

**THIRD MEDARE WORKSHOP ON BUILDING
MEDITERRANEAN LONG-TERM AND HOMOGENIZED
CLIMATE DATASETS**

ISTAMBUL,TURKEY, 27-28 SEPTEMBER 2012

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Organization of National Meteorological Office 1

To ensure its missions, the Algerian met-office employs a manpower of 1198 agents among which, 64% represents the technical body.

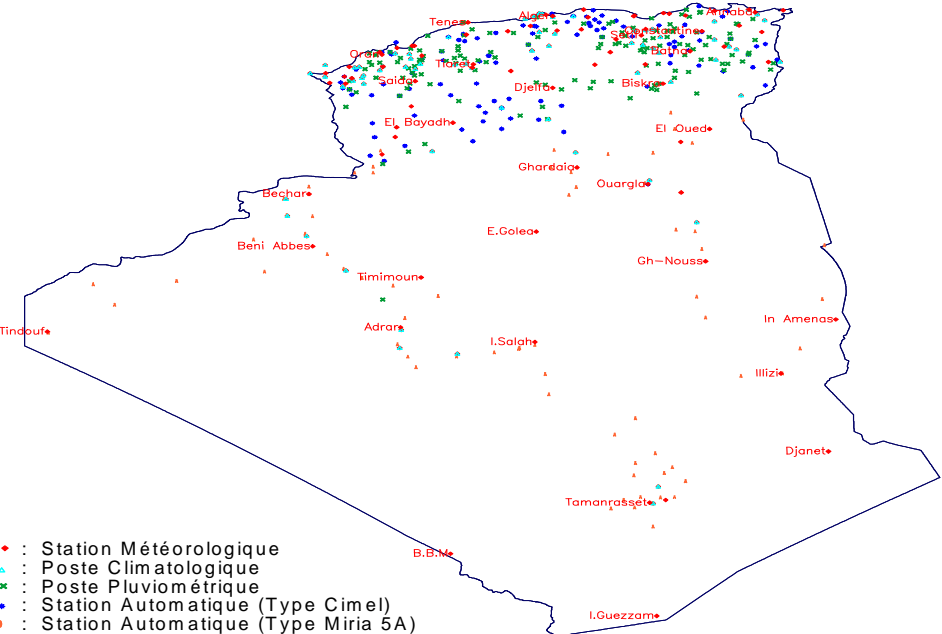
The Algerian territory is covered by a network of observational stations

- ❖ 81 observation stations for the surface and 05 for the altitude
- 296 climatological stations, 200 Automatically
- 40 Aws DCP (locust invasion), 10 Aws (Local area , Algiers)
- 3 radar centers (Setif, Seraidi, D.E.Beida)
- 2 special Research stations, dedicated to specific observation

Concerning the structures :

- ❖ 4 Functional directions and 4 Operational ones at the central level.
- ❖ 6 Directions at the regional level, in charge of the observational Network (Constantine, Algiers, Oran, Bechar, Ouargla and Tamanrasset).

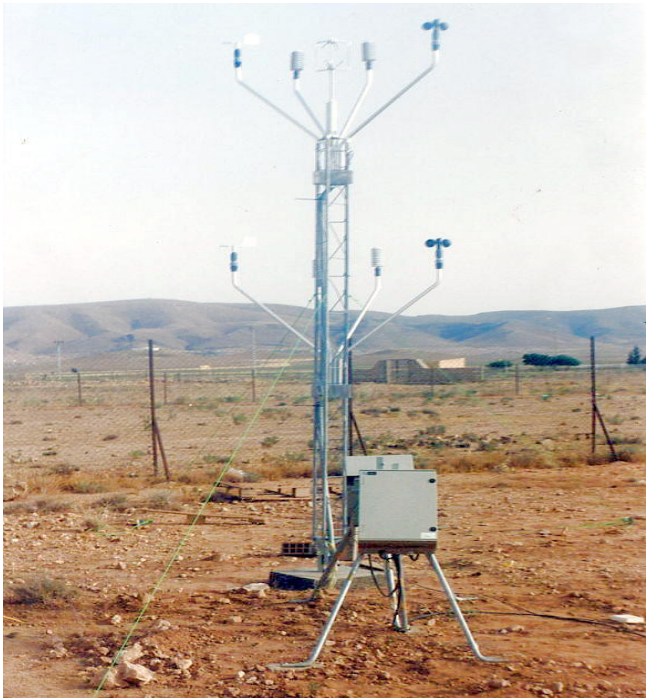
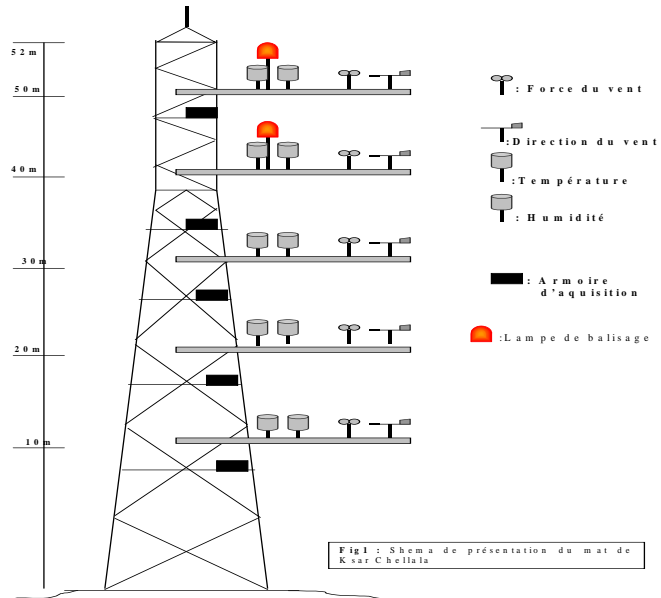
National Network



