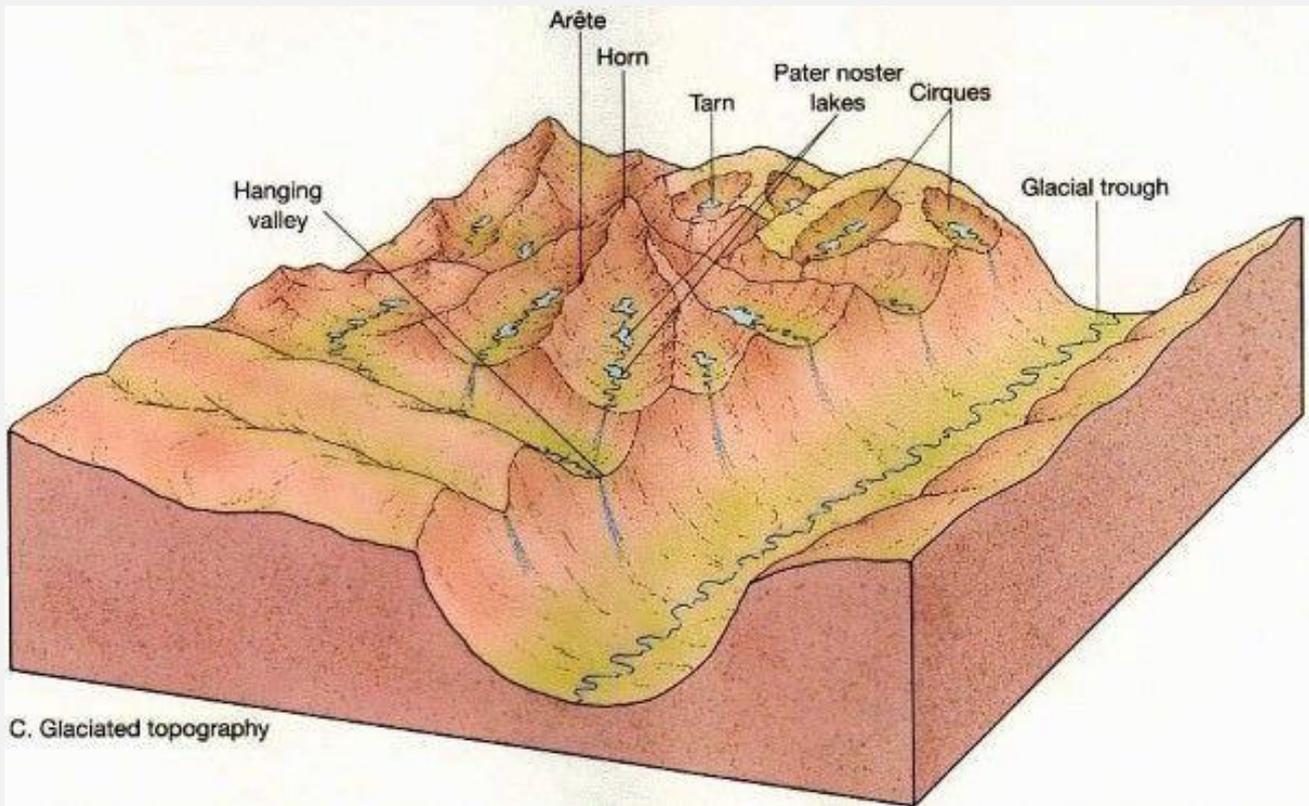


Glacial Landforms – Erosional & Depositional



Glacier

- Glacier = **moving mass of ice** (a few meters/day)
- Acts as an **agent of erosion, transportation & deposition**
- Carries rock debris → strong abrasive power

Types of Glaciers

1. Continental Glaciers

- Large ice sheets
- Found in:
 - **Antarctica**
 - **Greenland**

2. Ice Caps

- Cover mountain tops

- Feed valley glaciers

3. Piedmont Glaciers

- Form a continuous sheet at the mountain base
- Example: Southern Alaska

4. Valley (Alpine) Glaciers

- Found in high mountain ranges
- In India:
 - **Siachen Glacier** (≈ 72 km)
 - **Gangotri Glacier** (≈ 25 km)

Glacial Erosional Landforms

1. Cirque / Corrie

- A bowl-shaped hollow on mountain side
- Steep on 3 sides, open on 1 side
- Flat bottom
- May form **Tarn Lake** after melting

2. Glacial Trough (U-shaped Valley)

- Modified river valley
- Broad floor + steep sides
- Uniform vertical & lateral erosion
- Mature stage valley

3. Hanging Valley

- The smaller tributary valley remains at a higher level
- Joins the deeper main valley
- Often forms waterfalls

4. Arete

- Narrow sharp ridge
- Formed between two cirques

5. Horn

- Pyramidal peak
- Formed when 3+ cirques erode a summit
- Example: Matterhorn (Switzerland)

6. Fjord

- A drowned U-shaped valley at the coast
- Deep, narrow, steep-sided
- Found in:
 - **Norway**
 - **New Zealand**
 - Greenland

Glacial Depositional Landforms

1. Outwash Plain (Till Plain)

- Stratified sediments
- Sand, gravel, clay
- Formed at the glacier's melting front

2. Moraine

- Accumulation of debris
- Types:
 - Ground moraine
 - Lateral moraine
 - Terminal (End) moraine
 - Medial moraine

3. Esker

- Long winding ridge
- Deposited by sub-glacial streams
- Often used for roads

4. Drumlin

- Inverted boat-shaped hill
- Indicates glacier movement direction

5. Kame Terraces

- Irregular mound-like deposits
- Form along glacier sides

6. Kettle Holes

- Depressions in the outwash plain
- Formed due to the melting of buried ice blocks
- May become kettle lakes

Glacial Cycle of Erosion

Youth

- Cirque formation
- Initial valley cutting
- Aretes & horns developing

Maturity

- Hanging valleys visible
- The glacial trough is well developed
- Stepped valley profile

Old Age

- Fully developed U-shaped valley
- Prominent depositional features
- Outwash plain formation

Rapid Revision Table

Erosional	Depositional
<i>Cirque</i>	<i>Moraine</i>
<i>Arete</i>	<i>Esker</i>
<i>Horn</i>	<i>Drumlin</i>
<i>U-shaped valley</i>	<i>Kame</i>
<i>Hanging valley</i>	<i>Kettle hole</i>
<i>Fjord</i>	<i>Outwash plain</i>