



AGROMETEOROLOGICAL UPDATE



HIGHLIGHTS

- A cyclonic storm referred to as 05A or Tropical Cyclone Tej is impacting Socotra with strong winds and rain
- 72 percent decrease in rainfall activities reported across the country
- Further rainfall decreases are expected as the winter season is slowly ushered in
- Large-scale flood-related humanitarian needs are not expected unless along the Arabian Sea Coasts and Socotra Island due to the influence of the Tropical Cyclone
- Fishermen are strongly advised against fishing in the Arabian Sea

I. METEOROLOGICAL REVIEW

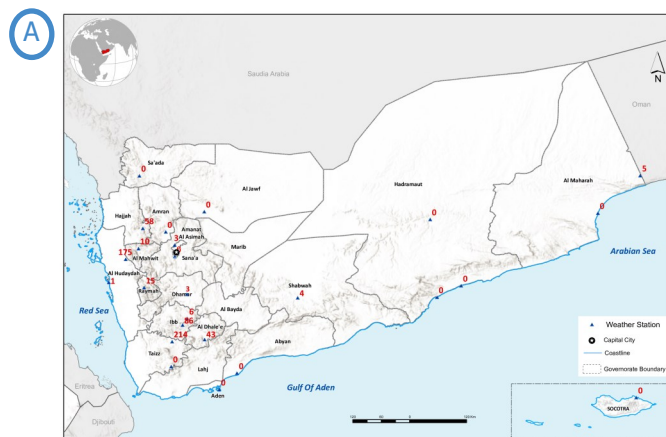
Apart from conflict, climate change-driven hazards are one of the most pressing issues faced by Yemeni farmers. With climate change, the need for evidence-based and action-oriented early warning agroclimatic information to drive policy, planning, and practice decisions, especially in the agricultural sector is now more urgent than ever if the Yemeni food security agenda is to be achieved. An analysis of agrometeorological conditions for September 2023 shows a sustained decrease in rainfall apart from over Taizz (Al Maafer, 214 mm – 64 percent more than August rainfall), Al Hudaydah, (Al Kaden, 175 mm – 78 percent more than August rainfall), Ibb (86 mm – 254 percent less than August rainfall), Hajjah (58 mm – 112 percent less than August rainfall), and Taizz (Airport, 58 mm – 20 percent less than August rainfall). Taken together, there was about a 72 percent decrease in total rainfall activities across the country thus loosening the grip of flood-related humanitarian needs with further reductions expected as much of the country transitions into the winter season.

Notwithstanding the decrease in rainfall, soil moisture levels were still sufficient to support vegetation growth. In fact, analyses of the Agricultural Stress Index (ASI), a widely used indicator of the likelihood of drought conditions across cropped areas showed exceptionally good performance throughout the month. The frequent rainfall experienced in the previous months encouraged the lush growth of greenery with much of the western half of the country experiencing over 10 percent greenery when compared to the long-term average.

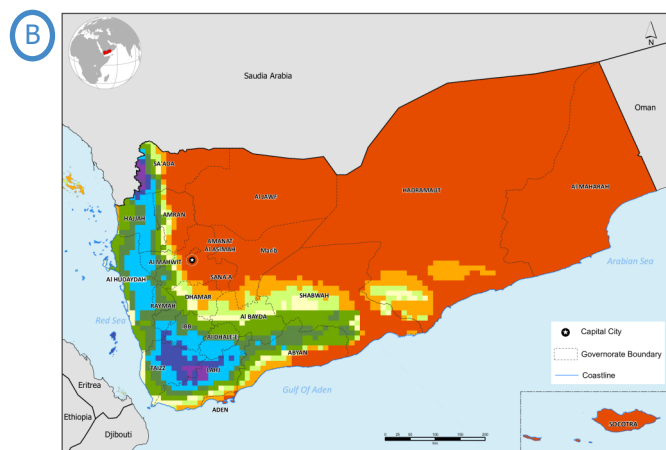
As the end of September/beginning of October marked the transition period into winter, a gradual, but steady decrease in temperatures was noted and is expected to continue. Ground-based weather stations reported the lowest temperatures in Dhamar (Maqar-Alhya'a 5C°), Amran (Qa'a Alboon 10C°), and the highlands of Amanat Al Asimah (Aljamaah, 11C°).

The weather outlook until the end of October shows continued rainfall decreases. However, a cyclonic storm referred to as 05A or Tropical Cyclone Tej is impacting Socotra with strong winds and rain and is on course to develop into a severe tropical cyclone with potential impacts on Al Mahara and the border with Oman. Damaging winds, dangerous storm surges, and intense flooding are likely as the system draws closer to the coasts of Yemen. Humanitarian Managers and Decision Makers at all levels are encouraged to keep monitoring the situation as tropical systems can evolve quickly and cause extensive damage during landfall.

