

ADDRESSING CLIMATE DATA SOURCES AND KEY RECORDS FOR MOROCCO, MEDARE WORKSHOP 10-12 MAY 2010

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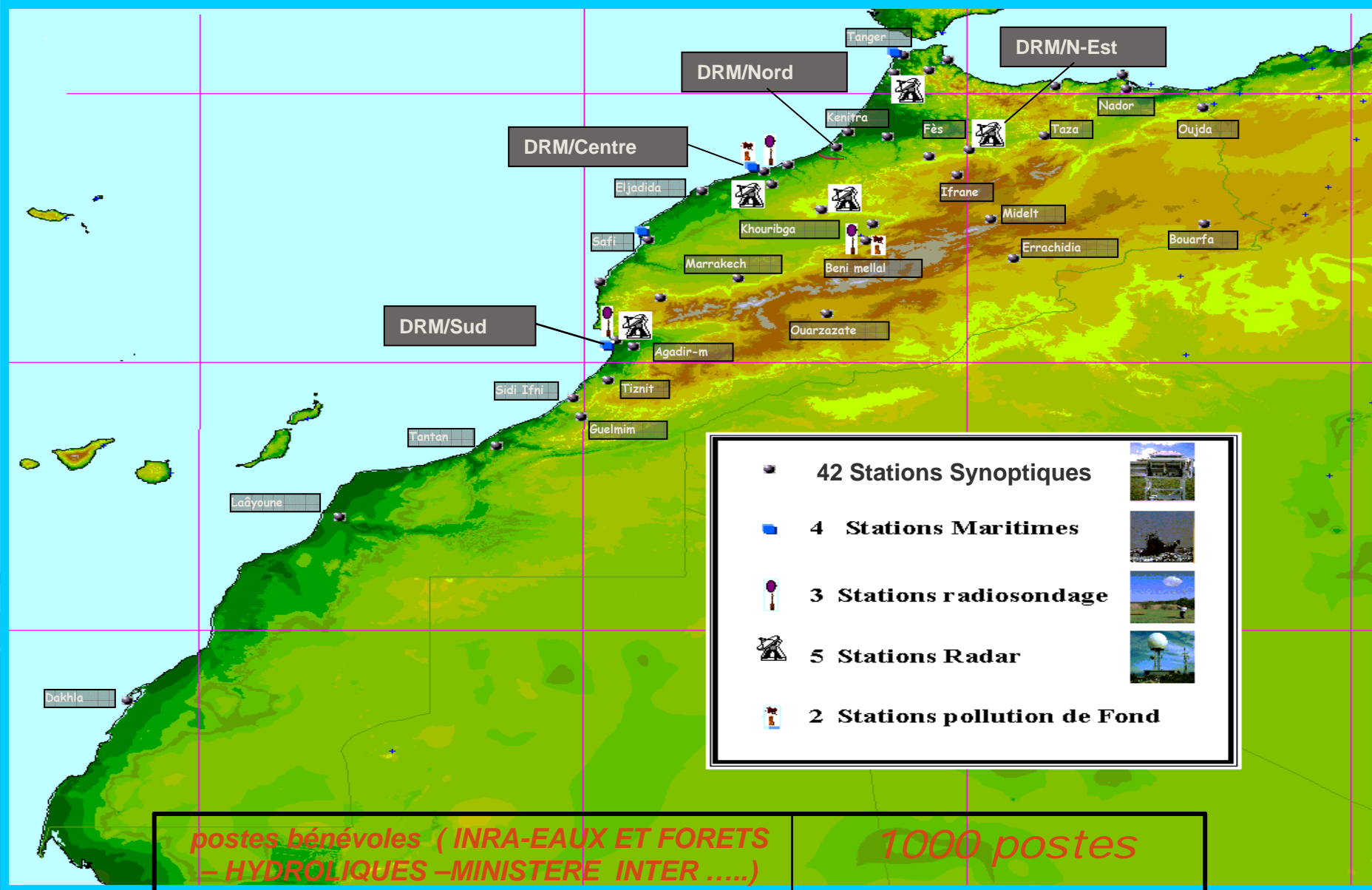
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OBSERVATION NETWORK

