Food and Agriculture Organization of the United Nations

FOOD SECURITY AND EARLY WARNING INFORMATION SYSTEM

Yemen

AGROMETEOROLOGICAL UPDATE

September Issue (Ref: #25) | 01 - 31 August 2022

HIGHLIGHTS

- Devastating floods swept away hundreds of livestock in Al Jawf governorate, driving families to poverty.
- September outlook shows reduced impact of floods, however, widespread rainfall with isolated heavy downpours is still likely in some areas.
- Increased incidence of waterborne/water-related vector-borne diseases such as cholera and dengue fever.
- Due to the wet conditions, crop pests and diseases are resurgent, mainly Fall Armyworms and Desert Locust.

I. METEOROLOGICAL REVIEW

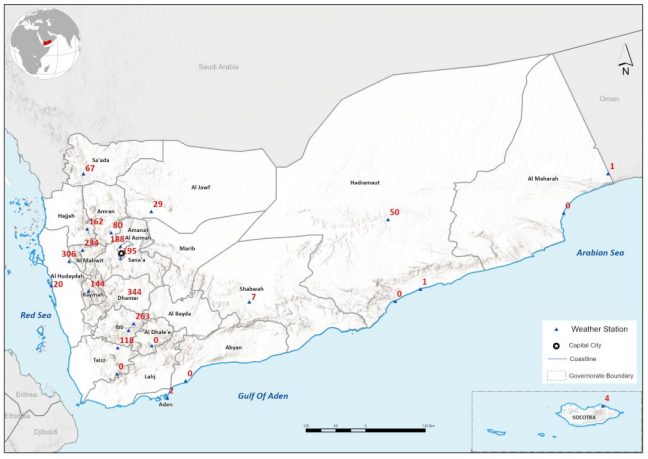
From 1 – 31 August, over 80 percent of Yemen experienced heavy rainfall, with large portions inundated as floods swept through the country. The heavy rainfall that lashed the country had a cumulative amount of about 2500 mm, which is 45 percent higher than the rainfall experienced in August 2021. Field weather stations reported the heaviest rain in Al Hudaydah (Al Kaden, 306 mm), Ibb (Alsaddah, 263 mm), Amanat Al Asimah (Baghdad, 241 mm), Al Mahwit (Almahweet, 234 mm), Amanat Al Asimah (Al-Asbahi, 215 mm), and Dhamar (Maqar-Alhya'a, 209 mm).

Rainfall was enhanced both in spatial dimension (across all governorates) and temporal dimension (over 26 rainy days), leading to increased soil moisture of nearly 150 percent above normal, which boosted vegetation growth by over 60 percent, especially in western parts of the country. The high moisture levels were also reflected in the Agricultural Stress Index (ASI), a key metric for crop water requirements. Overall, ASI shows good crop performance with no water stress detected across the country.

The weather outlook for September indicates that although the worst in flood occurrence is over, scattered to widespread rainfall with isolated heavy downpours is still likely, especially over Ibb, Taizz, Al Dhale'e, and Dhamar governorates. Waterlogged areas in these governorates from previous months of heavy rainfall are still at risk of further flooding. This is likely to be exacerbated by the possibility of cyclone activity in the northeast of the Arabian Sea. This calls for unrelenting flood risk preparedness. As the ravages of climate change continue to affect farming communities in Yemen, adopting integrated farming systems is strongly advised. Agricultural systems that integrate crops, livestock, and forestry are especially encouraged because such systems, on average, have a greater ability to adapt to climate change.

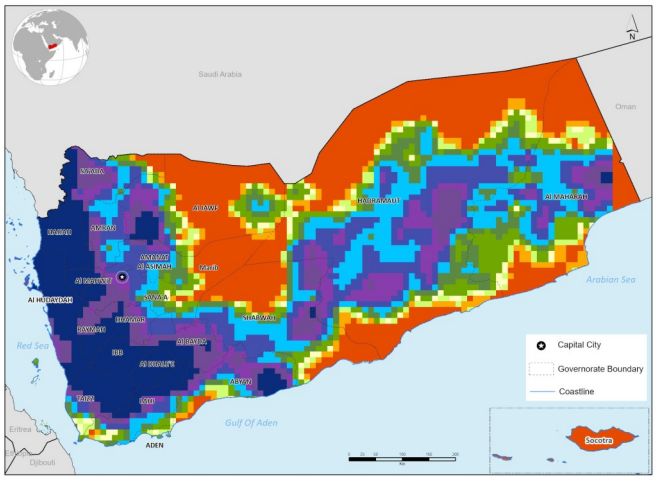
Fig. 1: Progress of monthly rainfall and vegetation conditions A) Observed rainfall (mm) B) Satellite-based rainfall estimates (mm) C) Vegetation Condition Index.

