

WORLD METEOROLOGICAL ORGANIZATION

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CBS LEAD CENTRES FOR GCOS

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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 <ftp://ftp.ncdc.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

There are 337 CLIMAT stations in the current RBCN inventory for Region IV. As with the RBSN surface network, Canada and the U.S. have the greatest number of stations providing CLIMAT reports. The subset of GSN stations consists of 189 stations in the region. This is an increase of 12 stations designated as GSN since the previous report.

Figure 2 shows the reporting frequency of each GSN station in 2017. The same is shown for RBCN stations in Figure 3. The number of RBCN stations providing at least nine CLIMAT reports each year has remained above 80% since 2012 (Figure 1). The GSN network has remained above 90% since 2011. 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 95% coverage of stations with good reporting practices in the GSN network indicates the benefit that careful monitoring and attention to the performance of a subset of stations can provide to improving data collection.

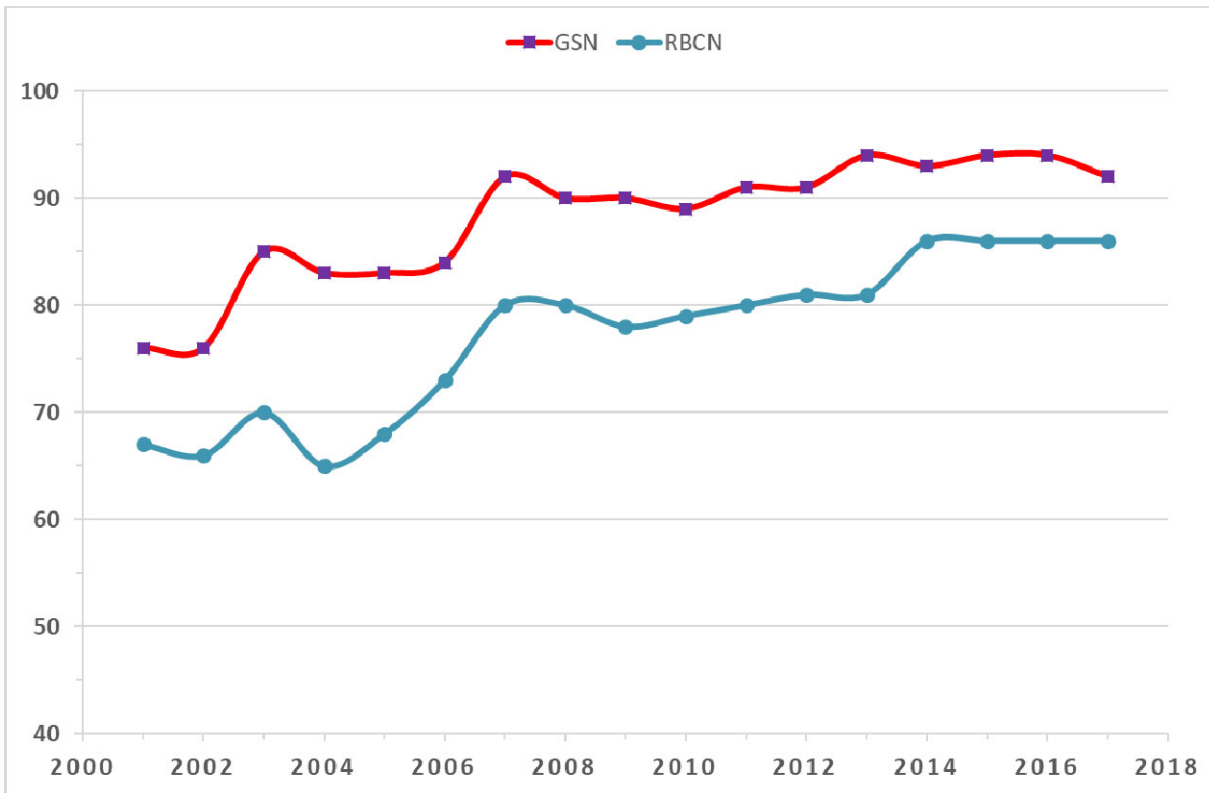


Figure 1. Percentage of Region IV RBCN stations providing CLIMAT reports (light blue line) and the subset of GSN stations (red line) providing CLIMAT reports in at least nine months each year from 2001 through 2017.

