

Application-ready datasets

Climate information is available in application-ready datasets for use in models and applied analyses.

What are application-ready data?

Raw model output usually shouldn't be used directly in models and applied analyses (e.g. as input to a crop model). First, they need to be calibrated to the observed datasets used for climate analyses – that is, made 'application-ready'. Also, most applications need data specific to a particular location, so these datasets are often called 'locally-relevant application-ready datasets'.

Application-ready data can be used just as if they were high-quality observational data for your location.

Not all tasks need application-ready datasets. For guidance on the type of climate information most suited to your needs, refer to the fact sheet, *Information and data available from the 2019 climate projections* and Chapter 7 of the Victorian Climate Projections 2019 (VCP19) Technical Report. There is also helpful information at www.climatechangeinaustralia.gov.au/vcp19.

How are they created?

Application-ready data are typically made by applying the amount of projected future change to high-quality observational data. There are various methods for doing this but VCP19 used a method called quantile-quantile scaling. This is a moderately sophisticated technique which produces plausible future datasets that represent the fact that extreme days may change in ways

that are different from average days. For example, in many areas extreme rainfall events are projected to become more intense ('wet days get wetter'), even if the average rainfall is expected to decline. A detailed description of this method is available at www.climatechangeinaustralia.gov.au/vcp19.

In producing the application-ready datasets, a range of gridded observed datasets were used. In all cases, these were the highest quality datasets available at the appropriate scale.

Good to know

Not all historic (observed) datasets are the same – each has particular features. Since we don't have perfect observations in space and time, we need to employ some corrections and gap-filling to produce a complete record.

Gridded observed climate datasets use different statistical techniques or models to fill gaps. The resolution of gridded datasets makes a difference to the data at a location (e.g. the values in a grid cell over a place may not exactly match a weather station at that place).

Global and regional climate models use grids, so their outputs are more similar to gridded observed datasets than data from weather stations. Sometimes the model grid is quite coarse, so is very different to any weather station within the region.

What application-ready datasets are available?

Application-ready datasets include daily and monthly time-series of temperature, rainfall, relative humidity, evaporation, wind speed and solar radiation.

Additional application-ready data are available for certain variables for selected cities and towns.

Accessing application-ready data

VCP19 provides guidance on how to select the data you need and how to ensure it is fit-for-purpose. Your application-ready datasets will draw on the range of available climate model datasets, including the new high-resolution simulations.

Datasets will be available from www.climatechangeinaustralia.gov.au/vcp19, alongside and complementing the national datasets. Gridded datasets can be viewed and analysed in many common software packages (e.g. ArcGIS, QGIS, Panoply), and we encourage the use of NetCDF files. Data for individual locations can be obtained as a single series and examined in various software, including Microsoft Excel.

Note: Access to the full range of the raw modelled data will be available. These datasets are very large, so users should contact CSIRO for assistance using them.

More information

www.climatechange.vic.gov.au/vcp19