ISLSCP II Reanalysis Near-Surface Meteorology Data

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Revision date: June 10, 2014

Summary:

This data set for the ISLSCP Initiative II data collection provides near surface meteorological variables, fluxes of heat, moisture and momentum at the surface, and land surface state variables, all with a spatial resolution of 1 degree in both latitude and longitude. There are four temporal categories of data: time invariant and monthly mean annual cycle fields (together referred to as "fixed" fields), monthly mean fields, monthly 3-hourly diurnal, and 3-hourly fields. Two types of variables exist in this data; instantaneous fields (primarily state variables), and average fields (primarily flux fields expressed as a rate).

The Center for Ocean-Land Atmosphere Studies (COLA) near-surface data set for ISLSCP II was derived from the National Centers for Environmental Prediction (NCEP)/Department of Energy (DOE) Atmospheric Model Inter-comparison Project (AMIP-II) reanalysis (http://www.cpc.ncep.noaa.gov/products/wesley/reanalysis2/), covering the years from 1979-2003. The data set for ISLSCP II covers the period from 1986 to 1995. The purpose of the reanalysis was to provide an improved version of the original NCEP/National Center for Atmospheric Research (NCAR) reanalysis for General Circulation Model (GCM) validation. To co-register the NCEP/DOE reanalysis on the ISLSCP 1-degree grid, the reanalysis data set was regridded from its native T62 Gaussian grid) resolution (192 x 94 grid boxes globally) to 1-degree ISLSCP II required resolution.

There are 136 compressed (.tar.gz) data files with this data set. When extrapolated, the individual data files are in ASCII (.asc) format.

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_ncep_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:

Dirmeyer, P., M. Zhao, G. White, and W. Ebisuzaki. 2014. ISLSCP II Reanalysis Near-Surface Meteorology Data. 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/1226

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 136 compressed data files (.tar.gz) with this data set. The files are in standard arc/info ASCII grid format (.asc). 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.

Table 1. **Compressed file names and descriptions**

Compressed File Names	Number of Files in Compressed File	Description
FIXED-FIELDS DATA FILES-data are for the years 1986-1995		
N2_fixed_1d.tar.gz	27	When extrapolated, the files are named N2_**variable**_fixed_1d_mZZ.asc. The variables include: Snow-free surface albedo (**falbedo**) Orographic height above MSL (**forogrd**) Plant resistance function (**fresis**) Surface roughness length for momentum and heat (**frough**) Data mapping mask (**imask**)
MONTHLY DATA FILES		
N2_snc_1d_monthly.tar.gz	120	Average files ("av" in file names) for the years 1986-1995. Variable=Fraction of snow cover (**snc**)
N2_snd_1d_monthly.tar.gz	120	Average files ("av" in file names) for the years 1986-1995. Variable=Snow cover in terms of water (**snd**)
N2_sw10_1d_monthly.tar.gz	480	Maximum and minimum values, and standard deviation ("mx, mn, and sd" in file names) for the years 1986-1995. Variable= (**sw**)
N2_sw200_1d_monthly.tar.gz	480	Maximum and minimum values, average, and standard deviation ("mx, mn, av and sd" in file names) for the years 1986-1995. Variable=Subsurface layer (10-200 cm) volumetric soil moisture (**sw200**)
N2_t10_1d_monthly.tar.gz	480	Maximum and minimum values, average, and standard deviation ("mx, mn, av and sd" in file names) for the years 1986-1995. Variable=Surface layer (0-10 cm) soil temperature (**t10**)
N2_t200_1d_monthly.tar.gz	480	Average files ("av" in file names) for the years 1986-1995. Variable=Subsurface layer (10-200 cm) soil temperature (**t200**)
3-HOURLY DIURNAL FILES		
N2_dlw_1d_diurnal.tar.gz	960	Average files ("av" in file names) for the years 1986-1995. Variable=Surface downward long wave radiation (**dlw)**
N2_dsw_1d_diurnal.tar.gz	960	Average files ("av" in file names) for the years 1986-1995. Variable=Surface downward short wave radiation (**dsw)**
N2_lh_1d_diurnal.tar.gz	895	Average files ("av" in file names) for the years 1986-1995. Variable=Surface latent heat flux (**lh**)
N2_prec_1d_diurnal.tar.gz	960	Average files ("av" in file names) for the years 1986-1995. Variable=Total precipitation rate (**prec**)
N2_pres_1d_diurnal.tar.gz	960	Instantaneous files ("in" in file names) for the years 1986-1995. Variable=Surface pressure (**pres**)
N2_roff_1d_diurnal.tar.gz	960	Average files ("av" in file names) for the years 1986-1995. Variable=Surface runoff (**roff**)

