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## **Geographical structure of Haryana A geographical analysis**

**Dr Reena Devi, Associate Professor,**

**Mahila Mahavidyalaya Jhojhu Kalan (Charkhi Dadri),**

**Department of Geography , Email - [drreenammjk@gmail.com](mailto:drreenammjk@gmail.com)**

### ***Abstract:***

The geographical structure of Haryana has been changing overtime. The present form of the state has come into existence as a result of endogenic and exogenic forces and horizontal structure of the plane. The state of Haryana lies the vast plains between the Ganga river system in the east and Indus river system in the west. Yamuna, a tributary of Ganga is the only major river flowing through the state. Present work is an attempt to analyse the climate change patterns in the state of Haryana the temperature as well as rainfall variations.

### ***Introduction;***

Life on earth owes its existence to the warm blanket formed by carbon dioxide, methane, nitrous oxide, hydro fluorocarbons, per fluorocarbons and sulphur hexafluoride, etc. known as Greenhouse Gases (GHG) around it that traps a part of the

infrared rays reflected from the surface of the earth. But now this protective blanket is becoming thicker due to human induced emissions. This is causing an enhanced greenhouse effect that is warming up the earth. The long-term weather conditions of an area are called climate. The climate of any state is determined by the distance from the sea, the latitudinal position, the North-

West disturbances and the South-Western monsoon.

India has a tropical monsoon type of climate and hence climate of Haryana also falls under the monsoon climate. The state of Haryana has a sub-tropical dry continental climate due to its

Location far from the sea. Due to continental type of climate,

There is more variation in the climate of the state. Hence, rainfall is less and annual temperature is high.

- Objective;
- The objective of the study is to analyse the patterns of climate change in various parts of the state. In this study we study the patterns of changes in temperature and rainfall over time in the state.
- Second, is to study which district among all has a suitable climate for growth of crops and for use by humans.



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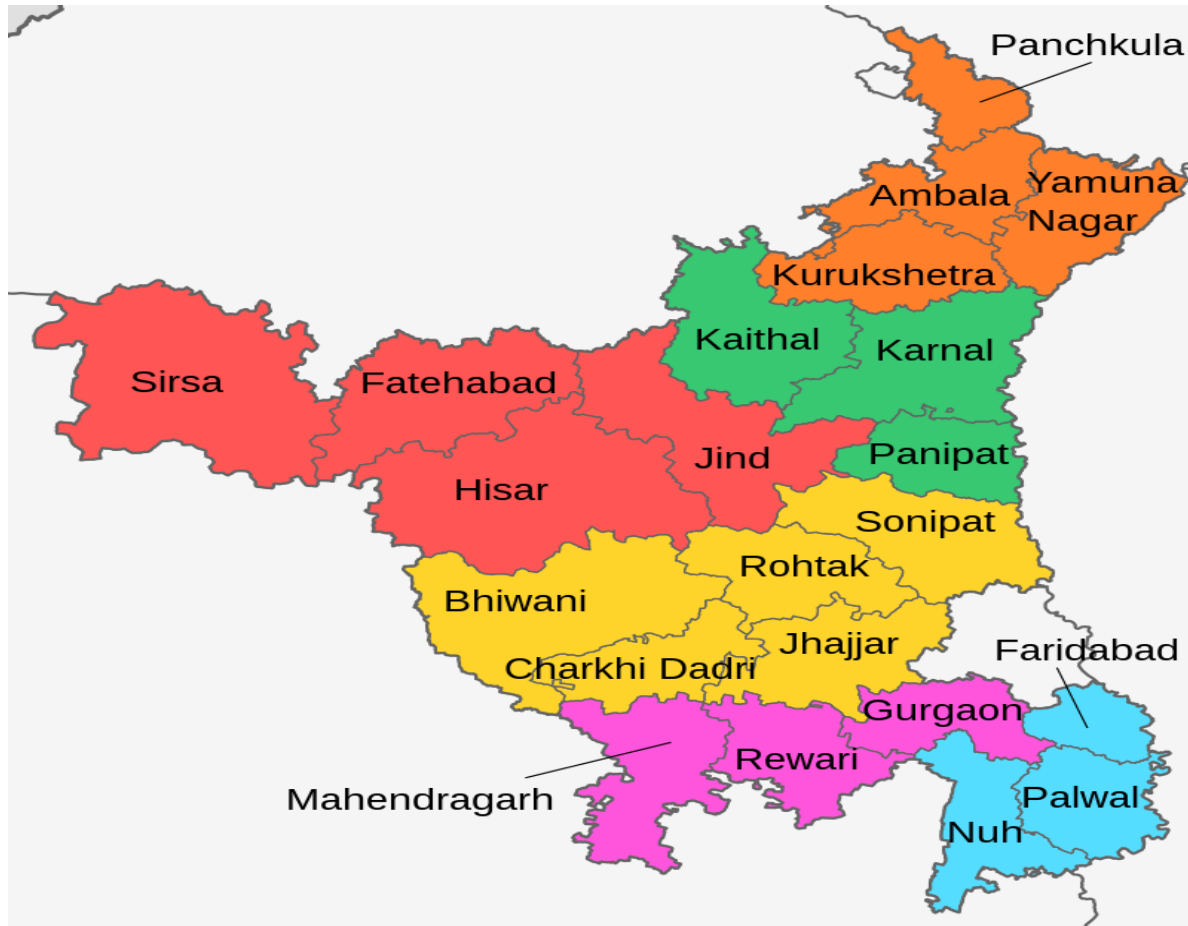
### ***Data and Methodology;***

