

Tornthwait's classification of Climate

- C W Thornthwaite of USA published his scheme in 1931 and modified it in 1933 and 1948.
- Based on Precipitation Effectiveness and Thermal Effectiveness.
- PE – water available for plant growth after evaporation
- TE = Temperature available for plant growth after evaporation.
- Potential Evapotranspiration: A combined Index of PE and TE, used for climatic classification by Thornthwaite in final scheme of 1948.

Climatic Classification

Based on PE

- A: (P/E Index is greater than 127): Wet Climate (Rainforest)
- B: (P/E Index 64-127): Humid Climate (Deciduous)
- C: (P/E Index 32-63): Sub Humid (Grassland)
- D: (P/E Index 16-32): Semi-Arid (Steppe)
- E: (P/E Index less than 16): Arid (Desert)

Based on TE

- A': Tropical (128 and above)
- B': Mesotherms (64-127)
- C' Microtherms (32-63)
- D': Taiga (16-31)
- E': Tundra (1-15)
- F': Frost (0)

Other Sub-types

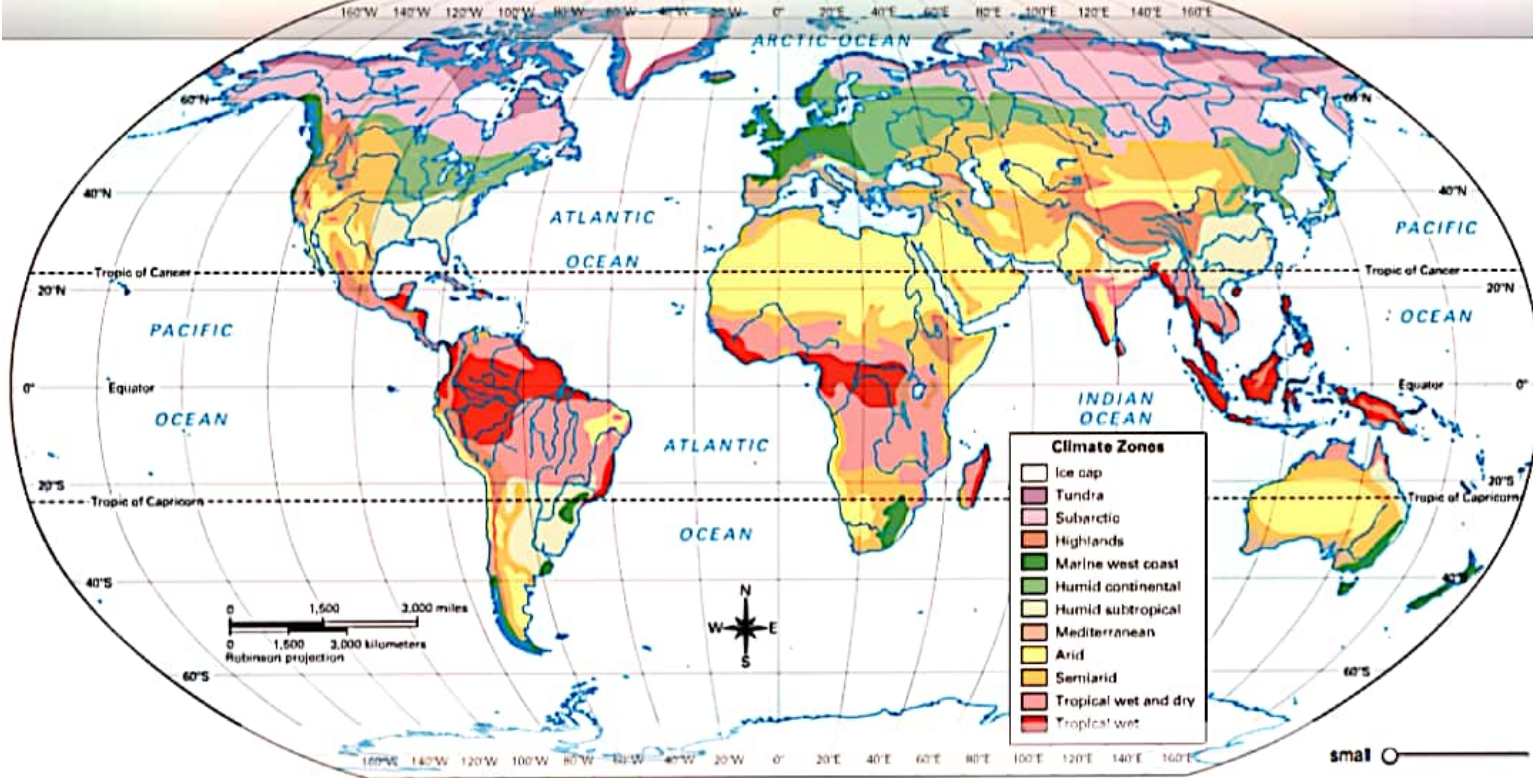
- r – rainfall in all season
- d – dry almost all year
- w – winter dry
- s – summer dry

