



HIGHLIGHTS

- Intensified short-duration rainfall events reported across much of Yemen
- Floods damaged spate irrigation infrastructure across the country’s main wadies
- Heavy rainfall also triggered hazardous rockfall in Yarim District, Ibb governorate
- According to field reports, overall 31 people died, 37 were injured, and 3 were reported missing in the wake of the April floods

I. METEOROLOGICAL REVIEW

Rainfed agriculture to produce fodder and staple food for household needs is the dominant form of farming in Yemen, especially among small-scale farmers. An examination of rainfall performance in April 2023 to inform rainfed agricultural practices shows that rainfall persisted across most of the western parts of the country with heavy downpours being recorded in Al Mahwit (Almahweet, 311 mm above the April mean rainfall), Hajjah (149 mm above the April mean rainfall), Dhamar (106 mm above the April mean rainfall), Raymah (Al Jabeen-Rimah, 88 mm above the April mean rainfall), Dhamar (Rosabh 66 mm above the April mean rainfall), Amanat Al Asimah (Al-Asbahi, 58 mm above the April mean rainfall), Ibb (Alsaddah, 51 mm above the April mean rainfall), Sana'a (Sanhan, 33 mm above the April mean rainfall), Ibb (30 mm above the April mean rainfall), and Amanat Al Asimah (Baghdad, 16 mm above the April mean rainfall).

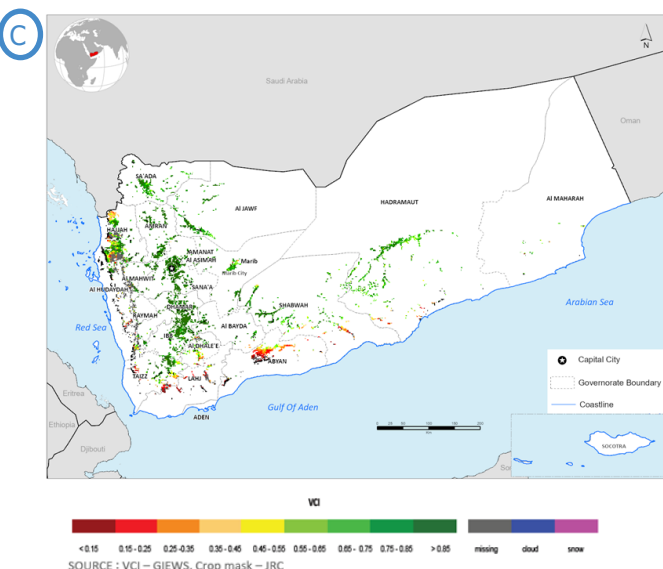
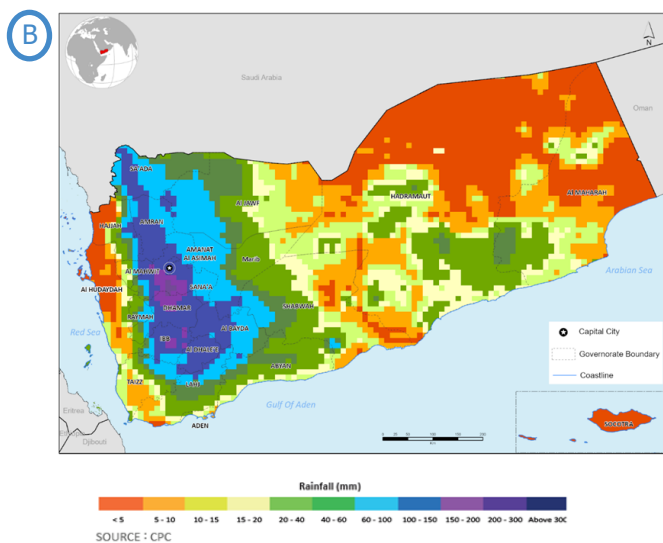
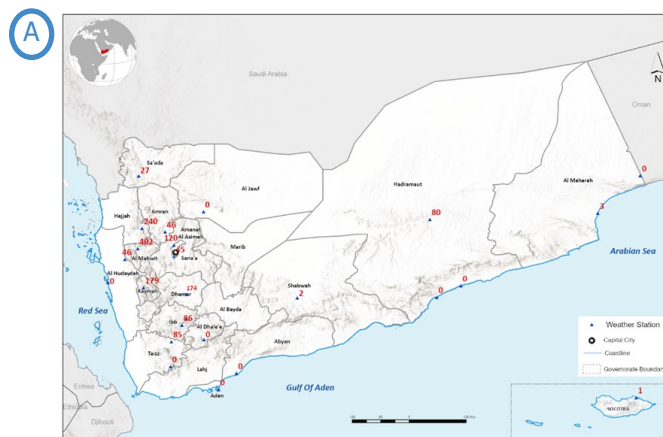
Comparatively, April was 68 percent wetter than March 2023 which experienced a cumulative amount of 2055 mm. A further examination of rainfall progress on a 10-day interval revealed that the heaviest downpours were recorded from 11 to 20 April during which a cumulative amount of over 300 mm was recorded in central Dhamar, Sana’a, and parts of Al Mahwit governorates (Fig. 3C). The presence of clouds across much of the western parts of the country as depicted on vegetation satellite images (Fig. 4A – C) adds credence to the heavy rainfall conditions observed. Rainfall anomalies (difference from long-term average, 1981 - 2010) also showed that the rainfall received was more than is typical of April; the whole country was wetter than usual (Fig. 2A).

