CBS/GCOS Lead Centre

Direction de la Météorologie Nationale

MOROCCO

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Report of CBS Lead Centre for GSN and GUAN Data for Northern Region I and Madagascar

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Summary and Purpose of Document

This document provides information on the activities of the CBS Lead Centre and information on the results obtained during the year 2010 and 2011.

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1. Background

CBS Lead Centres for GCOS have been designated by the World Meteorological Organization (WMO) Commission for Basic Systems (CBS) as being responsible for monitoring performance of GCOS networks, in particular of the GCOS Surface and Upper Air Networks (GSN, GUAN). They aims to improve the quantity and quality of GSN data, contained in CLIMAT reports exchanged over the GTS, by exchanging the GSN monitoring information directly with NMHSs in accordance with the proposed terms of reference, and to support any follow-up action in designated areas of responsibility.

Implementation of activities of the Lead Centre should generally follow the procedures for WWW monitoring centres, as laid down in the Manual on the GDPS, Attachment II.7 (WMO - No. 485). The Lead Centre will focus on the activities in paragraph 3.

2. Activities

Terms of Reference of the CBS Lead Centres for GCOS are:

1. Diagnose problems in the GSN and GUAN by using the monitoring reports produced by the GCOS Monitoring and Analysis Centres;
2. Liaise with nominated National Focal Points for GCOS and related Climatological Data, and other responsible officials, to improve data and meta data availability and quality;
3. Support to NMHSs for preparing CLIMAT messages in a standard format.
4. Co-ordinate activities with other GCOS centres and/or other centres as appropriate;
5. Monitor and report to CBS and GCOS on actions taken, progress achieved, concerns and recommendations on a yearly basis in a time frame that corresponds to planned AOPC and CBS meetings;
6. Assist AOPC in the revisions of GSN and GUAN stations;
7. Assist the WMO Secretariat in maintaining the list of National Focal Points for GCOS and related Climatological Data.

3. Areas of responsibility

Morocco, in the person of “la Direction de la Météorologie Nationale (DMN)”, has been formally nominated as lead centre by the Acting President of the CBS in March 2006. He is responsible of the Northern Part of Region I (Northern, western and central Africa) and Madagascar which includes the following countries:

Northern Africa	Western Africa	Central Africa	Eastern Africa	Island
1. Algeria 2. Egypt 3. Libya 4. Morocco 5. Mauritania 6. Tunisia	7. Benin 8. Burkina Faso 9. Cape Verde 10. Ivory Coast 11. Gambia 12. Ghana 13. Guinea 14. Guinea Bissau 15. Liberia 16. Mali 17. Niger 18. Nigeria 19. Senegal 20. Sierra Leone 21. Togo	22. Cameroon 23. Chad 24. Congo 25. Guinea Equatorial 26. Central African Republic 27. Gabon 28. Sao Tome and Principe	29. Sudan	30. Madagascar

Table 1: Country of the region RAI (Africa)

