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CBS LEAD CENTRES FOR GCOS Original: ENGLISH

REPORT OF THE CBS-LC-NOAA/NCEI FOR GCOS

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SUMMARY AND PURPOSE OF DOCUMENT

The document provides a summary of activities of the CBS Region IV Lead Centre-NOAA/NCEI.

DISCUSSION

Background

The National Oceanic and Atmospheric Administration (NOAA) National Centers for Environmental Information (NCEI) serves as the GCOS Lead Center for Region IV and also as the Global Archive and Analysis Center. Region IV stretches from the Canadian Arctic to the equator. It includes three large countries; USA, Canada and Mexico which contain more than 75% of the surface-based observing stations as well as many smaller countries and island nations that provide critical coverage for weather and climate observations throughout the region. The large number of small nations makes the continuing effort of coordination and support an essential part of ensuring the health of the region's observing network.

This report contains a summary of the state of the surface-based global observing system for GSN and GUAN networks with a specific focus on those provided by Region IV members. NCEI provides monthly updates of web accessible GSN and GUAN reports which provide information on the number of hourly, synoptic, and CLIMAT reports received at the Center. The reports are available at https://www.ncei.noaa.gov/pub/data/gcos/ .

Representatives from other Lead Centers are invited to review these reports and provide feedback on their usefulness and any recommendations for further changes. There are two basic types of reports; the first providing an annual total of the number of reports received by type and hour of the day and secondly files that provide month-year totals of the number of hourly and synoptic reports received and if CLIMAT data were received

Performance of the RBCN and GSN networks in Region IV

The performance of a Region IV RBCN inventory consisting of 337 stations is summarized for 2020. As with the RBSN surface network, Canada and the U.S. have the greatest number of stations providing CLIMAT reports. A subset of 177 GSN stations also is summarized in this report.

The number of RBCN stations providing at least nine CLIMAT reports each year has remained above 80% since 2012 (Figure 1), computed as a percentage of the current inventory. The GSN network has remained above 85% since 2010. Figure 2 shows the reporting frequency of each GSN station in 2020. The same is shown for RBCN stations in Figure 3. System outages resulted in several stations providing less than complete annual coverage. This occurred most notably in remote areas for which unscheduled maintenance cannot be readily performed (Table 1). The greater than 90% coverage of stations with good reporting practices in the GSN network since 2015 indicates the benefit that careful monitoring and attention to the performance of a subset of stations

can provide to improving data collection. The very high percentage of GSN stations providing at least nine months of CLIMAT data in 2019 is particularly noteworthy, followed by a slight decline in 2020.

