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Regional Initiative for the Assessment of Climate Change Impacts on Water Resources and Socio-Economic Vulnerability in the Arab Region

Climate Data Rescue in Yemen

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Republic of Yemen

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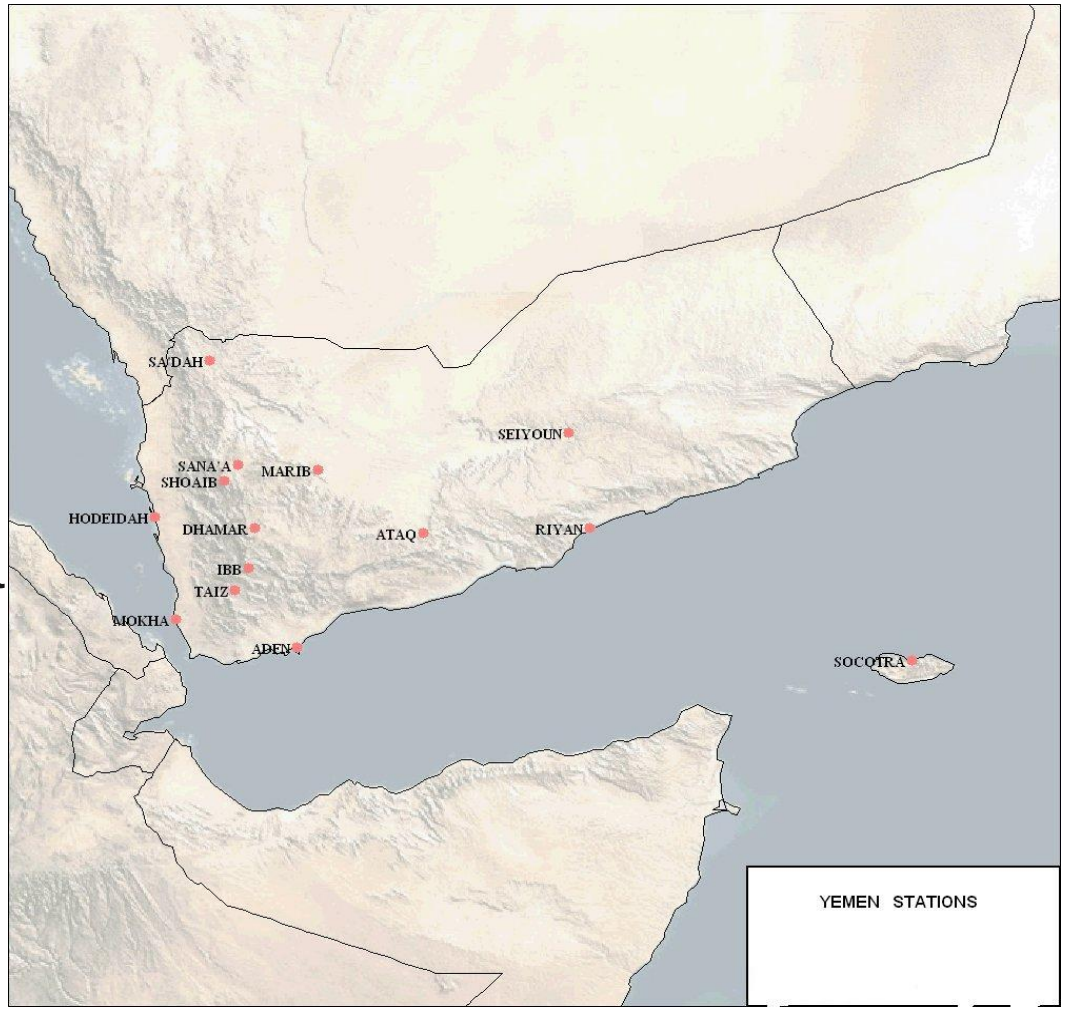
1. Geography of Yemen

- Yemen located in the Arabian Peninsula between latitudes 12º and 19º N and longitudes 42º and 55º E
- The country land area is about 555,000 square kilometers.



