

## HIGHLIGHTS

- From droughts to floods, Yemen suffered devastating effects of the climate crisis throughout July
- Torrents of rain washed away hundreds of livestock, beehives, and cars
- Floods with devastating impact are expected to continue to the end of August
- Renewed interest in early action against floods at all levels should be considered a matter of urgency

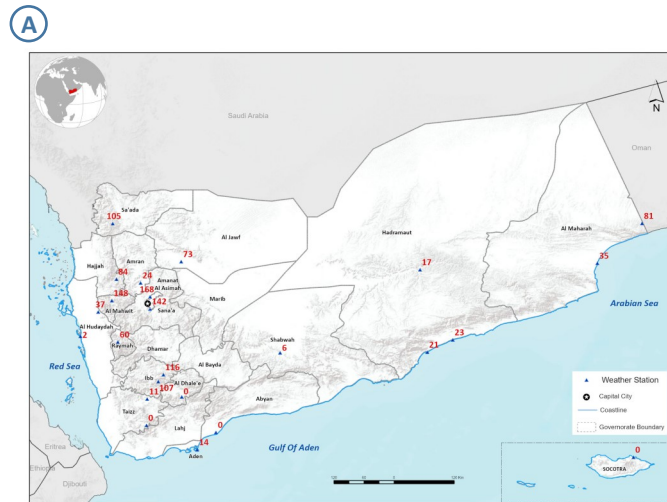
## I. METEOROLOGICAL REVIEW

Rainfall in the month of July was nearly 300 percent above average, leading to devastating floods, destruction of property and livelihoods, damage to critical infrastructure such as roads and, in some areas, human death. Amanat Al Asimah, Dhamar, Amran, and Sana'a reported heavy downpours exceeding 150 mm and usually dry governorates such as Hadramaut and Al Maharah were extremely wet throughout the month. With the high rainfall experienced in July, vegetation conditions improved compared to the previous drought months and further improvements are expected in the coming weeks. The agricultural stress indicator also showed that with the incoming rains, the effects of drought had relaxed their grip on cropped areas across the country.

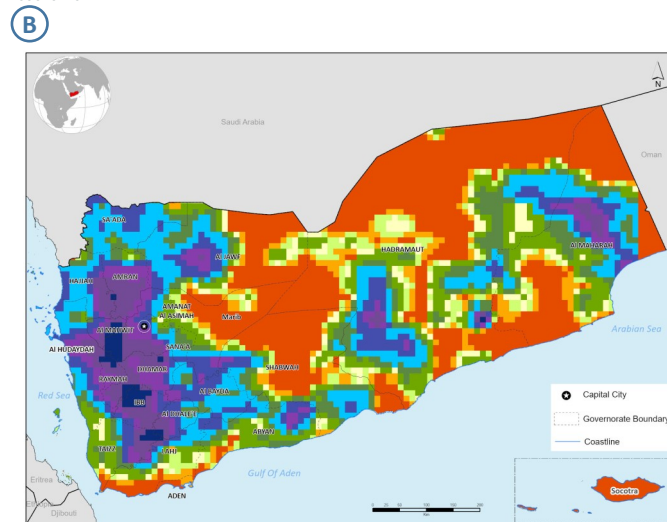
Chances of continued flooding based on rainfall forecast analyses remain high until the end of August. While floods which pose a potent threat to lives, agriculture, and livelihoods cannot be eradicated, they can be managed. Therefore, this early warning of the potential for continued flooding calls for renewed interest in early action against floods at all levels including but not limited to humanitarian agencies, government, and individual farmers.

A drop in temperature was also recorded in July compared to the previous drought months. High temperatures, albeit with a slight reduction, were still reported in areas that report over 40°C throughout the year, i.e., Hadramaut (Seiyoun, 45.1°C), Al Hudaydah (Al Kaden, 43.1°C), Shabwah (Ataq, 41.4°C), and Al Jawf (Al Jouf, 41.3°C). Low temperatures were also reported in most stations (Table 1), with some lower than 10°C, i.e., include Al Hudaydah (3.0°C), Sana'a (6.8°C), Dhamar (8.2°C), and Al Mahwit (Almahweet, 8.6°C) Governorates.

