

WEATHER – LEVEL 1

SEASONS AND STORMS

Weather Seasons

Autumn - **Autumn** is the season which marks the transition from Summer, the warmest season to Winter, the coolest season. During the Summer, either the Northern Hemisphere or Southern Hemisphere is exposed to more direct sunlight. In Autumn, the given hemisphere is gradually exposed to less and less of this direct sunlight, until it is exposed to very little in Winter. Thus, throughout Autumn the temperature generally becomes cooler and cooler. The season typically begins in September in the Northern Hemisphere and March in the Southern Hemisphere. It then occurs throughout October and November or April and May in the Northern Hemisphere and Southern Hemisphere respectively. The effects of Autumn are felt in the more temperate places of each hemisphere, whilst places closer to the equator experience very little or none of the changes.

The onset of Autumn drastically occurs in the last meteorological month of Summer (August in the Northern Hemisphere, February in the Southern Hemisphere), as it is then that the change in the Earth's tilt is marked. However, due to seasonal lag, the meteorological Autumn does not begin until a month later as the ground and oceans are warm after being heated throughout the Summer. Thus, mild to warm temperatures may be common as late as September and October in the Northern Hemisphere or March and April in the Southern Hemisphere, due to the ground and oceans being at their warmest, even though very little direct sunlight is being received. Meanwhile, snow is unlikely to occur until near the end of the final month of Autumn in temperate regions, although the first frosts after the Summer are likely to occur before that.

In some places, major windstorms are common during the Autumn and early part of Winter, due to the warmer oceans. Warm nights can be a factor of Autumn, with the daily maximum and minimum values generally closer together due to the warm oceans keeping a region in warm air. This is reversed in spring.

The cooler weather experienced in Autumn has an adverse effect on trees - it causes leaves from Deciduous trees to change color, die out and finally fall.

Winter - **Winter** is the coolest temperate season, typically occurring after Autumn and before Spring. During the Winter, either the Northern Hemisphere or Southern Hemisphere is exposed to less direct sunlight. The strength of the sun is at its lowest at the Winter solstice towards the end of December in the Northern Hemisphere and June in the Southern Hemisphere, although these months usually mark the beginning of the season due to seasonal lag. The winter then last until February/August even though at that point the sun starts to gain strength, but is again cooler due to seasonal lag.

Spring - Spring is the season which marks the transition from Winter, the coolest season to Summer, the warmest season. During the Winter, either the Northern Hemisphere or Southern Hemisphere is exposed to less direct sunlight. In Spring, the given hemisphere is gradually exposed to more and more of this direct sunlight, until it is exposed to a large amount in Summer. Thus, throughout Spring the temperature generally becomes warmer and warmer. The season typically begins in March in the Northern Hemisphere and September in the Southern Hemisphere. It then occurs until May or November in the Northern Hemisphere and Southern Hemisphere respectively. The effects of Spring are felt in the more temperate places of each hemisphere, whilst places closer to the equator experience very little or none of the changes.

The onset of Spring drastically occurs in the last meteorological month of Winter (February in the Northern Hemisphere, August in the Southern Hemisphere), as it is then that the change in the Earth's tilt is marked. However, due to seasonal lag, the meteorological Spring does not begin until a month later as the ground and oceans are cool after being heated very little throughout the Winter. Thus, cool temperatures may be common as late as March and April in the Northern Hemisphere or September and October in the Southern Hemisphere, due to the ground and oceans being at their coolest, even though a large amount of direct sunlight is being received. Meanwhile, snowfall is fairly likely to occur near the beginning of the season in temperate regions, although the last frosts after the Winter are likely to occur after that.

Summer - Summer is the warmest of the four temperate seasons, between spring and autumn. At the summer solstice, the days are longest and the nights are shortest, with day-length decreasing as the season progresses after the solstice. The date of the beginning of summer varies according to climate, culture, and tradition, but when it is summer in the Northern Hemisphere it is winter in the Southern Hemisphere, and vice versa.

COMMON TYPES OF STORMS

The following are some of the most common types of storms in the U.S.

Rain Shower:

This is a rainy period of more than two hours in length possibly punctuated by period without rain. These types of showers have periods of steady, soaking rain without high winds or thunder and lightning.

Hail Storms

A hail storm usually is associated with a thunder storm or other storm structure that has a vertical structure. The hail comes from this high part of the storm where water droplets are circulated

vertically and gain in size during this process. Many residents living in the U.S. have already experienced a severe hailstorm and witnessed the damage hail can cause to homes, automobiles, businesses and other property. When a hailstorm hits, it does the greatest amount of damage to the exterior of your home or property. Common types of damage caused by hail are: roof damage, siding damage, shingle damage, window damage and automobile damage.

Thunderstorms

Thunderstorms are so named by the sound created in them due to the lighting discharges. They can produce many types of damaging weather such as lightning, hail, tornadoes, straight-line winds, flooding and more. The biggest contributors to damaged property are likely hail and wind, which can cause many types of exterior property damage..

Ice Storms

Ice storms produce freezing rain that coats everything in its path with a layer of ice. Generally speaking, if a storm causes accumulation of more than a quarter inch on exposed surfaces, the storm can be classified as an ice storm. This type of accumulation can cause tree branches to break, power outages and other hazardous conditions.

Tornadoes

For many areas around the U.S., damage from severe tornadoes presents a very real threat. Most tornado damage is done by high winds, with recorded speeds exceeding 300 MPH. The flying debris propelled by these winds also cause a lot of damage. Tornadoes are mostly found in we call "tornado alley" - a part of the U.S. that includes Oklahoma, Texas, Kansas, Missouri, but tornados have been found in all 48 states of the continental US.

Lightning

You may be surprised to learn that lightning is a major cause of storm damage in many areas around the country. The National Lightning Safety Institute estimates the cost of lightning damage in the \$5 to \$6 billion dollar per year range. Lightning that hits trees and the ground is a common cause of wildfires, structure fires, property damage and power outages.

Heavy Snow / Blizzards

Blizzards are severe winter storms that combine heavy snowfall, with high winds and freezing temperatures. The combination of cold, wind and snow damages homes, businesses and automobiles. Heavy snow can produce dangerous conditions, including roof collapse.

Floods

Floods are typically the result of heavy rain and water that rises faster than storm drains can handle. Flash floods driven by quick, violent bursts of rain can flood homes, basements and businesses, causing serious damage to both interiors and exteriors. Flooding is a very dangerous storm phenomenon that results in numerous deaths and extensive property damage each year.

Derecho Storms

A derecho is a large, violent, fast-moving, complex of thunderstorms that follow one another along a path of at least 240 miles, with wind gusts of at least 58 mph. Although derechos are very difficult to predict, they often form along the boundary of a large, hot air mass near a jet stream air current.

Tropical Storms

A tropical storm is a type of storm system that develops in tropical environments. These storms are characterized by extremely low pressure systems and high speed, swirling winds. In order for a storm to be classified as a "tropical storm", a specific set of circumstances must exist. In order to be a tropical storm, the wind speed must be between 39 and 73 miles per hour. Lower or higher wind speeds would be another classification (lower: tropical depression, higher: hurricane).

Hurricanes

A Hurricane is the most powerful classification given to a tropical cyclone. Characterized by low barometric pressure systems, extremely high winds, heavy rainfall and storm surges and swells - hurricanes that make landfall can be extremely destructive..