

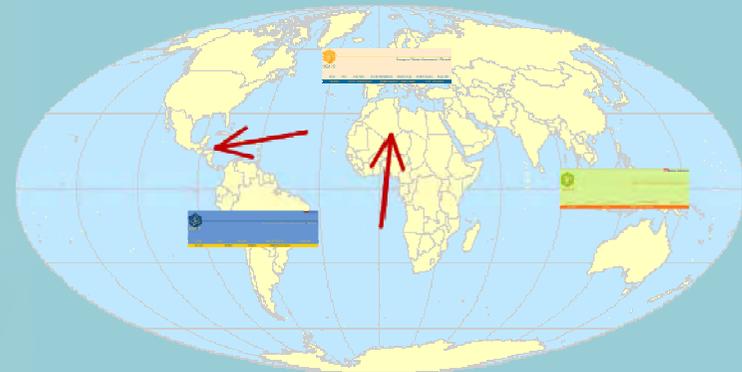


Royal Netherlands
Meteorological Institute
Ministry of Transport, Public Works
and Water Management



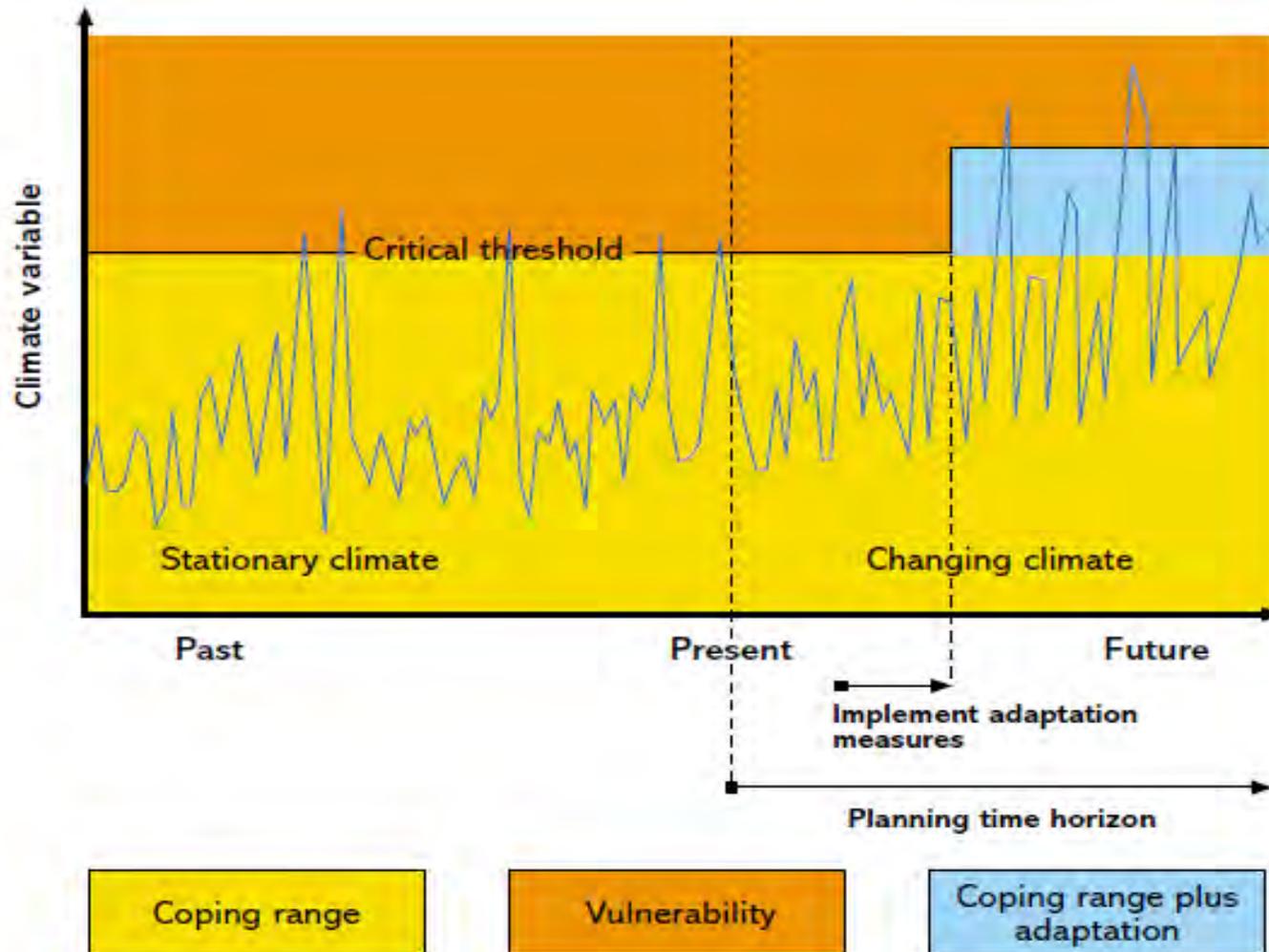
ICA&D: International Climate Assessment & Data Set and Data Rescue