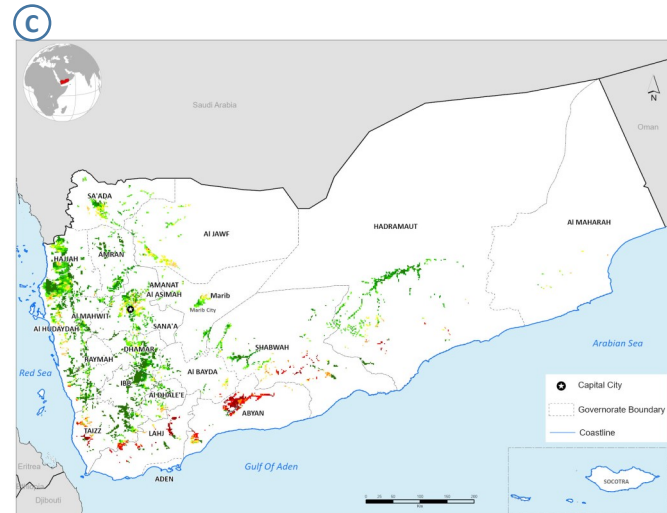
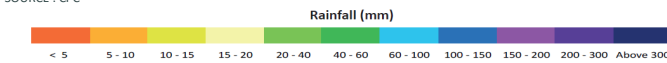
Fig. 1: Progress of monthly rainfall and vegetation conditions A) Observed rainfall (mm) B) Satellite-based rainfall estimates (mm) C) Vegetation Condition Index.



SOURCE : CAMA

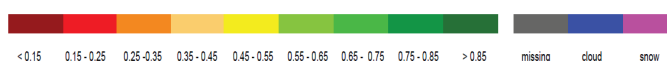


SOURCE : CPC



SOURCE : VCI - GIEWS, Crop mask - JRC

VCI



# AGROMETEOROLOGICAL UPDATE

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

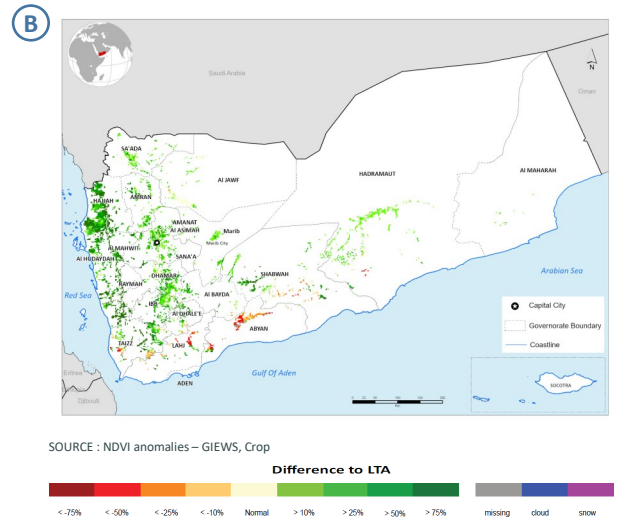
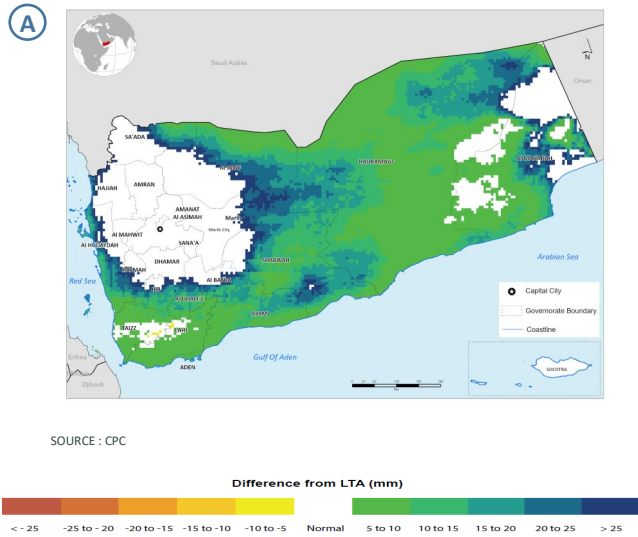


Fig. 3: Progress of rainfall estimates A) 1 to 10 Jul B) 11 to 20 Jul C) 21 to 31 Jul.

