

The international ACRE initiative & the Dieci e Lode Project



Prof. Rob Allan, ACRE Project Manager



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- **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



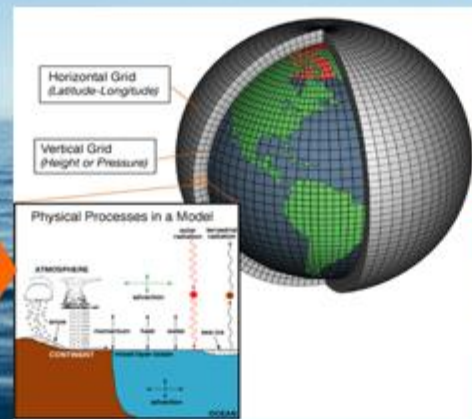
C3S DRS Portal & Registry



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

ICADS
GLAMOD
ISPD

REANALYSES



20th Century Reanalysis Project (20CR)
CTRES
20CRv3 1806-2015
Global historical reanalysis
80 realisations every 3 hours
0.75° x 0.75° spatial resolution

20CR Distributors

- IRI
- NCAR
- NOAA ESRL
- NERSC
- KNMI
- BADC

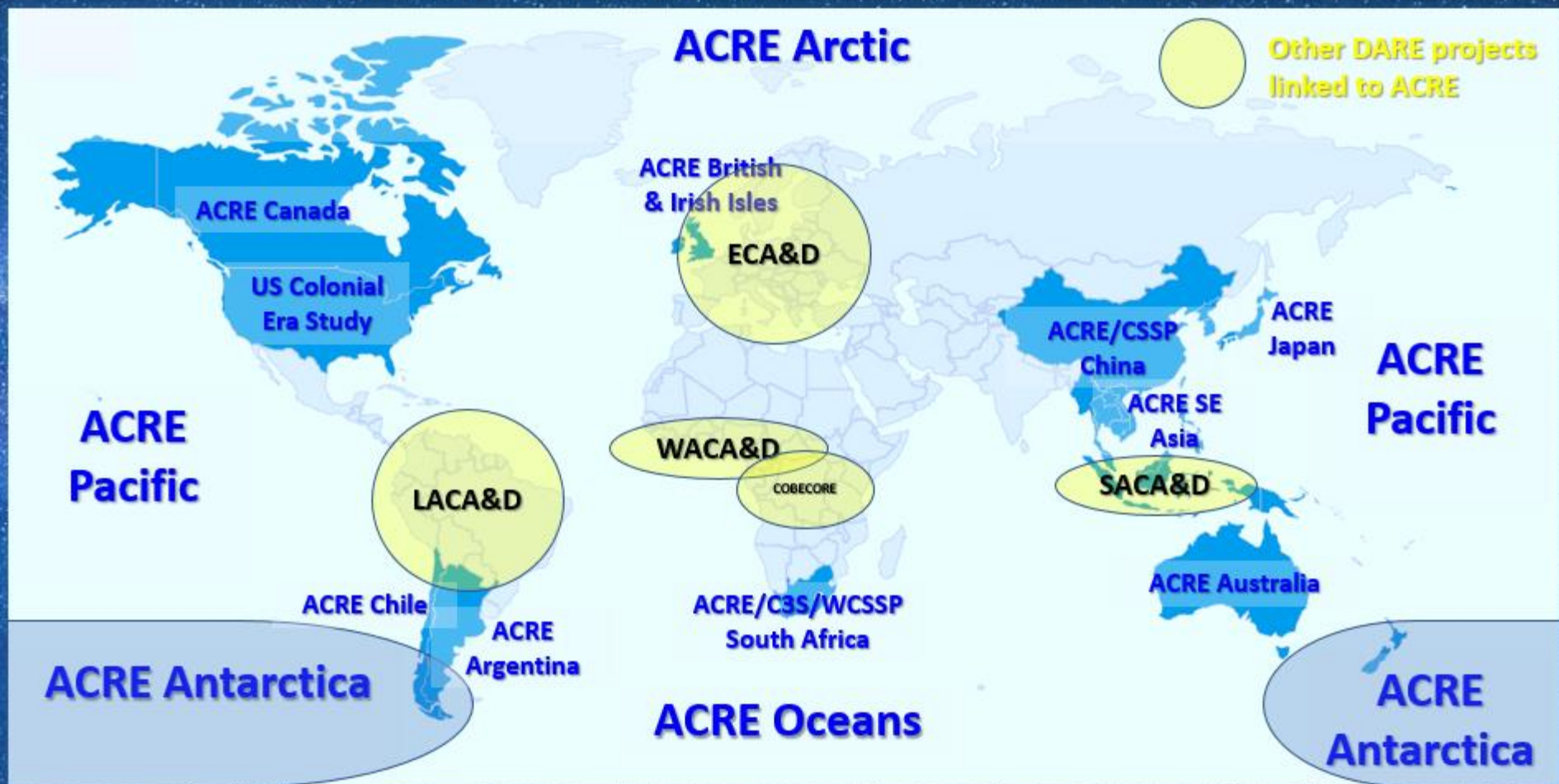
MO PRECIS
Downscaling
=> Higher
Resolution

