

Pacific Climate Change Science



Climate Database User Manual

Version 3.3
Produced April 2013



Australian Government
Bureau of Meteorology



Australian Government
**Department of Climate Change
and Energy Efficiency**



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	<i>TITLE :</i> CliDE User Manual		
<i>ACTION</i>	<i>NAME</i>	<i>DATE</i>	<i>SIGNATURE</i>
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REVISION HISTORY

NUMBER	DATE	DESCRIPTION	NAME
1.0	12 November 2010	Initial draft	Rod Hutchinson
2.0	January 2012	Release 2.0	David Martin
2.1	February 2012	Release 2.1	David Martin
2.2	July 2012	Release 2.2	David Martin
3.2	January 2013	Release 3.2	David Martin
3.3	April 2013	Release 3.3	David Martin

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Chapter 1

Disclaimers

1.1 Licensing

CliDE is free software: you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, either version 3 of the License, or (at your option) any later version.

CliDE is distributed WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the [GNU General Public License](http://www.gnu.org/licenses/) for more details, or go to <http://www.gnu.org/licenses/>.

1.2 Project

CliDE version 1 was produced as part of the Pacific Climate Change Science Program (PCCSP), a key activity of the Australian Government's International Climate Change Adaptation Initiative. The scope of CliDE is to provide database capacity for PCCSP partner countries to store meteorological observations in a robust climate database management system (CDMS) via a user-friendly interface. The CDMS can be used to securely store historical and current, manual and automatic observations.

Users can key in meteorological data from observation recording booklets, sheets, and monthly registers. Station details can be recorded, including instrumentation, observation site details, and a history of any changes made to those sites. Electronic data are imported as comma separated files (CSV) in CliDE or CliCom formats. In addition, there is edit capability to review and amend data as required. All meteorological data are stored as System International (SI) units where appropriate. When non SI units are key-entered, the values are automatically converted to SI.

CliDE produces pre-formatted reports and line plots of key meteorological parameters (e.g. maximum temperature, minimum temperature, rainfall). Data can be exported in the PCCSP data portal and the SCOPIC seasonal forecasting tool formats and as a CSV file for use in other packages.

Phase 1 of the software design commenced in October 2009 and the prototype was completed in July 2010.

1.3 Disclaimer

In no event shall the Australian Bureau of Meteorology and/or the Commonwealth Scientific Industrial Research Organisation, or its officers be liable for any direct, special, indirect or consequential damages whatsoever resulting from loss of use of data or profits, whether in an action of contract, negligence or other conduct, arising out of or in connection with the use or performance of this package.

1.4 Applicable Law

This use of this package of software shall be governed by, and construed in accordance with, the laws for the time being in force in the State of Victoria, Australia.

Chapter 2

Introduction

2.1 Overview

2.1.1 Introduction

This document is intended as a user guide to the CliDE Climate Database Management application. This guide will assist users to operate CliDE and manage the data contained within it.

2.1.2 Audience

This document is intended for Meteorological Service Personnel who have achieved the World Meteorological Organisation (WMO) Meteorologist and/or Meteorologist Technician qualifications, who are responsible for managing the Climate Record.

2.1.3 Pronunciation

Pronunciation of CliDE: /klīd/

Chapter 3

CliDE User Manual

3.1 Starting CliDE

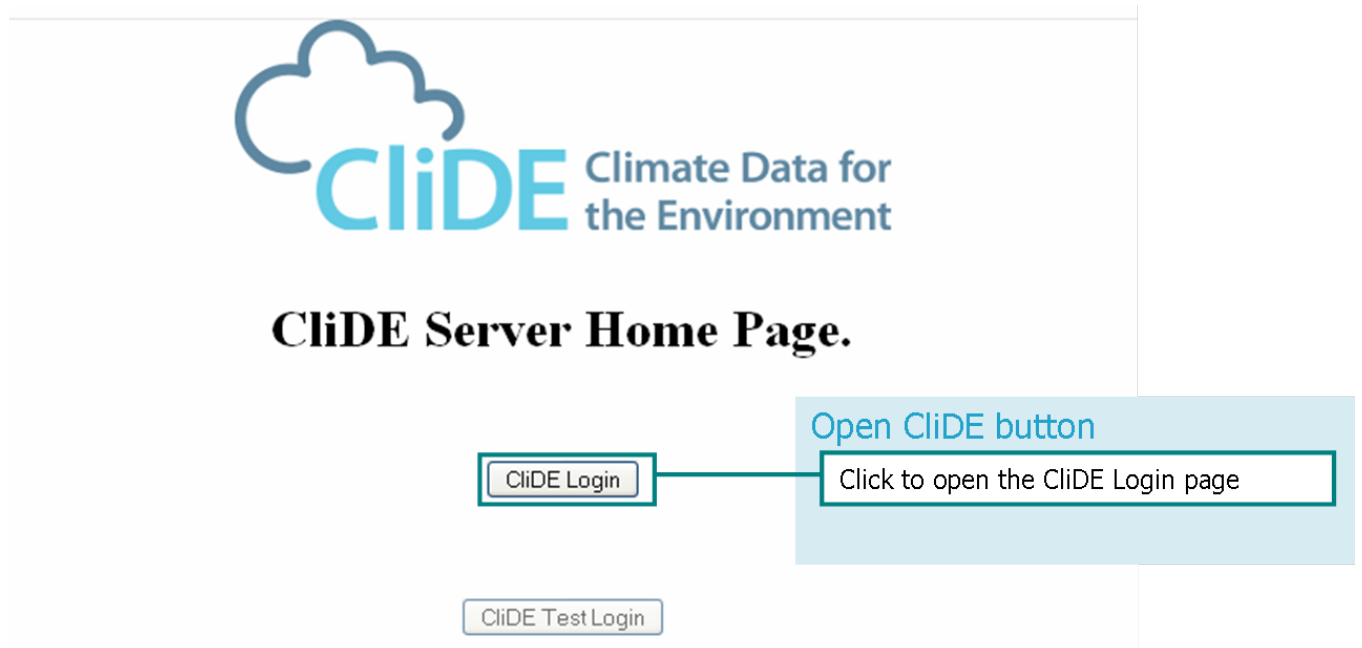


Figure 3.1: Starting CliDE screenshot

Open an internet browser and type the name of the server where CliDE is located. (The server name is available from your administrator). The CliDE home screen should be displayed. If it doesn't, contact the administrator. Click on the CliDE Login button, and the CliDE **Login** Screen should open. Login with your User name: and Password: (your initial Password is 'password'). You should change the default password to your own password at your first login by clicking on **User Settings**.

3.2 Login

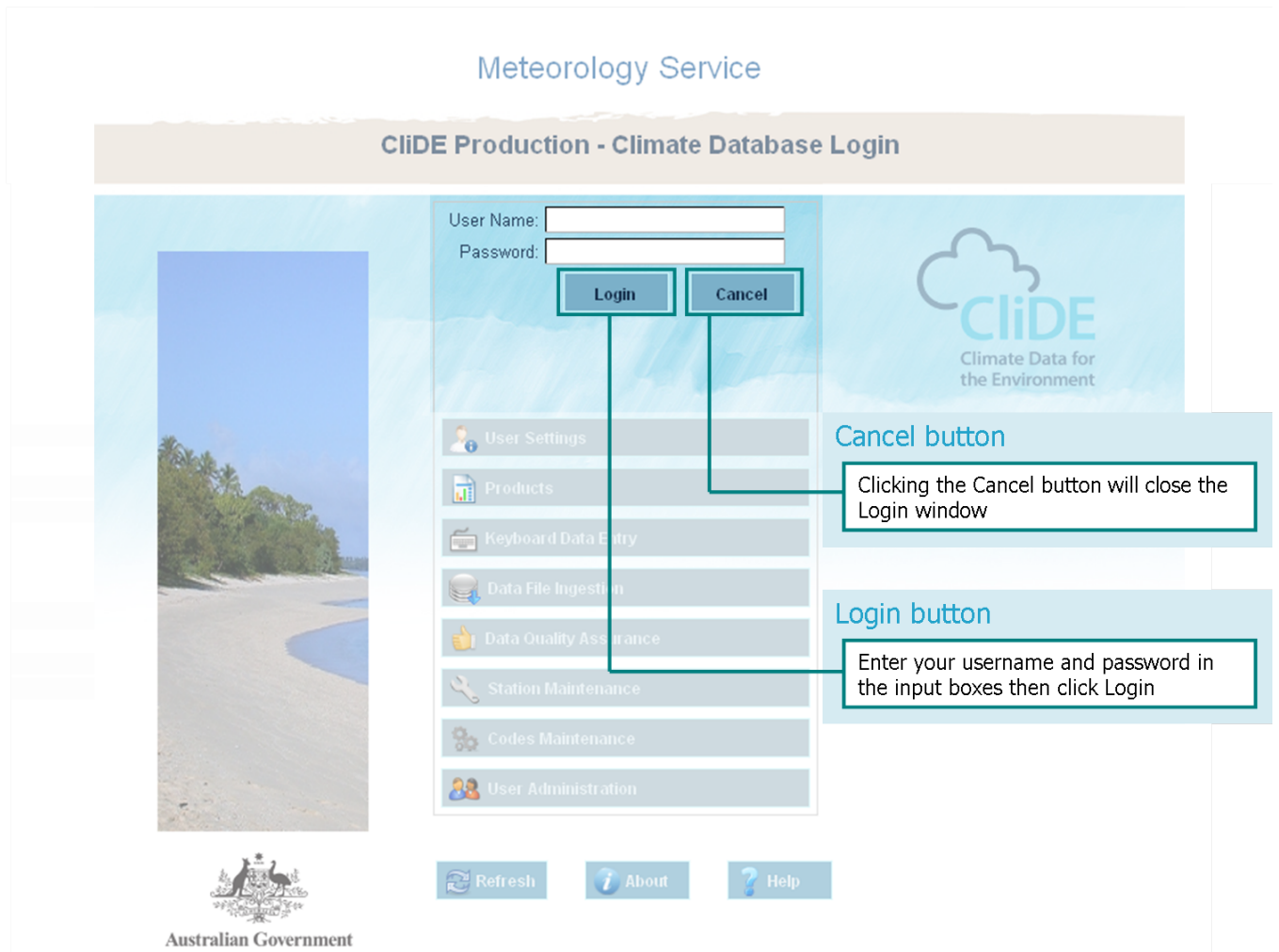


Figure 3.2: Login screenshot

The login page is the gateway into CliDE. When initially called, the login page will prompt for your login and password. Please note that this is the *CliDE* user and password which is completely separate to the network or computer user/password used to login to your computer system.

Only a CliDE administrator can add or modify CliDE users. CliDE login names only exist within CliDE and have no meaning outside the system. The CliDE administrator can also reset any user's password to "password" but cannot see or modify a user's password in any other way. When a new user is created by the administrator, the new user's password is initially set to "password". New users should change this as soon as possible using **User Settings**.

The intention of this model is that each and every action in CliDE will be done under a known identifiable user. Users should never share their CliDE User Name, nor make their password public or work under another user's login. It is up to the administrator to ensure that all users have their own login name and to not allow sharing of user login names.

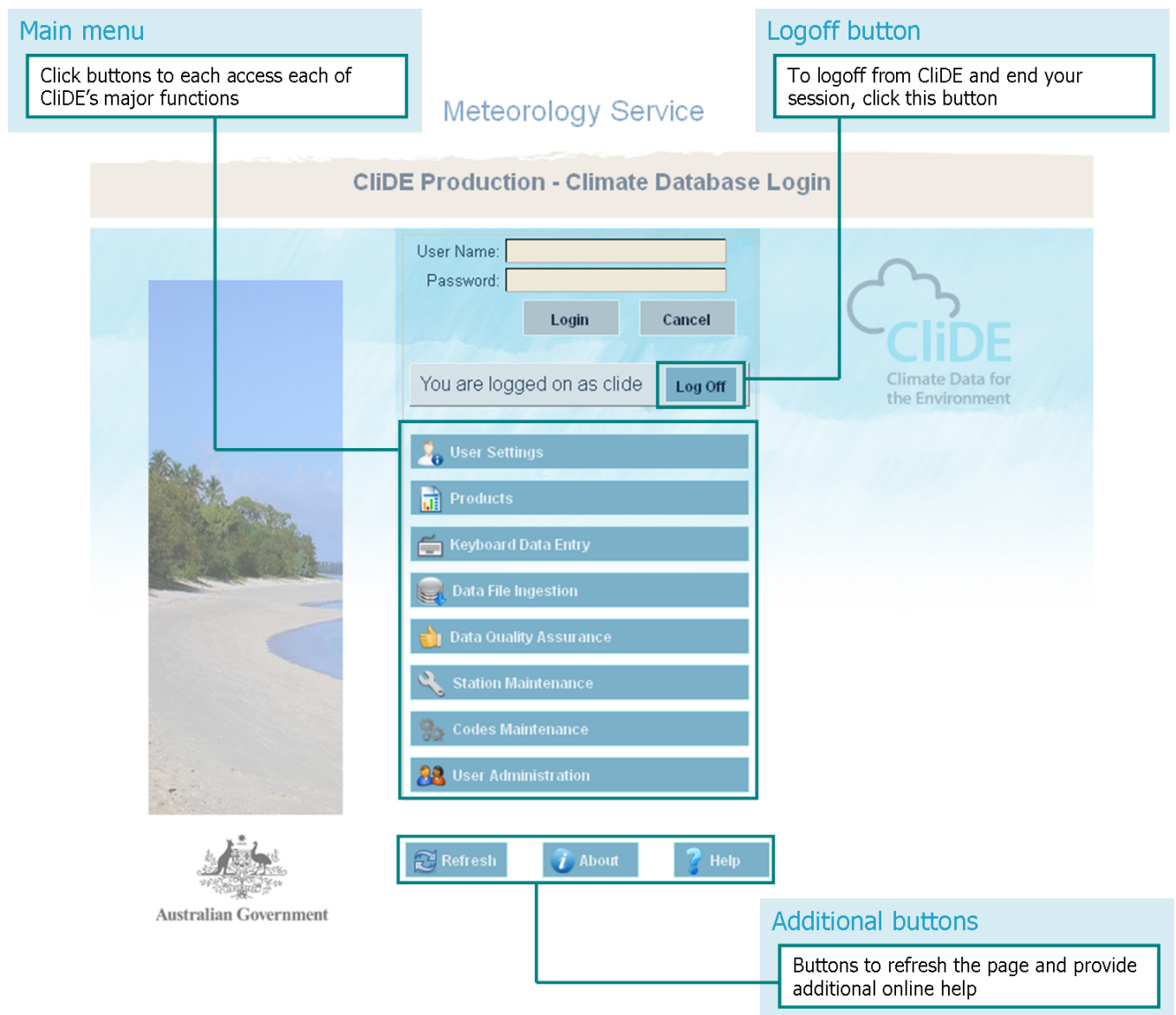


Figure 3.3: CliDE main menu screenshot

Once logged in, the main menu items that the user is allowed to access will be enabled. All users have access to **User Settings** where they can change their password. Other functions are enabled depending on the settings in **User Administration** which are set by the CliDE administrator

A user can only be logged into one CliDE environment at a time on the same computer. If you are logged into Testing, the system will not allow you to log into Production at the same time on the same computer. You can however log into Production on one computer and Testing on another computer.

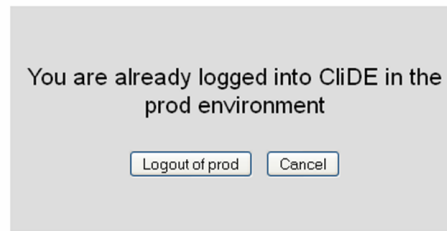


Figure 3.4: Message when attempting to login to multiple environments

CliDE will automatically time out a user session after a certain period of inactivity. When a CliDE session times out, all windows will be closed and an alert will notify the user that a timeout has occurred. The default timeout is 2 hours.

3.3 User Settings - Password change and Theme settings

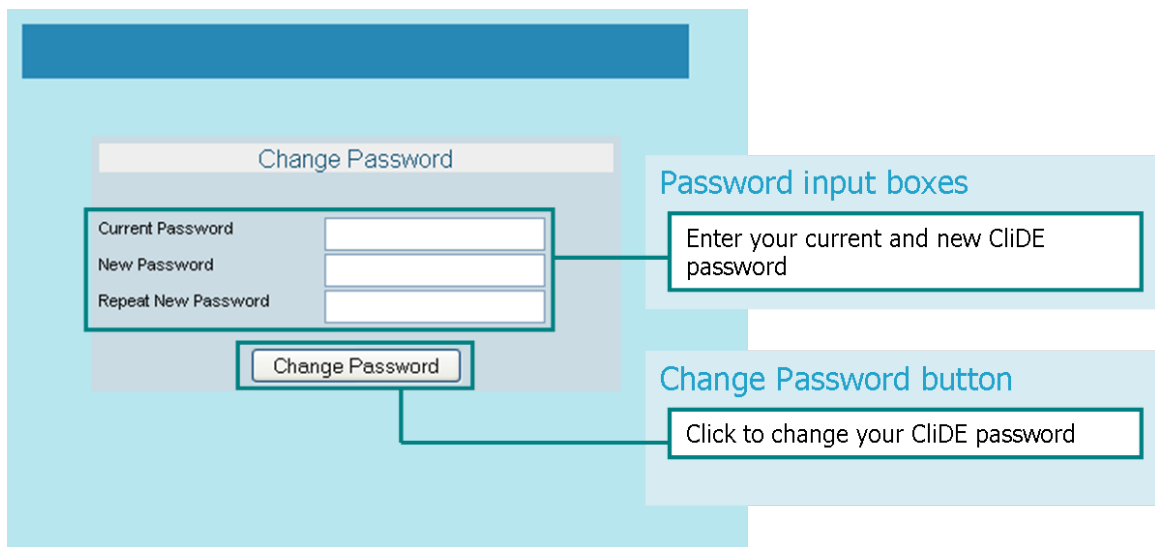


Figure 3.5: User Settings screenshot

This page is available to all users and allows a user to change their password.

