
ACRE
Atmospheric Circulation Reconstructions over the Earth
The international ACRE initiative & the Dieci e Lode Project
WORLD METEOROLOGICAL ORGANIZATION
Prof. Rob Allan, ACRE Project Manager
Met Office
GCOS
WCRP
World Climate Research Programme
GEO
GROUP ON EARTH OBSERVATIONS
GFCS
GLOBAL FRAMEWORK FOR CLIMATE SERVICES
Newton Fund
Copernicus
Europe's eyes on Earth

- ACRE is a 'grassroots', bottom-up initiative that has marshalled together the international weather and climate data rescue and science communities over the last 16 years

- It is an 'end-to-end' initiative, supported by WMO, GCOS, WCRP, GEO, GFCS and many others, linking:
  - international historical terrestrial and marine weather data rescue (mainly prior to the 1950s/1960s)
  - dynamical 4D global historical reanalyses (weather reconstruction), especially the 20CR, now back to 1806
  - and climate services and applications communities

- ACRE's data rescue activities embrace the recovery, imaging/scanning, digitisation, and curation of historical global instrumental terrestrial and marine weather observations for as far back in time as possible

- These data are then fed into the international repositories for both terrestrial and marine weather observations, and are freely available

- This enhances the quantity of historical weather observations available to global historical reanalyses, with the newly generated global weather reconstructions freely available to the full range of global climate services and applications. ACRE has a number of individual regional data rescue foci supporting its international efforts.

- It is working with other social science and humanities disciplines to meld together historical weather reconstructions with climate histories/historical climatology in order to enhance global historical reanalysis products

DATA RESCUE

ACRE
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Copernicus
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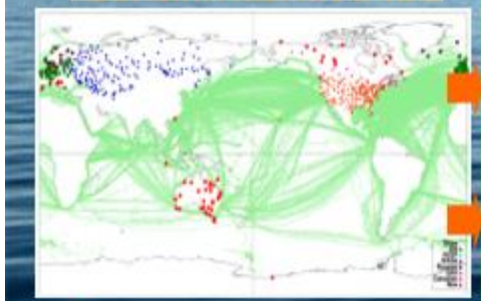
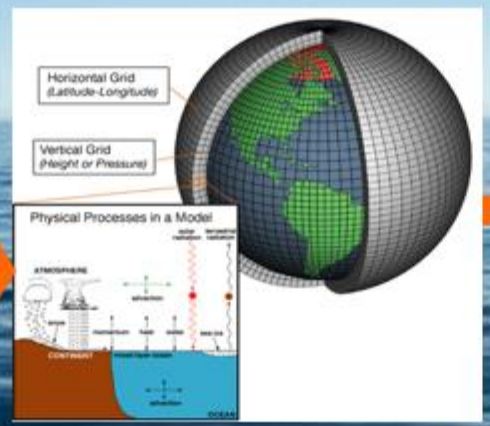
C3S DRS Portal & Registry



ICOADS GLAMOD ISPD

Citizen Science 'Crowd Sourcing' (eg. *Oldweather Weather Detective Southern Weather Discovery*)

REANALYSES



20th Century Reanalysis Project (20CR)

