Fifth National Climate Assessment: Appendix 5

Glossary of Terms

Appendix 5. Glossary of Terms

Editors and Contributors

Federal Coordinating Lead Editor

Allison R. Crimmins, US Global Change Research Program

Lead Editor

Aaron M. Grade, US Global Change Research Program / ICF

Editorial Team

Samantha Basile, US Global Change Research Program / ICF

Mark R. Essig, North Carolina State University

Leo Goldsmith, US Global Change Research Program / ICF

Allyza R. Lustig, US Global Change Research Program / ICF

Thomas K. Maycock, North Carolina State University

Andrea McCarrick, North Carolina State University

Austin Scheetz, US Global Change Research Program / ICF

Technical Contributors

Jesse Keenan, Tulane University

Ann Kosmal, US General Services

Audrey Magnuson, ICF

Molly Rickles, ICF

A. R. Siders, University of Delaware, Biden School of Public Policy and Administration

Cover Art

Constance Collins

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About the Glossary of Terms

Authors of the Fifth National Climate Assessment (NCA5) were encouraged to briefly define important terms within their chapters. Some terms, however, require more detailed or nuanced definitions. This Glossary was developed to help readers understand key terms and ensure consistency of usage across the report.

Most of the definitions presented here have been adapted from authoritative sources, including other US Global Change Research Program (USGCRP) reports, Intergovernmental Panel on Climate Change (IPCC) assessments, and academic and scientific societies and organizations (e.g., American Meteorological Society). These external sources are indicated with citations. Where definitions have been developed from multiple sources, the Fifth National Climate Assessment[1] is cited.

Where a term is used in a chapter in a manner that is inconsistent with the glossary definition, the intended definition is provided within the chapter text.

Terms and subterms (e.g., "Flash drought" as a subterm of "Drought") are bolded, and references to other terms defined in the glossary are underlined and hyperlinked. Related terms of particular importance are noted and linked at the end of the definition.

Note on Glossary Development Process

Terms selected for inclusion in the Glossary of Terms are those that are used in multiple chapters of the Assessment and required a definition that went beyond what would be provided in a simple dictionary definition.

The editorial team followed a prioritized selection process for definitions. The team sought existing definitions from the following sources: the *Second State of the Carbon Cycle Report* (SOCCR2, 2018[2]); the *Climate Science Special Report* (Volume I of the Fourth National Climate Assessment [NCA4]; CSSR, 2017[3]); *Impacts, Risks, and Adaptation in the United States* (Volume II of NCA4; USGCRP, 2018[4]); *Impacts of Climate change on Human Health in the United States: A Scientific Assessment* (USGCRP, 2016[5]); and the Contributions of Working Groups I, II, and III to the IPCC Sixth Assessment Report (IPCC WGI, 2021[6] IPCC WGII, 2022[7] and IPCC WGIII, 2022[8]). If these sources did not offer adequate definitions, the editorial team searched for definitions from scientific and academic society glossaries, reports, and websites (e.g., American Meteorological Society, American Psychological Association, World Health Organization) and federal and state agency reports and websites. In the rare cases for which adequate definitions were not available from these sources, the editorial team collaborated with USGCRP leadership to develop definitions based on the text of the Assessment (or of NCA4) or the underlying Assessment literature.

As the editorial team examined sources, draft definitions were selected if they fit the proper context in which the term was used in the Assessment and were relatively succinct and understandable while also providing enough information for the reader to understand how the term was used. The team removed any policy-prescriptive terminology, assessment descriptions, or specific language referring to scenarios during editing, unless required to define the term.

The draft glossary was reviewed by Assessment author teams to ensure that all necessary terms were included and that the definitions were technically and scientifically accurate. The editorial team conducted an initial review for new term inclusion, as well as a science, technical, and stylistic edit of definitions, and these decisions were reviewed by the Assessment Director.

Finally, the Glossary of Terms was reviewed by the Federal Steering Committee prior to final copyediting and formatting.

Glossary

Note: Underlined text indicates a term that is defined in the glossary.