Stations dedicated to specific observations

Station of KSAR CHELLALA Arid and semi-arid Zones

Station of ASSEKREM (2710 m) Global atmosphere Watch





Direction du vent

Vitesse vent

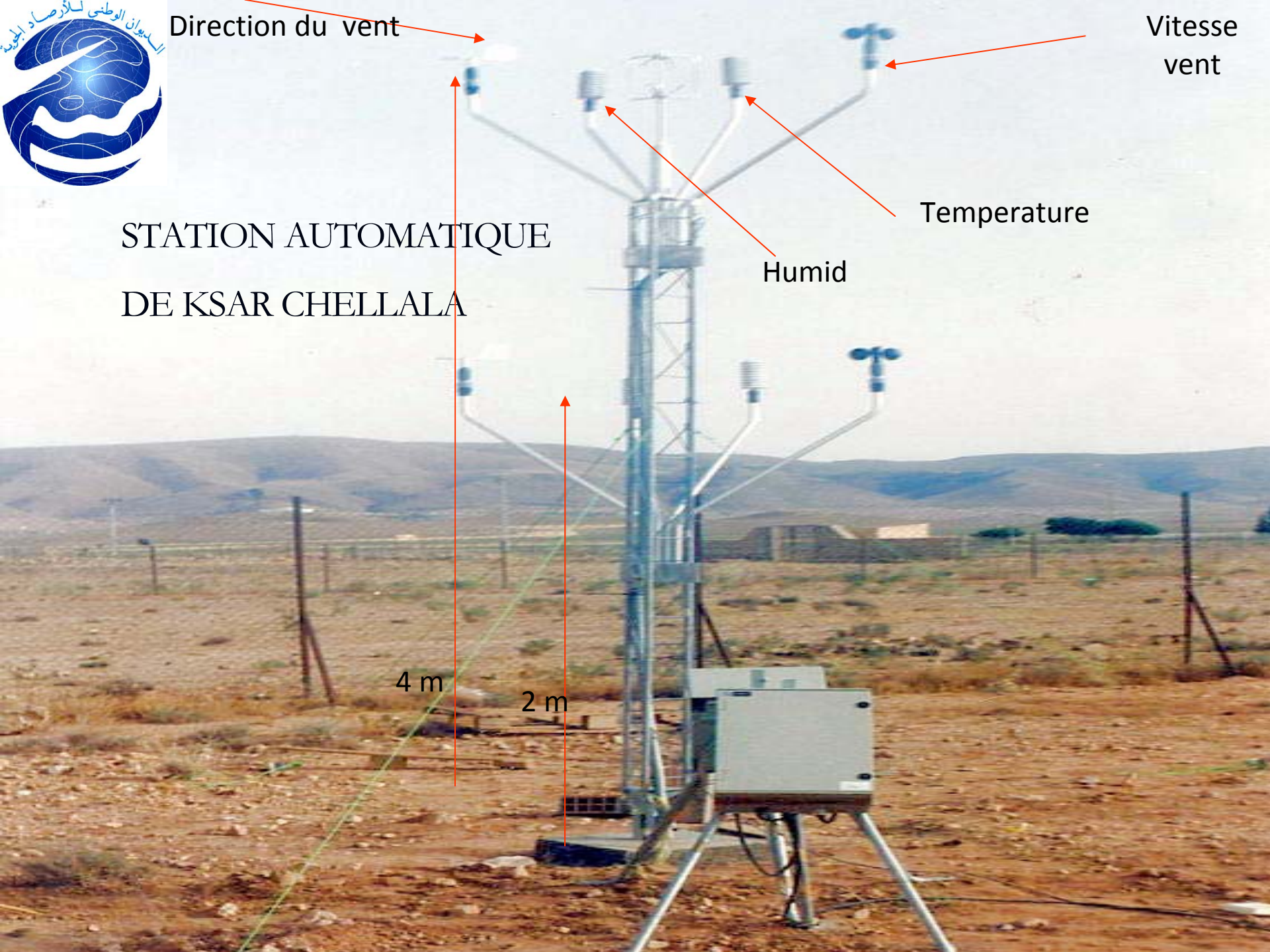
Temperature

Humid

STATION AUTOMATIQUE DE KSAR CHELLALA

4 m

2 m



Cliquez pour modifier les styles du texte du masque

Deuxième niveau

AWS at oued

- Troisième niveau

- Quatrième niveau

Korriche

- Cinquième niveau



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The main tasks of the National Climate Center :

