

Climate

Accessing climate information: the National Climate Database

Elaine Fouhy, Andrew Tait, Craig Thompson, Errol Lewthwaite, and David Wratt provide some pointers for finding your way to readily available climate data.

How much has New Zealand's climate changed since 1900?

What new crops could be grown in South Canterbury?

Will a new thermal power station cause air quality problems?

Which sites are suitable for wind farms?

Access to good quality climate observations is the key to answering questions such as these.

The climate data record

NIWA's National Climate Database is an archive of New Zealand climate data which, for some locations, extends back as far as the 1860s. Some of the data were collected specifically for climate purposes, and some were collected for weather forecasting, then passed on by the meteorological service of the day (currently MetService).

The computerised climate database is organised by tables of 'data type' (rainfall, temperature, wind speed, etc). The types of data vary from station to station. Before about 1960 all observations required people to read the instruments, and the smallest time interval for these manual stations was usually 'daily', unless recording instruments, such as a tilting siphon rain gauge, were in use, in which case some hourly data will be available. Some stations also sent in hourly or three-hourly reports to the weather forecasters. Electronic stations – with AWS (automatic weather station), EDR (electronic data recorder), or EWS (electronic weather station) in the title – have hourly values, and in the case of some modern recorders, 10-minute data. The element most commonly recorded is daily rainfall, with current records from 596 rainfall-only sites and 234 climate sites, which also record other elements such as temperatures, sunshine hours and wind. These data are used to calculate such statistics as Growing Degree Days (GDD), Potential Evapo-Transpiration (PET), and Relative Humidity (RH).

Climate data are available from the National Climate Centre by phone, fax, or email, or via the NIWA website using one of the following options. These are all accessible as links from the National Climate Centre pages at www.niwa.co.nz/ncc

Contacting the National Climate Centre

phone: 0-4-386 0300

fax: 0-4-386 0341 (attn: Climate Enquiries)

email: climate-enquiries@niwa.co.nz

(please include a daytime phone number)

website: www.niwa.co.nz/ncc



Weather station near Clyde Dam.

Photo: Steve Le Gai

Educational resources –

www.niwa.co.nz/edu/resources/climate

Services for schools

Within its Education pages, the NIWA website contains information on the climate of the various regions of New Zealand. In addition to climate data files, teachers will find worksheets for classroom exercises using climate data. The Reefton station climate data, available through CliFlo at no charge, can be used in mathematical exercises, particularly statistical time series.

The 'Overview of New Zealand climate' page is useful for students of tourism and for planning field trips in biology, geography, or physical education. 'Climate stuff for students' includes frequently asked questions (FAQs) about climate and weather and a glossary of common terminology. There is also a list of climate-related projects for students.

Information for travellers

The Education pages also provide answers to many of the questions posed by visitors and holidaymakers. The 'Overview of New Zealand climate' page briefly describes New Zealand's nine climate regions and provides graphs of annual rainfall and

Some uses for climate data (left to right)

Flooding at Foxton in February 2004.

Climate data can help insurers and local authorities know the risk of such events occurring.

A vineyard in Central Otago. Viticulturalists can use climate data to assess frost risk for their crops.

Hoar frost at Lauder, Central Otago. Screen frost records can be analysed to show if the frequency of such frosts has changed over the last century or so.

mean temperatures. You can download files of average monthly conditions of several climate elements (such as temperature, rainfall, wet days, humidity, sunshine) from about 30 stations around the country. If you are on holiday, the number of likely wet days is probably more important than the overall rainfall in a region.

Subscription services

Climate Now – climatenow.niwa.co.nz

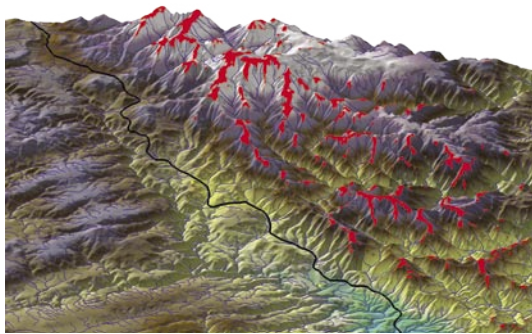
Subscribers to Climate Now have access to maps and graphs of climate data from more than 80 sites. These are updated weekly, and the graphs show this growing season compared with last year's, the long-term average values, and the 90 and 10 percentiles. This service is particularly important for the primary-production sector. Later this year, this type of data will be available through Climate Explorer.

CliFlo – cliflo.niwa.co.nz

This subscription service is designed for frequent users of climate data, such as local authorities, universities, engineers, and primary producers. There are four levels of subscription, depending on the estimated usage. A subscription is valid for one year, or until the allowable quantity of data has been downloaded, whichever comes first.

You don't have to be a subscriber to check out the stations, data types, and periods of record. And the free data from the Reefton station can be used as a practice station by potential and actual subscribers.

Wind data can be used to identify potential sites for wind power generators. Red areas indicate where mean annual wind speeds are greater than 28 km/hr.



And on the horizon ...

Climate Explorer

Currently being developed, Climate Explorer is an online tool for purchasing products based on climate data. The map interface will make it easy to zoom into your area of interest, select one or many products from an extensive menu, add the items to a shopping basket, and make your purchase quickly and simply, either by credit card or through an annual subscription.

The types of products that will be available include

- maps of long-term rainfall, temperature, etc.
- summaries of climate data from a selection of long-running climate stations
- wind roses
- time series of daily growing degree days, water balance, etc. updated every day
- monthly and three-monthly climate forecasts
- maps of El Niño and La Niña, and of climate-change scenarios.

We'll tell you more about Climate Explorer in a later issue of *Water & Atmosphere*. The service will become available in mid 2005. [W&A](#)

The authors are all based at NIWA in Wellington and provide services through the National Climate Centre. Elaine Fouhy is the first point of contact for climate enquiries. Dr Andrew Tait and Craig Thompson work with climate mapping, and Errol Lewthwaite is the man behind CliFlo. Dr David Wratt is the Centre leader.



Photo: Alan Blacklock



Photo: Alan Blacklock



Photo: Mike Kotcamp