Climate Services across borders



Aryan van Engelen - Netherlands

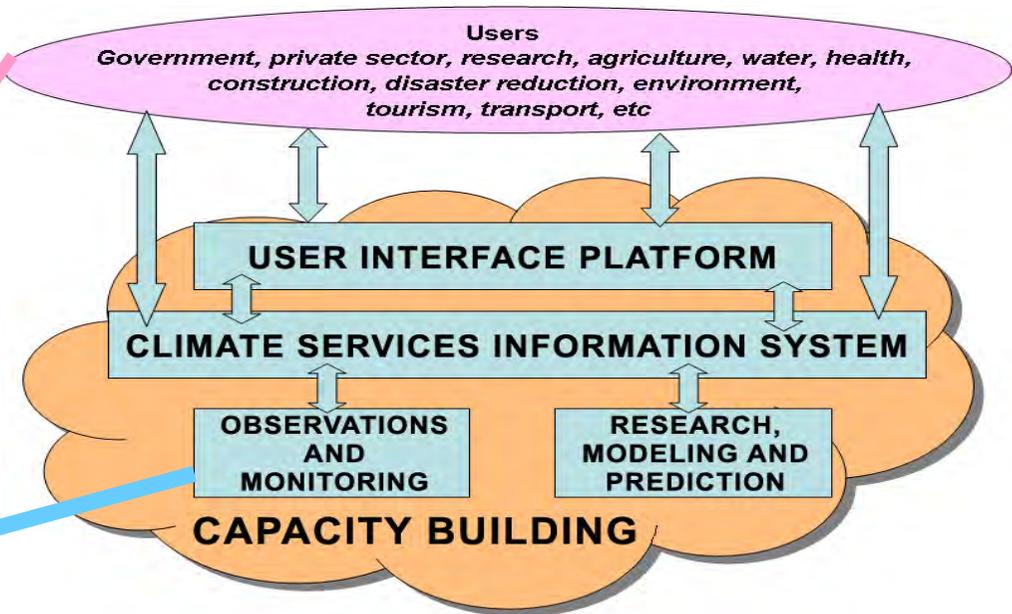
Adaptation



Willows and Connell, UKCIP, 2003



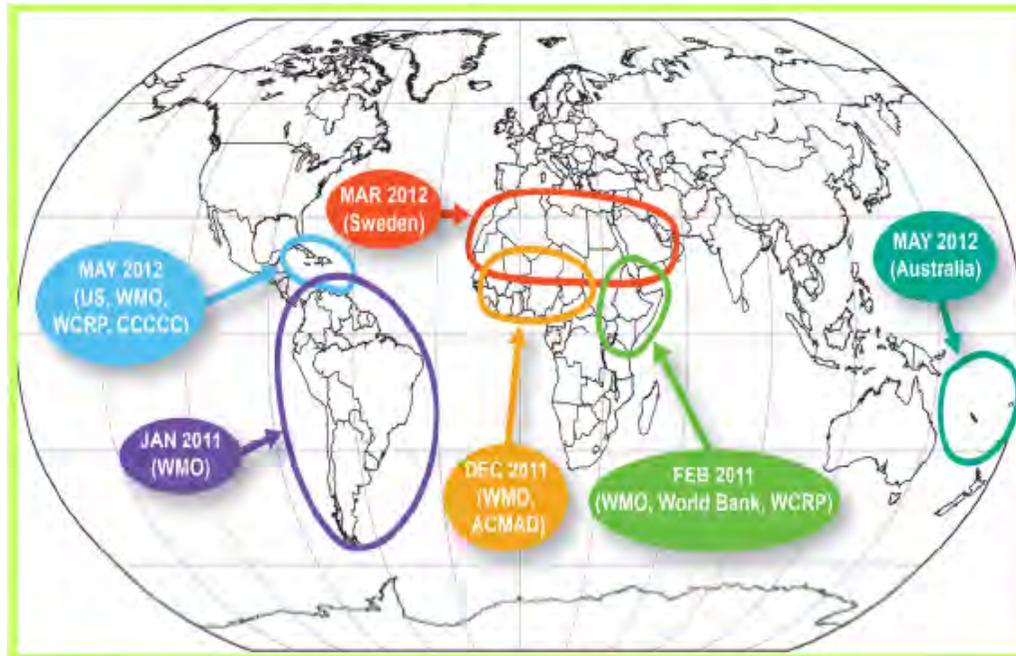
To enable better management of the risks of climate variability and change..incorporation of climate services into planning, policy and practice



These services are dependent on the availability of long term high quality observations, serving monitoring, assessing and projections



- Indices calculated from daily data to place extreme events in a historical context
- Indices work inter-nationally coordinated by the ETCCDI



**Expert Team on
Climate Change
Detection and Indices
(ETCCDI)**

Sponsors:
WMO Commission for Climatology (CCI)
WCRP Climate Variability and Predictability Project (CLIVAR)
WMO-IOC Joint Technical Commission for Oceanography and Marine Meteorology (JCOMM)

WMO
WCRP
CLIVAR
JCOMM



CENTRE AFRICAIN POUR LES APPLICATIONS
DE LA METEOROLOGIE AU DEVELOPPEMENT



AFRICAN CENTRE OF METEOROLOGICAL
APPLICATIONS FOR DEVELOPMENT

Institution Africaine parrainée par la CEA et l'OMM

African Institution under the aegis of UNECA and WMO

INSTITUTIONAL SUPPORT TO AFRICAN CLIMATE INSTITUTIONS PROJECT - ISACIP/AFRICLIMSERV
Don FAD n° 210015501686 Projet N° : P-Z1-CZ0-003

Training on climate change indices within the "Downscaling Global Climate Data & scenarios" under the Production of Climate related information Component



CHANGES IN TEMPERATURE AND PRECIPITATION EXTREME INDICES FOR WEST AFRICA

(RClimDex Workshop Outcomes - December 5-9, 2011, Banjul, Gambia)

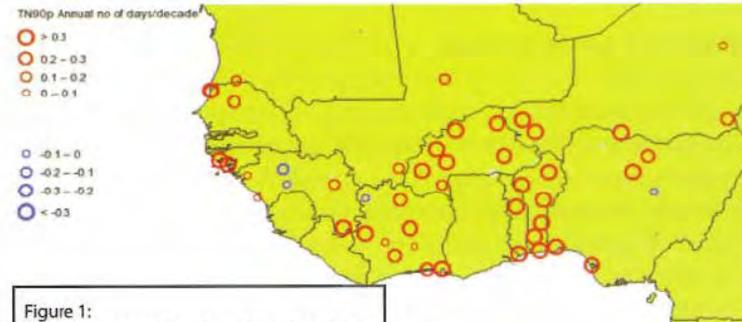


Figure 1:
Change in annual number of warm nights in
West Africa. Very strong signal of increasing
frequency of warm nights at most stations

ACMAD, BP 13184, 85 Avenue des Ministères, Niamey – Niger
Tél. (227) 20 73 49 92, Fax : (227) 20 72 36 27, E-mail : dgacmad@acmad.org, Web : http://www.acmad.org

Concept of ICA&D



ET-DARE



ETCCDI

The ICA&D (International Climate Assessment & Data Set / Data Rescue) climate services concept successfully **combines** the work of WMO's Expert Team on Climate Change Detection and Indices (**ETCCDI**) and WMO's Data Rescue (**DARE**) activities

 World Meteorological Organization
Weather • Climate • Water

Commission for Climatology 

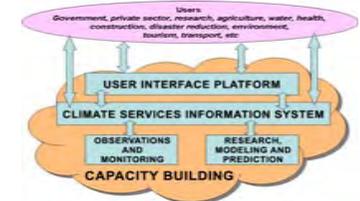
Programmes > WCP > CCI > OPACE I

Expert Team Data Rescue (ET-DARE)



CCI/CLIVAR/JCOMM Expert Team on Climate Change Detection and Indices





CSM Draft: Gaps and needs - Data Recovery

This will build on a number of showcases, *such as the initiative combining data rescue and assessment of climate extremes* at global and regional levels

(reference made here to the *joint* work of the CCI Experts on *Data Rescue* and the Joint CCI/WCRP-Clivar/JCOMM work on *climate change detection and indices (ETCCDI)*) and Members collaborative initiatives in the regions such as **MEDARE** (Mediterranean), **ECA&D** (Europe), ACMAD (Africa), PIC (Pacific Islands) and others.



Data availability: Precipitation amount
Any period (non-blended)

ECA&D is part of the WMO-Regional Climate Centre (RCC) for Region VI (Europe and the Mediterranean)

- Source for daily data series (+metadata) of 7512 stations in 62 countries
- Source for derived information on climate extremes in support of adaptation measures
- GCOS-ECVs included are: TX, TN, TG, R, P, SS, SD, U, F and CC
- Daily gridded datasets produced for evaluation of climate models
- All information is updated every month!