- Analysis of data is done by usage of proper maps. The data used is collected through the secondary sources available in the books and on the internet.
- District wise data is used in the study based on which climate of Haryana is divided into main two types and its sub parts the data is shown by maps using secondary sources.

### **Location and Extent of Haryana**

- Haryana is located in the North-Western part of India and the Southern part of the Indus plains. The Indus- Ganga plains surrounds the most part of the land area of the state.
- Haryana is located 300 miles away from the Tropic of Cancer in Northern direction.
- Latitudinal extent of Haryana: between 27°39' to 30°35' North latitude.
- Longitudinal extent of Haryana : between 74°28' and 77°36' East longitude.
- It is a landlocked state. The state has a total area of 44.212sq km which is 1.34% of the country's total area, it is the 21<sup>st</sup> Largest state in India.
- There are 22 districts in the state. Sirsa (4,277sqkm) is the Largest district of the state in terms of area where as Faridabad (743sq km) is the smallest district in the state.
- The shape of the state is similar to the uneven quadrilateral whose latitudinal and longitudinal expansion is 30×30.
- Haryana share its border with 5 states and 2 union territories in which:
  - Himachal Pradesh lies in the northeast
  - Rajasthan in the South-West
  - Uttar Pradesh, Delhi and Uttarakhand in East
  - Punjab and Chandigarh in the North-West.
- Haryana is surrounded by Delhi from three sides. Haryana Shares the longest boundary with Rajasthan (about 1262km) And shortest with Uttarakhand (about 12km).

## Locational map of Haryana



## Climate of Haryana

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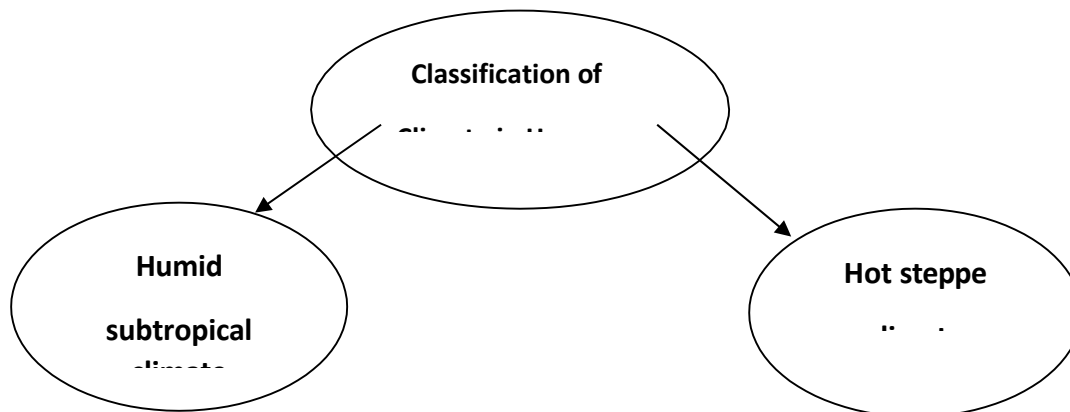
The state of Haryana has a **sub-tropical dry continental climate** due to its location far from the sea. Due to continental type of climate, there is more variation in the climate of the state. Hence, rainfall is less and annual temperature is high.

The Northern region of Haryana, bordering Himachal Pradesh, has sub-humid climate and the Southern region bordering Rajasthan has dry climate.