An examination of vegetation conditions showed a favorable response to rainfall across much of the country, especially the Highlands (Fig. 1C). Parts of southern Amran and Lahj governorates, however, showed some stress which can be attributed to generally low rainfall coupled with windy coastal conditions which encourage extremely high evaporation rates across these areas. Notwithstanding, a review of the Agricultural Stress Index (ASI) which is widely used as an indicator of the likelihood of drought conditions across cropped areas showed no presence of agricultural stress (Fig. 6A – C).

Given the cloudy and rainy conditions, relatively cooler temperatures characterized much of the country, especially over the Highlands where minimum temperatures of generally below 10°C were recorded (Fig. 5A and Table 1). Areas that stand out include Dhamar (Maqar-Alhya'a, 7°C), Sana'a (8.8°C), Al Mahwit (Almahweet, 9°C), Amanat Al Asimah (Aljamaah, 9°C), Amran (Qa'a Alboon, 9°C), and Ibb (Alsaddah, 9.5°C) governorates. Field weather stations reported the highest temperatures in Al Hudaydah (Al Kaden, 40.4°C), Hadramaut (Seiyoun, 39.3°C), Al Maharah (Algaidha, 37.6°C), and Shabwah (Ataq, 36.2°C) governorates (Fig. 5B and Table 1).

The weather outlook until the end of May shows that rainfall is likely to reduce significantly as the first rainy season draws to a close (Fig. 7).

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



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

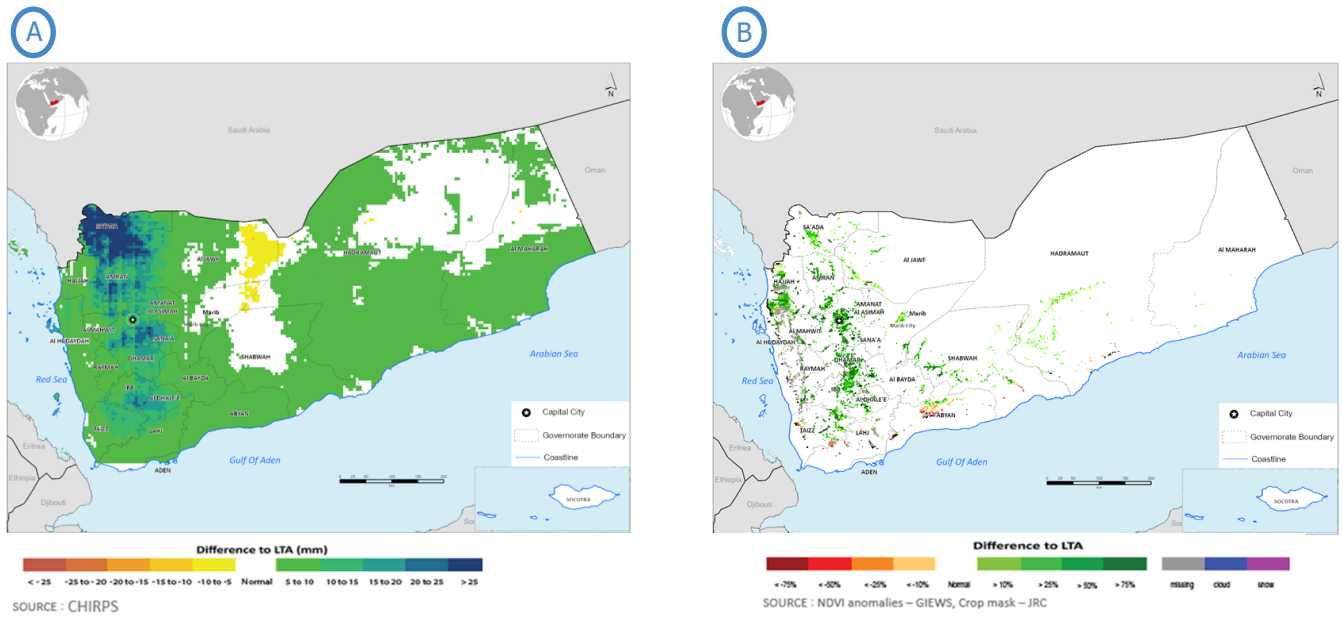


Fig. 3: Progress of rainfall estimates A) 1 to 10 Apr B) 11 to 20 Apr C) 21 to 30 Apr