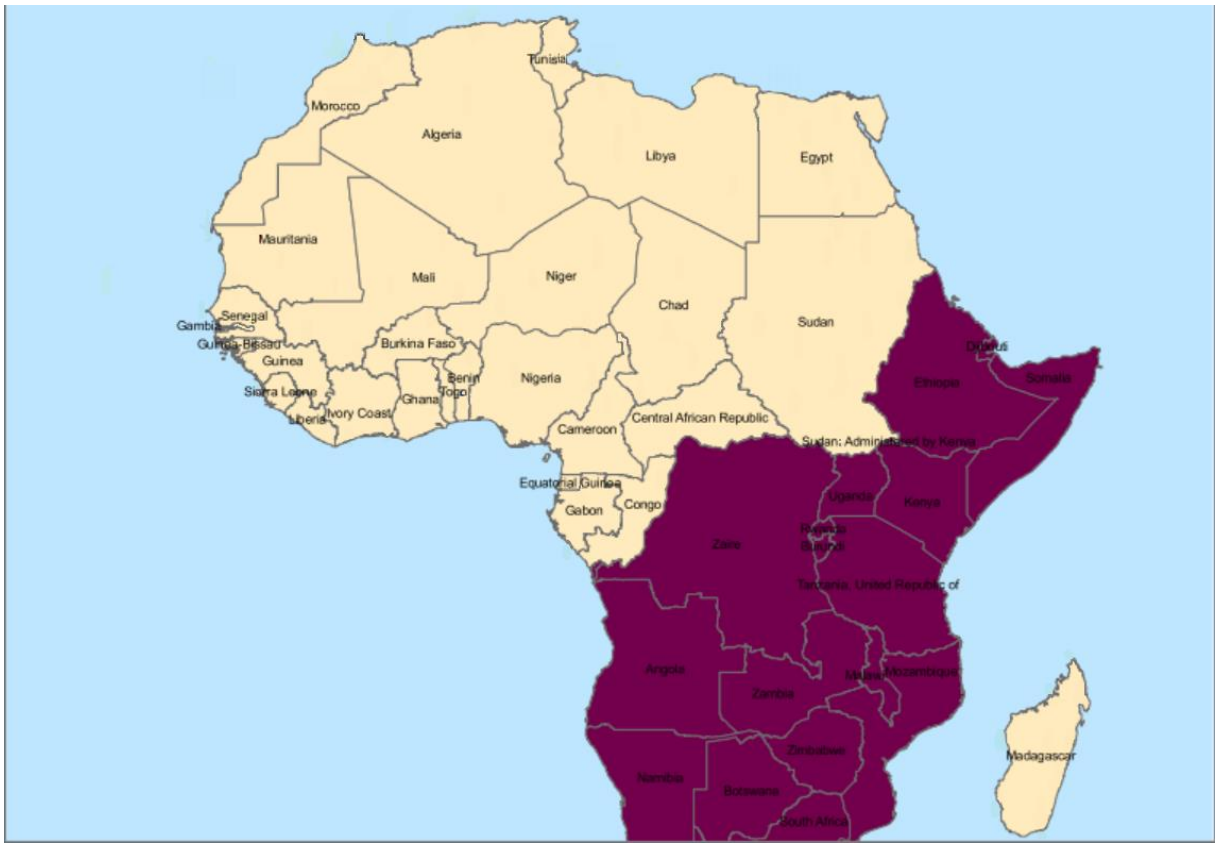


Figure 1: Our responsibility region's chart (RAI Africa)

