

Course: B.A. Geography, Part I (Hons.)

Paper Code: II (A)

Paper Name: Asia: Regional Study

Topic: Climate of Asia

College: R.K.D. College, Patliputra University

Climate of Asia

Introduction

- Asia covers one-third of the Earth's surface and almost every known climate occurs on this continent.
- It is the largest and most climatically diverse continent, has the highest average elevation above sea level, and is wettest, coldest and physically most diverse of all continents.

Factors affecting climate of Asia

- **Large latitudinal Extent:** The continent of Asia has a large latitudinal extent. It extends from 10°S to 80°N . It covers three heat zones as the Arctic Circle, Equator and the Tropic of Cancer passes through it. Thus, while one country has a tundra type of climate, the country experiences equatorial type of climate.
- **Distance from the Sea:** Major parts of Asia lie in the interiors far away from the moderating influence of the Sea. Thus, extreme type of climate is experienced in these regions with low and uneven rainfall referred as Continental climate
- **Winds:** The Monsoon winds influence the climate of large parts of Asia by affecting the distribution of rainfall over many countries.
- **Mountain Ranges:** The mountain ranges of Asia running in the east west direction obstruct the path of rain bearing winds coming from the south and bring rain to the areas which lie on the windward side of the mountains. Further, the Himalayas act as a barrier to the cold winds rising from Central Asia.
- **Ocean Currents:** The ocean currents like the Oyashio current and the Kuroshio Current influence the climate of eastern coastal margins. While the cold Oyashio current makes west coast of Japan freezing cold. On the other hand, the warm Kuroshio Current washes the shores of eastern coast of Japan and makes winters still milder.

The large variety of climates that prevail in Asia may be grouped into several broad regional types. The regional division adopted here is a modification of Lyde's classification (Lyde, 1938). The basis of classification adopted here is "genetic" rather than statistical, and hence the climatic boundaries are generalized rather than precise.

1. Tundra Region:

It covers the entire continent from east to west along the Arctic Ocean and includes the lowlands between the Arctic Circle and 70°N. Winters are long, dry and snowbound; summers are short but warm enough for some snow to melt. In summer temperature range from 5°C to 10°C while in winters it reaches -50°C. Annual average rainfall is 25cm.

2. East Siberia:

Between 50° and 70°N latitudes a large territory in eastern Siberia including the lower basin of Lena river and the area to the north of Baikal lake have this type of climate. It is mostly a mountainous region. The deep interior location and mountains prevents precipitation. The winters are long, dry and among the coldest in the world. Verkhoyansk has once recorded -62°C. The summers are warm with temperatures varying between 10°C and 21° C. Average annual precipitation of 50cm in the form of snow is received in winters.

3. West Siberia:

The region is located in west Siberia and Mongolian plains. Summers are warm (around 24° C) and winters are too cold here. Temperatures are higher than in East Siberia. Rainfall is received in spring and summer season on an average of 25 cm to 30 cm annually. The ground remains frozen in winters, and thaws during the brief summer, causing swamps and marshes.

4. Temperate Monsoon Lands of East Asia:

Most of eastern China, North Korea, South Korea, and Japan are included in this region which lies entirely north of the Tropic of Cancer. Summers get rainfall, and winters are dry—a monsoonal character. Only Taiwan, and southern islands of Japan including southern half of Honshu, receive rainfall in winter caused by the southeasterly winds which bring rainfall after picking up moisture on the Japan Sea, East China Sea, and the adjoining seas. The range of temperature increases in the interiors, as the winters become colder and summers warmer.

5. Tropical Monsoon Region:

It is a vast region in southern and southeastern Asia encompassing nearly all the territory north of 10° north and south of the Tropic of Cancer—from the Indus-Ganga lowlands to the Indo-Chinese peninsula (Vietnam, Cambodia, Laos) and Myanmar and Thailand. Typically

monsoonal conditions are seasonal reversal of wind systems and associated rainfall regimes. Most of the region, from India to China and Japan, receives rainfall during summer months (100 to 200 cm). In winter, conditions are reversed. Winds flow from the high-pressure region of East Siberia outward and are dry. However, during their course as they traverse the waters of East and South China seas, they pick up moisture and bring some rain to parts of East Asia and Southeast Asia that lie in their tracks. The range of temperature is smaller and the seasonality of rainfall depends on the precise locations with reference to the summer or winter monsoons.

6. Equatorial Region:

It includes the areas lying between 10°N and 10°S in Indonesia, Sri Lanka and Malaysia. Typical climatic conditions consist of high, seasonally well-distributed convectional rainfall (annual average 200 cm) and a small range of temperature (average temperature 27°C).

7. Central Asia: Mongolian Region:

The region lies in the heart of the continent containing a vast territory of mountains, and plateaus from Tibet to Mongolia. The conspicuous climatic characteristics are extreme temperature ranges (daily and annual) and dryness. The region comes under the influence of a large body of cold, continental, and outflowing dry winds over Asia's landmass. In summer, the landmass is heated, and a low pressure system takes over, with the consequent dry, inflowing, gusty winds, the enclosing mountain system shelters this vast region from the inflow of any maritime winds.

8. Central Asia: Aral-Caspian Region:

The region resembles the Iran-Sind region in dryness and large temperature ranges, but differs in topography, as it is mostly lowland drained by the historic Amu and Syr Darya rivers. The Mediterranean influences (some winter rain) reach the western section; but the eastern part gets most rainfall during the summer.

9. Iran-Sind Region:

The region includes eastern Iran, Afghanistan, and southern Pakistan (Sind province). Dryness and heat are the two outstanding characteristics of the climate. Rainfall increases somewhat from the Iran plateau with nearness to the sea. Very hot summers and cold winters account for large temperature ranges. Annual average rainfall of 24 cm and summer are characterized by 45 °C.

10. Mediterranean Region:

It includes the territory bordering the Mediterranean from Turkey to Syria, Israel, and Iraq. Winter temperatures fall below 10°C and in summer rise above 23°C. Precipitation is mostly in winter brought by the cyclonic storms emanating in the west.

11. Tropical Desert Region:

The region lies essentially in the trade wind belt, outside the monsoonal and Mediterranean influences. Vast deserts of Saudi Arabia to Iran, Pakistan and part of western India have this type of climate. Excessive temperature ranges and dryness characterize the climate. Daily temperature reaches around 50°C and average annual rainfall is less than 25 cm. Year-round presence of subtropical high pressure is main characteristic feature of this climate. The sky in the tropical desert remains cloud-free due to the subsiding air of dominant high pressure resulting in large amounts of insolation. The cloudless skies during the day lets insolation in, but also lets much heat out at night. Without the absorptive blanket of clouds, longwave radiation emitted from the Earth readily escapes to space, chilling the nighttime desert air. The high energy input during the day and large loss at night results in an extremely large daily temperature range.

