



World Meteorological Organization

Fourth Workshop of CBS Lead Centers for GCOS

Santiago, Chile October 2013

GCOS Region V Lead Centre

Kevin Smith
Senior Climatologist

Australian Bureau of Meteorology

k.c.smith@bom.gov.au
[GCOS Lead Centre RAV@bom.gov.au](mailto:GCOS_Lead_Centre_RAV@bom.gov.au)

<http://www.bom.gov.au>



Australian Government
Bureau of Meteorology

World Meteorological Organization
Fourth Workshop of CBS Lead Centers for GCOS
Santiago, Chile October 2013





Australian Government
Bureau of Meteorology

World Meteorological Organization

Fourth Workshop of CBS Lead Centers for GCOS

Santiago, Chile October 2013

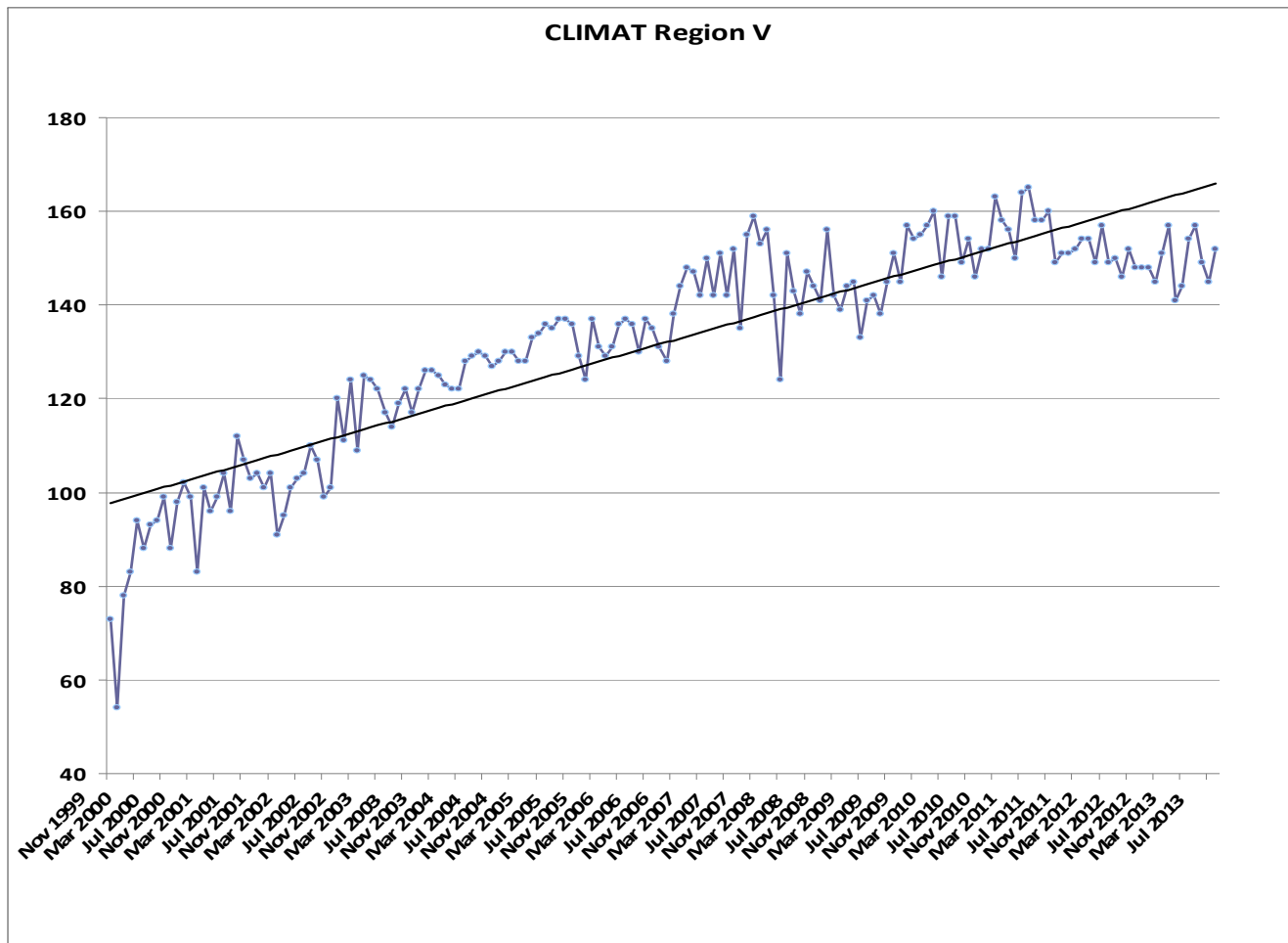
BACKGROUND & INTRODUCTION

- RA V observational data sent through the GTS and reports from National Meteorological & Hydrological Services (NMHS) indicate that the overall vitality of the GCOS climate observation network in Region V, considered healthy
- based on the number and regularity of CLIMAT bulletins, can be considered relatively healthy.

That said, there has been little or no improvement, and even a slight decline since the last report.



All CLIMAT Messages Received



In RAV

•203 CLIMAT sites

Max April 11

165 or 81%

Recent Aug 13

152 or 75%

World Meteorological Organization



Australian Government
Bureau of Meteorology

Fourth Workshop of CBS Lead Centers for GCOS

Santiago, Chile October 2013

CLIMAT STATISTICS RA V SITES

Intermittent to consistent problems

- Papua-New Guinea, the Solomon Islands, the Cook Islands and Tonga.

CLIMAT STATISTICS PROBLEM SITES

In most cases where a station submits no reports

- lack of training and knowledge is the problem.

- Where countries send one but not all reports,
- usually an indicator of broken or unserviceable observation equipment.

The only complete solution is to visit these countries and undertake training in all aspects of specific CLIMAT observations, producing (preparations and deriving calculated quantities) and sending the reports.

- CliDE installation and training visits will hopefully help rectify



Australian Government
Bureau of Meteorology

World Meteorological Organization

Fourth Workshop of CBS Lead Centers for GCOS

Santiago, Chile October 2013

92035	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PORT MORESBY	2001	546 228 C	219 213 C	166 164 C	108 105 -	203 203 C	206 206 C	215 215 C	255 200 C	618 211 C	327 195 C	424 213 C	597 137 C
PORT MORESBY	2002	616 162 C	589 189 C	501 223 C	315 199 C	463 221 C	317 204 C	385 209 C	310 213 C	278 189 C	229 168 -	269 140 C	236 143 C
PORT MORESBY	2003	299 143 C	307 148 C	279 137 C	238 139 C	167 75 -	190 92 C	335 149 C	268 135 -	160 121 -	195 163 C	273 141 C	319 97 C
PORT MORESBY	2004	245 138 C	183 130 -	351 184 C	369 155 C	339 143 C	275 137 C	387 172 C	347 147 C	340 188 C	244 93 C	97 84 C	159 133 C
PORT MORESBY	2005	182 143 C	156 122 C	257 157 C	370 149 C	322 184 C	259 143 C	261 172 C	248 208 C	371 204	295 192	302 139	322 174
PORT MORESBY	2006	203 194 C	232 195 -	239 208 C	260 193 C	277 205 C	415 183 -	252 181 -	355 197 C	446 213 C	379 205 -	405 189 -	417 205 -
PORT MORESBY	2007	408 186 C	250 98 C	377 174 -	382 184 C	232 186 -	212 123 C	372 145 -	454 199 C	412 173 -	430 135 C	355 149 C	441 193 -
PORT MORESBY	2008	372 178 -	318 165 C	309 215 C	259 146 C	353 211 -	417 202 -	523 213 C	453 218 -	346 193 -	395 197 C	404 203 -	421 138 C
PORT MORESBY	2009	492 180 -	502 167 -	480 144 -	446 157 C	451 176 C	422 136 C	482 84 -	471 179 C	395 185 C	495 214 C	428 165 C	444 184 -
PORT MORESBY	2010	574 196 -	538 207 C	502 226 -	493 186 C	520 161 C	520 163 -	563 76 -	563 12 -	509 7 C	521 124 C	494 141 C	501 188 C
PORT MORESBY	2011	476 144 -	451 144 -	537 202 C	578 209 -	581 198 C	512 183 C	552 214 C	461 203 C	478 164 -	589 93 -	631 4 -	622 0 -
PORT MORESBY	2012	707 86 C	610 191 -	672 215 C	682 215 C	684 212 C	667 223 -	587 187 -	661 205 -	486 148 C	566 171 -	659 207 -	625 182 C
PORT MORESBY	2013	681 216 C	524 171 -	648 213 -	606 194 -	587 194 C	605 202 -	622 205 -	648 207 -				