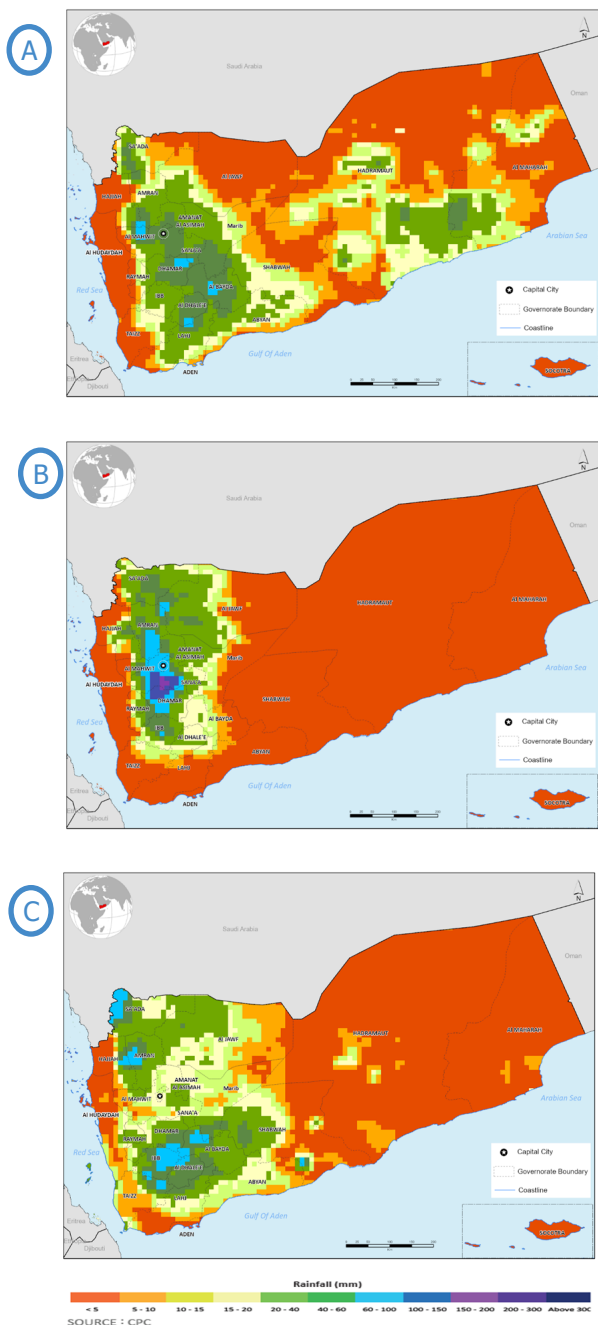
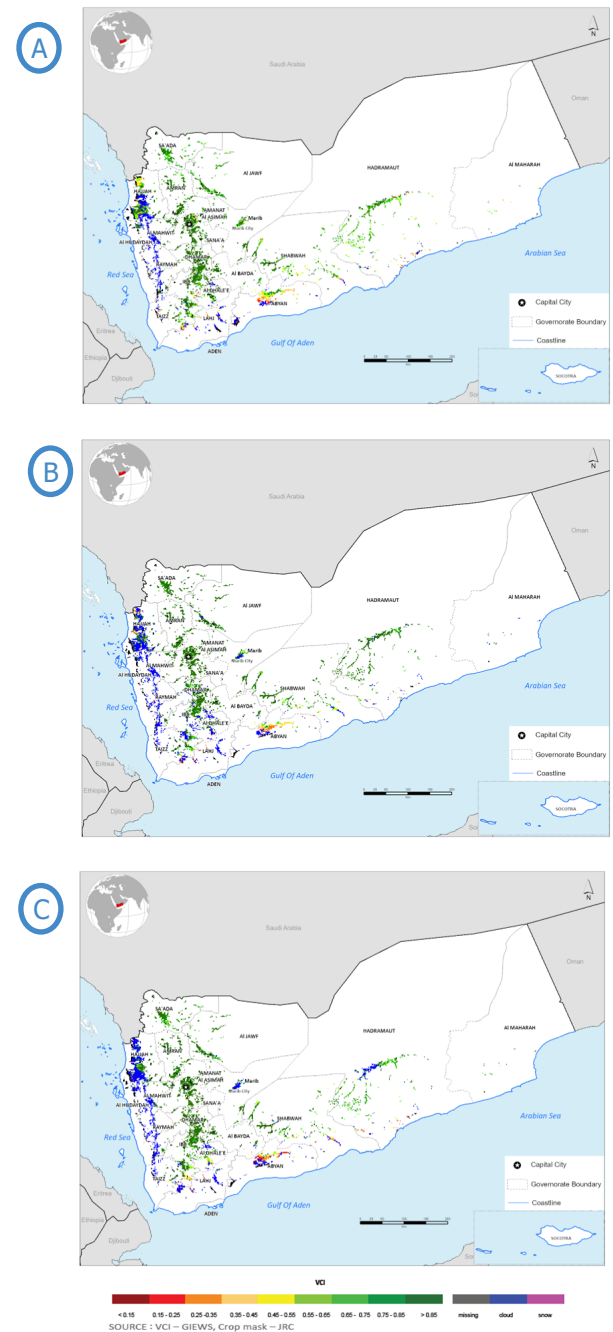