A



SOURCE : CAMA

B

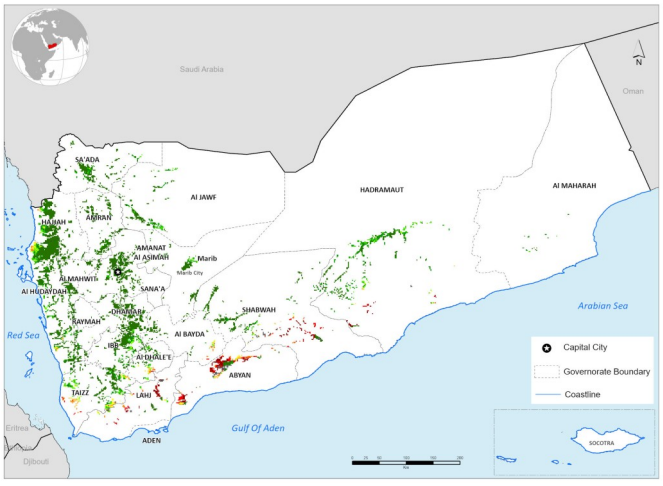


SOURCE : CPC

Rainfall (mm)

< 5 | 5 - 10 | 10 - 15 | 15 - 20 | 20 - 40 | 40 - 60 | 60 - 100 | 100 - 150 | 150 - 200 | 200 - 300 | Above 300

C



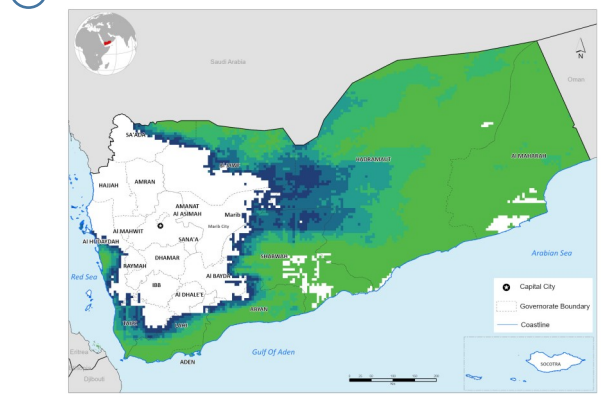
SOURCE : VCI – GIEWS, Crop mask – JRC

VCI

< 0.15 | 0.15 - 0.25 | 0.25 -0.35 | 0.35 - 0.45 | 0.45 - 0.55 | 0.55 - 0.65 | 0.65 - 0.75 | 0.75 - 0.85 | > 0.85 | missing | cloud | snow

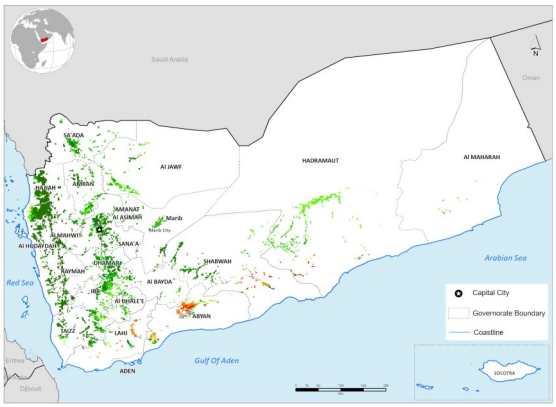
Fig. 2: Monthly anomalies (difference from long term average, LTA) for A) rainfall (LTA: 1983 – 2013) B) Normalized Difference Vegetation Index (LTA: 1984—2015)