Australian Government
Bureau of Meteorology

World Meteorological Organization
Fourth Workshop of CBS Lead Centers for GCOS
Santiago, Chile October 2013

91517	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
HONIARA	2001	46 46 -	8 8 -	82 82 -	42 42 -	98 98 -	54 54 -	16 16 -	0 0 -	0 0 -	27 27 -	78 78 -	0 0 -
HONIARA	2002	0 0 -	0 0 -	0 0 -	0 0 -	0 0 -	0 0 -	0 0 -	0 0 -	1 1 -	0 0 -	0 0 -	0 0 -
HONIARA	2003	0 0 -	0 0 -	0 0 -	0 0 -	0 0 -	0 0 -	0 0 -	0 0 -	0 0 -	1 1 -	0 0 -	0 0 -
HONIARA	2004	25 25 -	34 34 -	31 31 -	23 23 -	33 33 -	31 31 -	20 20 -	27 27 -	50 50 -	36 36 -	40 40 -	33 33 -
HONIARA	2005	15 15	28 28	26 26	47 47	52 52	57 57	67 67	53 53	36 36	42 42	43 43	38 38
HONIARA	2006	47 47 -	45 45 -	77 77 -	57 57 -	63 63 -	57 57 -	57 57 -	72 72 -	81 81 -	66 66 -	59 59 -	44 44 -
HONIARA	2007	53 53 -	67 67 -	77 77 -	42 42 -	55 55 -	72 72 -	67 67 -	54 54 -	60 60 -	79 79 -	66 66 -	73 73 -
HONIARA	2008	69 69 -	51 51 -	66 66 -	63 63 -	60 60 -	51 51 -	58 58 -	47 47 -	49 49 -	60 60 -	54 54 -	47 47 -
HONIARA	2009	77 77 -	120 120 -	103 103 -	115 115 -	117 117 -	121 121 -	138 138 -	114 114 -	128 128 -	151 151 -	189 189 -	171 170 -
HONIARA	2010	167 167 -	162 162 -	156 156 -	161 161 -	179 178 -	170 170 -	175 175 -	178 178 -	165 165 -	173 173 -	171 171 -	174 174 -
HONIARA	2011	168 168 -	153 153 -	240 240 -	232 232 -	233 233 -	227 227 -	233 233 -	241 241 -	238 238 -	241 241 -	229 229 -	239 239 -
HONIARA	2012	236 236 -	227 227 -	228 228 -	232 232 -	238 238 -	223 223 -	234 234 -	240 240 -	226 226 -	235 235 -	199 199 -	221 221 -
HONIARA	2013	223 223 -	211 211 -	232 232 -	212 212 -	222 222 -	212 212 -	241 238 -	228 228 -				



Australian Government
Bureau of Meteorology

World Meteorological Organization
Fourth Workshop of CBS Lead Centers for GCOS
Santiago, Chile October 2013

91643	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
FUNAFUTI	2001	418 162 -	275 105 -	368 146 -	378 172 -	482 172 -	163 134 C	240 159 C	385 184 C	345 189 -	341 177 C	377 175 -	455 188 -
FUNAFUTI	2002	546 203 -	457 175 -	476 206 C	485 186 -	452 185 -	389 183 C	422 199 -	400 201 C	452 189 -	430 163 -	502 180 C	552 196 -
FUNAFUTI	2003	519 197 C	500 169 C	574 203 C	513 195 C	572 209 C	563 201 C	603 208 C	589 205 C	447 179 C	415 175 C	512 179 -	283 128 C
FUNAFUTI	2004	496 178 C	456 166 C	422 189 C	465 194 C	475 184 -	504 184 -	426 159 C	416 183 -	435 177 -	431 189 C	211 175 C	254 206 C
FUNAFUTI	2005	320 231 C	272 205 C	296 204 C	372 78	589 150	550 220	218 193 C	519 219 C	471 226 C	523 233 C	503 229 C	468 219
FUNAFUTI	2006	597 224 -	495 202 -	623 221 C	530 194 C	494 203 C	553 198 C	540 203 -	525 193 C	547 200 -	527 199 -	481 180 C	532 204 C
FUNAFUTI	2007	465 178 C	454 166 C	472 188 -	481 184 C	550 202 C	557 196 -	509 188 -	471 201 -	523 195 -	544 206 C	553 203 C	530 210 C
FUNAFUTI	2008	570 209 C	502 178 C	641 229 C	570 202 C	558 213 C	551 205 C	571 206 -	563 215 -	211 103 -	414 163 C	530 199 -	579 207 -
FUNAFUTI	2009	569 209 -	481 170 C	472 184 -	523 198 -	583 207 -	564 203 -	587 213 -	601 212 C	547 193 -	483 177 C	544 196 C	672 239 C
FUNAFUTI	2010	700 238 -	637 220 -	667 236 -	679 229 C	706 241 C	647 231 C	697 243 -	659 233 -	480 182 -	655 232 -	647 230 -	686 232 -
FUNAFUTI	2011	558 194 -	552 194 -	662 238 -	664 233 -	692 238 -	671 230 -	666 228 -	647 228 -	635 220 -	671 238 -	561 212 -	598 228 -
FUNAFUTI	2012	677 245 -	641 229 -	659 243 -	661 230 -	680 241 -	632 230 -	670 232 -	682 245 -	623 226 -	610 238 -	583 213 -	554 193 -
FUNAFUTI	2013	639 218 -	564 166 -	698 231 -	644 208 -	663 209 -	683 233 -	591 198 -	711 239 -				



Australian Government
Bureau of Meteorology

World Meteorological Organization
Fourth Workshop of CBS Lead Centers for GCOS
Santiago, Chile October 2013