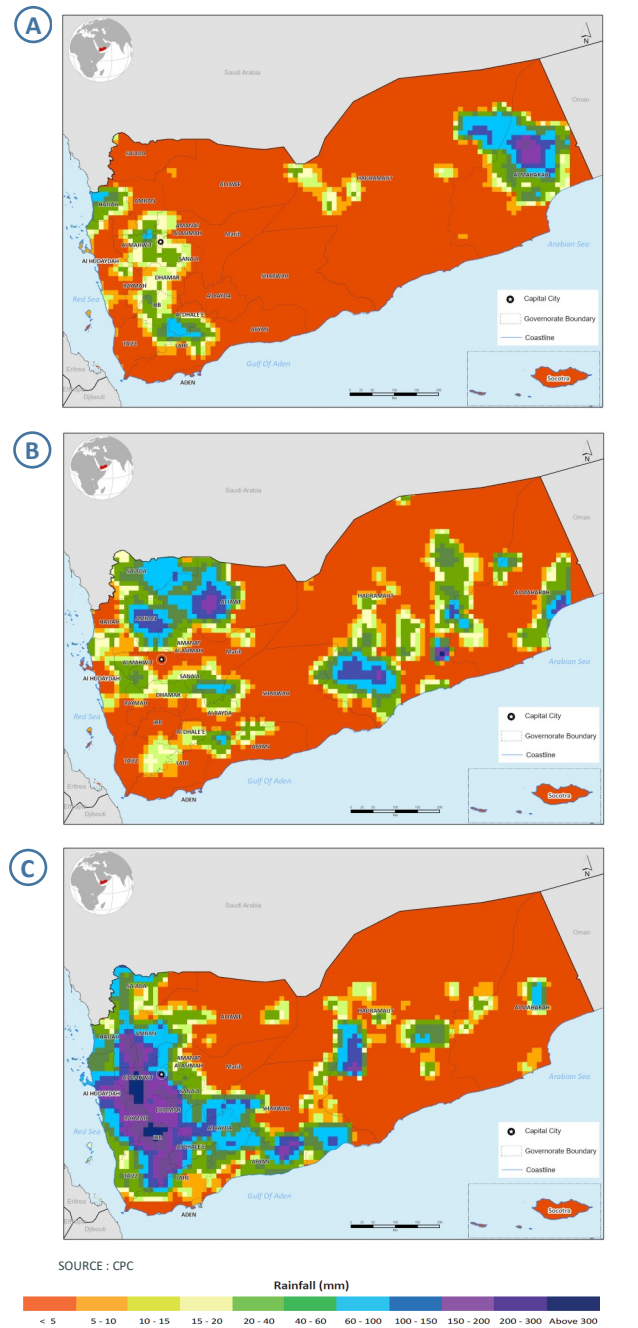
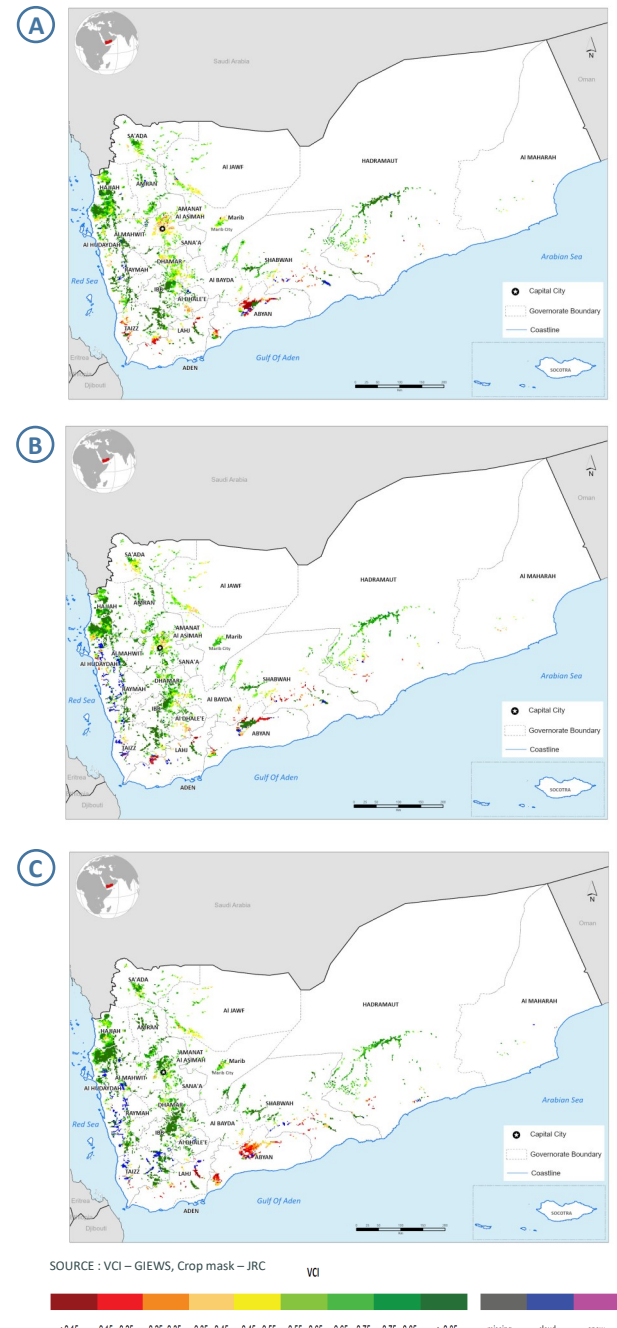


Fig. 4: Progress of vegetation conditions for A) 1 to 10 Jul B) 11 to 20 Jul C) 21 to 31 Jul.