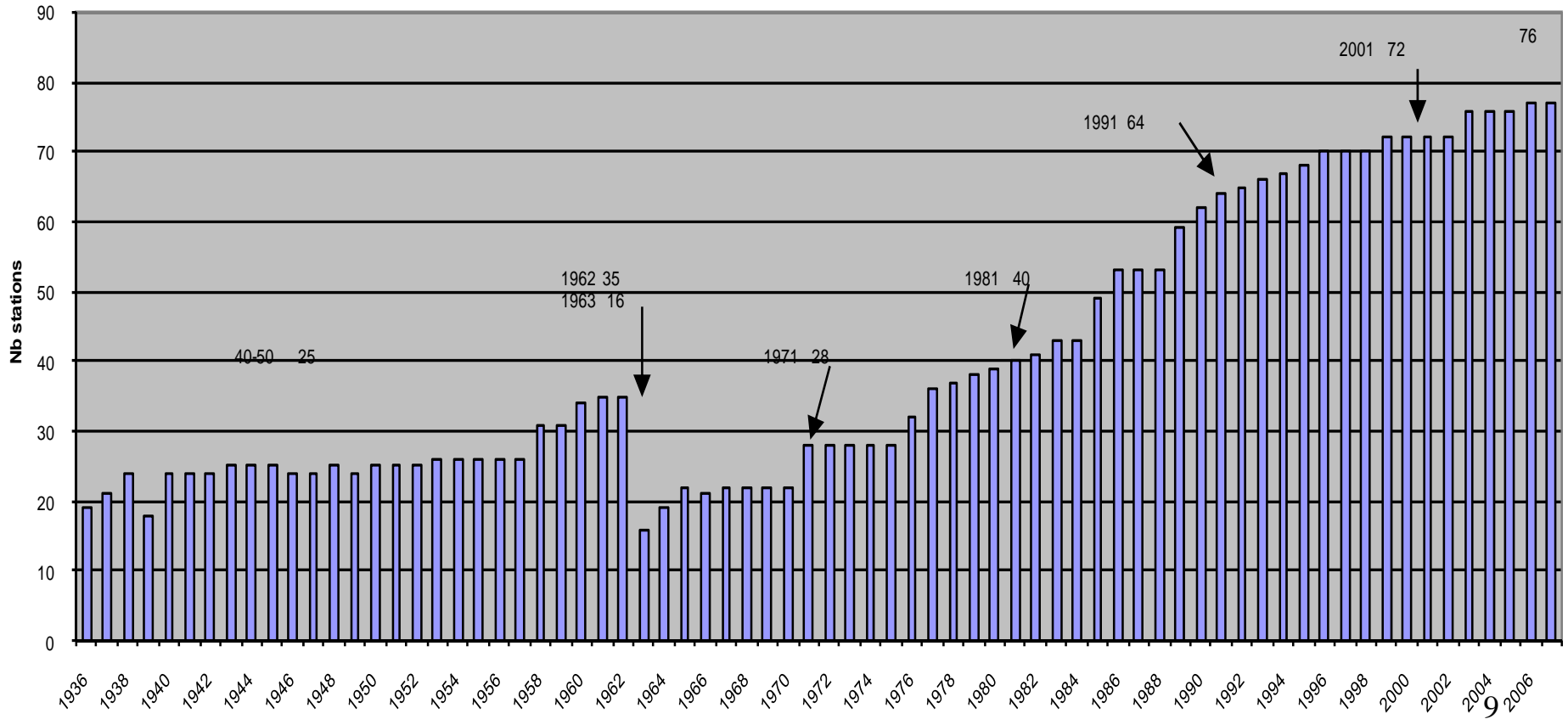
- **It is responsible for implementing, monitoring and operation of the climatologically database development and dissemination of periodic publications and climate assistance to users.**
- **Conducts studies to identify and quantify the weather impact on economic activity.**
- **Has the climate expertise to process and statistical analyze of data.**
- **Able to offer operational services to ensure the monitoring of weather derivatives.**