91843	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
RAROTONGA	2001	685 225 C	623 208 C	712 236 C	671 219 C	697 234 -	681 225 C	693 235 C	712 231 C	692 224 -	696 228 C	663 225 C	644 234 C
RAROTONGA	2002	707 233 C	637 216 C	686 230 -	616 212 C	654 214 C	666 216 C	714 231 C	715 235 -	680 226 C	674 211 -	692 215 C	721 236 -
RAROTONGA	2003	714 229 C	641 208 C	711 239 -	695 228 -	631 195 C	695 233 C	717 229 C	722 227 C	665 216 C	714 234 C	613 121 C	721 237 C
RAROTONGA	2004	705 228 C	675 214 C	732 239 C	696 225 C	691 225 C	670 204 -	676 223 C	710 222 -	664 220 C	656 203 C	701 219 C	713 233 C
RAROTONGA	2005	645 210	644 215	574 147 C	511 68	642 91	626 231	678 212	654 235	655 220	631 214	634 200	705 209
RAROTONGA	2006	640 200 C	618 208 -	701 240 -	653 223 -	611 224 -	652 226 -	684 238 -	707 226 -	638 229 -	697 236 -	688 228 -	705 238 -
RAROTONGA	2007	696 231 -	611 206 -	678 214 -	662 224 -	652 234 -	682 229 -	694 234 -	610 211 -	665 219 C	692 241 -	667 229 -	711 237 C
RAROTONGA	2008	708 241 -	598 198 C	690 231 -	683 228 -	720 241 -	685 219 C	719 234 C	702 228 C	684 225 -	707 233 C	684 225 C	717 229 -
RAROTONGA	2009	705 230 C	632 201 C	714 230 C	697 229 -	729 239 C	693 227 -	724 242 C	724 239 C	697 221 C	719 241 C	704 230 -	700 230 C
RAROTONGA	2010	711 236 C	641 211 C	706 241 C	705 226 C	703 231 -	686 210 -	720 238 C	718 236 C	685 230 C	703 238 C	705 227 C	710 231 -
RAROTONGA	2011	724 225 -	652 206 C	714 225 C	703 225 C	724 232 C	694 222 C	721 231 C	727 230 C	713 228 C	734 235 C	699 234 C	708 238 C
RAROTONGA	2012	722 234 C	672 221 C	710 235 -	701 220 C	730 240 -	709 217 C	726 222 C	729 238 C	704 228 -	709 231 C	706 221 -	740 240 -
RAROTONGA	2013	726 235 -	667 211 -	739 234 -	711 220 -	733 236 -	710 230 -	738 231 -	735 232 -				



Australian Government
Bureau of Meteorology

World Meteorological Organization

Fourth Workshop of CBS Lead Centers for GCOS

Santiago, Chile October 2013

In RAV

203 CLIMAT sites

112 GSN

•Max 97 Jan, May, Nov10, Mar 11 87%

•191 RBCN

•Max 157 April 11 .. 82%

South Pacific

64 GSN

103 RBCN

Australia

112 GSN

191 RBCN



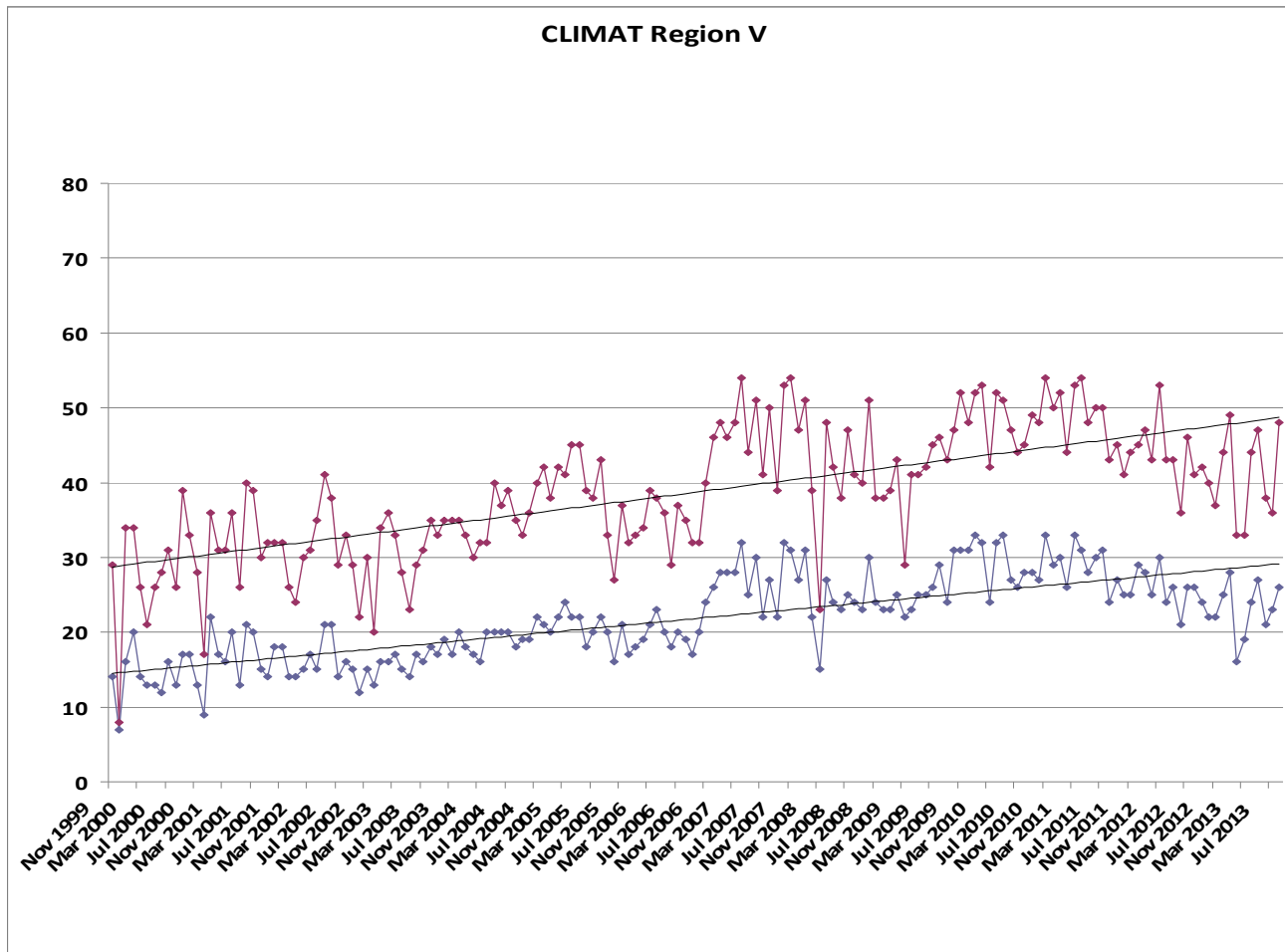


Australian Government
Bureau of Meteorology

World Meteorological Organization

Fourth Workshop of CBS Lead Centers for GCOS

Santiago, Chile October 2013



**South Pacific
RBCN (88)**

Max 54... 62%

**South Pacific
GSN (48)**

Max 33... 69%



Australian Government
Bureau of Meteorology

World Meteorological Organization

Fourth Workshop of CBS Lead Centers for GCOS

Santiago, Chile October 2013

The reasons

A number of countries do not provide CLIMAT messages

- Political Issues
- Financial Issues
- Primarily reflect a lack of capability training
- High staff turnover
- Complicated and difficult delivery systems
- Clirep, manual calculations
- Poor communication and hardware
- Other Projects ... Overload
- What's in it for us
- Lack of understanding
- GCOS MEMBERSHIP ?????



Australian Government
Bureau of Meteorology

World Meteorological Organization

Fourth Workshop of CBS Lead Centers for GCOS

Santiago, Chile October 2013

Challenges

- Understanding and Patience
- Perspective (ours and theirs)
- Funding
 - Training
 - Ongoing Support
 - Logistics



Australian Government
Bureau of Meteorology

World Meteorological Organization

Fourth Workshop of CBS Lead Centers for GCOS

Santiago, Chile October 2013

The Answers

Capacity build, advice, communication

This needs resource

Cultural understanding

Promised Pacific GCOS CLIMAT workshop

Pacific Projects

Empowering officers

More intimate relations

Wider scope

More frequent visits

CLiDE



Australian Government
Bureau of Meteorology

World Meteorological Organization

Fourth Workshop of CBS Lead Centers for GCOS

Santiago, Chile October 2013

Pacific Projects

Installing a new database **CLIDE (Climate Data for the Environment)** in many of the island nations in the Pacific.