Topography of Yemen

1-Mountainous region: North-South mountain region which parallels to the Red Sea. The region includes Sana'a ,Dhamar, Ibb, and Taiz. The weather is moderate

Topography of Yemen

2- **The coastal plain** overlooking the Red sea, the Gulf of Aden and the Arabian sea.

- The width of these coastal areas varies from 30 to 60 km² .
- The region is comprised of AL-Hodeidah, Aden, Abyan, Shabwa and part of Hadramout. The weather is very hot and humid at summer but moderate in winter.

Topography of Yemen

3-Plateau area whose elevation is around 1,000m, lying on the east and north of the mountainous and high lands. The weather is moderate to hot

Topography of Yemen

4-The desert region which covering large area. These region includes AL-Jof, Marib, Shabwa and part of Hadramout .Its weather is very hot and dry

Topography of Yemen

5-Islands: this part of the country consists of Islands scattering along coast of Read Sea and Arabian Sea. There is about 120 Islands, most of which locate in the Read Sea .The biggest island in Red Sea is Kamaran, while in the Arabian Sea ,the largest and most important island is Socotra. The weather is hot.

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Climate IN Yemen:

- Yemen has semi-arid and arid climate.
- Generally there are two main seasonal, summer and winter.
- Hot rainy summer is from April to September and cold to moderate in winter from October to March.
- Yemen is dominated by the tropical circulation and subjected to the pattern of the Inter-tropical Convergence Zone (ITCZ) and the Red Sea Convergence Zone (RSCZ) respectively.
- In summer it lays under effect of the (south-west Indian summer monsoon).So precipitation almost occurs in summer
- In winter Yemen is mainly under the influence of the Siberian anticyclone which covers most parts of Asia and causes the predominance of north-east surface winds over Yemen .The weather during winter is relatively cold with less precipitation, especially over high lands and mountain areas

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Network of Observations

- YMS has been operating under Civil Aviation & Meteorology Authority (CAMA), Ministry of Transport.
- YMS has 22 Surface observation stations.

- 6 Agro met. stations.