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National Network

EVOLUTION OF the SYNOPTIC NETWORK 1936-2011

6 stations with continuous observations from 1936 till 2011



Base of climatological data 1

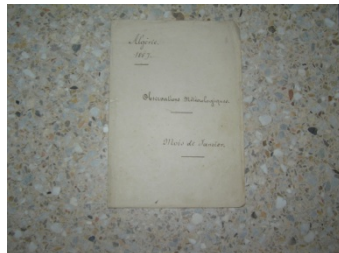
Handwritten archived on two sites **ORAN** before 2003,
ALGIERS since 2003



The oldest climatologically document Algiers city 1856



ORAN

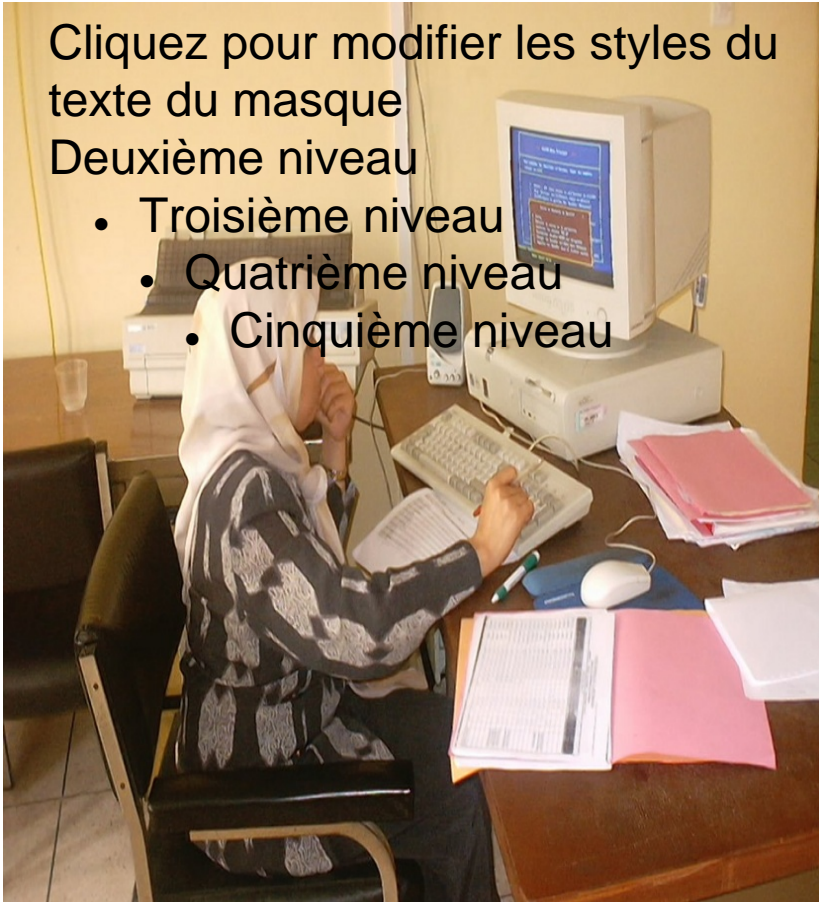


Base of climatological data 2

Cliquez pour modifier les styles du texte du masque

Deuxième niveau

- Troisième niveau
- Quatrième niveau
- Cinquième niveau



Seized - control data

- Volume of the bank data
- Cliquez pour éditer
- ❖ 2977 years of synoptic data (sorting-schedules)
 - Cliquez pour éditer
- ❖ 10 000 years of second daily data (precipitation, extreme temperatures)
 - Cliquez pour éditer
- ❖ 1000 years of first hourly data
 - Cliquez pour éditer
- ❖ 17 years of data
 - Cliquez pour éditer

Climate Products 1

Routinely collected meteorological data from meteorological stations has to:

Observations :

Medium,

Normal,

Return periods ...

From series homogenized

Generator series:

Probabilities,

Case studies.