Data availability maps
(public = downloadable)

● Public data

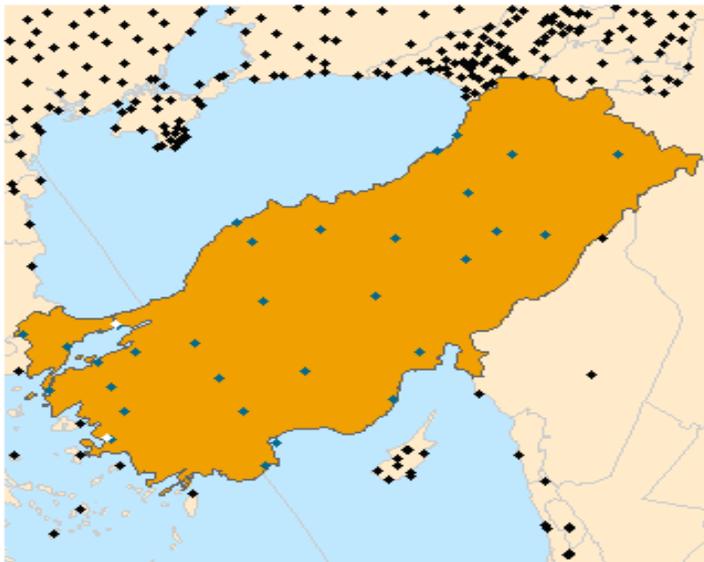
● Non-public data

ECA&D, 02-08-2012

0 400 800 1200 1600 2000 2400 2800 3200 3600 4000 km

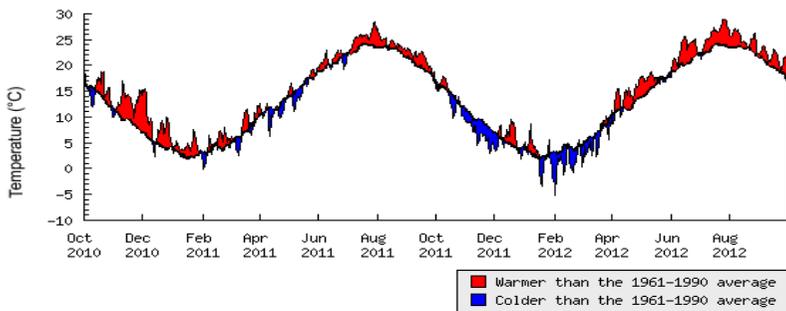






- 35 stations in ECA&D (white and blue)
- 32 stations with temperature series (blue)

Country-wide average of daily mean temperature
(w.r.t. the 1961-1990 seasonal cycle)

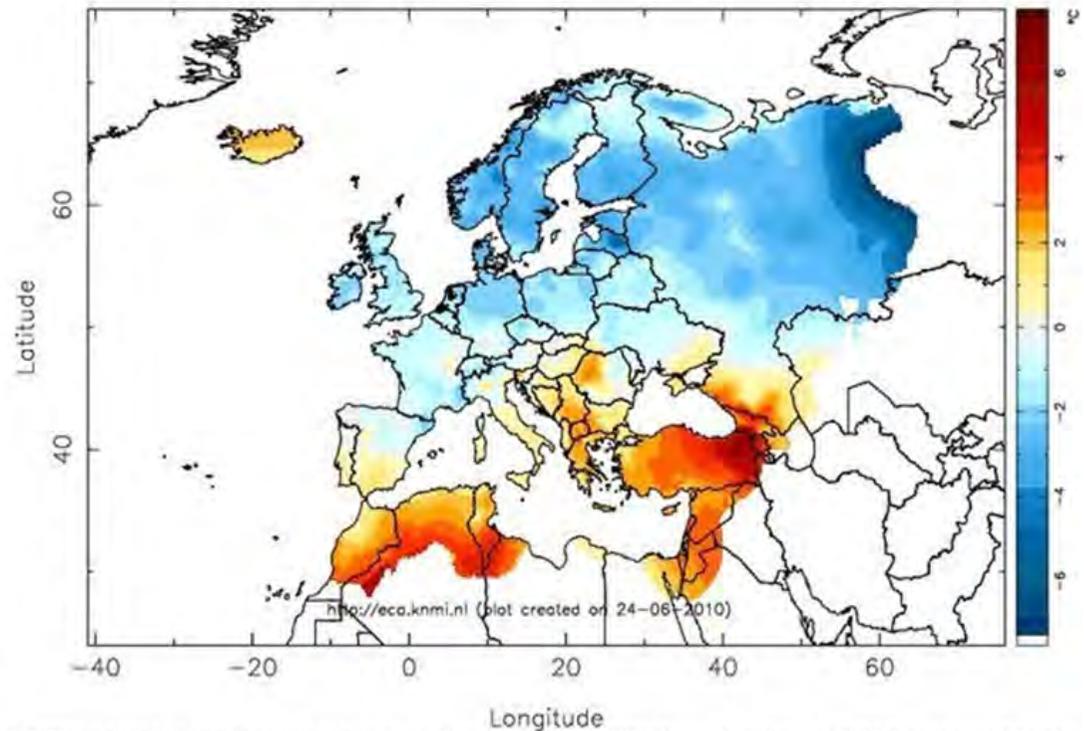


Cold in Europe, Winter 2010

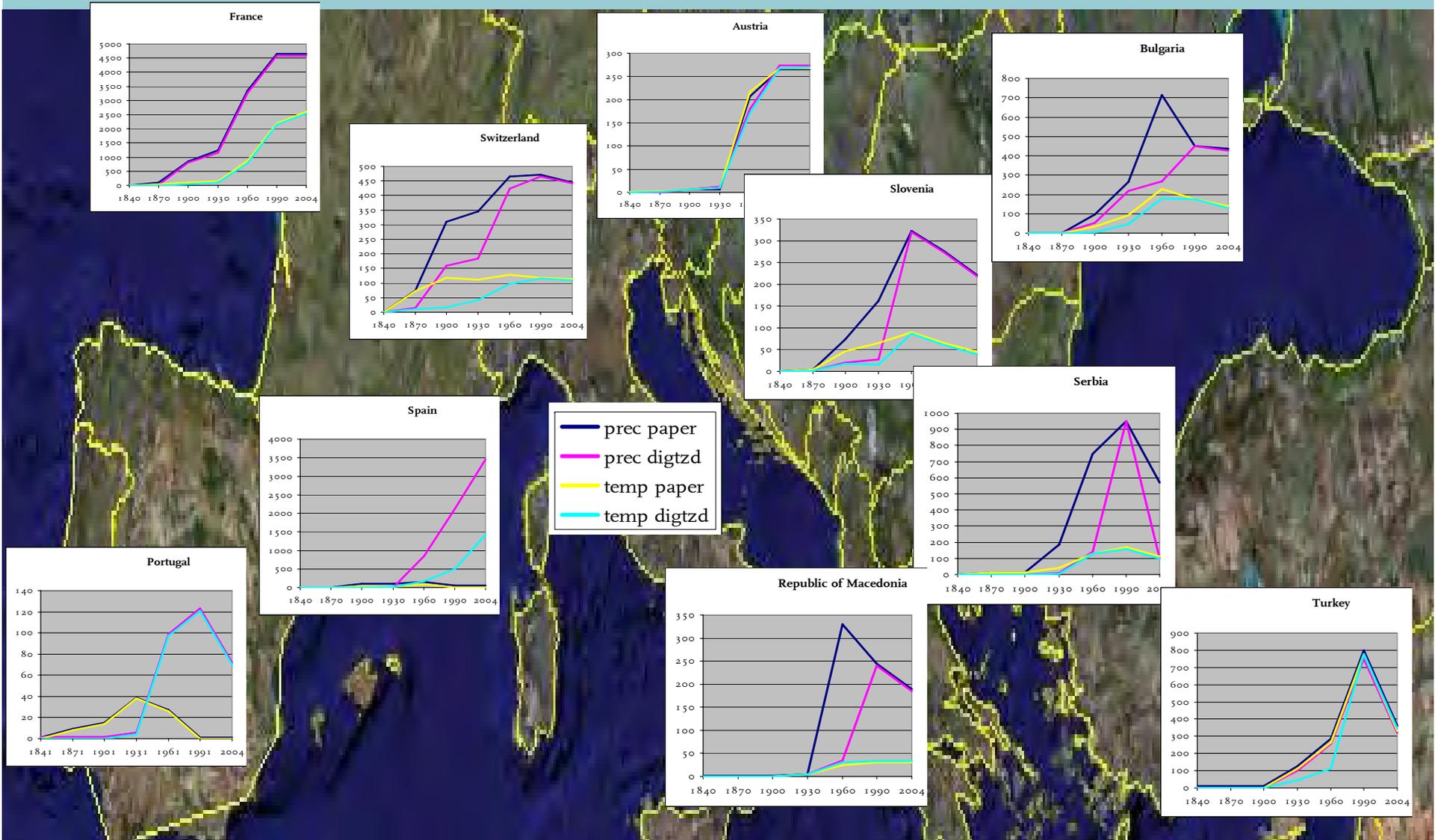
GEO theme: Health, Energy, Agriculture
Category: Cold, Snow