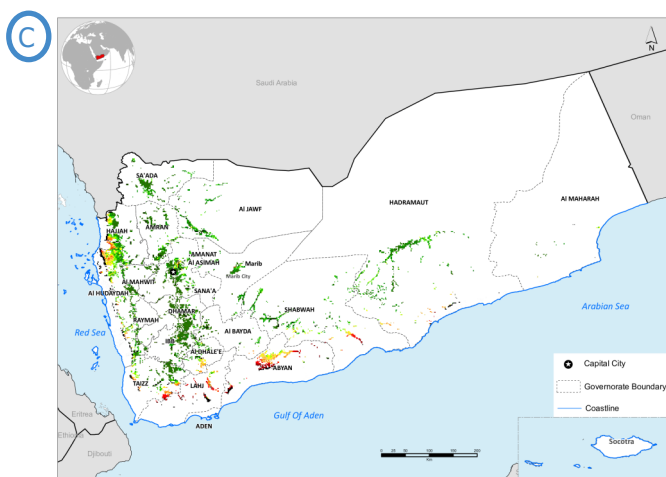
Fig. 1: Performance of monthly rainfall and vegetation conditions A) Observed rainfall (mm) B) Satellite-based rainfall estimates (mm) C) Vegetation Condition Index



Source: CAMA



Rainfall (mm)
 <5 5-10 10-15 15-20 20-40 40-60 60-100 100-150 150-200 200-300 Above 300
 SOURCE: CPC



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
 SOURCE: VCI – GIEWS, Crop mask – JRC

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Fig. 2: Monthly anomalies (difference from long-term average, LTA) for A) rainfall (LTA: 1981 – present) B) Normalized Difference Vegetation Index (LTA: 1984 - 2015)

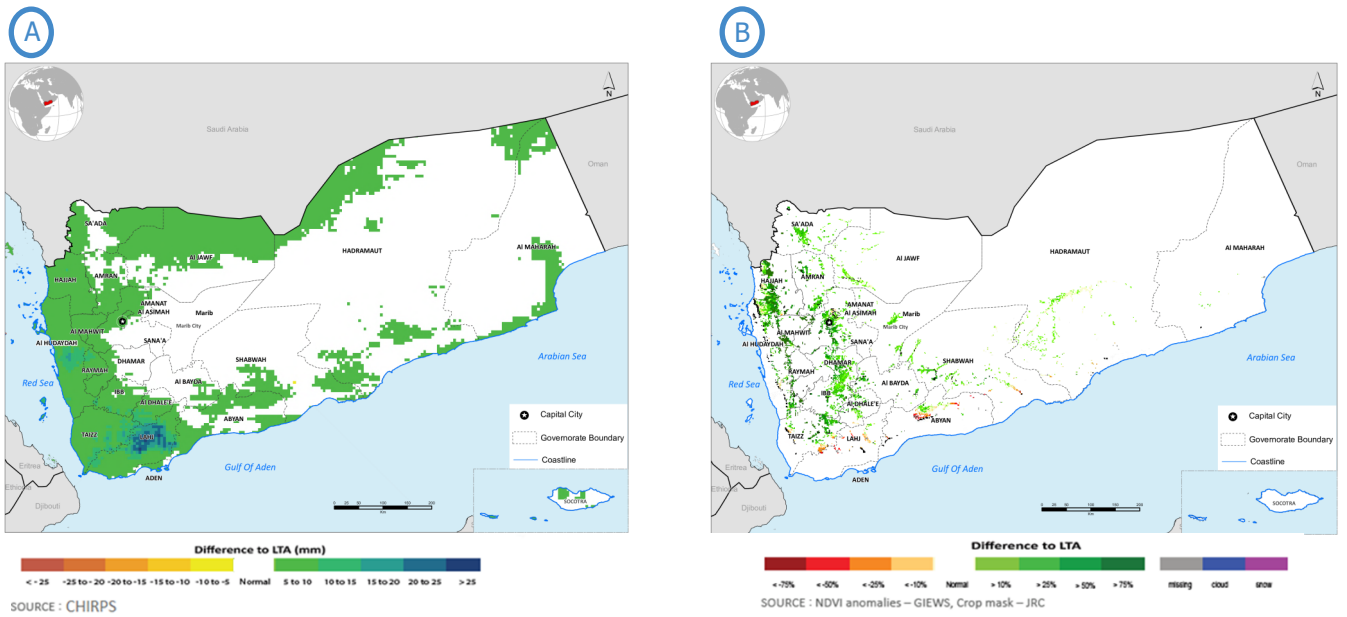


Fig. 3: Progress of rainfall estimates A) 1 to 10 Sep B) 11 to 20 Sep C) 21 to 30 Sep