To change their password, the user must enter their current password once, and their new password twice, then click *Change Password*. The process will fail if the old password is wrong or the new password is not entered identically in both fields. Passwords must be greater than 3 characters. It is recommended that at least 8 characters be used, with capital letters, small case letters, special characters {()";<>?/\~} and numbers included. Do not use a word that might appear in a dictionary.

Try and make the password memorable for yourself so you don't have to write it down (never write it down! Get the administrator to reset the password if you forget), but without making it easily guessable. Do not use family names, birthdays, etc for this reason.

These "good password" guidelines are more suited to high security environments, however they are good habits to get into for any system.

3.4 User Administration - Logins, allowed functions, Password reset

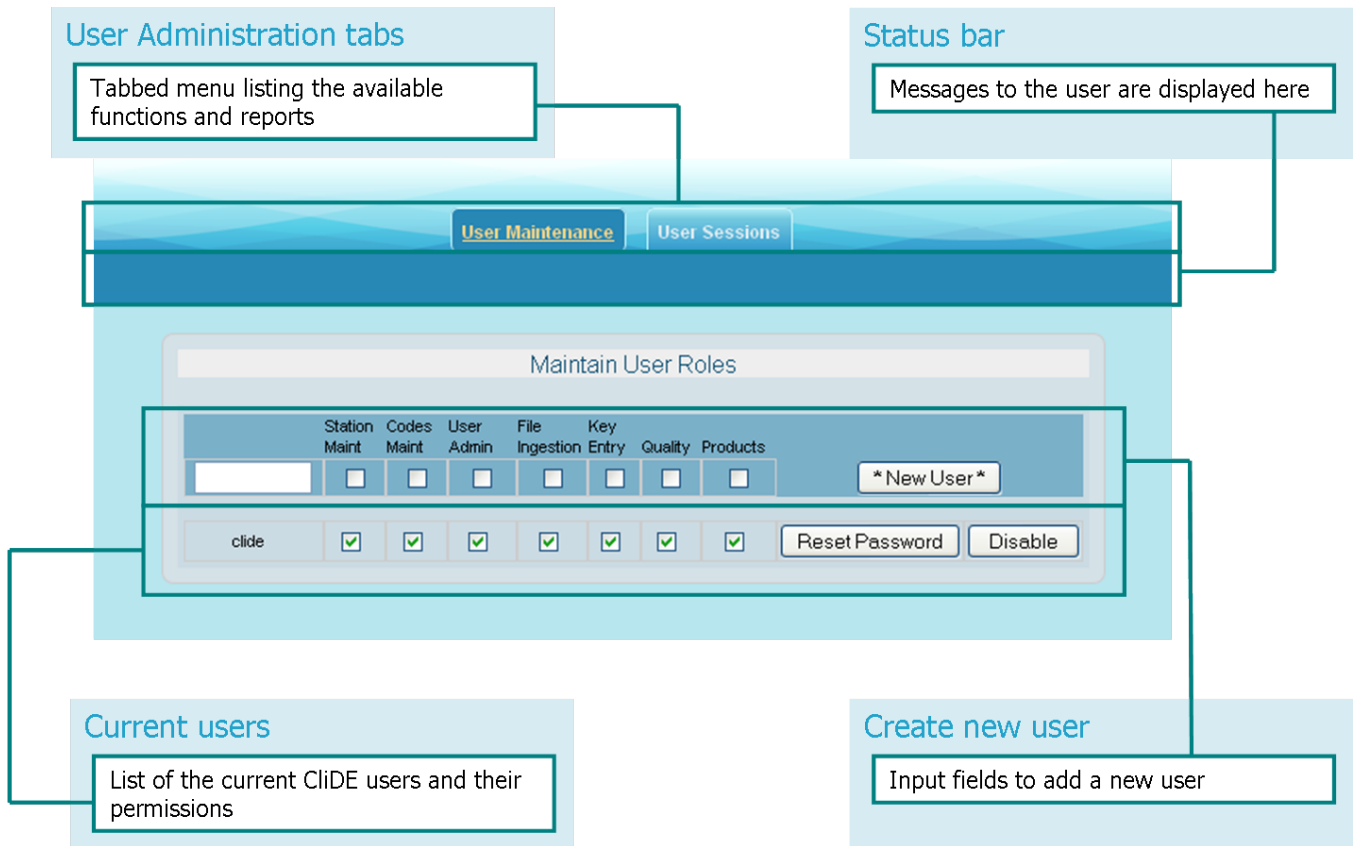


Figure 3.6: User Administration screenshot

User Maintenance This is where system administrators can add, disable and maintain all users of CliDE. To add a new user type the user's login name in the text box at the top of the list of users then check the boxes to enable access to the CliDE functions that the user is to have access to. Then click **New User**.

The new user will have a default password of "password". This should be changed ASAP by the new user when they first log in.

If a user forgets their password, it can be reset to "password" by clicking *Reset*. If a user leaves the organisation then the user should be disabled by clicking *Disable*. Users are never deleted from the system completely as they are needed to maintain the audit trail. Disabled users cannot log in to CliDE unless they are re-enabled by an administrator by clicking *Enable* against a disabled user. Enabled users will only have a "Disable" button. Disabled users will only have the "Enable" button.


To change an enabled user's access to CliDE functions, check the box in the column of the function. Clicking an unchecked box will check the option and hence enable that function. Clicking on a checked box will un-check the option and so disable that function for that user.

Please Note: Whilst it is a good idea to have a backup person with administrator functions in case the primary administrator is absent, it is not a good idea to make all users administrators. Try to have only one login name for each real human. Do **not** share login names! Do **not** write passwords down! Any security system is only as good as its human operators.

User Sessions A report to display information about when users have logged in and logged out of CliDE. It also provides a Session Reset button to reset a user's session if they forgot to logout of CliDE or their web browser was closed without logging out of CliDE for any other reason.

Please Note: Always press the *Log Off* button when you have finished using CliDE to make sure that the system knows you have logged out.

To run the report:

1. Select the *From* and *To* dates for the reporting range by clicking  then selecting a date. Select the respective times from the dropdown lists.
2. Use the *Active Sessions Only?* checkbox to select whether or not to report only on the currently active/open user sessions or also on past/closed user sessions.
3. Click *Generate Report* and the report will appear in a new window. You can print the report by clicking the *Print* button in the top right of the page. Any currently active sessions will have a *Reset* button next to them that allows you to reset the user's session. Doing so will end the user's current session and allow them to login again to CliDE.

3.5 Codes Maintenance - Add, Change, Delete of codes in system

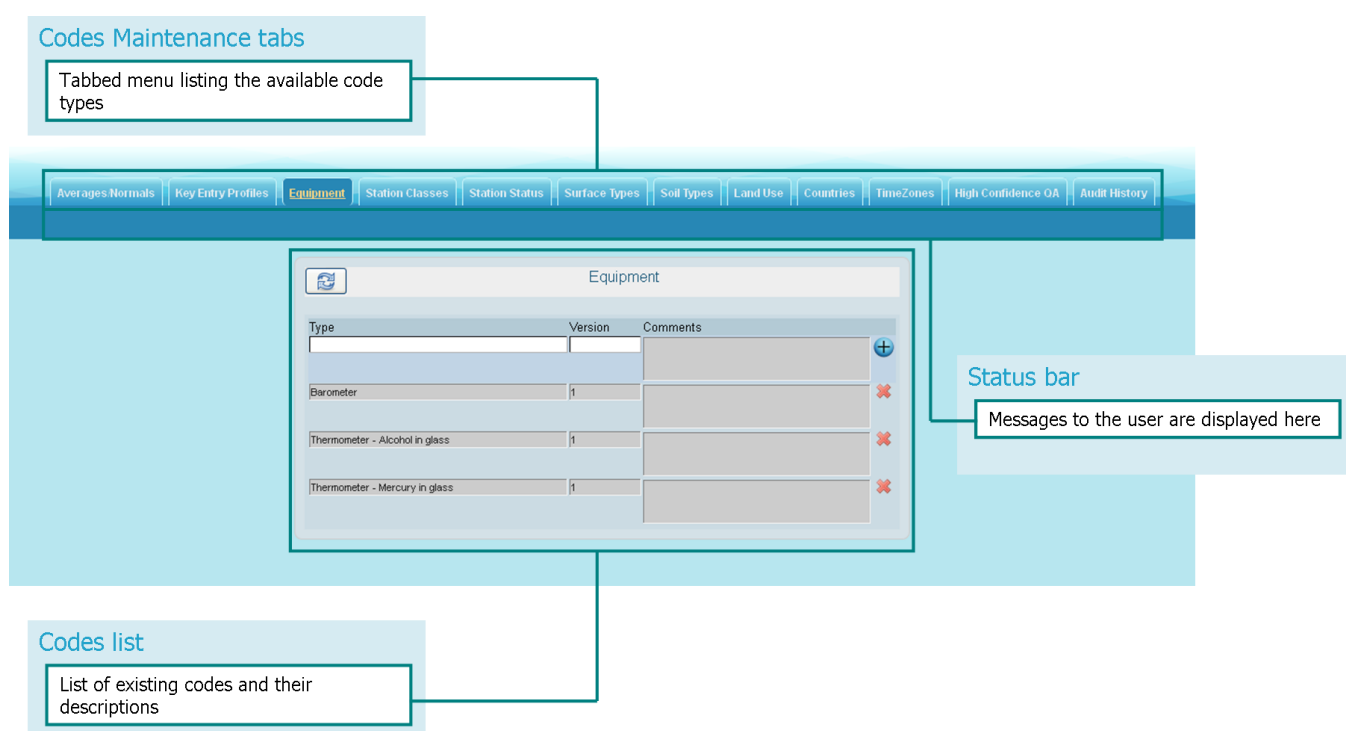



Figure 3.7: Codes Maintenance screenshot

This page is used to maintain the various codes used throughout CliDE. Most codes are pre-set and shouldn't be modified, however data such as Daylight Savings under the Timezones tab will need to be set once a year, if appropriate. Some values such as timezone UTC offset (and DS override) are **critical** to the validity of the observation data so you must ensure these are correct. Do not play with values unless you are certain you understand the implications of changes!

This page presents a tabbed menu across the top of the page. Clicking on each tab will select the code type to be maintained.

For all code types:


3.5.1 Add a new code

Type values into white text boxes on top line. Click  to add the new data. The new code should appear in the list of existing codes.

3.5.2 Change a code



Overtyping the field to be modified. Exit the field by pressing <Tab> on keyboard or clicking outside the field. A message like "Description has been updated" will appear in the message bar at the top of the page, and the new value will be shown in the list.

3.5.3 Delete a code

Click the  button next to the line you want to delete. A confirmation "Are you sure?" dialog box will be shown. Click "OK" to continue with delete, or "Cancel" to abort the delete. The system will not allow a code to be deleted if it is being used by existing stations or observations. This is necessary to maintain the relational data integrity of the database. If a code is to be discontinued it should be renamed so that it is obvious to a user that it is not to be used in future.

3.6 Codes Maintenance Tabs

Averages/Normals Long-term climate averages and Normals.

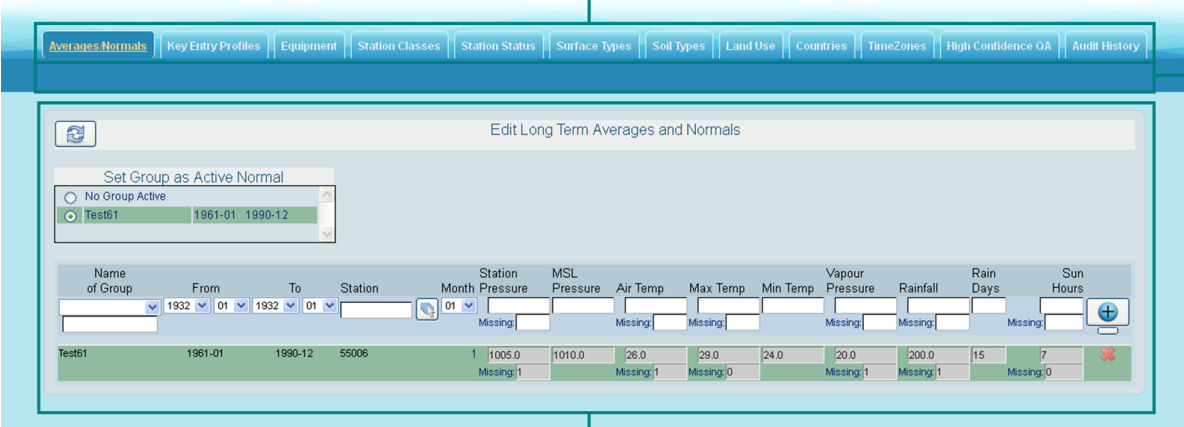
To create a new set of climatological averages/normals, either select a Name from the dropdown list or enter a new user-defined name. Select a date range over which the averages/normals have been calculated (typically, this is 30 years of data such as 1961 to 1990 for global climate normals). Type a Station number or select using popup by clicking . Select the month of the year for current data record and start populating the fields. Then click  to save the new month of averages/normals.

Codes Maintenance tabs

Tabbed menu listing the available code types

Status bar

Messages to the user are displayed here




Normals and Long-Term Averages

Enter and view Normals and Long-Term Averages.

Figure 3.8: Long-Term Averages and Normals screenshot

Key Entry Profiles Profiles control the default units and which elements are enabled in **Keyboard Data Entry** forms. If only one (default) profile has been defined, then it is automatically selected in the data entry forms and the profile list is not displayed.

A "default" profile is pre-configured for all CLiDE installations. The units and disabled flag can be changed for the default profile, but elements and observation types cannot be modified. If you change the units or disable flag, your changes are immediately saved to the database (i.e. there is no additional "save" button to press).

To create a new profile, enter a user-defined name and start populating the observation types, elements, default units and whether or not to disable some elements. Then click  to save the new profile details.

If none of your stations record particular elements, then you may want to disable those elements in the Keyboard Data Entry forms.

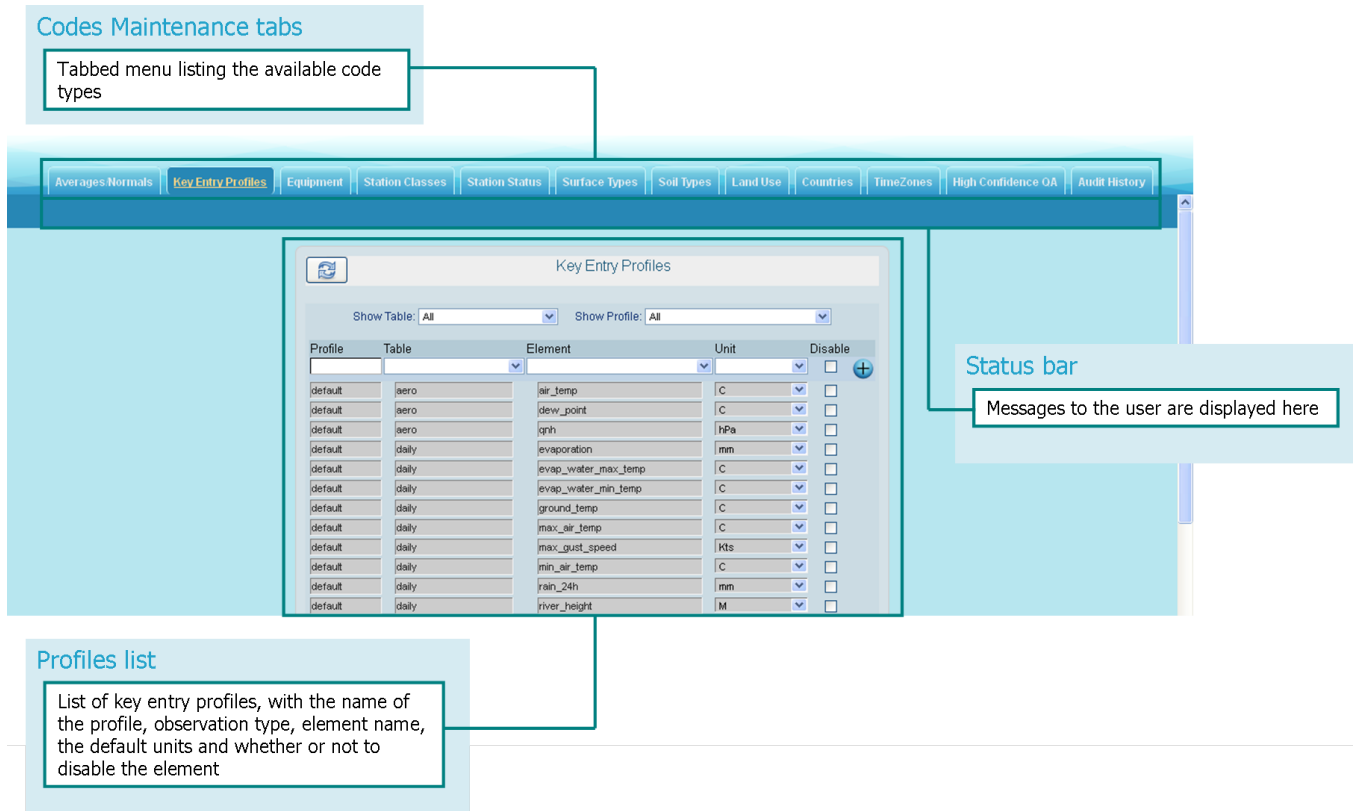


Figure 3.9: Key Entry Profiles screenshot

Equipment This is where the equipment that can be deployed at a station is defined. All types of equipment that take observations should be added to this list so they can be associated with a station. The *version* field can be used to track different versions of the same equipment type. More specific attributes such as *serial number* are stored at the station level. Use **Station Maintenance** to define serial numbers and other station specific fields.