CIRES

20CRv3 1806-2015

Global historical reanalysis

80 realisations every 3 hours

0.75° x 0.75° spatial resolution

MO PRECIS Downscaling => Higher Resolution

20CR Distributors

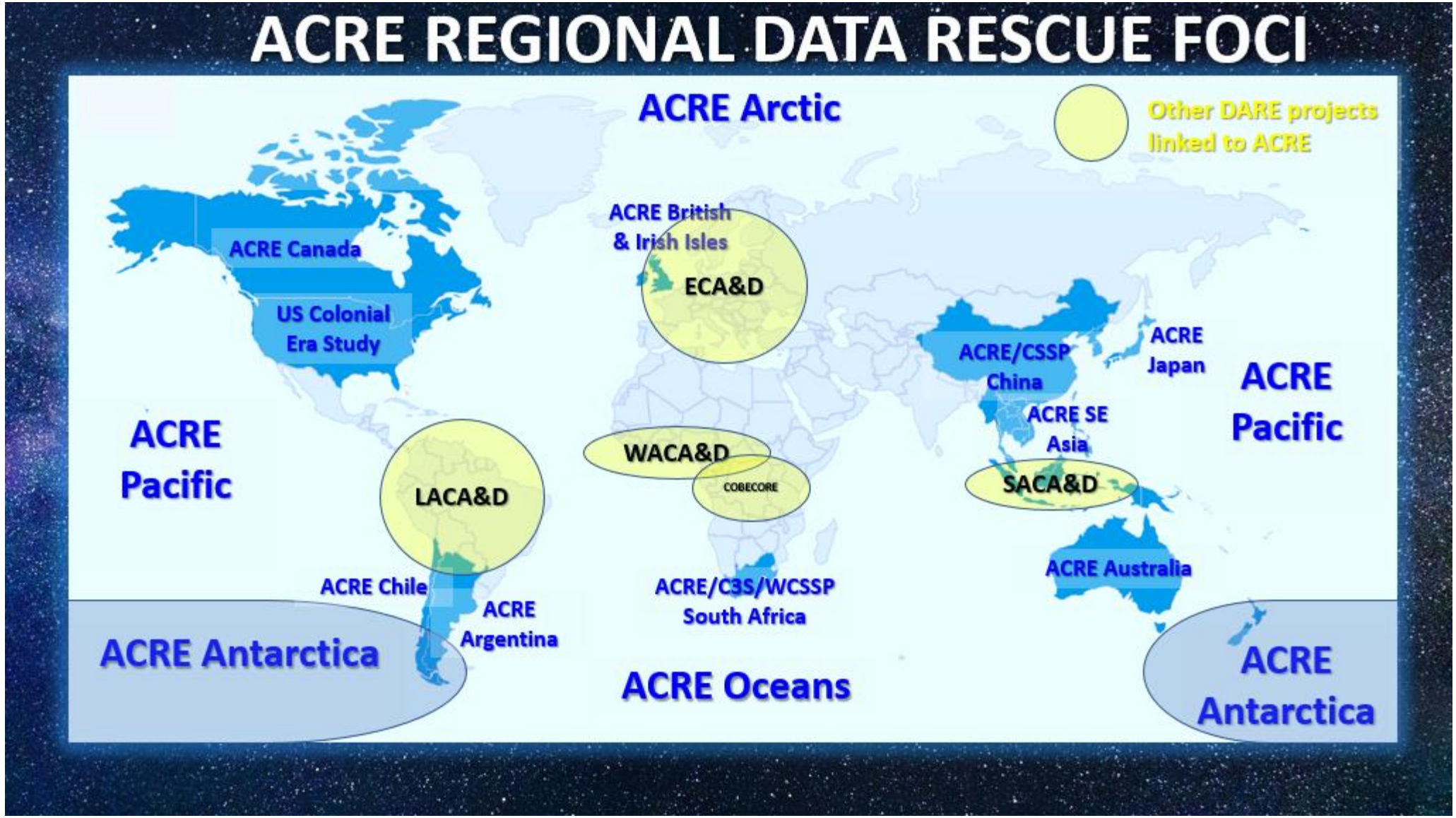
IRI
NCAR
NOAA ESRL
NERSC
KNMI
BADC

CLIMATE SERVICES & APPLICATIONS

Enhancing Reanalyses

MELDING: historical climatology, climate history, climate reconstructions, modelling and reanalyses

Environmental Assessments
Extremes, Impacts & Risks
Water resources
Agricultural
Forestry
Energy
Marine operations
Fisheries
Cultural landscapes and built heritage
Education
Ecological
Phenological
Health & Disease
Reinsurance
Climate Monitoring
Model Validation


ACRE REGIONAL DATA RESCUE FOCI
ACRE Arctic
Other DARE projects linked to ACRE
ACRE British & Irish Isles
ECA&D
ACRE Canada
US Colonial Era Study
ACRE Pacific
ACRE/CSSP China
ACRE Japan
ACRE SE Asia
ACRE Pacific
WACA&D
COBECORE
LACA&D
SACA&D
ACRE Australia
ACRE Chile
ACRE Argentina
ACRE/C3S/WCSSP South Africa
ACRE Antarctica
ACRE Oceans
ACRE Antarctica

SOURCES OF OLD TERRESTRIAL INSTRUMENTAL WEATHER OBSERVATIONS

EARLY EUROPEAN METEOROLOGICAL NETWORKS

Mannheim, Societas Meteorologica Palatina 1781-1792
Society Royale de Medecine (F) 1776-1789
Baierische Ephemeriden (G) 1781-1789

NATIONAL METEOROLOGICAL SERVICES: 1850s =>

OBSERVATORIES
Astronomical

MEDICAL
Hospitals/Doctors

MILITARY
Royal Engineers (UK)
Army Medical Corps (UK)
US Signal Office

MISSIONARY
Jesuit, Moravian etc

CONSULAR

LIGHTHOUSES

PORT AUTHORITIES
Harbour Masters/Port Captains

GENERAL PUBLICATIONS
Diaries, Newspapers, Pamphlets, Journals/Government Gazettes, Learned Societies