Term	Definition
Acidification, ocean	The process by which the pH measurement of ocean water moves toward more acidic levels due to the absorption of carbon dioxide, which interacts with ocean water to form carbonic acid, thereby lowering the pH. Increased acidity reduces the ability of plankton and shelled animals to form and maintain carbonate-containing body parts such as shells.[3]
Adaptation	**Climate adaptation:** In human systems, the process of adjustment to actual or expected climate and its effects to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects. Human intervention may facilitate adjustment to expected climate and its effects.[7] Related terms: Adaptive capacity, Maladaptation, Climate Resilience. **Equitable adaptation:** Adaptation that intentionally incorporates recognitional, procedural, and distributional principles of equity in design, planning, and execution.[1,9] **Incremental adaptation:** Adaptation that maintains the essence and integrity of a system or process at a given scale. In some cases, incremental adaptation can accrue to result in transformative adaptation. Incremental adaptations to change in climate are understood as extensions of actions and behaviors already known to reduce the losses or enhance the benefits of natural variations in extreme weather/climate events.[7] **Transformative adaptation:** Adaptation that changes the fundamental attributes of a social–ecological system, often involving persistent, novel, and significant changes to institutions, behaviors, values, and/or technology in anticipation of climate change and its impacts.[1,8,10,11]
Adaptive capacity	The ability of systems, institutions, humans, and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequences.[7]
Adaptive management	A process of iteratively planning, implementing, and modifying strategies for managing resources in the face of uncertainty and change. Adaptive management involves adjusting management approaches in response to observations of their effect on, and changes in, the system brought on by resulting feedback effects and other variables.[7]
Aeroallergens	Various airborne substances, such as pollen or spores, that can cause an allergic response.[5]
Aerosols (atmospheric)	A suspension of airborne solid or liquid particles, with typical particle size in the range of a few nanometers to several tens of micrometers. Aerosols have both natural and human-caused sources. Overall, they tend to produce cooling by scattering incoming radiation and by affecting cloud cover, although some aerosols can cause warming directly by absorbing radiation and indirectly through their interactions with clouds.[2,6] Related term: Particulate matter.
Afforestation	The process of establishing trees on land that has lacked forest cover for a very long time or land that has never been forested.[2] Related terms: Deforestation, Reforestation.
Agricultural intensification	The process of increasing the use of capital, labor, and inputs (e.g., fertilizers, pesticides, machinery) relative to land area to increase agriculture productivity.[12]
Agrivoltaics	The use of land for both agriculture and solar photovoltaic energy generation. Agrivoltaics is also sometimes referred to as agrisolar, dual-use solar, or low-impact solar. Solar grazing is a variation where livestock graze in and around solar panels.[13]

Term	Definition
Agroecology	The science and practice of applying ecological concepts, principles, and knowledge to the study, design, and management of sustainable agricultural ecosystems. It includes the roles of human beings as a central organism by way of social and economic processes in farming systems. Agroecology examines the roles and interactions among all relevant biophysical, technical, and socioeconomic components of farming systems and their surrounding landscapes.[12] For NCA5, agroecology considers farming practices and management approaches that are developed through a systems science lens, taking into account local conditions and history. Agroecology might include subsistence and organic farming but might also include prudent use of resources through technological interventions (Ch. 11).[1]
Agroforestry	Collective name for land-use systems and technologies where woody perennials (trees, shrubs, palms, bamboos, etc.) are deliberately used on the same land-management units as agricultural crops and/or animals in some form of spatial arrangement or temporal sequence. In agroforestry systems, there are both ecological and economic interactions between the different components. Agroforestry can also be defined as a dynamic, ecologically based, natural resource management system that, through the integration of trees on farms and in the agricultural landscape, diversifies and sustains production to increase social, economic, and environmental benefits for land users.[7]
Air pollution	Degradation of air quality with negative effects on human health or the natural or built environment due to the introduction, by natural processes or human activity, into the atmosphere of substances that have a direct (primary pollutants) or indirect (secondary pollutants) harmful effect.[6] Related terms: Ozone, Particulate matter, Carbon monoxide, Volatile organic compounds.
Albedo	The fraction of solar radiation reflected by a surface or object, often expressed as a percentage. Snow-covered surfaces have a high albedo (highly reflective). Soil albedos range from high to low, and vegetation-covered surfaces and the ocean have a low albedo (low reflectivity). Earth's planetary albedo varies mainly through changes in cloudiness, snow, ice, leaf area, and land cover.[2]
Altimetry	A technique for measuring the height of Earth's surface with respect to the center of Earth's mass within a defined terrestrial reference frame.[3]
Anthropogenic	Caused or influenced by humans; human-induced.[2]
Anthropogenic emissions	Emissions of greenhouse gases (GHGs), precursors of GHGs, and aerosols caused by human activities. These activities include the burning of fossil fuels, deforestation, land-use and land-cover change, livestock production, fertilization, waste management, and industrial processes.[8] [This definition is in reference to human-caused emissions that drive changes in radiative forcing; for information on other emissions, see Air pollution.] Related terms: Air pollution, Emissions.
Aquaculture	The production of aquatic organisms under controlled conditions throughout part or all their life cycle.[14] Related term: Mariculture.
Aquifer	A layer of saturated geologic materials that could yield water to springs or wells.[15]
Aridification	Aridification is a transition of the climate and hydrology of a region toward drier conditions.[16]
Assisted migration (ecological)	Human-assisted movement of populations or species to a new location within the historical range, expansion of their historical range, or migration beyond locations accessible by natural dispersal to mitigate potential impacts of climate change.[17]

