

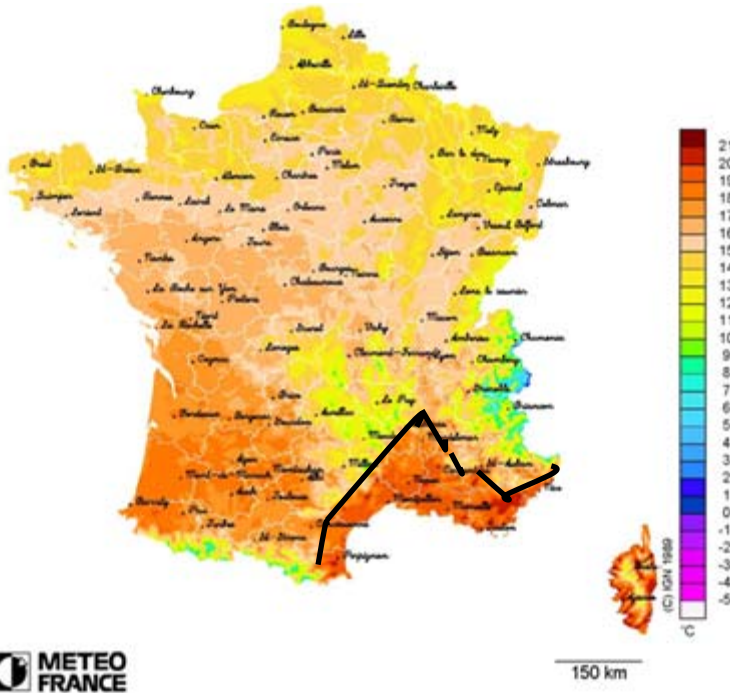
French Mediterranean long-term, high quality and homogenised climate datasets

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Météo-France

WMO/MEDARE meeting
27-28 September, Istanbul, Turkey

French Mediterranean Climate



Mediterranean climate region : South-East of France, 8 departments concerned

Targets for Medare database ?

Purpose : long-term, high-quality, homogeneous and reliable climate datasets

Météo-France questions to contribute to the MEDARE Datasets:

Which Domain ?

Which Variables ?

Which period ?

Which spatial resolution?

**Météo-France has worked on
daily Precipitation, daily Temperature and sub-daily Pressure
long-term series situated in the Mediterranean- climate region**