BOTANIC GARDENS

SIGNAL/PILOT STATIONS

MARINE SOURCES OF INSTRUMENTAL WEATHER OBSERVATIONS

Ships logs

- Merchant –Shipping Companies
- Naval
- Expeditions

Surgeon's Journals

Remarks books (Hydrographic & Naval surveys)

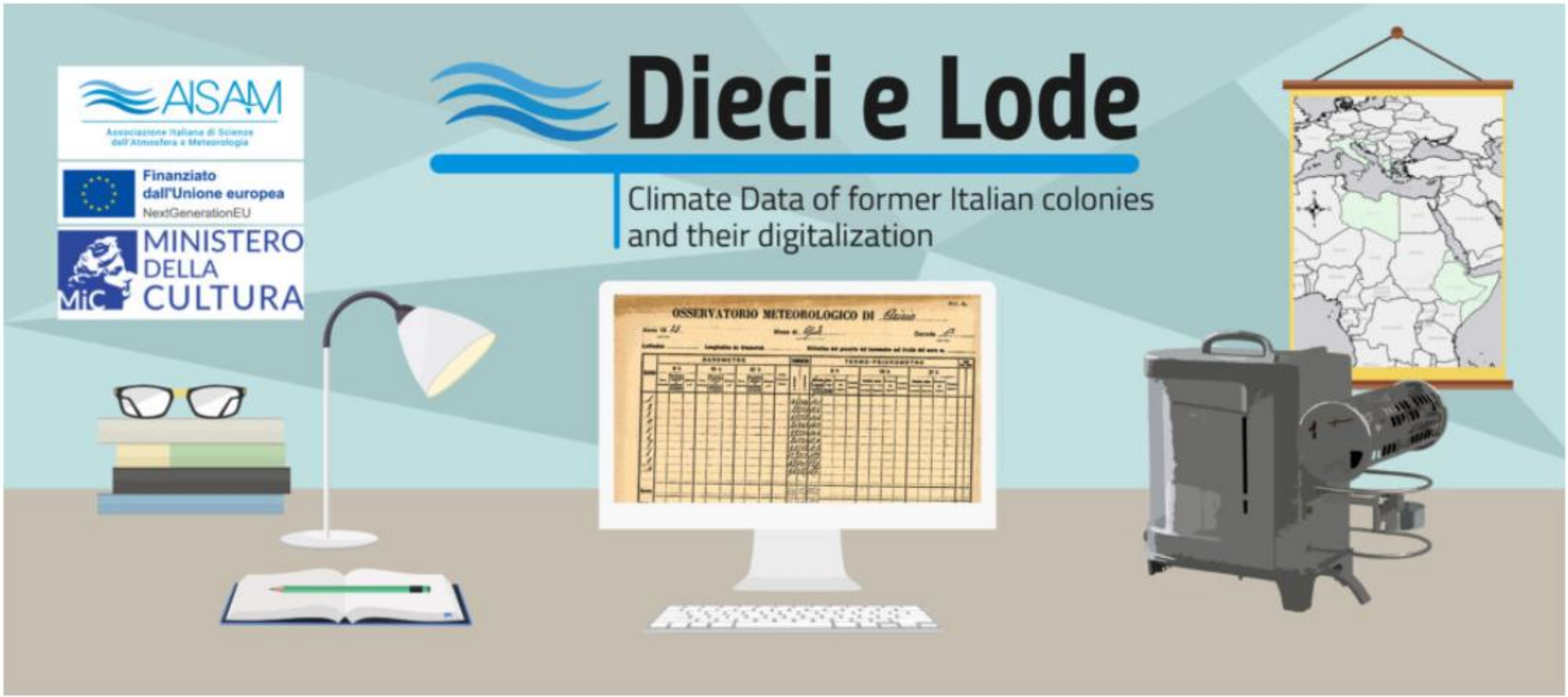
Private diaries

ACRE & Citizen Science

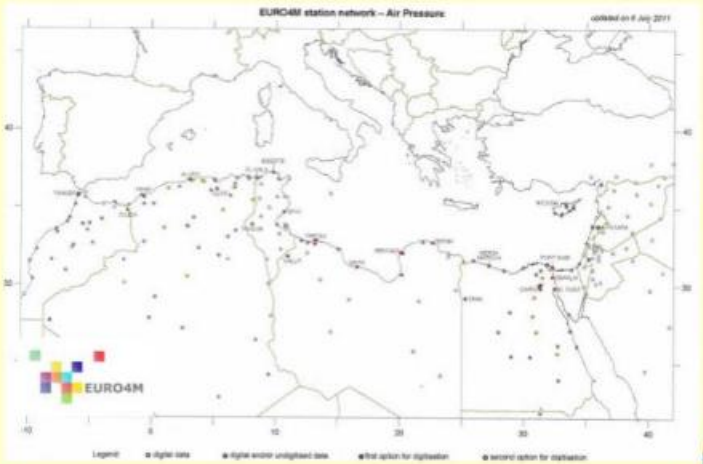
Southern Weather Discovery

UK Tides

Weather Rescue at Sea


AISAM
Associazione Italiana di Scienze dell'Atmosfera e Meteorologia
Finanziato dall'Unione europea
NextGenerationEU
MINISTERO DELLA CULTURA
MiC
Dieci e Lode