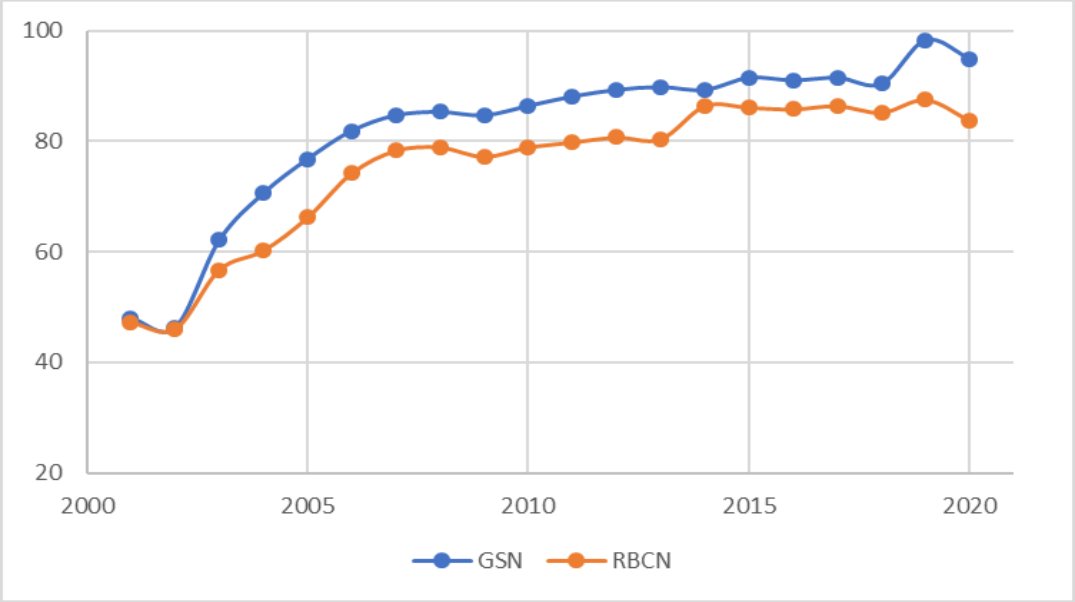

Figure 1. Percentage of Region IV RBCN stations providing CLIMAT reports (red line) and the subset of GSN stations (blue line) providing CLIMAT reports in at least nine months each year from 2001 through 2020 (as a percentage of the 2020 inventory).

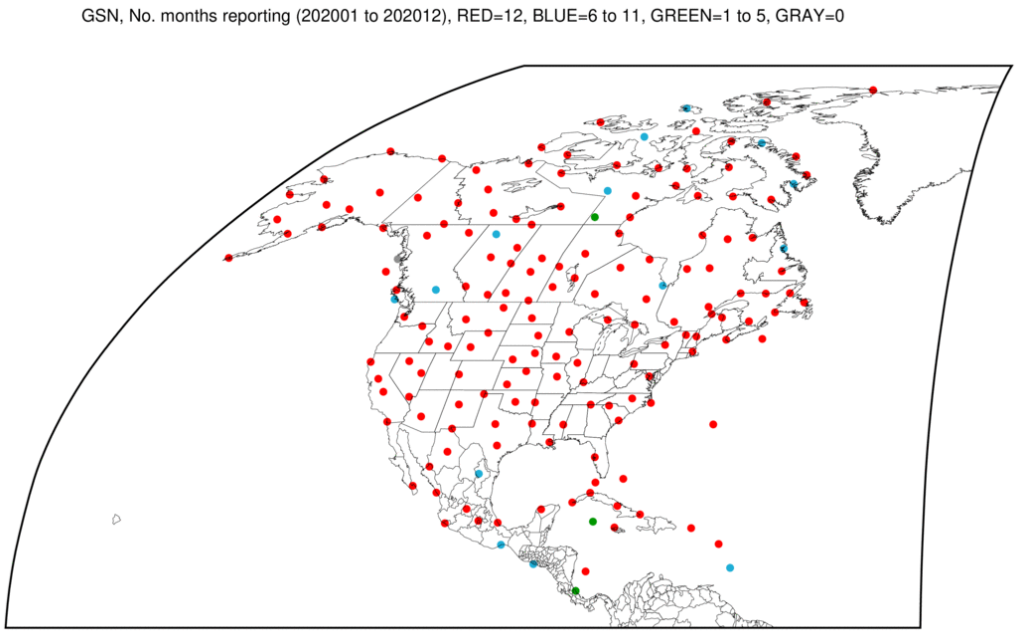

Figure 2. The reporting frequency of the Region IV stations in the GSN network in 2020; stations reporting all 12 months of the year (red), from 6 to 11 reports (blue), 1 to 5 reports (green), and 0 reports (gray).