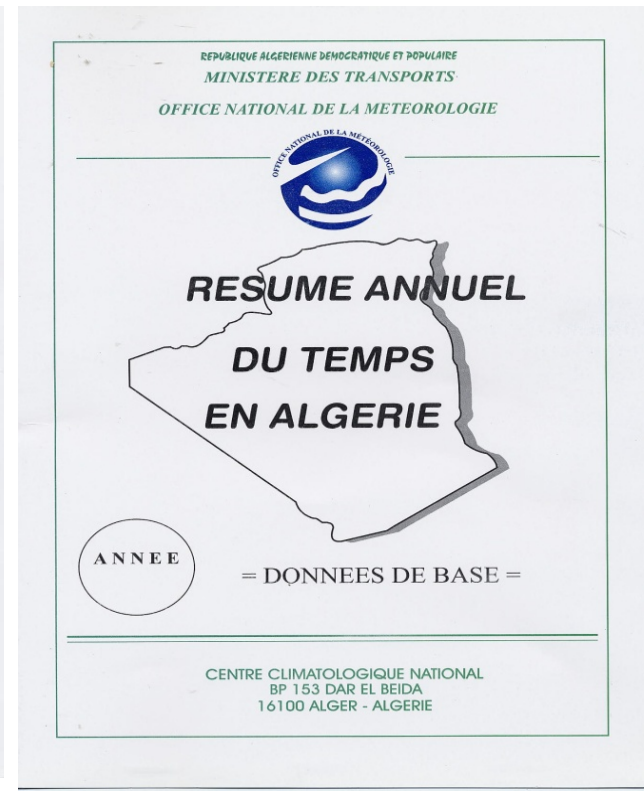
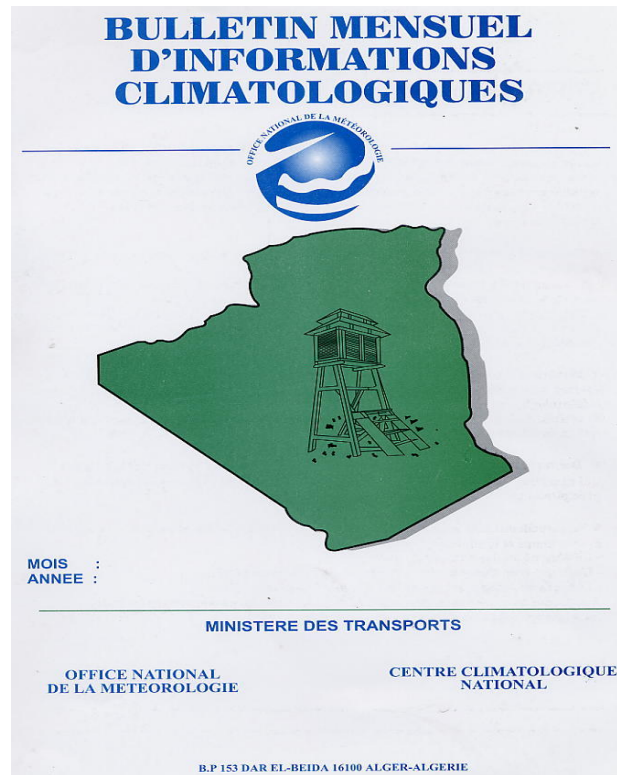
Seasonal forecast :

Anomalies of precipitation and temperatures