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



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



2010-2012

Old Weather: Our Weather's Past, the Climate's Future



2013-2017

Southern Weather
Discovery



2018=>



Be a citizen scientist

WEATHER DETECTIVE

Completed 547,407 transcriptions, providing 78,845 new weather observations

2014-2017

UK Tides



2021=>



WEATHER RESCUE

2019-2021

Weather Rescue
at Sea



2021=>



ABOUT METEORORUM AD EXTREMUM
TERRAE

2021=>

Recovery and Digitization of Weather and Oceanic Data



Dieci e Lode

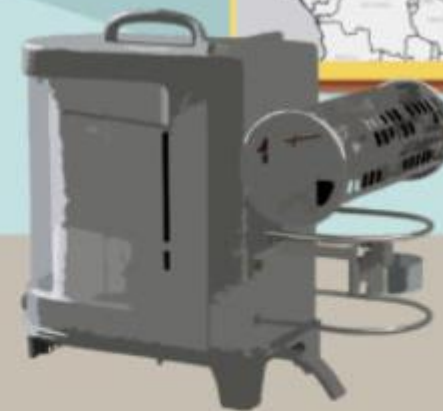
Climate Data of former Italian colonies and their digitalization



OSSERVATORIO METEOROLOGICO DI Alessandria

Stato di Alessandria

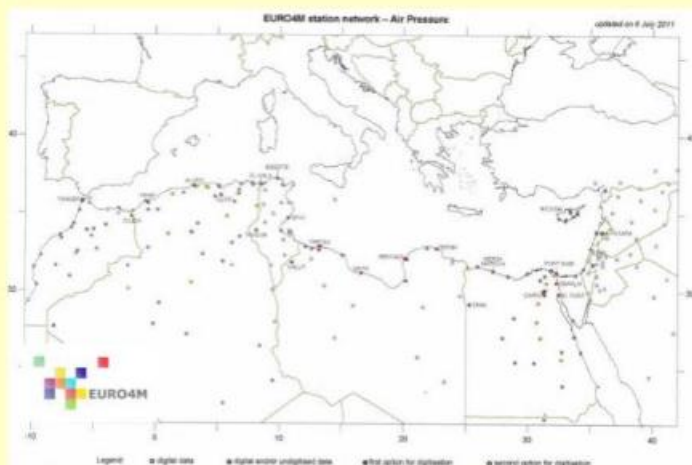
SOMMARIO		TEMPO PEGGIORE	
ORA	TEMPERATURA	ORA	TEMPERATURA
1.0	18.5	1.0	18.5
2.0	18.0	2.0	18.0
3.0	17.5	3.0	17.5
4.0	17.0	4.0	17.0
5.0	16.5	5.0	16.5
6.0	16.0	6.0	16.0
7.0	15.5	7.0	15.5
8.0	15.0	8.0	15.0
9.0	14.5	9.0	14.5
10.0	14.0	10.0	14.0
11.0	13.5	11.0	13.5
12.0	13.0	12.0	13.0
13.0	12.5	13.0	12.5
14.0	12.0	14.0	12.0
15.0	11.5	15.0	11.5
16.0	11.0	16.0	11.0
17.0	10.5	17.0	10.5
18.0	10.0	18.0	10.0
19.0	9.5	19.0	9.5
20.0	9.0	20.0	9.0
21.0	8.5	21.0	8.5
22.0	8.0	22.0	8.0
23.0	7.5	23.0	7.5
24.0	7.0	24.0	7.0