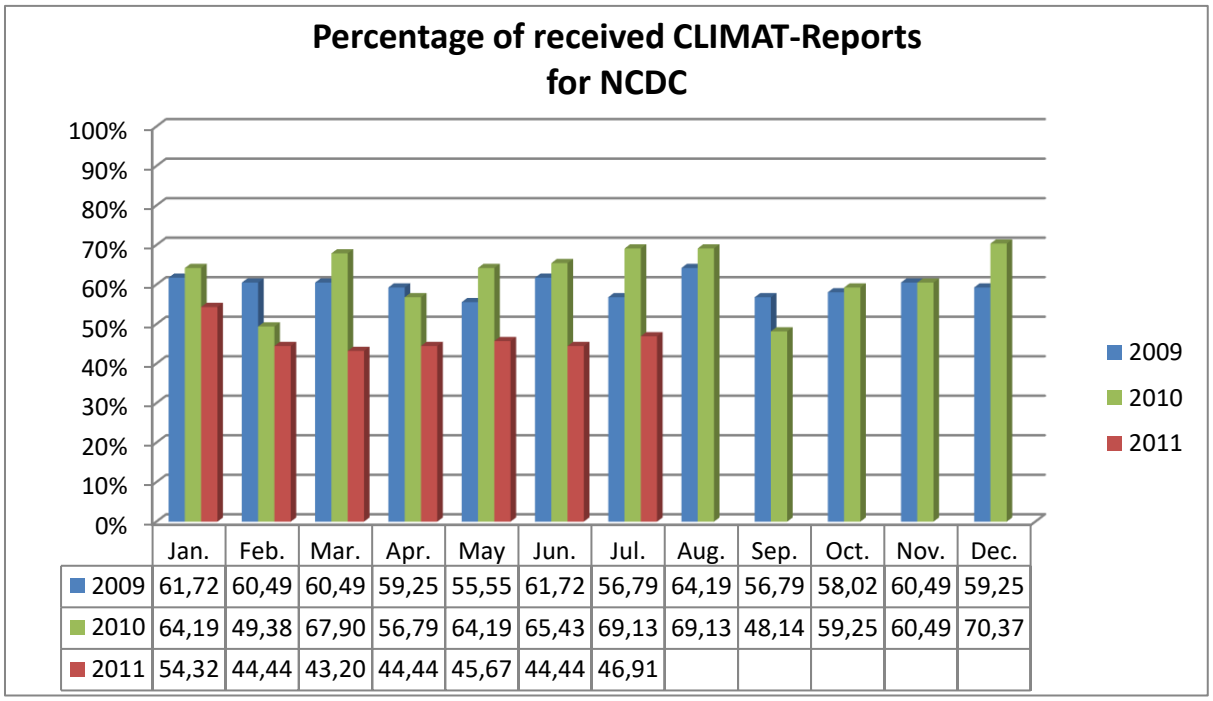
4. Analysis, of the Reception by NCDC, of CLIMAT-Report during 2010-2011.

In this report, we analyze the evolution of CLIMAT-Report transmission over the years, according to three criteria:

1. Evolution of the number of countries without GSN station,
2. Evolution of the number of countries with no focal point,
3. Evolution of the number of CLIMAT-Report received at the NCDC, by country and station based on years.

The number of countries without GSN station is 8 and has remained unchanged. These countries are Gambia, Ghana, Guinea, Guinea-Bissau, Equatorial Guinea, Liberia, Central African Republic, Sao-Tome and Principe.
The number of countries with no focal point is decreasing. Thus, there are focal points for three countries more than in 2009 (Mauritania, Chad and Togo). But there is a total of 9 countries with no focal point, including 5 countries without GSN station (with GSN station: Benin, Cameroon, Congo, Gabon and Sierra-Leone, without GSN station: Equatorial Guinea, Liberia, Central African Republic and Sao-Tome and Principe).

To approach the third axis that interests us most, and which concerns the evolution of the number of CLIMAT-Report, we start with an overview showing the evolution, over the last three years, of CLIMAT-Report number, all countries and all stations combined, received at the NCDC (see Figure 2). This analysis reveals at first sight, an increased number of CLIMAT-Report in 2010 compared to 2009 while 2011 has registered a decrease compared to 2010.