- The secure storage of electronic climate data is paramount to the NMHS as a provider of climate information.

- **SCOPIC (Seasonal Climate Outlook in Pacific Island Countries)**

- CLIMAT messaging functionality

- In line with the Climate Data Management System

WMO's Commission for Climatology.

- Only test data so far

- Funding

- Metadata

of

This should overcome many of the training and capability issues.



Climate Data for the Environment: CliDE

- Fully open source
Ubuntu
(Linux),
- Will run on most environments
- Webpage access
 - Multiuser

- Piggyback development
- CLIMAT Message Generation
 - Metadata

Its very easy to install and use

CliDE central Login - Climate Database Login

User Name:
Password:
Login Cancel

You are logged on as clide Log Off

- User Settings
- Products
- Keyboard Data Entry
- Data File Ingestion
- Data Quality Assurance
- Station Maintenance
- Codes Maintenance
- User Administration
- Internal Reports

Refresh About Help

Australian Government



Australian Government
Bureau of Meteorology

World Meteorological Organization

Fourth Workshop of CBS Lead Centers for GCOS

Santiago, Chile October 2013

New Menu for growing list of products...

CLIDE central Products - Mozilla Firefox

clidev/central/subpages/prod_menu.php

Data

- CLIDE Table CSV Extract
- Data Portal File
- SCOPIC File
- Monthly Data Table
- Daily Data Table
- Monthly

Graphs

- Monthly Graph
- Daily Graph
- Wind Rose

Reports

- Monthly Summary
- Monthly Prelim
- Daily Quick

Messages

- CLIMAT

Management

- Station Metadata

Generate CLIMAT message

Year: 2012
Month: 01

Status: All Region: All Filter by Number:
Catchment: All Class: All Filter by Name:

- 10003 - Madang W/O
- 15003 - Momote W/O
- 15031 - Bipi C M
- 20001 - Kavieng W O
- 20028 - Namatanai
- 20056 - Feni C M
- 200623 - Airport
- 200651 - ARCS-2
- 200658 - NTC AWS
- 25001 - Aiyura

Generate Report



Australian Government
Bureau of Meteorology

World Meteorological Organization

Fourth Workshop of CBS Lead Centers for GCOS

Santiago, Chile October 2013

Key Entry Functionality:

- Most forms now Add and Edit
- All have quick “day forward” “day back” buttons
- Profiles allow units to be defaulted and elements to be disabled.
- New Form for monthly data
- New Form for METAR parsing and METAR generation
- All edit forms now handle units consistently.
 - Original unit is used in edit forms.
 - Unit can be changed to SI if required

CHIDE central Key Entry - Mozilla Firefox

cidedev/central/subpages/key_menu.php

Daily Rainfall Daily Sub Daily Climate Register Monthly Metar

Editing Daily Data added 2012-03-27 12:39 by ingest-rih

Station No: J46700 Tabuaeran/Fanning

Local Date: 1966-12-10

QA Flag: N

Rain 24 Hour: 8.4 (mm) Period: (days) Type: Rain

Rain Days: Missing?:

Max Air Temp: 31.2 (C) Period: (hrs) Time of Max: (hh:mm)

Min Air Temp: 25.1 (C) Period: (hrs) Time of Min: (hh:mm)

Ground Temp: (C)

Max Gust Direction: (°) (M/S)

Max Gust Speed: (M/S)

Max Gust Time: (hh:mm)

Wind run <10M: (K/m) Period: (hrs)

Wind run >10M: (K/m) Period: (hrs)

Evaporation: (mm) Period: (hrs)

Evap Water Max Temp: (C)

Evap Water Min Temp: (C)

Sunshine Duration: (hrs)

Radiation: (Mj/M)

River Height: (M)

Phenomenon

Gale

Hail

Snow

Lightning

Shower

Rain

Thunder

Frost

Dust

Haze

Fog

Strong Wind

Dew

Comments:

Save Data Cancel



Australian Government
Bureau of Meteorology

World Meteorological Organization

Fourth Workshop of CBS Lead Centers for GCOS

Santiago, Chile October 2013

Normals Administration:

- Several sets of long term averages (LTAs) can be stored.
- One of the LTAs can be set as the official “Normals” for CLIMAT purposes.
- Function to calculate LTAs from raw data in CliDE will be done in future...currently Normals / LTAs are outside of CDMS.

Name of Group	From	To	Station	Month	Station Pressure	MSL Pressure	Air Temp	Max Temp	Min Temp	Vapour Pressure	Rainfall	Rain Days	Sun Hours
climattest	1960-01	1990-01	V78521	01	Missing:0	998.0	28.0	34.0	22.0	30.0	234.0	20	13
test	1932-01	1932-01	123	1	Missing:0	1000.0	Missing:0	Missing:0	Missing:0	Missing:0	Missing:0	12	Missing:2
test	1932-01	1932-01	123	2	Missing:0	1100.0	Missing:0	Missing:0	Missing:0	Missing:0	Missing:0	12	Missing:0
test	1932-01	1932-01	123	3	Missing:0	998.0	Missing:0	Missing:0	Missing:0	Missing:0	Missing:0	20	Missing:0
test	1932-01	1932-01	123	4	Missing:1	1000.0	Missing:1	Missing:0	Missing:0	Missing:0	Missing:0	12	Missing:0



Australian Government
Bureau of Meteorology

World Meteorological Organization

Fourth Workshop of CBS Lead Centers for GCOS

Santiago, Chile October 2013

Large selection of Metadata choices

CLDB Station Maintenance - Windows Internet Explorer provided by Bureau of Meteorology

Number	Name	Region	Status
J60700	Abaiang Island	NORTH	Open
J61001	Abaokoro	NORTH	Open
J61501	Abemama	CENTRAL	Open
J61500	Abemama	CENTRAL	Open
J82200	Alofi		Open
J61700	Aranuka Island	CENTRAL	Open
J62900	Arorae	SOUTH	Open
J53300	Banaba	SOUTH	Open
J49001	Banana Village	LINE/PHOENIX GROUP	Open
J62300	Beru Island	SOUTH	Open
J61003	Bikenibeu	NORTH	Open
J61200	Bonriki Airport	SOUTH	Open
J61002	Bonriki RF	SOUTH	Open
J60100	Butaritari	NORTH	Open
J48700	Fanning Island	LINE/PHOENIX GROUP	Open
J70500	Gardner Island	LINE/PHOENIX GROUP	Open
J82400	Hanan Airport		Open
GUAD0080	Henderson Airport	Guadalcanal	Open
GUAD0060	Honiara	Guadalcanal	Open
J71000	Hull Island	LINE/PHOENIX GROUP	Open
J70100	Kanton Island	LINE/PHOENIX GROUP	Open
J61100	Kiribati NTC AWS Betio	NORTH	Open
J49000	Kiritimati Island	LINE/PHOENIX GROUP	Open
J61600	Kuria Island	CENTRAL	Open
TEMO0010	Lata Airport	Temotu	Open
J82207	Liku		Open
J61300	Maiana Island	NORTH	Open
J60101	Makin Island	NORTH	Open
J49002	Manulu Village	LINE/PHOENIX GROUP	Open
J60400	Marakei Island	NORTH	Open
WEST0100	Munda Airport	Western	Open
V7774403	Nadi Airport	BA	Open
J62400	Nikunau Island	SOUTH	Open
J62000	Nonouti Island	SOUTH	Open
J62500	Onotoa Island	SOUTH	Open
J71100	Sydney Island	LINE/PHOENIX GROUP	Open

Station Details | Pictures | Equipment | Class | Contacts | Files | Audit History | Add New Station