Station Classes Station Classes are a way of classifying stations according to the type of observations they take. Classes could also be used to identify the frequency, quality, AWS brand, etc. A station can belong to one or more classes.

Station Status This is where the different station status types are defined. This represents the operational status of the station. Typical values are: Open, Closed, Proposed, Damaged. More status types can be defined as necessary, however be careful to make the meanings clear and unambiguous.

Surface Types Surface types are a WMO code that defines the type of ground surface that surrounds a station. These codes are part of an international standard so they should not be customised too much.

Soil Types Soil types are a WMO code that describes the type of soil surrounding a station. These codes are part of an international standard so they should not be customised too much.

Land Use Types Land Use codes are a WMO code that describes the usage of land surrounding a station. These codes are part of an international standard so they should not be customised too much.

Audit Types Audit types are mostly pre-defined as part of CliDE and cannot be modified. New Audit types will be useful in future when new functionality is added to CliDE.

Countries This is a list of countries and their standard ISO code. These are used to assign stations to countries.

Timezones / Daylight Savings Timezones and Daylight Saving overrides are probably the most critical codes to the operation of CliDE. The UTC offset defines how CliDE will store observations' time in UTC (universal time) when entered in LCT (local clock time). If this offset changes due to "Daylight Saving" for a period of the year then the new offset and it's start and end dates must be defined **every year**.

High Confidence QA Codes This is a list of Quality Assurance (QA) codes that are considered as being of high confidence. Several Products allow you the choice of only reporting using High Confidence data (i.e. only using data that have QA codes/flags in the list specified here).

Use the checkboxes to select which Quality Assurance codes you consider to be of high confidence and click *Save*.

Datums This is a list of geodetic datum names that can be associated with latitude and longitude values when specifying a station's geographic location.

Additional information: The Earth is not a perfect ellipsoid, so there no single "best" model for the shape of the Earth. A datum defines a set of reference points on the Earth's surface against which position measurements are made and an associated model of the shape of the Earth (the reference ellipsoid) for calculating positions.

Audit History This is a read-only list of all changes that have been made to all codes. The list can be filtered by date, action, user or description of audit event, which is usually a code add, change or delete.

Codes Maintenance tabs

Tabbed menu listing the available code types

Audit history list

List of non-observation audit history events

Status bar

Messages to the user are displayed here

Figure 3.10: Audit History

3.7 Station Maintenance - Station metadata administration

The screenshot displays the 'Station Maintenance' interface. On the left is a 'Station list' table with columns: Number, Name, Region, and Status. The table contains 41 rows of station data. On the right is the 'Station details' form for station 55006, 'Port Moresby W/Office'. The form includes fields for Station No, Status, Start Date, End Date, Primary Name, Secondary Name, Station Operator, Country, Region, Catchment, Timezone, Location (Latitude, Longitude), Height, Alternate IDs (Aero, IMO, Marine, WMO, Hydro, Aus, NIWA, NIWA Agent), Land Use (0-100M, 100M-1KM, 1KM-10KM), Surface Type, Soil Type, and Comments. At the bottom of the details pane are buttons for 'Save Changes', 'Cancel Changes', and 'Maintenance Activity'. Callout boxes identify the 'Station filters' (Filter stations list), 'Status bar' (Messages to the user are displayed here), 'Station list' (List of stations currently in the database), and 'Station details' (Display, add and edit station metadata).

Number	Name	Region	Status
55004	Government House	Central	Open
55005	Tapini S D O	Central	Open
55006	Port Moresby W/Office	Central	Open
55007	Fane Mission	Central	Open
55008	Itikinumu Plantation	Central	Open
55009	Kanosia Plantation	Central	Open
55010	Kapogere DASF	Central	Open
55011	Rouna 1	Central	Open
55080	Obu Estate	Central	Open
55012	Amazon Bay AF	Central	Open
55013	Guari P P	Central	Open
55014	Napanapa	Central	Open
55015	Kupiano (Marshall lagoon)	Central	Open
55016	Kosipe C Mission	Central	Open
55017	Bereina Synop	Central	Open
55018	Ou Ou Creek	Central	Open
55019	Mageri DASF	Central	Open
55020	Bisianumu Estate	Central	Open
55021	Tarinumu Plantation	Central	Open
55022	Daradae Plantation	Central	Open
55023	Aroma Passage	Central	Open
55024	Brown River Forestry	Central	Closed
55025	Bomana Police College	Central	Open
55026	Woitape S D O	Central	Open
55027	Maigabu	Central	Open
55028	Waigani (Admin.College)	Central	Open
55029	Karakatana (604320)	Central	Open
55030	Ebealue Ck(606650)	Central	Open
55031	Kuriva River Forestry	Central	Closed
55032	Ononge C M	Central	Open
55033	Mt. Diamond H/School	Central	Open
55034	Varlarata Nat. Park	Central	Open
55035	Jawarere (604320)	Central	Open
55036	Ruruluba	Central	Open
55037	Abau S D O	Central	Open
55038	Aroana Estate	Central	Open
55039	Auberi	Central	Closed
55040	Baibara Plantation	Central	Closed
55041	Baramata Plantation	Central	Closed
55042	Boroko T VWorks	Central	Closed
55043	Cape Rodney	Central	Closed
55044	Catalina Station	Central	Closed
55045	Efogi	Central	Closed

Figure 3.11: Station Maintenance screenshot

The quality of observation data is dependant on accurate station metadata being maintained. This includes all changes that may impact the observation values: Location of station, surrounding buildings and countryside, vegetation and soil, equipment moves, maintenance, calibration, replacement, etc. It is very important to enter all the relevant data and to maintain this as accurately as possible.

Station Selection List The left pane in this page is a list of all stations in the database. This list can be sorted by clicking on the *Number*, *Name*, *Region*, or *Status* buttons at the top of the list. The list can be filtered by typing one or more characters into the filter text boxes just under the sort buttons. You must use <tab> or click outside the filter box for the list to refresh and apply the filter.

Station Details When a station is selected form the list on the left, the selected station's details appear on the right side of the

page. The *Station Details* tab shows the compulsory station data: Station number, primary name, timezone, heights and location. The other fields are non-compulsory, however some are recommended by the WMO as best practice (e.g. Land Use, Soil Types) and should be maintained. Latitude and Longitude can be entered in either decimal format or Degrees, Minutes, Seconds. This can be set by clicking on the "radio button" circle next to either "Dec" or "D:M:S". Along with the latitude and longitude values, the associated geodetic datum or EPSG projection code should be recorded (e.g. if the latitude and longitude were measured using a Global Positioning System (GPS) device, then the EPSG projection code is 4326 or you can select "WGS84" from the list of datums).




All heights are to be entered in **metres**.




Users with access to Data Quality Assurance will have a button on the screen labelled *Edit Station Number*. The Station number field is disabled by default and changes aren't allowed. However, users with this button are able to enable editing of the Station number to change it. This is **not** recommended because all observations are linked to this local station number in the database. However, there are situations such as when a new station has been created with the wrong number when you may wish to change the Station number.




Click *Save Changes* when you have finished changing the data for the selected station.

Click *Maintenance Activity* to open a new window in which you can select a date and write a description of any maintenance activities that have been carried out at the station. Click *Save* in the Maintenance Activity window to save a record of the activity undertaken for the selected station. The *Cancel* button will close the window without saving.

Pictures This tab displays any picture files that have been attached to the station. The pictures are displayed in order of Title, therefore it is a good idea to number the pictures (see the Station Files section below) so as to control the order of the pictures explicitly.


Station Equipment This tab contains the equipment installed at the station. All equipment involved in observations should be added and maintained here. The top line is used to add new equipment: Select equipment type/version from the drop-down list, enter Serial no, Asset no, Height, Comments and start date then click . The equipment will then appear in the list. To modify existing equipment, overwrite the field to be changed (or click  for dates) then exit the field by pressing <tab> or clicking outside the field. Equipment is deleted by clicking the  icon then clicking "OK" when confirmation is shown. This tab contains the classification(s) of the station. The meaning of the classifications, or classes, is somewhat dependant on how the local met service decides to use them. Classes can be used for reporting, or to segment stations for the purpose of maintenance or type of data collected.

Station Class The top line is used to add a class to a station. Fill in the fields then click . To modify existing class, overwrite the field to be changed (or click  for dates) then exit the field by pressing <tab> or clicking outside the field. A Station Class is deleted by clicking the  icon then clicking "OK" when confirmation is shown.

Contacts Station contacts are to keep track of people that are associated with a station or may need to be called by staff when reviewing observation data. To add a contact, fill in the fields in the top line then click on . To modify existing contacts, overwrite the field to be changed (or click  for dates) then exit the field by pressing <tab> or clicking outside the field. A Station Contact is deleted by clicking the  icon then clicking "OK" when confirmation is shown. Note: it is better to simply end-date a contact rather than delete it outright. This will give reviewers of data some historical context.

Station Files This tab allows files to be uploaded and attached to a station. Any file type that can be stored on a desktop computer can be attached to the station. Typical examples include: *.doc - Word files documenting equipment or station history. *.xls - Excel files with equipment, maintenance schedule, etc. *.gif, *.jpg, *.png, ... Image files can be photos of the station or layout diagrams created in a graphics program. As well as the file itself, the file can be given a title and description. The title is used to sort the pictures, so it is a good idea to start with a date (in the format yyyy-mm-dd) or number so the order of display can be a timeline or custom tailored to your needs. e.g. with dates: "1967-01-01 Site Map", "1990-03-04 Panorama", "2012-04-05 Recent ground photo"; or using a numbering system: "1 Site Map", "2 Panorama", "3 Recent ground photo".

To add a file first click on *Browse...* and locate the file to be attached on your local system. Then type in the file title and description and click *Attach File*. The file will appear in the list. If the file is a picture (*.bmp, *.jpg, *.gif, *.tif, *.png) then this file will also be displayed in the "Pictures" tab. To modify existing files, overwrite the field to be changed then exit

the field by pressing <tab> or clicking outside the field. A file is deleted by clicking the  icon then clicking "OK" when confirmation is shown.

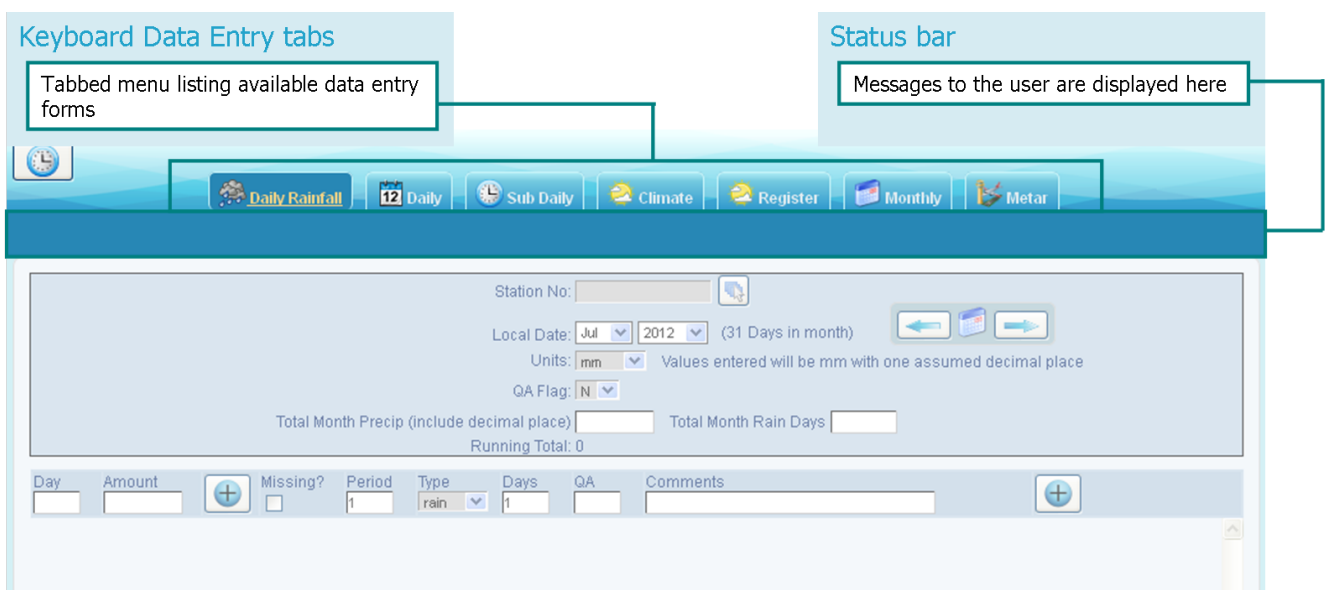
Station Audit History This is a read-only list of all the changes made to the station since it was added to the system. The list can be filtered by date, action, user or description. Use this to review the station's recent change history if the data suggests that recent changes may be impacting observations.

Add New Station This tab allows a new station to be added to the database.

The following fields must be entered: Station Number, Primary Name, Timezone, Status.

The rest of the fields are optional, however it is strongly recommended that Latitude, Longitude, Operator, Region as well as Land Use Codes and Soil types be entered. Good station metadata adds a lot of value to observational data if properly maintained. Once *Save Station* is clicked the station will appear in the station list in the left window pane and the fields will remain set. This is to allow a second station to be added with nearly identical details. If required the *Clear Fields* will clear all fields. Once added, a station must be selected in the list and the *Station Details* tab selected if changes are required.

3.8 Key Entry - Daily Rainfall, Daily, Sub Daily, Monthly, Register, Climate and Metar/Speci forms



The screenshot displays the 'Key Entry' interface. At the top, there are 'Keyboard Data Entry tabs' including 'Daily Rainfall', 'Daily', 'Sub Daily', 'Climate', 'Register', 'Monthly', and 'Metar'. A 'Status bar' on the right indicates where messages to the user are displayed. The main form area includes fields for 'Station No.', 'Local Date' (set to Jul 2012), 'Units' (mm), 'QA Flag' (N), 'Total Month Precip', and 'Total Month Rain Days'. A table at the bottom is used for entering daily data with columns for 'Day', 'Amount', 'Missing?', 'Period', 'Type', 'Days', 'QA', and 'Comments'.

Figure 3.12: Key Entry screenshot

The key entry pages allow observations data to be entered into CliDE using keyboard entry. Daily, sub-daily, monthly and SPECI/METAR data can be entered via key entry. The Daily Rainfall page is specifically designed to rapidly enter a whole month's rainfall data for a rainfall-only station. The tabs "Climate" and "Register" are intended for use with specific observation book formats. These two forms combine daily and sub-daily data and are laid out to make keying from the paper sources easy.

3.8.1 Units

In all the key entry forms except Daily Rainfall, all of the observation values have the units of measure displayed in brackets coloured grey next to the field. If the units are underlined then you can click on the unit and swap between SI (International System of Units) and older non-SI units. Within the unit selection popup, click on the desired unit. To make the unit selection popup go away, click on a unit, even if it is already selected. CliDE will always save the original units entered but *will also*

convert non-SI units to SI units so that SI units are always available in the database. In accordance with the data rescue scope, data review and ingest functionality has been limited at this stage to maintaining values in SI units only.

3.8.2 Field Validation

When an observation value is typed into a field and the field is exited by pressing <Tab> or clicking outside the field, the field is validated for correctness. This check ensures the value is of the right type (e.g. numeric, date, character text) and if the value entered is in the correct range of values (i.e. below maximum and above minimum allowed values). If the field is validated correctly, then the field will be coloured green or blue. If the field is incorrect then the field will be coloured red to indicate a problem. To view the validation message, move the cursor over the field for a moment and a popup message will display the reason the field value failed validation. The form will not allow the form data to be saved if there are outstanding validation errors, so they user must take note and correct any fields that are showing errors.

3.8.3 Key Entry Profiles

Profiles control the default units and which elements are enabled and displayed in the Keyboard Data Entry forms. If only one (default) profile has been defined, then it is automatically selected in the data entry forms and the profile list is not displayed.