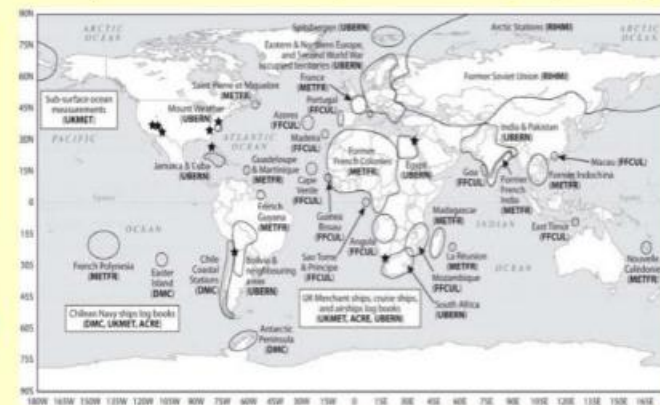
ACRE is working with data rescue activities in Africa by IEDRO, MEDARE, MedCLIVAR, EURO4M, ERA-CLIM, CNMCA & the University of Giessen



Gianpaolo Mordacchini in 2011



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



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

ERA-CLIM data recovery & digitization

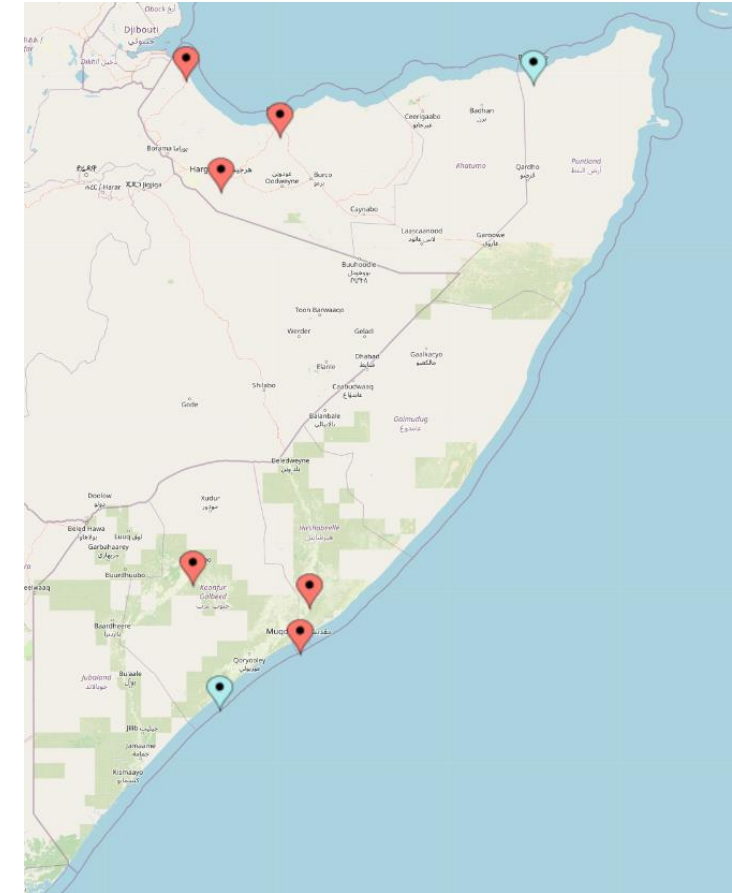
SOURCES: ACMAD

ISPD

DWD

SOMALIA

	<i>Start</i>	<i>End</i>	
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	





GOVERNO DELLA SOMALIA ITALIANA

UFFICIO AGRARIO

(SERVIZIO METEOROLOGICO DELLE COLONIE)



di

OSSERVAZIONI COMPIUTE

durante il mese di *Maggio 1937*

Brava 31 maggio 1937 A. P. F.

