

UPSC Civil Services Examination

UPSC Notes [GS-I]

Topic: Weathering [Geography Notes for UPSC]

Weathering

- Weathering is the action of components of weather and climate materials over Earth.
- There are several processes within weathering which act either independently or together to affect the materials of the earth in order to cut them to fragmental state.
- This process causes the disintegration of rocks near the surface of the Earth.
- It loosens and breaks down the surface minerals of rocks so they can be carried away by agents of erosion such as wind, water, and ice.
- As very little or no motion of materials takes place in weathering, it is an in-situ or on-site process.
- Flora and fauna life, water and atmosphere are the main reasons of weathering.
- Weathering processes are determined by many climatic, topographic, vegetative factors and complex geological factors.
- Climate has a significant role in weathering.
- The weathering processes not only differ from climate to climate but also with the depth of the weathering mantle.
- The degree of weathering that happens depends upon the resistance to weathering of the minerals in the rock and the degree of the biological, physical, and chemical stresses.
- The minerals in rocks that are formed under high pressure and temperature inclined to be less resistant to weathering, whereas minerals formed at low pressure and temperature are more resistant to weathering.

Three major groups of weathering processes

- There are three major groups of weathering processes:
 - Biological Weathering
 - Chemical Weathering
 - Physical or Mechanical Weathering
- Biological weathering is the wearing and subsequent fragmentation of rocks by animals, plants, and microbes.
- Physical or mechanical weathering is the weakening and consequent disintegration of rocks by physical forces.
- Chemical weathering is the weakening and subsequent breakdown of rocks by chemical reactions.