

## What type of data is available?

The Goyder Institute climate projections data provides information on the following climate variables at daily time steps to the year 2100:

- Rainfall, the daily rainfall recorded in “mm”;
- Maximum temperature (Tmax), maximum daily temperature measured in degrees Celsius (°C) ;
- Minimum temperature (Tmin), minimum daily temperature measured in degrees Celsius (°C);
- Solar radiation, the amount of solar energy falling on the Earth’s surface, measured as the amount of energy received per unit area (MJ/m<sup>2</sup>)
- Vapour pressure deficit (VPD), the difference between the amount of moisture in the air and how much moisture the air can hold when it is saturated, measured as pressure (hPa).
- Areal potential evapotranspiration (APET), the daily rate of evapotranspiration that would take place, under the condition of unlimited water supply, from an area so large that the effects of any upwind boundary transitions are negligible and local variations are integrated to an areal average.

## Global Climate Change Models

This dataset includes two GCM Models from the Commonwealth Scientific and Industrial Research Organization (CSIRO) and Bureau of Meteorology (BOM), Australia:

- ACCESS1.0
- ACCESS1.3

## Emissions Scenarios

This dataset includes three emissions scenarios:

- Historic
- RCP8.5 - “high emissions scenario”
- RCP4.5 - “moderate emissions scenario”

## What are the potential applications of the data?

At the local, weather station scale, the data may be applied for:

- climate change impact modelling studies, commonly in hydrological disciplines, but also in agriculture and infrastructure planning;
- understanding the future climate that infrastructure may be exposed to at a given locality;
- generating site-specific heatwave and bushfire risk metrics; and
- quantitative risk assessment for many sectors.

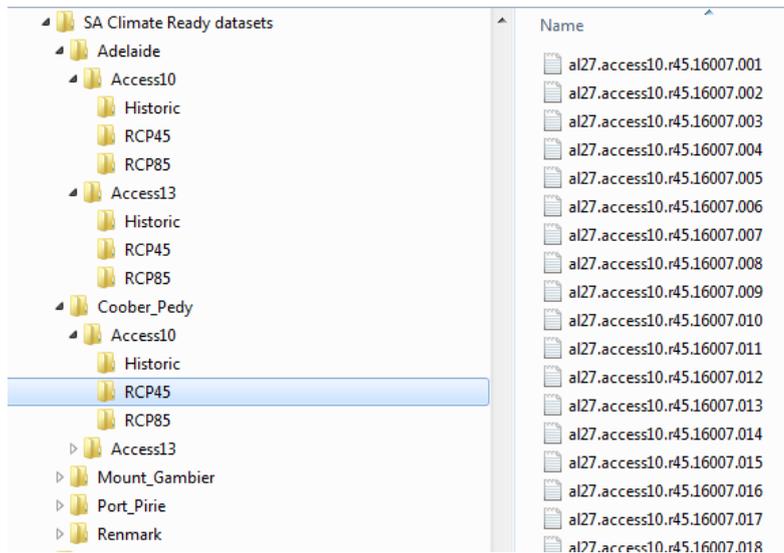
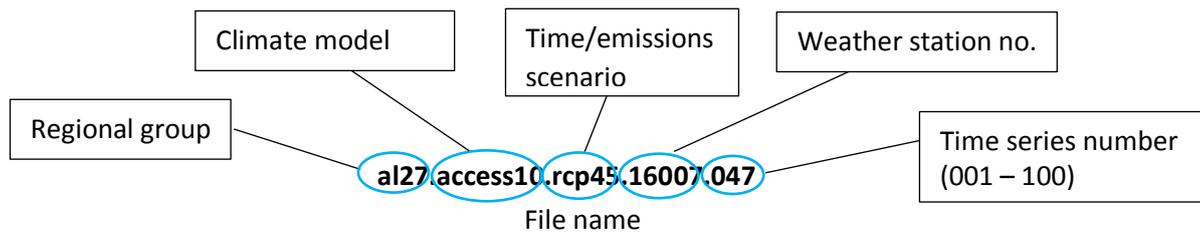
## Dataset Coverage and File Structure

SA Climate Ready climate projection datasets are provided for five weather stations distributed across South Australia. The weather stations and their station numbers are:

- Adelaide (Kent Town) 23090
- Coober Pedy 16007
- Mount Gambier (Aero) 26021
- Port Pirie 21043
- Renmark 24003

For each weather station, there are datasets from two climate models. For each of these climate models there are datasets representing three types of climate conditions: historic (1961 to 2005); future (2006 – 2100) with moderate greenhouse gas emissions (RCP4.5); and future (2006 – 2100) with high greenhouse gas emissions (RCP8.5). For each of these time/emissions scenarios, there are 100 projected time series of daily weather, each representative of the climate projected by the respective climate model.

Each 95-year dataset is in a separate text file. The file name indicates the combination of weather station, climate model, time/emissions scenario, and time series number.



Within each data file there is a single line for each day from 1 January 2006 to 31<sup>st</sup> December 2100 (or 1 January 1961 to 31 December 2005 for the historic datasets).

The columns of data in the data files are in the following order:

**Year, Month, Day, Weather State, Rainfall (mm), Tmax (°C), Tmin (°C), Solar Radiation (MJ/m<sup>2</sup>), Vapour Pressure Deficit (hPa), Potential Evapotranspiration (mm).**

Column headings are not included in the data files to ease automated data processing.