National Observation Network





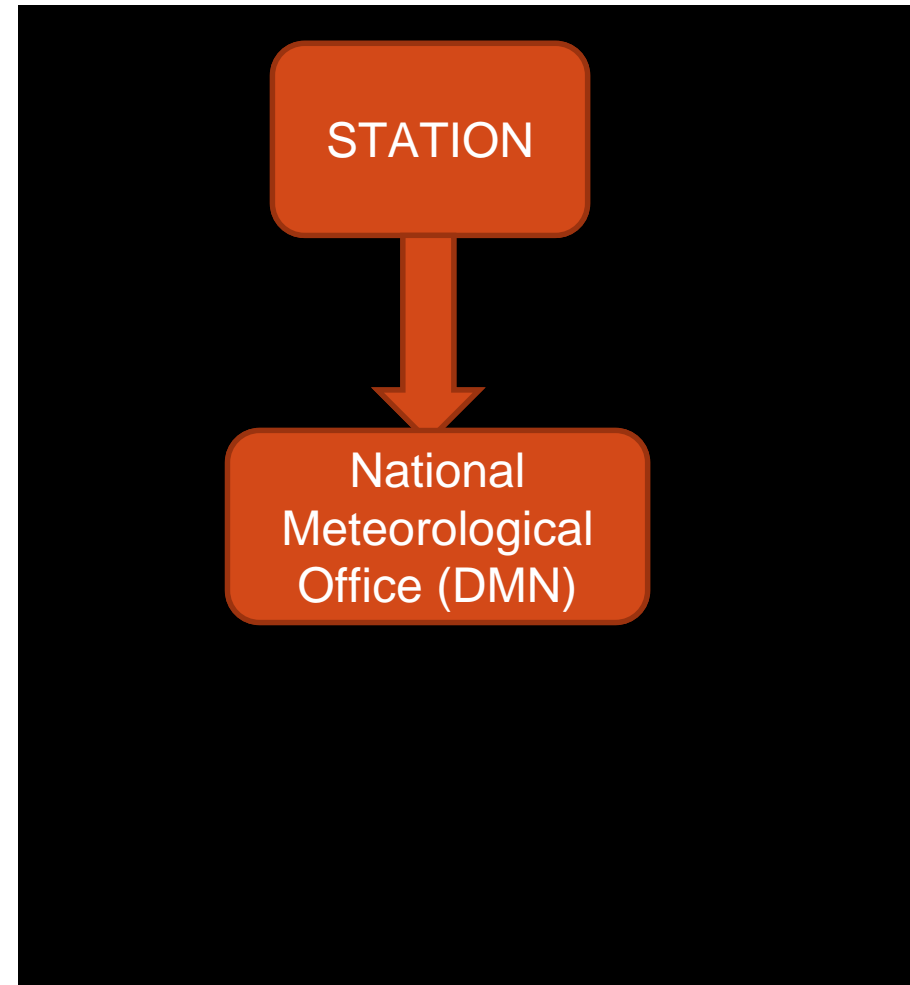
CLIMATOLOGICAL DATA FLOW

Climatological data flow

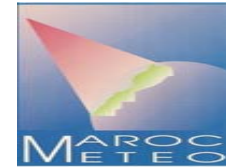


Before 2000

- Documents (CRQ, TCM ,...) are sent and archived at the DMN
- Data key entry is done at the DMN
- Data are stored in the CLICOM database