The winter of 2010 was unusually cold and snowy for most of Europe. On most days between mid-December and mid-March, the mean temperature was below normal across much of the continent. Below are E-OBS mean temperature anomalies for December through February.

E-OBS TG Anomaly DJF 2009-2010 w.r.t. 1961-1990



E-OBS anomalies for mean temperature for December 2009 through February 2010 compared to the normal period 1961-1990.

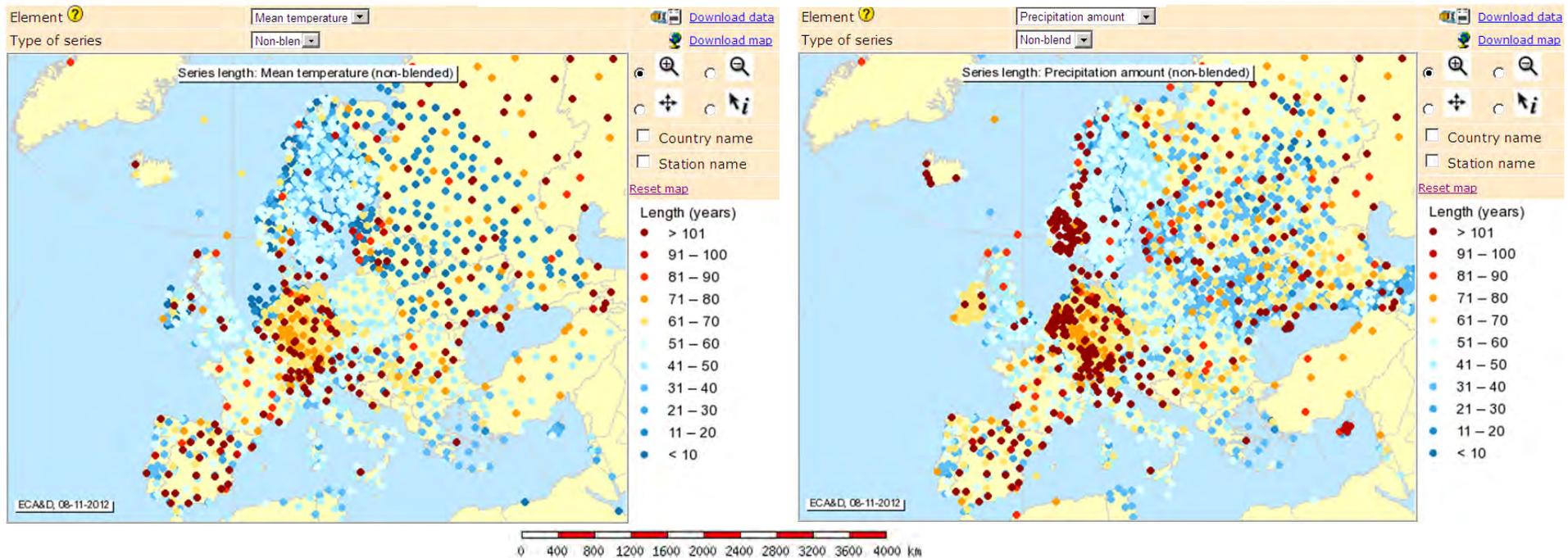




Series length maps

These maps show the length of the available station series for selected elements.

Important: not all series in the ECA dataset are available for public download!





European Climate Assessment & Dataset

[Home](#) [FAQ](#) [Daily data](#) [Indices of extremes](#) [Return values](#) [Extreme events](#) [Project info](#)

See also: [KNMI Climate Explorer](#) [SACA&D](#) [EURO4M project](#)

Involvement



ECA&D has close links with the projects and initiatives below.

[Meteoalarm](#) [MEDARE Initiative](#) [International Surface Temperature Initiative](#)
[EURO4M](#) [ENSEMBLES](#) [MILLENNIUM](#) [ACRE](#) [ETCCDI](#) [EEA](#)



ECA&D links to the MEditerranean climate DAta REscue ([MEDARE](#)) initiative, which aims at developing, consolidating and progressing climate data and metadata rescue activities across the Greater Mediterranean Region. The digitized instrumental records resulting from this collaborative effort are added to the ECA dataset.

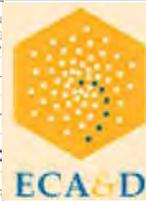
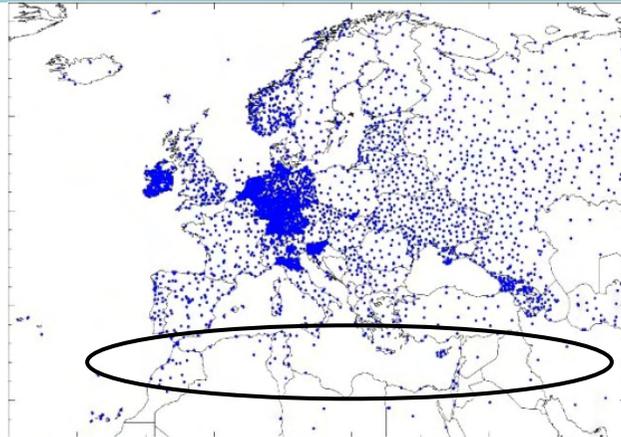


EURO4M is a European Union project (EU-FP7) which aims to develop multi-decadal sets of Essential Climate Variable products at high spatial and temporal resolution.

