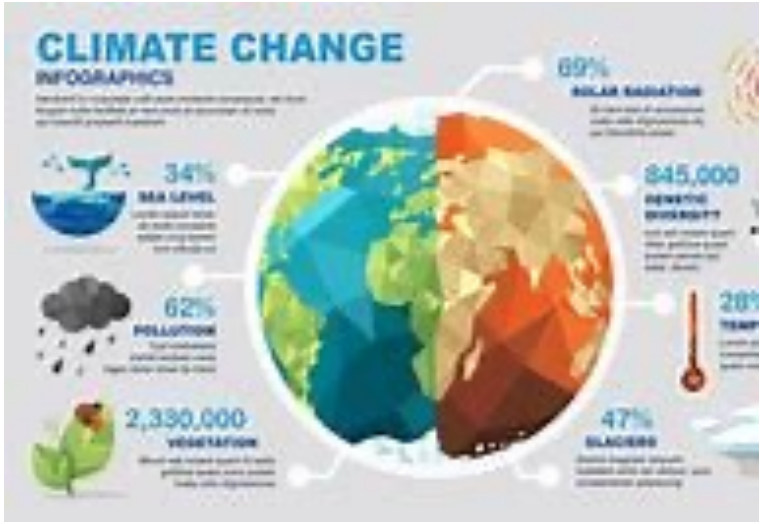
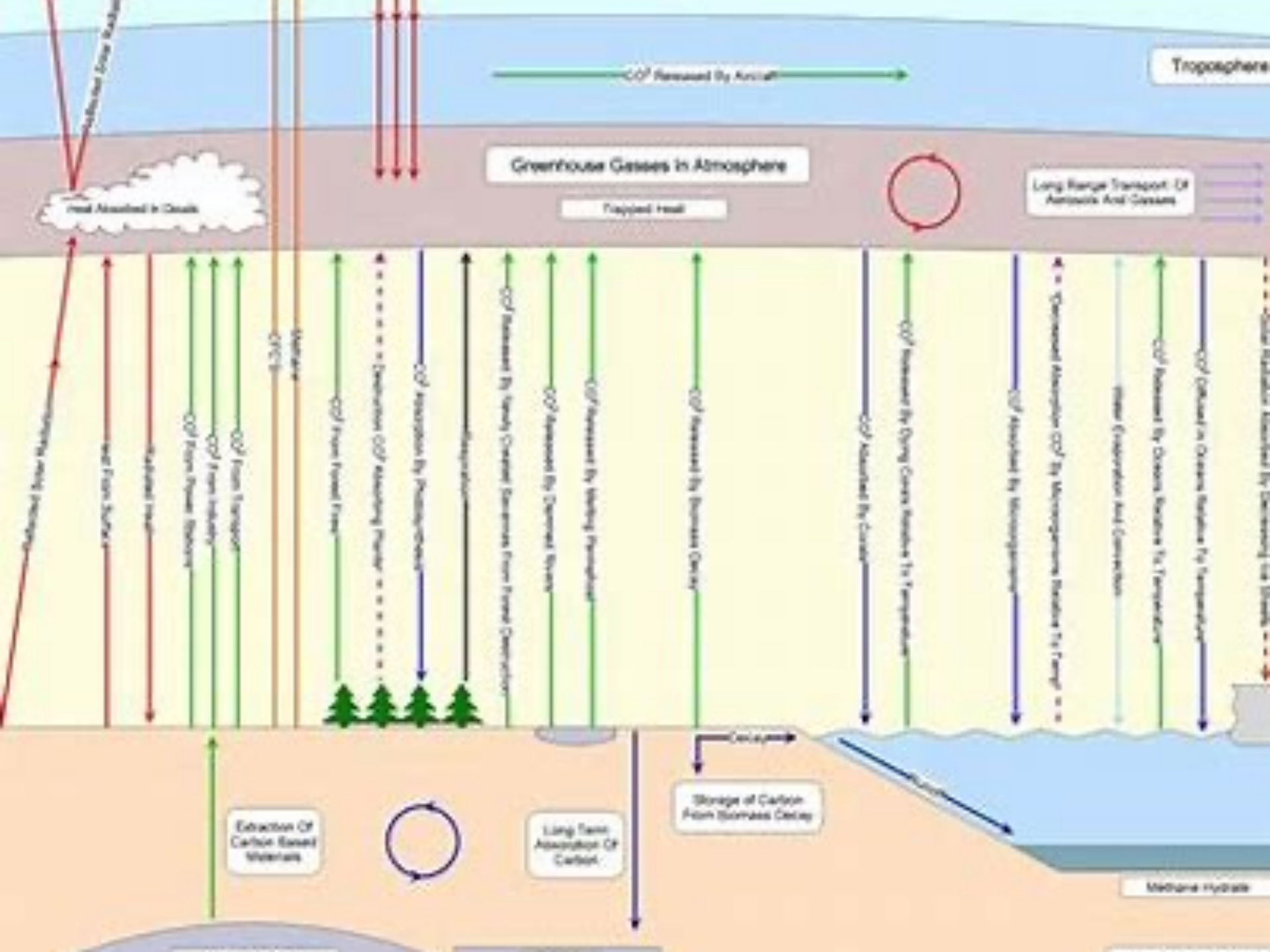
Weird and Wonderful Weather