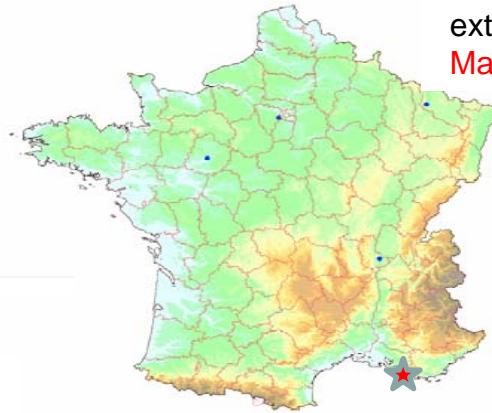


Long-term Daily Precipitation series in the French national database

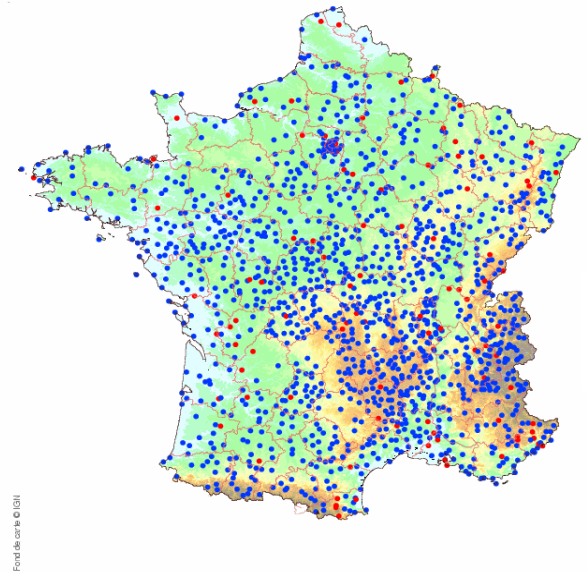


1861-2012

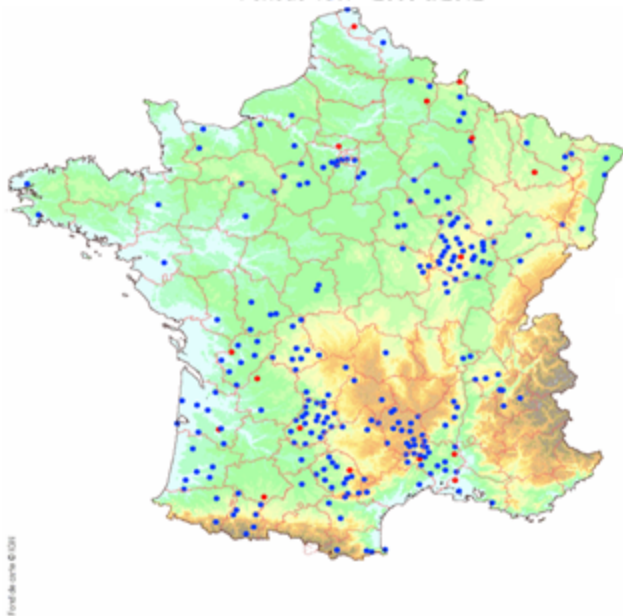
One daily RR series in Mediterranean area
extending back to 1861
Marseille observatory closed in May 2012 !



1950-2012



1911-2012



State in September 2012

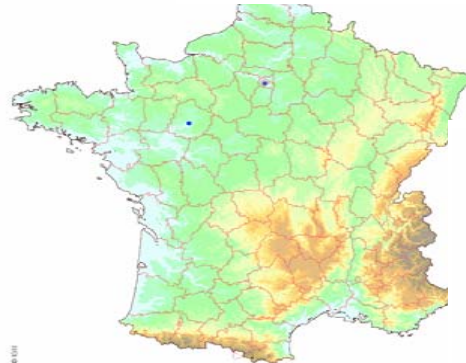


Daily temperature series in the French national database



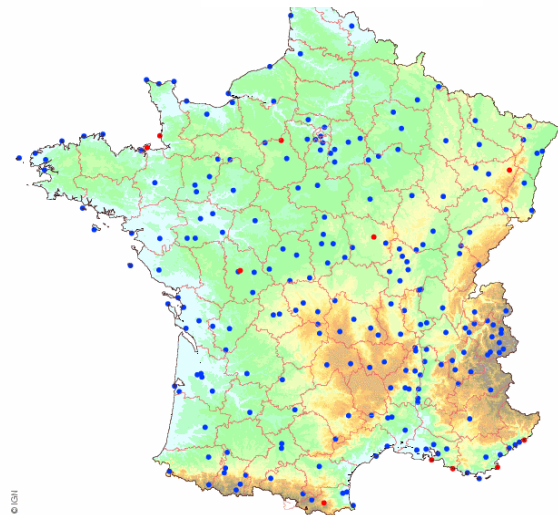
Longues Séries de Températures brutes Quotidiennes (TN,TX)

1861-2012



Longues Séries de Températures brutes Quotidiennes (TN,TX)

1950-2012



Légende

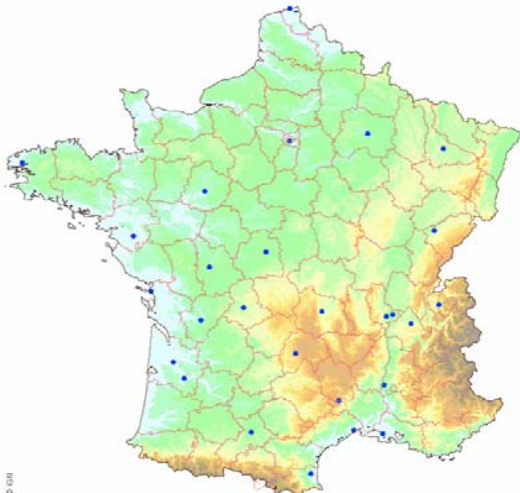
■ Ouverte
■ Fermée
après 2005

32 daily T series 1950-2012 in the Mediterranean area



1911-2012

Période 1911 - 2005 à 2012



Légende

■ Ouverte
■ Fermée
après 2005

3 daily T series 1911-1012 in the Mediterranean area



Inventory of the French daily long climate series (available in the BDCLIM)