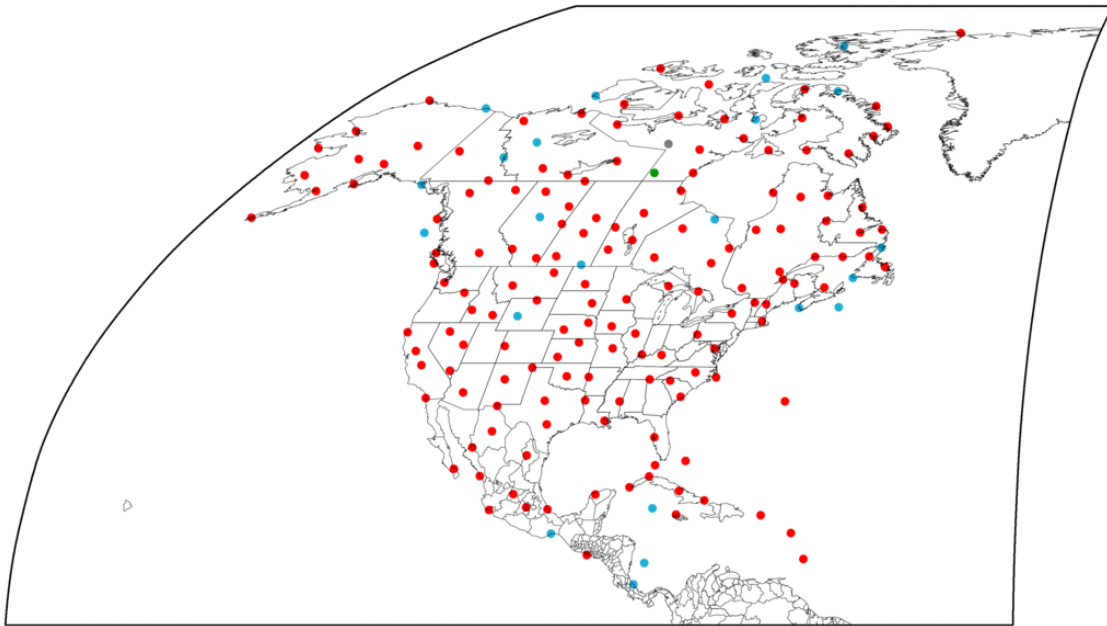


Figure 2. The reporting frequency of the Region IV stations in the GSN network in 2017; stations reporting all 12 months of the year (red), from 6 to 11 reports (blue), 1 to 5 reports (green), and 0 reports (gray).