Fig. 4: Progress of vegetation conditions for A) 1 to 10 Apr B) 11 to 20 Apr C) 21 to 30 Apr



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

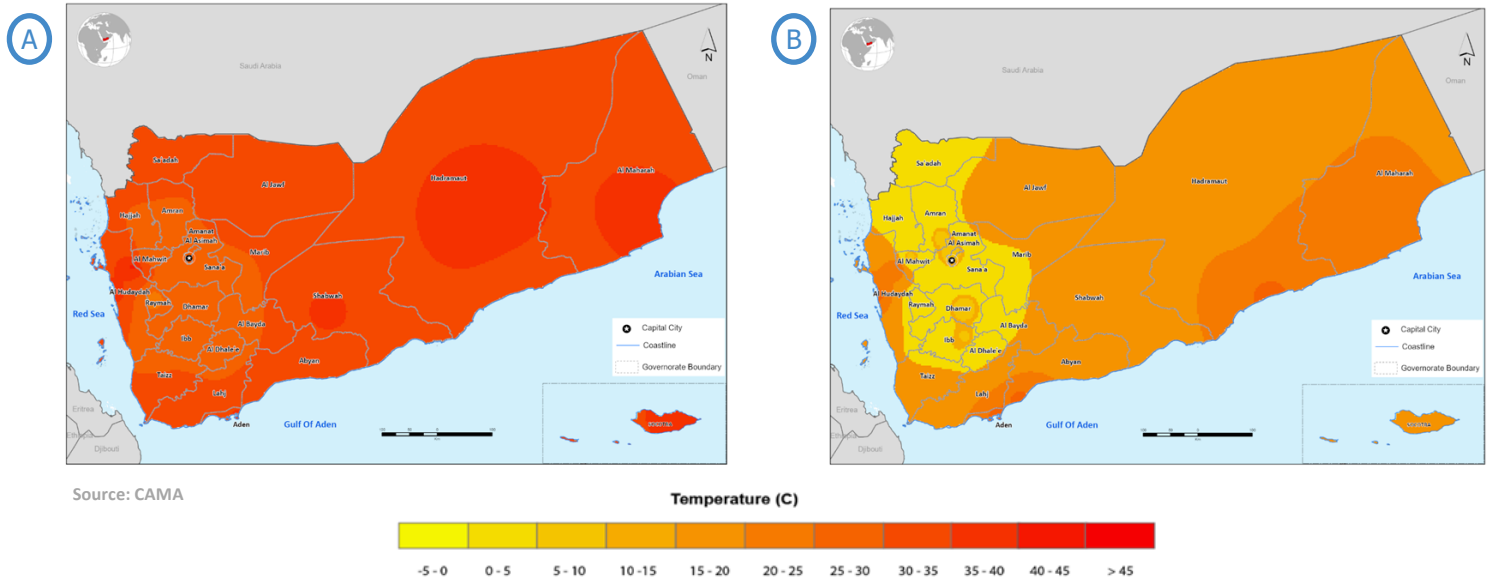
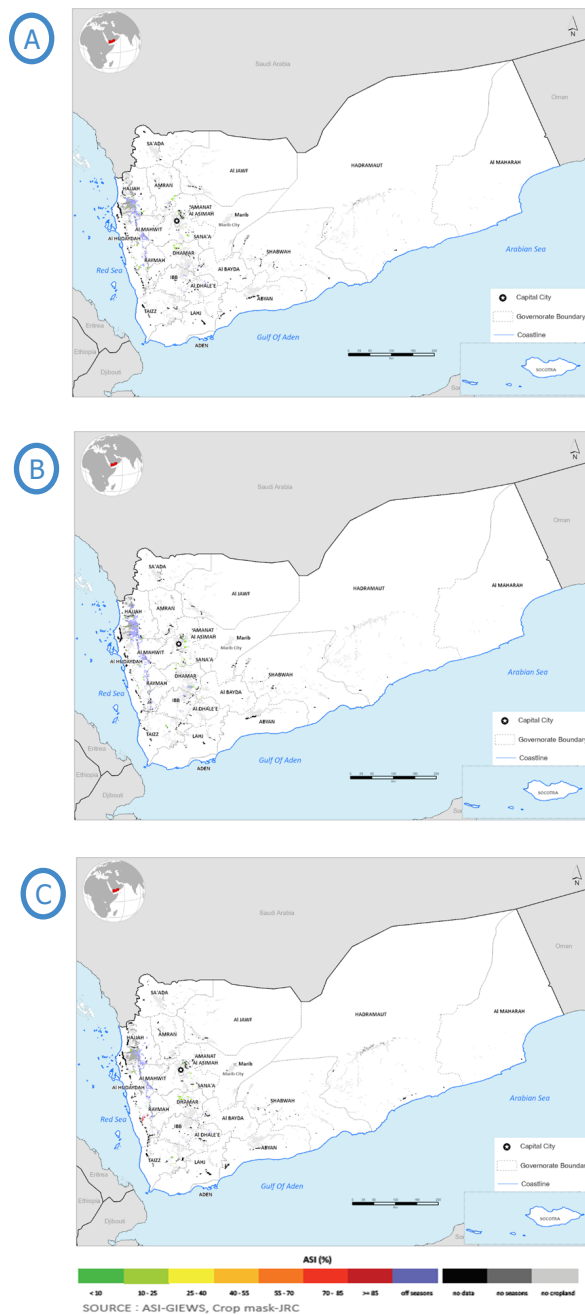


