

Enquiry questions for this unit. How do avalanches affect people and the environment?

What are the effects of heatwaves?

How do tornadoes affect people and the environment?

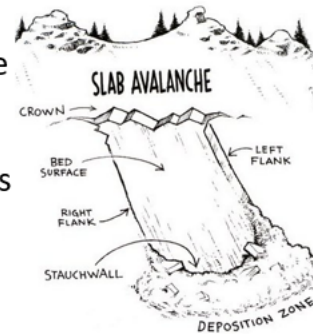
Key Words	Definitions
Avalanche	A rapid downhill movement of snow, ice and rocks which can reach speeds of 300km/h
Loose snow avalanche	They are common on steep slopes and are seen after a fresh snowfall. Since the snow does not have time to settle down fully or has been made loose by sunlight, the snowpack is not very solid. Such avalanches have a single point of origin, from where they widen as they travel down the slope potentially causing damage and fatalities
Slab avalanche	Characterised by the fall of a large block of ice down the slopes. Thin slabs have the potential to cause fairly small amounts of damage, while the thick ones can be responsible for large areas of damage and loss of life.
Natural event	An event which is not caused by humans.
Human activity	Tasks humans do to modify the environment.
Cause	Why an event happens.
Effect	The impact of an event. A primary effect happens as a result of the initial event whereas a secondary effects are the indirect effects causes by the primary effects, after the main event - in the coming hours, days and weeks.
Response	How humans react to an event. This can be immediate (as soon as the event happens and in the hours and days after the event) or long term (in the months and years after an event)
Social effect	The impact of an event on people.
Economic effect	The impact of an event on business and money.
Environmental effect	The impact of an event on nature.
Heatwave	A prolonged period of time with abnormally hot weather.
Wildfires	A wildfire is a fire that starts either naturally or through human actions in a wild area such as a forest, and spreads rapidly often causing great damage.
Tornadoes	A violently rotating column of air touching the ground, usually attached to the base of a thunderstorm.
Thunderstorm	A violent short-lived weather disturbance that is almost always associated with lightning, thunder, dense clouds, heavy rain or hail, and strong gusty winds. Thunderstorms arise when layers of warm, moist air rise in a large, swift updraft to cooler regions of the atmosphere.

Types of avalanche**Loose snow avalanche**

- Starts from a single point
- Involves loose powdery snow

**Slab avalanche**

- More deadly
- A large slab of ice and snow shears away from a hillside and moves rapidly downhill
- Has immense power

**Causes of avalanches**

- Heavy snowfall – piles of snow build up
- Steep slopes – makes it easier for snow to fall
- Tree removal –avalanches flow more easily
- Temperature rise –sudden melting can trigger an avalanche
- Heavy rainfall – makes it easier for snow to slide
- Humans –skiers go on snow that has not been assessed for its risk

Management in avalanche prone areas

Avalanches can be managed using different methods depending on the area and the risk level.

- Fences break up the flow of snow down the slope, reducing the energy of the avalanche.
- Walls can be used to hold back the snow protecting areas in front of the wall.
- Trees make the slopes more stable so avalanches are less likely. They also break up the flow of an avalanche, reducing the speed and therefore the impacts.
- Tunnels can be dug to protect areas underneath so the avalanche flows over the top.

Social effects	Economic effects	Environmental effects
People die Buildings/property destroyed so people become homeless	Tourism may stop or reduce therefore reducing income in an area Destroyed infrastructure will need to be rebuilt Agricultural land destroyed	Flooding Remove dead trees from an area allowing new species to grow Create unique landscapes

Heatwaves

In Europe between June and August 2022 there was a heatwave. This was caused by a high-pressure system called the Azores High, which usually sits off Spain, grew more prominent and pushed farther north, bringing high temperatures to the UK, France and other European countries. The highest temperature recorded was 47 degrees Celsius in Portugal with the UK hitting 40.3 degrees Celsius.

Effects in the UK

Social effects	Economic effects	Environmental effects
It is estimated that 3271 people died of conditions linked to the extreme heat Hospitals cancelled operations as operating theatres were too hot People were without power as equipment overheated Wildfires destroyed homes Reservoir levels hit a 25-year low causing hosepipe bans in many areas	Crops died so farmers lost income Rail services were disrupted as the tracks became hot so people couldn't travel to work	Rivers had reduced flow or dried up affecting wildlife Wildfires destroyed habitats

Tornadoes

Tornadoes are rotating columns of air which touch the ground and are usually attached to a thunderstorm. They happen when warm, humid air collides with cold, dry air and can reach speeds of up to 300mph.

Effects

Social	Economic	Environmental
Dust from dry areas causes respiratory issues	Businesses left without power	Trees damaged or destroyed
Drinking water contaminated with raw sewage and chemicals	Roads blocked or damaged	Flash floods cause damage to ecosystems
Houses destroyed	Crops uprooted and destroyed	Lightening can cause wildfires
People injured or die		
Communities destroyed		
People made homeless		

Measuring tornado effects

EF0	Light damage	Wind speed: 65-85 mph (29-37 m/s)	Tornadoes break windows, tear roof tiles, move light objects, damage light buildings, rip out small trees from the ground, and tear branches off
EF1	Moderate damage	Wind speed: 86-110 mph (38-49 m/s)	Tornadoes overturn cars and mobile homes, bring down telephone poles; tear siding and roof tiles off houses or roofs, destroy barns
EF2	Considerable damage	Wind speed: 111-135 mph (50-61 m/s)	Tornadoes tear the roofs off frame houses and damage their interiors, completely destroy weak structures, uproot small and medium-sized trees.
EF3	Severe damage	Wind speed: 136-165 mph (62-74 m/s)	Tornadoes displace large vehicles; tear down the roofs and exterior walls of frame houses, blow out windows of large and high buildings; uproot and fall all trees
EF4	Devastating damage	Wind speed: 166-200 mph (75-89 m/s)	Tornadoes throw cars into the air and move trains off railroad tracks; completely destroy light buildings; and chop down large trees
EF5	Incredible damage	Wind speed: >200 mph (>90 m/s)	Tornadoes move cars and other vehicles hundreds of yards; sweep away small buildings, leave serious damage on large buildings; tear out plants and trees



UK tornadoes	USA tornadoes
Around 30 per year	Over 1000 per year
Mainly in south east and midlands	Tornado alley sees the most although this is shifting east over time
Most short lived and EF0 or EF1	Tornadoes vary from EF0 to EF5
23 rd November 1981 saw the most tornadoes in one day with 104 EF0 and EF1 tornadoes recorded	27 th April 2011 saw 216 tornadoes touch down in one day recorded as EF1 to EF5
The worse recent tornado was in Birmingham in 2005 when £40 million damage was caused with wind speeds of 137mph	The super outbreak from 25 th -28 th April 2011 was the largest, costliest and deadliest outbreak recorded in recent times. Four of the tornadoes were EF5. 348 people died as a result o f the outbreak.
Funnel clouds are more common than tornadoes	