Climate Data of former Italian colonies and their digitalization
OSSERVATORIO METEOROLOGICO DI

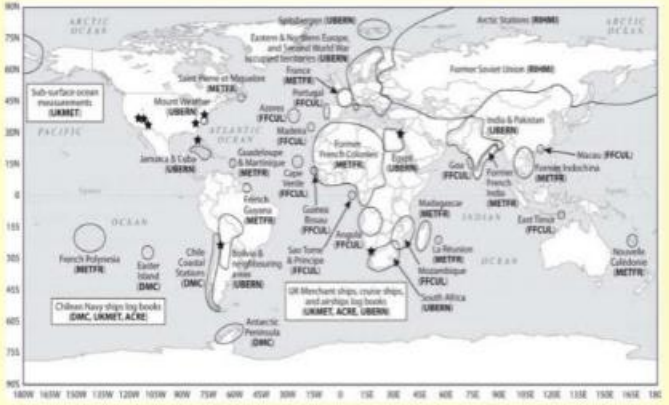
ACRE is working with data rescue activities in Africa by IEDRO, MEDARE, MedCLIVAR, EURO4M, ERA-CLIM, CNMCA & the University of Giessen



Old Italian Colonies: Centro Nazionale di Meteorologia e Climatologia Aeronautica (CNMCA) - III Servizio (Climatologia), Italy

WMO MEDARE initiative

MedCLIVAR



ERA-CLIM data recovery & digitization

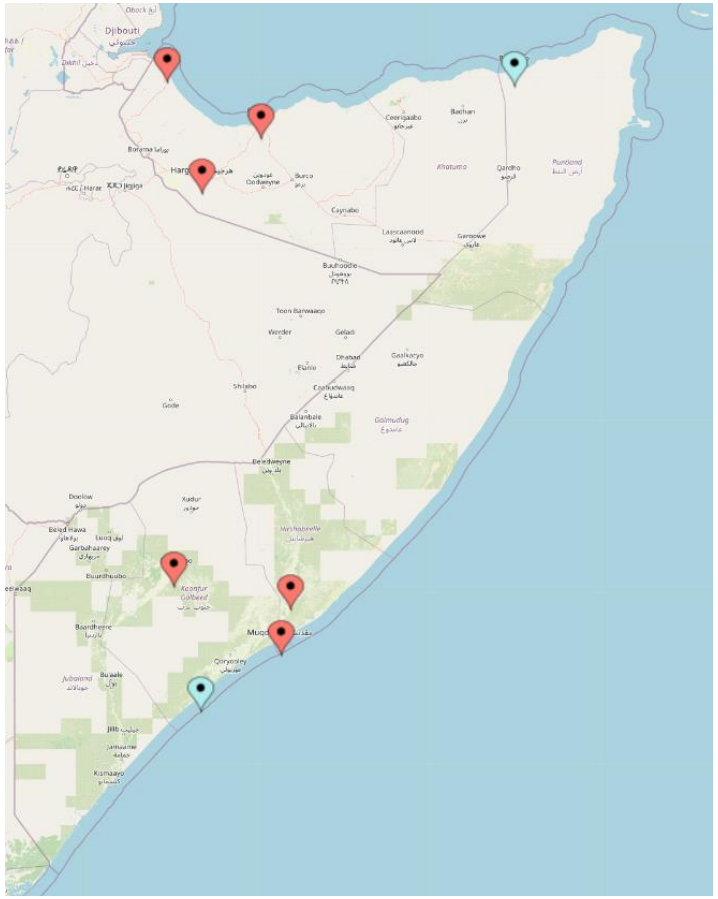
University of Giessen, Germany
Alexandria, Egypt: WMO 62319
1876-1896: Austrian Year Books