A



SOURCE : CPC

B



SOURCE : NDVI anomalies – GIEWS, Crop

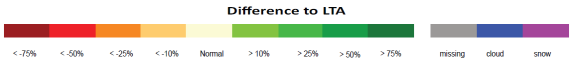
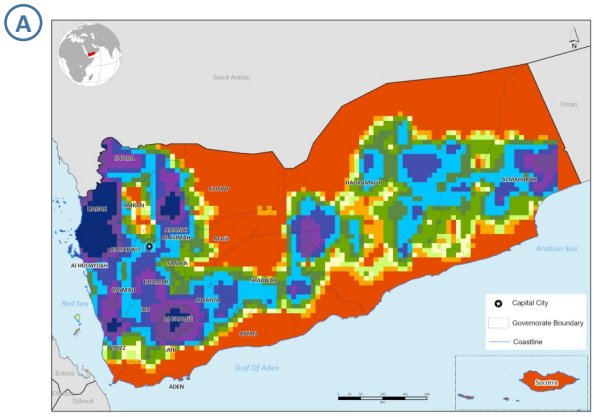
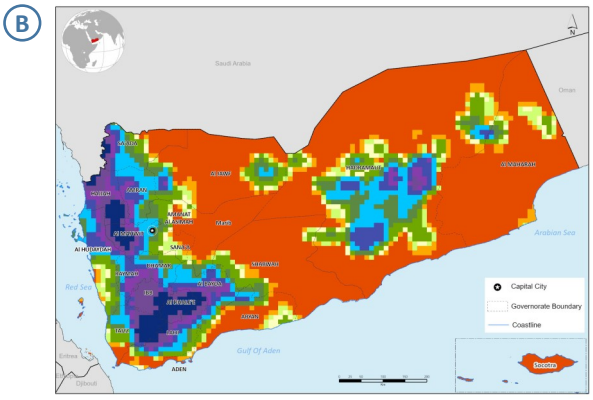


Fig. 3: Progress of rainfall estimates A) 1 to 10 Aug B) 11 to 20 Aug C) 21 to 31 Aug.

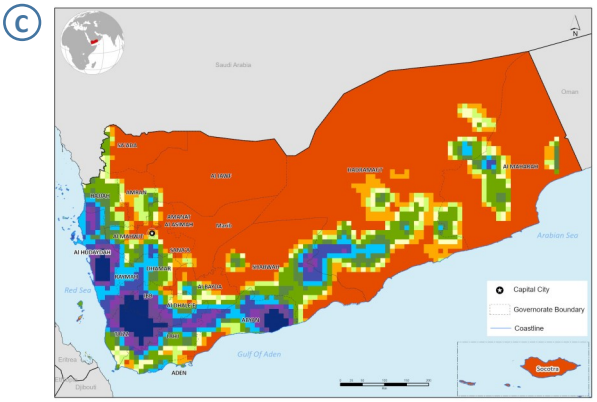
A



B



C



SOURCE : CPC

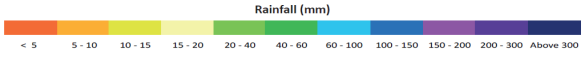
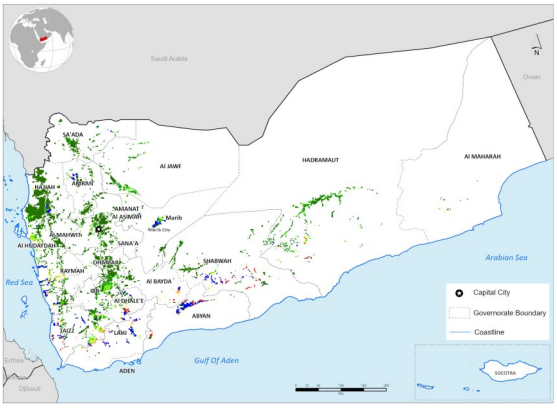
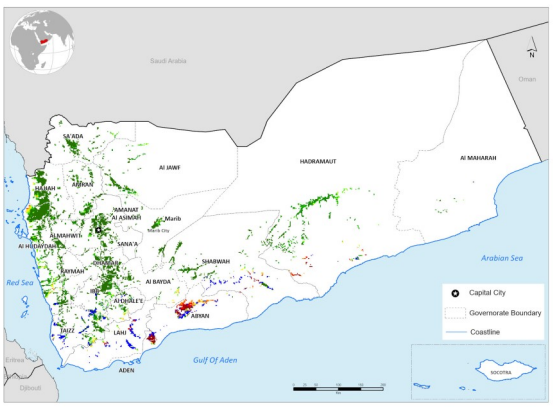


Fig. 4: Progress of vegetation conditions for A) 1 to 10 Aug B) 11 to 20 Aug C) 21 to 31 Aug .