Term	Definition
Atlantic meridional overturning circulation (AMOC)	The main current system in the South and North Atlantic Oceans. AMOC transports warm upper-ocean water northward and cold deep-ocean water southward, as part of the global ocean circulation system.[3] Changes in the strength of AMOC can affect other components of the climate system.[6]
Atmospheric river (AR)	A long, narrow, and transient corridor of strong horizontal water vapor transport that is typically associated with a low-level jet stream ahead of the cold front of an extratropical cyclone. The water vapor in ARs is supplied by tropical and/or extratropical moisture sources. ARs frequently lead to heavy precipitation where they are forced upward, for example, by mountains or by ascent in a warm conveyor belt. Horizontal water vapor transport in the midlatitudes occurs primarily in ARs and is focused in the lower troposphere.[3]
Attribution	The process of evaluating the relative contributions of multiple causal factors to a change or event with an assessment of confidence.[8]
Biochar	Relatively stable, carbon-rich material produced by heating biomass in an oxygen-limited environment. Biochar is distinguished from charcoal by its application: biochar is used as a soil amendment with the intention to improve soil functions and to reduce greenhouse gas emissions from biomass that would otherwise decompose rapidly.[8]
Biodiversity	The variety of life, including the number of plant and animal species, other life forms, genetic types, habitats, and biomes in an ecosystem.[2]
Bioenergy	A form of renewable energy produced from plant and animal biomass.[2]
Biofuel	Fuel produced from plant or animal matter.[2]
Biogeochemical cycles	Fluxes or flows of chemical elements between Earth's different carbon reservoirs, such as from living to nonliving, from atmosphere to land or ocean, from plants to dead organic matter in soils, and from decomposition of organic matter into carbon-containing gases.[2]
Biomass	The mass of living organisms or the material derived from organisms.[2]
Biosphere	Parts of Earth's surface in which living organisms reside.[2]
Black carbon	Black carbon is a solid form of mostly pure carbon that absorbs solar radiation (light) at all wavelengths. Black carbon is the most effective form of particulate matter, by mass, at absorbing solar energy and is produced by incomplete combustion of carbon-based fuels.[18]
Bleaching, coral	Loss of coral pigmentation through the loss of intracellular symbiotic algae (known as zooxanthellae) and/or loss of their pigments.[6]
Blocking (atmospheric)	Associated with persistent, slow-moving high-pressure systems that obstruct the prevailing westerly winds in the middle and high latitudes and the normal eastward progress of extratropical transient storm systems. It is an important component of intra-seasonal climate variability in the extratropics and can cause long-lived weather conditions such as cold spells in winter and heatwaves in summer.[3]
Blue carbon	Carbon captured and stored by marine and coastal ecosystems such as mangroves, coastal wetlands, and seagrasses (Focus on Blue Carbon).[1]
Boreal (zone)	A biogeographical zone or region characterized by a northern type of fauna or flora. The zone has a definite winter with snow and a short, generally hot summer. It includes a large part of North America between the Arctic zone and about 40°N, extending to 35°N into the interior.[15]