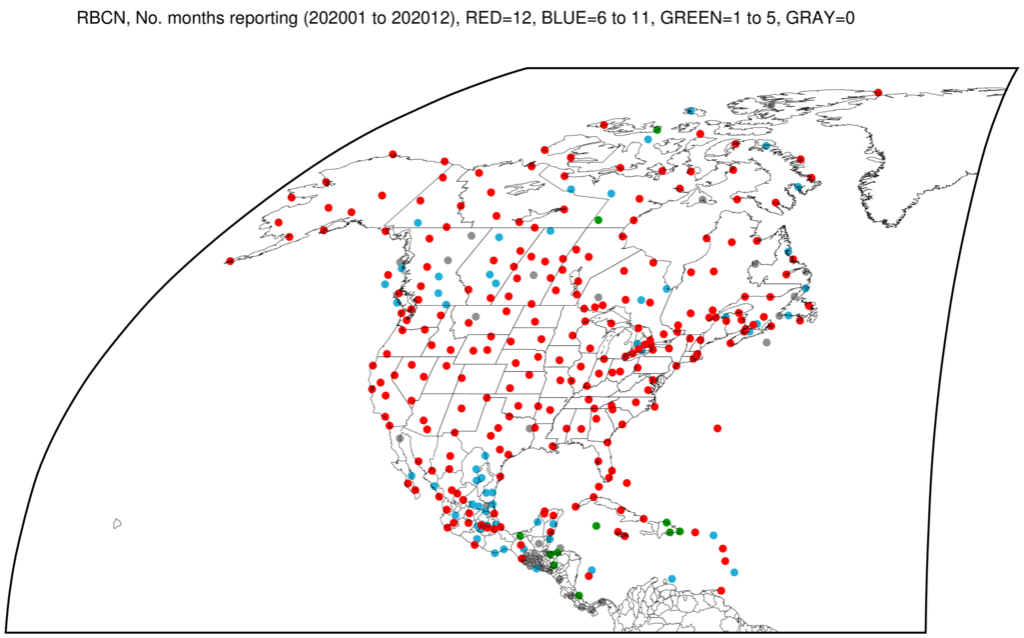

Figure 3. The reporting frequency of the Region IV stations in the RBCN network in 2020; stations reporting all 12 months of the year (red), from 6 to 11 reports (blue), 1 to 5 reports (green), and 0 reports (gray).

The following provides a summary of GSN stations with reporting problems in 2020. There are many other stations that require ongoing personal contact to ensure receipt of data throughout all areas of the Region. The Region IV Lead Center made direct e-mail contact to resolve reporting issues for more than 100 CLIMAT reports for GSN stations in 2020 across all WMO regions.

Table 1. Region IV GSN stations with reporting issues in 2020.

Data-Months	WMO #	Station Name	Country	Findings
11/2020-Present	71665	Nain	Canada	Equipment issue.
7/2020-Present	71074	Isachsen (Aut)	Canada	Communications issue.
7/2020-Present	71923	Ennadai Lake	Canada	Communications issue.
12/2019-Present	71818	CARTWRIGHT/	Canada	Communications issue.
8/2019-Present	70398	Annette Island	United States	Not enough data to generate a CLIMAT Message
4/2018-Present	71828	Schefferville A	Canada	Data issues discovered during Quality Control on Environment Canada's end.
12/2020	76393	Monterrey, N	Mexico	Not enough data to generate a CLIMAT Message.
11/2020	71741	Kamloops Aut	Canada	Not enough data to generate a CLIMAT

				Message related to site maintenance.
10/2020	76833	Salina Cruz	Mexico	Equipment issue.
10/2020	71779	Quesnel Airport	Canada	Not enough data to generate a CLIMAT Message related to site maintenance.
10/2020	71066	High Level	Canada	Not enough data to generate a CLIMAT Message related to site maintenance.
9/2020-12/2020	71017	Stefansson Island	Canada	Communications issue.
7/2020-12/2020	71490	Robertson Lake (Aut)	Canada	Communications issue.
7/2020-8/2020	71894	Estevan Point CS	Canada	Communications issue.
6/2020	71773	Whitehorse Auto	Canada	Equipment issue.
5/2020	76833	Salina Cruz	Mexico	COVID-19/Observer Availability Issues and, thus, operating at only 30% capacity
4/2020	71309	Moosonee RCS	Canada	Equipment issue.
2/2020-4/2020	71576	Point Inlet C	Canada	Communications issue.
2/2020-4/2020	71826	Pangnirtung	Canada	Communications issue.
3/2020	71741	Kamloops Aut	Canada	Equipment issue.
3/2020	71017	Stefansson Island	Canada	Equipment issue.
12/2019-1/2020	71923	Ennadai Lake	Canada	Antenna icing issue.
10/2019	71321	Iqualuit Climate	Canada	Not enough data to generate a CLIMAT Message

Upper Air Observations

There continued to be a high level of data collected from stations in the GUAN network in the past year, extending benefits of ongoing rehabilitation and system improvement that have occurred in recent decades. In Region IV there were 24 GUAN stations operating in 2020. Performance was best in the U.S. and Canada as shown in Figure 4, with almost all stations having at least 30 soundings each month reaching 30hPa and 10hPa. For Juan SantaMaria (WMO #78762), there were from two to 19 OBS per data-month during 2020, thus no month reached the threshold of at least 30 soundings in any month.