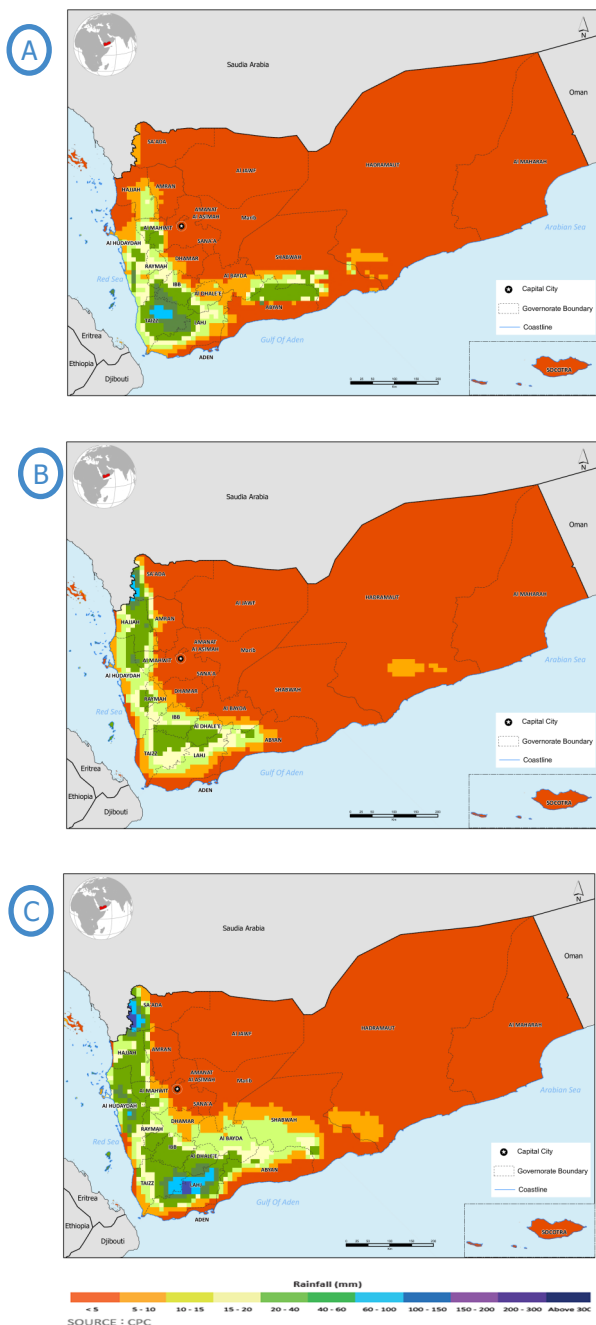
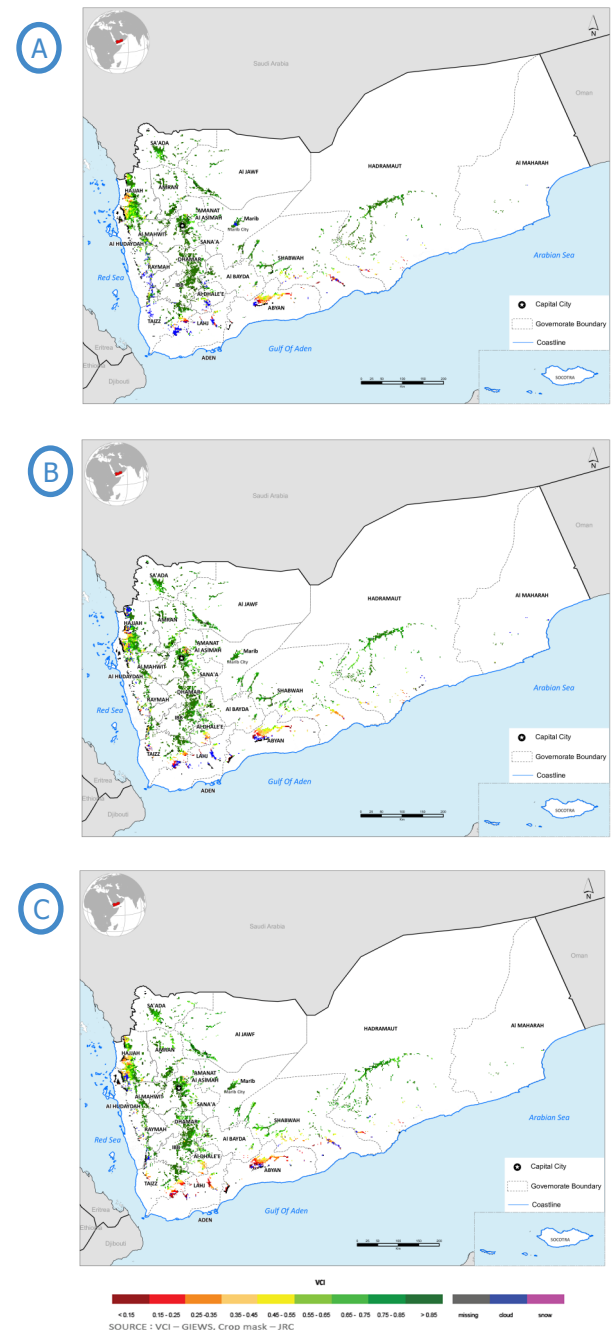
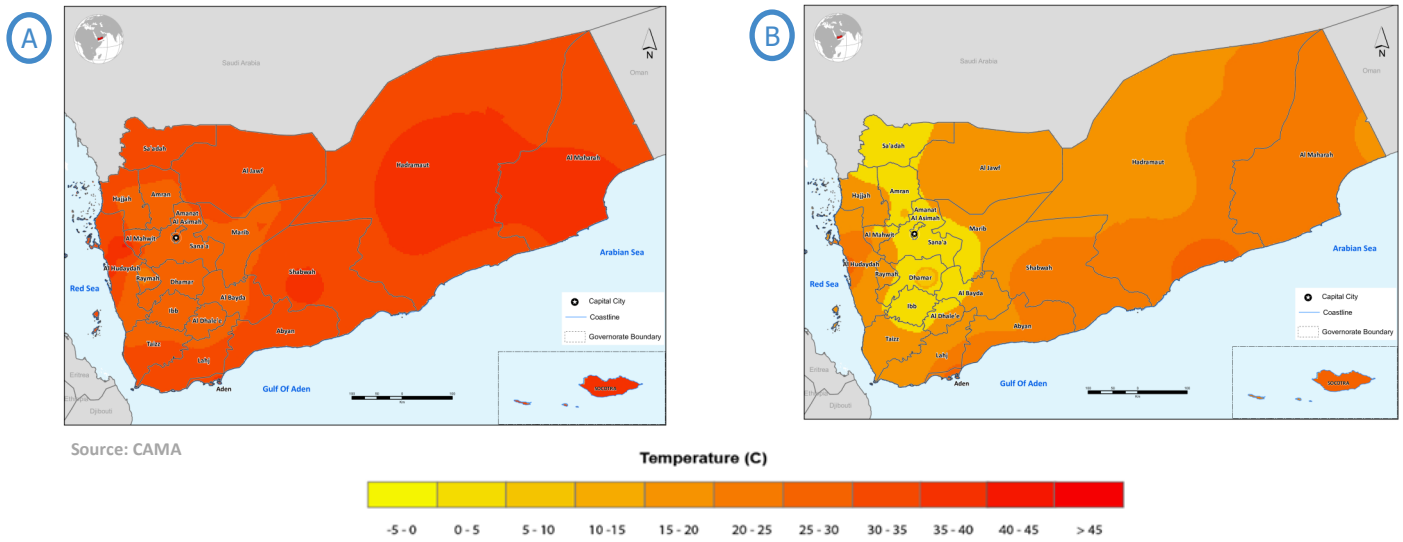


