

Abrupt Climate Change

Sudden (on the order of decades), large changes in some major component of the climate system, with rapid, widespread effects.

Accommodation/assimilation

An adaptation strategy that has built infrastructure designed to expected variability of natural systems, such as raised buildings and break away walls in flood zones, road crossings designs allowing for upstream water storage, increasing culvert size, moving all electrical controls in a pump station to an elevation above expected flooding.

Adaptation

The ability of a natural or human system to adjust or become suitable to a new or changing environment

Adaptive Capacity

The ability or potential of a system to respond successfully to climate variability and change, moderate potential damages, maximize opportunities, or cope with consequences.

Adaptation Strategy

The Intergovernmental Panel on Climate Change (IPCC) identified three types of strategies to address changes in climatic factors and the secondary impacts to natural system dynamics: Retreat, Accommodation, and Protection.

AR4

The Fourth Assessment Report produced by the Intergovernmental Panel on Climate Change (IPCC) published in 2007. The report assessed and summarized the worldwide climate change situation and concluded at least a 90% likelihood that the increase in global average temperature since the mid-20th Century was mainly due to human activity.

Business as Usual

A scenario used for projections of future CO2 emissions assuming no action, or no new action, is taken to decrease emissions. Some countries are pledging not to reduce their emissions but to make reductions compared to a business as usual scenario. Their emissions, therefore, would increase but less than they would have without any reductions.

Climate

Climate in a narrow sense is usually defined as the "average weather," or more rigorously, as the statistical description in terms of the mean and variability of relevant quantities over a period of time ranging from months to thousands or millions of years. The classical period is 30 years, as defined by the World Meteorological Organization (WMO). These quantities are most often surface variables such as temperature, precipitation, and wind. Climate in a wider sense is the state, including a statistical description, of the climate system.

Climate Commitment

This describes the fact that climate will have a delayed reaction (see *climate lag*) to some influencing factors, such as greenhouse gas emissions. Climate commitment studies attempt to assess the amount of future warming that is “committed” assuming the level of emissions remains constant.

Climate Lag

The delay that occurs in climate change as a result of factors that change slowly. For example, the effects of releasing more carbon dioxide into the atmosphere occur gradually because the ocean takes a long time to warm up in response to a change in radiation.

Climate model

A numerical representation of the climate system based on the physical, chemical, and biological properties of its components, their interactions and feedback processes, and accounting for all or some of its known properties. The climate system can be represented by models of varying complexity. Climate models are applied, as a research tool, to study and simulate the climate, but also for operational purposes, including monthly, seasonal, and inter-annual climate predictions

Downscaling

General Circulation Models (GCMs) provide a “coarse-scale” resolution, with the geographical area that the models target can range up to 250 miles on a side. In general, this type of resolution is too coarse to capture the kinds of “fine-scale” changes we are already experiencing. For that reason, scientist use statistical techniques to down-scale this global projections for changes into a climate to high-resolution projections of tens rather than hundreds of miles.

Ecosystem

Any natural unit or entity including living and non-living parts that interact to produce a stable system through cyclic exchange of materials.

Emissions scenario

Emissions scenarios describe future releases into the atmosphere of greenhouse gases, aerosols, and other pollutants and, along with information on land use and land cover, provide inputs to climate models. They are based on assumptions about driving forces such as patterns of economic and population growth, technology development, and other factors.

General Circulation Model (GCM)

A global, three-dimensional computer model of the climate system which can be used to simulate human-induced climate change. GCMs are highly complex and they represent the effects of such factors as reflective and absorptive properties of atmospheric water vapor, greenhouse gas concentrations, clouds, annual and daily solar heating, ocean temperatures and

ice boundaries. The most recent GCMs include global representations of the atmosphere, oceans, and land surface.

Habitat Fragmentation

A process during which larger areas of habitat are broken into a number of smaller patches of smaller total area, isolated from each other by a matrix of habitats unlike the original habitat.

Heat Island

An urban area characterized by temperatures higher than those of the surrounding non-urban area. As urban areas develop, buildings, roads, and other infrastructure replace open land and vegetation. These surfaces absorb more solar energy, which can create higher temperatures in urban areas

Intergovernmental Panel on Climate Change (IPCC)

The IPCC was established jointly by the United Nations Environment Programme and the World Meteorological Organization in 1988. The purpose of the IPCC is to assess information in the scientific and technical literature related to all significant components of the issue of climate change. The IPCC draws upon hundreds of the world's expert scientists as authors and thousands as expert reviewers. Leading experts on climate change and environmental, social, and economic sciences from some 60 nations have helped the IPCC to prepare periodic assessments of the scientific underpinnings for understanding global climate change and its consequences. With its capacity for reporting on climate change, its consequences, and the viability of adaptation and mitigation measures, the IPCC is also looked to as the official advisory body to the world's governments on the state of the science of the climate change issue. For example, the IPCC organized the development of internationally accepted methods for conducting national greenhouse gas emission inventories.

Mitigation

A human intervention to reduce the human impact on the climate system; it includes strategies to reduce greenhouse gas sources and emissions and enhancing greenhouse gas sinks.

No Regrets Policy

A policy that would generate net social and/or economic benefits regardless of whether or not anthropogenic climate change occurs.

Protection/barrier

An adaptation strategy to protect from the effects of a changing climate, such as stabilizing erodible soils along stream corridors with deep rooted shrubby vegetation or berming electrical substations to a height of expected flooding.

Resilience

The capability to anticipate, prepare for, respond to, and recover from significant multi-hazard threats with minimum damage to social well-being, the economy, and the environment.

Retreat/restoration

An adaptation strategy defined as to move build infrastructure so to allow natural ecosystems to shift within expected range of variability, such as river flood zones and sea-level rise storm surges.

Sensitivity

The degree to which a system is affected, either adversely or beneficially, by climate variability or change. The effect may be direct (e.g., a change in crop yield in response to a change in the mean, range or variability of temperature) or indirect (e.g., damages caused by an increase in the frequency of coastal flooding due to sea level rise).

Uncertainty

An expression of the degree to which a value (e.g. the future state of the climate system) is unknown. Uncertainty can result from lack of information or from disagreement about what is known or even knowable. Uncertainty can therefore be represented by quantitative measures, for example, a range of values calculated by various models, or by qualitative statements, for example, reflecting the judgment of a team of experts.

Vulnerability

The degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed; its sensitivity; and its adaptive capacity.

Weather

Atmospheric condition at any given time or place. It is measured in terms of such things as wind, temperature, humidity, atmospheric pressure, cloudiness, and precipitation. In most places, weather can change from hour-to-hour, day-to-day, and season-to-season. A simple way of remembering the difference between weather and climate is that climate is what you expect (e.g. cold winters) and weather is what you get (e.g. a blizzard).