Gianpaolo Mordacchini in 2011

SOURCES: ACMAD ISPD DWD

SOMALIA

	Start	*End*
Mogadishu	192201	192212 [Met Office Archives] – scans not digitised
	1934	1935 [NOAA Central Library] – scans not digitised
	1943	1950 [Met Office Archives] – scans not digitised
	194901211200	200512131800
Hargeisa	1943	1948 [Met Office Archives] – scans not digitised
	195602200600	201310070600
Baidoa	1932	1935 [NOAA Central Library] – scans not digitised
	195701031200	199003290600
Abruzzi	1932	1935 [NOAA Central Library] – scans not digitised
Berbera	185411	185503 [NOAA Central Library]
	1908	1925 [Met Office Archives] – scans not digitised
	1915	1950 [Met Office Archives] – Climatological Returns, not digitised
	197311080600	201312250600
Zaila/Saylac	19100101	19101231



BARAAWE/BRAVA, SOMALIA 1937

GOVERNO DELLA SOMALIA ITALIANA

UFFICIO AGRARIO

(SERVIZIO METEOROLOGICO DELLE COLONIE)

di R. MARINA Stazione Radiotelegrafica BRAVA

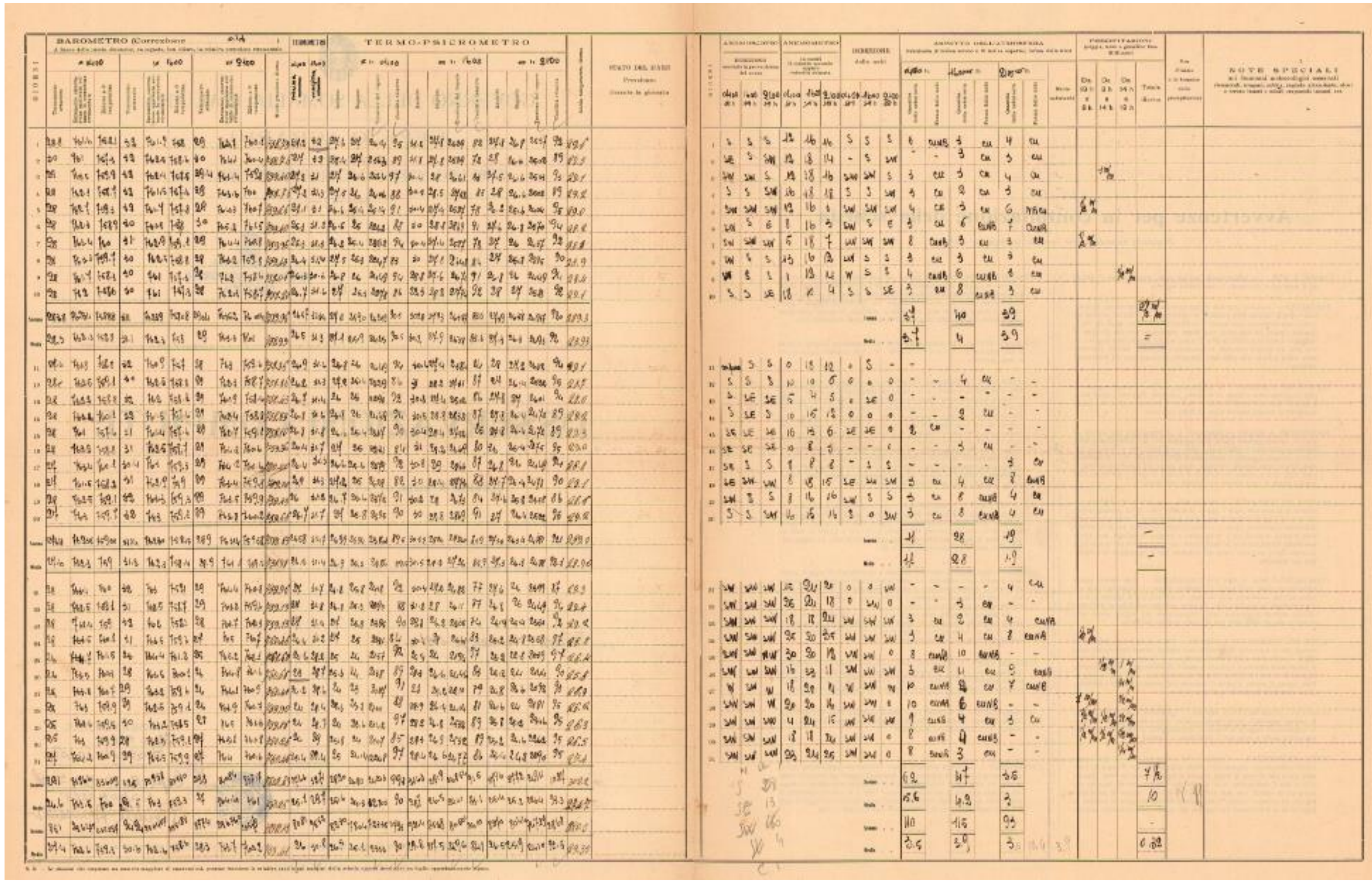
OSSERVAZIONI COMPIUTE

durante il mese di Maggio 1937 A XV°

Brava: 31 maggio 1937 A. XV EF

L'OSSERVATORE

AVVERTENZA IMPORTANTISSIMA. — Prima di compilare la presente scheda mensile rileggere le avvertenze a tergo.



BOSASO, SOMALIA 1958

A.F.I.S.
DIREZIONE SVILUPPO ECONOMICO
Ispettorato Agricoltura e Zootecnia
Servizio Meteorologico

Mod. G.