Fig. 4: Progress of vegetation conditions for A) 1 to 10 Sep B) 11 to 20 Sep C) 21 to 30 Sep



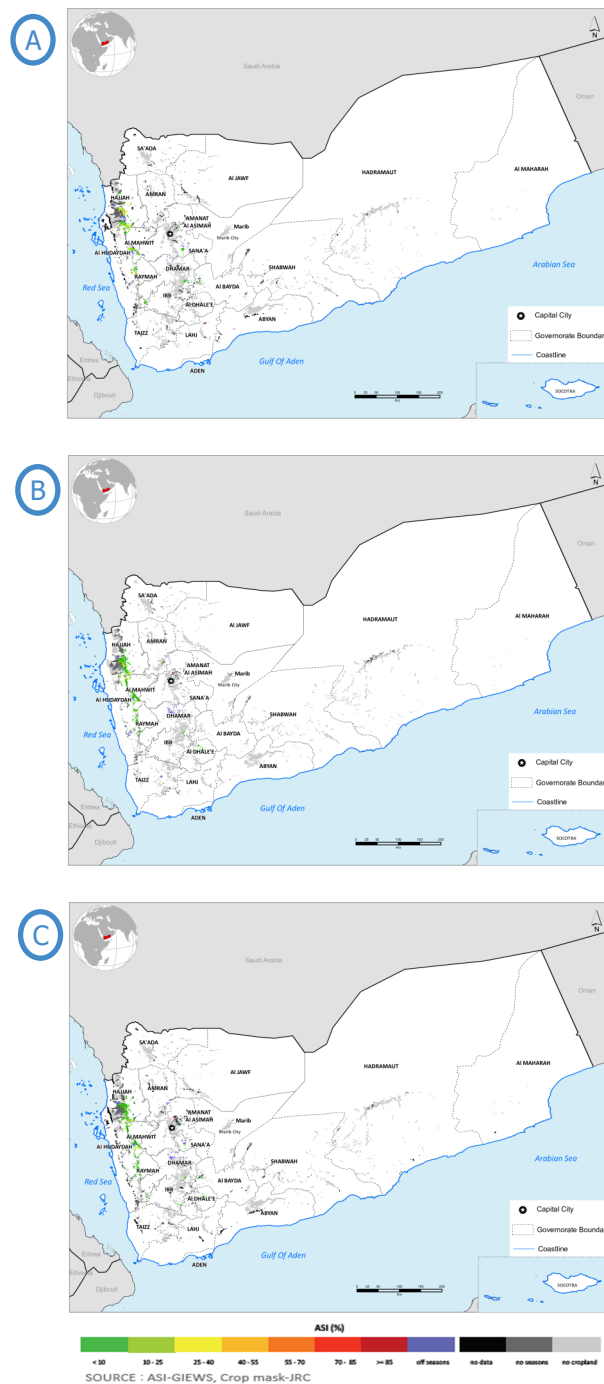
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Fig. 5: Performance of monthly temperature conditions for A) Maximum B) Minimum



Source: CAMA

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



SOURCE : ASI-GIEWS, Crop mask-JRC

II IMPACT ON LIVELIHOODS

Overall, the weather in September 2023 favoured harvesting vegetables and cereals such as barley across the Central Highlands. Similarly, across the Northern Highlands, many farmers were fully engaged in harvesting grapes, pomegranates, maize, apples, tomatoes, cucumbers, and chilly. Some farmers who own greenhouses were also harvesting vegetables, especially in Sa’adah, Amran, Sana’a, and Dhamar Governorates.

Field monitoring also showed that several farmers across the Red Sea Coast and Tihama Plain Region started planting bananas and mango trees in permanent lands while others were engaged in land tilling for tomatoes, chilly, watermelons, and tobacco in preparation for the coming season.

While the weather was relatively favourable for farmers across all these regions, those located in parts of Hadramaut and Al Mahara governorates were negatively affected by high temperatures that compounded freshwater availability. Those with access resorted to irrigation while most small-scale farmers could not afford to irrigate their crops due to high fuel prices. Ground reports indicate that water stress remains a challenge for most farmers across these regions; humanitarian interventions, both developmental and emergency are encouraged.

The outlook for October indicates that although the rainfall will continue to decline, sudden changes are possible especially if influenced by tropical activities. Currently, Tropical Tej (05A) is impacting Socotra and poses a threat to the Arabian Sea Coast especially Al Maharah governorate and the border with Oman. Depending on intensity, cyclones can damage critical infrastructure such as bridges, hospitals, houses, and harvest barns. Measures that ensure structures that divert flood water away from critical infrastructure and livestock kraals are intact are encouraged.