Fig. 6: Progress of Agricultural Stress Index (ASI) for A) 1 to 10 Apr B) 11 to 20 Apr C) 21 to 30 Apr



II IMPACT ON LIVELIHOODS

The rainfall that was reported from 1 to 10 April over the Highlands proved to be sufficient to support irrigation in the main wadies, especially Wadi Bana, Tuban, Rasyan, Zabid, Rema'a, Surdood, More, and those located in Hadramaut and Shabwah governorates. From 11 April, evidence of the intensification of short-duration rainfall events was widespread which led to intensified flash flooding that caused huge damages to spate irrigation infrastructures across much of the wadies. Overall, field reports indicate that 31 people died, 37 were injured, and 3 were reported to be missing in the wake of the April floods¹. Considering that most of the irrigation and water harvesting infrastructure is old, it is advisable to reinforce flood defense, especially for people downstream.

The torrential rains are also causing devastating rock fall, especially in Al-Asha village, Yarim District, Ibb governorate where extensive damage to infrastructure is causing a spike in humanitarian needs. Floods are also reported to have cut off most of the key roads that connect Yarim to other parts of the country. Urgent humanitarian intervention is recommended.

The torrential rains reported throughout April caused a reduction in farm activities. Farmers who had not yet completed harvesting their vegetables lost them to floods, especially in the Central and Western Highlands. As a result, there is a high likelihood of vegetable prices rising in the coming days since a reduction in supply is expected. Regarding fodder, the rainfall experienced thus far is likely to encourage green fodder availability.

Despite the heavy rainfall experienced, most farmers in the Central, Northern, and Western Highlands started preparations for the cultivation of cereals, tomatoes, onions, and chili. The cultivation of potatoes is also underway across most areas. The harvest of peaches and apricots began in the Central and Northern Highlands while the harvesting of watermelon, tomatoes, mangoes, bananas, the second season of sesame, and tobacco continued across the lowlands and coastal areas.

The Desert Locust (DL) situation during April remained calm although a few scattered immature solitary adult locusts were seen in limited locations on the Red Sea and the Gulf of Aden Coasts from Bayt Al Faqil to Abs in the north, and on one site in Wadi Hadramaut. With the rains experienced, the outlook indicates that DL numbers can easily and quickly increase. Vigilance is therefore advised.