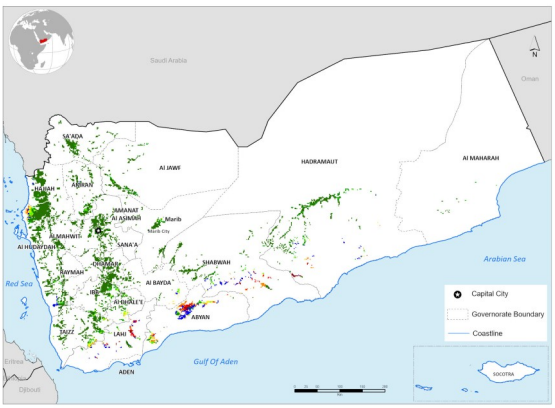
A



B



C



SOURCE : VCI – GIEWS, Crop mask – JRC

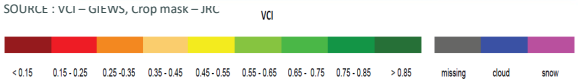


Fig. 5: Progress of monthly temperature conditions for A) Maximum B) Minimum

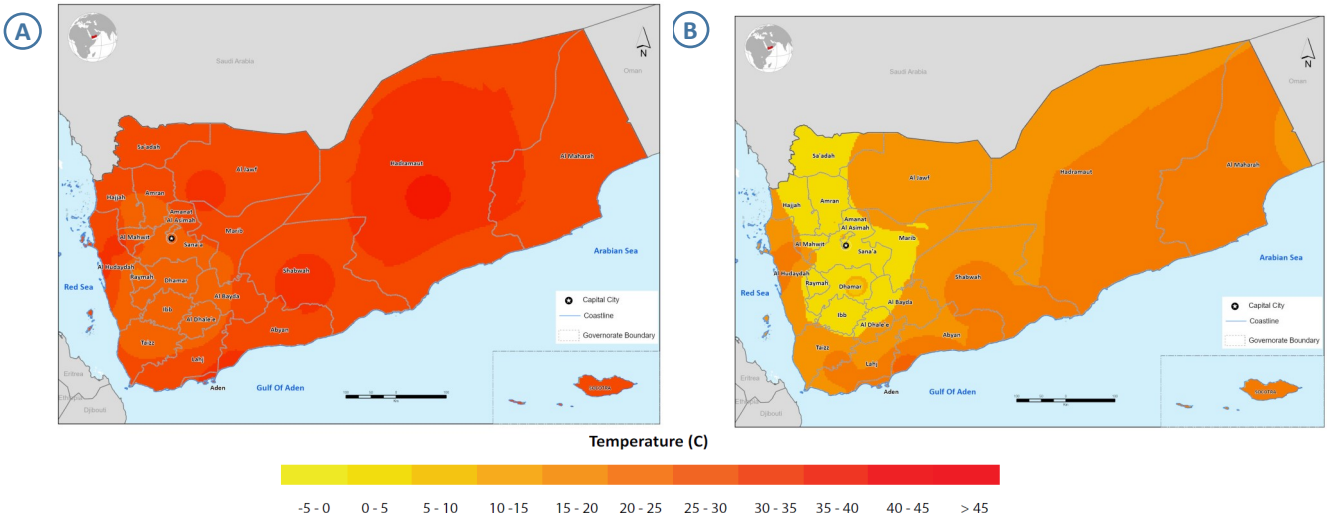


Fig. 6: Progress of Agricultural Stress Index (ASI) for A) 1 to 10 Aug B) 11 to 20 Aug C) 21 to 31 Aug

II. IMPACT ON LIVELIHOODS

The August heavy rains continued to tear up critical infrastructure and livelihoods, with the total death toll in the first 10 days of the month reaching ninety. There are also reports of increased incidence of waterborne/water-related vector-borne diseases such as cholera and dengue fever triggered by waterlogging.