Do not change the Profile after you start entering data. Select the Profile prior to entering data (if you have more than one defined for your installation of CliDE). Changing a Profile in the middle of entering data can result in unexpected behaviour such as mistakenly saving the wrong units of measure or losing data in fields that have been disabled in your chosen Profile.

When editing existing data, preference is given to display the units of measure in which the original data was entered. This will override the selected Profile. So, be careful to check the selected units before saving.

3.8.4 Specific Fields

Missing Rainfall The "missing" field is there for unusual cases where the daily rainfall reading was taken but then lost for some reason. It is not a flag you should need too often.

For example:

Say a daily rainfall reading is taken on Monday and it is known that there was also a reading on Sunday... but the field book was lost.

By marking Sunday as "missing" (i.e. check the flag in the Keyboard Data Entry screen to true), we are clearly recording that Monday's reading is only for Monday and not an accumulated value for the whole weekend. With Sunday's reading marked as lost.

Note that behind the scenes, the missing flag saves the rainfall as blank (null) with a quality assurance code of "00" (there is no separate missing flag in the database). So, in the **Data Quality Assurance** edit screen, you won't see a "missing" checkbox, just the QA code indicating a missing or lost value.

Relative Humidity In the *Sub Daily* key entry form, after entering the Air Temp (dry bulb) and Wet Bulb Temp fields, CliDE will automatically calculate and populate the Relative Humidity field.

This is only meant as a helper value and if you have your own relative humidity calculation or a look-up table for the specific location, then you should replace the value added by CliDE.

See the **Relative Humidity** calculation in the Appendix.

3.8.5 Key Entry Report







View a report of what you've entered during the past 24 hours by pressing  in the top-left corner of the screen. The report will appear in a new window to show what you have recently keyed.

Figure 3.13: Key Entry screenshot with the dark grey panel covering the data fields before the station number and local date are entered at the top of the form

3.8.6 Key Entry Tabs



Daily Rainfall This form is for entry of daily rainfall a month at a time. Only days with non-zero rainfall need to be entered. All other days in the selected month will be saved as zero rain days. To enter one months data:

1. Type the station number in the Station No field or select using the popup window by clicking .
2. Select date by selecting year and month from dropdown lists.
3. Ensure units are correct. Change by selecting from drop down list if required. *Note:* If a month is selected with data already entered (edit mode) then the unit will be set and locked to whatever unit was used to enter the data.
4. Ensure QA status is correct. Only select "Y" if data has passed Quality Assurance processing.
5. If available, enter the Total Monthly Precipitation and Total Month Rain Days for the month. These numbers will be compared to the individual rain day entries when *Save Month* is pressed and a message will show if the actual totals do not equal the entered totals. This is a good quality check that will catch most keying errors.
6. If rainfall data for the selected month and station exists then the *non zero* rain days will be displayed in a list. Entries in this list can be removed by clicking on *Remove* which will change the rainfall to zero for that day when *Update Month* is clicked. Entries can also be edited by clicking on *Edit*. This will make the day's values available to edit in the add/change area. Press  to accept changes to the day. The new values will appear in the list.
7. Enter Day of month, amount of rain (mm assumes 1 decimal place so 24.2 mm is entered as "242"). The default settings of type=Rain, Period=1 and rain days=1 can be left and the entry added by clicking  (or tabbing to  then pressing <Enter>). For entries that cover more than 1 day or have a type not "Rain" these values can be set, as well as a QA flag and observer comments. Either of the  buttons can be clicked to save the entry. As each rain

day is entered it is displayed in a list. The form will not allow rain days to overlap. E.g. If you entered rain on the 4th with a period of 4 days, the system will not allow you to enter rain for, say 2nd as this is covered by the 4 rain days up to the 4th.

8. When all rain days are entered for the month then click *Save Month* if the month is being entered for the first time or *Update Month* if the data for this month has previously been entered. A save report will appear showing the results of saving the data to the database.

Daily This form allows key entry of only daily observations. Daily observations are not "point in time" but are either aggregates (totals or mean), maximums or minimums. There is a fairly standard set of observations such as max temperature, min temperature, total rainfall, wind run, max gust, etc.

1. Type Station No or select using popup by clicking .
2. Select date by clicking  then selecting a date from the popup window.
3. Ensure QA status is correct. Only select "Y" if data has passed Quality Assurance processing.
4. Enter data into the fields that are available.
5. Press *Save Data*.

Sub Daily This form allows key entry of sub-daily observations. Sub daily observations are those done at a "point in time" such as "temperature at 9:00am". Typical sub-daily observations are wind speed/direction, cloud layers, temperature, wet bulb, dew point, pressure (as read, station mslp, vapour), and soil depth temperatures.

Once data has been saved, you can generate a SYNOP message from that data.

Key Profile

default
ETimor_ME48_10
fijiDaily

Station No: 55006

Port Moresby W/Office

Local Date/Time: 2013-04-16 08:00

QA Flag: N

+1 on Save +3 on Save +6 on Save

Wind Direction: (°)

Wind Speed: (Kts)

Visibility: (Km)

Present Weather Code: (Bft)

Past Weather Code: (Bft)

Total Cloud: (Oktas)

Total Low Cloud: (Oktas)

Low Cloud Height: (Code)

Cloud Layers (Oktas)

Layer	Amt	Type	Height (Ft)	Dir (°)	Pts	Code

Air Temp: (C)

Wet Bulb Temp: (C)

Dew Point: (C)

Relative Humidity: (%)

Rain (for specified period): (mm) Period: (hrs)

Rain Cumulative: (mm)

Sunshine: (Hours)

Radiation: (Mj/M)

Sea Water Temp: (C)

State Of Sea:

State Of Swell:

Swell Direction: Pts Code

Sea Level: (M)

Sea Level Residual: (M)

Adjusted Residual: (M)

Barometer Temp: (C)

Pressure As Read: (hPa)

Station Pressure: (hPa)

MSL Pressure: (hPa)

Vapour Pressure: (hPa)

QNH: (hPa)

Wind Gust: (Kts)

Gust Direction: (°)

Soil Temperatures (C)

5cm	10cm	20cm	30cm	50cm	100cm

Comments:

Save Data Cancel



SYNOP: Generate Parse

Figure 3.14: Sub Daily Key Entry screenshot

1. Type Station No or select using popup by clicking
2. Select a date by clicking then selecting date. Select time from dropdown. You can use the mouse or keyboard to select time.
3. Ensure QA status is correct. Only select "Y" if data has passed Quality Assurance processing.
4. Enter data into fields that are available.
5. Press *Save Data*.
6. When viewing saved data, you can press the *Generate* button in the SYNOP section. A popup window will appear that allows you to enter additional, optional data to include in the SYNOP message. After entering any optional data, press *Generate SYNOP Message*. A new popup window will appear with the message text displayed. You can copy and paste the text into an email or other application. You can also print the message by clicking the *Print* button in the top right of the page.



Climate This form combines mostly daily data with some sub-daily values taken at a fixed observation time. The fixed observation time is set at the top of the form and all the sub-daily values in the form are saved with this time.

Figure 3.15: Climate Key Entry screenshot includes both daily and sub-daily elements


1. Type Station no or select using popup by clicking .
2. Select date by clicking  then selecting date. Select time from dropdown. This will be the time that the sub-daily measures are stored at. You can use mouse or keyboard to select time.
3. Ensure QA status is correct. Only select "Y" if data has passed Quality Assurance processing.
4. Enter data into fields that are available.
5. Press *Save*.

Register This form combines sub-daily values taken at several observation times in relation to a "primary observation time". The primary observation time is set at the top of the form. Once set, the sub-daily times are displayed in Local Clock Time as well as UTC. Most paper sources do not have observations for all of the times available in the form, however these extra time slots will allow more flexibility in what the form is used for.

Figure 3.16: Register Key Entry screenshot includes sub-daily elements for multiple times during the specified date and daily elements at the bottom of the form

1. Type Station No or select using popup by clicking .
2. Select date by clicking  then selecting date. Select primary observation time.
3. Ensure QA status is correct. Only select "Y" if data has passed Quality Assurance processing.
4. Enter data into the fields that are available.
5. Press *Save*.

Monthly This form allows key entry of monthly climate data. Data may be keyed into the monthly form when, for example, original daily records have been lost and only monthly data exists.



1. Type Station number or select using popup by clicking .
2. Select Local Date by choosing a year and month.
3. Ensure QA Flag is correct. Only select "Y" if data has passed Quality Assurance processing.
4. Enter data into the fields that are available.
5. Press *Save Data*.

Metar/Speci This form allows entry of METAR and SPECI message data. METAR and SPECI messages from aviation can be entered as a complete message and the individual values extracted (parsed) for saving as aero observations in ClIDE. It is also possible to generate a METAR message from relevant values entered into the form.

Data saved in the METAR/SPECI keyboard data entry form can be extracted and viewed by selecting "aero" data in Products and Data Quality Assurance.

Note that rainfall/precipitation amounts are not defined in the METAR code forms. Different countries have adopted different codes for reporting rainfall amounts, but they are all coded into the Remarks (RMK) section of the METAR message. Therefore, if applicable, include the rainfall amount codes in the Remarks field.

If observation data has already been entered in the Sub Daily key entry form for the chosen date and time (note that the METAR/SPECI form uses UTC time), then that data will be displayed in the METAR/SPECI form after selecting the station and time.

1. Type Station No or select using popup by clicking . Note that the METAR/SPECI message includes the Aeronautical ID for the station, not the local station number that you select here.
2. Select the UTC date by clicking  then selecting date. Type in the UTC time.
3. Ensure QA Flag is correct. Only select "Y" if data has passed Quality Assurance processing.
4. If you are entering an existing METAR or SPECI message, you can copy or type the text message into the *Full Message Text* field. You can then press the *Parse Message* button to extract the data from the message into the appropriate fields ready to save into CliDE.
5. Alternatively, enter the data into fields that are available. After entering all the data, you can press the *Generate Message* at the bottom of the form to generate the message text, which can then be copied and pasted into another program.
6. Press *Save Data*.

3.9 Data File Ingestion - Text file inputs

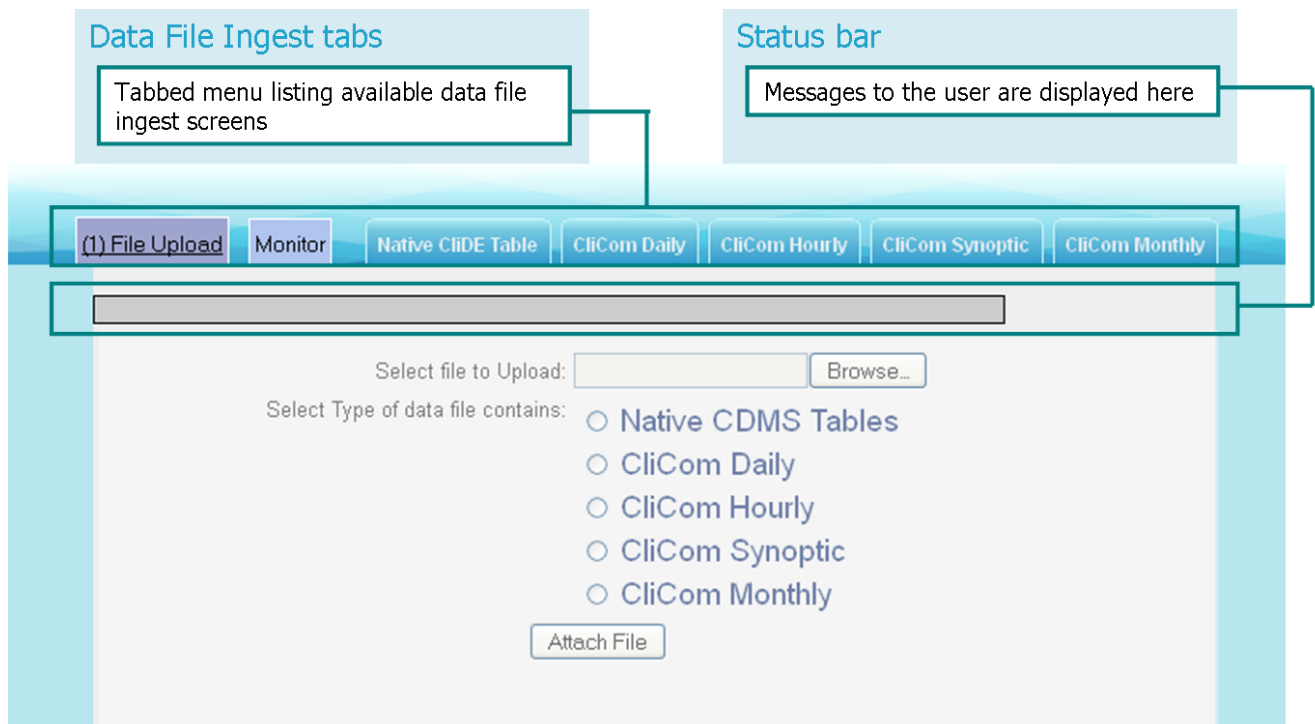


Figure 3.17: Data File Ingest screenshot

3.9.1 Introduction

The Data File Ingestion pages allow for text file data to be imported into the CliDE observation tables. The process begins by uploading the file from your computer to the CliDE server and telling CliDE what sort of data the file contains.

Each ingest file type can then be previewed prior to ingestion to ensure the format looks correct. Once *Import* is pressed, click on the Monitor tab to view the progress of the file ingest. You can cancel an active ingest from the Monitor (with a record of who cancelled the active ingest).

Once processed, the file will be copied from the "Unprocessed Files" folder to the "Processed Files". If errors were found then there will also be a file in the "Error Files" folder. This file will contain the original data plus an error message. Please note that the error messages can be quite technical.

File ingestion is somewhat unforgiving in that everything in the file must be exactly correct. Do not attempt unless you are quite sure of what you are doing! It is strongly suggested that a sample file is used as the starting point for building any ingest file, or the file should be generated using well tested code to ensure consistent 100% correctness.

3.9.2 Differences between CliCom and CliDE files

CliCom files do not have header lines are 'value and flag' pairs and are time positional: each value and its flag position reflect a time stamp. The time stamp is an immediate fraction of the time stamp in the row.

For example:

In a monthly data set, the row time stamp is yyyy and the positions of the values/flag pair reflects months.

In a daily data set, the row time stamp is yyyy-mm and the positions of the values/flag pair reflects days.

In an hourly data set, the row time stamp is yyyy-mm-dd and the positions of the values/flag pair reflects whole hours.

CliDE files have two header lines, one for the table, and one for the table columns, and have an ISO8601 timestamp included in the row.

3.9.3 Data File Ingestion Tabs

File Upload This is where the file is identified and uploaded to the CliDE server. Click on *Browse...* then use the file browser to locate the file to be uploaded.

Select the type of file: Native CliDE Tables, CliCom Daily, CliCom Hourly, CliCom Synoptic or CliCom Monthly. It is important to select the correct contents of the file! Click *Attach File* to complete the upload. To continue, click on the upper tab menu to navigate to the file type you have uploaded.

Monitor View currently active file ingests and a history of previous file ingests.

The Monitor displays information about who started a file ingest and when it was started, the total number of rows in the file, how many rows have been successfully ingested in CliDE, how many rows have errors and an approximate calculation of the number of records per minute that have been ingested.

There are also links to view/download the plain text log files, which provide detailed information about any errors encountered during the ingest process.

Native CliDE Table This format enables data to be ingested into any CliDE observations table and the stations table. These files are Comma Separated Value (CSV) text files with a format that is specific to CliDE. The first line in the file must contain the CliDE table name (see the data model for more details). The second line in the file must contain the CliDE database column names. The first column must be *station_no*, the second *lsd* or *utc*. All columns after that are optional, but they must be named exactly as they are defined in the table. All subsequent lines contain the data to be ingested. The column order of data lines must be exact for each and every line! Apart from *station_no* and *lsd/utc*, all non-numeric data needs to be wrapped in 'single quotes'. Times such as max gust time should also be quoted: e.g. '12:30'.

It is often best to copy an example file and use a spreadsheet to ensure all data is lined up under the correct column header. Just be sure to save as .CSV and not .XLS or any other non-text file format. Also, be warned that spreadsheet applications sometimes reformat dates and other data fields, so be sure to review the final CSV text file before ingesting into CliDE.

CliCom Daily This enables daily CliCom files to be ingested into daily and sub-daily observation tables.

CliCom Hourly This enables sub-daily CliCom files to be ingested into the sub-daily observation table.

CliCom Synoptic This enables sub-daily CliCom files to be ingested into the sub-daily observation table.

CliCom Monthly This enables sub-daily CliCom files to be ingested into the monthly daily observation table.

3.9.4 Input File – CliDE Native Format

CliDE's native file import format has two header lines. The first line points to the table and the second line lists the columns in the table. The 3rd and subsequent lines are data lines.

Non-numeric fields must be enclosed by apostrophes, numeric fields do not.

All fields are separated by one comma.

For sub-daily records the date field also includes time in ISO8601 ¹ format in the form `'yyyy-mm-dd hh:mm'`.

Columns that have data must be included in header line two, however columns that you know will have no data in any line may be omitted. That is to say, you only need to include columns that have data.

