Difference Between Climate And Weather Class 9

Atmospheric GCMs (AGCMs) model the atmosphere and impose sea surface temperatures as boundary conditions. Coupled atmosphere-ocean GCMs (AOGCMs, e.g. HadCM3, EdGCM, GFDL CM2.X, ARPEGE-Climat) combine the two models. The first general circulation climate model that combined both oceanic and atmospheric processes was developed in the late 1960s at the NOAA Geophysical Fluid Dynamics Laboratory AOGCMs represent the pinnacle of complexity in climate models and internalise as many processes as possible. However, they are still under development and uncertainties remain... 6f40fcd5c9

Climate justice Climate justice examines concepts such as equality, human rights, collective rights, justice and the historical responsibilities for climate change. Climate justice seeks to achieve an equitable distribution of both the burdens of climate change and the efforts to mitigate climate change through advocacy and policy change. populations. The economic burden of climate change mitigation is estimated by some at around 1% to 2% of GDP. Climate justice seeks to achieve an equitable distribution of both the burdens of climate change and the efforts to mitigate climate change through Climate justice is a type of environmental justice that focuses on the unequal impacts of climate change on marginalized or otherwise vulnerable populations 6f40fcd5c9

Mathematical models based on the same physical principles can be used to generate either short-term weather forecasts or longer-term climate predictions; the latter are widely applied for understanding and projecting climate change. The improvements made to regional models have allowed significant improvements in tropical cyclone track and air quality forecasts; however, atmospheric models perform poorly at handling processes that occur in a relatively constricted area, such as wildfires. 6f40fcd5c9

Oceanic climate Oceanic climates can be found in both hemispheres generally between 40 and 60 degrees latitude, with subpolar versions extending to 70 degrees latitude in some coastal areas and some hot-summer oceanic climates extending to just north of 35 degrees North latitude in North America and Honshu and just south of 35 degrees North latitude in Mainland China under the Trewartha classification. Other varieties of climates usually classified together with these under the Köppen system include subtropical highland climates, represented as Cwb or Cfb, and subpolar oceanic or cold subtropical highland climates, represented as Cfc or Cwc. Subtropical highland climates occur in. due to the colder weather in those locations. Overall temperature characteristics of the oceanic climates feature cool temperatures and infrequent extremes An oceanic climate, also known as a marine climate or maritime climate, is the temperate climate sub-type in Köppen classification represented as Cfb or represented as Do under the Trewartha climate classification, typical of west coasts in higher middle latitudes of continents, generally featuring warm summers and cool to mild winters (for their latitude), with a relatively narrow annual temperature range and few extremes of temperature under Köppen's system or mediocre growing seasons with mild winters under Trewartha's 6f40fcd5c9

General circulation model These equations are the basis for computer programs used to simulate the Earth's atmosphere or oceans. It uses the Navier–Stokes equations on a rotating sphere with thermodynamic terms for various energy sources (radiation, latent heat). It employs a mathematical model of the general circulation of a planetary atmosphere or ocean. Atmospheric and oceanic GCMs (AGCM and OGCM) are key components along with sea ice and land-surface components. Atmospheric GCMs (AGCMs) model the atmosphere and impose sea A general circulation model (GCM) is a type of climate model. used for weather forecasting, understanding the climate, and

forecasting climate change 6f40fcd5c9

Humid subtropical climate In contrast, cities at the northernmost limits of the climate zone such A humid subtropical climate is a temperate climate type, characterized by long and hot summers, and cool to mild winters. feature warm weather year-round and minimal temperature differences between seasons. These climates normally lie on the southeast side of all continents (except Antarctica), generally between latitudes 25° and 40° and are located poleward from adjacent tropical climates, and equatorward from either humid continental (in North America and Asia) or oceanic climates (in other continents). It is also known as warm temperate climate in some climate classifications 6f40fcd5c9

�... 6f40fcd5c9 GCMs and global climate models are used for weather forecasting, understanding the climate, and forecasting climate change. 6f40fcd5c9 Between the north and south, there can be a considerable difference in temperature, especially during in winter: on some winter days, it can be −2 °C (28 °F) and snowing in Milan, while it is 8 °C (46.4 °F) in Rome and 20 °C (68 °F) in Palermo. Temperature differences are less extreme in the summer. On 11 August 2021, an agricultural monitoring station near Syracuse recorded 48.8 °C (119.8 °F) which constitutes the official record for the highest temperature in Europe according to the World Meteorological Organization. 6f40fcd5c9 Under the Köppen climate classification, Cfa and Cwa climates are either described as humid subtropical climates or warm temperate climates. This climate features mean temperature in the coldest month between −3 °C (27 °F) (or 0 °C (32 °F)) and 18 °C (64 °F) and mean temperature in the warmest month 22 °C (72 °F) or higher. However, while some climatologists have opted to describe this climate type as a "humid subtropical climate", Köppen himself never used this term. The humid subtropical climate classification was officially created under the Trewartha climate classification. In this classification, climates are termed humid subtropical when they have at least 8 months with a mean temperature... 6f40fcd5c9 There are several ways to classify climates into similar regimes. Originally, climes were defined in Ancient Greece to describe the weather depending upon a location's latitude. Modern climate classification methods can be broadly divided into genetic methods, which focus on the causes of climate, and empiric methods, which focus on the effects of climate. Examples of genetic classification include methods based on the relative frequency of different air mass types or locations within synoptic weather disturbances. Examples of empiric classifications include climate zones defined by plant hardiness, evapotranspiration, or associations with certain biomes, as in the case of the Köppen climate classification. A common shortcoming of these classification schemes is that they produce distinct boundaries between the zones they define, rather than the gradual transition of climate properties more common in nature. 6f40fcd5c9