SCHEDA PER LE OSSERVAZIONI METEOROLOGICHE

OSSERVATORIO di Bosaso

OSSERVAZIONI COMPIUTE

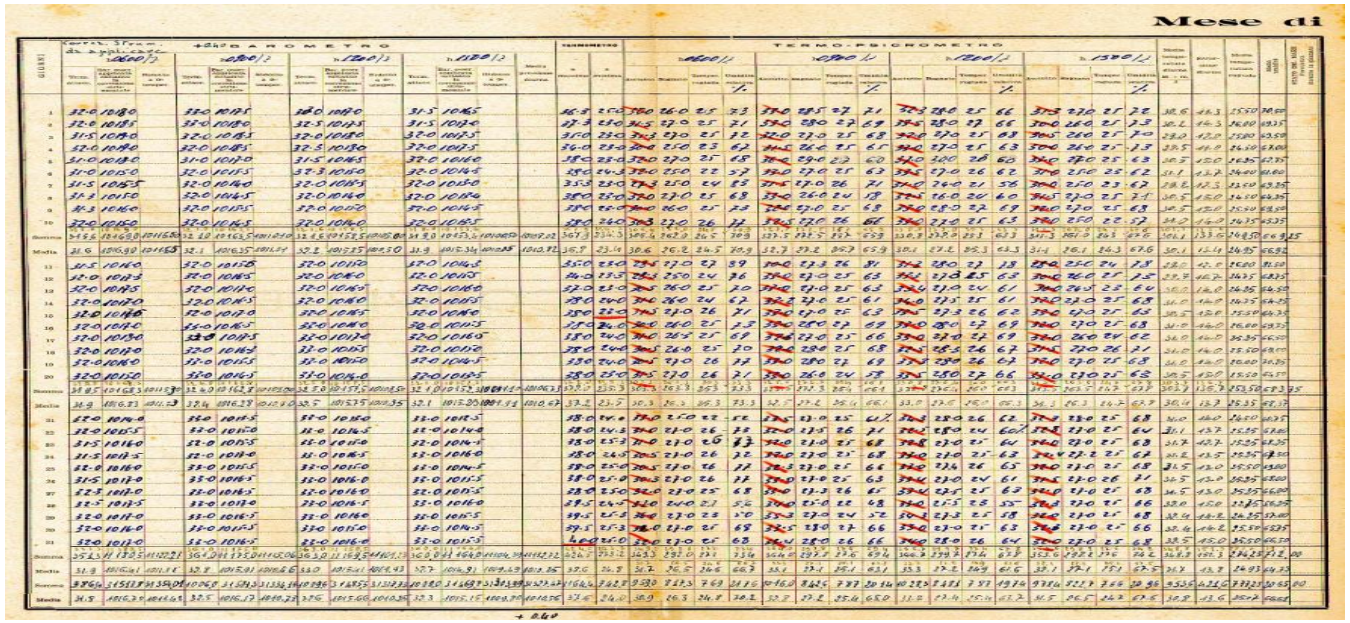
durante il mese di Maggio Anno 1958

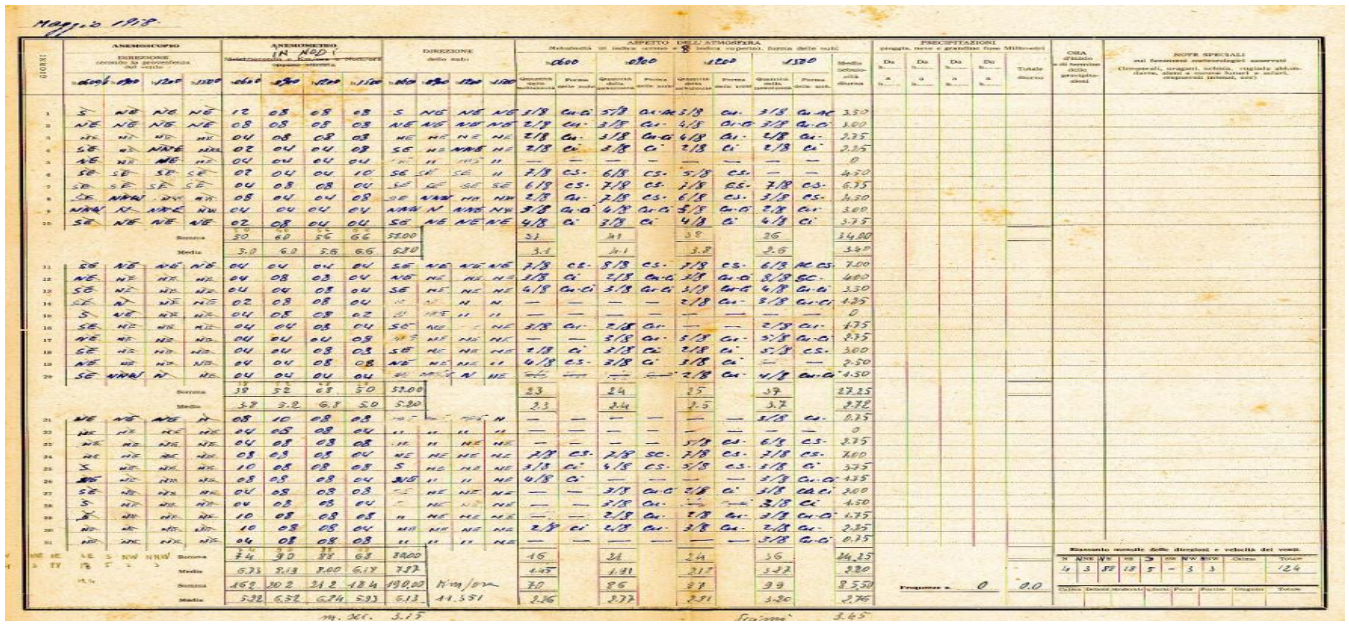
Data 1 MAGGIO 1958.