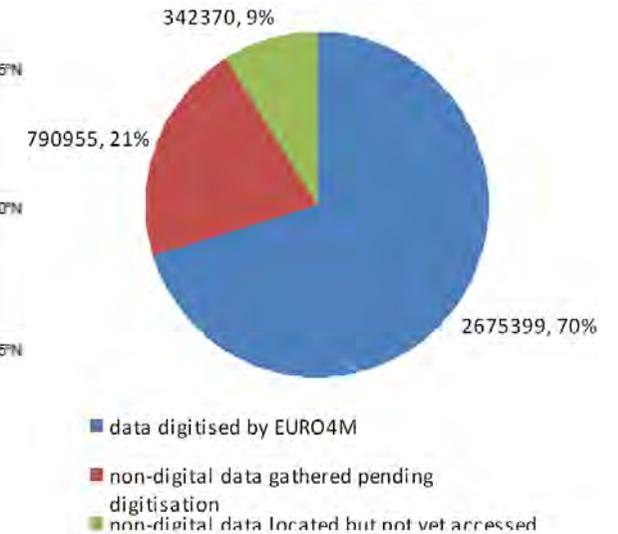
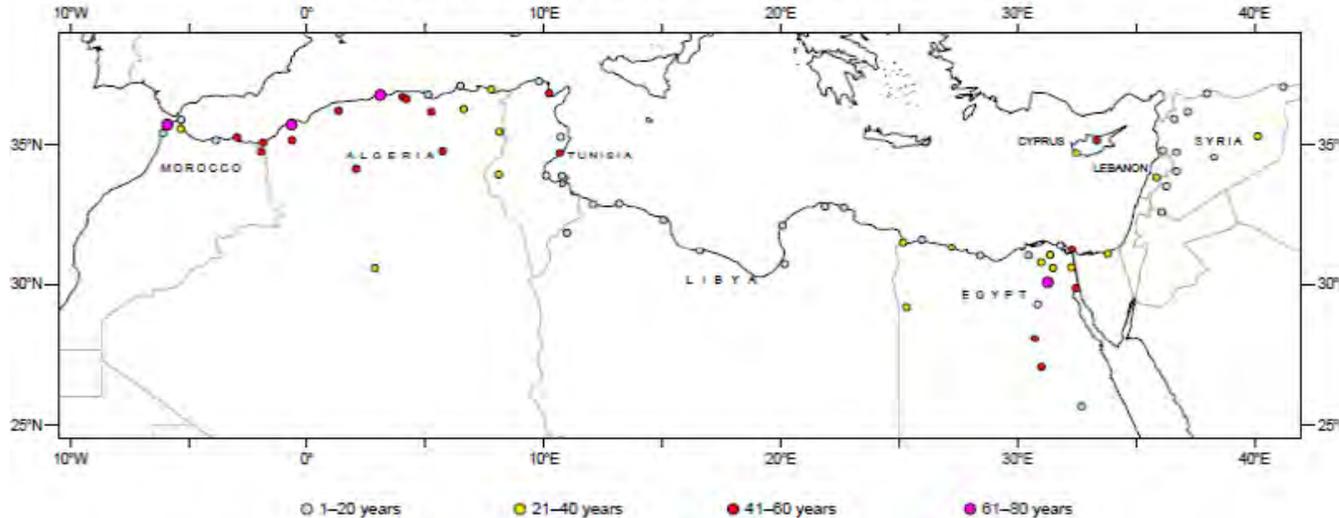


ECA&D-MEDARE

ICA&D in Europe



EURO4M selected sites: lengths of Tmin/Tmax time series (digitisation)



Courtesy Manola Brunet, Dimitrios Efthymiadis, Alba Gilabert, Centre for Climate Change, University Rovira i Virgili, Tortosa/Tarragona, Spain

Gaps in Observations



ICA&D: ECA&D-MEDARE

SYNOPI

ECA&D

European Climate Assessment & Dataset

Home FAQ Daily data Indices of extremes Return values Extreme events Project info

See also: KNMI Climate Explorer Other Regional Climate Centres EURO4M project

Home

ECA&D - WMO Pilot Regional Climate Centre

Welcome to the website of the European Climate Assessment & Dataset project. Presented is information on changes in weather and climate extremes, as well as the daily dataset needed to monitor and analyse these extremes. ECA&D was initiated by the [ECSN](#) in 1998 and has received financial support from the [EUMETNET](#) and the [European Commission](#). ECA&D has been designated as pilot [Regional Climate Centre](#) for WMO Region VI (Europe and the Middle East) in 2010.

Percentage of reports received:

- 90 to 100 per cent (2912 stations)
- 45 to 90 per cent (697 stations)
- Less than 45 per cent (325 stations)
- Silent stations (350 stations)

WMO MEDARE initiative

Works with IE 8 or Mozilla Firefox

Centre for Climate Change

UNIVERSITAT ROVIRA I VIRGILI

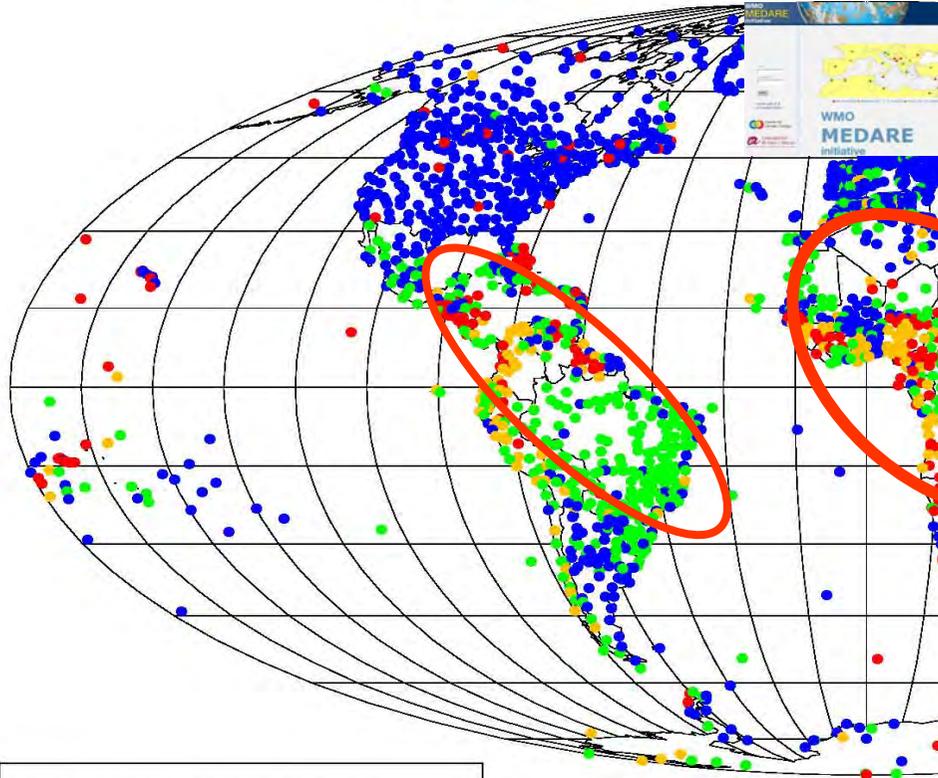
WMO MEDARE initiative

Gaps in Observations



ICA&D: SACA&D-DIDDAH

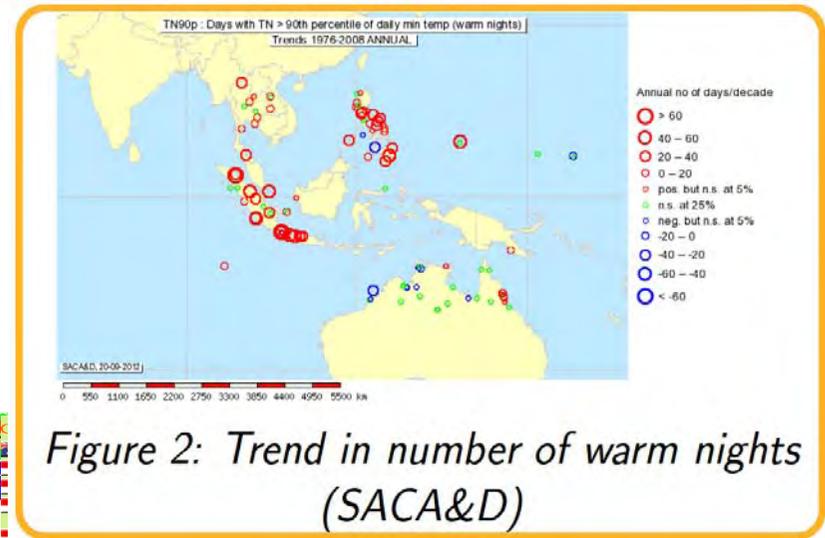
Annual Global
SYNOP reports made at



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The designation employed and the whatsoever on the part of the WMO