L'OSSERVATORE
*Il Capo R. T. di 1° cl.
Capopasto
Pierrell Armandi*



AVVERTENZA IMPORTANTISSIMA: — Prima di compilare la presente scheda mensile rileggersi le avvertenze a lato.

BARAAWE/BRAVA, SOMALIA 1937

GIORNI	BAROMETRO (Correttore)						TERMO-PSICROMETRO												VENTO DEL GIORNO	STATO DEL CIELO	RELAZIONE DI UMIDITÀ	DIREZIONE	SOLARITÀ (ORA DI LUCE SOLE)				TEMPERATURE (GRADI CENTESIMI)			RISULTATO																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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1	1012	1015	1018	1020	1022	1024	24.5	25.0	25.5	26.0	26.5	27.0	27.5	28.0	28.5	29.0	29.5	30.0	30.5	31.0	31.5	32.0	32.5	33.0	33.5	34.0	34.5	35.0	35.5	36.0	36.5	37.0	37.5	38.0	38.5	39.0	39.5	40.0	40.5	41.0	41.5	42.0	42.5	43.0	43.5	44.0	44.5	45.0	45.5	46.0	46.5	47.0	47.5	48.0	48.5	49.0	49.5	50.0	50.5	51.0	51.5	52.0	52.5	53.0	53.5	54.0	54.5	55.0	55.5	56.0	56.5	57.0	57.5	58.0	58.5	59.0	59.5	60.0	60.5	61.0	61.5	62.0	62.5	63.0	63.5	64.0	64.5	65.0	65.5	66.0	66.5	67.0	67.5	68.0	68.5	69.0	69.5	70.0	70.5	71.0	71.5	72.0	72.5	73.0	73.5	74.0	74.5	75.0	75.5	76.0	76.5	77.0	77.5	78.0	78.5	79.0	79.5	80.0	80.5	81.0	81.5	82.0	82.5	83.0	83.5	84.0	84.5	85.0	85.5	86.0	86.5	87.0	87.5	88.0	88.5	89.0	89.5	90.0	90.5	91.0	91.5	92.0	92.5	93.0	93.5	94.0	94.5	95.0	95.5	96.0	96.5	97.0	97.5	98.0	98.5	99.0	99.5	100.0	100.5	101.0	101.5	102.0	102.5	103.0	103.5	104.0	104.5	105.0	105.5	106.0	106.5	107.0	107.5	108.0	108.5	109.0	109.5	110.0	110.5	111.0	111.5	112.0	112.5	113.0	113.5	114.0	114.5	115.0	115.5	116.0	116.5	117.0	117.5	118.0	118.5	119.0	119.5	120.0	120.5	121.0	121.5	122.0	122.5	123.0	123.5	124.0	124.5	125.0	125.5	126.0	126.5	127.0	127.5	128.0	128.5	129.0	129.5	130.0	130.5	131.0	131.5	132.0	132.5	133.0	133.5	134.0	134.5	135.0	135.5	136.0	136.5	137.0	137.5	138.0	138.5	139.0	139.5	140.0	140.5	141.0	141.5	142.0	142.5	143.0	143.5	144.0	144.5	145.0	145.5	146.0	146.5	147.0	147.5	148.0	148.5	149.0	149.5	150.0	150.5	151.0	151.5	152.0	152.5	153.0	153.5	154.0	154.5	155.0	155.5	156.0	156.5	157.0	157.5	158.0	158.5	159.0	159.5	160.0	160.5	161.0	161.5	162.0	162.5	163.0	163.5	164.0	164.5	165.0	165.5	166.0	166.5	167.0	167.5	168.0	168.5	169.0	169.5	170.0	170.5	171.0	171.5	172.0	172.5	173.0	173.5	174.0	174.5	175.0	175.5	176.0	176.5	177.0	177.5	178.0	178.5	179.0	179.5	180.0	180.5	181.0	181.5	182.0	182.5	183.0	183.5	184.0	184.5	185.0	185.5	186.0	186.5	187.0	187.5	188.0	188.5	189.0	189.5	190.0	