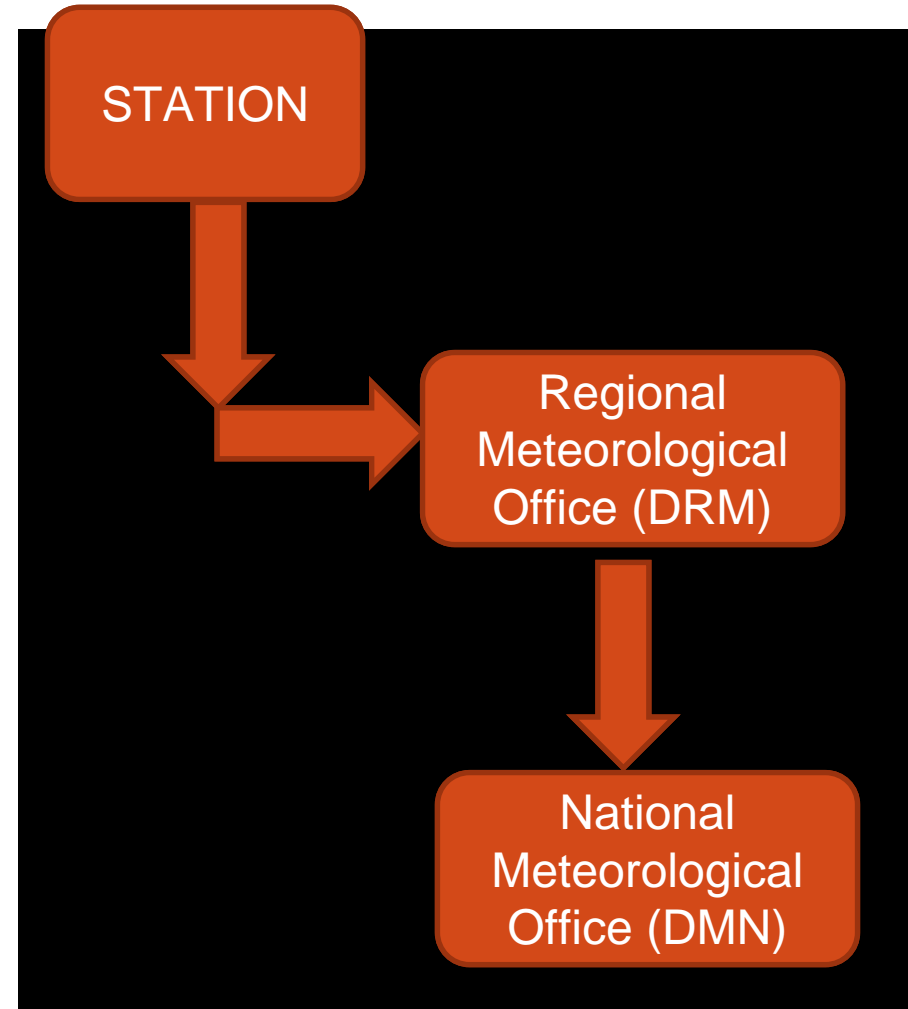


Climatological data flow

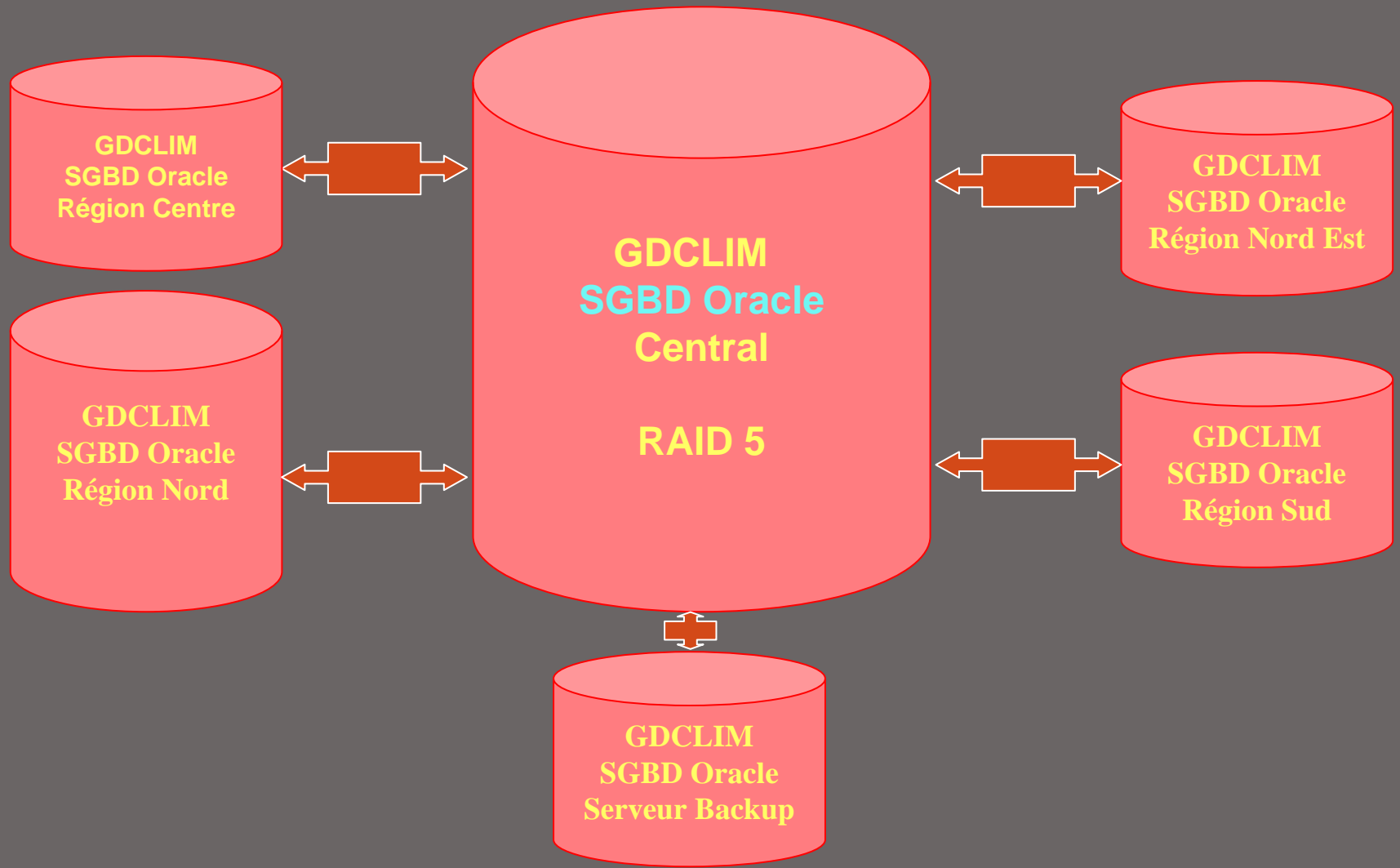


After 2000

- Documents (CRQ, TCM ,....) are sent from stations to DRMs and archived there
- Data key entry is done at DRMs
- Data are stored in ORACLE database (GDCLIM) at DRMs
- The data entered in the 4 DRMs are integrated into the central base at the DMN



Climatological data circulation schema





STATIONS INVENTORY REVIEW

Stations inventory review



STATION	ID STATION	Opening date
RABAT-SALE	60 135 001	1/5/1900
CASABLANCA-ANFA	60 155 001	1/1/1911
TETOUAN	60 318 001	1/1/1914
MARRAKECH	60 230 001	1/1/1918
TANGER-AERO	60 101 001	1/1/1921
FES-SAIS	60 141 001	1/1/1921
MIDELT	60 195 001	1/1/1921
AGADIR INEZGANNE	60 250 001	1/1/1921
MEKNES	60 150 001	1/1/1922
OUJDA	60 115 001	7/1/1924
KASBA-TADLA	60 190 001	1/1/1925
OUARZAZATE	60 265 001	1/1/1931
KENITRA	60 120 001	1/1/1940
ESSAOUIRA	60 220 001	1/1/1941
LARACHE	60 105 001	1/1/1942
COL DE TOUAHER	60 125 001	1/1/1942
SAFI	60 185 001	1/1/1954
IFRANE	60 160 001	12/1/1954