INDONESIA	Miftahul Munir	Banjarbaru Climatological Station	Banjarbaru
INDONESIA	R. Theodorus Agus Heru R.	Darmaga Bogor Climatological Station	Bogor
INDONESIA	Sri Murniati	BMKG Regional Office IV - Makassar	Makassar
INDONESIA	Sugeng Nugroho	Bukit kototabang Global Atmosphere Watch (GAW) Station	Bukit Kototabang
INDONESIA	Umara Firman	Badan Meteorologi Klimatologi dan Geofisika (BMKG)	Jakarta
INDONESIA	Umi Farida	BMKG Regional Office II - Ciputat, Jakarta	Ciputat
INDONESIA	Ummi Almunawwaroh	BMKG Regional Office III - Denpasar	Denpasar
INDONESIA	Wandayan Tolis	Climatology Station BMKG Kayuwatu (Region IV)	Manado
JAPAN	JAMSTEC	Japan Agency for Marine-Earth Science and Technology digitization project	Yokosuka
MALAYSIA	Dyana Hani Binti Kamarudin	Malaysian Meteorological Department	Petaling Jaya
NETHERLANDS	Theo Brandsma	Royal Netherlands Meteorological Institute (KNMI)	De Bilt
PHILIPPINES	Maria Cristina C. Uson	Philippine Atmospheric, Geophysical, and Astronomical Services Administration	Quezon City
THAILAND	Adisorn Somwang	Thailand Meteorological Department	Bangkok
UNITED STATES	GHCDN	National Climatic Data Center	Asheville



Royal Netherlands
Meteorological Institute
Ministry of Infrastructure and the
Environment

www.didah.org



- ▶ Home
- ▶ Didah project description
- ▶ Documents
- ▶ News items (archive)
- ▶ Data and indices
- ▶ Workshop (02-04-2012)
- ▶ Staff
- ▶ Links (to related projects)

[Home](#) |

Digitisasi Data Historis

Digitisasi Data Historis (DiDaH) is a two-year project (2010-2011) focusing on the digitization and use of high-resolution historical climate data from Indonesia over the period 1850-present. Didah is a joint project between the National Meteorological Services of Indonesia (BMKG) and the Netherlands (KNMI).

The main deliverables of Didah are:

1. Digitized data (plus metadata)
2. Website on indices of extremes for the region
3. Capacity building (workshops, exchange of scientists).

Gaps in Observations



ICA&D: SACA&D-DIDAH



1) BUITENZORG (NOW BOGOR, 50 KM SOUTH OF JAKARTA) BOTANIC GARDEN, PRESSURE, SEPTEMBER 1841–JUNE 1855

Meteorological observations were made under the responsibility of the Academy of Sciences of the Netherlands. The observation site was the military doctor's house, left of the entrance to the botanic garden. The observations were made by the doctor and his assistant; the doctor received an additional salary for this activity (Arsip National Republik Indonesia 1865). The observations include pressure readings reduced to 0°C but not to standard gravity or sea level, taken four or five times a day. The starting date of the observations is 16 September 1841; the readings were published until December 1854, with an extension to June 1855 in the form of anomalies, twice a day.



12 METEOROLOGICAL OBSERVATIONS. BATAVIA.

STANDARD THERMOMETER.

1866.	1. A. M.	2	3	4	5	6	7	8	9	10	11	Noon.	—
1	75.9	75.2	75.0	75.0	74.8	74.9	75.1	76.7	78.4	79.6	80.0	82.0	—
2	74.8	74.6	74.4	74.0	74.1	74.3	75.9	75.3	76.6	77.8	79.6	81.8	—
3	76.0	75.5	75.5	75.6	75.6	75.0	76.0	77.9	80.4	83.0	82.2	82.4	—
4	75.7	75.3	75.0	74.8	74.6	74.6	75.4	77.0	79.0	80.8	82.3	83.8	—
5	74.6	74.9	74.1	74.1	73.7	73.3	74.0	77.2	79.8	82.3	81.6	84.4	—
6	75.9	74.7	74.3	74.8	74.1	73.9	74.9	76.0	81.0	83.0	82.5	83.0	—
7	76.0	74.5	74.0	73.7	74.0	74.0	73.7	75.0	76.3	77.0	78.2	79.3	—
8	75.9	74.5	74.0	73.7	74.0	74.0	73.7	75.0	76.3	77.0	78.2	79.3	—
9	75.9	74.5	74.0	73.7	74.0	74.0	73.7	75.0	76.3	77.0	78.2	79.3	—
10	75.9	74.5	74.0	73.7	74.0	74.0	73.7	75.0	76.3	77.0	78.2	79.3	—
11	75.9	74.5	74.0	73.7	74.0	74.0	73.7	75.0	76.3	77.0	78.2	79.3	—
12	75.9	74.5	74.0	73.7	74.0	74.0	73.7	75.0	76.3	77.0	78.2	79.3	—
13	75.9	74.5	74.0	73.7	74.0	74.0	73.7	75.0	76.3	77.0	78.2	79.3	—
14	75.9	74.5	74.0	73.7	74.0	74.0	73.7	75.0	76.3	77.0	78.2	79.3	—
15	75.9	74.5	74.0	73.7	74.0	74.0	73.7	75.0	76.3	77.0	78.2	79.3	—
16	75.9	74.5	74.0	73.7	74.0	74.0	73.7	75.0	76.3	77.0	78.2	79.3	—
17	75.9	74.5	74.0	73.7	74.0	74.0	73.7	75.0	76.3	77.0	78.2	79.3	—
18	75.9	74.5	74.0	73.7	74.0	74.0	73.7	75.0	76.3	77.0	78.2	79.3	—
19	75.9	74.5	74.0	73.7	74.0	74.0	73.7	75.0	76.3	77.0	78.2	79.3	—
20	75.9	74.5	74.0	73.7	74.0	74.0	73.7	75.0	76.3	77.0	78.2	79.3	—
21	75.9	74.5	74.0	73.7	74.0	74.0	73.7	75.0	76.3	77.0	78.2	79.3	—
22	75.9	74.5	74.0	73.7	74.0	74.0	73.7	75.0	76.3	77.0	78.2	79.3	—
23	75.9	74.5	74.0	73.7	74.0	74.0	73.7	75.0	76.3	77.0	78.2	79.3	—
24	75.9	74.5	74.0	73.7	74.0	74.0	73.7	75.0	76.3	77.0	78.2	79.3	—
25	75.9	74.5	74.0	73.7	74.0	74.0	73.7	75.0	76.3	77.0	78.2	79.3	—
26	75.9	74.5	74.0	73.7	74.0	74.0	73.7	75.0	76.3	77.0	78.2	79.3	—
27	75.9	74.5	74.0	73.7	74.0	74.0	73.7	75.0	76.3	77.0	78.2	79.3	—
28	75.9	74.5	74.0	73.7	74.0	74.0	73.7	75.0	76.3	77.0	78.2	79.3	—
29	75.9	74.5	74.0	73.7	74.0	74.0	73.7	75.0	76.3	77.0	78.2	79.3	—
30	75.9	74.5	74.0	73.7	74.0	74.0	73.7	75.0	76.3	77.0	78.2	79.3	—
Mean.	75.65	75.44	74.82	74.64	74.55	74.28	74.80	76.07	77.68	79.03	80.44	81.45	—