of 1, 2 and 3 months

Statistical adjustments:

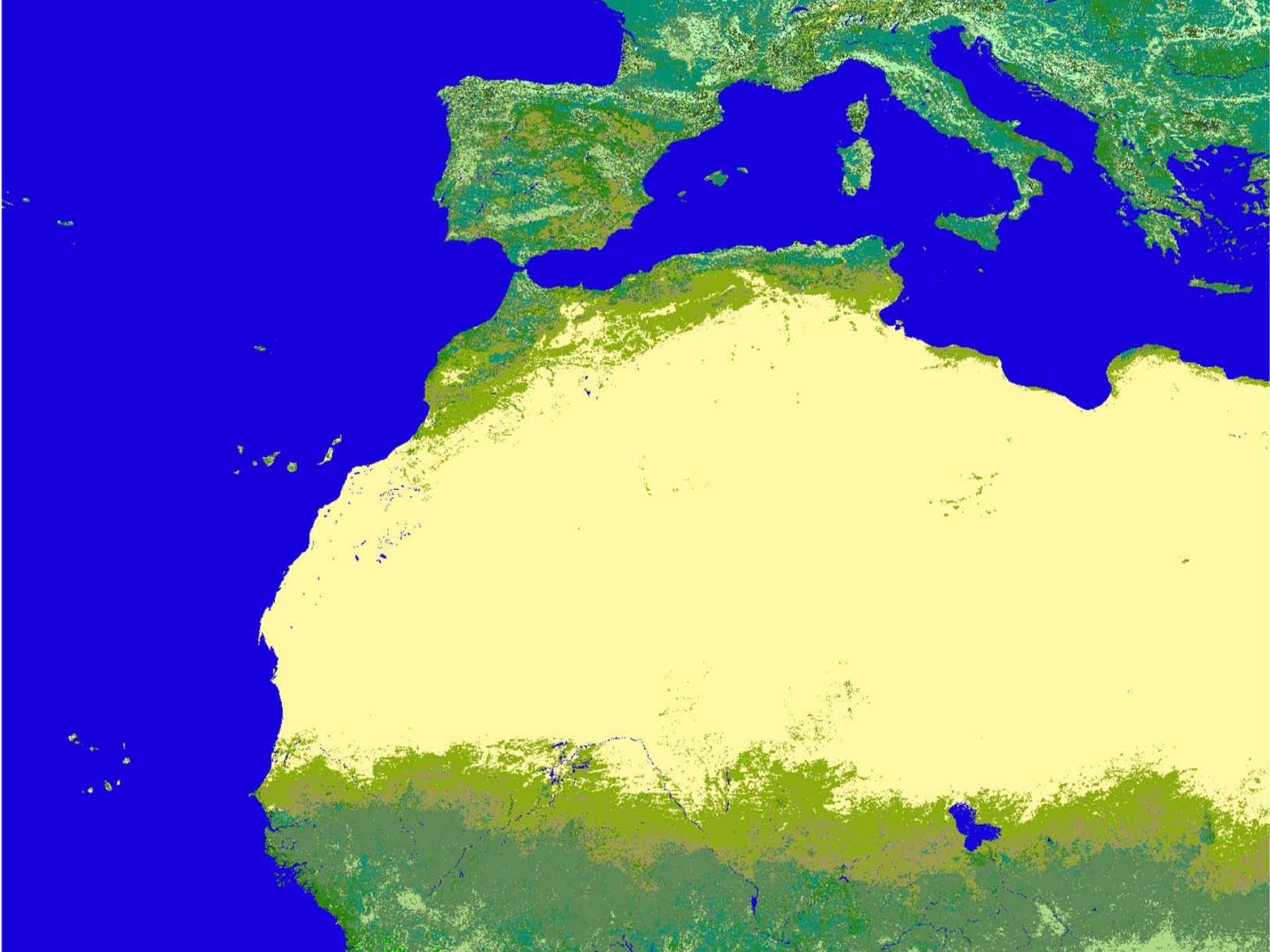
Correlation between observations and model outputs