# AGROMETEOROLOGICAL UP-

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

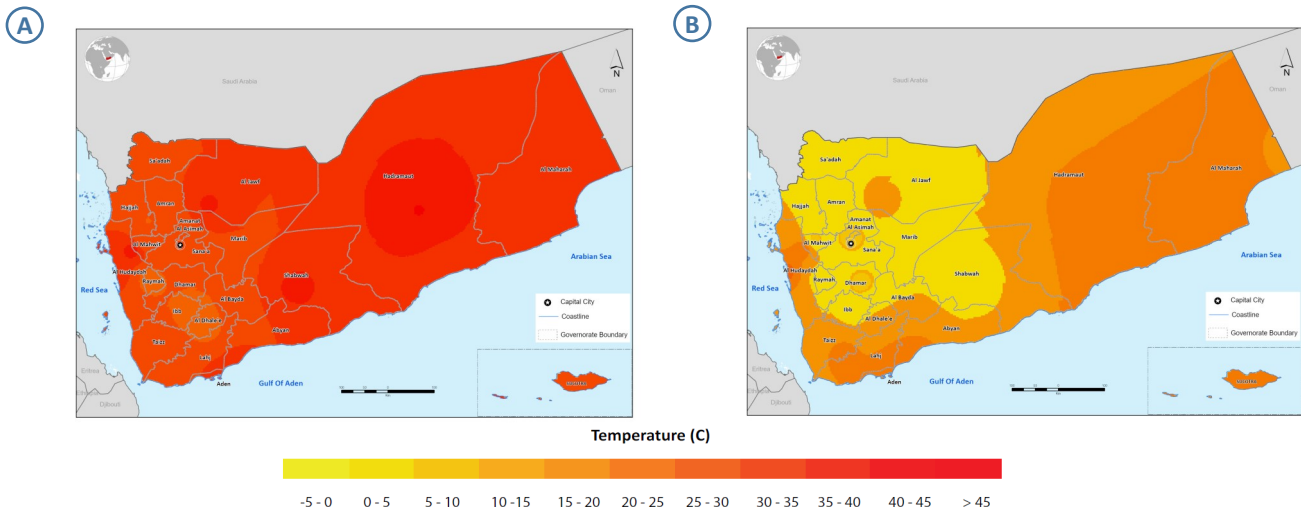
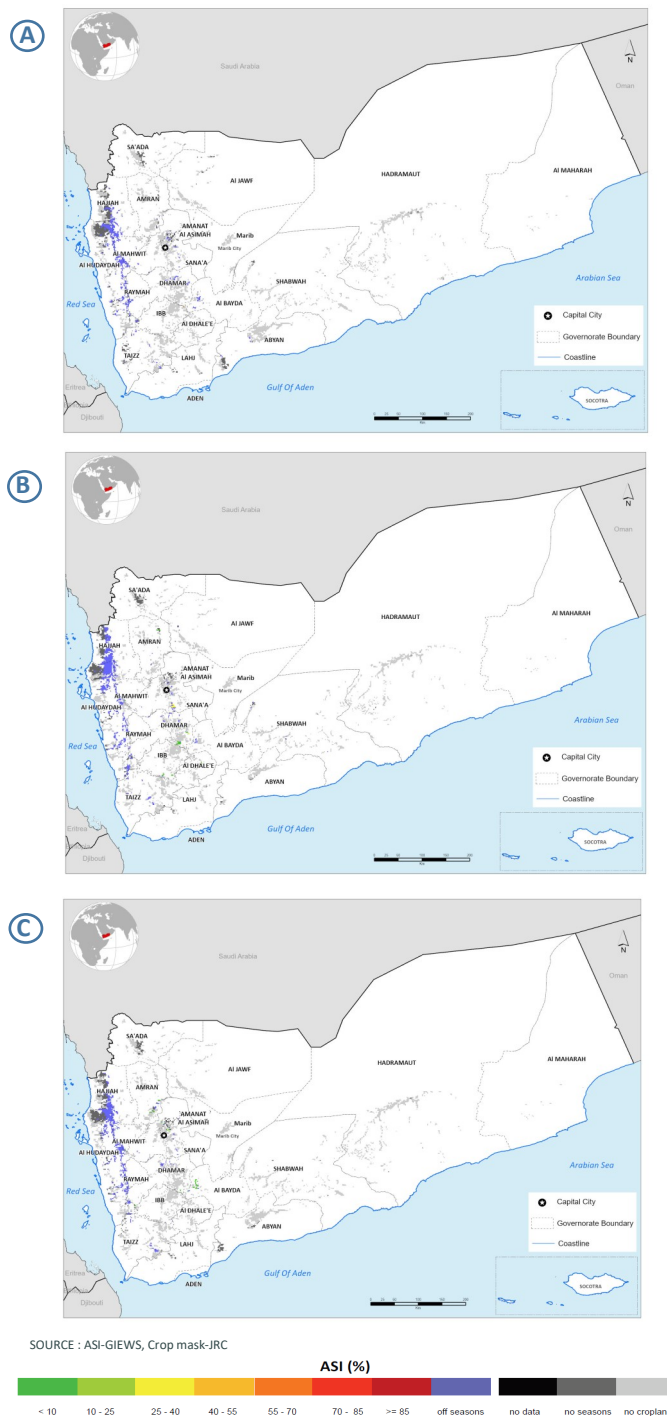