Fig. 7: Rainfall forecast until the end of May 2023

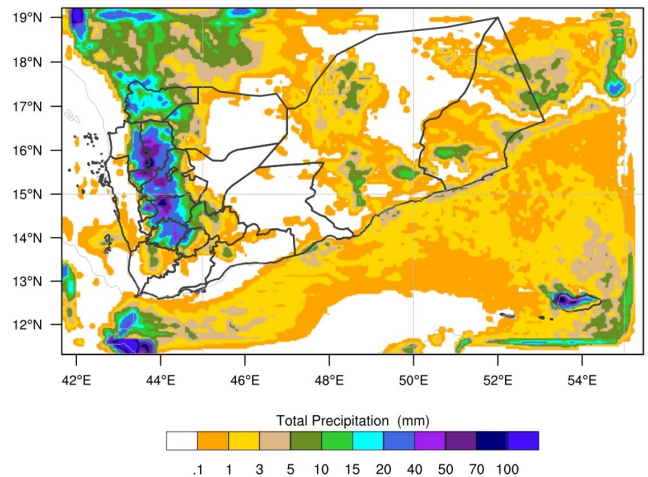


Fig. 8: Agro-ecological zones and location of observatory stations

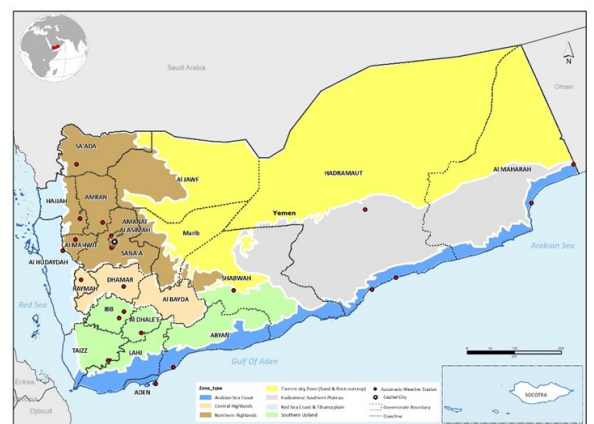


Fig. 9: Floods in Sana'a city. Source: field report from partners



Fig. 10: Floods in Al Dhale'e. Source: field report from partners



¹<https://go.ifrc.org/reports/16429>

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 vegetation data from the METOP-AVHRR sensor at 1 km resolution (2007 and after). Data at 1 km resolution for the period 1984-2006 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 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