The table and column name must be exactly the same as in the CliDE data model (as implemented in the database).

3.9.5 Example of CliDE Files

Example 3.1 CliDE Native daily observations file

```
obs_daily
station_no,lsd,max_air_temp,max_air_temp_qa,min_air_temp,min_air_temp_qa,rain_24h,↵
rain_24h_type,rain_24h_qa
61705,2007-10-05,29.3,10,25.6,10,9.1,'rain',10
61705,2007-10-06,30.3,10,25.7,10,3.0,'rain',10
61705,2007-10-07,29.8,10,25.7,10,13.0,'rain',10
```

Example 3.2 CliDE Native subdaily observations file

```
obs_subdaily
station_no,lsd,air_temp,dew_point,rel_humidity,station_pres,visibility,wind_dir,wind_speed,↵
pres_weather_code,past_weather_code
61705,2010-05-27 07:00,28.4,26.5,89,1014.1,19.0,090,6.2,'02','8'
61705,2010-05-27 08:00,29.0,27.0,89,1014.6,19.312,090,5.1','',''
61705,2010-05-27 09:00,29.0,26.0,83,1015.2,19.312,090,7.2,'16',''
```

3.9.6 Input File - CliCom Formats

CliCom files are Comma Separated Value (CSV) text files with standard Windows end-of-line characters and data as ASCII text. All field delimiters must be present when data is missing or null. Flags are typically null, but if not are usually "M" for missing data or "T" for trace precipitation. All numeric data must include decimal places and be formatted as correct numeric values. (No alpha or special chars allowed apart from "." and possibly leading "-").

Column 1 Dataset ID - Unused.

¹ http://en.wikipedia.org/wiki/ISO_8601

Column 2 Station No - Must be entered and match station no in CliDE exactly.

Column 3 Element No - Must be entered and match known CliDE elements.

Column 4 Element Desc – Unused and can be null.

Column 5 Date/Time - Must be entered and be a valid Date...See table below.

Column 6+ Even columns have data, Odd columns have Flags. Number of columns depends on file type.

Daily	Col 5: yyyy-mm	31 Column pairs representing value and flags for days of month. First column is day 1 of month, second day 2, etc.
Hourly	Col 5: yyyy-mm-dd	24 Column pairs representing value and flags for hours of day. First column is hour 00, second hour 01, etc. Up to hour 23
Synoptic	Col 5: yyyy-mm-dd	8 Column pairs representing value and flags for synoptic times of day. First column is hour 00, second hour 03, up to hour 21.
Monthly	Col 5: yyyy	12 Column pairs representing value and flags for months of year. First column is Jan, second Feb, etc up to month 12.

3.9.7 Example of CliCom Files

Example 3.3 CliCom daily file

Daily

```
1,J61000,1, ,1978-01,30.2, ,28.5, ,29.9, ,28.8, ,28.6, ,27, ,25.2, ,29.6, ,29.4, ,30.4, ←
,29.6, ,29.6, ,29, ,27.2, ,29.4, ,29.3, ,29.7, ,29.5, ,28.3, ,29.7, ,26, ,26.7, ,27, ←
,26.4, ,26.4, ,25.5, ,29.3, ,29.8, ,29.6, ,25.9, ,28.7,
1,J61000,2, ,1978-01,32, ,31.5, ,31.9, ,31.7, ,31.4, ,26.8, ,31.8, ,31.3, ,31.7, ,32.1, ←
,31.5, ,32.1, ,31.2, ,30.5, ,30.7, ,31.4, ,31.7, ,31.7, ,29.9, ,31.8, ,28.5, ,29.8, ←
,30.1, ,31, ,28.9, ,29.6, ,31.3, ,31.4, ,31, ,31.2, ,0,M
1,J61000,3, ,1978-01,24, ,25.5, ,26.4, ,26.1, ,24.9, ,25.1, ,22.1, ,24, ,24.3, ,27.1, ←
,24.9, ,27, ,25.1, ,27.5, ,24.4, ,24.7, ,26.2, ,25.2, ,25, ,23.5, ,25, ,28.6, ,24.6, ←
,23.9, ,25, ,24, ,24.3, ,23.8, ,24.9, ,24.9, ,25.1,
```

Example 3.4 CliCom hourly file

Hourly

```
101,J61000,101,TEMPDB,1982-01-01,26, ,26, ,26, ,26, ,26, ,26, ,26, ,27, ,27, ,28, ,29, ,30, ←
,28, ,30, ,31, ,31, ,30, ,29, ,29, ,28, ,28, ,28, ,28, ,27,
101,J61000,103,TEMPWB,1982-01-01,25, ,24, ,23, ,25, ,24, ,23, ,24, ,25, ,25, ,25, ,25, ,25, ←
,25, ,25, ,25, ,24, ,24, ,24, ,24, ,24, ,24, ,24, ,24, ,24,
101,J61000,104,PRECIP,1982-01-01,0,T,0.3, ,0,T,0,T,0, ,0, ,0, ,0, ,0, ,0, ,0, ,0, ←
,0, ,0, ,0, ,0, ,0, ,0, ,0, ,0, ,0, ,0,
```

Example 3.5 CliCom synoptic file

Synoptic
101,J48700,101, ,1996-01-01,24.4, ,-99999,M,26.2, ,-99999,M,28.7, ,-99999,M,26.3, ,-99999,M
101,J48700,102, ,1996-01-01,22.8, ,-99999,M,24, ,-99999,M,24.7, ,-99999,M,23.8, ,-99999,M
101,J48700,103, ,1996-01-01,22, ,-99999,M,23, ,-99999,M,23, ,-99999,M,22, ,-99999,M

Example 3.6 CliCom monthly file



Monthly
1,J48300,208, ,1947,391.2, ,170.2, ,287, ,375.9, ,480.1, ,335.3, ,297.2, ,132.1, ,63.5, ↵
 ,30.5, ,66, ,264.2,
1,J48300,208, ,1948,256.5, ,175.3, ,281.9, ,315, ,726.4, ,312.4, ,281.9, ,35.6, ,45.7, ,61, ↵
 ,43.2, ,144.8,
1,J48300,208, ,1949,154.9, ,434.3, ,289.6, ,172.7, ,304.8, ,378.5, ,416.6, ,121.9, ,33, ↵
 ,27.9, ,20.3, ,109.2,

3.10 Data Quality Assurance - Data review and modification



Figure 3.18: Data Quality Assurance screenshot

This function is where observations can be reviewed and edited. When Quality Assurance processes are implemented in CLiDE, this is where the observations can be reviewed along with the relevant station metadata. Data can be reviewed using a spreadsheet-like data grid and by graphical plots of the observation and surrounding time periods, or a graphical plot of the closest 5 stations' data for the same period. The data grid can be clicked on to bring up an edit form that allows the observations to be changed and the change history of the observations to be viewed.

1. Start at the top left of the page. Type station number in the Station field, or click  to use popup station selector, or select station from dropdown list.
2. Select the type of observation element. The list defaults to daily observations.
3. Select the LSD (date) of observation by clicking  then selecting date.

4. Wait for grid to be refreshed.

The top-right pane contains information about the station. Click the tabs to see *Details*, *Pictures*, *Equipment*, *Class*, *History* and *Contacts*.

The top-left pane contains a graph of the observations centered on the date selected. Click on the tabs to see *Recent* observations, *Nearby* stations' observations or a *Map* showing the location of the selected and nearby stations (it may sometimes take a few seconds to display the map). The bottom pane contains the grid of observations. This can be scrolled to view all values. Click on the LSD column (far left, **blue/green** background field) to bring up the edit form for the observations. This form will allow the observation change history to be viewed, changes can be made to values, or the observation row can be deleted completely from the database. All changes and deletions will be logged in the audit table.

When editing observations, the value will turn green/blue if the alteration is valid, or red if the change is invalid for some reason. Hold cursor over a red field and a popup message will appear saying what is wrong with the field value. Click *Save Changes* to apply changes to the database.

Note: Only SI units can be edited in the current edit forms. If non-SI units are entered via key entry forms the SI value is always calculated and stored. The original non-SI units can be viewed and edited in the **Keyboard Data Entry** forms.

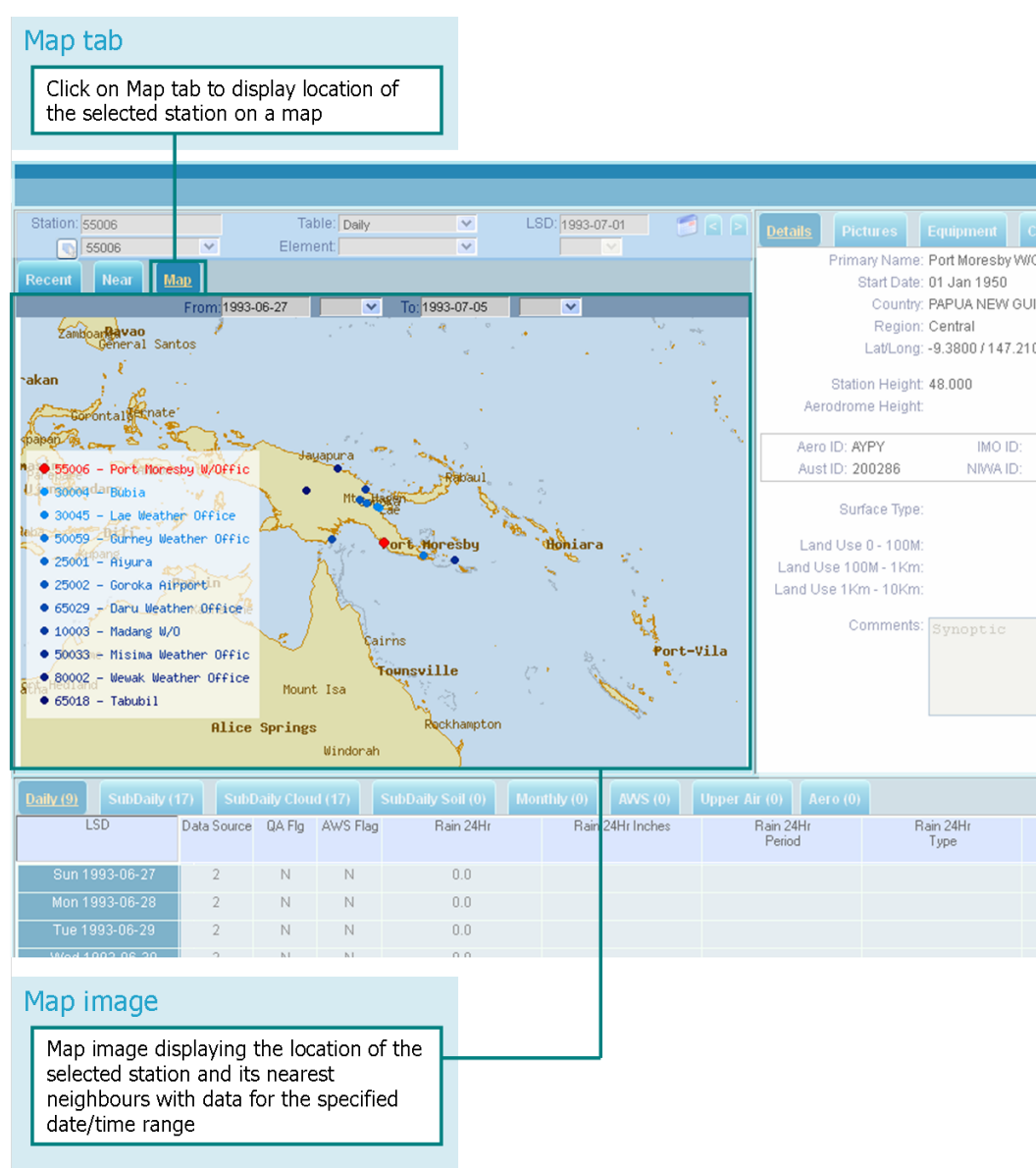


Figure 3.19: Data Quality Assurance maps screenshot

3.11 Products - File extracts, Reports and Graphs

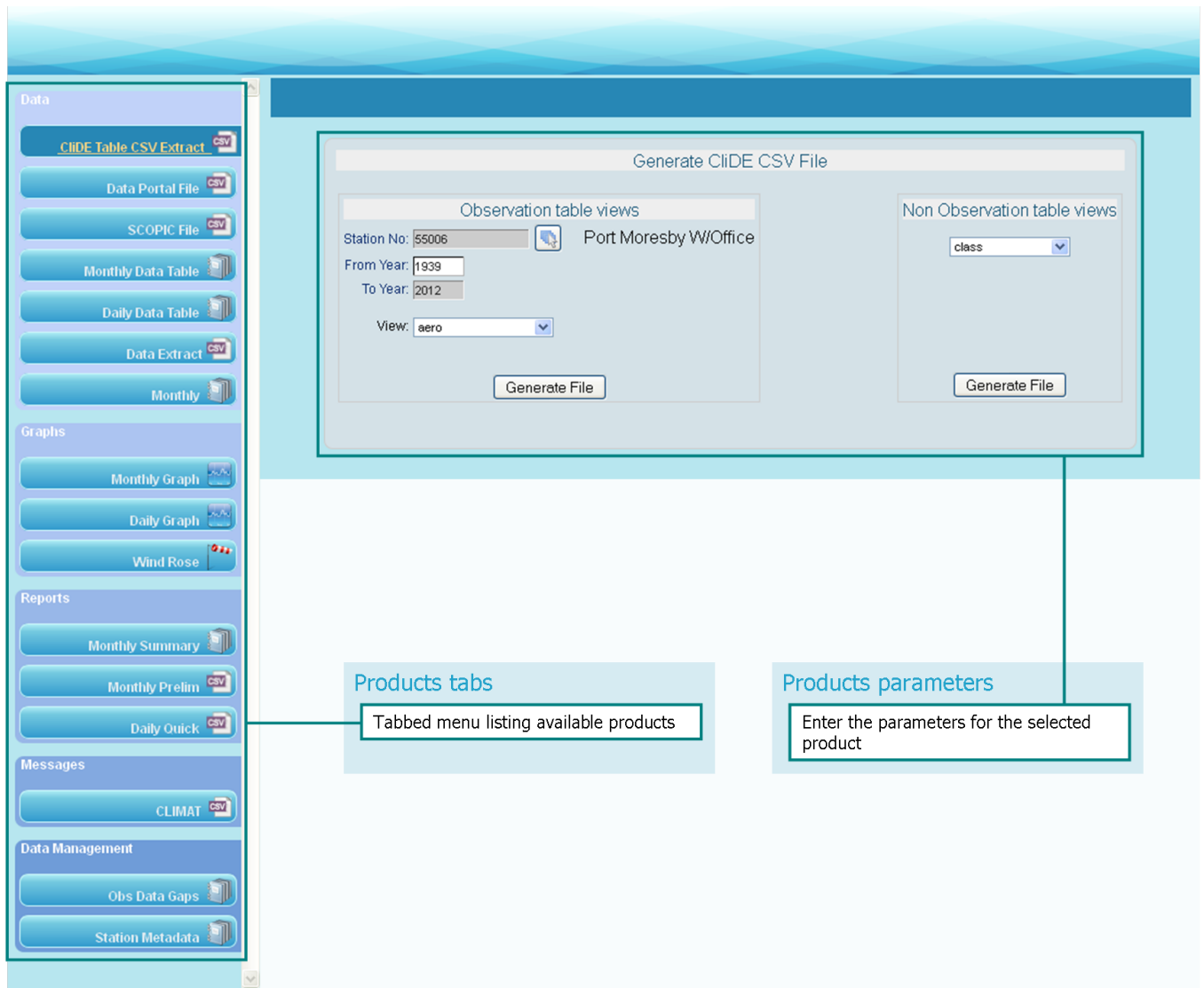



Figure 3.20: Products screenshot

This area is where data from the CliDE database can be extracted as either CSV text files or formatted reports suitable for printing. Some basic charts are also found here. Future versions of CliDE will continue to expand the range of available products depending on feedback to the CliDE development team.

3.11.1 Products List

3.11.1.1 CSV Data Dump

This function allows CSV files to be created from data in CliDE database tables via pre-defined "Views". Any view defined in the database with a name starting with "ext_" will appear in the dropdown list. All observation views will contain a station number and lsd/gmt. the intention of this feature is to allow technical staff with SQL skills to create database views that can then be made available to non-technical staff via this interface.

1. Type station number or select by pressing . The *From Year* will be populated with the earliest year that data is available. Change as appropriate. The *To Year* will be populated with the latest year that data is available. Change as appropriate.
2. Select the view from the dropdown list. The name should guide you as to the contents of the view.
3. Click *Generate File*. A message will indicate when the file is created and a link will be shown to the file. Depending on your browser, you can either right click the link and select "Save As", or click and open the file in MS Excel within the web browser.


3.11.1.2 CliDE Native File

Generate a data file in CliDE Native file format that can then be used to transfer data to another CliDE database by using **Data File Ingestion** to import the data. The CliDE Native file format is similar to a CSV file but with some CliDE-specific value formats.