The climate of Haryana can also be called as the climate between the semi- arid climate of the eastern part of Rajasthan and the humid climate of the Ganga plains.

### **Classification of Climate in Haryana:**

According to the climatic classification of Wladimir Koppen, Haryana has mainly two types of Climate. The description of these climates is as follow:



### **Humid subtropical climate:**

The extension of this type of climate is found in a 72km wide strip spread in the South of Shivalik range. The average winter temperature in this region is found to be less than 18°C and the January temperature reaches 3° to 4°C.

The temperature of Northern part of Shivalik range reaches to freezing point at night. Thus, the climate of Shivalik has an impact on the state.

### **Hot steppe climate :**

This type of climate is found in most parts of the state. This climatic region receives rainfall from the southwest monsoon coming from the Bay of Bengal. This climate region does not receive excess rainfall, due to which the temperature of the state in summer is very high and there is a lot of evaporation.

### **Climatic features of Haryana :**

- Haryana lies on the North of the tropic of cancer, due to which the centre of low pressure is made by the effects of high temperature, in North-West India. Haryana



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is also affected by this, as it is a part of North-West India.

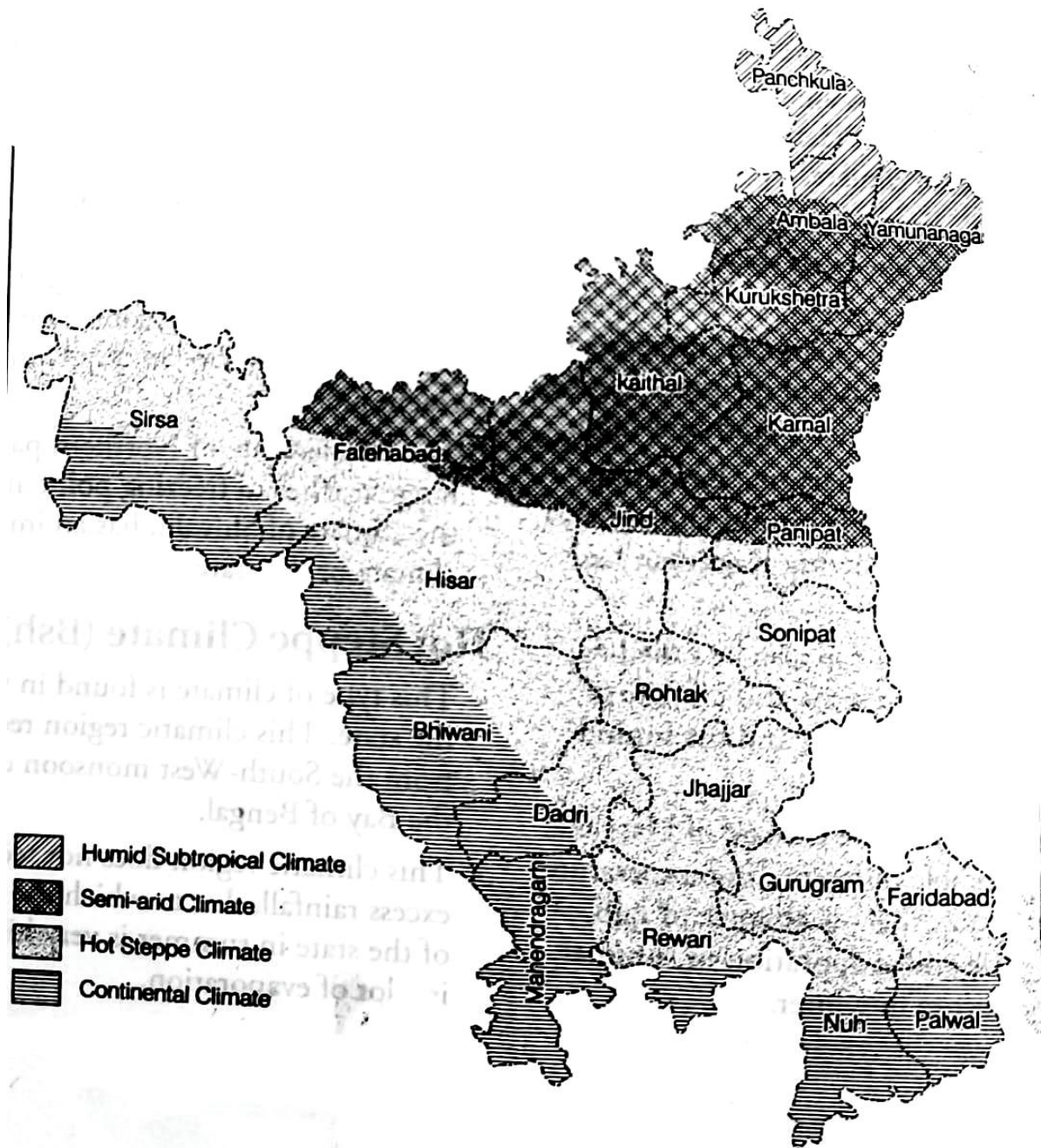
- After the 21<sup>st</sup> September, the temperature starts falling due to the south ward shift of the sun, which also affects Haryana.
- North-West disturbance and South-West monsoon have a direct effect on the continental condition of the state.
- From July when the isobars of 998 millibars pass through the western part of Haryana, the direction of the winds turns from West and South-West to North-East.
- In January, when the isobar line of 1018 millibars crosses the Eastern Part of the state, then the direction of winds is towards North and North-West.
- Such a diversified dry, semi-arid, sub-humid tropical climate is found from South to North in the state.