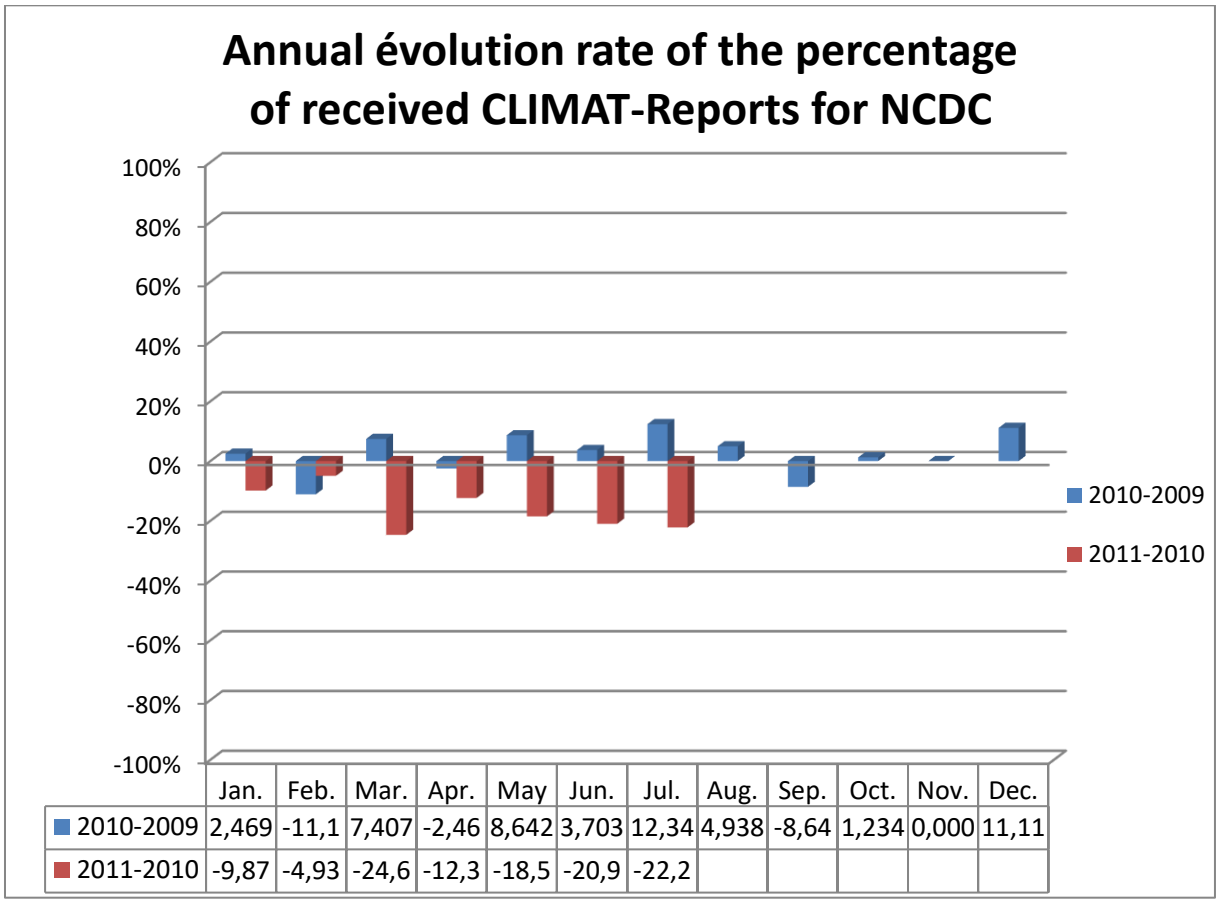


	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
2009	61,72	60,49	60,49	59,25	55,55	61,72	56,79	64,19	56,79	58,02	60,49	59,25
2010	64,19	49,38	67,90	56,79	64,19	65,43	69,13	69,13	48,14	59,25	60,49	70,37
2011	54,32	44,44	43,20	44,44	45,67	44,44	46,91					

Figure 2: Percentage of received CLIMAT-Reports at NCDC during 2009, 2010 and 2011

To better see the evolution, we can make the difference between the years: 2010-2009 and 2011-2010 (see Figure 3). The graph confirms the remark indicated previously. Thus, we find that 2010 recorded a positive evolution compared to 2009, for most months except for three (February, April and September). While 2011 saw a decline from 2010 on all available

months (January to July). The decrease in 2011 is true only in part. Indeed, consideration of total messages in the region (all countries) masks the positive evolution already seen in other years and is, in fact, preserved in 2011. The decrease in number of messages during this year is attributable to only two countries that have seen the number of messages dropped to 0 (or so), and this is for reasons of major strengths beyond the capabilities of the CBS Lead Centre and focal points. We will return to this point below with more details.