A few stations had maintenance or other issues that presented challenges to maintaining fully functional systems (Table 2), but in comparison to other regions (also shown in Table 2), the issues in Region IV were relatively minor, which reflected in the overall good performance of the Region IV network in 2020.

Note: The reporting issues in Table 2 were compiled by NCEI as part of its contribution to the WMO as the GCOS Archive Center.

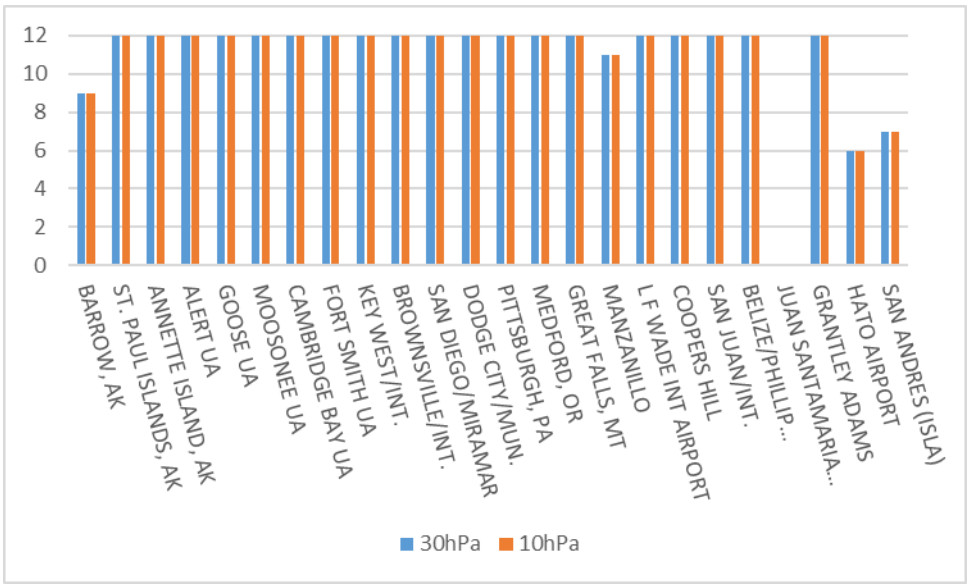

Figure 4. The number of months in 2020 in which at least 30 soundings reached 30 hPa (blue) and 10 hPa (red) for each Region IV GUAN site.

Table 2. NCEI's record of documented reporting issues with GUAN stations in all WMO Regions in 2020.

Data-Months	Region	WMO #	Station Name	Country	Findings
12/2019-3/2020	1	61052	Niamey	Niger	PILOT Observations
9/2013-Present	1	61902	ASCENSION ISLAND		Station will be CLOSED
11/2019-Present	1	61980	Saint-Denis/Gillot	Reunion	No reply received to-date from GCOS Focal Point
4/2020-Present	1	61995	Vacoas	Mauritius	PILOT Observations
12/2018-Present	1	61998	Kerguelen Islands		No reply received to-date from GCOS Focal Point
6/2014-Present	1	62721	Khartoum	Sudan	Equipment Issues
10/2019-2/2021	1	63450	Addis Adaba	Ethiopia	No reply received to-date from GCOS Focal Point
11/2020	1	63741	Nairobi	Kenya	No reply received to-date from GCOS Focal Point
1/2014-9/2014, 11/2014-Present	1	63894	Dar es Salaam	Tanzania	Equipment Issues
8/2020	1	63985	SEYCHELLES INTER. AIRPORT	Seychelles	Equipment Issues
2/2020	1	63985	Seychelles IAP	Seychelles	No reply received to-date from GCOS Focal Point