Fig. 6: Progress of Agricultural Stress Index (ASI) for A) 1 to 10 Jul B) 11 to 20 Jul C) 21 to 31 Jul





## II. IMPACT ON AGRICULTURE

After suffering moderate-to-severe drought which led to crop losses, heat stress, and limited feed availability for livestock, massive rainstorms hit Yemen throughout July 2022, leading to the destruction of property and livelihoods, damage to critical infrastructure such as roads and shelters for internally displaced people (IDP) and, in some areas, human death. Field and local media reports indicate that a total of 77 people including children were killed by heavy rains and floods between 15 and 31 July 2022 across the country.

At the end of June, the Meteorology Authority and FAO issued early warning bulletins and messages to farmers and communities in areas commonly affected by floods, particularly the lowlands. In Al-Mahfad district, east of Abyan Governorate, farmers reported being unaware as powerful and unrelenting storms washed away hundreds of livestock, beehives, and cars.

Significant temperature drops were reported across the country throughout the second half of July, especially in areas with recent rainfall. The rains favoured the growth and reappearance of green cover, thus giving promise of green fodder to agropastoralists across much of the country. Farmers in some parts of the country that were not heavily hit by floods were able to reengage in agricultural activities having lost the first season due to drought. For instance, farmers in some parts of Southern, Central, and Northern Highlands started planting legumes and cereals, while across the western plateau, most farmers were engaged in land preparation for the cultivation of cereals in August. In parts of central and northern Yemen, some farmers started the harvesting of fruit crops such as grapes, pomegranates, and peaches. In Lahj and Abyan Governorates, most farmers harvested watermelons and muskmelons. However, due to the drought that was experienced in the first half, field reports indicate low yields.

**The outlook until 31 August** indicates a high likelihood of heavy rainfall, which will cause more floods across the country. The floods will further exacerbate humanitarian needs and potentially induce a cycle of reconstructing critical infrastructure, especially for IDPs. Continued monitoring and enhanced humanitarian intervention are, therefore, strongly advised.

## AGROMETEOROLOGICAL UPDATE

The Desert Locust situation remained calm throughout July apart from low density isolated immature solitarious adults which were spotted in Sirwah and Bidbda districts of Marib Governorate. The recent rains favour small-scale breeding especially in Marib, Al Jawf, Shabwah and Hadramaut Governorates. Vigilance and continued surveys remain a necessity.

Fig. 7: Forecast for 16 – 31 August 2022

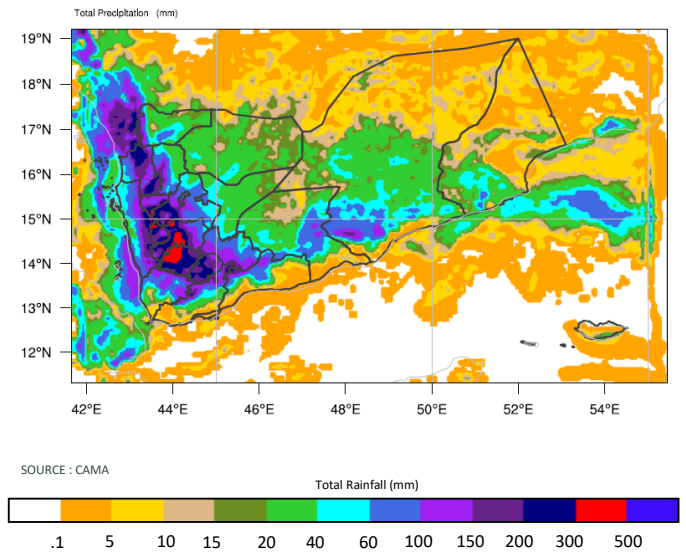
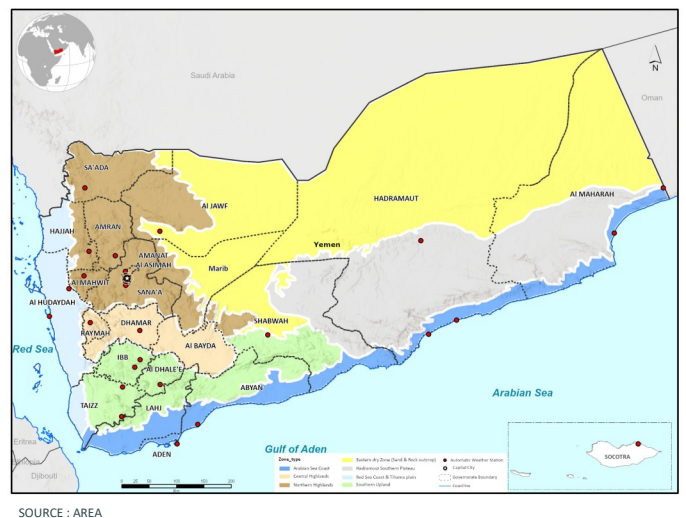