	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
2010-2009	2,469	-11,1	7,407	-2,46	8,642	3,703	12,34	4,938	-8,64	1,234	0,000	11,11
2011-2010	-9,87	-4,93	-24,6	-12,3	-18,5	-20,9	-22,2					

Figure 3: The annual evolution rate of the percentage of received CLIMAT-Reports at NCDC during 2010 and 2011

Now, let's see the evolution of CLIMAT-Report number (all months combined) for each station (see Figure 4). The most important remark is the fall, during the year 2011, of the percentage of messages from all stations in Sudan to the last class (0%) and all Libyan stations to the forward last class (1% - 25%). The northern countries of the continent (except Libya), continue to have good performance in general during 201. Moreover, we note a CLIMAT-Report availability of 100% for Senegal, Burkina Faso and Nigeria. In second place, countries like Niger and Benin have also a high rate of availability.

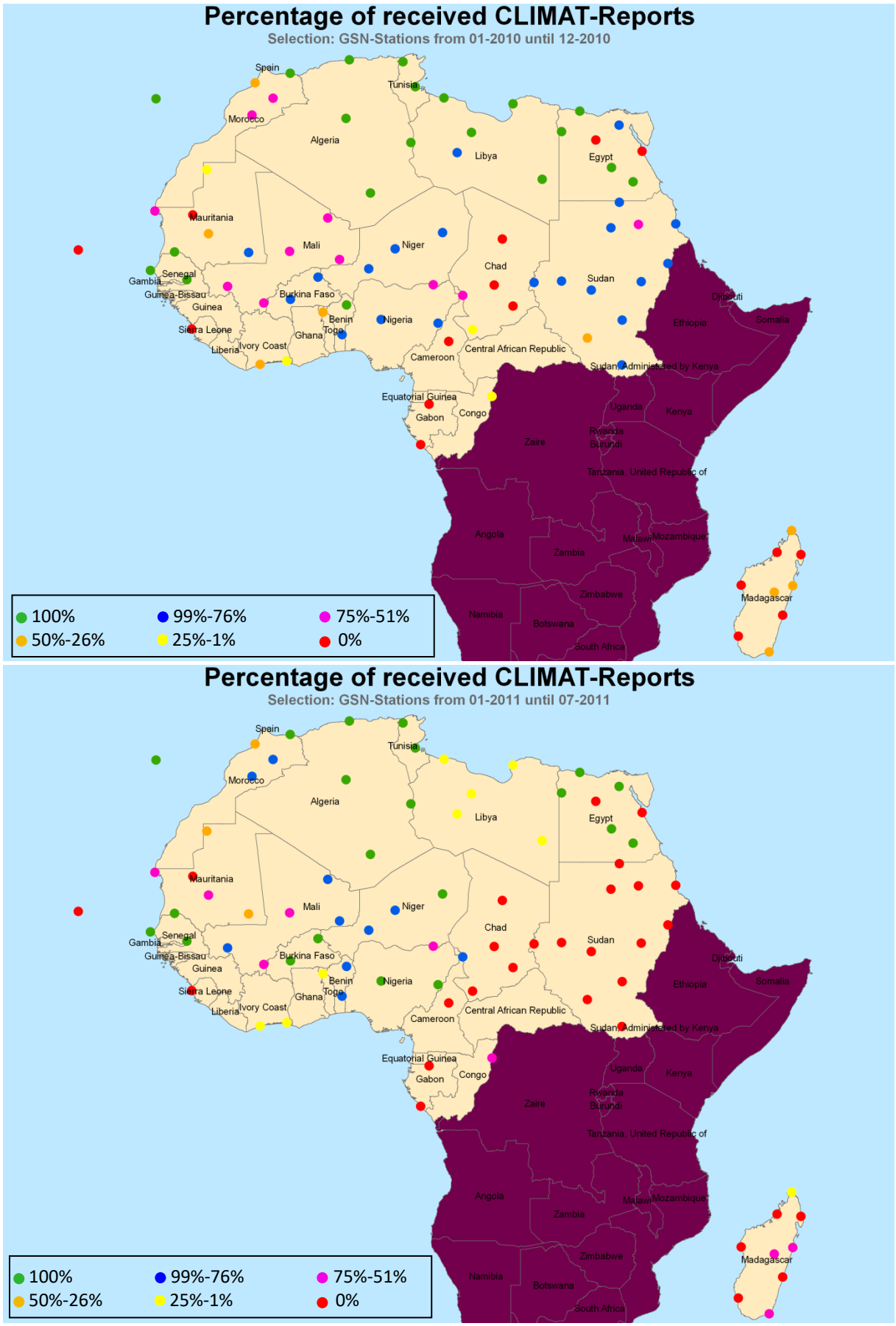


Figure 4: Percentage, by country, of received CLIMAT-Reports at NCDC during 2010 and 2011

If we look at the average percentage in each country, there is a positive evolution for both 2010-2009 and for 2011-2010 in many countries (see Figure 5 to be inserted). Thus, one can note the positive and significant evolution, between 2010 and 2011, for the following countries: Congo, Burkina Faso, Nigeria, Mali and Morocco. Unlike, other countries such as Togo, Ivory-Coast, Mauritania and Benin have a significant decrease between 2010 and 2011. But the greatest decrease in 2011 concerns two countries: Libya and Sudan.
Libya has sent all messages related to all its stations for the first month (January), but no message is sent after. The case of this country is explained very clearly by the revolution that began on 17/02/2011 and the war that then raged in that country. Sudan hasn't sent any messages during the year 2011. And, as the case of Libya, it is also due to wars and tensions experienced by this country and that manifested, among other things, by the separation of the south of the country. In addition, the country also suffers from lack of infrastructure. These two countries, by the number of stations (12 stations for Sudan and 5 for Libya) and by the degree of the problem severity (0% and 14% respectively of messages sent), led to a poor total result of CLIMAT-Report availability in 2011. When we excluded these two countries from the analysis, the total result of the difference 2011-2010 remains positive (31%: i.e. that the balance of 2011 is better than that of 2010).

