

NARClIM uses dynamical downscaling to deliver locally-relevant information for NSW

Climate change affects different regions of the world in different ways. Details of topography, land use and coasts can influence the regional climate. These region-specific details are not well captured by global climate models (GCMs), the basic building blocks of climate projections. For GCMs to be more useful for regional and local climate-related planning and decision-making, they are downscaled to a much finer resolution using Regional Climate Models (RCMs). Two popular approaches to downscaling climate models are statistical downscaling and dynamical downscaling. NARClIM applies the dynamical downscaling method.

The NARClIM project provides dynamically downscaled data in line with the world-leading Coordinated Regional Climate Downscaling Experiment (CORDEX) framework. Each generation of data uses a selection of the best performing GCMs and RCMs for the Australian region. This enables improved representation of local climatic conditions and extremes. Through this process, current generations of NARClIM data are available at 2 resolutions across 2 regions (known as domains).

Global climate models

Global climate models are carefully selected based on their accuracy in simulating the climate of our region, statistical independence and climate diversity for the Australian context. NARClIM uses carefully designed RCMs, based on their capacity to simulate the south-east Australian climate, to dynamically downscale the selected GCMs.

300 - 100km resolution

CORDEX domain

NARClIM2.0 produces climate projections at the CORDEX Australasia domain, covering the whole of Australasia, at a 20km resolution. This domain is determined by CORDEX which provides international methodologies, processes and standards for regional climate modelling.

20km resolution

NARClIM domain

NARClIM2.0 produces dynamically downscaled climate projections for south-east Australia at a 4km resolution. This domain entirely covers New South Wales, the Australian Capital Territory and Victoria and parts of the Northern Territory, Queensland and South Australia with 5 capital cities (Adelaide, Brisbane, Canberra, Melbourne and Sydney) included.

4km resolution

NARClIM data

NARClIM projections enable us to project future climate conditions more accurately at regional scales and deliver the most meaningful information to decision makers.