In Al Jawf, devastating floods swept away hundreds of livestock, impacting livelihoods and driving families to poverty. This will also likely lead to shortages of milk and meat supplies and consequently affect nutrition. In Dhamar, Taizz and parts of Sana'a, heavy rains accompanied by hail damaged cash crops, including coffee, grapes and other fruit trees, which will affect the incomes of most families. A resurgence of Fall Armyworms (FAW) is reported in Sa'ada, Al Hudaydah, Ibb, Amran and parts of the northern districts of Sana'a, threatening cereals crops such as sorghum, maize, millet, barley, and wheat.

On the positive side, in agropastoral areas, pasture, fodder and water for livestock are available, leading to improved body conditions despite increased pests and diseases. Field reports also indicate tomatoes, chilli, and green maize harvesting in the central highlands. In most highland areas, cereal crops (sorghum, maize, wheat, and barley) are in the growing period, with the harvest expected from mid/late September through November. However, yields are expected to be low due to the harsh climate experienced thus far.

The outlook for September indicates continued rainfall activities, albeit reduced intensity, frequency, and spatial spread. These climatic conditions will potentially encourage further spread of FAW. Increased Desert Locusts (DL) activity across winter breeding areas is expected from the beginning of October, and continued monitoring is required.

Fig. 7: Forecast for 11 – 21 September 2022

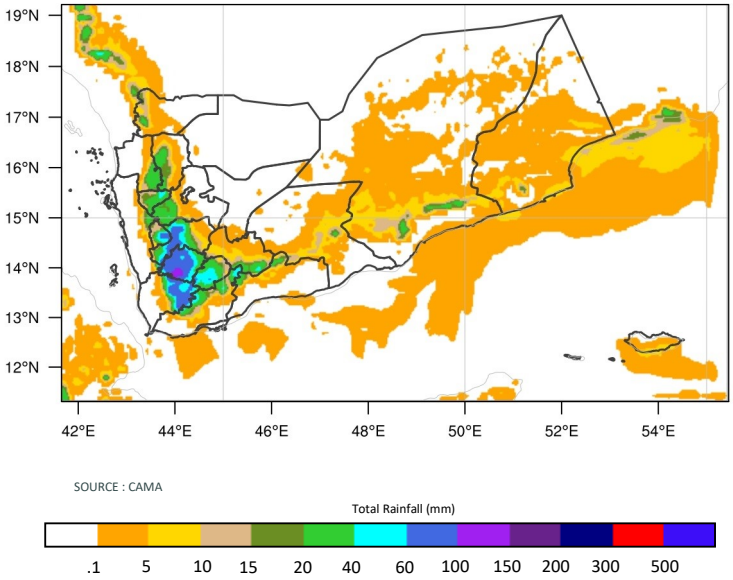
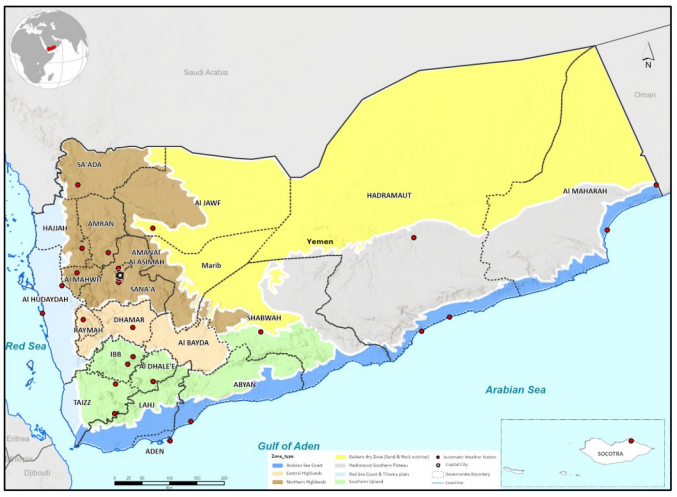