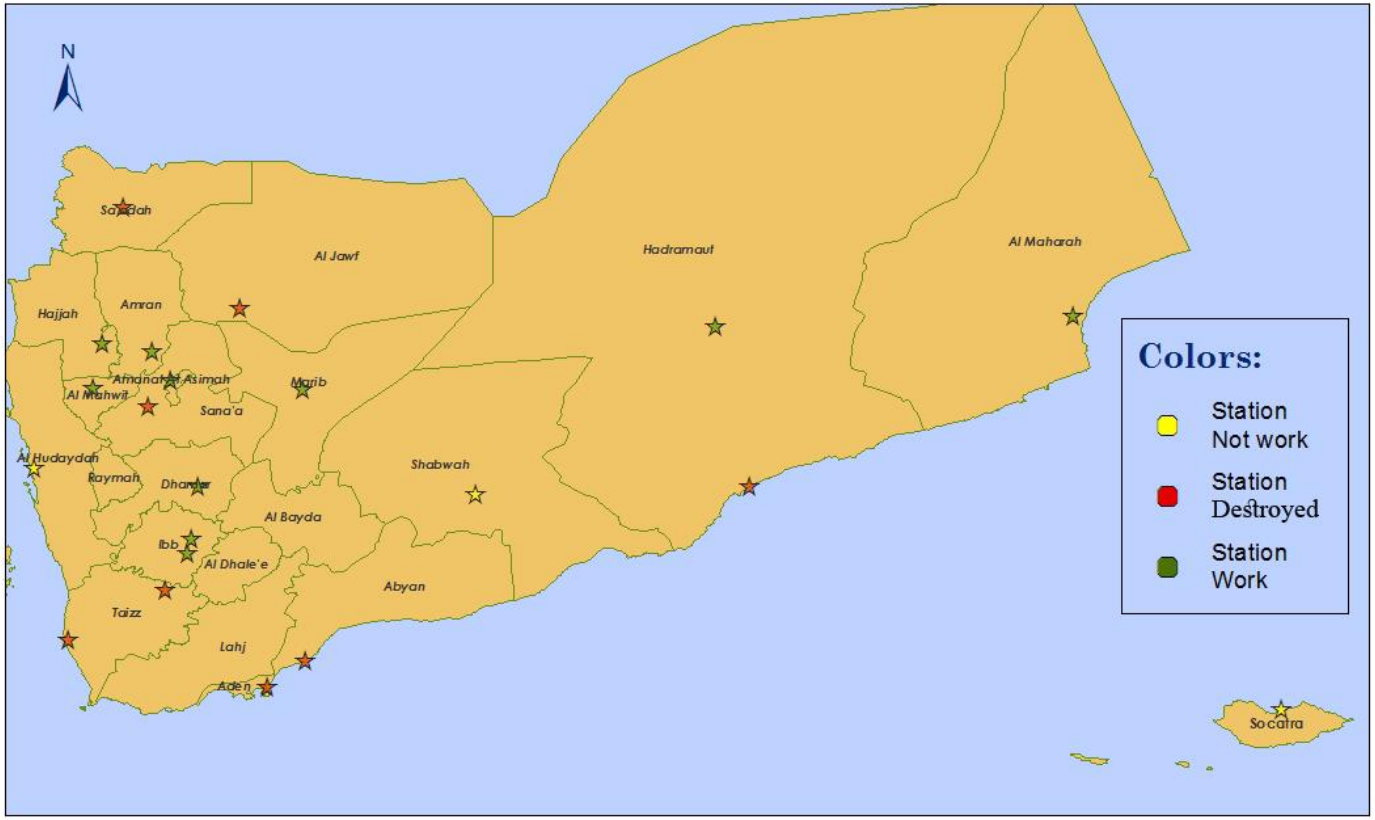
- 10 Climatologically stations

- 6 Automatic weather stations

Network of Observations

Republic of Yemen
Civil Aviation & Meteorology Authority
Yemen Meteorological Service (YMS)
Sana'a

YMS/CAMA Stations



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Data Rescue

- Under the Agro Biodiversity and Climate Change Adaptation Project (ACAP) MINISTARY OF AGRICULTURE AND IRRIGATION YMS implemented:
- Data Rescue and Assessment of Historical Climate Data for highland (SANA'A, TAIZ, IBB and AL-MAHWEET PROVINCES

. Ctr. Reference: ACAP/GEF / CS /9

- Project ID: P103922
- Global Environment Facility (GEF)
- Trust Fund Grant No. TF 096330
- Prepared by:
- Consultant: Civil Aviation & Meteorology Authority- Yemen Meteorological Service (CAMA/YMS)

