

Short communication

Normal weather conditions of Kuwait

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Kuwait is small country of the Middle East with a geographical area of 17,818 km² (Fig.1). Large proportion of the lands area is sandy deserts involving oil fields (located at 30° 27' N, 48° 46' E). KISR 1999 estimated that 2.71 percent of the lands of Kuwait are suitable for irrigated and protected agriculture. The lands suitable for irrigated agriculture are located at Al Wafra, Al Abdali and along the western margin of Kuwait city. In recent years agricultural activities are gaining momentum in this country. Information on weather is essential for the planning and implementation of various agricultural activities. Kuwait Institute of Scientific Research (KISR 1999) estimated the average weather conditions of Kuwait from 1962-1998. Kuwait international Airport is regularly recording the weather parameters of Kuwait and weather data for the period 1999-2004 is now available. As such, an attempt is made to update the data and to estimate normal weather of Kuwait including the data recorded up to 2004.

The climatic data of Kuwait such as air temperature (minimum and maximum), air humidity (morning, and afternoon), rainfall, pan evaporation, wind speed and sunshine hours for a period of 6

years (1999- 2004) were collected from Kuwait International Airport. The mean weather data of the 6 years were worked out and the same was combined with the mean weather data of 1962 to 68 reported by KISR to arrive the averages for a period of 43 years from 1962-2004.

Temperature

The mean monthly data of weather parameters of 43 years (1962-2004) are presented in Table 1. The average daily maximum temperature varies from 18.7°C during January to 46.1°C during July. The average daily minimum temperature varies

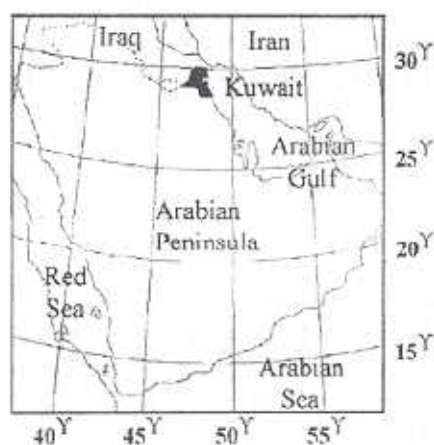


Fig. 1 : Location map of Kuwait

Table 1 : Average weather conditions in Kuwait.

Month	Max daily Temp. (°C)	Min daily Temp. (°C)	Mean daily temp. (°C)	Total rainfall (mm)	Daily pan evaporation. (mm)	RH Max. Daily (%)	RH Min. daily (%)	Mean RH %	Wind speed (m/s)	Sunshine hours* h/d
January	18.7	7.8	13.2	36.2	3.2	89	41	65	3.1	7.1
February	21.1	9.2	15.1	13.1	4.6	83	31	57	3.5	7.2
March	26.3	13.2	19.8	15.8	7.2	71	22	46	3.7	7.9
April	32.7	18.9	25.9	11.9	10.8	58	18	38	3.9	7.7
May	39.6	24.6	32.5	3.5	15.8	42	11	27	4.1	9.7
June	44.3	28.0	36.8	0.3	20.9	29	7	18	5.1	11.1
July	46.1	29.4	38.5	0.0	20.9	32	8	20	4.7	10.6
August	45.7	29.2	37.8	0.0	19.1	38	9	24	4.2	11
September	42.5	25.4	34.0	0.0	15.2	45	10	28	3.6	10.3
October	36.3	20.4	28.1	4.6	9.3	65	17	42	2.9	9.5
November	26.7	14.1	20.2	17.3	5.5	75	28	51	3.2	7.2
December	20.0	9.4	14.5	36.6	3.0	88	41	64	3.2	6.2
				138.2						

Source: Directorate General of Civil Aviation - Meteorological Department, Climatological Division, Kuwait

from 7.8°C during January to 29.4°C during July. May to September forms the hot season and the hottest months are June, July and August. The maximum temperature during this period ranges from 44.3 °C to 46.1 °C.

Relative humidity

The minimum Relative Humidity (RH) ranges from 7 percent (June) to 41 percent in January whereas the RH maximum ranges from 29 percent (June) to 89 percent (January). The mean RH also shows a similar trend with the lowest value of 18 percent during June and highest value of 65 percent during January. May to October forms the least humid period and

November to April forms the most humid period.

Rainfall

The total annual rainfall of the area is 138.2 mm. This rainfall is being received mostly from November to April. December and January are the months receiving highest amount of rainfall. Practically, there is no rain during summer (July to September). Sandstorms are common and can last several days. Rain-fed agriculture is difficult in Kuwait because of the extreme scarcity of rainfall..

Pan evaporation

The pan evaporation (PE) values

are very high during June to August (20.9 to 19.1 mm day⁻¹) and low in the cooler months (November to February). The mean daily pan evaporation varies from 3.2 mm during January to 10.8 mm day⁻¹ in April.

Wind speed and sunshine hours

The wind speed ranges from 3.1 m s⁻¹ during January to 5.1 m s⁻¹ during June. During the summer season (May to October) the wind speed is very high and the highest wind speed is observed during June, July and August. The mean sunshine hours range from 6.2 h day⁻¹ during December to 11.1 h day⁻¹ during June. The longest duration of sunshine is observed during May to September period.

The normal weather of Kuwait is characterized by a hot and dry season from May to October and cool season from November to April. December and January are the coolest months and June, July and August, the hottest months. In the summer months between June and September, the monsoon depression affects the northwesterly winds (Khalaf, 1989). Dust and sand storms are typical of Kuwait and occur throughout the year. However, according to Khalaf and Al Ajmi (1993), they are more frequent in spring and mid summer (March to August). The quantum of rainfall

is meager and the rainy season starts by October and ends by May. There is no rain from June to September.

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