar.gz	29,216	Surface evaporation rate
E40_SF_1d_3hourly_YYYY.tar.gz	29,216	Snowfall rate

Please refer to the companion files [0_ecmwf_met_readme.txt](#), [ecmwf_data_files.pdf](#) , and [1_ecmwf_met_doc.pdf](#) for additional information on the data file contents and naming conventions.

Data Access:

These data are available through the Oak Ridge National Laboratory (ORNL) Distributed Active Archive Center (DAAC) [<http://daac.ornl.gov>].

Data Archive Contact Information:

E-mail: uso@daac.ornl.gov
Telephone: +1 (865) 241-3952

References:

Simmons A.J. and J.K. Gibson, 2000. The ERA-40 Project Plan, ERA-40 Project Report Series No. 1, ECMWF, Reading RG2 9AX, UK., 63pp.

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