Fig. 7: Rainfall forecast until 21 October

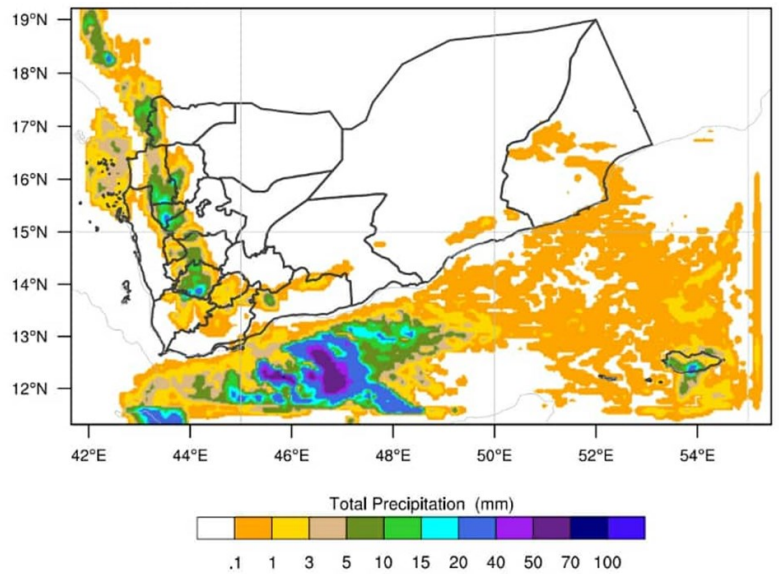
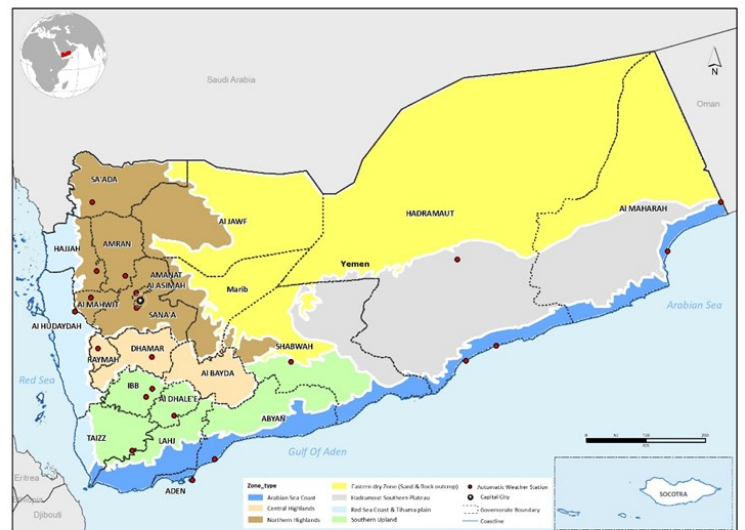


Fig. 8: Agro-ecological zones and location of observatory stations



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 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



Funded By European Union

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III. VARIATIONS OF RAINFALL AND NDVI