Station No: J82400
 Status: Open
 Start Date: 01 Jan 1901 | End Date:
 Primary Name: Hanan Airport
 Secondary Name: Alofi
 Station Operator:
 Country: NIUE | Region: | Catchment: |
 Timezone: SAM (-11.0) Samoa time zone
 Location: Latitude: 19.0769 | Longitude: 169.9258
 Height: Station: 59.000 | Aero: | Baro: |
 Alternate IDs: Aero NIUE | IMO | Marine | WMO 91824
 Hydro | Aus | NIWA J82400 | NIWA Agent |
 Land Use: 0 - 100M: Airport | 100M - 1KM: Open farmland, grassland or tundra | 1KM - 10KM: Coastal or Island
 Surface Type: Mostly covered by grass | Soil Type: Coral Atoll
 Comments:
 Save Changes | Cancel Changes



Australian Government
Bureau of Meteorology

World Meteorological Organization

Fourth Workshop of CBS Lead Centers for GCOS

Santiago, Chile October 2013



Research

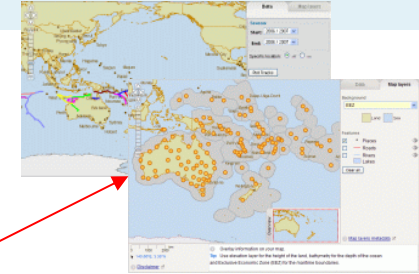
Yearly data for Tarawa Betio for 1974 to 1987

Year	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Jan	26.1	26.4	26.8	27.2	27.6	28.0	28.4	28.8	29.2	29.6	30.0	30.4	30.8	31.2
Feb	26.2	26.5	26.9	27.3	27.7	28.1	28.5	28.9	29.3	29.7	30.1	30.5	30.9	31.3
Mar	26.3	26.6	27.0	27.4	27.8	28.2	28.6	29.0	29.4	29.8	30.2	30.6	31.0	31.4
Apr	26.4	26.7	27.1	27.5	27.9	28.3	28.7	29.1	29.5	29.9	30.3	30.7	31.1	31.5
May	26.5	26.8	27.2	27.6	28.0	28.4	28.8	29.2	29.6	30.0	30.4	30.8	31.2	31.6
Jun	26.6	26.9	27.3	27.7	28.1	28.5	28.9	29.3	29.7	30.1	30.5	30.9	31.3	31.7
Jul	26.7	27.0	27.4	27.8	28.2	28.6	29.0	29.4	29.8	30.2	30.6	31.0	31.4	31.8
Aug	26.8	27.1	27.5	27.9	28.3	28.7	29.1	29.5	29.9	30.3	30.7	31.1	31.5	31.9
Sep	26.9	27.2	27.6	28.0	28.4	28.8	29.2	29.6	30.0	30.4	30.8	31.2	31.6	32.0
Oct	27.0	27.3	27.7	28.1	28.5	28.9	29.3	29.7	30.1	30.5	30.9	31.3	31.7	32.1
Nov	27.1	27.4	27.8	28.2	28.6	29.0	29.4	29.8	30.2	30.6	31.0	31.4	31.8	32.2
Dec	27.2	27.5	27.9	28.3	28.7	29.1	29.5	29.9	30.3	30.7	31.1	31.5	31.9	32.3

Statistics



Weather Reviews



Portals

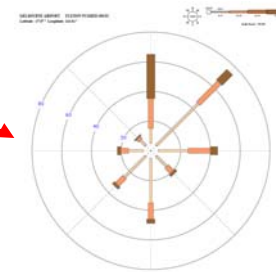
Report Generator

Monthly Summary Statistics for Hanan Airport for the month of Apr 2008

Station	Hanan Airport
Total Monthly Rainfall	202.0 mm
Mean Monthly Rainfall	6.5 mm on the 31st
No. of days of Rainfall > 0.2 mm	17 days
No. of days of Rainfall > 0.5 mm	12 days
No. of days of Rainfall > 1.0 mm	8 days
No. of days of Rainfall > 2.0 mm	5 days
Mean Daily Temperature	28.4 °C
Maximum Daily Temperature	34.0 °C
Minimum Daily Temperature	22.8 °C
Mean Monthly Humidity	78.2 %
Maximum Monthly Humidity	95.0 %
Minimum Monthly Humidity	61.0 %
Mean Monthly Wind Speed	3.2 m/s
Maximum Monthly Wind Speed	10.0 m/s
Minimum Monthly Wind Speed	0.0 m/s
Mean Monthly Sunshine	211.0 hours
Maximum Monthly Sunshine	24.0 hours
Minimum Monthly Sunshine	0.0 hours
Mean Monthly Cloudiness	4.2 oktas
Maximum Monthly Cloudiness	10.0 oktas
Minimum Monthly Cloudiness	0.0 oktas
Mean Monthly Visibility	10.0 km
Maximum Monthly Visibility	10.0 km
Minimum Monthly Visibility	0.5 km
Mean Monthly Dew Point	24.0 °C
Maximum Monthly Dew Point	29.0 °C
Minimum Monthly Dew Point	19.0 °C
Mean Monthly Frost Days	0 days
Maximum Monthly Frost Days	0 days
Minimum Monthly Frost Days	0 days

Summaries

CIIDE



Information





Pacific Island climate site data

[About Pacific Island climate data](#) | [Contacts for data](#)

Site information

Site name: Laucala Bay (Suva)
WMO number: 91690
Country: Fiji
Latitude: 18.15°S Longitude: 178.45°E

Nearest alternative sites

Nadi Airport - Fiji (114 km)
Savusavu - Fiji (176 km)
Udu Point - Fiji (280 km)

Mean annual cycle of monthly values

Download monthly time-series (restricted)

[Rain](#) | [MaxT](#) | [MinT](#) | [MeanT](#) | [DTR](#) | [MSLP](#) | [Rain \(homo.\)](#) | [MaxT \(homo.\)](#) | [MinT \(homo.\)](#) | [MeanT \(homo.\)](#)

Variable:

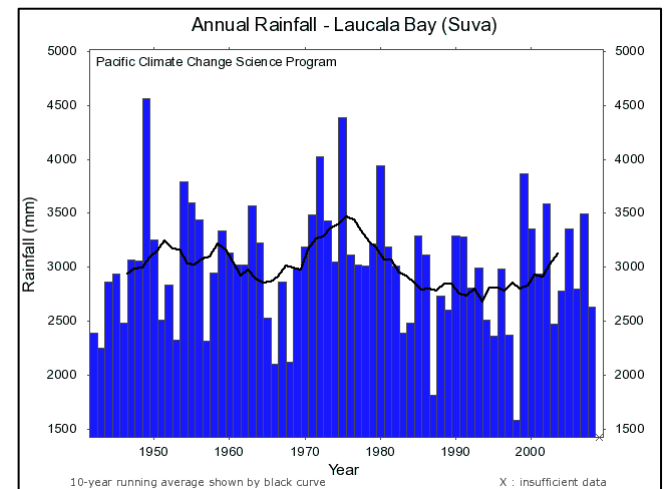
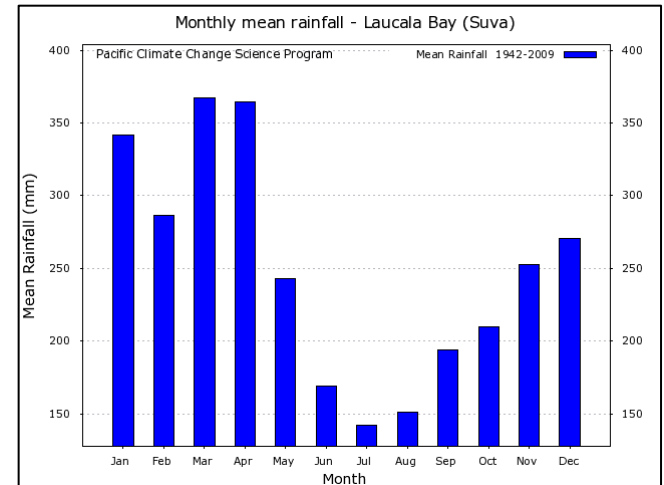
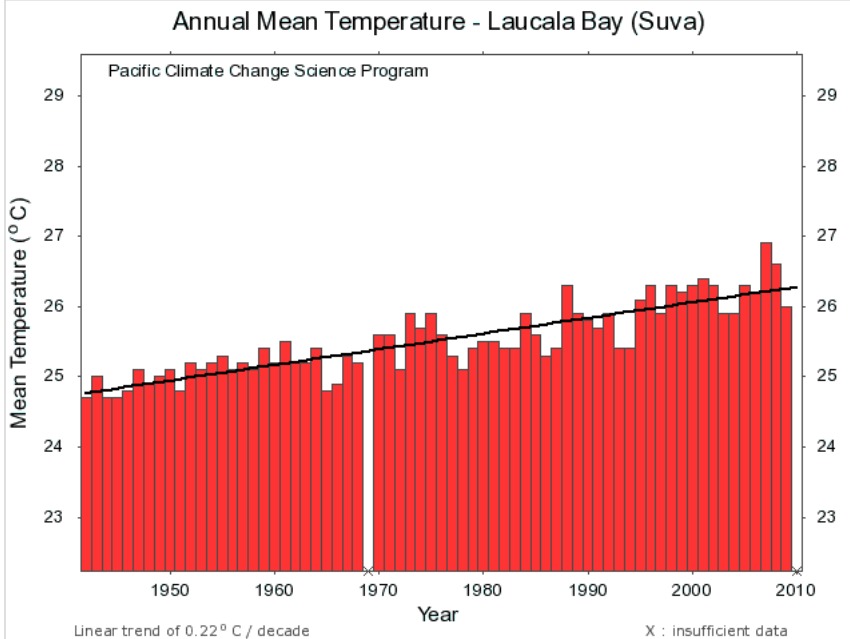
Period:

Start year: End year:

Years of running average:

(T=linear trend; A=average)

T A 3 5 7 9 11 13 15





CIIDE ... CLIMAT generation issues

- Still requires observations to be done
- Still requires data to be entered in database
- Not station compiled
 - Taking away from message generation at site
- Needs to be centralised (at this time)
 - Data provided to climate sections



Australian Government
Bureau of Meteorology

World Meteorological Organization

Fourth Workshop of CBS Lead Centers for GCOS

Santiago, Chile October 2013

Daily Rainfall
 Climate
 Daily
 Sub Daily

Station No: ?
 Local Date/Time: 08:00
 QA Flag: N

Wind Direction: (°)
 Wind Speed: (M/s)
 Visibility: (Km)
 Present Weather Code: (99 or Beaufort)
 Past Weather Code: (99 or Beaufort)
 Total Cloud: (oktas)
 Total Low Cloud: (oktas)

Cloud Layers

Layer	Amt	Type	Height (M)	Dir (°)
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

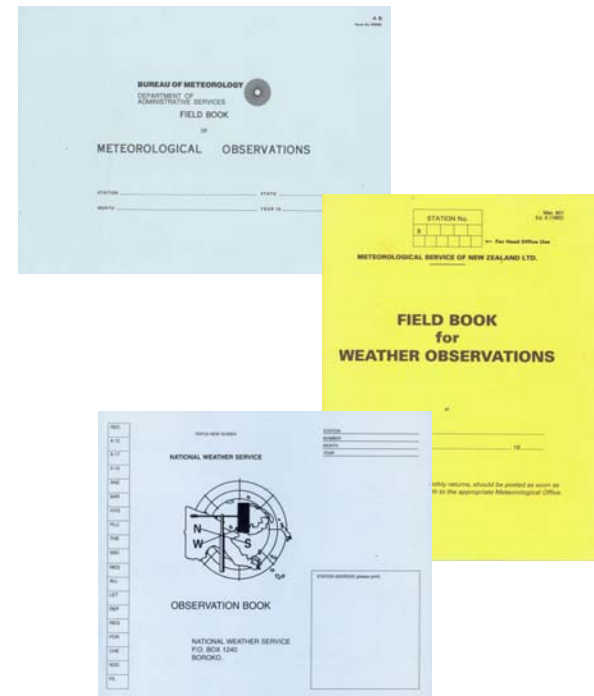
Air Temp: (°C)
 Wet Bulb Temp: (°C)
 Dew Point: (°C)
 Relative Humidity: (%)
 Rain 3 hour: (mm) Period: (hrs)
 Rain Cumulative: (mm)

Sea Water Temp: (°C)
 State Of Sea:
 State Of Swell:
 Swell Direction:
 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)

Soil Temperatures (°C)

10cm	20cm	50cm	100cm
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Comments:





Australian Government
Bureau of Meteorology

Products (Printable Reports, Statistical summaries, etc)

Monthly Summary - Windows Internet Explorer provided by Bureau of Meteorology

Monthly Summary Statistics for Vaipapahi Farm for the month of May 1995

Site Name: Vaipapahi Farm Site Number: J82204
Latitude: -18.9753 Longitude: 169.8811 Elevation: 59.000
Commenced: Jan 1901 Status: Open

Total Monthly Rainfall	144.9 mm
Mean Monthly Rainfall	
Highest Daily Rainfall	38.8 mm on Wed
No of days of Rainfall >=0.1mm	11 days
No of days of Rainfall >=1.0mm	9 days
No of days of Rainfall >=10.0mm	5 days
No of days of Rainfall >=50.0mm	0 days
Mean Daily Temperature	24.0 °C
Highest MSL Pressure	
Lowest MSL Pressure	
Mean Monthly MSL Pressure	
Total Monthly Evaporation	
Mean Monthly Evaporation	
Total Monthly Sunshine	
Mean Monthly Sunshine	
Highest Maximum Temperature	
Lowest Maximum Temperature	
No of days Max Temperature >=30.0C	
Highest Minimum Temperature	
Lowest Minimum Temperature	
No of days Min Temperature <=20.0C	
Lowest Minimum Terrestrial	
Highest Minimum Terrestrial	
Highest Wind Gust	
Highest Daily Wind Run	

Yearly Tabulated - Windows Internet Explorer provided by Bureau of Meteorology

Yearly data for Vaipapahi Farm for 1995 to 2000

Site Name: Vaipapahi Farm Site Number: J82204
Latitude: -18.9753 Longitude: 169.8811 Elevation: 59.000
Commenced: Jan 1901 Status: Open

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1995	91.6	112.4	223.7	217.8	144.9	148.0	56.0	218.7	64.9	105.6	399.4	116.0	1899
1996	422.2	101.1	262.8	70.6	398.5	121.2	57.1	32.0	16.9	181.5	82.0	197.0	1942.9
1997	118.0	272.2	223.8	194.2	31.9	101.0	151.9	100.0	160.4	30.2	118.3	93.3	
1998	113.4	288.6	104.6	70.1	7.8	41.8	126.2	52.3	154.5	69.1	241.9	23.8	
1999	422.9	533.9	146.7	171.8	69.4	114.4	76.1	91.8	190.9			196.8	
	30.0	29.7	30.3	30.2	28.0	27.5	27.4	27.2	27.1			30.0	
	22.7	22.4	22.7	23.6	19.5	19.3	19.8	19.8	21.1				