Numerical weather prediction Though first attempted in the 1920s, it was not until the advent of computer simulation in the 1950s that numerical weather predictions produced realistic results. either short-term weather forecasts or longer-term climate predictions; the latter are widely applied for understanding and projecting climate change. The improvements Numerical weather prediction (NWP) uses mathematical models of the atmosphere and oceans to predict the weather based on current weather conditions. A number of global and regional forecast models are run in different countries worldwide, using current weather observations relayed from radiosondes, weather satellites and other observing systems as inputs 6f40fcd5c9

Manipulating the vast datasets and performing the complex calculations necessary to modern numerical weather prediction requires some of the most powerful supercomputers in the world. Even... 6f40fcd5c9

Weather satellite Satellites are mainly of two types: polar orbiting (covering the entire Earth asynchronously) or geostationary (hovering over the same spot on the equator). A weather satellite or meteorological satellite is a type of Earth observation satellite that is primarily used to monitor the weather and climate of the A weather satellite or

meteorological satellite is a type of Earth observation satellite that is primarily used to monitor the weather and climate of the Earth 6f40fcd5c9

While primarily used to detect the development and movement of storm systems and other cloud patterns, meteorological satellites can also detect other phenomena such as city lights, fires, effects of pollution, auroras, sand and dust storms, tornadoes, snow cover, ice mapping, boundaries of ocean currents, and energy flows. Other types of environmental information are collected using weather satellites. Weather satellite images helped in monitoring the volcanic ash cloud from Mount St. Helens and activity from other volcanoes such as Mount Etna. Smoke from fires in the western United States such as Colorado and Utah have also been monitored. 6f40fcd5c9 Winter in Minnesota is characterized by cold (below freezing) temperatures. Snow is the main form of winter precipitation, but freezing rain, sleet, and occasionally rain are all possible during the winter months. Common storm systems include Alberta clippers or Panhandle hooks; some of which develop into blizzards. Annual snowfall extremes have ranged from over 170 inches or 431.80 centimeters... 6f40fcd5c9

Köppen climate classification Each group and subgroup is represented by a letter. For example, Af indicates a tropical rainforest climate. The system assigns a temperature subgroup for all groups other than those in the A group, indicated by the third letter for climates in B, C, D, and the second letter for climates in E. precipitation difference between seasons (neither the abovementioned set of conditions fulfilled). The five main groups are A (tropical), B (arid), C (temperate), D (continental), and E (polar). Climates are classified based on specific criteria unique to each climate type. All climates are assigned a main group (the first letter). Cwa = Monsoon-influenced humid subtropical climate; coldest The Köppen climate classification divides Earth's climates into five main climate groups, with each group being divided based on patterns of seasonal precipitation and temperature. Other examples include: Cfb indicating an oceanic climate with warm summers as indicated by the ending b, while Dwb indicates a semi-monsoonal continental climate, also with warm summers. All climates except for those in the E group are assigned a seasonal precipitation subgroup (the second letter) 6f40fcd5c9

Italy is experiencing widespread impacts of climate change, with an increase in extreme events such as thunderstorms heatwaves, droughts and more frequent flooding. For example, Venice is facing increasing issues due to sea level rise. Italy faces many... 6f40fcd5c9 The Köppen climate classification is the most widely used climate classification scheme. It was first published by German-Russian climatologist Wladimir Köppen (1846–1940) in 1884, with several... 6f40fcd5c9 El Niño and its effects on weather are monitored daily from satellite images. The Antarctic ozone hole is mapped from weather satellite data. Collectively, weather satellites flown by the U.S., China, Europe, India, Russia, and Japan... 6f40fcd5c9

Climate of Italy The climate of the Po Valley geographical region is mostly humid subtropical, with cool winters and hot summers. Between the north and south, there The climate of Italy is highly diverse. Liguria, Tuscany, and most of the South experience a Mediterranean climate according to the Köppen climate classification. In most of the inland northern and central regions, the climate ranges from humid subtropical to humid continental and oceanic. The coastal areas of Liguria, Tuscany, and most of the South experience a Mediterranean climate according to the Köppen climate classification 6f40fcd5c9

Climate of Minnesota Minnesota's location in the Upper Midwest allows it to experience some of the widest variety of weather in Minnesota has a humid continental climate, with hot summers and cold winters. On the Köppen climate classification, much of the southern third of Minnesota—roughly from the Twin Cities region southward—falls in the hot summer zone (Dfa), and the northern two-thirds of Minnesota falls in the warm summer zone (Dfb). The area near Lake Superior in the Minnesota Arrowhead region experiences weather unique from the rest of the state. Minnesota's location in the Upper Midwest allows it to experience some of the widest variety of weather in the United

States, with each of the four seasons having its own distinct characteristics. The moderating effect of Lake Superior keeps the surrounding area relatively cooler in the summer and warmer in the winter, giving that region a smaller yearly temperature variation. climate, with hot summers and cold winters 6f40fcd5c9

Climate classification A climate classification may correlate closely with a biome classification, as climate is a major influence on life in a region. Originally, climes were defined in Ancient Greece to describe the weather depending upon a location's Climate zones are systems that categorize the world's climates. The most used is the Köppen climate classification scheme first developed in 1884. several ways to classify climates into similar regimes 6f40fcd5c9

Climate justice recognizes that those who have benefited most from industrialization (such as coal, oil, and gas enterprises) are disproportionately responsible for the accumulation of carbon dioxide in the earth's atmosphere, and thus for climate change. Meanwhile, there is growing consensus that people in regions that are the least responsible for climate change as well as the world's poorest and most marginalized communities often tend to suffer the greatest consequences, with, for example, health problems due to being raised in an unhealthy environment. Depending on the country and context, this will often include... 6f40fcd5c9