And climate change!

Climate change

While there has always been climate variability, the increase of greenhouse gases—carbon dioxide, methane and nitrous oxide, and changes in the reflectivity and absorption of the sun's energy—due to burning fossil fuels, deforestation and agricultural patterns—have accelerated the process, beyond past historical levels.




Troposphere
Greenhouse Gasses in Atmosphere
Trapped Heat
Heat Absorbed In Clouds
Long Range Transport Of Aerosols And Gasses
Methane
Storage of Carbon From Biomass Decay
Extraction Of Carbon Based Materials
Long Term Absorption Of Carbon
Methane Hydrate

Tipping Points

Melting permafrost releases stored greenhouse gases.

Amazon rainforest loss decreases the ability to sequester greenhouse gases.

Melting ice caps in Antarctica and Greenland increase sea level rise and dilutes salinity.

Climate Change Consequences Worldwide

Sea level rise

Animal and human migration

Oceans acidification and warming

Increasingly dangerously high temperatures

Stronger storms and rains

Increasingly intense fires

Ecoregion and agriculture shifts

Disease distribution changes

Precipitation and drought changes

Natural cycles exacerbated

Climate Change--Texas

More 100+ days affecting insect and reptile populations

Drought predicted to be driest in the last 1000 years

Increased wildfire risk

Excessive rainfall 50% more likely

More damaging hurricanes

Sea level rise, coastal retreat and susceptibility to storm surge damage

Displaced wetlands and altered tidal ranges

Increased runoff, sedimentation, spread of industrial pollution, and salinity in brackish waters

Less dissolved oxygen, more algal blooms, dry rivers/streams/springs

Eroded and degraded riparian zones

Trees and plants more susceptible to disease and pests

Urban heat islands

Fir tree devastation

Wonderful Weird Weather Words

Climate change is causing some more extreme weather phenomena. Here are some examples of weird weather words:

Atmospheric river—a river of water vapor in the sky producing massive amounts pf rainfall

Bomb cyclone—rotating, rapidly strengthening storm carrying massive rain or snow

Firenado—Spinning vortex of hot air, gas and embers hundreds of feet high

Graupel----soft hail

Haboob—violent dust storm

Pogonip—ice fog

Storm quake—large waves setting off Earth vibrations

Downburst—straightline winds, drawn downward

Williwaw—sudden strong gust of cold, dense air sweeping down from mountains to coast

Phenology

Phenology is the study of cyclic and seasonal natural phenomena especially in relation to climate and plant and animal life, and changes in the patterns of growth and migration. Climate change affects these patterns.

Word of the year

Solastalgia is a made-up word from Latin words *sōlācium* (comfort) and the Greek root *-algia* (pain, suffering, grief--emotional distress caused by detrimental environmental changes.

Climate fingers and…

What can we do oh what can we do to address the climate change? (finger to head/brain)

Reduce fossil fuel and animal raising slow the weather getting strange! (hands apart)

Climate singers!

There are climate changes coming, yes indeed.

And it’s up to us to step up, take the lead.

We can use less gas and oil,

Less meat, more vegs from soil,

If we take some steps, we know we can succeed!

To the tune of *She’ll Be Coming Around the Mountain*

You Can make Happy Earth

Blue and green playdoh and heart

Be a winter chef!

White frosting with white chocolate chips marshmallows, white sprinkles, and coconut

Wonderful weird weather snack!

Ice

Ice is the solid state of water, at temperatures of 0 °C (32 °F) or lower.

Snow

Snow is formed high in the clouds from water vapor, when a cloud is between about −40 °F (−40 °C) and 32 °F (0 °C) for the water vapor to freeze to form ice crystals. At that temperature water vapor may crystallize around bits of dust in the cloud.

All about snow and ice….