CLDB Products - Windows Internet Explorer provided by Bureau of Meteorology

Monthly Summary | Yearly Tab | Monthly Tab | Portal/SCOPIC File

Station No: J82204 Vaipapahi Farm

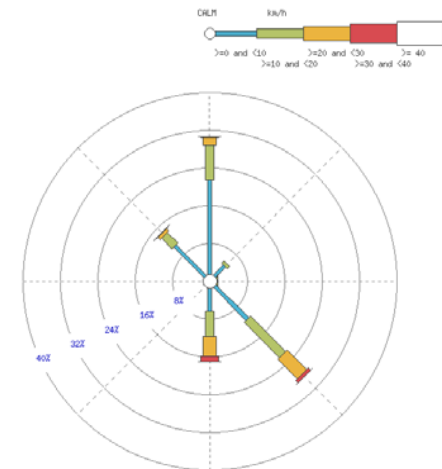
From Year: 1995

To Year: 2000

Rainfall
 Max Temp
 Min Temp

Generate Report

Wind Rose
Station Number 5, from year 1939 to year 2011, LCT 9:00





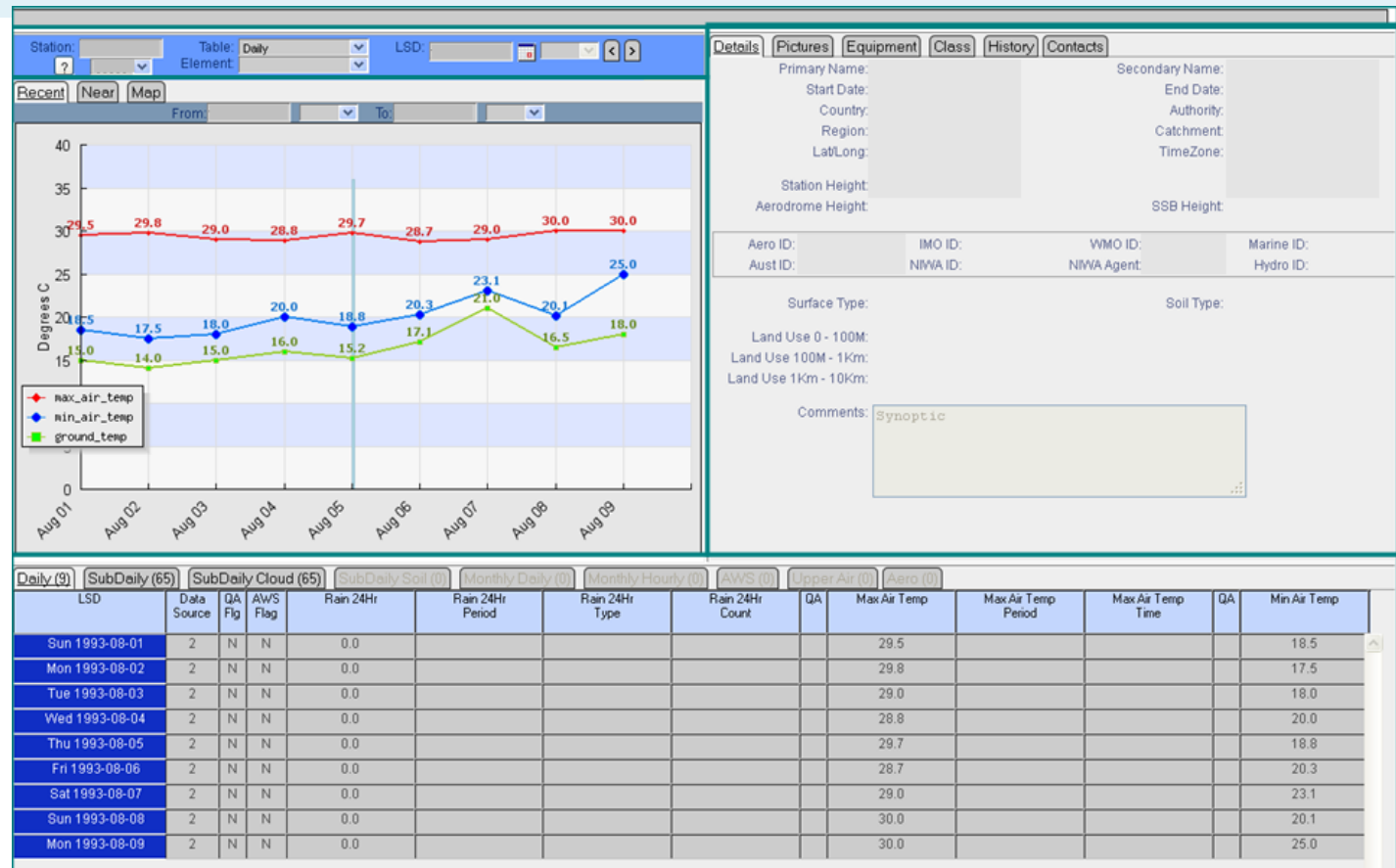
Australian Government
Bureau of Meteorology

World Meteorological Organization

Fourth Workshop of CBS Lead Centers for GCOS

Santiago, Chile October 2013

Data Quality Assurance



Graphs of data

Messages to the user are displayed here

Station metadata

Information about the selected station



Australian Government
Bureau of Meteorology

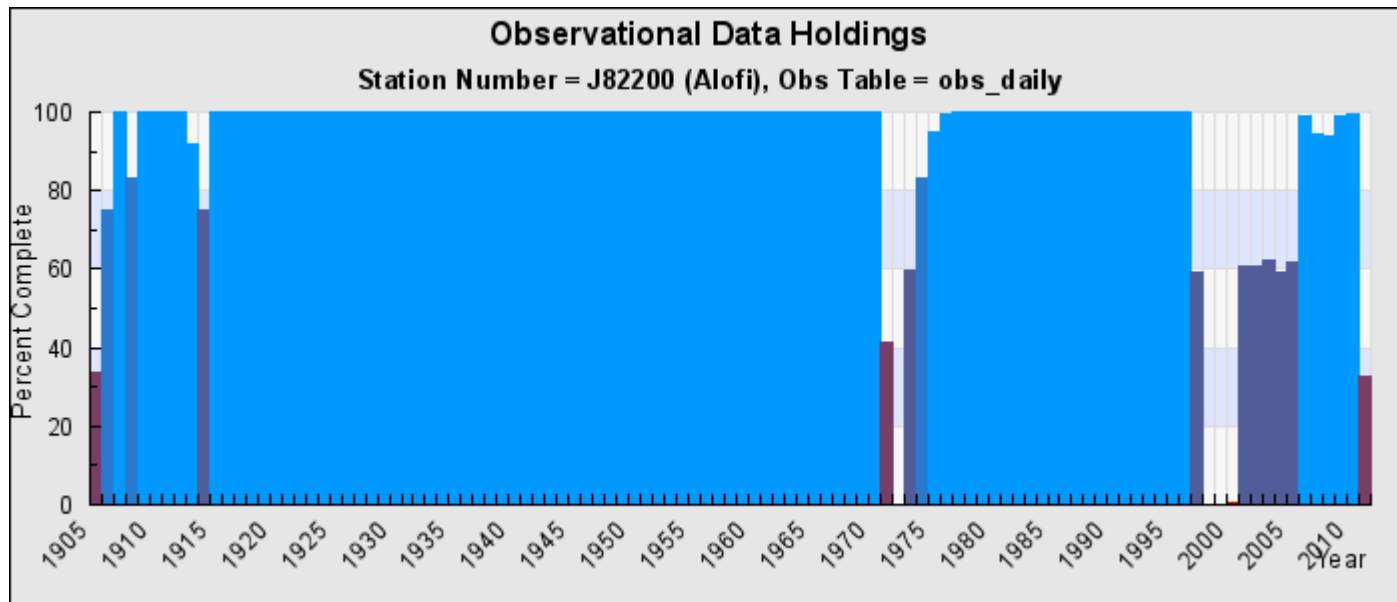
World Meteorological Organization

Fourth Workshop of CBS Lead Centers for GCOS

Santiago, Chile October 2013

Gaps in Observational Data Holdings

Station Number = J82200 (Alofi), Obs Table = obs_daily





Australian Government
Bureau of Meteorology

World Meteorological Organization

Fourth Workshop of CBS Lead Centers for GCOS

Santiago, Chile October 2013

New Reports:

- Data Extract: Make all columns of all observation tables available for extract into CSV file.
- Multiple stations, date range and two extra fields (qa flags, value thresholds, etc)
- SQL is returned to user...capacity building. Data consumers *love* SQL once they get beyond the scary stage!
- Similar product for monthly data: Select multiple stations, multiple elements for given period.
- With external views and these data dumpers, *raw* data can easily be extracted for all obs types.
- There is also a prototype web service for CSV or XML formatted data for any observation.