1. Select a database table from which to extract data from the dropdown list.
2. Select one or more stations. The list of stations on the right hand side can be filtered by choosing a Status, Catchment, Region or Class. You can also type in a Station Number or Station Name to filter the list of stations. If no stations are selected, then the report will generate data for *all* of the displayed stations. You can select more than one station from the list by holding down the **Ctrl** key as you click the mouse button on the stations list.
3. Type in the range of years of data to include in the output in the From Year and To Year fields. If a small number of stations have been selected above, then the range of years will be automatically populated from the available data in CliDE.
4. Click *Generate File*. A message will indicate when the file is created and a link will be shown to the file. You can right-click on the link and select "Save As" to save the CliDE Native file to your computer.


3.11.1.3 Data Portal File

This function creates a CSV file in the format required by the Pacific Climate Change Data Portal. It consists of header rows containing metadata followed by *monthly* or *daily* data that is either rainfall, maximum temperatures, minimum temperatures or 9:00am MSL pressures.

1. Type station number or select by pressing . The *From Year* will be populated with the earliest year that data is available. Change as appropriate. The *To Year* will be populated with the latest year that data is available. Change as appropriate.
2. Select Rainfall, Max Temp, Min Temp or 0900 MSL Pressure by clicking on the radio buttons. For monthly data, you can also choose to generate a file in the old tabular format instead of the new single-column format.
3. Type any comments for the file if required.
4. Click *Generate File*. A message will indicate when the file is created and a link will be shown to the file. Depending on your browser, you can either right click the link and select "Save As", or click and open the file in MS Excel within the web browser.

3.11.1.4 SCOPIC File


This function creates a CSV file in the format required by the SCOPIC seasonal forecasting tool. It consists of header rows containing metadata followed by *monthly* data that is either rainfall, maximum temperatures or minimum temperatures. (Other data will be included in this product in future CliDE releases as requested).

1. Type station number or select by pressing . The *From Year* will be populated with the earliest year that data is available. Change as appropriate. The *To Year* will be populated with the latest year that data is available. Change as appropriate.
2. Select Rainfall, Max Temp, or Min Temp by clicking on the radio buttons

3. Type any comments for the file if required.
4. Click *Generate File*. A message will indicate when the file is created and a link will be shown to the file. Depending on your browser, you can either right click the link and select "Save As", or click and open the file in MS Excel within the web browser.


3.11.1.5 Monthly Data Table

This function provides a printable report showing basic station metadata, monthly rainfall, maximum temperature, minimum temperature values for a selected station and year range. The report also calculates the highest, lowest and mean values for each month as well as the annual figures.

1. Type station number or select by pressing . The *From Year* will be populated with the earliest year that data is available. Change as appropriate. The *To Year* will be populated with the latest year that data is available. Change as appropriate.
2. Check or un-check rainfall, max temp, min temp as required. Only checked elements will be shown on the report.
3. Click *Generate Report* and the report will appear in a new window. You can print the report by clicking the *Print* button in the top right of the page. Please note that CliDE has little control over print settings as this is a function of the client machine's web browser setup and general print settings.

3.11.1.6 Daily Data Table

This function provides a printable report showing basic station metadata, daily rainfall, maximum temperature, minimum temperature values for a selected station and year. The report also calculates the highest, lowest and mean values for each month.

1. Type station number or select by pressing . A message will be shown that shows the earliest and latest years that data is available for the station.
2. Type year, click outside field or press <tab>
3. Check or un-check rainfall, max temp, min temp as required. Only checked elements will be shown on the report.
4. Click *Generate Report* and the report will appear in a new window. You can print the report by clicking the *Print* button in the top right of the page. Please note that CliDE has little control over print settings as this is a function of the client machine's web browser setup and general print settings.

3.11.1.7 Data Extract

User-defined extract of data from CliDE into a CSV text file.

1. Select the Observation Type by clicking one of the radio buttons.
2. Select which elements you'd like to include in the output by clicking one or more checkboxes. Note the scrollbar on the right to scroll down and see more available elements.
3. Select one or more stations. The list of stations on the right hand side can be filtered by choosing a Status, Catchment, Region or Class. You can also type in a Station Number or Station Name to filter the list of stations. If no stations are selected, then the report will generate data for *all* of the displayed stations. You can select more than one station from the list by holding down the **Ctrl** key as you click the mouse button on the stations list.
4. Optionally, select a Date/Time Range of data to include in the report.
5. Optionally, you can filter the results by selecting one or two Additional Filters on the data. Select an Element from the drop-down list, select an operator and type in a value. You also have the option to use "and" or "or" logic operators between the two Additional Filters.
6. Click *Get Data* to generate the CSV file and a link will be shown to the file. Depending on your browser, you can either right-click the link and select "Save As", or click and open the file in MS Excel within the web browser.

3.11.1.8 Monthly Extract


Generate a CSV text file of monthly data for one or more elements and multiple stations.

In the generated CSV file, the Src column indicates the source of the data: "Key" indicates that the reported data was sourced from the obs monthly table and "Calc" means it was calculated from daily or sub-daily observations. If data exists in both the monthly table and calculated from observations, then the calculated values shown.

1. Select a range of years and months by typing in the year and selecting a month from the drop-down list for both the From date and To date.
2. Select one or more stations. The list of stations on the right hand side can be filtered by choosing a Status, Catchment, Region or Class. You can also type in a Station Number or Station Name to filter the list of stations. If no stations are selected, then the report will generate data for *all* of the displayed stations. You can select more than one station from the list by holding down the **Ctrl** key as you click the mouse button on the stations list.
3. Select one or more elements you'd like to include in the output by clicking one or more checkboxes.
4. Click *Generate Report*. A message will indicate when the file is created and a link will be shown to the file. Depending on your browser, you can either right click the link and select "Save As", or click and open the file in MS Excel within the web browser.

3.11.1.9 Yearly Graph

Generate a column chart of annual data for a selected station and range of years. You can optionally plot a least-squares linear trend line through the data. The data used for the graph may be calculated from daily observations or retrieved from the monthly records. The priority is to use the daily observations data.

1. Type station number or select by pressing . The *From Year* will be populated with the earliest year that data is available. You can change the year as appropriate. The *To Year* will be populated with the latest year that data is available. Change as appropriate.
2. Select which element you wish to graph: Max Temperature, Min Temperature, Diurnal Temperature Range (DTR), Evaporation or Rainfall. Only the selected element will be shown on the graph.
3. Tick the *Linear Trend Line?* checkbox if you wish to include a least-squares linear trend line on the graph.
4. Click *Generate Graph* and a new popup will appear with the graph as an image. This image can be saved by right clicking on the page and selecting *Save Image As*.

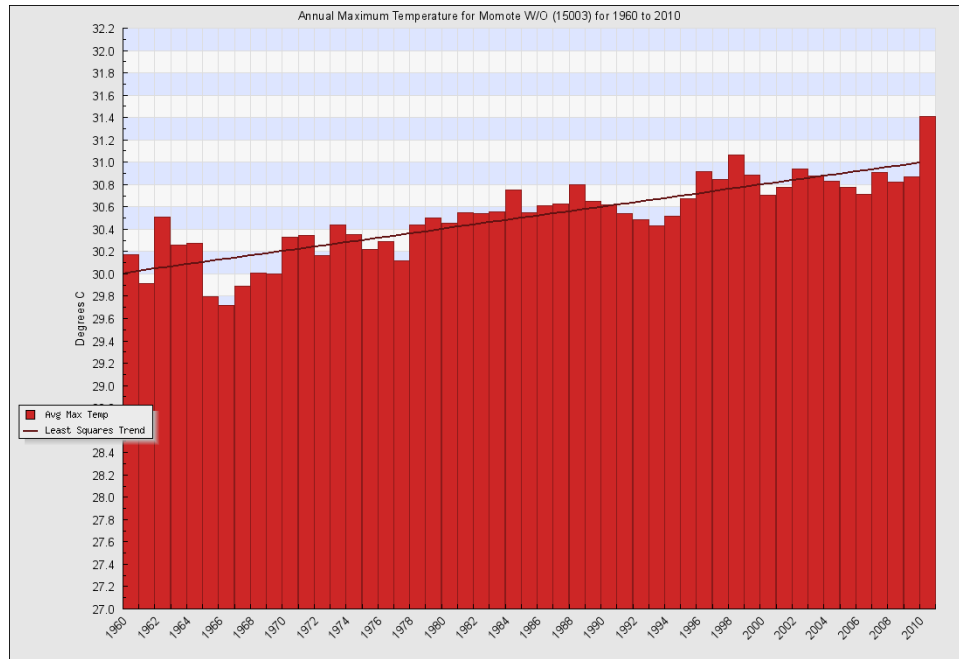



Figure 3.21: Example of Yearly Graph

3.11.1.10 Monthly Graph

This function creates a line chart for a selected station and year. There are 3 sets of observations that can be plotted: Maximum temp+minimum temp+ average temp+grass temp, wind run <10M+wind run >10M+evaporation, Rainfall.

1. Type station number or select by pressing . A message will be shown that shows the earliest and latest years that data is available for the station.
2. Select *Year* from dropdown lists
3. Click *Generate Graph* and a new popup will appear with the graph as an image. This image can be saved by right clicking on the page and selecting *Save Image As*.

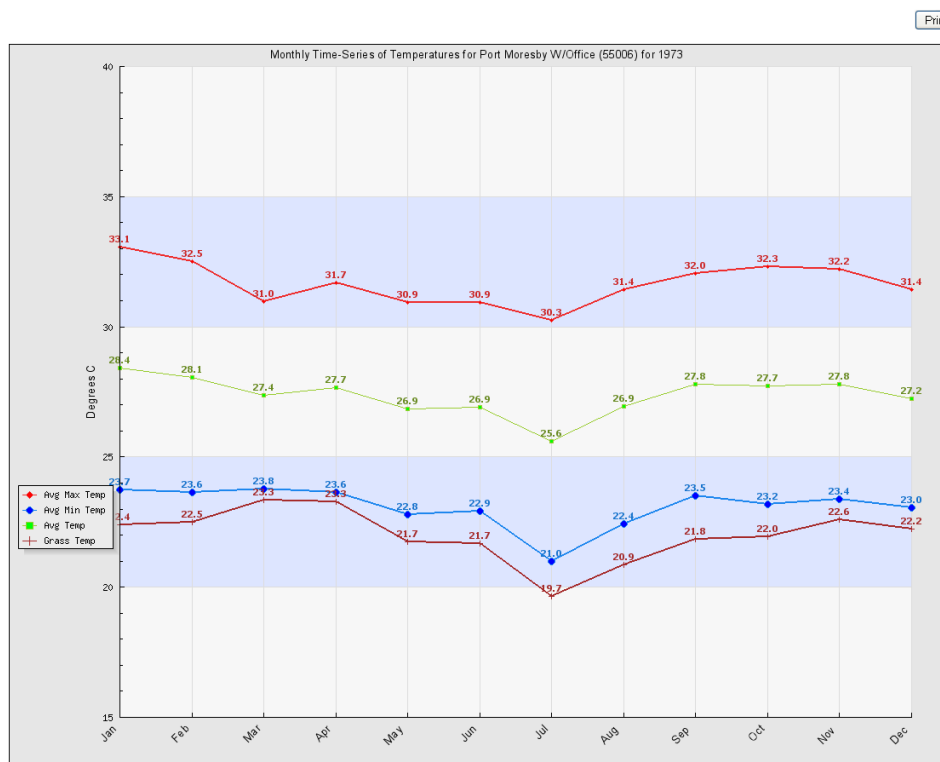



Figure 3.22: Example of Monthly Graph report


3.11.1.11 Daily Graph

This function creates a line chart of daily time-series data for a selected station, year and month. There are 3 sets of observations that can be plotted: Maximum temp+minimum temp+ average temp+grass temp, wind run <10M+wind run >10M+evaporation, Rainfall.

1. Type station number or select by pressing . A message will be shown that shows the earliest and latest years that data is available for the station.
2. Select Year and month from dropdown lists
3. Click *Generate Graph* and a new popup window will appear with the graph as an image. This image can be saved by right clicking on the page and selecting *Save As*.

3.11.1.12 Monthly Mean Graph

Generate graph of mean annual cycle of monthly values for the selected station. Values are calculated from data in the specified range of years.

1. Type station number or select by pressing . The *From Year* will be populated with the earliest year that data is available. You can change the year as appropriate. The *To Year* will be populated with the latest year that data is available. Change as appropriate.
2. Select the element you wish to graph: Rainfall, Max temperature, Min temperature or Both as required. Only the selected element(s) will be shown on the report.
3. Click *Generate Graph* and a new popup window will appear with the graph as an image. The image can be saved by right-clicking on the page and selecting *Save Image As*.

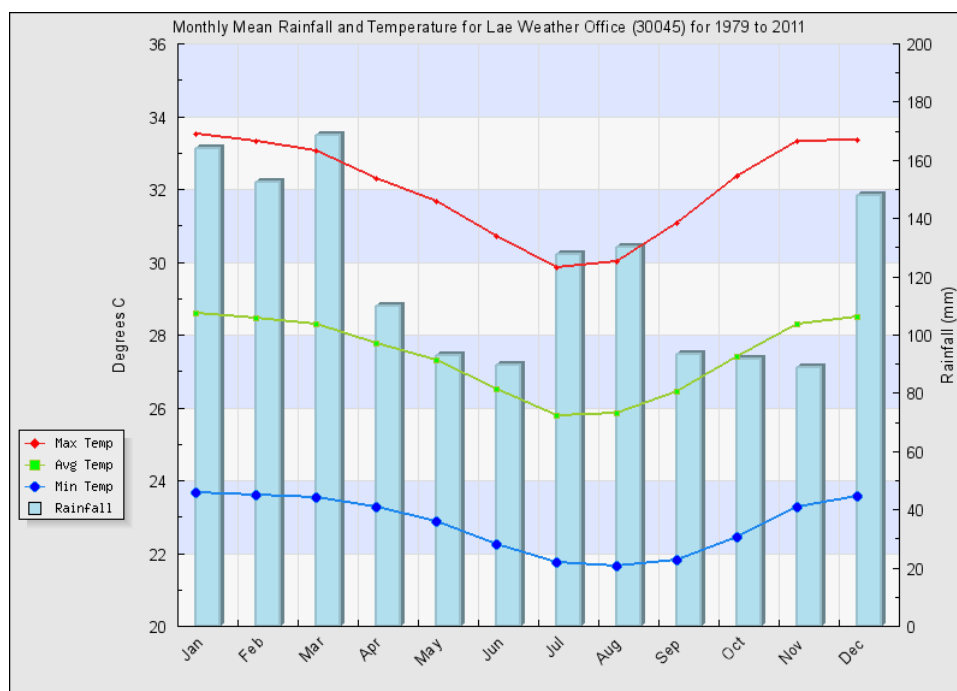



Figure 3.23: Example of Monthly Mean Graph

3.11.1.13 Wind Rose

Generate wind rose charts for a particular station over a specified range of dates. Wind roses display the frequency of winds plus the direction and strength of the wind.

The radius of the CALM wind circle in the centre of the chart is the percentage of observations with a wind speed of 0 m/s.

1. Type station number or select by pressing . When a valid station is entered, the station name will be displayed and the *From Year* will be populated with the earliest year that data is available. Change as appropriate. The *To Year* will be populated with the latest year that data is available. Change as appropriate.
2. Select the desired *Local Clock Time* (LCT) from the dropdown list.
3. Select your *Output Units* from the dropdown list.
4. Use the *Breakdown?* list to select whether or not to divide the wind data into Months or Seasons and generate separate charts for each month/season of the year. Note that the Seasonal breakdown uses the temperate seasons because the wet and dry season varies from country to country (DJF = December, January and February; MAM = March, April and May; JJA = June, July and August; SON = September, October and November). If the Breakdown selected is None (the default), the chart will be an annual wind rose.
5. Click *Generate Chart* and a new popup window will appear with the chart as an image (or multiple images for the monthly breakdown). The image(s) can be saved by right clicking on the page and selecting *Save Image As*.