TAZA	60 127 001	10/17/1959
AL-HOUCEIMA	60 107 001	6/15/1963
NADOR	60 340 001	1/1/1967
BENI MELLAL	60 191 001	1/1/1969
GUELMIM	60 280 001	1/1/1969
NOUASSEUR	60 156 001	9/1/1969
SIDI IFNI	60 060 001	1/1/1971
ERRACHIDIA	60 210 001	1/1/1973
EL JADIDA	60 165 001	1/1/1975
TAN-TAN	60 285 001	1/1/1975
LAAYOUNE	60 033 001	1/1/1976
DAKHLA	60 096 001	1/1/1979
SIDI SLIMANE	60 136 001	1/1/1979
BOUARFA	60 200 001	3/3/1980
KHOURIBGA	60 178 001	1/1/1984
TIZNIT	60 270 001	1/1/1988
AGADIR AL MASSIRA	60 252 001	1/1/1990
MOHAMMEDIA	60 146 001	1/1/1992
TAROUDANT	60 253 001	1/1/1992
TANGER-PORT	60 100 001	1/1/1994
CHEFCHAOUEN	60 106 001	1/1/1994
SETTAT	60 177 001	
SMARA	60 335 001	

CODE OMM	STATION	OPENING DATA	DOCUMENT AVAILABLE SINCE METEO MOROCCO	OTHER DOCUMENTS AVAILABLE AT INTERNATIONAL COUNTRY
60101001	TANGER	1921	1941	TCM(1924-1936)
60115001	OUJDA	1919	1941	TCM(1924-1936)
60127001	TAZA	1918	1961	TCM(1924-1936)
60141001	FES	1921	1941	TCM(1924-1936)
60150001	MEKNES	1922	1952	TCM(1924-1936), TCM(1945-1947)
60155001	CASA-ANFA	1911	1911	TCM(1924-1936)
60178001	KHOURIBGA	1930	1950-1960, 1984	FP(1919-1963), CRQ (1951-1960)
60195001	MIDELT	1921	1951	TCM(1927-1936), CRQ (1930-1940)
60220001	ESSAOUIRA	1941	1941	Observations are available since 1886
60230001	MARRAKECH	1918	1931	TCM(1924-1936)
60250001	AGADIR INEZGANE	1921	1941	TCM(1924-1936)



BASIC METADATA INVENTORIES OF SELECTED STATIONS

Stations Metadata



STATION	WMO ID	LONGITUDE	LATITUDE	ALTITUDE (m)	PROVINCE	WATERSHED	Opening date
TANGER-AERO	60101001	5° 54' 20 W	35° 43' 35 N	14	TANGER	MEDITERRANEE	1930
CASABLANCA-ANFA	60155001	7° 40' W	33° 34' N	56	CASABLANCA	ATLANTIQUE	1 janvier 1911
MIDELT	60195001	4° 44' O	32° 41' N	1 508	MIDELT	MOULOUYA	1 janvier 1921
AGADIR INEZGANNE	60250001	9° 34' W	30° 23' N	18	AGADIR	SOUSS	1921

TEMPERATURE



▪ Daily minimum temperature

Station name	Station ID	Start date	End date	Number of records	% of missing data	Format of the data
TANGER-AERO	60101001	1953	2009	20445	0.05	Digital
CASABLANCA-ANFA	60155001	1911	2009	31406	3.35	Digital
MIDELT	60195001	1931	2009	27733	3.89	Digital
AGADIR INEZGANNE	60250001	1921	2009	29348	4.34	Digital

▪ Daily maximum temperature

Station name	Station ID	Start date	End date	Number of records	% of missing data	Format of the data
TANGER-AERO	60101001	1953	2009	20809	0.04	Digital
CASABLANCA-ANFA	60155001	1911	2009	31390	3.39	Digital
MIDELT	60195001	1931	2009	27638	4.22	Digital
AGADIR INEZGANNE	60250001	1921	2009	29874	3.77	Digital