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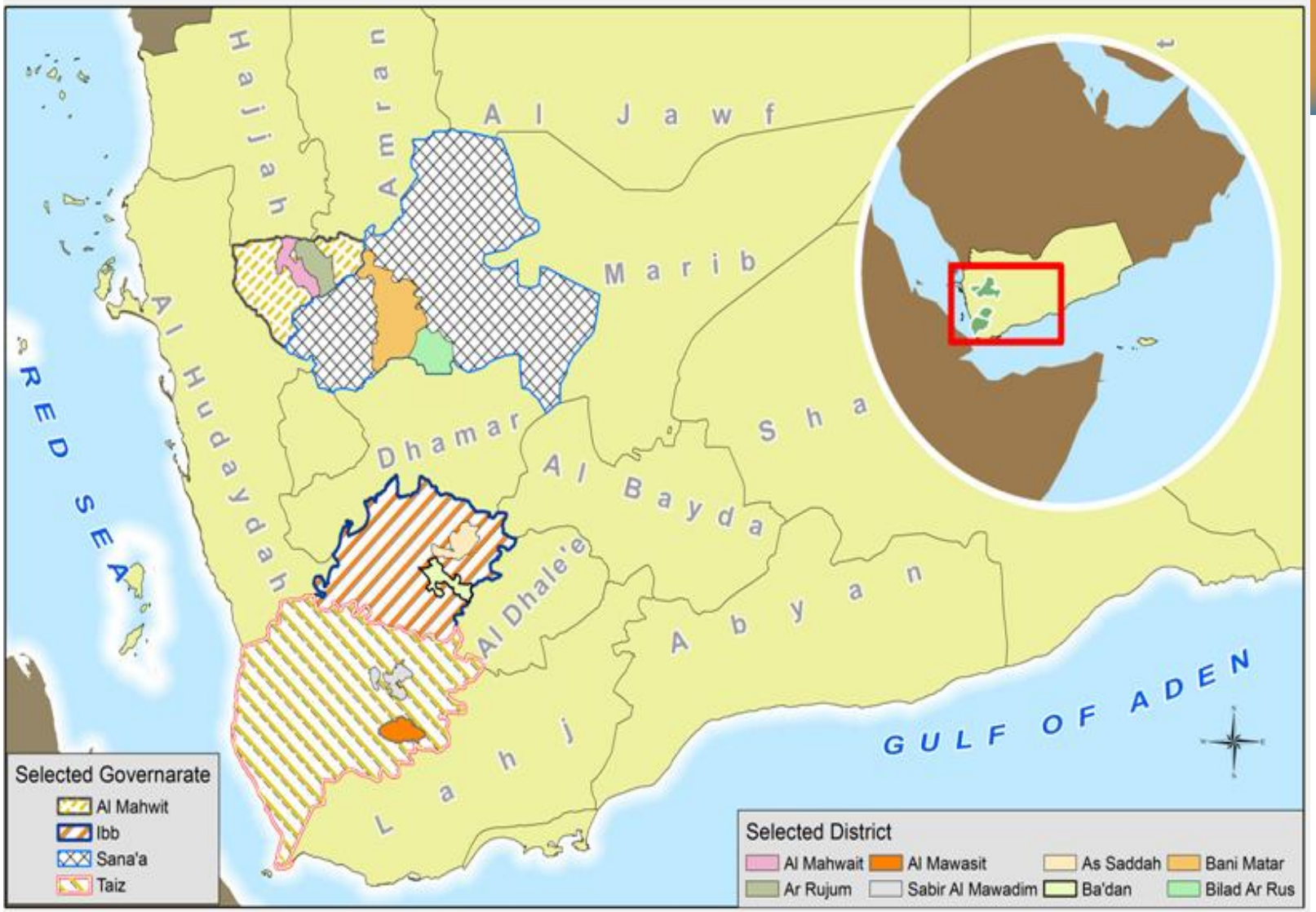

Data Rescue

- Collected available data from related Authorities:
- monthly records 24,053 registers
- daily records of 1,337,186 records
- Scanning CAMA climatic data (Images) for different stations (Ibb-Taiz- Sana'a) including:
- Daily Pages 8779
- Hourly Records 175660
- Monthly Registers 290.
- Data Entry for Different Stations (Monthly data entry) of 323 registers for TAIZ (85) , IBB(120) and SANA'A(118)

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Data Rescue

- Available Rainfall Records and Defined Gaps for Selected Observed Locations of Yemen
- Data Collection Training Course (DCTC) at CAMA for the Relevant Institutions
- Establishing CIS in CAMA/YMS
- Data Transparency & Sharing Policy and MoU on Data Sharing.
- Shearing of Climate Data Rescue

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Data Rescue

Data Entry

Variety Documents	TAIZ	IBB	SANA'A	Total
Daily Pages	4309	1976	2494	8779
Hourly Records	86180	39600	49880	175660
Monthly Registers	143	64	83	290

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Data Rescue

Scanning Data (Images)

