Metadata and Data Quality Statement

Data and Information – Knowledge Division - DPE Water

Info Asset Details

Enter information about the resource you are attaching to your asset record	
Name	Water Modelling – Climate Data
Description	Climate data is a fundamental input dataset required for water modelling. Rainfall and potential evapotranspiration are the two main types of climate required for all type of water models. Temperature data is used in some of the water models (in particular for snowmelt modelling, water demand modelling). Climate data in daily temporal resolution is used as input data to water models of varying types, purposes, and complexity. The water models transform this input data to produce a range of water related modelled data. There are three sub-categories of climate data used in our water models: (a) observed data, (b) stochastic data, and (c) stochastic data perturbed by results from climate models for projected greenhouse gas emission scenarios. The observed data (a) is downloaded from the SILO data-base of Australian climate data (https://www.longpaddock.qld.gov.au/silo/), which has climate data from 1889-present based on instrumental records at thousands of climate stations. Observed data in this case also refers to forms of evapotranspiration data derived from other observed climate data. The stochastic data b) are 10,000-year daily data sets of each climate data at different climate stations generated using observed data sets combined with palaeo-climate information. This work was undertaken by researchers at University of Adelaide and University of Newcastle and used in Regional Water Strategies. Stochastic climate data is published as open data. The climate change perturbed data (c) are 10,000-year daily data sets of rainfall and potential evapo-transpiration developed by combining the stochastic data with results of changes in climate based on results of the NARCliM climate models that show the greatest reductions in rainfall.
Format	ZIP
Publish resource as open data?	Yes

Scope, coverage and geography

Enter information about the scope, coverage and geography of the Asset(s)	The stochastic climate data are available for a large number of climate stations across NSW. The stochastic data are 10,000-year daily data sets of different climate variables (mainly rainfall and evapotranspiration) at various climate stations generated using observed data sets at those stations combined with palaeo-logical climate information. This was undertaken by researchers at University of Adelaide and University of Newcastle and used in Regional Water Strategies. The stochastic data were generated region by region and spatial and temporal consistency maintained between regions (with the exception of South Coast which employed a different method). The data are available for the following regions of NSW: • Border Rivers • Namoi • Macquarie • Lachlan • Western region (up to Wilcannia) • Southern system (covering: Snowy, Murrumbidgee, Murray and Lower Darling) • Far North Coast • North Coast • Lower North Coast • South Coast.
Title describing the files:	The climate for each climate variable is uploaded as a single ZIP file, which includes three files: 1. a .csv file of daily climate data of 10,000 years (format: date, data; filename starts with station ID) 2. a pdf file of the meta data of the climate data describing the geographic location of the climate station, data type, period of observed data used for generating stochastic data, a location map. 3. a pdf file of the quality assurance information. The climate variables include one or more of the following: rainfall, evapotranspiration (Mwet: Morton's wet area potential evapotranspiration, Mlake: Morton's lake evaporation, Penman-Monteith reference evapotranspiration (FAO56)), Maximum temperature, Minimum temperature. Note: Within each ZIP file, the number seen within the filename i.e. 59093_SILO_Rain.zip represents the Station ID Number 59093.

Files, Outputs and Interpretation

Enter information about the Output and Interpretation	The stochastic data are 10,000-year daily data sets at different climate stations, which were generated using observed data sets combined with palaeo-logical climate data information. This work was undertaken by researchers at University of Adelaide and University of Newcastle and used in Regional Water Strategies. The stochastic data were generated region by region with spatial and temporal consistency of the data between regions maintained. Stochastic datasets were generated using the observed climate data and paleo-climatic information.

Accuracy and Error

Enter information about the Output and Interpretation	A common case to evaluate stochastic data is how well the quantiles of a distribution are matched between observations and simulations. Technical reports of stochastic data generation by the University of Adelaide provides detailed quality assessments of stochastic climate at every climate for each region. Two tests were used to evaluate 'goodness of fit' of distribution quantiles and classify the fit of the entire distribution to a relevant category. The two tests were: • Test 1: Are more than 90% of the observations within the 90% confidence intervals of the simulated data?, • Test 2: Comparing the simulated 90% confidence intervals to the 90% range of sampling variability for each statistic, are more than 90% of the intervals overlapping? Based on the results of these two tests, stochastic data at each site is labelled as good, fair or poor. The details of the quality evaluations are documented in the technical reports. The pdf file of the quality assurance statement provided with stochastic data for each climate station presents several statistics including: annual exceedance probability, monthly distribution, daily exceedance probability and minimum total annual rainfall for up to 5 consecutive years.

Additional Comments

Enter any additional comments pertaining to the Asset or files within	Click or tap here to enter text.

Contact

For further information on this dataset contact:

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