PRODUCT PRODUCED 2:



Climate Publications

- Newsletter of decadal climate and agro meteorological information.
- Monthly newsletter of climate information.
- Annual Summary of weather in Algeria.
- Newsletter of the seasonal forecast



Careful post-Workshop Analysis Addressed Data Problems

- Many stations' digital record were too short to use in this analysis (at least 30 years daily data is needed for extreme analyses)
- QC: a wide variety of checks, including looking for:
 - Extreme values due to digitizing errors
 - Incorrect English/metric units
 - Runs of the same value
 - $T_{\max} < T_{\min}$
 - Missing precipitation set to 0
- Homogeneity
 - Evaluation of time series of the indices to weed out inhomogeneous data

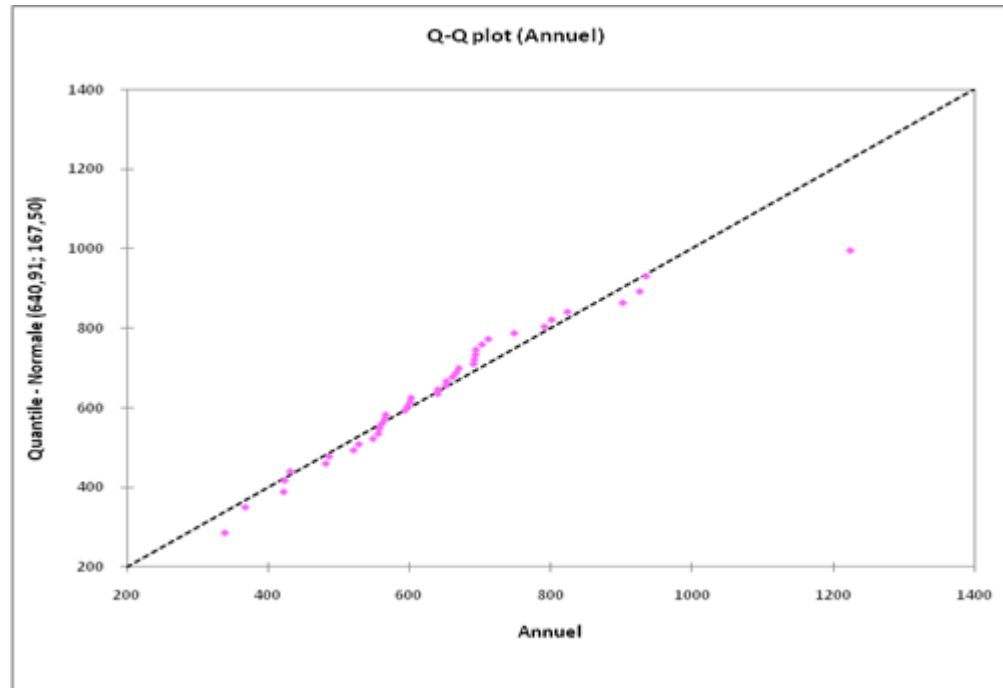


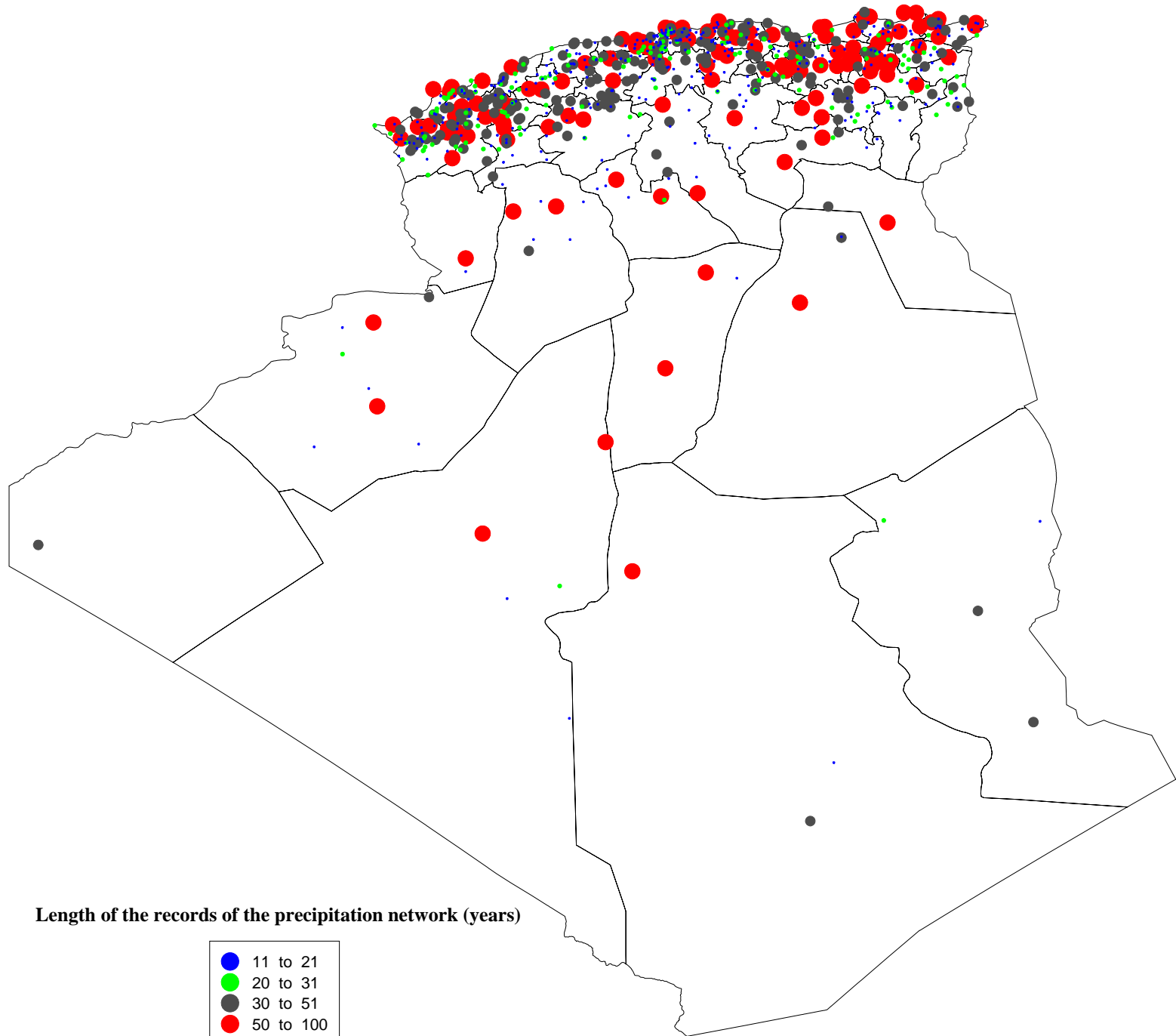
Figure shows homogeneity Q Q plot of annual precipitation sum for station Algiers(Dar ElBeida), ALGERIA. Shows an heterogeneity of the distribution due of exceptionnelle data 1223,80 mm in 1972