ClIDE central Reports - Mozilla Firefox
clidev/central/subpages/reports_menu.php

Obs Data Gaps Data Extract

Extract Data to CSV

Daily Sub-daily Sub-daily Cloud Sub-daily Soil AWS Obs

Step 1:
Select Observation Type

Step 2:
Select Element(s)
Note: Station No and Date always included

Metadata: Row ID QA Flag AWS Flag Data Source Insert Date/Time Change Date/Time Change User

Rainfall mm Rainfall Inches Rain QA
 Rain Period Rain Days Rain Type
 Max Temp C Max Temp F Max Temp QA
 Max Temp Period Max Temp Time
 Min Temp C Min Temp F Min Temp QA
 Min Temp Period Min Temp Time
 Ground Temp C Ground Temp F Ground Temp QA
 Max Gust Dir Max Gust Dir QA
 Max Gust Speed MIS Max Gust Speed Kts Max Gust Speed Dir Max Gust Speed QA

Step 3:
Select Station(s)

Status: All Region: All Filter by Number:
Catchment: All Class: All Filter by Name:

10001 - Madang D A S F
10002 - Awar Plantation
10003 - Madang YWO
10004 - Alome P P
10005 - Bundi C M
10006 - Simbai P P
10007 - Dogowan Pthn
10008 - Dumpu P P
10009 - Josephsteele C M
10010 - Wanuma L M
10011 - Annaberg C M
10012 - Mik P P Karkar

Step 4:
Select Time Range

From: 08:00 To: 08:00

Step 5:
Additional Filter:

Element: = Null
 AND OR
Element: = Null

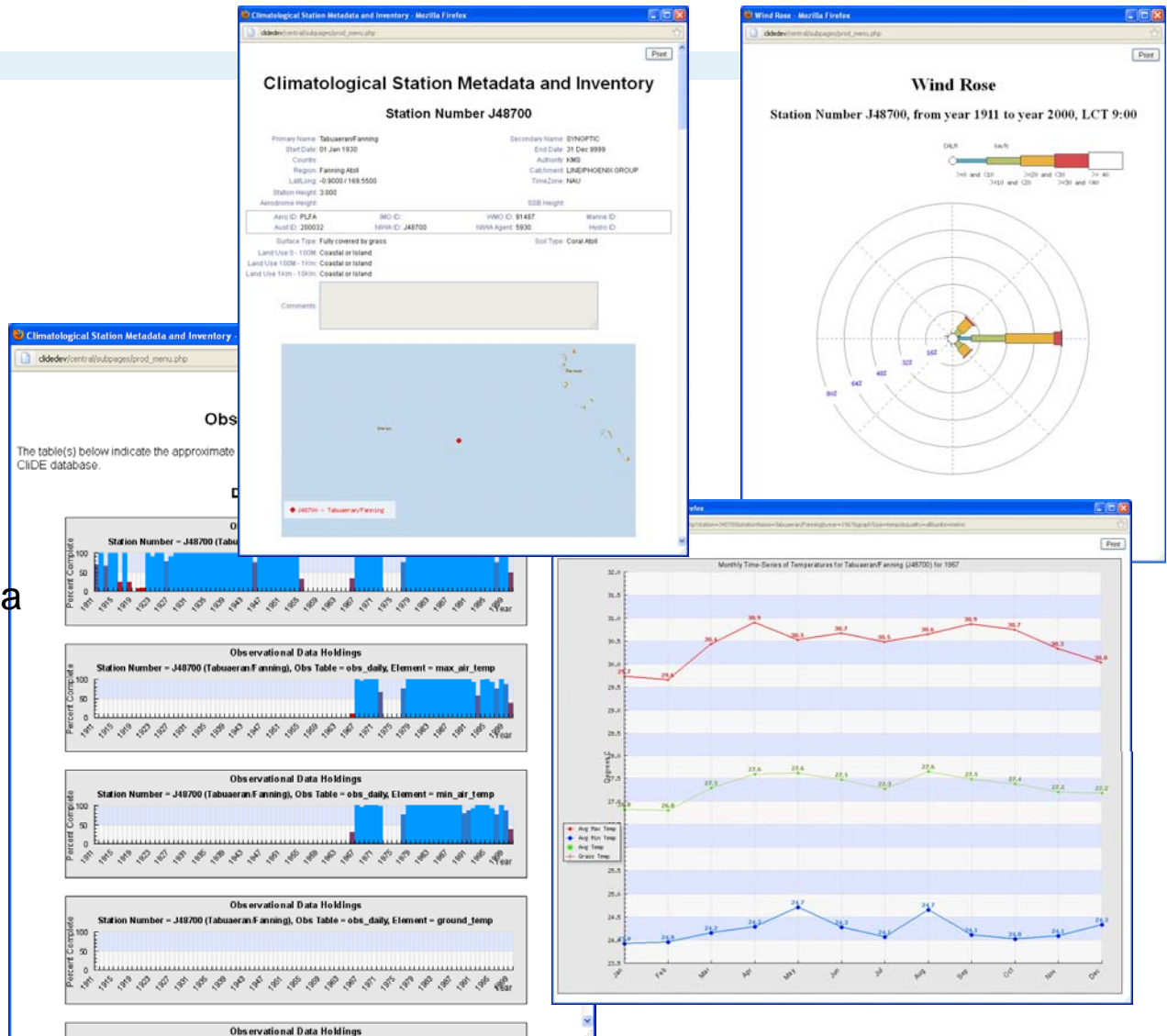
Get Data



Australian Government
Bureau of Meteorology

Other Reports:

- Station Metadata Report
 - Including data gaps report by element, maps and all metadata.
- CLIMAT Generation
- Most reports can now select data based on QA flags:
 - High quality only or all
 - Output in SI or Imperial
- Graphs have been improved
- Subdaily wind can be plotted as wind rose.





Australian Government
Bureau of Meteorology

World Meteorological Organization

Fourth Workshop of CBS Lead Centers for GCOS

Santiago, Chile October 2013

- **CLiDE is a tool to manage observed historical and current meteorological data** including rainfall and temperature
- **CLiDE is a tool to determine what is missing from your data inventory.**
- **CLiDE improves data accessibility and quality of data**
- **CLiDE also provides data dumps, summaries and reports of your data including CLIMAT**
- **CLiDE a repository for Metadata**



Australian Government
Bureau of Meteorology

World Meteorological Organization

Fourth Workshop of CBS Lead Centers for GCOS

Santiago, Chile October 2013

Kevin Smith
Senior Climatologist

Australian Bureau of Meteorology

Thank You
Questions ?