190.5	191.0	191.5	192.0	192.5	193.0	193.5	194.0	194.5	195.0	195.5	196.0	196.5	197.0	197.5	198.0	198.5	199.0	199.5	200.0	200.5	201.0	201.5	202.0	202.5	203.0	203.5	204.0	204.5	205.0	205.5	206.0	206.5	207.0	207.5	208.0	208.5	209.0	209.5	210.0	210.5	211.0	211.5	212.0	212.5	213.0	213.5	214.0	214.5	215.0	215.5	216.0	216.5	217.0	217.5	218.0	218.5	219.0	219.5	220.0	220.5	221.0	221.5	222.0	222.5	223.0	223.5	224.0	224.5	225.0	225.5	226.0	226.5	227.0	227.5	228.0	228.5	229.0	229.5	230.0	230.5	231.0	231.5	232.0	232.5	233.0	233.5	234.0	234.5	235.0	235.5	236.0	236.5	237.0	237.5	238.0	238.5	239.0	239.5	240.0	240.5	241.0	241.5	242.0	242.5	243.0	243.5	244.0	244.5	245.0	245.5	246.0	246.5	247.0	247.5	248.0	248.5	249.0	249.5	250.0	250.5	251.0	251.5	252.0	252.5	253.0	253.5	254.0	254.5	255.0	255.5	256.0	256.5	257.0	257.5	258.0	258.5	259.0	259.5	260.0	260.5	261.0	261.5	262.0	262.5	263.0	263.5	264.0	264.5	265.0	265.5	266.0	266.5	267.0	267.5	268.0	268.5	269.0	269.5	270.0	270.5	271.0	271.5	272.0	272.5	273.0	273.5	274.0	274.5	275.0	275.5	276.0	276.5	277.0	277.5	278.0	278.5	279.0	279.5	280.0	280.5	281.0	281.5	282.0	282.5	283.0	283.5	284.0	284.5	285.0	285.5	286.0	286.5	287.0	287.5	288.0	288.5	289.0	289.5	290.0	290.5	291.0	291.5	292.0	292.5	293.0	293.5	294.0	294.5	295.0	295.5	296.0	296.5	297.0	297.5	298.0	298.5	299.0	299.5	300.0	300.5	301.0	301.5	302.0	302.5	303.0	303.5	304.0	304.5	305.0	305.5	306.0	306.5	307.0	307.5	308.0	308.5	309.0	309.5	310.0	310.5	311.0	311.5	312.0	312.5	313.0	313.5	314.0	314.5	315.0	315.5	316.0	316.5	317.0	317.5	318.0	318.5	319.0	319.5	320.0	320.5	321.0	321.5	322.0	322.5	323.0	323.5	324.0	324.5	325.0	325.5	326.0	326.5	327.0	327.5	328.0	328.5	329.0	329.5	330.0	330.5	331.0	331.5	332.0	332.5	333.0	333.5	334.0	334.5	335.0	335.5	336.0	336.5	337.0	337.5	338.0	338.5	339.0	339.5	340.0	340.5	341.0	341.5	342.0	342.5	343.0	343.5	344.0	344.5	345.0	345.5	346.0	346.5	347.0	347.5	348.0	348.5	349.0	349.5	350.0	350.5	351.0	351.5	352.0	352.5	353.0	353.5	354.0	354.5	355.0	355.5	356.0	356.5	357.0	357.5	358.0	358.5	359.0	359.5	360.0	360.5	361.0	361.5	362.0	362.5	363.0	363.5	364.0	364.5	365.0	365.5	366.0	366.5	367.0	367.5	368.0	368.5	369.0	369.5	370.0	370.5	371.0	371.5	372.0	372.5	373.0	373.5	374.0	374.5	375.0	375.5	376.0	376.5	377.0	377.5	378.0	378.5	379.0	379.5	380.0	380.5	381.0	381.5	382.0	382.5	383.0	383.5	384.0	384.5	385.0	385.5	386.0	386.5	387.0	387.5	388.0	388.5	389.0	389.5	390.0	390.5	