Evaluation

- Temperature is only modifying factors for calculating PET, not a deciding factor as in Köppen climate classifications
- Classification seems to have ignored the role of prevailing winds, relative humidity, air pressure, and air masses.
- Current issues of global warming, climate change, and increasing incidence of extreme events do not find a place in Thornthwaite's classification of world climates.
- Despite being an improved classification qualitatively, it is being less used and of limited application because of its complex nature.

Climatic regions of the world

- | | |
|-------------------------|--------------------------|
| 1) Equatorial region | 7) Mediterranean climate |
| 2) Hot desert | |
| 3) Continental deserts | 8) China type |
| 4) Tropical grasslands | 9) British type |
| 5) Temperate grasslands | 10) Laurentian type |
| 6) Tropical monsoon | 11) Taiga |
| | 12) Tundra |



UPSC CSE prelims 2010

Q. Which one of the following reflect back more sunlight as compared to other three?

- sandy desert
- Paddy crops
- Land covered with fresh snow
- Prairie land

Ans.

more sunlight as compared to other three?

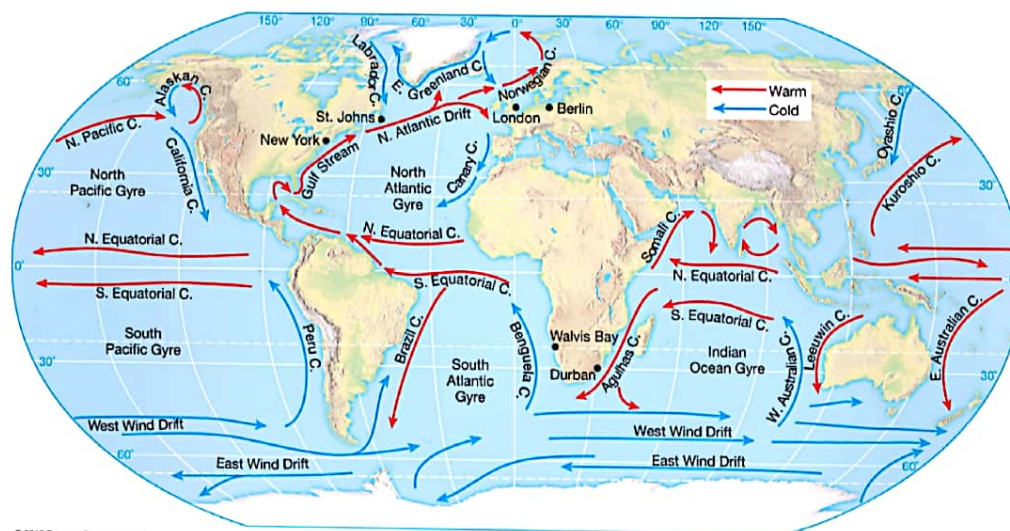
- a) sandy desert
- b) Paddy crops
- c) Land covered with fresh snow
- d) Prairie land

Ans.

• Q. Tropical cyclones are largely confined to South China Sea, Bay of Bengal and Gulf of Mexico. Why? (10) (UPSC Mains 2014)

• Q. Which one of the following weather conditions is indicated by a sudden fall in barometer reading? (UPSC CSE PT 2009)

- A. Stormy
- B. Calm weather
- C. Cold and dry weather
- D. Hot and sunny weather



© 2013 Pearson Education, Inc.