Weather & Climate

Weather

A state or condition of the atmosphere at a given place and at a given instant of time'.

Climate

The generalized weather or summation of weather conditions over a given region during comparatively longer period.

Differences between weather and climate:

BASIS FOR COMPARISON	WEATHER	CLIMATE
Meaning	Weather is day-to-day information of the changes in the atmospheric condition in any area.	Climate is statistical weather information that provides information about the average weather condition of a particular place over a long period.
Duration	The short term atmospheric condition of any place is the weather, which may vary by time-to-time.	The long term average weather atmospheric condition of a place or country is the climate.
Affected By	Weather is affected by temperature, pressure, humidity, cloudiness, wind, precipitation, rain, flooding, ice storms, etc.	The climate is the long term observations of the atmospheric conditions at any location like humidity, temperature, the sunshine, wind, etc.
It affects the	The weather may affect the day-to-day occupation, and it may hamper transportation services, agriculture, etc.	Climate significantly affects agriculture, industries, the livelihood of the peoples.
Changes observed	The changes in the weather condition can be observed very frequently.	The changes in climate take a longer time to change.
Studied by	Weather forecasting is observed by the Meteorological Department of any particular place, and the study is known as Meteorology.	The Climate Prediction Centre predicts climate and its study is known as Climatology.

Factors affecting climate

1. Latitude

The distance from the equator, either south or north, largely creates variations in the climate. Based on the latitude, the climate has been classified as

- Tropical
- Sub-tropical
- Temperate
- Polar.

2. Altitude (elevation)

The height from the MSL creates variation in climate. Even in the tropical regions, the high mountains have temperate climate. The temperature decreases by 6.5 ºC/Km from the sea level

3. Precipitation

The quantity and distribution of rainfall decides the nature of vegetation and the nature of the cultivated crops.

Rainfall(mm)	Name of the climatic region
Less than 500	Arid
500-750	Semi-arid
750-1000	Sub-arid
More than 1000	Humid

4. Soil type

In black soil areas, the climate is hot while in red soil areas, it is comparatively cooler due to lesser heat absorption.

5. Nearness to large water bodies

The extreme variation in temperature during summer and winter is minimized in coastal areas and island.

6. Topography

This involves the altitude of the place, steepness of the slope and exposure of the slope to light and wind.

7. Vegetation

Thick vegetation is found in tropical regions where temperature and precipitation are high.

Scales of climate and their importance

1. Microclimate

Microclimate deals with the climatic features peculiar to small areas and with the physical processes that take place in the layer of air very near to the ground.

2. Meso climate

The scale of meso climate falls between micro and macro climates. It is concerned with the study of climate over relatively smaller areas between 10 & 100 km across.

3. Macro climate

Macro climate deals with the study of atmosphere over large areas of the earth and with the large scale atmospheric motions that cause weather.

Climate	Number of humid months	% geographical area of India
Arid	<2.0	17.00
Semiarid-dry	2.0-4.5	57.17
Semiarid-wet	4.5-7.0	12.31
Humid	>7.0	1.10