5. Individuals cases discussion and solutions proposals

In Egypt, the two stations BAHARIA and HURGUADA never sent messages while the other five stations are sent 100% of their messages. The obvious solution in such case is to change by neighboring stations.
In Mauritania, the station ATAR never sent messages. It is proposed to change it by another station close to it.
In Madagascar five stations do not send CLIMAT-Report. This country has too many stations. Those that work cover well the country except the west. It is proposed to eliminate all those stations that do not work and look for a station in the west of the country that works well.
In Chad, four of five stations do not send messages. We will try to identify problems of this country through contacts with its focal point.
Gabon, Sierra Leone, Cameroon and Cape-Verde have never sent messages climate. The beginning of solutions passes through research of focal points for Gabon, Sierra Leone and Cameroon and the updating or confirming of the Cape-Verde focal point.

6. Taken actions:

To overcome the lack on our region of responsibility, contacts have been made. Some of these contacts led to the achievement of the following actions:

- Retrieval of all CLIMAT-Report messages of station of KENITRA (Morocco) for 2010 and 2011.
- Retrieval of all CLIMAT-Report messages of the two Nigerian stations for years…

All these data will be given to the representative of NCDC, during the meeting.

7. Conclusions:

In general, the overall balance remains positive and is in continuous improvement (if we exclude the events of major forces which consisted of wars in Libya and Sudan). However, some countries or stations have never sent CLIMAT-Report messages. The proposed solutions will vary as the case:

- ✓ Case of countries not sending messages: we will continue our efforts to contact the concerned country to identify the problem and seek solutions. The designation and updating of the focal points will be of great help.
- ✓ Case of station that does not send message: it may be judicious to change it especially if the other stations, in the country in question, work perfectly. In some particular situations, especially when you have a large number of stations in the country, we can envisage the elimination of stations that do not send messages (Madagascar and Sudan) or consider their exchange by stations belonging to countries neighbors if the problematic stations are close to borders (Sudan).