

Human Use of Glacial Uplands



Human Activity in Areas subject to **Glacial Erosion**:

Consider the impact of the landscape on:

- Agriculture
- Settlement & Communications
- Mineral extraction & energy production
- Recreation and Tourism

Agriculture

Advantages

Alluvial soils that accumulate in glacial troughs can be flat and fertile. Mechanical cultivation of arable crop such as cereals may be possible, providing the climate is suitable, such as in the Swiss Alps.

Some south facing Alpine slopes may be suitable for viticulture.

In Nepal, sides of glaciated valleys are terraced and may support arable and pastoral farming.

The sheltered, clean water of Scottish sea lochs and Norwegian fjords are suitable locations for commercial fish farming for species such as salmon.

Disadvantages

Steep slopes, irregular surface and thin, often acidic soils restrict most areas subject to glacial erosion, such as the Lake District, to marginal pastoral farming such as sheep and beef cattle.

Access to high areas is usually poor and unsuitable for modern machinery. High areas often attract cool temperatures and high rainfall prohibiting most arable crops and restricting pastoral farming to hardy livestock such as sheep, goats, alpaca (Peru).

Livestock in high Alpine pastures have to be moved to more sheltered lowland areas in winter.

Agriculture is limited by relief and poor soil quality, except on valley bottoms.



Settlement & Communications

Advantages

Glacial troughs may provide sheltered locations for settlements such as Keswick (Lake District).

Features such as crag-and-tails have provided good defensible sites for settlements, such as the site for Edinburgh Castle.

The heads of sea lochs and fjords provide sheltered locations for small ports and fishing villages such as Trondheim (Norway) and Gairloch (Scotland).

Glacial troughs provide route ways through upland areas, such as Glen More in Scotland and the Brenner Pass in Austria, for road, rail or even canal links.

Disadvantages

Settlement sites and subsequent growth are often restricted by lack of flat land.

Extensive agriculture, such as sheep wool farming, can lead to highly dispersed settlements.

Steep terrain restricts road, rail and air transport. The construction and maintenance of roads and railways is increased in areas with high relief.

Rockfalls and avalanches require specific and costly engineering and management.

High snowfalls can leave mountain routes impassable.







Mineral extraction & energy production

Advantages

Glacial erosion can expose, or make accessible, valuable minerals or rocks such as South Wales coal, North Wales slate (in glacial troughs) or Yukon gold (in outwash deposits).

Steep sided glacial troughs, sparse population density and high rainfall provide good locations for hydro-electric or pumped-storage power stations (e.g. Fasnakyle (HEP) in Scotland and Dinorwig (PSP) in N Wales.)

Glacial uplands in Wales are sites of upland wind-turbine power stations.

Disadvantages

Access is often poor in glaciated uplands.

Glaciated uplands are often distant from areas consuming electrical power increasing the cost of transmission.

Mineral extraction and energy production may conflict with other uses such as tourism.

In environmentally protected glaciated areas such as Snowdonia, the construction of power stations, quarries and electricity transmission lines may be subject to strict planning regulations and restrictions.

Leisure and Tourism

Advantages

Glaciated uplands, such as the Lake District, provide attractive, mountain and lake scenery which attracts walkers and other tourists.

Areas such as the Alps attract people interested in activities such as skiing, snow boarding, rock climbing, and extreme sports.

Finger lakes such as Windermere attract visitors interested in water-based activities such as power boats, sailing, wind surfing and fishing.

Some glaciers, such as the Athabasca Glacier in Canada are tourist attractions in their own right.

Disadvantages

Tourism in glacial areas may be seasonal (summer in the Lake District), winter in ski resorts.

Access to glaciated uplands may be poor, particularly for air transport.

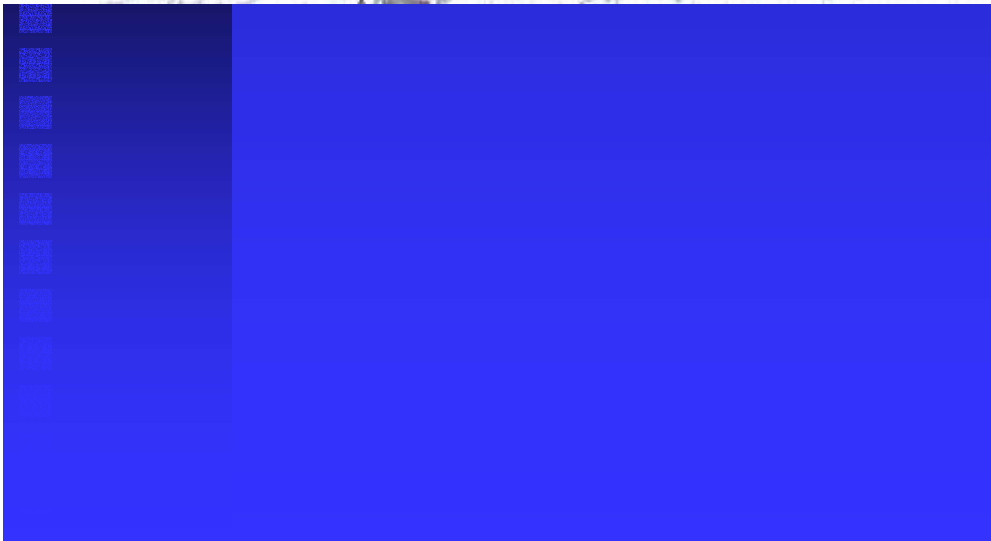
Winter sports carry risks of avalanche. Evidence suggests that some “off-piste” skiing can help to induce avalanches.

Most upland areas have poorer weather than equivalent lowland areas with cooler temperatures and higher rainfall. Seathwaite in the Lake District is the wettest place in England.











Eroded Ski Slopes in the French Alps



Ski Slope damage near Arinsal, Andorra







Small Avalanche Track in the French Alps near Argentiere





Avalanche Damage and management near Arinsal in Andorra



Large Avalanche Track above Chamonix in the French Alps