Print

Wind Rose

Station Number 55006, from year 1940 to year 2012, LCT 9:00

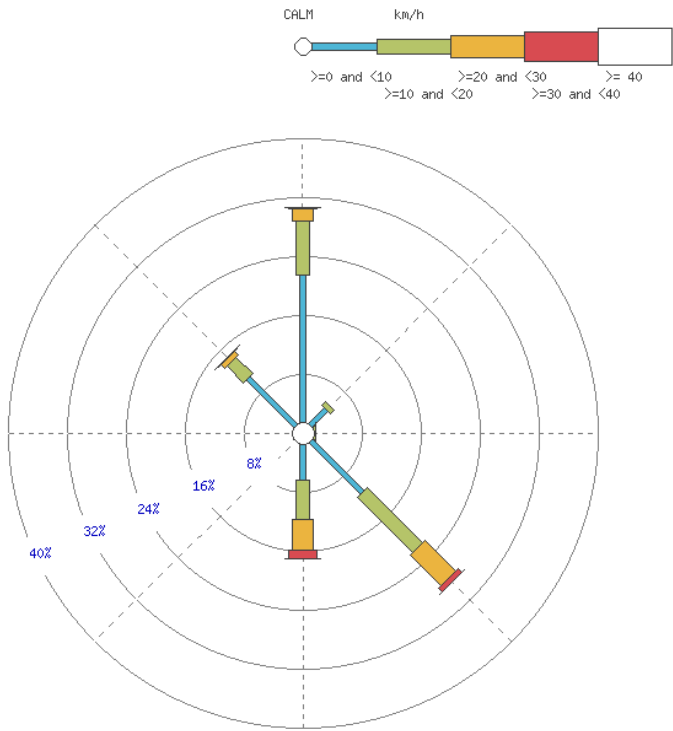


Figure 3.24: Example of Wind Rose report

Print

Wind Rose

Station Number 55006, from year 1940 to year 2012, LCT 9:00

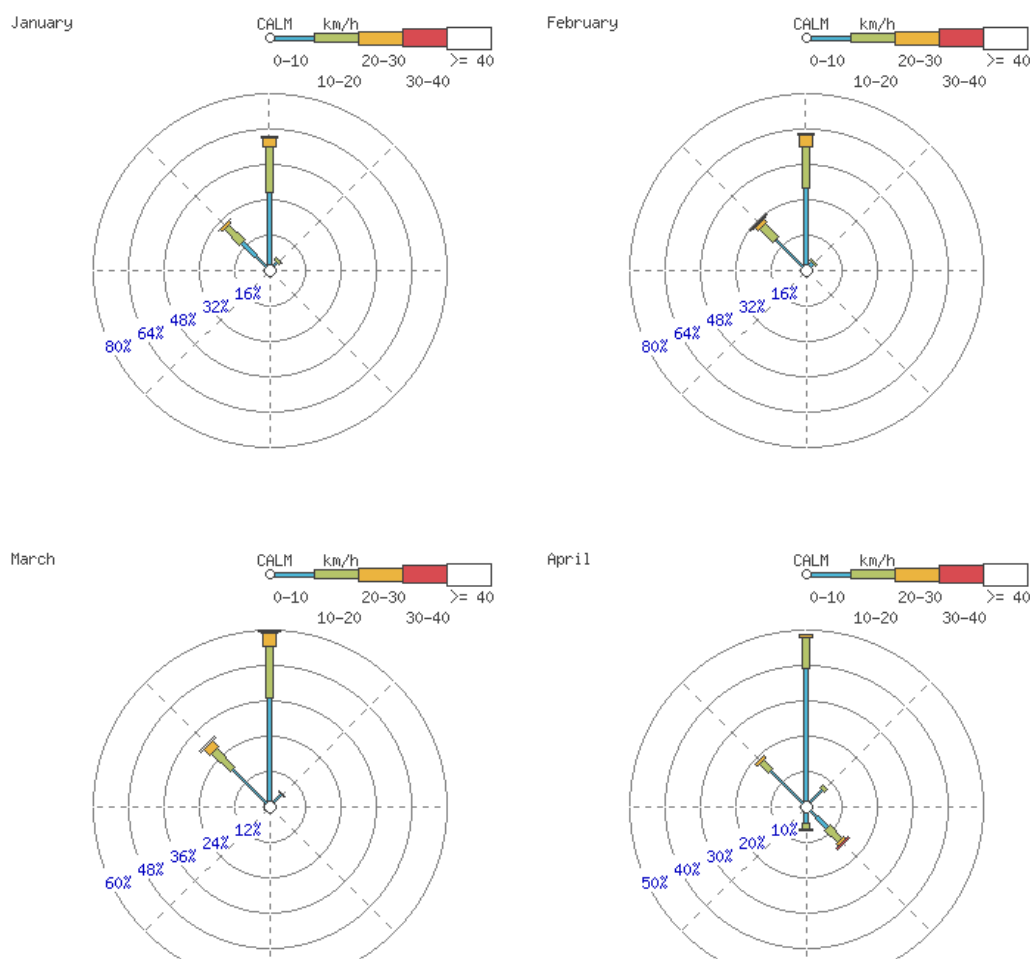



Figure 3.25: Example of Wind Rose report with monthly breakdown

3.11.1.14 River Height

Generate a chart of sub-daily river height and rainfall.

1. The specified date and time that will be the last time used in the report. Select the *Report End Date* of the observations by clicking  then selecting a date. Select a time from the drop-down list.
2. Type in the number of days (24 hours) to include in the report. This is the number of days before the end date chosen above.
3. Select up to ten (10) stations. Include both the stations recording sub-daily river height and stations recording rainfall in the relevant catchment. The report will automatically display the river height data on one graph and the rainfall in another graph. The list of stations on the right hand side can be filtered by choosing a Status, Catchment, Region or Class. You can also type in a Station Number or Station Name to filter the list of stations. If no stations are selected, then the report will


generate data for *all* of the displayed stations. You can select more than one station from the list by holding down the **Ctrl** key as you click the mouse button on the stations list.

4. Click *Generate Report* and a new popup window will appear with the graphs as images. You can print the report by clicking the *Print* button in the top right of the page. Please note that CliDE has little control over print settings as this is a function of the client machine's web browser setup and general print settings. The images can be saved by right clicking on the page and selecting *Save As*.

3.11.1.15 Year of Weather Graph

Generate a graph of one year (or one month) of daily temperature/rainfall with averages and records on same chart.

The long-term monthly averages (means) displayed on the graph are calculated from the daily observations data for 1971 to 2000 (currently, not from the Normals or long-term averages data manually entered into CliDE). If the daily data record in CliDE is less than 85% complete for 1971 to 2000 for the selected station, then a warning message is displayed on both the bottom of the products screen and at the top of the chart.

1. Type station number or select by pressing . A message will be shown that shows the earliest and latest years that data is available for the station.
2. Select *Year* from dropdown list. If you would like just a single month displayed on the graph, you can optionally select a month from the *Month* drop-down list.
3. Select the type of elements you wish to chart: Temperatures or Rainfall.
4. Click *Generate Graph* and a new popup will appear with the graph as an image. This image can be saved by right clicking on the page and selecting *Save Image As*.

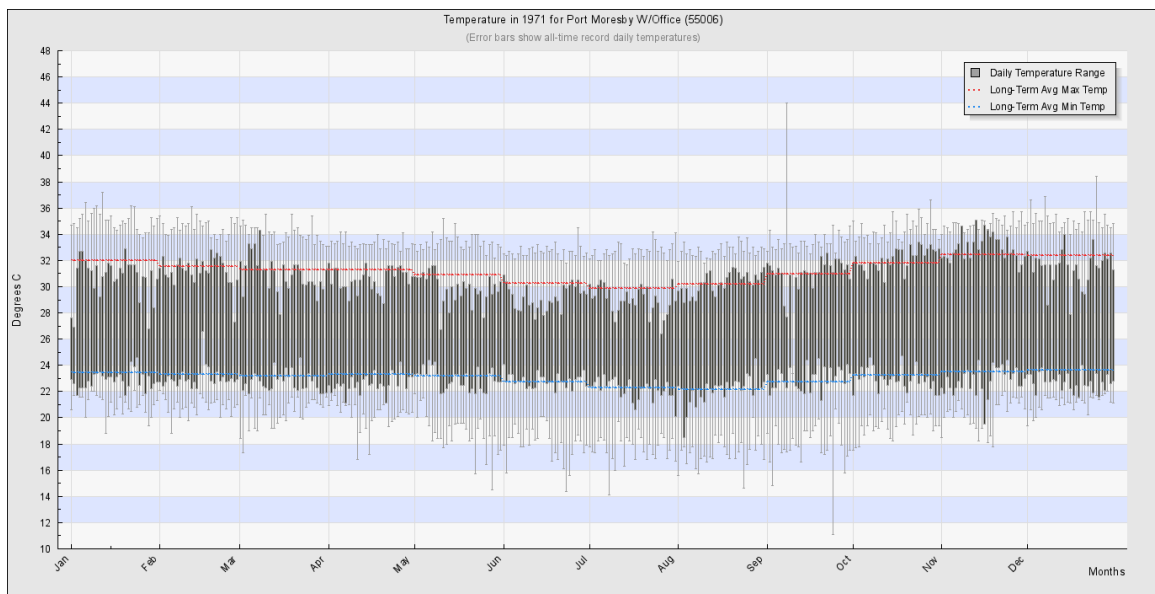


Figure 3.26: Example of Year of Weather Graph

3.11.1.16 Monthly Anomalies Graph

Generate a graph of monthly anomalies for rainfall, maximum temperature or minimum temperature. Anomalies can be either absolute values or a percentage of the long-term monthly mean. Rainfall anomalies can be accumulated for the time period of the graph. You can choose to display either the observation values above or below the long-term monthly mean, or the number of stations with observation values above or below their respective mean values.

Monthly anomalies are calculated as the difference between the monthly mean for a given month and the long-term monthly mean for that month. The long-term averages (means) are calculated from the daily observations data for 1971 to 2000 (currently, not from the Normals or long-term averages data manually entered into CliDE). If the daily data record in CliDE is less than 85% complete for 1971 to 2000 for the selected station(s), then a warning message is displayed on both the bottom of the products screen and at the top of the chart (if multiple stations are selected, it is based on the average data completeness for all selected stations).

1. Select one or more stations. The list of stations on the right hand side can be filtered by choosing a Status, Catchment, Region or Class. You can also type in a Station Number or Station Name to filter the list of stations. If no stations are selected, then the report will generate data for *all* of the displayed stations. You can select more than one station from the list by holding down the **Ctrl** key as you click the mouse button on the stations list.
2. Type in the range of years of data to include in the output in the From Year and To Year fields. If a small number of stations have been selected above, then the range of years will be automatically populated from the available data in CliDE.
3. Select a *Graph Type* from the drop-down list: Observation Values or Count Stations.
4. Select an element to chart: Rainfall, Max Temperature or Min Temperature.
5. Select an *Anomaly Type* from the drop-down list: Absolute (for a graph based on the actual observation values) or Percentage (where the percentages are based on the monthly averages).
6. For Rainfall only, you have the option of ticking the *Cumulative?* checkbox, which will produce a chart that includes a graph of the cumulative rainfall anomalies.
7. Click *Generate Graph* and a new popup will appear with the graph as an image. This image can be saved by right-clicking on the graph and selecting *Save Image As*.

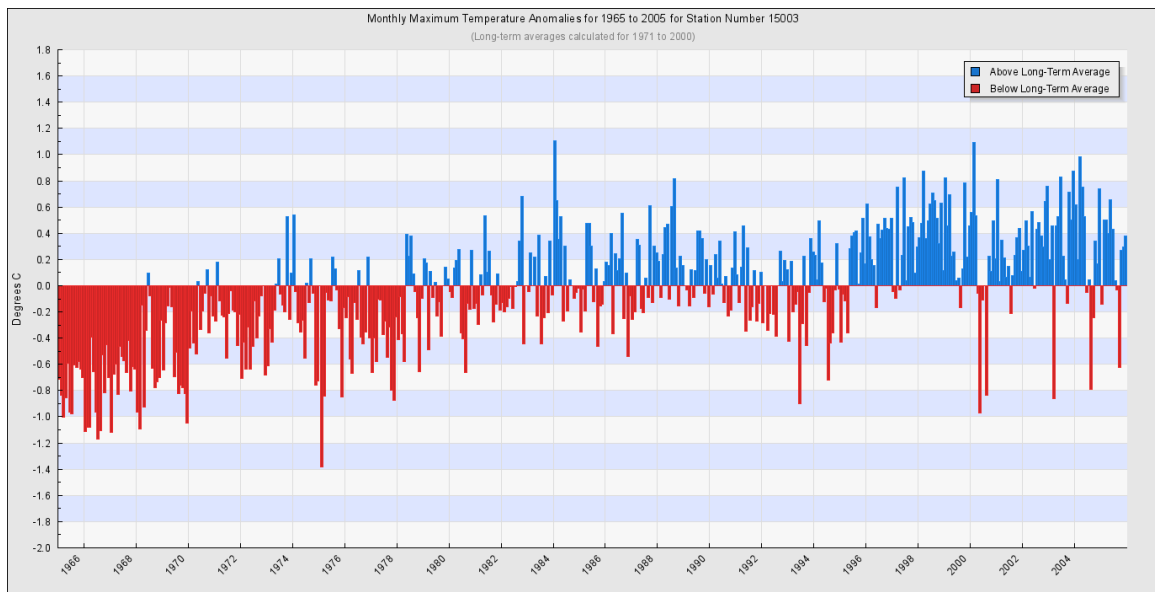



Figure 3.27: Example of Monthly Anomalies Graph

3.11.1.17 Monthly Summary

This function creates a printable report summarising a station's observations for 1 month. The summary includes total rain, mean rain, highest daily rain, day count of rain >0.1mm, >1.0mm, >10mm, >50mm, mean daily temp, highest MSLP, Lowest MSLP, mean MSLP, total evaporation, mean evaporation, total sunshine, mean sunshine, highest max temp, lowest max temp, day count max temp >30 degrees, highest min, lowest min, day count min temp <20degrees, lowest minimum terrestrial, highest minimum terrestrial, highest wind gust, highest wind run.

1. Type station number or select by pressing . A message will be shown that shows the earliest and latest years that data is available for the station.
2. Select Year and month from dropdown lists.
3. The report will appear in a new window. You can print the report by clicking the *Print* button in the top right of the page. Please note that CLiDE has little control over print settings as this is a function of the client machine's web browser setup and general print settings.

[Print](#)

Monthly Summary Statistics for Port Moresby W/Office for the month of Jan 1970

Site Name: **Port Moresby W/Office** Site Number: **55006**
 Latitude: **-9.3800** Longitude: **147.2100** Elevation: **48.000**
 Commenced: **Jan 1950** Status: **Open**

Temperature	
Mean Maximum Temperature	31.5 °C
Mean Minimum Temperature	23.2 °C
Mean Daily Temperature	27.3 °C
Highest Maximum Temperature	33.4 °C on Fri 23rd
Lowest Maximum Temperature	27.5 °C on Thu 01st
No of days Max Temperature >=30.0°C	27 days
Highest Minimum Temperature	25.1 °C on Sat 31st
Lowest Minimum Temperature	21.9 °C on Sat 10th
No of days Min Temperature <=20.0°C	0 days
Highest Minimum Terrestrial	23.9 °C on Sat 31st
Lowest Minimum Terrestrial	20.3 °C on Mon 12th
Mean Minimum Terrestrial	21.9 °C
Rainfall	
Total Monthly Rainfall	139.6 mm
Highest Daily Rainfall	41.4 mm on Thu 22nd
No of days of Rainfall >=0.2mm	20 days
No of days of Rainfall >=1.0mm	11 days
No of days of Rainfall >=10.0mm	4 days
No of days of Rainfall >=50.0mm	0 days
Pressure	
Highest MSL Pressure	1015.0 hPa on Wed 21st
Lowest MSL Pressure	1004.0 hPa on Sat 31st
Mean Monthly MSL Pressure	1008.6 hPa
Evaporation	
Total Monthly Evaporation	215.5 mm
Mean Daily Evaporation	7.0 mm
Sunshine	
Total Monthly Sunshine	214.7 Hours
Mean Daily Sunshine	6.9 Hours

Figure 3.28: Example of Monthly Summary report

3.11.1.18 Monthly Prelim

Generates several CSV text files, which together provide both summary and detailed observations data for the specified month. The Summary files include comparisons to long-term averages for that station.


Currently, the generated files are: *Daily Summary* (one row for each station with summary calculations of obs daily elements in columns, includes comparisons to long-term averages), *Subdaily Summary* (one row for each station), *Rainfall* (rainfall details for the month, one row for each station with days of the month separated in columns across the file), *Max Temperature* (maximum air temperature), *Min Temperature* (minimum air temperature), *Dry Bulb* (9:00am dry air temperature observations), *Wet Bulb* (9:00am wet bulb temperature observations) and *Wind* (the reported wind is the average of the 9:00am, 12:00pm, 6:00pm and 12:00am wind records).

1. Select Year and Month from dropdown lists.
2. Click *Generate CSV Files* to run the report and start generating all the CSV files. As each file is generated, an alert box will pop-up to tell you the file is ready (the files may not be generated in order or all at the same time - the order depends on the database and how much data is available for each station and element).
3. It is recommended that you wait until all the files have finished being generated (this can take a minute or more, depending on the number of stations and amount of data in the CliDE database).
4. A link will be shown for each CSV file. Depending on your web browser, you can either right click the link and select *Save As*, or click and open each file in MS Excel within the web browser.

3.11.1.19 Daily Quick

Generates a CSV text file with a summary of the day's observations for all open stations in the CliDE database.

The generated CSV file will have one row for each open station, with observed data elements separated into columns. Currently, the elements included in the report are: rain_24h, air_temp, wet_bulb, max_air_temp, min_air_temp, wind_speed_knots, sunshine_duration, radiation and evaporation.

1. Select the *Local Date* of the observations by clicking  then selecting a date.
2. Click *Generate CSV File* to run the report and start generating the CSV file.
3. Once complete, a link will be shown for the CSV file. Depending on your web browser, you can either right click the link and select *Save As*, or click and open the file in MS Excel within the web browser.

3.11.1.20 CLIMAT Data Availability

Generate a report for a given month for one or more stations that lists gaps in the data and other problems that might result in missing sections when generating a CLIMAT message.