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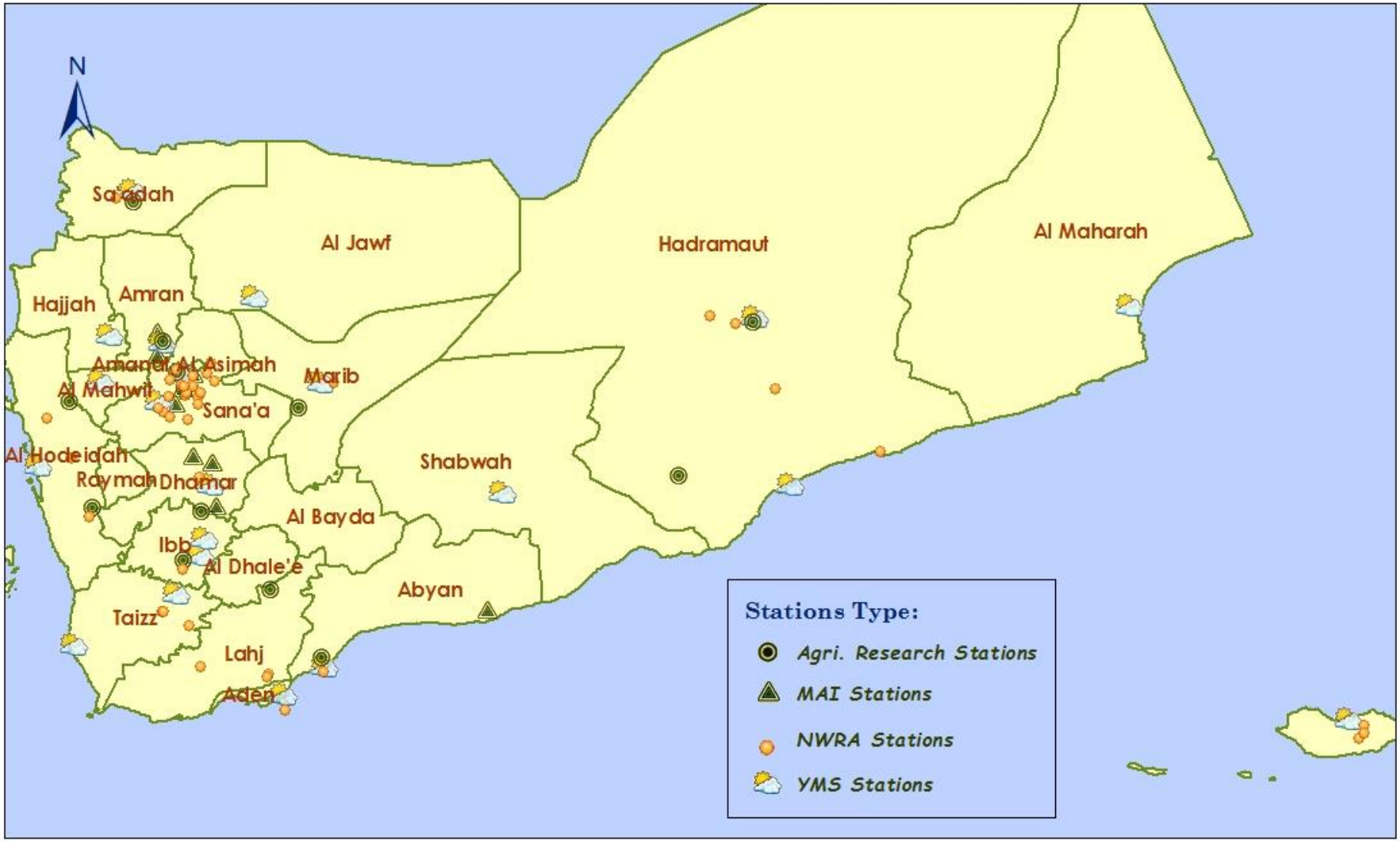
Data Rescue

- The climate data is currently being recorded in monitoring stations under the authority of various organizations, for their own purposes.
- We have Memorandum of Understanding on data sharing Policy & Data Transparency among the Stakeholders (Civil Aviation & Metrology Authority-Yemen Meteorological Service (CAMA-YMS), National Water Resources Authority (NWRA), Ministry of Agriculture and Irrigation (MAI)).

Republic of Yemen
Civil Aviation & Meteorology Authority
Yemen Meteorological Service (YMS)
Sana'a

The Relevant Authorities Stations



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Data Rescue

- We appreciate the support of the Global Environment Facility (GEF) for the establishment Climatic Information System (CIS).
- In order to improve climate risk management capabilities we need to create early warning system that mean we should have good record for climate data and good infrastructure in capacity building and equipment.
- Yemen Meteorological Service facing the big problem to give the perfect early warning from extremes weather due to many circumstances, like:

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Data Rescue

- There are Insufficient climate record
- Insufficient monitoring stations.
- There are no multi-hazard database for all regions of the Republic.
- Inability in capacity building in early warning for climate change.
- There are no numerical models for Limited-area for early warning.
- There are no any weather radars network.

