

Rainfall: The principal feature of rainfall in Ghana is its seasonal character and its variability from year to year. Four types of rainfall are recognized, although adjacent types shade into one another. No very definite lines of demarcation exist, as they are a consequence of the north and south movement of the ITCZ and its associated weather zones.

Type 1: a single rainy season occurring north and east of a line running through Wa (10004'N,02030'W) and Salaga (0.8033'N,00031'W). The monthly rainfall totals rise slowly from March with a check in June or July until a maximum is reached in August or September. Thereafter, they sharply decrease.

Type 2: a single rainy season in the area bounded in the north by Type 1 and in the south by a line running through Kintampo (08003'N,01044'W) and Hohoe (07009'N,00029'E). Rainfall occurs between March and October with not much variation between the monthly totals.

Type 3: two rainy seasons in the area bounded in the north by Type 2 and in the south by a line through Wiawso (06010'N,02029'W) and Keta (05055'N,00059'E). The monthly rainfall totals reach their highest values in May or June and in October. The totals in each of these months are similar. December, January and February, and July, August and early September, are generally much drier than the remaining months.

Type 4: two rainy seasons in the whole coastal plain, with the principal reaching its maximum in May and June and the subsidiary in October. There are two sub-divisions of this type, which are almost sufficiently different to be classed as separate types. In the west the principal maximum (associated with the greatest rainfall in the country) is particularly well marked. In the east (associated with the lowest rainfall in the country), the subsidiary season is scarcely in evidence.

January is a dry month throughout the country. However, the driest month in the eastern coastal districts is August. Very considerable exist between successive rainy seasons in time of onset, duration and amounts received. In some seasons, individual rainfalls are numerous and well distributed, whereas in others they are scattered and infrequent. As an example during a period of eight years at Ho, the onset of the second rainy season varied between the first week in August and the third week in September, and its duration from six to twelve weeks. The result of variations in the seasons is great variability in monthly rainfall totals and also in yearly totals. It is not unusual for an entire month in a season customarily regarded as rainy to be without significant amount of rain. In the southern parts of Ghana, June tends to be wet with average monthly values between 152 and 254 mm.

The relative dryness of the Accra Plains requires comment. During the northern summer months when the moist monsoon current is at its strongest, its average direction is approximately that of the orientation of the coast line. In addition there is an area of relatively cold water just off the coast from Cape Three Points eastwards. The monsoon current therefore

either passes over land gradually losing its moisture or becomes more stable, as a result of cooling over the ocean, with a decrease in precipitation. The reason for the existence of the relatively cold water is not fully understood yet. It may be associated with a northward extension of the cold Benguela current which sweeps northward from the Cape of Good Hope and is deflected westerly through the Gulf of Guinea. Alternatively the orientation of the coast is favourable for the 'Ekman' effect, whereby the sea surface layers near the coast set an angle of 45° from the coast and are replaced by cooler water from below. The extent of the reduction in temperature suggests that the earlier explanation is more likely, although changes in the set of the currents indicate that both may occur.

Rain is rarely prolonged over any part of the country and the average duration of rain is between 2 and 3 hours. Rain persisting for over 12 hours is very uncommon. In the dry months, rain is likely to fall on less than 10 hours in a month and even in the wet seasons, the average total duration of rain is only about 30 to 40 hours in a month. Variations in intensity of rainfall are considerable and rates of 203 mm per hour may be reached and even exceeded for short periods. Maximum rainfall intensity curves for a number of towns can be available in at the Department.

Temperature: The temperatures given, unless specifically stated otherwise, refer to "shade" temperatures obtained from thermometers in a meteorological screen with their bulbs 1.2 m above the ground. As is to be expected in a tropical country, temperatures are high, with little variation from year to year 1.1 to 1.7H°C. Annual mean temperatures (defined as the average of the mean maximum and minimum temperatures) show only small variations across the country if these are adjusted for the effect of altitude (resulting in a decrease of about 1.7H°C for each 300m upwards. For places at or near sea level, the lowest annual mean temperatures, 26°C, are found on or near the coast, and the highest, 29H°C, between 8 and 10H°N. The annual range of mean temperatures increases from in the south to in the north so that the temperature seasons are by no means as well marked as the rainfall seasons. The mean daily range of temperature is approximately double the annual range, being on the coast and from to in the north.

Average maximum temperatures are highest in March over the entire country with the exception of an area between Akuse, Ho and Tafo where temperatures are highest in February. The greatest individual temperatures recorded may occur at any time during the months of February to April and are often just before the onset of the rains. Thus in the north, the highest temperatures usually occur in April or even in May and in the south early in the period February to April. The highest temperature so far recorded in Ghana is 43.9H°C at Navrongo.

The lowest average maximum temperatures occur in August over the whole country. The difference between the greatest and least monthly mean values ranges from 3.8H°C over the south-west coast to 9.4H°C in the extreme north. The annual mean maximum temperature is greatest 34H°C in the extreme north and least on the coast 29-30H°C.

Average minimum temperatures are usually lowest in January except in the coastal areas and southern Togo where they occur in August and in the extreme north where they occur in December. The highest average minimum temperatures are most commonly recorded in March,

but may occur in April or May. No marked geographical pattern is discernible in these variations unless it is a tendency for the north to show the highest values in April. The annual range of average monthly minimum temperatures is less than the range of maximum temperatures, being only 1.7H°C over the southwest coast and 6.7H°C in the extreme north. The lowest temperature so far recorded is 110C both at Kumasi and Tafo. At all stations the absolute minimum temperature has occurred in January and is almost invariably associated with the presence of the Harmattan. For more information on this topic consult weather and climatic in Ghana.

For other Climatological variables and more details of those above - consult:
"Weather and Climate of Ghana" a copy of which can be obtained from the Department.

Updated values of these variables based on observations up to 1990, are also now available at the Department.