1. Choose the desired month of data for the report by typing in the year and selecting a month from the drop-down list.
2. Select one or more stations. The list of stations on the right hand side can be filtered by choosing a Status, Catchment, Region or Class. You can also type in a Station Number or Station Name to filter the list of stations. If no stations are selected, then the report will generate data for *all* of the displayed stations. You can select more than one station from the list by holding down the **Ctrl** key as you click the mouse button on the stations list.
3. Click *Generate Report* and the report will appear in a new window. You can print the report by clicking the *Print* button in the top right of the page. Please note that CliDE has little control over print settings as this is a function of the client machine's web browser setup and general print settings.

3.11.1.21 CLIMAT

Produce CLIMAT messages for a given month for one or more stations.

1. Choose the desired month of data for the report by typing in the year and selecting a month from the drop-down list.

2. Select one or more stations. The list of stations on the right hand side can be filtered by choosing a Status, Catchment, Region or Class. You can also type in a Station Number or Station Name to filter the list of stations. If no stations are selected, then the report will generate data for *all* of the displayed stations. You can select more than one station from the list by holding down the **Ctrl** key as you click the mouse button on the stations list.
3. Click *Generate Report* and the report will appear in a new window. You can print the report by clicking the *Print* button in the top right of the page. You can copy and paste the text message into another program (e.g. for sending the message in an email).


3.11.1.22 Obs Data Gaps

Display the completeness of the observational data in CliDE.

The format of the report depends on the selected parameters. If the Breakdown by Element? checkbox is *not* selected, then the report displays information for any observational data for any element. A chart provides a graphical display of the data completeness as a visual summary of the amount of available data. More detail of the gaps in the data record is listed in a table below the chart and is also available to download in a CSV format file.

If the *Breakdown by Element?* checkbox is checked, then multiple charts are produced, one for each of the major elements in the selected obs table. More detail about the data gaps is still available to download in CSV format files, but the gaps detail is not displayed in tables on the report page (it would make the report too long and complicated).

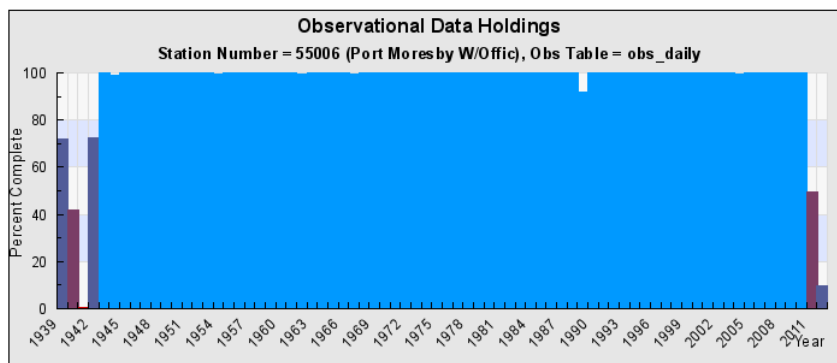
The colour of the columns in the summary chart provides a visual indication of the data completeness (years with 100% completeness are drawn in light blue and years with less than 10% are red).

1. Type station number or select by pressing . When a valid station is entered, the station name will be displayed.
2. Select an *Obs Table* (database table of observations) from the dropdown list.
3. Use the *Breakdown by Element?* checkbox to select whether or not to generate separate charts and CSV files for each of the major elements in the selected table. If not checked (the default), the report will be for any observational data recorded against the specified station and table.
4. Click *Generate Report* and the report will appear in a new window. You can print the report by clicking the *Print* button in the top right of the page. Please note that CliDE has little control over print settings as this is a function of the client machine's web browser setup and general print settings. The chart image(s) can be saved by right clicking on the page and selecting *Save As*.

Print

Gaps in Observational Data Holdings

Station Number = 55006 (Port Moresby W/Office), Obs Table = obs_daily



[Click here and select "Save As" to download CSV file](#)

station_no	last_obs_before_gap	first_obs_after_gap	description
55006	1939-04-01		First Observation Record
55006	1939-04-01	1939-04-03	1 day
55006	1939-04-06	1939-04-11	4 days
55006	1939-04-15	1939-04-17	1 day
55006	1939-04-22	1939-04-24	1 day
55006	1939-04-29	1939-05-01	1 day
55006	1939-05-06	1939-05-08	1 day
55006	1939-05-13	1939-05-15	1 day
55006	1939-05-20	1939-05-22	1 day
55006	1939-05-27	1939-05-30	2 days
55006	1940-02-03	1940-02-05	1 day
55006	1940-05-31	1940-07-24	53 days

Figure 3.29: Example of Obs Data Gaps report

3.11.1.23 Multi-Station Data Gaps


Display a summary of the completeness of the observational data in CliDE for multiple stations in the one report.

Note that there is a maximum number of 100 stations in the report's output. Also, the report may take a long time to run if you select a large number of stations.

1. Select an *Obs Table* (database table of observations) from the dropdown list.
2. Select one or more stations. The list of stations on the right hand side can be filtered by choosing a Status, Catchment, Region or Class. You can also type in a Station Number or Station Name to filter the list of stations. If no stations are selected, then the report will generate data for *all* of the displayed stations. You can select more than one station from the list by holding down the **Ctrl** key as you click the mouse button on the stations list.
3. Click *Generate Report* and the report will appear in a new window. You can print the report by clicking the *Print* button in the top right of the page. Please note that CliDE has little control over print settings as this is a function of the client machine's web browser setup and general print settings. The chart image(s) can be saved by right clicking on the page and selecting *Save As*.

3.11.1.24 Station Metadata

Report of Climatological Station Metadata and Inventory.

1. Type station number or select by pressing . When a valid station is entered, the station name will be displayed.
2. Click *Generate Report* and the report will appear in a new window. The report may take a little while to complete as it retrieves all the necessary data and generates a map of the station location. You can print the report by clicking the *Print* button in the top right of the page. Each major section of the report should start on a new page when you print. The chart image(s) can be saved by right clicking on the page and selecting *Save As*.

[Print](#)

Climatological Station Metadata and Inventory

Station Number 55006

Primary Name: Port Moresby W/Office		Secondary Name: Jacksons Field	
Start Date: 01 Jan 1950		End Date:	
Country: PAPUA NEW GUINEA		Authority:	
Region: Central		Catchment:	
Lat/Long: -9.3800 / 147.2100		TimeZone: EST	
Station Height: 48.000			
Aerodrome Height:		SSB Height:	

Aero ID: AVPY	IMO ID:	WMO ID: 92035	Marine ID:
Aust ID: 200286	NIWA ID:	NIWA Agent:	Hydro ID:

Surface Type:

Land Use 0 - 100M:


Land Use 100M - 1Km:

Land Use 1Km - 10Km:

Soil Type:

Comments:

Synoptic




● 55006 - Port Moresby W/Office

Figure 3.30: Example of Station Metadata and Inventory report

3.11.1.25 Key Entry Summary

Generate a table summarising the data that has been entered by different users for a specified date range.

1. The From Date and To Date parameters specify the range of dates on which to report. Select both the *From Date* and *To Date* of the entered observations by clicking  then selecting a date.
2. Tick the *Include Stations* checkbox if you wish to view a break-down of the entered data by station number.

3. Click *Generate Report* and a new popup window will appear with a table of data: a list of CliDE usernames; observations table; the first and last observation dates in CliDE for that table; number of records in CliDE; total number of days between the first and last observation dates. If you ticked *Include Stations*, then the station numbers will be listed. For the daily and monthly observation tables, a percentage complete column is calculated for how complete the record is (although, this is not broken down by element - it is calculated based on any available data in the corresponding table).
4. You can print the report by clicking the *Print* button in the top right of the page. Please note that CliDE has little control over print settings as this is a function of the client machine's web browser setup and general print settings.

3.11.2 Copy Tabular Data to MS Excel

Depending on which web browser you're using and which version of Microsoft Excel you have, you may not be able to quickly and easily copy and paste data from the Monthly Data Table, Daily Data Table and Monthly Summary reporting products. Copying the data into an Excel spreadsheet may be useful for further data manipulation, custom reporting or charts.

If you're using Microsoft Internet Explorer and Microsoft Excel 2003 or later, you can select the table of data from the webpage (Ctrl-A then Ctrl-C) and paste it directly into an Excel spreadsheet (Ctrl-V) (this also works with LibreOffice Calc for Ubuntu Linux when browsing with Firefox).

However, if you're using Mozilla Firefox and Microsoft Excel in Microsoft Windows, you may need to copy the data via Microsoft Word before pasting it into an Excel spreadsheet to keep the table columns.

So, select the table of data from the webpage as before (Ctrl-A then Ctrl-C) but this time paste it into Microsoft Word first. From Word, copy the data again (Ctrl-A then Ctrl-C) and then paste it into Microsoft Excel (Ctrl-V).

The data in Microsoft Excel should now have retained the table formatting and correctly line up in columns.

Appendix A

Quality Assurance

A.1 Quality Assurance (QA) Flags

All observation values will have an associated field of the same name but suffixed with "_qa". These "QA flags" are initially set to NULL (empty) and can be set to a range of values that indicate the field's quality assurance status.

Here are the valid QA flag values and their meanings. Note that these values are based on the Australian Bureau of Meteorology's ADAM database and comply with the "Set 2" rules

- NULL - No QC. As entered.
 - 00 - Not observed
 - 01 - Removed
 - 10 - Accepted
 - 20 - Corrected
 - 30 - Estimated, High certainty
 - 40 - Estimated, Medium certainty
 - 50 - Estimated, Low certainty
 - 60 - Suspect
 - 70 - Inconsistent
 - 80 - Error
 - 90 - Unknown
-

Appendix B

CliDE Requirements

B.1 Introduction

CliDE requires a PHP 5 interpreter with a web server configured to handle PHP scripts correctly. Some features require additional extensions or web server features; in most cases CliDE can be used without them, although performance may suffer or ancillary features may not be fully functional.

B.1.1 Apache Version

CliDE has been written and tested using Apache version 2.2.14. We recommend the latest patched version of the Apache version 2 series.

B.1.2 PHP Version

CliDE recommends the most current release of PHP for critical security and performance enhancements, and currently supports PHP 5.2.4 or later.

B.1.3 PostgreSQL Version

CliDE has been written and tested using PostgreSQL version 9.0. We recommended the latest patched version of the 9.0 series (9.0.5 as of writing). CliDE is known to work with version 9.1, but it is not recommended at this stage.

Appendix C

Calculations and Equations

C.1 Relative Humidity

In the *Sub Daily* keyboard data entry form, CliDE is using the instantaneous relative humidity equation. The calculation is:

```
p = 101.3;
A = 0.00066 * (1.0 + 0.00115 * wet);
eswb = Math.exp((16.78 * wet - 116.9) / (wet + 237.3));
ed = eswb - A * p * (dry - wet);
esdb = Math.exp((16.78 * dry - 116.9) / (dry + 237.3));

relativeHumidity = Math.round(100.0 * (ed / esdb));
```

Appendix D

Glossary

D.1 Glossary

A

Aerodrome reference point

The designated point on an aerodrome normally located at or near the geometric centre of the movement area that designates the geographical location of the aerodrome.

Automatic Weather Station (AWS)

A weather station capable of automatically recording observations without manual intervention.

C

CliCom

Climate data management system software that runs on PC hardware (typically, MS Windows 98).

Climate Data for the Environment (CLiDE)

Climate database management system (CDBMS) developed as part of the PCCSP at the Bureau of Meteorology in Australia.

See Also "**PCCSP**".

CLIMAT

A code used for standard climatological messages. CLIMAT-coded messages are used for reporting monthly climatological data assembled at land-based meteorological surface observation sites to data centres.

See Also "**METAR**", "**SYNOP**".

Climate

Climate in a wider sense is the state, including a statistical description, of the climate system. Climate in a narrow sense is usually defined as the average weather over a period of time ranging from months to thousands or millions of years. The classical period for averaging variables (such as temperature and precipitation) is 30 years, as defined by the World Meteorological Organization.

D

Data Management

A set of disciplines relating to collecting, storing, verifying, archiving and retrieving data.

Database

An integrated collection of data records, files, and other database objects.

See Also "**DBMS**".

Database Management System (DBMS)

A software package with computer programs that control the creation, maintenance, and the use of a database.

See Also "**Database**".

E

Extensible Markup Language (XML)

A set of rules for encoding documents in machine-readable form. A subset of SGML.

See Also "**SGML**".

G

Greenwich Mean Time (GMT)

Referring to mean solar time at the Royal Observatory in Greenwich, London.

See Also "**UTC**".

I

International Maritime Organization (IMO)

Formerly known as the Inter-Governmental Maritime Consultative Organization (IMCO), it was established in Geneva in 1948. The IMCO name was changed to IMO in 1982. Its primary purpose is to develop and maintain a comprehensive regulatory framework for shipping.

International Maritime Organization Ship Number (IMO Ship Number)

The IMO ship identification number scheme was introduced in 1987 and aimed at assigning a permanent number to each ship for identification purposes. The number remains unchanged upon transfer of the ship to other flags. It is made of the three letters "IMO" followed by the seven-digit Lloyd's Register (LR) number.

International Meteorological Organisation

The first organization formed with the purpose of exchanging weather information among the countries of the world. In 1953, the United Nations created the World Meteorological Organization (WMO) in direct succession of the International Meteorological Organisation.

See Also "**WMO**".

L

Local Clock Time (LCT)

Local date and time taking into account daylight saving changes. During periods of daylight saving, generally an hour is added to the local clock.

See Also "[LSD](#)".

Long Term Averages

Usually, 30-year averages of climate variables. They may be defined locally and not officially recognised as Normals.

See Also "[Normals](#)".

Local Standard Time (LSD)

Local date and time ignoring daylight saving. The time established for a region by law, or general use - it's the time you see on a correctly set clock, if you're not in daylight saving time.

See Also "[LCT](#)".

M

Mean Sea Level (MSL)

Mean sea level is normally defined as the average relative sea level over a period, such as a month or a year, long enough to average out transients such as waves and tides.

See Also "[Relative Sea Level](#)".

Meteorological Aerodrome Report (METAR)

A routine report of meteorological conditions at an aerodrome. A METAR weather report is predominantly used by pilots in fulfillment of part of a pre-flight weather briefing, and by meteorologists, who use aggregated METAR information to assist in weather forecasting.

See Also "[CLIMAT](#)", "[SPECI](#)", "[SYNOP](#)".

N

Normals

A set of standard statistics relating to climate variables.

See Also "[Long Term Averages](#)".

P

Pacific-Australia Climate Change Science and Adaptation Program (PACCSAP)

The next phase of collaboration on climate change science and adaptation planning between Pacific island countries, East Timor and the Australian Government under the International Climate Change Adaptation Initiative (ICCAI) jointly managed by AusAID and the Australian Department of Climate Change and Energy Efficiency (DCCEE).

It follows on from the Pacific Climate Change Science Program (PCCSP) and the Pacific Adaptation Strategy Assistance Program (PASAP) and combines them in a single consolidated planning framework to improve coordination and aid effectiveness.

See Also "[PCCSP](#)".

Pacific Climate Change Science Program (PCCSP)

Part of the Australian Government's commitment through the International Climate Change Adaptation Initiative (ICCAI) to meet high priority climate change adaptation needs in vulnerable countries in the Asia-Pacific region, especially the Pacific island countries and East Timor.

The PCCSP is supported by the Australian Agency for International Development (AusAID) in collaboration with the Australian Department of Climate Change and Energy Efficiency (DCCEE).

The Program is delivered by the Bureau of Meteorology and the Commonwealth Scientific and Industrial Research Organisation (CSIRO), through their research partnership in The Centre for Australian Weather and Climate Research (CAWCR).

R

Relational Database Management System (RDBMS)

A DBMS in which data is stored in tables and the relationships among the data are also stored in tables. The data can be accessed or reassembled in many different ways without having to change the table forms.

See Also "**DBMS**".

Relative Sea Level

The sea level measured by a tide gauge with respect to the land upon which it is situated.

S

SEAFRAME sensor bench (SSB)

Sea Level Fine Resolution Acoustic Measuring Equipment (SEAFRAME) station with sensors such as a water level sensor, wind speed (direction and maximum hourly gust), air temperature, sea water temperature and atmospheric pressure.

Standard Generalized Markup Language (SGML) [ISO 8879:1986]

An ISO-standard technology for defining generalized markup languages for documents.

See Also "**XML**".

Special Meteorological Report (SPECI)

A special report of meteorological conditions, issued when one or more elements meet specified criteria significant to aviation.

See Also "**METAR**".

Surface Synoptic Observations (SYNOP)

A numerical code (called FM-12 by WMO) used for reporting weather observations made by manned and automated weather stations.

See Also "**CLIMAT**", "**METAR**".

U

Coordinated Universal Time (UTC)

Primary time standard by which the world regulates clocks and time. It is one of several closely related successors to Greenwich Mean Time.

See Also "**GMT**".

W

World Meteorological Organisation (WMO)

An intergovernmental organization, it is the specialised agency of the United Nations for meteorology (weather and climate), operational hydrology and related geophysical sciences. The members of the WMO are representatives of their respective countries, not their weather services.

World Meteorological Organisation ID (WMO ID)

Station identifier issued by the WMO. They are not unique across time - WMO ID's may be reused for a different location after a station has closed.

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