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Data Rescue

- From the above, I would like to extend the request of the YMS for its support in raising its capacity to cope with severe weather and climate change, which can be summarized as follows:
- Increased surface monitoring stations.
- creating multi-hazard database for all regions of the Republic.

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Data Rescue

- Assistance in the capacity building for weather and climate change.
- we need the contingency plan for the climate Data Rescue for all country regions to get a good climate record.
- Yemen has the oldest climate record, in the Arabian peninsula (before 1847).

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climate record in Yemen (Aden)

BAROMETER Corrected for Expansion of Mercury and Brass, 32° Fahr.—for the Month of APRIL, 1847.—*Turning-points.*

Date. April.	h. m. 9·30	h. m. 10·00	h. m. 10·30	h. m. 3·00	h. m. 3·30	h. m. 4·00	h. m. 9·30	h. m. 10·00	h. m. 10·30	DAILY MEANS.
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
1	29·959	29·819	29·859	29·654	29·654	29·665	29·710	29·720	29·714	29·739
2	·821	·839	·834	·678	·687	·695	·788	·784	·778	·767
3	·834	·845	·822	·649	·649	·678	·786	·792	·786	·760
4	·838	·845	·811	·652	·647	·667	·812	·806	·784	·762
5	·882	·838	·832	·761	·735	·744	·810	·829	·815	·805
6	·901	·851	·871	·776	·757	·765	·779	·757	·751	·801
7	·876	·883	·868	·734	·733	·732	·820	·832	·822	·811
8	·776	·785	·783	·645	·646	·657	·859	·841	·841	·759
9	·824	·785	·800	·654	·672	·680	·794	·750	·784	·749
10	·779	·784	·779	·651	·661	·681	·777	·781	·772	·740
11	·749	·749	·749	·607	·619	·620	·677	·679	·693	·682
12	·707	·713	·707	·604	·612	·613	·674	·696	·695	·669
13	·749	·744	·744	·575	·565	·578	·697	·711	·684	·672
14	·723	·725	·722	·623	·618	·625	·701	·712	·691	·682
15	·704	·705	·704	·539	·527	·548	·612	·616	·610	·618
16	·667	·654	·644	·454	·456	·456	·574	·585	·582	·564
17	·579	·594	·590	·520	·532	·533	·514	·522	·522	·545
18	·596	·600	·584	·520	·532	·533	·534	·548	·543	·554
19	·654	·652	·635	·610	·600	·608	·646	·668	·630	·634
20	·750	·743	·719	·608	·593	·607	·622	·637	·629	·656
21	·720	·733	·696	·573	·558	·581	·650	·663	·659	·648
22	·675	·688	·679	·567	·555	·569	·635	·642	·642	·628
23	·683	·695	·676	·554	·546	·554	·567	·577	·568	·602
24	·667	·680	·673	·574	·560	·567	·604	·619	·611	·617
25	·656	·657	·667	·568	·558	·572	·657	·668	·666	·630
26	·740	·752	·747	·565	·561	·573	·667	·671	·664	·660
27	·730	·748	·732	·602	·593	·606	·680	·700	·680	·675
28	·792	·805	·796	·652	·646	·667	·753	·761	·751	·736
29	·835	·831	·811	·683	·675	·681	·769	·799	·762	·761
30	·817	·333	·817	·663	·671	·657	·791	·815	·781	·760
MONTHLY MEANS.	29·753	20·752	29·745	29·617	29·614	29·624	29·699	29·706	29·697	29·690

The hour of 3 o'clock A. M. being a particularly inconvenient one for observation, when there is little or no assistance, has been omitted. To obtain the true curve for the day, or rather a close approximation to this, the morning and forenoon turning-points must be taken from the hourly readings in the preceding tables: the mean of these for April at 3 A. M. is 29·728. The mean for the month of April from the turning-point daily [illegible]

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Data Rescue

- We request the donors to continue them support for implement the PPCR project.
- We request the WMO and UN to recognizing the meteorology one of humanitarian relief organization in the war and in the peace. So that should give the meteorologist authority to free moving in the country.

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Thank you for your attention.