Term	Definition
Built environment	The human-made or modified landscapes, structures, and infrastructure facilities that provide spaces for people to live, work, and recreate (Ch. 12).[1,19]
Buyout	A type of property acquisition program in which an entity, usually a government, purchases properties in high-risk areas with an intent to remove structures and create open space.[20]
Carbon capture and storage (CCS)	The process of capturing carbon dioxide and injecting it into geological formations underground or in the deep ocean for long-term storage.[2] Related term: Carbon sequestration.
Carbon cycle	The series of processes by which carbon compounds flow among reservoirs in the environment, such as the incorporation of carbon dioxide into living tissue by photosynthesis and its return to the atmosphere through respiration, the decay of dead organisms, and the burning of fossil fuels. In the carbon cycle, carbon flow or output from one reservoir transfers carbon to other reservoir(s).[2]
Carbon dioxide (CO_2)	A naturally occurring gas, as well as a by-product of burning fossil fuels from fossil carbon deposits, burning biomass, land-use changes, and industrial processes (e.g., cement production). CO_2 is the principal anthropogenic greenhouse gas that affects Earth's radiative balance. As the reference gas against which the radiative forcing of other greenhouse gases are measured, it has a global warming potential of 1.[2] Related terms: Global warming potential, carbon dioxide equivalent.
Carbon dioxide equivalent (CO_2-eq)	The amount of carbon dioxide emissions that would produce the same effect as another greenhouse gas (e.g., methane, nitrous oxide) on the radiative balance of Earth's climate system over a specified time horizon. CO_2-eq emissions are commonly used to compare emissions of different greenhouse gases but should not be taken to imply that these emissions have an equivalent effect across all measures of climate change.[2,8] Related terms: Carbon dioxide, Global warming potential.
Carbon dioxide removal (CDR)	A set of techniques that aim to remove and/or sequester carbon dioxide (CO_2) directly from the atmosphere by either increasing natural carbon sinks or using chemical engineering to remove the CO_2.[3]
Carbon flux	The direction and rate of transfer, or flows, of carbon between pools of carbon.[2] Related terms: Carbon cycle, Carbon sink, Carbon source.
Carbon intensity / Emissions intensity	A measure of the greenhouse gas or carbon dioxide emissions or removals per unit of activity or other defined variable, such as GDP, output energy use, or transport. For example, emissions intensity of energy generation sources is defined as the amount of greenhouse gases emitted per unit of energy produced (Ch. 30).[1,8]
Carbon monoxide (CO)	A colorless, odorless, poisonous gas produced by incomplete combustion. CO is oxidized to carbon dioxide and plays a part in local and regional air quality.[5,15]
Carbon sequestration	The storage of carbon through natural, deliberate, or technological processes in which carbon dioxide is diverted from emissions sources or removed from the atmosphere and stored biologically in the ocean and terrestrial environments (e.g., vegetation, soils, and sediment), underground, or in geological formations.[2]
Carbon sink	Any process, activity, or mechanism that removes carbon from the atmosphere. A carbon sink may also refer to a physical location, defined area, or geological or biological element of Earth's system (e.g., the ocean, a country, biomass) that stores acquired carbon from the atmosphere for a specified period of time.[1,2,3] Related terms: Carbon cycle, Carbon flux, Carbon source.