3/2020-4/2020, 9/2020	1	64910	Douala	Cameroon	No reply received to-date from GCOS Focal Point
11/2019-1/2020	1	65578	Abidjan, Cote d'Ivoire	Cote d'Ivoire	PILOT Observations
6/2020	1	67083	Antananarivo/Ivato	Madagascar	PILOT Observations
3/2018-Present	1	67774	HARARE	ZIMBABWE	No reply received to-date from GCOS Focal Point
12/2020-Present	1	68110	Windhoek	Namibia	Confirmed non-submission of data
7/2018-6/2020, 9/2020-Present	1	68592	King Shaka Int'l AP, SA	SOUTH AFRICA	Equipment Issues
8/2019-9/2020	1	68906	GOUGH ISLAND	SOUTH AFRICA	Equipment Issues
6/2020-Present	1	68994	MARION ISLAND	SOUTH AFR	Equipment Issues
8/2020-11/2020	2	20674	OSTROV DIKSON	Russia	No reply received to-date from GCOS Focal Point
2/2014-Present	2	41780	Kirachi	Pakistan	Equipment Issues and PILOT Observations
3/2020-6/2020	2	43599	Gan	Maldives	Equipment Issues
12/2019-6/2020	2	48453	BANGNA	THAILAND	PILOT Observations
11/2019-Present	3	81405	Cayenne Matoury	French Guiana	No reply received to-date from GCOS Focal Point
8/2019-Present	3	82397	Fortaleza	Brazil	Communications Issues
3/2019-Present	3	84008	San Cristobal	Ecuador	No reply received to-date from GCOS Focal Point
6/2020	3	84628	Lima-Callao/Chavez, Peru	Peru	No reply received to-date from GCOS Focal Point
8/2020	3	85469	ISLA DE PASCUA	Chile	Equipment Issues
11/2020	4	70026	Barrow/W. Post W. Rogers	United States	Communications Issues
3/2020-7/2020	4	78988	Hato	Curacao	Confirmed non-submission of data
8/2020	4	80001	SAN ANDRES (ISLA)/SESQUICENTEN	Colombia	No reply received to-date from GCOS Focal Point
6/2020	4	80001	San Andres	Columbia	No reply received to-date from GCOS Focal Point
11/2019-Present	5	11035	Wien/Hohe Warte, AT	Austria	Communications Issues
1/2020-2/2020	5	91334	Truk	Truk/Caroline Is.	PILOT Observations
9/2013-Present	5	91517	Honiara	Solomon Islands	Equipment Issues
5/2016-Present	5	91557	Bauerfield	Vanuatu	Equipment Issues
11/2019-Present	5	91592	NOUMEA (NLLE-CALEDONIE)	New Caledonia	No reply received to-date from GCOS Focal Point
9/2020-	5	91610	Tarawa	Kiribati	No reply received to-date from

11/2020					GCOS Focal Point
1/2017-Present	5	91843	RAROTONGA	Cook Islands	Equipment Issues
11/2019-Present	5	91938	Tahiti-Faaa	French Polynesia	No reply received to-date from GCOS Focal Point
9/2013-Present	5	92035	Point Moresby	Papua New Guinea	Equipment Issues
4/2020-Present	5	93997	Raoul/Kermadec Is., NZ	New Zealand	Suspended operations due to COVID-19
4/2020-7/2020	5	94461	Giles, AU	Australia	No reply received to-date from GCOS Focal Point
11/2019-Present	5	96315	Brunei AP	Borneo	PILOT Observations
7/2019-Present	6	17607	Athalassa	Cyprus	No reply received to-date from GCOS Focal Point
3/2020	6	37789	Yerevan	Armenia	No reply received to-date from GCOS Focal Point
4/2020-5/2020	6	40265	Mafraq, Jordan	Jordan	No reply received to-date from GCOS Focal Point
6/2020-7/2020, 10/2020-Present	6	01001	Jan Mayen	Jan Mayen	No reply received to-date from GCOS Focal Point
8/2020-Present	6	02836	SODANKYLA ARCTIC RESEARCH CENT	Finland	Issue with receiving data via GUAN BUFR
11/2020-Present	6	03953	Valentia Observatory	Ireland	PILOT Observations
9/2019-Present	6	06610	Payerne	Switzerland	No reply received to-date from GCOS Focal Point
3/2020-12/2020	7	89022	Halley Bay	Antarctica	Staffing Issues
9/2020-Present	7	89055	Base Marambio	Argentina	Equipment Issues
8/2018-Present	7	89512	Novolazaravskaja	Antarctica	No reply received to-date from GCOS Focal Point
7/2020-2/2021	7	89592	Mirnyj	Antarctica	No reply received to-date from GCOS Focal Point