- Example from the yearbooks
1. Scanning
 2. OCR
 3. Quality control
 4. Database

Gaps in Observations



ICA&D: LACA&D



Latin American Climate Assessment & Dataset

Español

5/10/2008

8 UTC at RBSN stations

Home FAQ Daily data Indices of extremes Project info

See also: ECA&D SACA&D KNMI Climate Explorer

Home

Home

Welcome to the website of the Latin American Climate Assessment & Dataset. Presented is information on changes in weather and climate extremes, as well as the daily dataset needed to monitor and analyse these extremes.

What's new?



The database is updated until: Dec 31, 2007.
January 2012 - Website online.

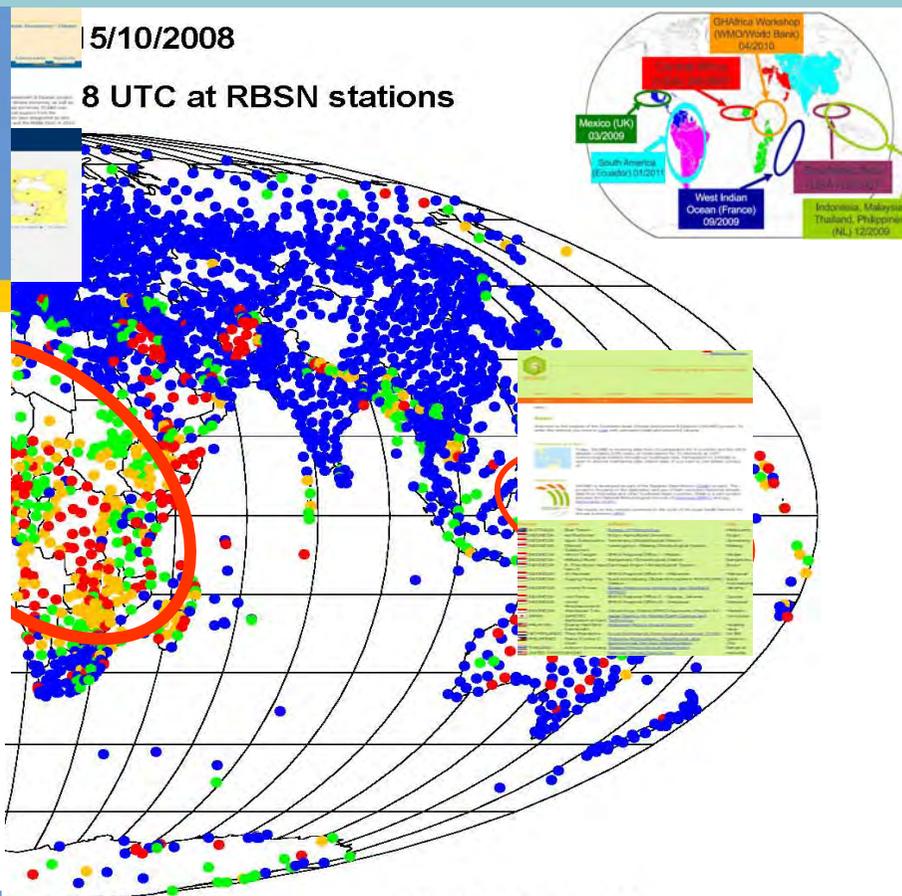
CIIFEN



CIIFEN

LACA&D is possible thanks to the contribution of several institutions in Latin America, with the coordination of [CIIFEN](#) and the [KNMI](#) of Netherlands. The system contributes to the objectives of the [Global Framework of Climate Services](#).

Country	Name	Affiliation	City
 BOLIVIA	Alberto Carrasco	Servicio Nacional de Meteorología e Hidrología	La Paz
 CHILE	Juan Quintana	Dirección Meteorológica de Chile	Santiago
 COLOMBIA	Gloria Leon	Instituto de Estudios Ambientales	Bogotá
 ECUADOR	Gonzalo Ontaneda	Instituto Nacional de Meteorología e Hidrología	Quito
 PERU	Ena Jaimes	Servicio Nacional de Meteorología e Hidrología	Lima
 VENEZUELA	Juan Arevalo	Instituto Nacional de Meteorología e Hidrología	Caracas



WMO Secretariat

The presentation of material in this publication do not imply the expression of any opinion WMO Secretariat concerning the legal status of any country, territory, city or area

Gaps in Observations



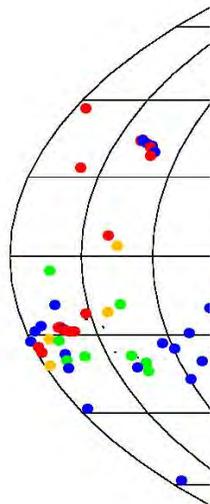
ICA&D: WACA&D?

Annual Global 15/10/2008

SYNOP reports made at 8 UTC at RBSN stations

Select an index :

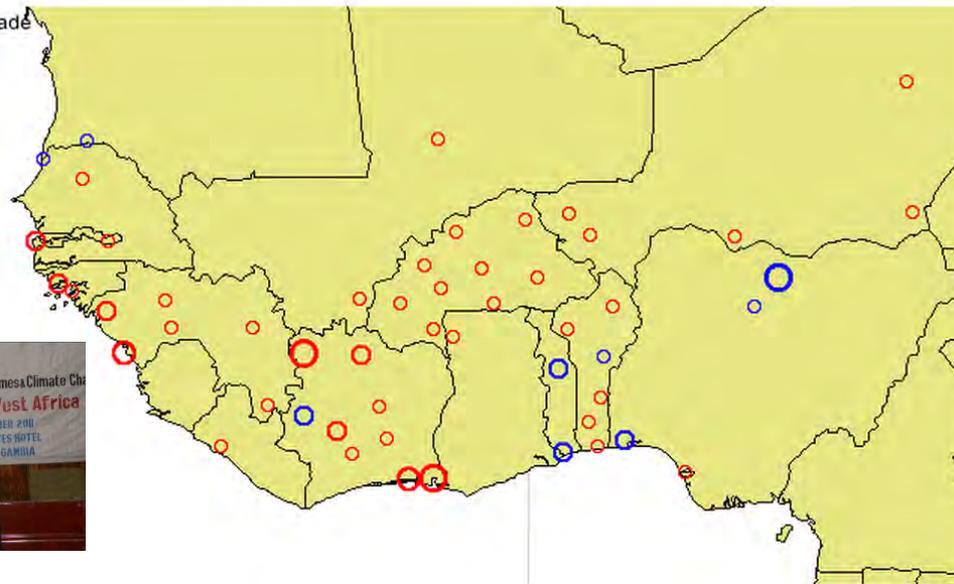
R20MM Very heavy precipitation days (precipitation ≥ 20 mm)
[Annual no of days/decade]



R20mm Annual no of days/decade

- > 0.3
- 0.2 – 0.3
- 0.1 – 0.2
- 0 – 0.1

- -0.1 – 0
- -0.2 – -0.1
- -0.3 – -0.2



WMO Secretariat

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Gaps in Observations



ICA&D: WACA&D?