### **Temperatures in Haryana:**

- The temperature in the state rises sharply from March to June. In the month of June, there are variations in temperature, such as the temperature is found higher in the northern parts and the temperature of the South-Eastern parts of the state is found lower.
- Some times in months of May and June the daily temperature in some districts of the state reaches 49°C and 50°C in the desert affected areas. Intensity of temperature is more effective in the south western parts of the state.
- With the arrival of monsoon in the month of June, the temperature of the state suddenly starts falling and the temperature in July becomes very low. When the sky becomes clear in September - October, then as light increases in temperature is felt. It is known as the second season of summer.
- From October to January, Haryana's temperature keeps falling continuously. The annual range of temperature in the southern part of the state is low. Hence, it is said to be of high temperature due to ocean effect and proximity to the equator.

### ***Major seasons of Haryana :***

Seasons are the major feature of the climate of the state. According to meteorologists, three types of seasons are found in Haryana. In each season there is a difference in temperature, pressure, direction of winds and amount of rainfall and its distribution.



**Summer season :**

- The summer season in the states starts from April to the end of June. The average temperature in this season is 35°C. The highest temperature in the state is recorded in the month of may to June. Hisar is the hottest district of the state.
- This season is generally dry i.e. humidity is very low. Due to high temperature during this season, dust storms or loo blows in the state. Loo or storms absorbs the moisture of the crops, causing damaging of crops.



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**Winter season :**

- The winter season in the states lasts from mid September to March. The average temperature of the state in this season ranges from about 12°C to 14°C and the lowest temperature is found in the months of December and January ranging from 3°C to 4°C.

**Rainy season :**

- The rainy season starts in the state from the beginning of July to mid-September. Haryana comes under the low rainfall state. The average rainfall in the state ranges from 40cm to 60cm (400-600mm). the difference in the rainfall in the state is because of the difference in its Geographical location. There is a difference in rainfall, humidity and lack of sunshine during the rainy seasons, due to which the temperature starts falling.
- The foot hills of Shivalik receives the highest rainfall than other regions of the state. Rainfall in the state is irregular, erratic and uneven. Rainfall in Haryana occurs mainly in two seasons. The first during the Indian monsoon period in the month of June to September and the second in the winter season from December to January.
- 80% of the rainfall occurs from the south west monsoon in the month of July to September. 10 to 15% of rainfall occurs because of the western disturbances coming from the Persian gulf. It is called Maavath in local language.
- North-Eastern part of the state receives the highest rainfall in Haryana. **Chhachhrauli** town of **Yamunanagar** is called **Cherapunji of Haryana** due to excessive rainfall.
- **Ambala** in the state receives the highest rainfall. **Sirsa** district receives the least rainfall.

**Conclusion:**

Haryana is hot in summer at around 45°C (113°F) and mild in winter. The hottest months are May and June and the coldest are December and January. The climate is a rid to semi – arid with an average rainfall of 354.5mm. Around 29% of rainfall is received during the months from July to September as a result of the monsoon and the remaining rainfall is received during the period from December to February as a result of the monsoon.

**Reference;**

- Know your state Haryana, by Sohan Singh Khattar and Reena Kar, Climate of Haryana page number, 97 and 99.  
Geography of Haryana (Sandeep's), Haryana know your state by Arihant'