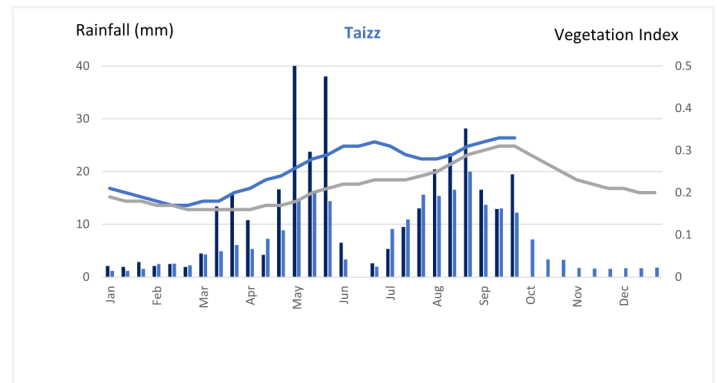
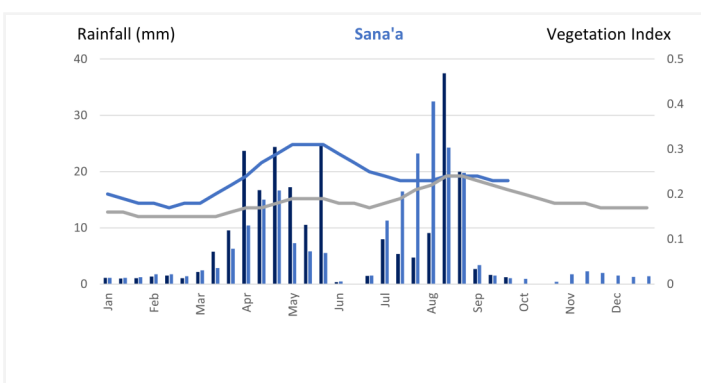
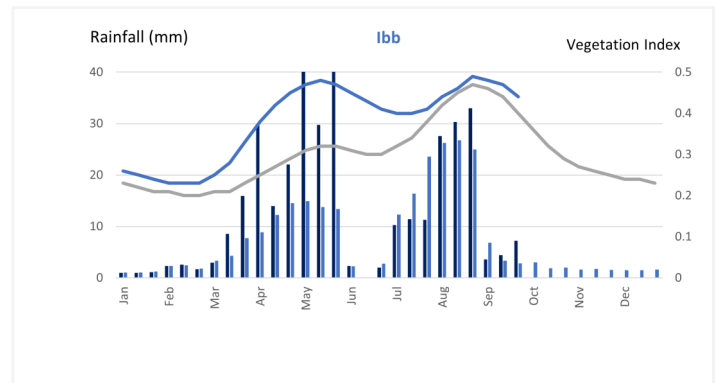
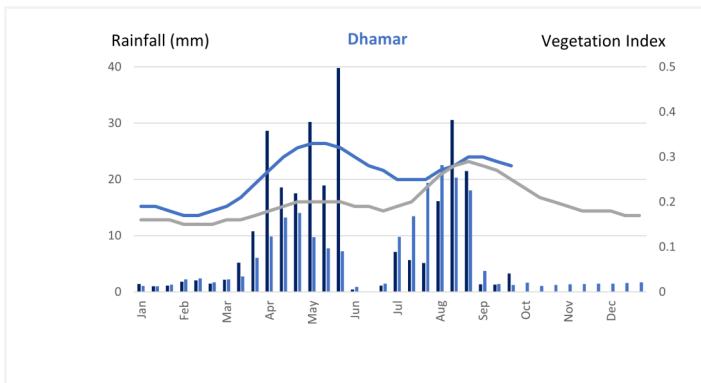
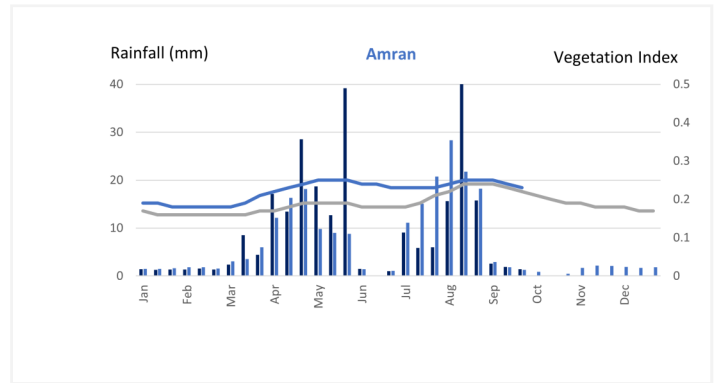
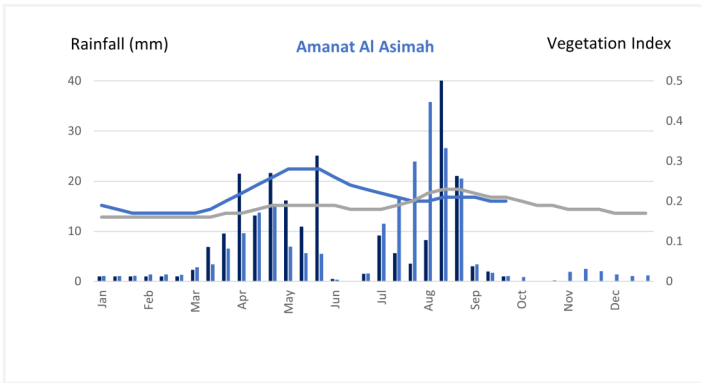