391.0	391.5	392.0	392.5	393.0	393.5	394.0	394.5	395.0	395.5	396.0	396.5	397.0	397.5	398.0	398.5	399.0	399.5	400.0	400.5	401.0	401.5	402.0	402.5	403.0	403.5	404.0	404.5	405.0	405.5	406.0	406.5	407.0	407.5	408.0	408.5	409.0	409.5	410.0	410.5	411.0	411.5	412.0	412.5	413.0	413.5	414.0	414.5	415.0	415.5	416.0	416.5	417.0	417.5	418.0	418.5	419.0	419.5	420.0	420.5	421.0	421.5	422.0	422.5	423.0	423.5	424.0	424.5	425.0	425.5	426.0	426.5	427.0	427.5	428.0	428.5	429.0	429.5	430.0	430.5	431.0	431.5	432.0	432.5	433.0	433.5	434.0	434.5	435.0	435.5	436.0	436.5	437.0	437.5	438.0	438.5	439.0	439.5	440.0	440.5	441.0	441.5	442.0	442.5	443.0	443.5	444.0	444.5	445.0	445.5	446.0	446.5	447.0	447.5	448.0	448.5	449.0	449.5	450.0	450.5	451.0	451.5	452.0	452.5	453.0	453.5	454.0	454.5	455.0	455.5	456.0	456.5	457.0	457.5	458.0	458.5	459.0	459.5	460.0	460.5	461.0	461.5	462.0	462.5	463.0	463.5	464.0	464.5	465.0	465.5	466.0	466.5	467.0	467.5	468.0	468.5	469.0	469.5	470.0	470.5	471.0	471.5	472.0	472.5	473.0	473.5	474.0	474.5	475.0	475.5	476.0	476.5	477.0	477.5	478.0	478.5	479.0	479.5	480.0	480.5	481.0	481.5	482.0	482.5	483.0	483.5	484.0	484.5	485.0	485.5	486.0	486.5	487.0	487.5	488.0	488.5	489.0	489.5	490.0	490.5	491.0	491.5	492.0	492.5	493.0	493.5	494.0	494.5	495.0	495.5	496.0	496.5	497.0	497.5	498.0	498.5	499.0	499.5	500.0	500.5	501.0	501.5	502.0	502.5	503.0	503.5	504.0	504.5	505.0	505.5	506.0	506.5	507.0	507.5	508.0	508.5	509.0	509.5	510.0	510.5	511.0	511.5	512.0	512.5	513.0	513.5	514.0	514.5	515.0	515.5	516.0	516.5	517.0	517.5	518.0	518.5	519.0	519.5	520.0	520.5	521.0	521.5	522.0	522.5	523.0	523.5	524.0	524.5	525.0	525.5	526.0	526.5	527.0	527.5	528.0	528.5	529.0	529.5	530.0	530.5	531.0	531.5	532.0	532.5	533.0	533.5	534.0	534.5	535.0	535.5	536.0	536.5	537.0	537.5	538.0	538.5	539.0	539.5	540.0	540.5	541.0	541.5	542.0	542.5	543.0	543.5	544.0	544.5	545.0	545.5	546.0	546.5	547.0	547.5	548.0	548.5	549.0	549.5	550.0	550.5	551.0	551.5	552.0	552.5	553.0	553.5	554.0	554.5	555.0	555.5	556.0	556.5	557.0	557.5	558.0	558.5	559.0	559.5	560.0	560.5	561.0	561.5	562.0	562.5	563.0	563.5	564.0	564.5	565.0	565.5	566.0	566.5	567.0	567.5	568.0	568.5	569.0	569.5	570.0	570.5	571.0	571.5	572.0	572.5	573.0	573.5	574.0	574.5	575.0	575.5	576.0	576.5	577.0	577.5	578.0	578.5	579.0	579.5	580.0	580.5	581.0	581.5	582.0	582.5	583.0	583.5	584.0	584.5	585.0	585.5	586.0	586.5	587.0	587.5	588.0	588.5	589.0	589.5	590.0	590.5	591.0