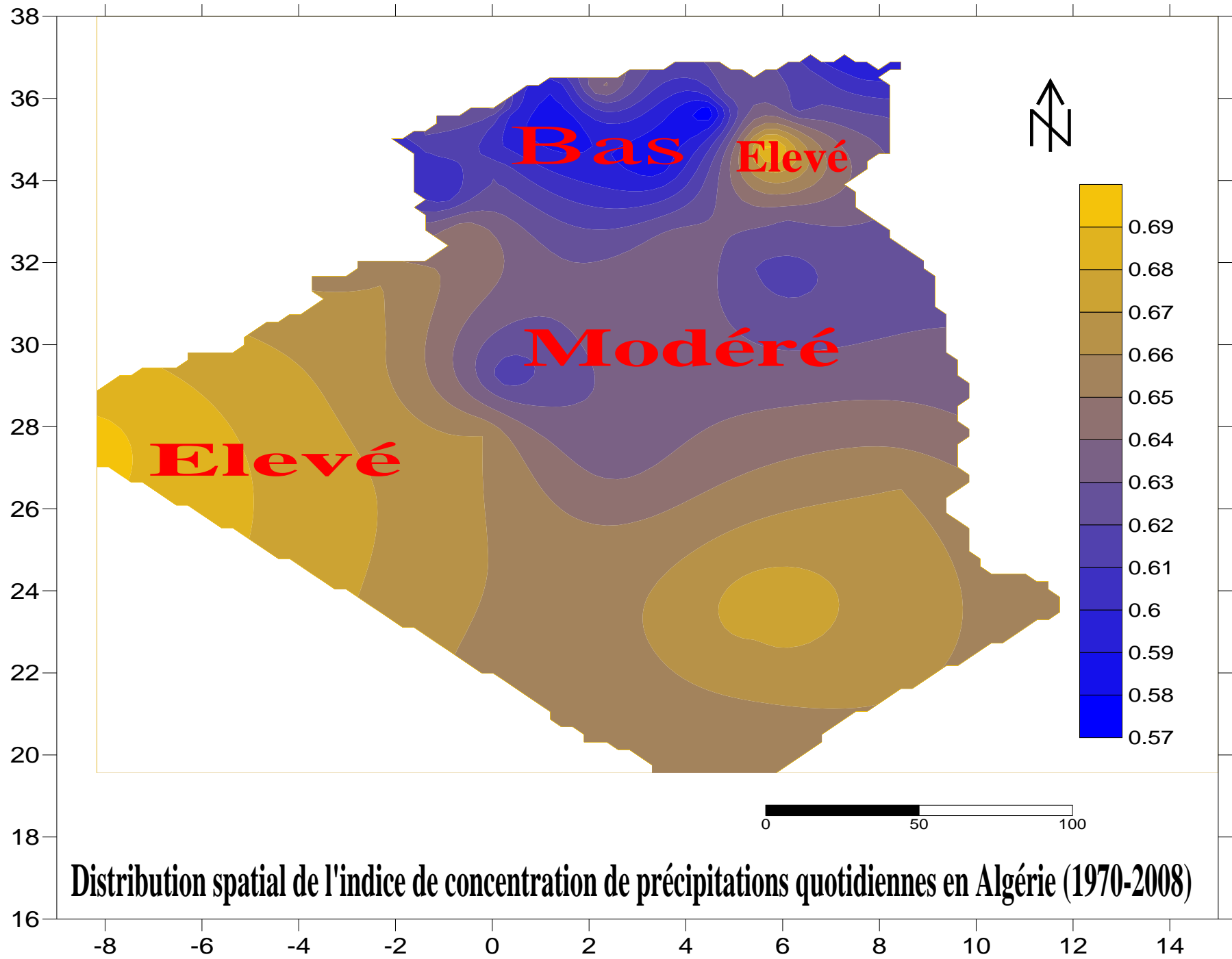
Data homogeneity is assessed using R-based program, RHtest, developed at the Meteorological Service of Canada. It is based on two-phase regression model with a linear trend for the entire base series (Wang, 2003)

MEDARE EFFORT

The effort was and is being paid on the digitization and quality controlling of a dense network of precipitation stations (about 790 rain gauge sites; ~25 of them started in middle of the 19th century, ~220 starting in the late 19th century, ~350 covering from the early 20th century and the remaining in around the 1960s and later). Figure 6 provides details (i.e. location and approximate length of the records) of the precipitation network that has been digitised and is being quality controlled by the Climatological Branch at the Algerian NMS.

At present, the DARE program has also scanned a large number of documents (272K) containing climate daily data for 17 stations for the period 1949-2002, although it is still pending the scanning of the TCM source and of the oldest data sources for Algiers station with records going back to 1856. Also, about 300 rain gauge stations have been digitised for different periods and these records are being quality controlled to identify non-systematic bias in the series.





Distribution spatiale de l'indice de concentration de précipitations quotidiennes en Algérie (1970-2008)

Most Vulnerable

Every region in Algeria is vulnerable

➤ **The Algerian territory is very vast with over 2,5 millions Km² and culminating at 3000 m and presents very different meteorological and geographical variations from a region**

to another

The coasts lies over than 1200 km, in the southern side of the Western Mediterranean area.

➤ **Algeria is affected by both the northern and the western disturbances, and also by the ones which are associated with the thermal cyclones when Saharian air is advected towards the coasts. Sometimes, the cyclone at the surface is not well formed (A. Jansa, 1990; B. Hamadache, 1992).**

➤ **The Mediterranean in general and the Western basin in particular are identified as being the most cyclogenetic area in the world (Reither, 1975).**

The cyclogenesis in the Mediterranean, has a great impact on the severe weather which, sometimes affects the surrounding countries.

The station of VAG of Tamanrasset

Tamanrasset and Assekrem was selected for the reasons:

- High altitude : 1377 m and 2710 m;
- Absence of anthropic activities;
- Assekrem is located in the free troposphere

program of measures

Tamanrasset

turbidity , total ozone,
Radiation.

Assekrem

surface ozone, aerosols
sampling gas (ghg),



***Doppler radar at
Algiers-airport***



Thank You!