- Most of French long climatological series longer than 50 years are built with relocations
- Density of Daily Precipitation long series >> Density of Daily Temperature long series in the national climate data base (BDCLIM)
 - **French Daily Long Series 1950-2012**
 - 1434 daily RR time series
 - 240 daily TN, TX time series
 - **French Daily climatological long series 1911-2012**
 - 263 daily RR time series and 28 daily TN, TX time series in France

**French Mediterranean Daily long series 1950-2012
available in the BDCLIM**

186 daily RR time series and 32 daily TN, TX time series

High-quality and adjusted data sets

Météo-France Temperature and Precipitation Homogenization on monthly basis Program : **Development of a new high-quality adjusted dataset for 200 French temperature series and 500 precipitation series.**

Already **120** Temperature series and **300** Precipitation series homogenized in France mainland available in the BDCLIM **High-quality Homogenization is a long process** :

- Data Rescue in order to lengthen series ;
- Data Quality Check before homogenization Inventory of Metadata ;
- Caussinus-Mestre (2004) statistical method technique ;
- Selection of reliable temperature series : some very bad quality series are rejected before homogenization and some series are rejected according some criteria like number of breaks, break amplitude, and the residual amplitude of breaks ;
- Evaluation of the quality of the series

Homogenization of the South-East of France is in process : quality of the series is known.

Strategies ?

Météo-France Data Sets selection procedure

Need for long-term, high-quality, homogeneous and reliable climate datasets

Météo-France selection based on various criteria : Mediterranean climate, temporal and spatial coverage, climatic representativeness, long-term continuity of data, data quality with the results of monthly time series homogenization.

Selection Principles

- Station has to be in use now and in the foreseeable future ,
- Stations have to be well-spaced in the Mediterranean climate region,
- Station has to have **Precipitation and Temperature** long series longer than 60 years without relocation,
- Semaphore stations are rejected due to bad representativeness of the location of these stations,
- Series rejected during the monthly series homogenization process are not selected.

According to these principles, 15 stations are selected.

**10 stations among these 15 stations are synoptic stations
with long subdaily Pressure series**

Météo-France contribution for MEDARE Data Sets

LIST OF THE CLIMATE RECORDS : Name and coordinates of the last station

CITY	CODE	LATITUDE	LONGITUDE	ALTITUDE	POTENTIAL LENGTH (RR,TN,TX)
AJACCIO	20004002	41°55,08'N	08°47,56'E	5	1872- today
BASTIA	20148001	42°32,44'N	09°29,11' E	10	1864- today
CARCASSONNE	11069001	43°12,92' N	2°17,73 'E	128	1865-1924, 1948- today
LE LUC	83031001	43°22,99' N	6°23,17' E	80	1946-today
MARIGNANE	13054001	43°26,26' N	5°12,96' E	9	1920-today
MONTELMAR	26198001	44°34,87'	4°43,98'	73	06/1920-today
MONTPELLIER	34154001	43°34,62 N	3°57,79' E	2	1872-today
NICE	06088001	43°38,93' N	7°12,54' E	2	1865-today
NIMES	30189001	43°51,41'	4°24,38'	59	1865--today
PERPIGNAN	66136001	42°44,23'N	2°52,37' E	42	1850-today

Degree of Recovery for Daily Temperature long series

CITY	Station	Period	% of Recovery	CITY	Station	Period	% of Recovery
AJACCIO Campo	Airport	10/1949-	100%	MONTPELLIER	School ENSAM	1921-2008	70 %
AJACCIO Aspretto	Airport	1921-1942 1945-1949	100%	MONTELMAR	Airport	06/1920	100%
AJACCIO	Primary school	1872-1928	50 %	NICE	Airport	07/1942-	100%
BASTIA	Airport	05/1944	95%	NICE	Masséna villa	1928-1935	0%
BASTIA	Harbour	1864-1922	75%	NICE	Primary school	1865-1924	0%
CARCASSONNE	Airport	1948-	100%	NIMES	Airport	1921- Gaps 40-45	95%
CARCASSONNE	School	1865-1924	0%	NIMES	Primary school	1865-1939	10%
LE LUC Canet	Airport	1946-	100%	PERPIGNAN	airport	11/1924	98%
MARIGNANE	Airport	1920-06/1943 09/1945-	100%	PERPIGNAN	Observ.	1882-1932	100%
MONTPELLIER	Airport	1939-	95%	PERPIGNAN	Primary school	1850-1924	0%
MONTPELLIER	Agriculture school	1872-1949	75%				