There are seven principal snow crystal types-- plates, stellar crystals, columns, needles, spatial dendrites, capped columns, and irregular forms

Snowfall is the quantity of snow falling within an area in a given period of time

Snow cover refers to the amount of land covered by snow at any given time

Snowflakes are accumulations of snow crystals. Most are less than 1.3 centimeters (0.5 inches) across. Under some conditions, near-freezing temperatures, light winds, and unstable atmospheric conditions, much larger and irregular flakes can form, nearing 5 centimeters (2 inches) across.

More snow and ice….

Atmospheric conditions affect snow crystals' form and what happens as they fall to the ground. Snow may fall as symmetrical, six-sided snowflakes, or as larger clumps of flakes. Once snow is on the ground, the snowpack may assume different qualities depending on local temperature changes, whether winds blow the snow around, or how long the snow has been on the ground. A fresh snowfall may be loose and powdery, but snow that has been on the ground throughout the winter may have dense, crusted layers caused by melting and refreezing. Scientists and meteorologists have classified types of snowfall, snowpack, and snow formations.

A snowstorm features large amounts of snowfall. A snow flurry is snow that falls for short durations and with varying intensity, producing little accumulation. A snow squall is a brief, but intense snowfall that greatly reduces visibility often accompanied by strong winds.

And more….

The snow surface after a snowfall depends on the original form of the crystals and the weather conditions present when the snow fell. When a snowfall is accompanied by strong winds, the snow crystals are broken into smaller fragments that can become more densely packed. After a snowfall, snow may melt or evaporate, or it may persist for long periods. If snow persists on the ground, the texture, size, and shape of individual grains will change even while the snow temperature remains below freezing, or they may melt and refreeze over time, and will eventually become compressed by subsequent snowfalls

Snow colors--Generally, snow and ice present a uniformly white appearance. However, snow may also appear blue. Particles or organisms within the snowpack may also affect the color of the snow. Watermelon snow, for instance, appears red or pink.

Snow sounds--The characteristics and age of snow can affect sound wave travel, dampening or enhancing them. People often notice how sound changes after a fresh snowfall. When the ground has a thick layer of fresh, fluffy snow, sound waves are absorbed into the snow surface, dampening sound. However, time and weather conditions may change the snow surface. If the surface melts and refreezes, the snow becomes smooth and hard. Then the surface will help reflect sound waves. Sounds may seem clearer and travel farther. Snow may also crunch and creak.

And more….

A blizzard is a dangerous weather event, with frigid temperatures, howling winds, and decreased visibility.

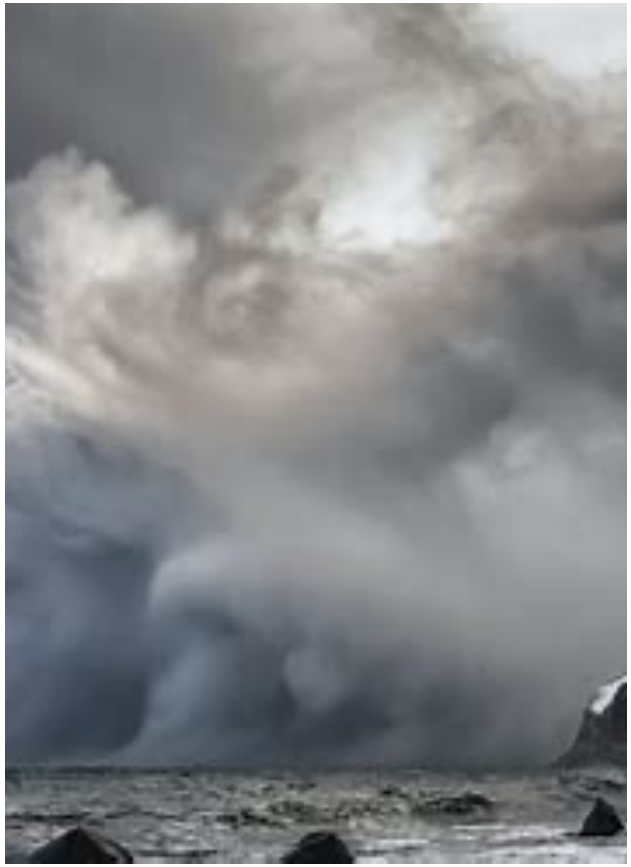
An avalanche is a mass of snow, rock, ice, and soil that tumbles down a mountain.

Thundersnow is snowfall accompanied by thunder and lightning

And more….

Polar vortex is a very large, lasting, rotating, low pressure system located near the north or south pole, especially in winter.

A bomb cyclone, also known as bombogenesis, is a fast-developing storm that occurs when atmospheric pressure drops at least 24 millibars over a 24-hour period



Snow trivia

Cornice--accumulation of ice and wind-blown snow, overhanging on the edge of a ridge or cliff face.