Fig. 8: Agro-ecological zones and location of observatory stations



SOURCE : AREA

Sources:

- Primary data are sourced from the Civil Aviation and Meteorology Authority (CAMA), Ministry of Agriculture and Irrigation (MAI) and FAO Global Information Early Warning System (GIEWS).
- Vegetation indicators are sourced from FAO GIEWS and are based on 10-day (dekadal) vegetation data from the METOP-AVHRR sensor at 1 km resolution (2007 and after). Data at 1 km resolution for the period 2006-1984are derived from the NOAA-AVHRR dataset at 16 km resolution. http://www.fao.org/giews/earthobservation/country/index.jsp?lang=en&code=YEM# and from the European Union's anomaly hotspots of agricultural production (ASAP).
- Rainfall estimates (RFE2) are sourced from the Climate Prediction Centre (CPC) of The National Oceanic and Atmospheric Administration (NOAA)

Technical Partners

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III. VARIATIONS OF RAINFALL AND NDVI

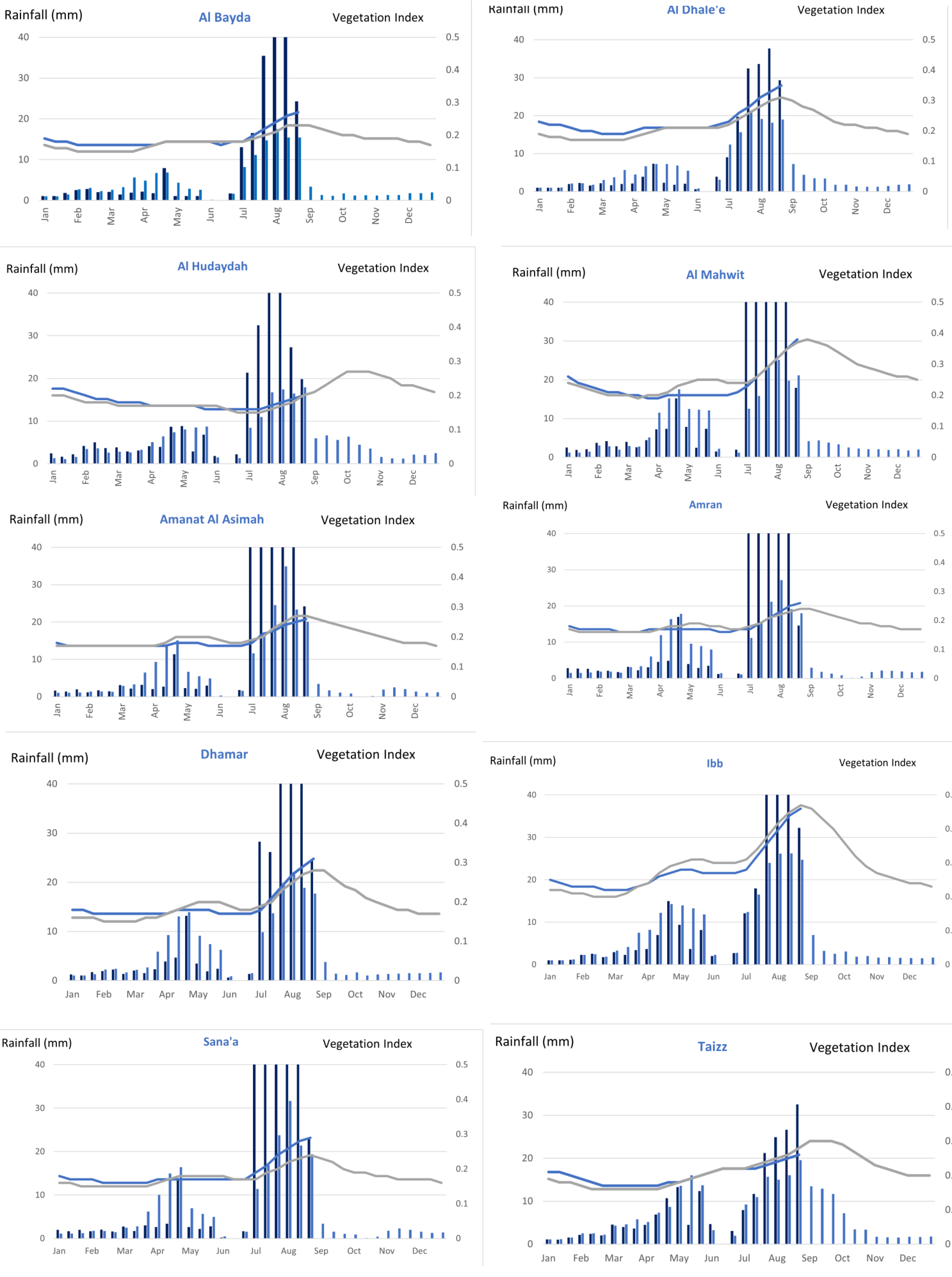

Table 1: Observed Station Data: Rainfall and Temperature

Governorate	Station	Rainfall (mm)	Temperature (°C)	
		Monthly	Max	Min
Abyan	Al Kood	-	-	-
Aden	Aden	2	37.1	26.4
Al Dhale'e	Al Dhala	-	-	-
Al Hudaydah	Al Kaden	306	38.6	23.9
Al Hudaydah	Al Hudaydah	20	37.4	25.2
Al Jawf	Al Jouf	29	38.9	19.8
Al Maharah	Algaidha	0	35.0	22.4
Al Maharah	Serfeet	1	31.5	19.0
Al Mahwit	Almahweet	234	28.0	13.0