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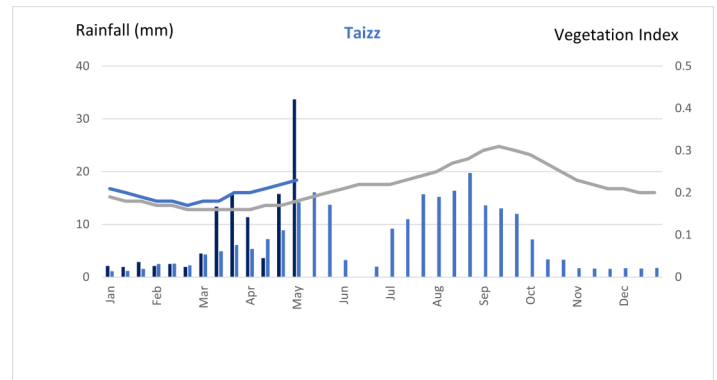
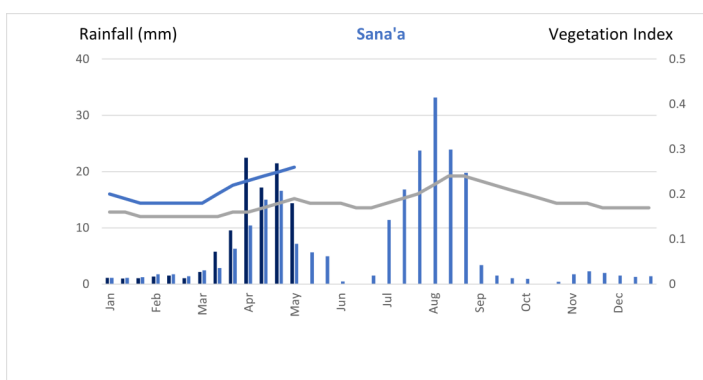
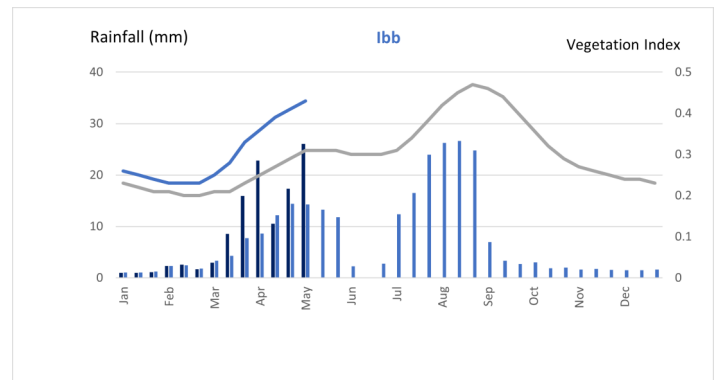
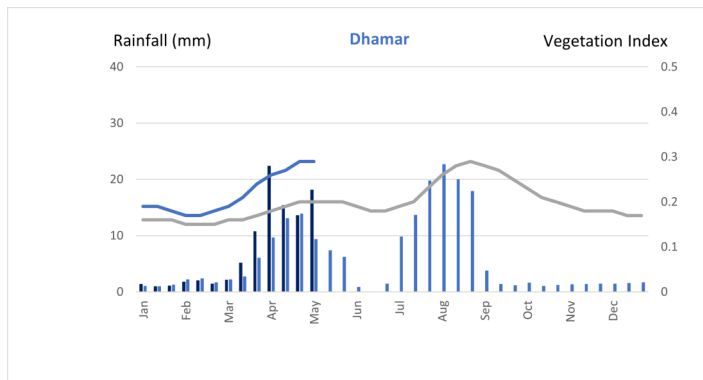
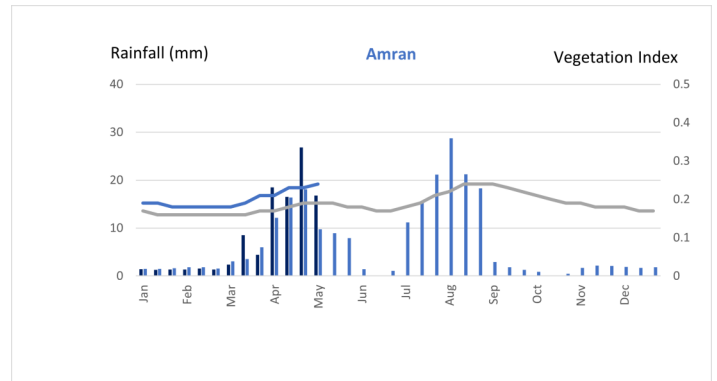
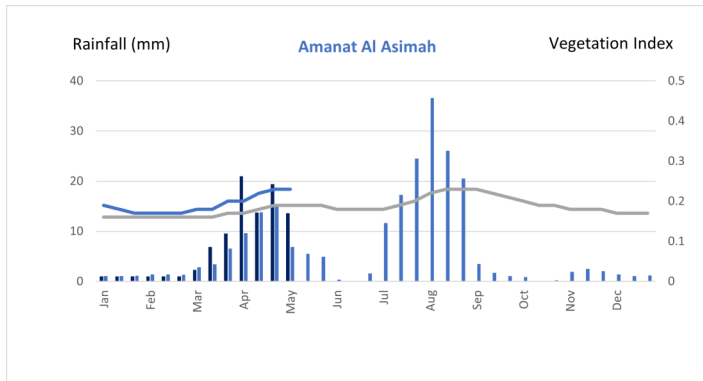
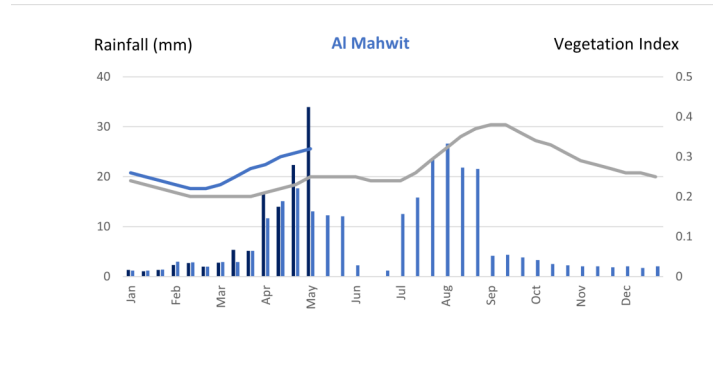
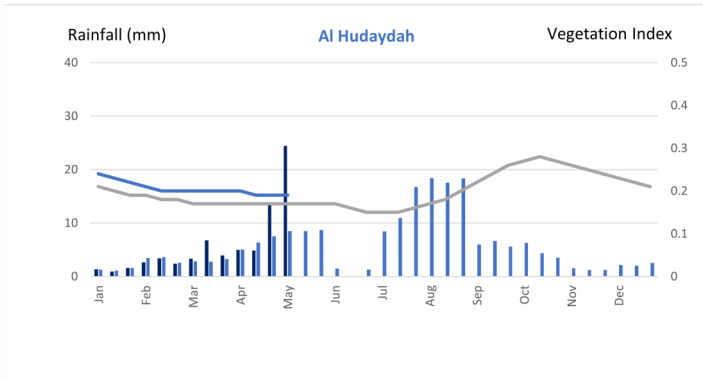
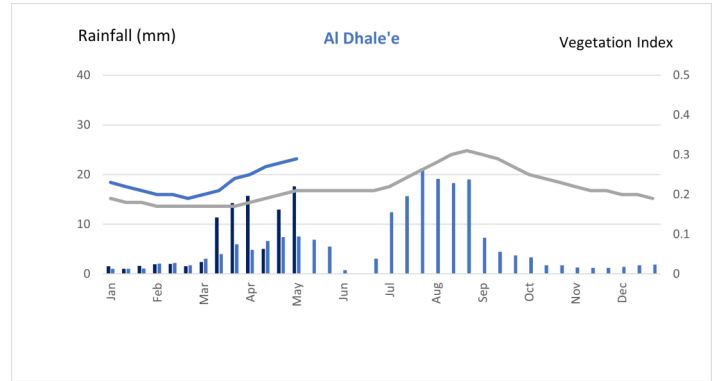
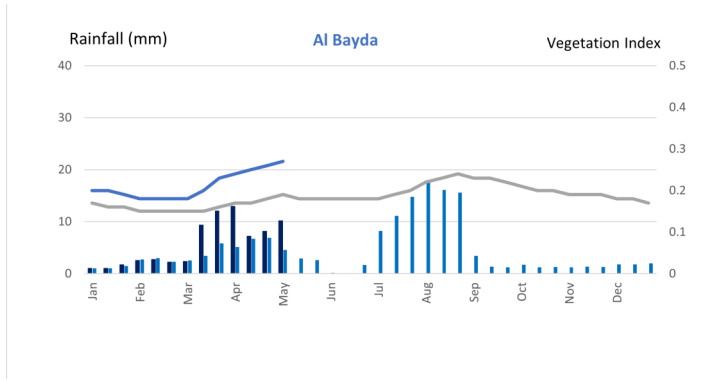
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III. VARIATIONS OF RAINFALL AND NDVI



