

Name of dataset or data source:

WATER MODELLING

Custodian of the dataset or data source:

Chief Knowledge Officer, Water Knowledge

Description:

The Department of Planning and Environment – Water is working to make models and data publicly available. These can be grouped into three high level categories:

1) **Climate Data:** The fundamental input for Water models is climate data in the form of daily rainfall and potential evapotranspiration. This data is input 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:

- **observed data:** The observed data is downloaded from the Silo database <https://www.longpaddock.qld.gov.au/silo/> which has data from 1889-present based on recorded rainfall at thousands of locations, and derived data for various evapotranspiration data sets. We use patched-point rainfall, Morton’s wet area potential evapotranspiration, and Morton’s lake evaporation from Silo
- **stochastic data:** The stochastic data are 10,000-year daily data sets of rainfall and potential evapotranspiration generated using observed data sets combined with palaeo-logical climate data. This work has been undertaken by researchers at University of Adelaide and University of Newcastle and used in Regional Water Strategies.
- **stochastic data perturbed** by results from climate models for projected greenhouse gas emission scenarios. The climate change perturbed data (1c) are 10,000-year daily data sets of rainfall and potential evapo-transpiration developed by combining the stochastic data with results reductions changes in climate based on results of the NARClIM climate models that show the greatest reductions in rainfall. Note: The Department does not own the IP of NARClIM products to release any climate data (such as stochastic data perturbed) with NARClIM climate projection. NARClIM data is available on public domain for users to download directly such as <https://climatedata-beta.environment.nsw.gov.au/>

2) **Water Models:** (Not yet released) There are three subcategories of water models that we develop and maintain with **catchment models** the fundamental unit. These can be linked to form **pre-development models** of river systems, which are further developed by adding water infrastructure, demands, and management arrangements to form a full **unregulated or regulated river system model**.

3) **Modelled Data:** (Partially released) The dataset comprises the outcomes generated by water models, encompassing a comprehensive array of findings pertaining to various aspects of the water balance. These findings encompass, but are not restricted to, factors such as flow, diversions, water storage, and allocations, with an initial emphasis on flow.

Data quality rating:

★Institutional Environment - 5

☆Accuracy - 3

★Coherence - 4

INSTITUTIONAL ENVIRONMENT

Excellent



- ✓ Does the information have the potential to enhance services or service delivery?
- ✓ The data aligns with the Data Quality Framework, including:
 - Legislation
 - Policies
 - Information Asset Governance
 - Standards
 - Data Management Plans
- ✓ The following governance roles and responsibilities for this asset are clearly assigned:
 - Information Asset Owner
 - Information Asset Custodian
 - Information Steward
- ✓ Data collection is authorised by law, regulation or agreement
- ✓ The Custodial agency has no commercial interest or conflict of interest in the data

ACCURACY

Good



- ✓ Data has been subject to a data assurance process (for example: Checking for errors at each stage of data collection and processing, or verifying data entry and making corrections if necessary.)
 - ✓ Data is revised and the revision is published if errors are identified
 - ✓ The data collection met the objectives of the primary user. The data correctly represents what it was designed to measure, monitor or report.
- ✗ There are no known gaps in the data or if there are gaps (for example: non-responses, missing records, data not collected), they have been identified in caveats attached to the dataset.
- ✗ No changes have been made or other factors identified (for example: weighting, rounding, de-identification of data, changes or flaws in data collection or verification methods) that could affect the validity of the data; or any changes/factors have been identified in caveats attached to the asset.

COHERENCE

Very Good



- ✓ Standard definitions, common concepts, classifications and data recording practices have been used.
- ✓ Elements within the data can be meaningfully compared.
- ✓ This data is generally consistent with similar or related data sources from the same discipline
- ✓ The data can be analysed over time (for example, there have not been any significant changes in the way items are defined, classified or counted over time).

✗ The data does not form part of a collection or, if it is the latest in a series of data releases, there have not been any changes in methodology or external impacts since the last data release.

INTERPRETABILITY

Very Good



- ✓ Information is available about the primary data sources and methods of data collection (e.g. instruments, forms, instructions).
- ✓ Information is available to help users evaluate the accuracy of the data and any level of error
- ✓ Information is available to explain concepts, help users correctly interpret the data and understand how it can be used
- ✓ Information is available to explain ambiguous or technical terms used in the data

✗ A data dictionary is available to explain the meaning of data elements, their origin, format and relationships

- i Find out more about the data dictionary from the Custodian (contact details below).
- i Find out more about the primary data sources and methods of data collection from the Custodian (contact details below).
- i Find out more about concepts used in this dataset and how to understand or interpret the data from the Custodian (contact details below).
- i Find out more about ambiguous or technical terms used in the data from the Custodian (contact details below).

ACCESSIBILITY

Good



- ✓ Data is available online with an open licence
- ✓ Data is available in machine-processable, structured form (e.g. CSV format instead of an image scan of a table)
- ✓ Data is available in a non-proprietary format (e.g. CSV, XML)

✗ Data is described using open standards (e.g. RDF, SPARQL) and persistent identifiers (URIs or DOIs)

✗ Data is linked to other data, to provide context (e.g. employee ID is linked to employee name or species name is linked to genus)

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For more information about this dataset or data source, contact:

NSW Department of Climate Change, Energy, the Environment and Water

Data Broker email:

data.broker@environment.nsw.gov.au

Data Broker phone:

131555

Understanding the Data Quality Statement

The data quality statement aims to help you understand how a particular dataset could be used and whether it can be compared with other, similar datasets. It provides a description of the characteristics of the data to help you decide whether the data will be fit for your specific purpose.

The Data Quality statement is prepared by the data custodian (provider of the dataset), using a questionnaire that has been developed in accordance with the NSW Government Standard for Data Quality Reporting.

About the quality rating:

The reporting questionnaire asks five questions for each of these data quality dimensions:

- Institutional Environment
- Accuracy
- Coherence
- Interpretability
- Accessibility

For each question: "yes" = 1 point; "no" = 0 points

The number of points determines the Quality Level for each dimension (high, medium, low).

Only dimensions with four or five points receive a star.

Points	Quality Level	Star / No Star
0	Poor	No Star
1	Poor	No Star
2	Fair	No Star
3	Good	No Star
4	Very Good	Star
5	Excellent	Star

Evaluating data quality

Quality relates to the data's "fitness for purpose". Users can make different assessments about the data quality of the same data, depending on their "purpose" or the way they plan to use the data.

The following questions may help you evaluate data quality for your requirements. This list is not exhaustive. Generate your own questions to assess data quality according to your specific needs and environment.

- What was the primary purpose or aim for collecting the data?
- How well does the coverage (and exclusions) match your needs?
- How useful are these data at small levels of geography?
- Does the population presented by the data match your needs?
- To what extent does the method of data collection seem appropriate for the information being gathered?
- Have standard classifications (eg industry or occupation classifications) been used in the collection of the data? If not, why? Does this affect the ability to compare or bring together data from different sources?
- Have rates and percentages been calculated consistently throughout the data?
- Is there a time difference between your reference period, and the reference period of the data?
- What is the gap of time between the reference period (when the data were collected) and the release date of the data?
- Will there be subsequent surveys or data collection exercises for this topic?
- Are there likely to be updates or revisions to the data after official release?