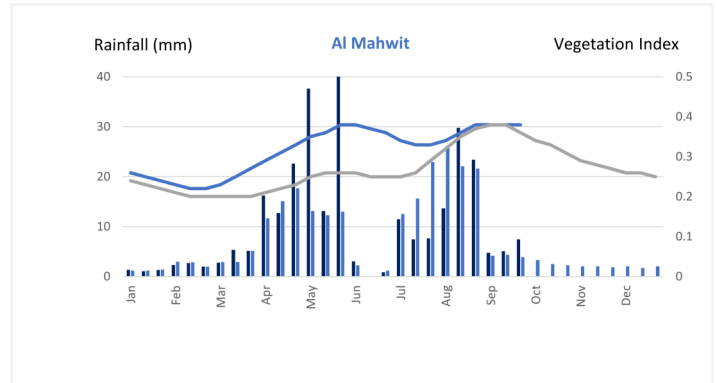
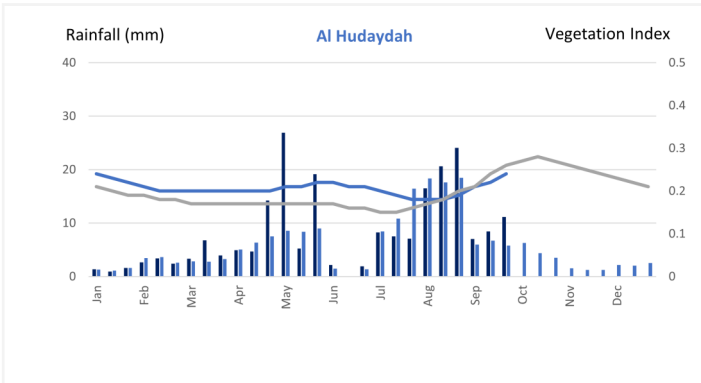
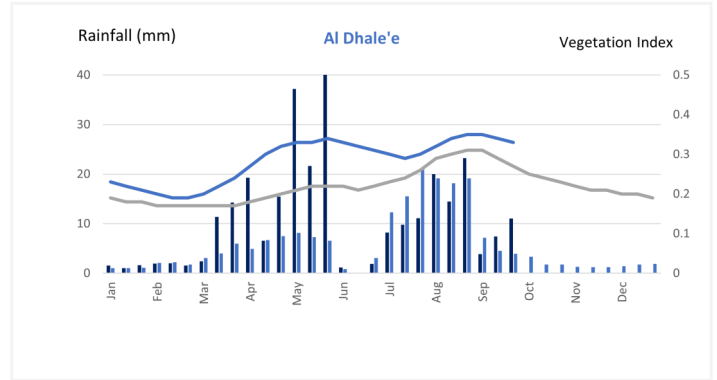
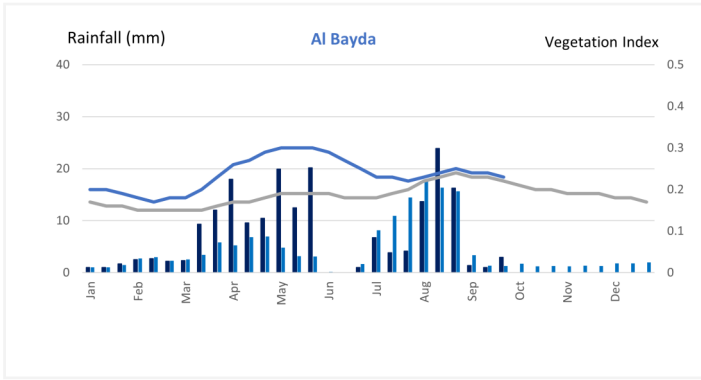
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Rainfall STA (2009 - 2022)