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Table 1: Observed Station Data: Rainfall and Temperature

Governorate	Station	Rainfall (mm)	Temperature (°C)	
		Monthly	Max	Min
Abyan	Al Kood	-	-	-
Aden	Aden	0	35.6	27.0
Al Dhale'e	Al Dhala	-	-	-
Al Hudaydah	Al Kaden	46	40.4	24.2
Al Hudaydah	Al Hudaydah	-	36.8	26.4
Al Jawf	Al Jouf	-	-	-
Al Maharah	Algaidha	3	37.6	24.0
Al Maharah	Serfeet	-	30.4	17.4
Al Mahwit	Almahweet	402	26.7	9.0
Amanat Al Asimah	CAMA/YMS Office	45	-	-
Amanat Al Asimah	Al-Asbahi	149	-	-
Amanat Al Asimah	Aljamaah	-	27.0	9.0
Amanat Al Asimah	Alhasba	-	-	-
Amanat Al Asimah	Baghdad	107	-	-
Amanat Al Asimah	Shamlan	101	-	-
Amanat Al Asimah	Sawan	103	-	-
Amanat Al Asimah	Al Erah	-	-	-
Amran	Amran	46	28.0	9.2
Amran	Hamdah	-	-	-
Amran	Qa'a Alboon	43	27.0	9.0
Amran	Amran Gov.	-	-	-
Amran	Eial Sourih	-	-	-
Dhamar	Dhamar	170	27.0	8.0
Dhamar	AREA-HQ	197	-	-
Dhamar	Rosabh	157	-	-
Dhamar	Dhamar (MAI)	164	26.0	8.5
Dhamar	Maqar-Alhya'a	-	24.0	7.0
Dhamar	Qa'a Shrah	-	-	-
Hadramaut	Al Mukalla	0	-	-
Hadramaut	Al Shaher	6	32.9	25.7
Hadramaut	Seiyoun	80	39.3	19.4
Hadramaut	Assom	-	-	-
Hadramaut	Tarim	-	-	-
Hadramaut	Sah	-	-	-
Hadramaut	Aliotoof	-	-	-
Hadramaut	Seyun Pr	81	-	-
Hadramaut	Seyun Re	-	-	-
Hadramaut	Hawrah	0	-	-
Hadramaut	Doaan	-	-	-
Hadramaut	Shibam	-	-	-
Hadramaut	Ard Makharsh	-	-	-
Hadramaut	Brom	-	-	-
Hajjah	Hajjah	240	27.8	13.8
Ibb	Alsaddah	142	25.0	9.5
Ibb	Ibb	86	27.0	13.0
Ibb	Ibb (MAI)	121	29.0	13.0
Raymah	Al Jabeen-Rimah	179	23.2	11.2
Sa'ada	Sadah	27	32.5	12.0
Sana'a	Sana'a	120	27.4	8.8
Sana'a	Al Erah	-	-	-
Sana'a	Sanhan	124	-	-
Shabwah	Ataq	2	36.2	19.6
Socotra	Socotra	1	35.3	18.1
Taizz	Al Maafer	40	-	-
Taizz	Mashra and Hadnan	72	-	-
Taizz	Al Modafar	85	-	-
Taizz	Al Qahera	88	-	-
Taizz	Wadi Arafat	40	-	-
Taizz	Hawban Qadas	22	-	-
Taizz	Al Akahel	58	-	-
Taizz	Sabar almoadhmi	-	-	-
Taizz	Airport	102	34.0	17.3