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

Imu. P. P. P.

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

Stampa A.F.I.S. — Napoli — 1954 — 23 — 1/50

Mese di

GIORNI	+SCHEDA METEOROLOGICA				SCHEDA METEOROLOGICA		TERMO-PSICROMETRO												
	1958/5	1958/6	1958/7	1958/8	1958/9	1958/10	1958/11		1958/12		1958/1		1958/2		1958/3		1958/4		
1	32.0 10.80	32.0 10.85	32.0 10.80	31.5 10.65	31.5 10.65	31.5 10.65	31.5 10.65	31.5 10.65	31.5 10.65	31.5 10.65	31.5 10.65	31.5 10.65	31.5 10.65	31.5 10.65	31.5 10.65	31.5 10.65	31.5 10.65	31.5 10.65	31.5 10.65

Maggio 1958

GIORNI	AMBIENTE										SISTEMA DI RISCALDAMENTO										PRECIPITAZIONI				SCHEDA SPECIALE		
	1958/5		1958/6		1958/7		1958/8		1958/9		1958/10		1958/11		1958/12		1958/1		1958/2		1958/3		1958/4		1958/5		
1	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

ERITREA

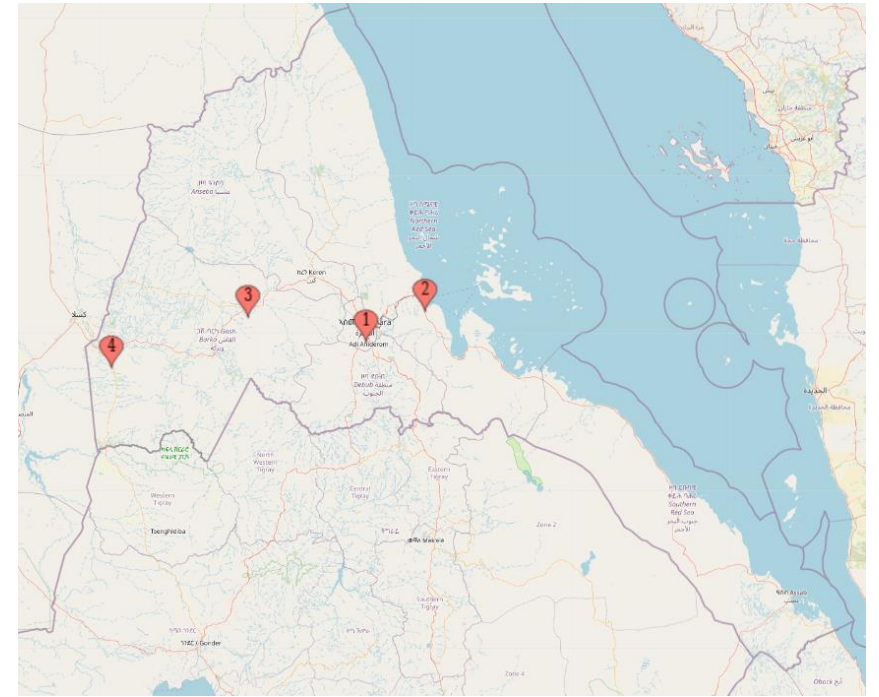
Start **End**

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

	<i>Start</i>	<i>End</i>
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
Nalut	194901301200	201312312100
Zuara	194901291200	201312312100
Misrata	194901291200	201312312100
Sirte	194901301200	201312311800



LIBYA (continued)

	<i>Start</i>	<i>End</i>
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

	<i>Start</i>	<i>End</i>
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
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ETHIOPIA - [Met Office Archives] – Climatological Returns not digitised

DODECANESE