Amanat Al Asimah	CAMA/YMC Office	195	-	-
Amanat Al Asimah	Al-Asbahi	215	-	-
Amanat Al Asimah	Aljamaah	-	29.0	8.6
Amanat Al Asimah	Alhasba	-	-	-
Amanat Al Asimah	Baghdad	241	-	-
Amanat Al Asimah	Shamlan	133	-	-
Amanat Al Asimah	Sawan	166	-	-
Amanat Al Asimah	Al Erah	-	-	-
Amran	Amran	80	29.0	10.6
Amran	Hamdah	-	-	-
Amran	Qa'a Alboon	78	29.0	12.0
Amran	Amran Gov.	-	-	-
Amran	Eial Sourih	-	-	-
Dhamar	Dhamar	434	27.0	9.0
Dhamar	AREA-HQ	-	-	-
Dhamar	Rosabh	192	-	-
Dhamar	Dhamar (MAI)	434	-	-
Dhamar	Maqar-Alhya'a	209	26.0	10.0
Dhamar	Qa'a Shrah	-	-	-
Hadramaut	Al Mukalla	0	-	-
Hadramaut	Al Shaher	1	36.8	23.8
Hadramaut	Seiyoun	50	41.4	21.1
Hadramaut	Assom	-	-	-
Hadramaut	Tarim	-	-	-
Hadramaut	Sah	-	-	-
Hadramaut	Aliotoof	-	-	-
Hadramaut	Seyun Pr	-	-	-
Hadramaut	Seyun Re	-	-	-
Hadramaut	Hawrah	-	-	-
Hadramaut	Doaan	-	-	-
Hadramaut	Shibam	-	-	-
Hadramaut	Ard Makharsh	-	-	-
Hadramaut	Brom	-	-	-
Hajjah	Hajjah	162	28.5	13.2
Ibb	Alsaddah	263	26.1	11.0
Ibb	Ibb	176	27.9	12.0
Ibb	Ibb (MAI)	217		
Raymah	Al Jabeen-Rimah	144	24.1	12.5
Sa'ada	Sadah	67	32.9	14.8
Sana'a	Sana'a	188	29.4	10.4
Sana'a	Al Erah	-	-	-
Sana'a	Sanhan	96	-	-
Shabwah	Ataq	7	36.8	22.0
Socotra	Socatra	4	34.0	23.0
Taizz	Al Maafer	84	-	-
Taizz	Mashra and Hadnan	70	-	-
Taizz	Al Modafar	50	-	-
Taizz	Al Qahera	62	-	-
Taizz	Wadi Arafat	103	-	-
Taizz	Hawban Qadas	163	-	-
Taizz	Al Akahel	103	-	-
Taizz	Sabar almoadhm	118	-	-
Taizz	Airport	122	-	-