Fig. 8: Agro-ecological zones and location of observatory stations



### 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 2006-1984 are 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

#### Food Security and Early Warning Information System Programme

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#### Resource Partner



Funded By European Union

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# AGROMETEOROLOGICAL UPDATE

## III. VARIATIONS OF RAINFALL AND NDVI

■ Rainfall STA (2009 - 2021) 
 — Rainfall 2022 
 — NDVI 2022 
 — NDVI STA (2009 - 2021)

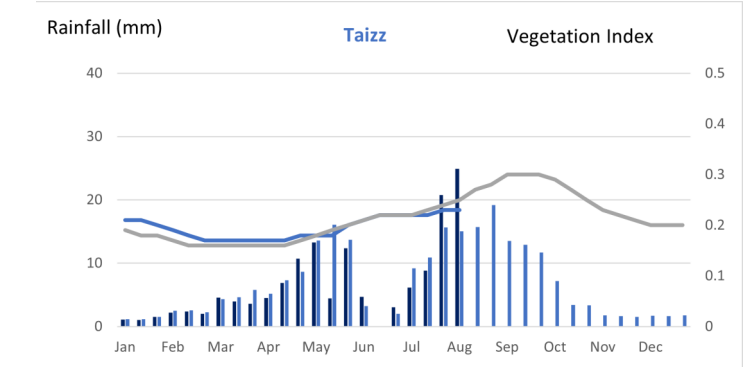
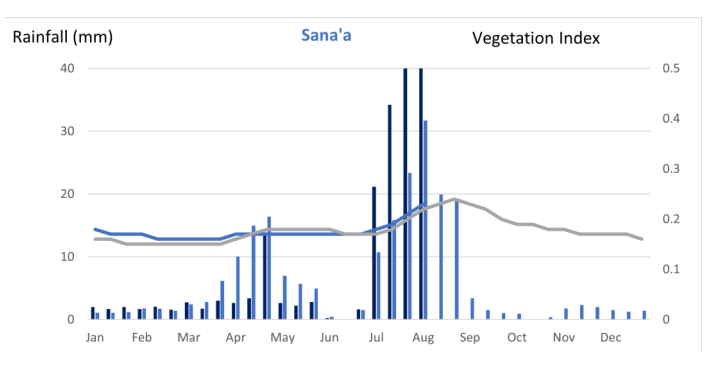
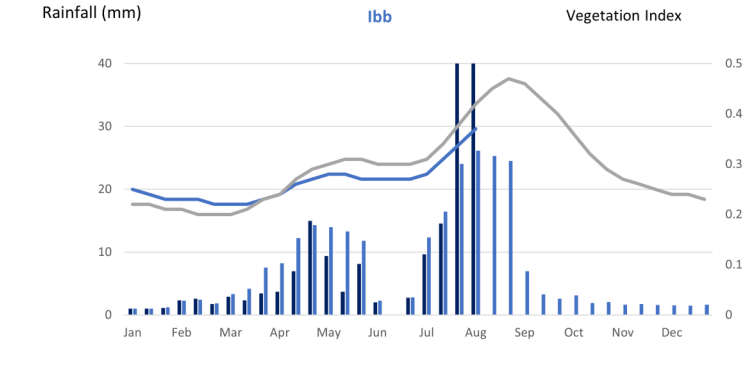
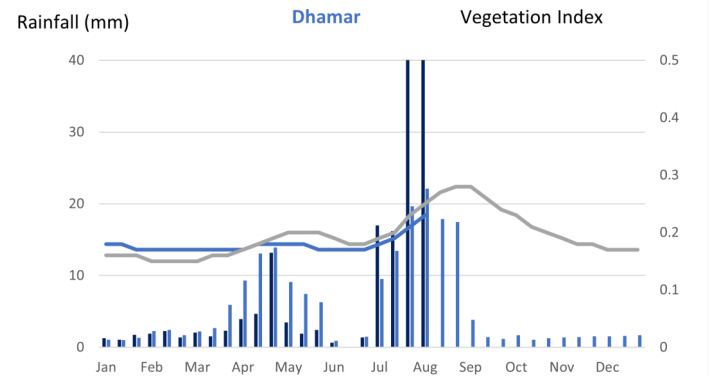
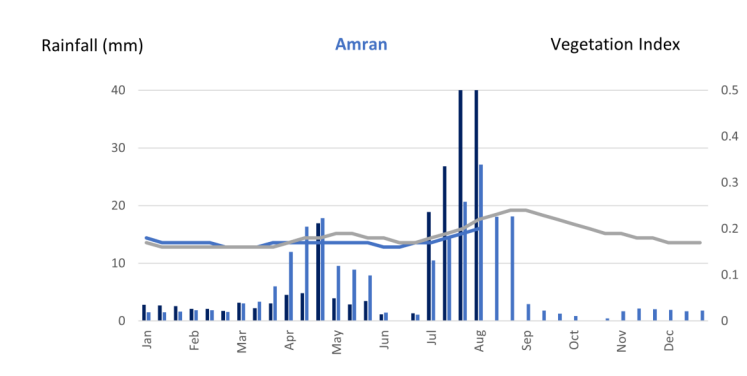
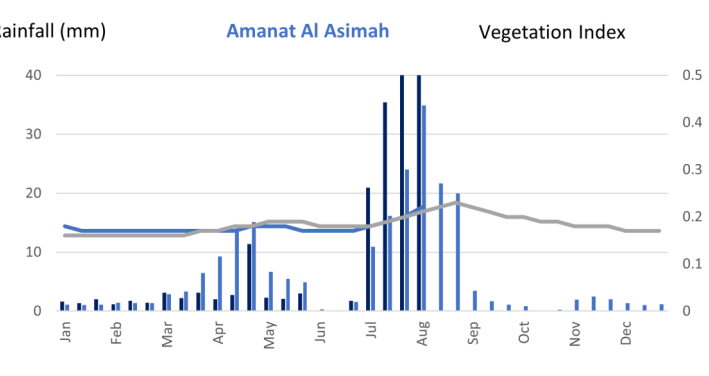
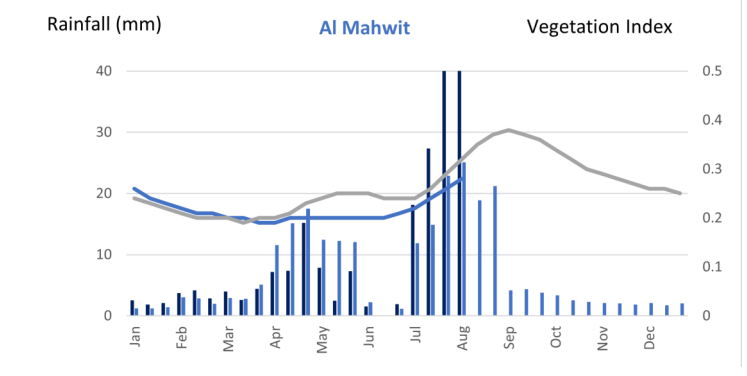
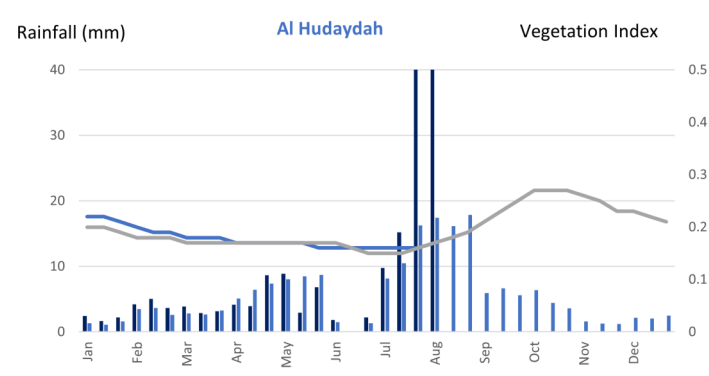
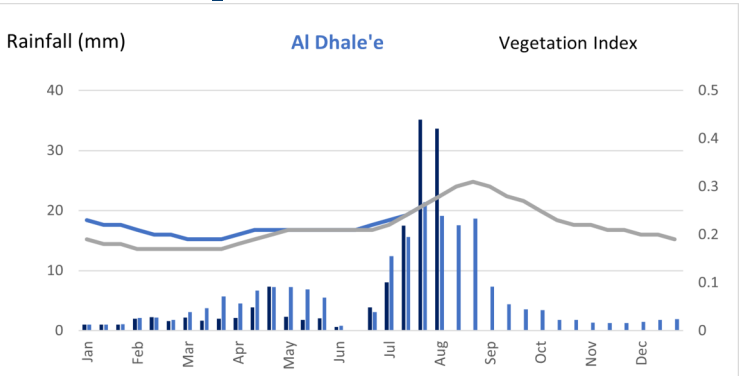
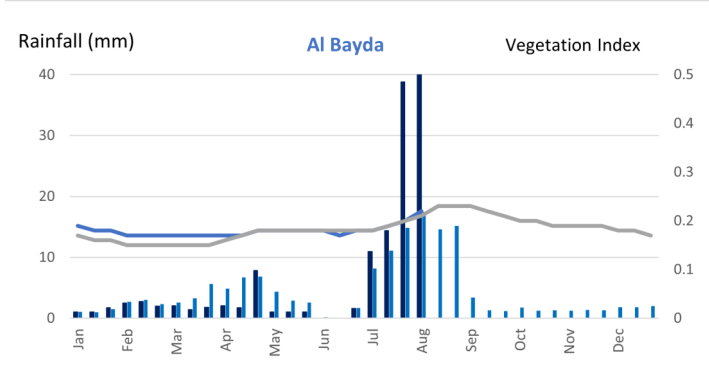