Rainfall 2022

NDVI 2023

NDVI STA (2009 - 2022)



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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	-	39.7	28.0
Al Dhale'e	Al Dhala	43	34.6	16.8
Al Hudaydah	Al Kaden	175	42.3	24.1
Al Hudaydah	Al Hudaydah	1	39.4	27.6
Al Jawf	Al Jouf	-	39.5	19.3
Al Maharah	Algaidha	-	36.8	23.8
Al Maharah	Serfeet	5	32.8	18.9
Al Mahwit	Almahweet	10	30.0	14.4
Amanat Al Asimah	CAMA/YMS Office	-	-	-
Amanat Al Asimah	Al-Asbahi	0	-	-
Amanat Al Asimah	Aljamaah	-	31.0	11.0
Amanat Al Asimah	Alhasba	-	-	-
Amanat Al Asimah	Baghdad	-	-	-
Amanat Al Asimah	Shamlan	-	-	-
Amanat Al Asimah	Sawan	-	-	-
Amanat Al Asimah	Al Erah	-	-	-
Amran	Amran	-	31.5	10.0
Amran	Hamdah	-	-	-
Amran	Qa'a Alboon	-	32.0	10.0
Amran	Amran Gov.	-	-	-
Amran	Eial Sourih	-	-	-
Dhamar	Dhamar	-	29.0	8.5
Dhamar	AREA-HQ	-	29.0	8.0
Dhamar	Rosabh	3	-	-
Dhamar	Dhamar (MAI)	3	-	-
Dhamar	Maqar-Alhya'a	5	26.0	6.0
Dhamar	Qa'a Shrah	-	-	-
Hadramaut	Al Mukalla	-	-	-
Hadramaut	Al Shaher	-	36.2	27.2
Hadramaut	Seiyoun	-	42.9	19.2
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	58	32.4	17.0
Ibb	Alsaddah	6	27.6	12.0
Ibb	Ibb	86	30.0	11.0
Ibb	Ibb (MAI)	34	29.0	15.0
Raymah	Al Jabeen-Rimah	15	27.8	15.4
Sa'ada	Sadah	-	36.9	12.4
Sana'a	Sana'a	3	31.0	11.4
Sana'a	Al Erah	-	-	-
Sana'a	Sanhan	-	-	-
Shabwah	Ataq	4	41.1	23.8
Socotra	Socatra	-	38.3	26.0
Taizz	Al Maafer	214	-	-
Taizz	Mashra and Hadnan	20	-	-
Taizz	Al Modafar	18	-	-
Taizz	Al Qahera	16	-	-
Taizz	Wadi Arafat	21	-	-
Taizz	Hawban Qadas	23	-	-
Taizz	Al Akahel	18	-	-
Taizz	Sabar almoadh	28	-	-
Taizz	Airport	58	33.2	20.3