N2_sh_1d_diurnal.tar.gz	668	Average files ("av" in file names) for the years 1986/01/01-1993/06/30. Variable=Surface sensible heat flux (**sh**)
N2_snlw_1d_diurnal.tar.gz	685	Average files ("av" in file names) for the years 1986-1995 (there are no files for 1992 or 1993). Variable=Surface net long wave radiation (**snlw**)
N2_snr_1d_diurnal.tar.gz	960	Average files ("av" in file names) for the years 1986-1995. Variable=Snowfall rate (**snr**)
N2_snsw_1d_diurnal.tar.gz	960	Average files ("av" in file names) for the years 1986-1995. Variable=Surface net short wave radiation (**snsw**)
N2_spfh_1d_diurnal.tar.gz	864	Instantaneous files ("in" in file names) for the years 1986-1995. Variable=Specific humidity at 2 m AGL (**spfh**)
N2_tmax_1d_diurnal.tar.gz	960	Instantaneous files ("in" in file names) for the years 1986-1995. Variable=Maximum of temperature at 2 m (**tmax**)
N2_tmin_1d_diurnal.tar.gz	960	Instantaneous files ("in" in file names) for the years 1986-1995. Variable=Minimum of temperature at 2 m AGL (**tmin**)
N2_tmp_1d_diurnal.tar.gz	960	Instantaneous files ("in" in file names) for the years 1986-1995. Variable=Temperature at 2 m AGL (**tmp**)
N2_tnlw_1d_diurnal.tar.gz	960	Average files ("av" in file names) for the years 1986-1995. Variable=TOA (Top of Atmosphere) outgoing long wave radiation (**tnlw**)
N2_tnsw_1d_diurnal.tar.gz	960	Average files ("av" in file names) for the years 1986-1995. Variable=TOA (Top of Atmosphere) net short wave radiation (**tnsw**)
N2_u10_diurnal.tar.gz	960	Instantaneous files ("in" in file names) for the years 1986-1995. Variable=Zonal component of wind at 10 m AGL (**u10**)
N2_ustr_1d_diurnal.tar.gz	960	Instantaneous files ("in" in file names) for the years 1986-1995. Variable=Zonal wind stress (**ustr**)
N2_v10_1d_diurnal.tar.gz	960	Instantaneous files ("in" in file names) for the years 1986-1995. Variable=Meridional component of wind at 10 m AGL (**v10**)
N2_vstr_1d_diurnal.tar.gz	960	Instantaneous files ("in" in file names) for the years 1986-1995. Variable=Zonal wind stress (**vstr**)
3-HOURLY FILES- note that there are 10 files per variable (for each year of data)		
N2_crp_1d_xxxx_3hourly.tar.gz	29,200	Average files ("av" in file names) for the years 1986-1995. Variable=Convective precipitation rate (**crp**)
N2_dlw_1d_xxxx_3hourly.tar.gz	24,328	Average files ("av" in file names) for the years 1987-1995. Variable=Surface downward long wave radiation (**dlw)**
N2_dsw_1d_xxxx_3hourly.tar.gz	28,224	Average files ("av" in file names) for the years 1986-1995. Variable=Surface downward short wave radiation (**dsw)**
N2_prec_1d_xxxx_3hourly.tar.gz	27,744	Average files ("av" in file names) for the years 1986-1995. Variable=Total precipitation rate (**prec**)
N2_snlw_1d_xxxx_3hourly.tar.gz	29,200	Average files ("av" in file names) for the years 1986-1995. Variable=Surface net long wave radiation (**snlw**)
N2_snr_1d_xxxx_3hourly.tar.gz	29,200	Average files ("av" in file names) for the years 1986-1995. Variable=Snowfall rate (**snr**)
N2_snsw_1d_xxx_3hourly.tar.gz	29,200	Average files ("av" in file names) for the years 1986-1995. Variable=Surface net short wave radiation (**snsw**)
N2_spfh_1d_xxxx_3hourly.tar.gz	28,712	Instantaneous files ("in" in file names) for the years 1986-1995. Variable=Specific humidity at 2 m AGL (**spfh**)
N2_tmp_1d_xxxx_3hourly.tar.gz	29,200	Instantaneous files ("in" in file names) for the years 1986-1995. Variable=Temperature at 2 m AGL (**tmp**)
N2_w10_1d_xxxx_3hourly.tar.gz	2,484	Instantaneous files ("in" in file names) for the years 1986-1995. Variable=Wind speed at 10 m AGL (**w10**)
N2_snd_1d_xxxx_3hourly.tar.gz	29,200	Instantaneous files ("in" in file names) for the years 1986-1995. Variable=Snow cover in terms of water (snd)

Please refer to the companion files 0_ncep_met_readme.txt and 1_ncep_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:

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