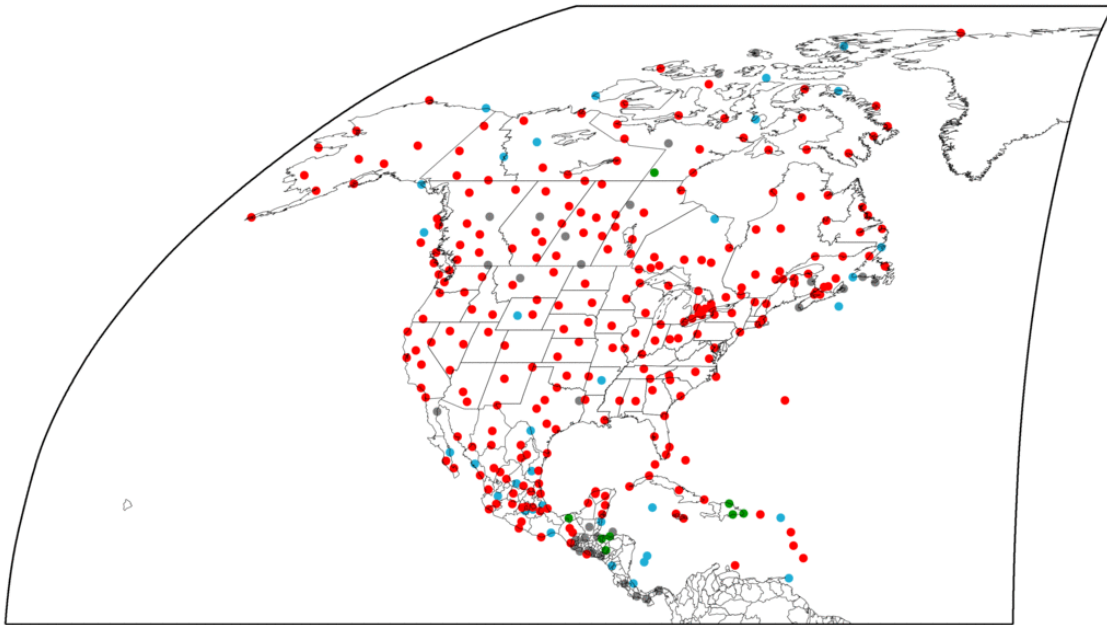


Figure 3. The reporting frequency of the Region IV stations in the RBCN network in 2017; stations reporting all 12 months of the year (red), from 6 to 11 reports (blue), 1 to 5 reports (green), and 0 reports (gray).

The following provides a summary of GSN stations with reporting problems in 2017. There are many other stations that require ongoing personal contact to ensure receipt of data throughout the 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 2017 across all WMO regions.

Table 1. Region IV GSN stations with reporting issues in 2017.

Data-Months	WMO #	Station Name	Country	Findings
11/2017-Present	71600	Sable Island	Canada	Station ceased transmission on 10/27/2017 and will be replaced by WMO #73025 of the same Station Name when WMO officially approves it as a GSN Station.
11/2016-Present	71490	Robertson Lake	Canada	Power issue at a remote site
9/2017-Present	71197	Port Aux Bas	Canada	Old station closed on 9/19/2017. There is a new station in situ but further testing is required before EC can deem it to be the new RBCN replacing 71197. The new station will be a GSN station intended for inclusion in the CLIMAT reports. However, a test will have to be conducted later this month to determine whether EC will be able to issue the reports starting for this fall (2017) or whether it may not happen until next year (2018).
11/2017-Present	71990	Macmillan Pass	Canada	Battery levels have dropped below threshold values for this remote site
12/2017-Present	71467	Sachs Harbour	Canada	Suspected phone line issue
11/2016 and 1/2017-Present	71074	ISACHSEN	Canada	Antenna icing issue
12/2017	71018	Resolute CS	Canada	Suspected phone line issue
11/2017	71407	Kugaaruk Airport, Nunavut	Canada	Service outage
9/2017	71558	ST ANTHONY	Canada	Station was down between September 1-21, 2017 – no details in ticket at Environment Canada as to why the station was down.
9/2017	71576	POND INLET C	Canada	Communications Issue
11/2016-9/2017	71923	Ennadai Lake	Canada	Power issue at a remote site
6/2017-7/2017	71407	Kugaaruk Airport, Nunavut	Canada	Suspected phone line issue
6/2017	71613	Eureka Climate	Canada	Replaced 71917 for the CLIMAT bulletins for Eureka as of 6/2017 per WMO GSN Station List Update in mid-2017.
4/2015-6/2017	71693	SLAVE LAKE R	Canada	Replaced 71069 for the CLIMAT bulletins at Slave Lake during 2015 per WMO GSN Station List Update in mid-2017.
4/2015-6/2017	71884	YARMOUTH RCS	Canada	Replaced 71603 for the CLIMAT bulletins at Yarmouth Nova Scotia during 4/2015 per WMO GSN Station List Update in mid-2017.
4/2015-6/2017	71559	Estevan RCS	Canada	Replaced 71862 for the CLIMAT bulletins at Estevan Climate Saskatchewan during 4/2015 per WMO GSN Station List Update in mid-2017.
4/2017	71480	Norman Wells Climate NWT	Canada	Communications Issue
3/2017	71434	Peawanuck Meteorological Aeronautical Presentation System	Canada	Communications Issue
1/2017-2/2017	71101	Sandspit AWO	Canada	Power issue
1/2017	71197	Port Aux Bas	Canada	Power issue

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. For the globe as a whole, more than 160 GUAN

stations were operating at some point in 2017. Region IV performance was best in the U.S. and Canada but as shown in Figure 5 the performance of stations in Central America was much improved in 2017 when compared to 2016. Most stations had at least 30 soundings reaching 10h Pa in at least 10 months of the year.