Training on climate change indices within

ISACIP-AfriClimServ:
Production of Climate information component - "Downscaling Global Climate Data & scenarios" Activity: Training on climate change indices



The West African Climate Change Detection Network (WACCDN) members

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3. George Stafford	DWR Gambia	staffordmaria@yahoo.co.uk
4. Lamin Mai Touray	DWR Gambia	touraylm@yahoo.co.uk
5. Modibo S. Coulibaly	DNM- MALI	modsamba11@yahoo.fr
6. Michel P. Nikiema	DGM BurkinaFaso	michel78us@yahoo.com
7. Egbesem T. Laogbessi	DGM Togo	laogbess@yahoo.fr
8. Mohamed Fadel Dieh	ONM Mauritanie	Diehmv@yahoo.fr
9. Elarion Sambou	ANM- Sénégal	larions@gmail.com
10. E.V.S. Gar-Glahn	DM Liberia	egarglahn@yahoo.com
11. Ahmed M. Cyrille	DNM - Benin	cam20252002@yahoo.fr
12. Mamadou Tounkara	DNM- GuinéeC	m_tkra@yahoo.fr
13. John O. Adeleke	NIMET- Nigeria	oyegadeadeleke@yahoo.com
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15. Kindia Boni Narcisse	DMN C-Ivoire	kingbonik@yahoo.fr
16. Cherno Luis Mendes	INM Guinée-B	Cherno_lm@yahoo.fr
17. Omar Baddour	WMO	OBaddour@wmo.int
18. Mohammed Kadi	ACMAD	kadi_metdz@yahoo.com
19. Andre Kamga Foa	ACMAD	akamgaf@yahoo.com
20. Abdoul Aziz Barry	CCC/Spain	aazizb@hotmail.com
21. Albert Klein Tank	KNMI	albert.klein.tank@knmi.nl
22. John Caesar	UKMO	john.caesar@metoffice.gov.uk
23. Carol McSweeney	UKMO	Carol.mcsweeney@metoffice.gov.uk

Tél. (227) 20 73 49 5



Members of the West African Climate Change Detection Network (WACCDN) Participants to the RclimDex Workshop (Banjul, 5-9 Dec 2011)



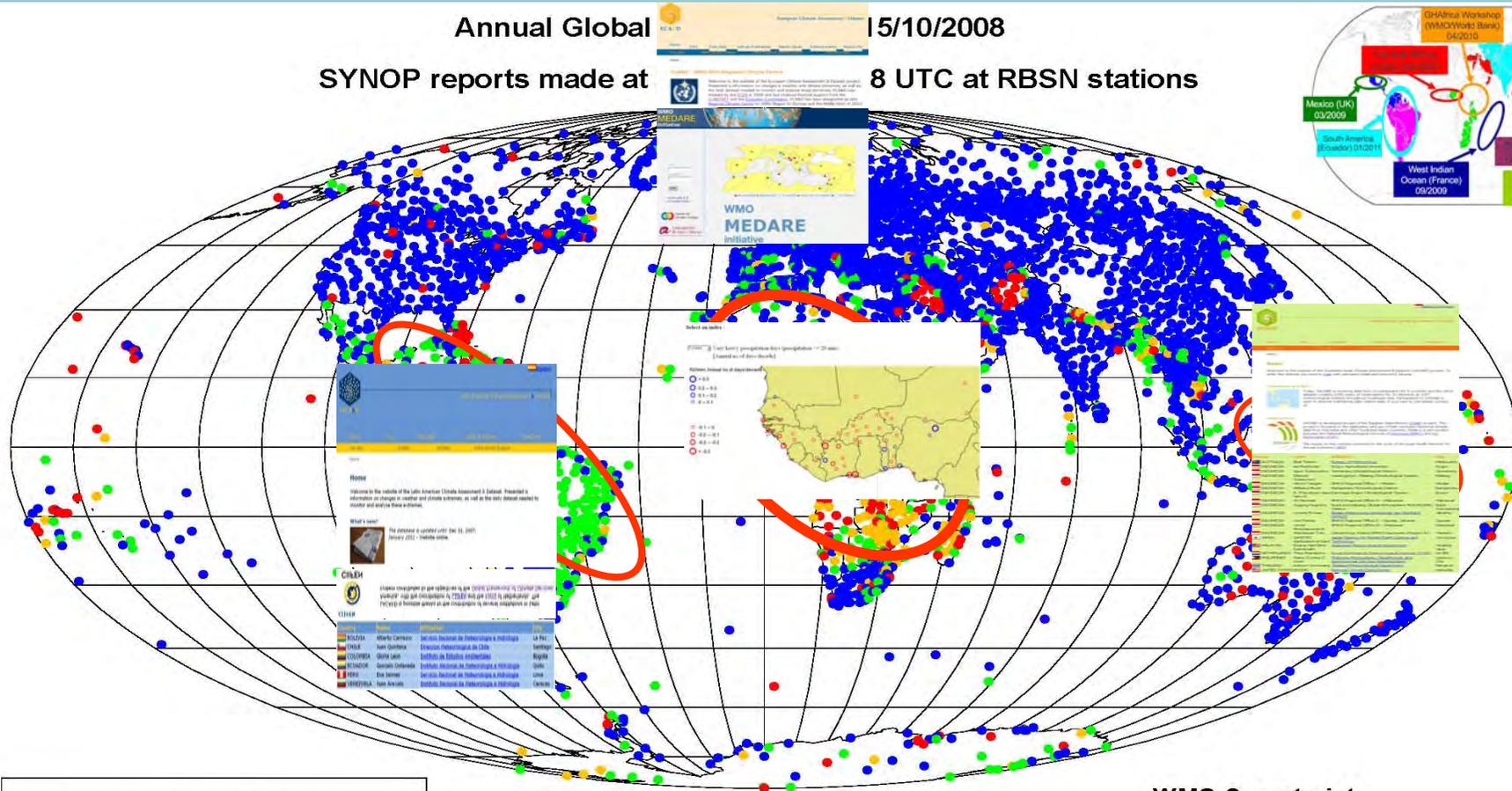
ACMAD, January 2012

Gaps in Observations



ICA&D concept

Annual Global
SYNOP reports made at
15/10/2008
8 UTC at RBSN stations



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- Still large volumes of (non-digitized) daily data underexploited by countries in the region, and not available to the international research community
- Advantageous to establish a common platform for Data Rescue, Data Analysis and Data Services
- ECA&D website, database and processing software is openly available for use in other regions of the world
- Start with an ETCCDI/DARE workshop and follow-up with an ECA&D style website for sharing knowledge and data
- Establish a partnership with countries in the region by offering training and enhanced visibility of their work
-  note: EU funding has been used for large parts of this work!

Thank You