Table 1: Observed Station Data: Rainfall and Temperature

Governorate	Station	Rainfall (mm)	Temperature (°C)	
		Monthly	Max	Min
Abyan	Al Kood	-	-	-
Aden	Aden	14	39.0	25.2
Al Dhale'e	Al Dhala	-	-	-
Al Hudaydah	Al Kaden	37	43.1	23.8
Al Hudaydah	Al Hudaydah	2	39.1	3.0
Al Jawf	Al Jouf	73	41.3	17.1
Al Maharah	Algaidha	35	35.4	23.4
Al Maharah	Serfeet	81	36.6	19.2
Al Mahwit	Almahweet	148	30.2	8.6
Amanat Al Asimah	CAMA/YMC Office	142	-	-
Amanat Al Asimah	Al-Asbahi	-	-	-
Amanat Al Asimah	Aljamaah	173	33.0	12.0
Amanat Al Asimah	Alhasba	195	-	-
Amanat Al Asimah	Baghdad	208	-	-
Amanat Al Asimah	Shamlan	111	-	-
Amanat Al Asimah	Sawan	99	-	-
Amanat Al Asimah	Al Erah	-	-	-
Amran	Amran	24	32.6	13.0
Amran	Hamdah	-	-	-
Amran	Qa'a Alboon	18	32.0	13.0
Amran	Amran Gov.	193	33.0	13.0
Amran	Eial Sourih	-	-	-
Dhamar	Dhamar	152	30.0	8.2
Dhamar	AREA-HQ	-	-	-
Dhamar	Rosabh	134	-	-
Dhamar	Dhamar (MAI)	142	-	-
Dhamar	Maqar-Alhya'a	194	29.0	10.0
Dhamar	Qa'a Shrah	-	-	-
Hadramaut	Al Mukalla	21	-	-
Hadramaut	Al Shaher	23	37.5	24.6
Hadramaut	Seiyoun	17	45.1	22.1
Hadramaut	Assom	-	-	-
Hadramaut	Tarim	-	-	-
Hadramaut	Sah	-	-	-
Hadramaut	Aliotoof	-	-	-
Hadramaut	Seyun Pr	-	-	-
Hadramaut	Seyun Re	-	-	-
Hadramaut	Hawrah	-	-	-
Hadramaut	Doaan	-	-	-
Hadramaut	Shibam	-	-	-
Hadramaut	Ard Makhharsh	-	-	-
Hadramaut	Brom	-	-	-
Hajjah	Hajjah	84	29.8	15.0
Ibb	Alsaddah	116	28.5	11.6
Ibb	Ibb	107	30.0	14.0
Ibb	Ibb (MAI)	132	29.0	11.0
Raymah	Al Jabeen-Rimah	60	26.9	12.5
Sa'ada	Sadah	105	34.5	14.6
Sana'a	Sana'a	168	33.5	6.8
Sana'a	Al Erah	-	-	-
Sana'a	Sanhan	121	-	-
Shabwah	Ataq	6	41.4	12.0
Socotra	Socatra	0	34.0	23.8
Taizz	Al Maafer	5	-	-
Taizz	Mashra and Hadnan	16	-	-
Taizz	Al Modafar	-	-	-
Taizz	Al Qahera	17	-	-
Taizz	Wadi Arafat	3	-	-
Taizz	Hawban Qadas	5	-	-
Taizz	Al Akahel	5	-	-
Taizz	Sabar almoadh	10	-	-
Taizz	Airport	11	-	-