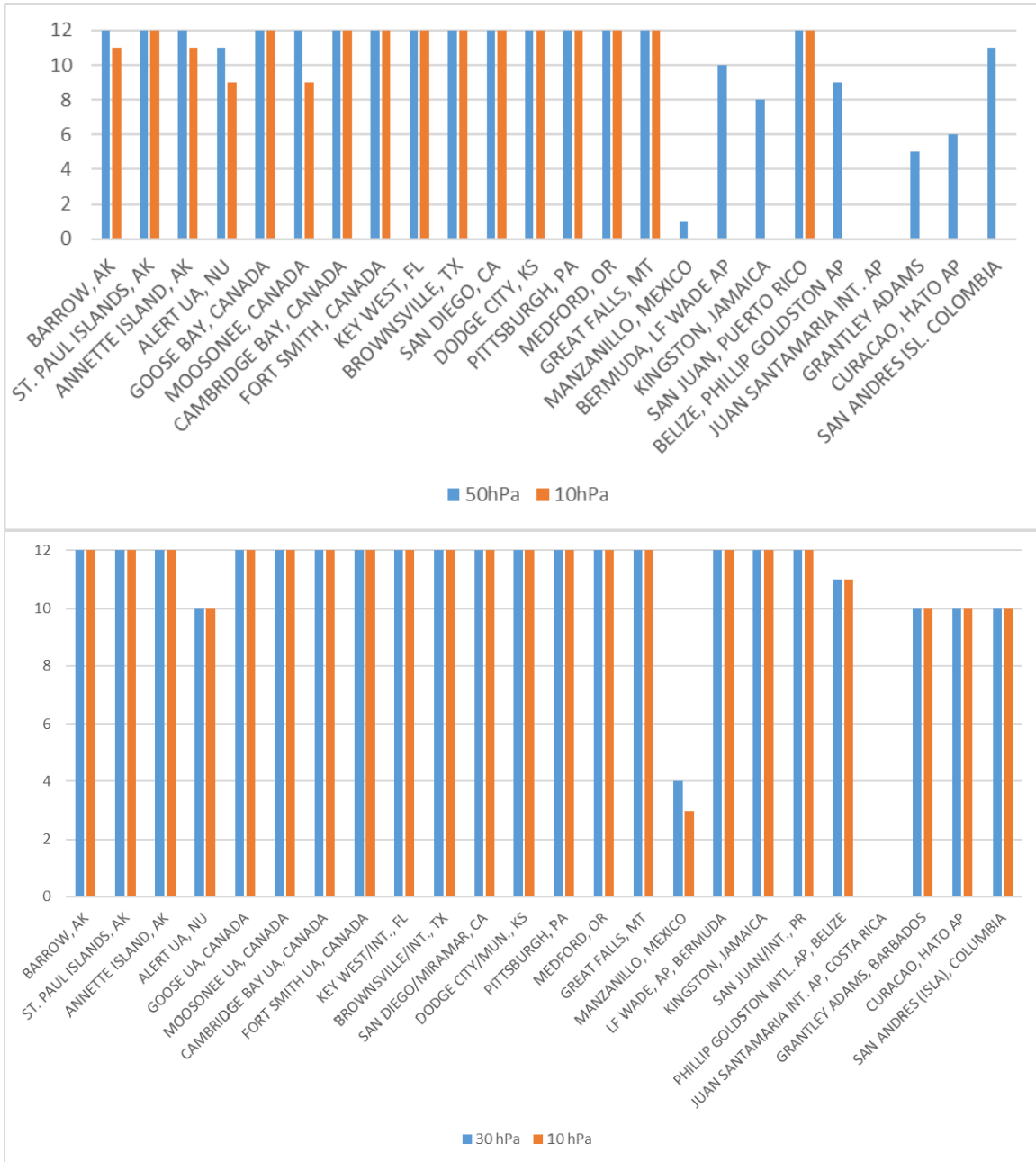


Figure 4. The number of months in which at least 30 soundings reached 50 hPa (blue) and 10 hPa (red) in 2016 (top) and 30 hPa (blue) and 10 hPa (red) in 2017 (bottom) for each Region IV GUAN site.