L'OSSERVATORE

AVVERTENZA IMPORTANTISSIMA — Prima di compilare la presente scheda mensile rileggere le avvertenze a tergo.

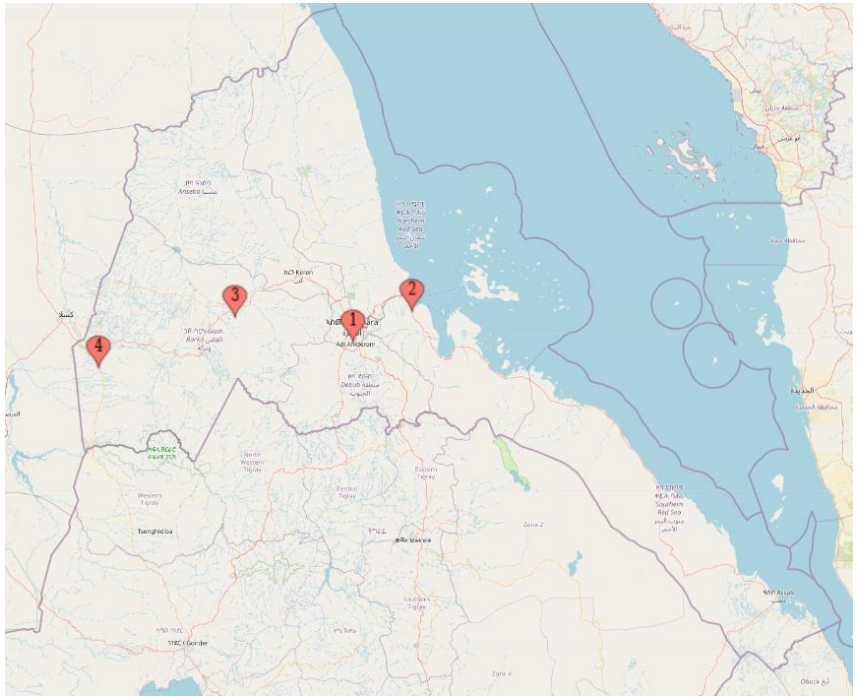
Stampato A.F.I.S. — Napoli — 1954 — G.S. — 1.500