Degree of the Recovery for sub-daily sea level pressure series

CITY	Station	Period	% of Recovery	CITY	Station	Period	% of Recovery
AJACCIO Campo	airport	1949-	100%	MONTELMAR	Airport	06/1920	70%
AJACCIO Aspretto	Airport	1921-1949	0%				
AJACCIO	Primary school	1872-1928	0%	NICE	Airport	07/1942	100%
BASTIA	airport	05/1944	95%	NICE	Masséna villa	1928-1938	0%
BASTIA	harbour	1864-1920	0%	NICE	Primary school	1865-1924	0%
CARCASSONNE	Airport	1948-	100%	NIMES	airport	1921-gaps 39-45	95%
CARCASSONNE	School	1865-1924	0%	NIMES	Primary school	1865-1939	10%
MARIGNANE	Airport	1920-today	95%	LE LUC	Airport	1946-	100%
MONTPELLIER	Airport	1939-	95%	PERPIGNAN	Airport	11/1924	70%
MONTPELLIER	Agriculture school	1872-1949	?	PERPIGNAN	Observatory	1882-1932	70%
MONTPELLIER	school	1921-2008	0%	PERPIGNAN	Primary school	1850-1924	0%

Data Rescue an ongoing process

Despite big efforts since 15 years, availability of long and high-quality instrumental climate records is still insufficient in the Mediterranean region.

Outlook

Extend daily and sub-daily data back to 1865-1875 for the stations

Ajaccio, Carcassonne, Montpellier, Nice, Nîmes, Perpignan

Sources are known :

- National archives in Fontainebleau (Access to Archives despite Asbestos project co-funded by fondation BNP Paribas)
- Météo-France local centers (Montpellier, Nice, Nîmes, Perpignan, Ajaccio) and Météo-France regional center in Aix-en Provence

Difficulties : lack of human resources and well-trained technicians in Data Rescue



MEDARE Questionnaire 1/3

Very interesting questions but difficult to answer !

Question 1 : Contribution and Percentage of data

If the criteria are the Mediterranean climate region and stations with precipitation and temperature series longer than 60 years, Météo-France contribution corresponds to **30%** of the Mediterranean daily series available in the Météo-France database today.

If we add the **criterion of quality**, Météo-France contribution corresponds to **70%** .

If we add **the criterion of pressure** data measurement at the station Météo-France contribution corresponds to **100%** .

MEDARE Questionnaire 2/3

Question 2 : Level of accessibility

Context in France : New law about the reuse of administrative public data

New Météo-France website for access to meteorological public data

<https://public.meteofrance.com>

Legal framework : The reuse of some French public data is free but the reuse of climate data is not free (licence needed)

Consequently, for Météo-France, it is not possible to have an open and unrestricted access to MEDARE data

Level of accessibility for Météo-France : Accessible to all research community and all MEDARE members or affiliated institutions

MEDARE Questionnaire 3/3

■ Question 3 : Degree of recovery

Full recovery for data since 1961

Initial recovery for all the French data before 1960 stored at National archives

Full recovery for the 10 MEDARE selected stations (professional stations)

Lack

Météo-France is involved in several Data Rescue projects (AAA, ERA-CLIM, ANR-Chedar) : At Météo-France it has been established that the lack of well-trained technicians on Data Rescue is more « disabling » than the lack of financial resources.

As a result : New trainings in Climatology are forecasted next year with 2 days on Data Rescue for 1 technician per meteorological center.

Question 4 : Needs to undertake DARE activities

Need for training in the whole array, inventory, climate time-series quality control, homogenisation, transfer in digital format.

Thank you for attention

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