TEMPERATURE



▪ Hourly temperature

Before 2000

Station name	Station ID	Start date	Number of records	Number of missing data	Format of the data
TANGER-AERO	60101001	1960	359160	306600	Paper
CASABLANCA-ANFA	60155001	1950	446760	678	Digital
MIDELT	60195001	1960	359160	359160	Paper
AGADIR INEZGANNE	60250001	1950	446760	28800	Digital

After 2000

Station name	Station ID	End date	Number of records	Number of missing data	% of missing data
TANGER-AERO	60101001	02/2010	61937	28055	31.2
CASABLANCA-ANFA	60155001	02/2010	36831	35161	59.1
MIDELT	60195001	02/2010	38636	51356	57.1
AGADIR INEZGANNE	60250001	02/2010	41706	48286	53.7

PRECIPITATION



▪ Daily Precipitation

Station name	Station ID	Start date	End date	Number of records	% of missing data	Format of the data
TANGER-AERO	60101001	1950	2009	151289	0.05	Digital
CASABLANCA-ANFA	60155001	1911	2009	193703	3.28	Digital
MIDELT	60195001	1931	2009	166754	4.78	Digital
AGADIR INEZGANNE	60250001	1921	2009	181138	1.29	Digital

▪ Daily minimum Humidity

Station name	Station ID	Start date	End date	Number of records	% of missing data	Format of the data
TANGER-AERO	60101001	1961	2009	17487	0.25	Digital
CASABLANCA-ANFA	60155001	1951	2009	19962	15.1	Digital
MIDELT	60195001	1960	2009	17737	18.83	Digital
AGADIR INEZGANNE	60250001	1959	2009	18485	16.26	Digital

▪ Daily maximum Humidity

Station name	Station ID	Start date	End date	Number of records	% of missing data	Format of the data
TANGER-AERO	60101001	1961	2009	17489	0.24	Digital
CASABLANCA-ANFA	60155001	1951	2009	19925	15.3	Digital
MIDELT	60195001	1960	2009	17725	18.9	Digital
AGADIR INEZGANNE	60250001	1959	2009	18487	16.27	Digital

SUNSHINE DURATION



▪ Daily Sunshine Duration

Station name	Station ID	Start date	End date	Number of records	% of missing data	Format of the data
TANGER-AERO	60101001	1955	2010	19984	0.52	Digital
CASABLANCA-ANFA	60155001	1954-06	2010	20023	0.32	Digital
MIDELT	60195001	1960	2010	17669	1.27	Digital
AGADIR INEZGANNE	60250001	1956	2010	19262	0.49	Digital

The longest periods of missing data

▪ CASA-ANFA:

- 01/09/1914 - 31/09/1920
- 01/01/1939 - 31/12/1940

▪ MIDELT:

- 01/03/1947 - 31/01/1948

▪ AGADIR INEZGANNE:

- 01/01/1926- 31/10/1928
- 01/01/1939- 31/12/1940

▪ The documents corresponding to those missing periods are found nowhere in Morocco

▪ (PERIOD OF THE WAR)



National Meteorological Office of Morocco Efforts

- Almost all daily Temperature and rainfall data is already digitized and is available in the DMN climatological database called GDCLIM.

- Through MEDARE many daily data from the TCM microfiche of METEO-FRANCE have been digitized and integration in GDCLIM

- The DMN has begun since last year 2009 a project of digitizing hourly data available in the CRQ documents for network stations.



The number of digitized CRQ:

- During 2009 : 65000 CRQ
- During 2010: 80000 CRQ.

3 Hourly parameters are digitized :

Station	Date	Heure HH	V	Vent		W	P	T	U	e	Ciel	ressio	Tw	Td		
	dd	mm	aaaa	visibilité	dd	ff	temps passé	temps présent	Pression mer	température	humidité	tension vapeur	Nebul. Totale	niveau HP	temp du thermomètre mouillé	temp de point de rosée
				9	12	13	14	15	16	17	18	19	23	37	38	39

***THANK YOU
FOR YOUR
ATTENTION***