ERITREA

	Start	*End*
Akordat	1949	1994 [ACMAD microfilms]
	194902061200	197805031500
Asmara	1932	1936 [NOAA Central Library] – scans, not digitised
	194404110000	201307081500
	1953	1963 [ACMAD microfilms]
Massawa	1932	1936 [NOAA Central Library] – scans, not digitised
	1945	1950 [Met Office Archives] – Climatological Returns not digitised
	194902061200	199002090900
	1986	1989 [ACMAD microfilms]
Tessenei	1958	1973 [ACMAD microfilms]



LIBYA

	Start	*End*	
Tripoli	1884	1889	[MeteoFrance] – not digitised??
	1889	1895	[German DWD Colonial]
	1916	1920	[UK Daily Weather Reports]
	1925	1936	[CIRCE]
	1937	1939	
	194306302300	201312312100	

Benghazi/	1927	1931	[NOAA Central Library] – scans, not digitised
Benina	1927	1930	[UK Daily Weather Reports]
	1927	1936	
	194310312300	201312312100	

Nalut	194901301200	201312312100
Zuara	194901291200	201312312100
Misrata	194901291200	201312312100
Sirte	194901301200	201312311800

LIBYA (continued)

	Start	*End*
Agedabia	194901301200	201308052100
Shahat	194901291200	201102172100
Derna	194901291200	201310270600
Tobruk	194410271300	201312312100
Kufra	194901291200	201312312100
Jaghbub	194902091200	201312312100
Jalo	194901291200	201312312100
Hon	194901301200	201312312100

ALBANIA

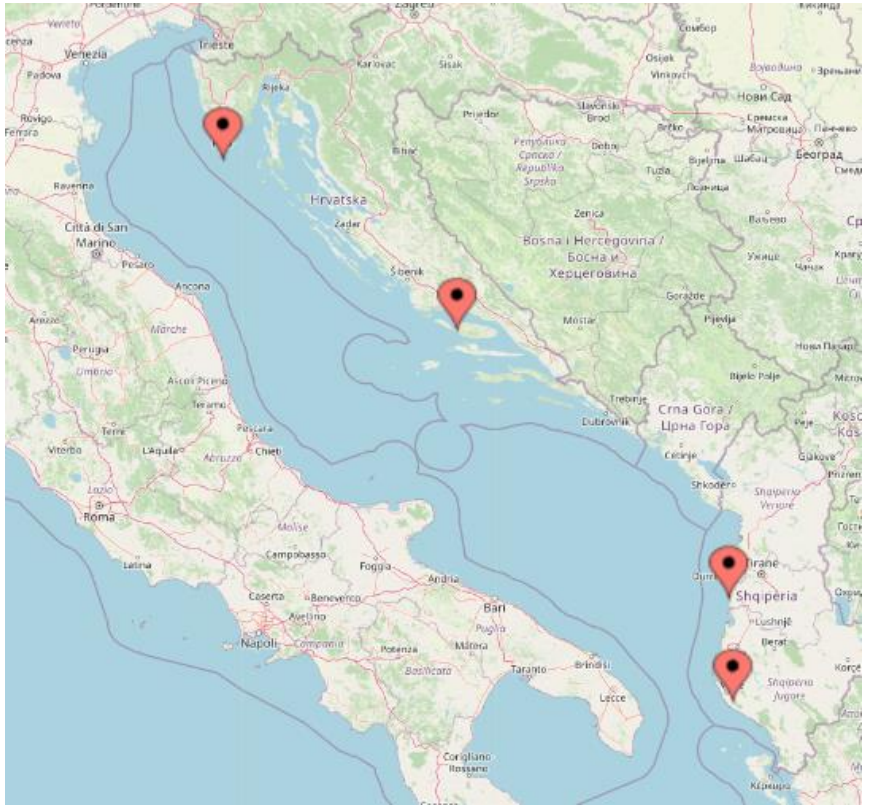
	Start	*End*	
Tirana	?????	????	
Durazzo/Durres	186810	187712	- [Met Office Archives] Imperial Observatory Constantinople
	187002010800	187206300700	– French Annales
	18761010700	187612312100	– Austrian Year Books & ZAMG Daily Weather Reports (DWRs)
Valona/Vlore	187401010800	187412311400	
	188009	188406	- US Simultaneous Instantaneous Bulletin & ZAMG DWRs

DALMATIA

Split/Lesina	18690101	18811231 – EMULATE
	18750101070	191612312100 - Austrian Year Books

ISTRIA

Pola/Pula	18710101	189512 - Austrian Year Books not digitised



ETHIOPIA - [Met Office Archives] – Climatological Returns not digitised

DODECANESE