Crust--a hard snow surface sitting on a soft layer.

Megadunes--giant snow dunes in Antarctica made of large snow crystals.

Penitents--tall, thin, close spaced pinnacles of hard snow from a few centimeters to a few meters in height .

Ripple marks--corrugation on a snow surface caused by wind, resembling ripples seen in sand.

Sastrugi--wind eroded deposits of snow in irregular grooves and ridges.

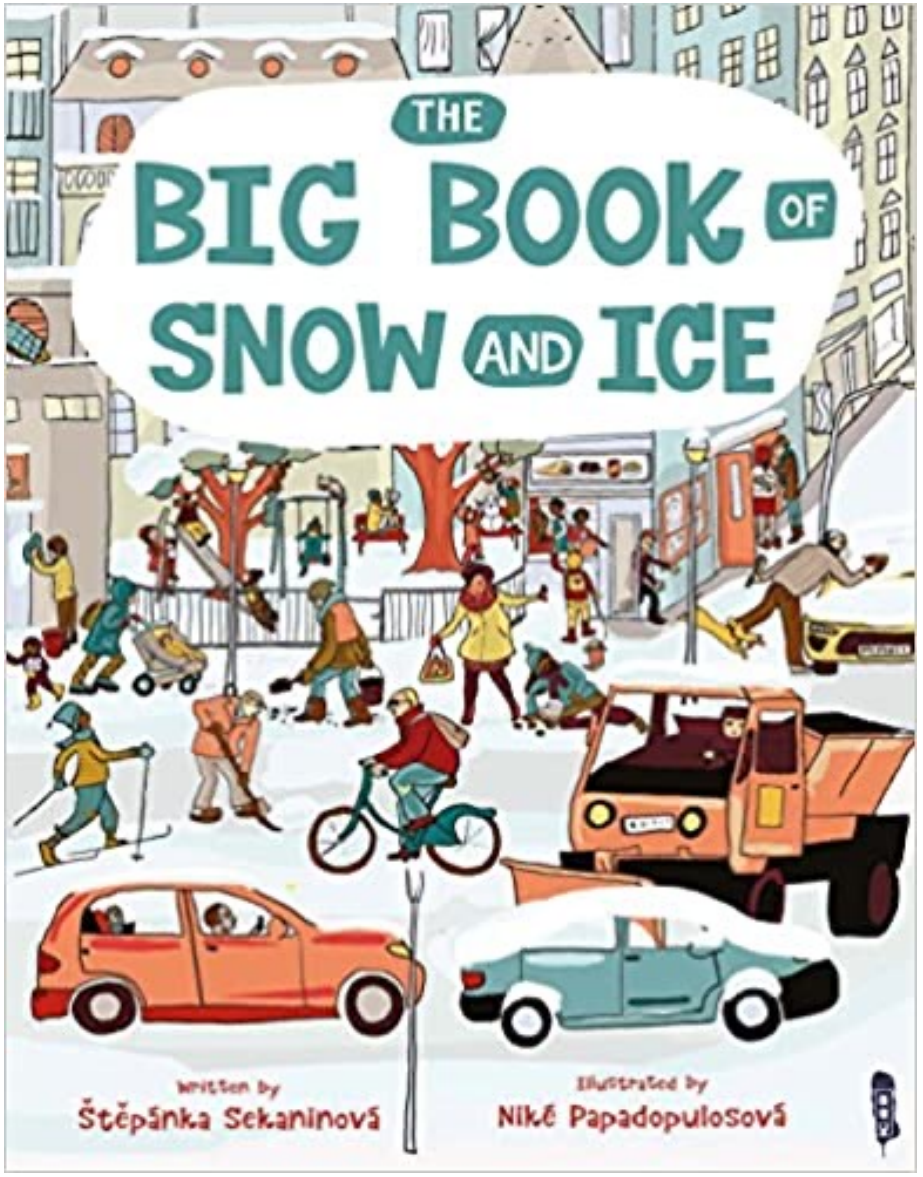
More trivia

Snow barchan--horseshoe-shaped snowdrift, with ends pointing downwind.

Snow bridge--arch formed by snow that has drifted across a crevasse.

Snow roller--chunk of snow blown along the ground, resulting in a snowball accumulating material as it rolls along.

Sun cups--shallow, bowl-shaped hollows forming during intense sunshine.


THE
BIG BOOK OF
SNOW AND ICE
written by
Štěpánka Sekaninová
illustrated by
Niké Papadopulosová