Term	Definition
Carbon source	Any process, activity, or mechanism that releases carbon into the atmosphere. A carbon source may also refer to a physical location, defined area, or geological or biological element (e.g., the ocean, a country, biomass) from which carbon is released to the atmosphere, either through natural or technological processes.[1,2,3] Related terms: Carbon cycle, Carbon flux, Carbon sink.
Cascading impact	Cascading impacts from extreme climate and weather occur when an extreme hazard (or cascading hazards) generates a sequence of secondary events (i.e., cascading events) in natural and human systems that result in physical, natural, social, or economic disruption (i.e., cascading effects), whereby the resulting impact is significantly larger than the initial impact. Cascading impacts are complex and multidimensional and are associated more with the magnitude of vulnerability than with the magnitude of the hazard.[7] Related term: Compound event.
Climate	Climate, in a narrow sense, is usually defined as the average weather or, more rigorously, as the statistical description in terms of the average and variability of defining factors over a period of time ranging from months to thousands or millions of years. The classical period for averaging these variables is 30 years, as defined by the World Meteorological Organization. The relevant 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.[2] Related term: Weather.
Climate change	Changes in average weather conditions that persist over multiple decades or longer. Climate change encompasses both increases and decreases in temperature, as well as shifts in precipitation, changes in frequency and location of severe weather events, and changes to other features of the climate system.[2] Related term: Global warming.
Climate feedback	An interaction in which a perturbation in one climate quantity causes a change in a second, and the change in the second quantity ultimately leads to an additional change in the first. A negative feedback is one in which the initial perturbation is weakened by the changes it causes; a positive feedback is one in which the initial perturbation is enhanced. The initial perturbation can either be externally forced or arise as part of internal variability.[6]
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 some of its known properties. The climate system can be represented by models of varying complexity; that is, for any one component or combination of components, a spectrum or hierarchy of models can be identified, differing in such aspects as the number of spatial dimensions; the extent to which physical, chemical, or biological processes are explicitly represented; or the level at which empirical parameterizations are involved. Climate models are applied as a research tool to study and simulate long-term climate projections (decadal or longer) and operationally used to create shorter climate predictions (seasonal, annual, interannual).[1,2] Related term: Earth system model.
Climate projection	The simulated response of the climate system to a scenario of future emissions or concentrations of greenhouse gases and aerosols, generally derived using climate models. Climate projections depend on the emissions, concentration, or radiative forcing scenario used, which, in turn, is based on assumptions concerning, for example, future socioeconomic and technological developments that may or may not be realized.[2] Related terms: Climate, Climate model.
Climate sensitivity	The change in the surface temperature in response to a change in the atmospheric carbon dioxide concentration or other radiative forcing.[8]
Climate services	Climate services are scientifically based usable information and products that assist in decision-making and actions relevant to climate change risks, impacts, and responses. Climate services include appropriate engagement from users and providers, have effective access mechanisms, and respond to user needs.[1,6,21]

Term	Definition
Climate-smart agriculture (CSA)	An agricultural approach that helps guide actions needed to transform and reorient agricultural systems to effectively support development and ensure food security in a changing climate. CSA addresses three main objectives: sustainably increasing agricultural productivity and incomes, adapting and building resilience to climate change, and reducing and/or removing greenhouse gas emissions where possible.[7]
Climate variability	Deviations of climate variables from a given average state, including the occurrence of extremes, at all spatial and temporal scales beyond that of individual weather events. Variability may be intrinsic, due to fluctuations of processes internal to the climate system (i.e., internal variability), or extrinsic, due to variations in natural or anthropogenic external forcing (i.e., forced variability).[8] Related term: Natural variability, climate.
Coastal zone	The area extending from the ocean inland across the region directly influenced by marine processes.[22] Related term: Exclusive economic zone.
Co-benefits	The positive effects that a policy or measure aimed at one objective might have on other objectives, irrespective of the net effect on overall social welfare. Co-benefits are often subject to uncertainty and depend on local circumstances and implementation practices, among other factors. Co-benefits are also referred to as ancillary benefits.[2]
Colonialism	A form of domination in which at least one society exerts power to exploit one or more other societies in order to gain some set of goods it perceives as valuable to the fulfillment of its economic, social, and cultural development.[1,23] **Settler Colonialism:** A type of domination in which a colonizing society seeks to obtain valuable goods by permanently inhabiting the territories that one or more other societies (e.g., Indigenous Peoples) already inhabit. Many settler colonial processes involve attempts by the colonizing society to erase the presence and history of the Indigenous Peoples.[1,23]
Community health	Community health encompasses approaches to promote health, well-being, and equity at the population level by addressing social, behavioral, environmental, economic, medical, and spiritual determinants of health.[24] Related terms: Health system / Healthcare system, Well-being.
Community science / Citizen science	Also known as participatory science, a participation by the public in advancing scientific knowledge by formulating research questions, collecting data, and interpreting results.[25]
Compound event	An event that consists of two or more extreme events occurring simultaneously or successively, combinations of extreme events with underlying conditions that amplify the impact of the events, or combinations of events that are not themselves extremes but lead to an extreme event or impact when combined. The contributing events can be of similar or different types.[3]
Contaminant	Any physical, chemical, biological, or radiological substance or matter found in any medium where it does not belong, particularly at concentrations that may pose a threat to human health or the environment.[5]
Continental shelf	The submerged margins of the continental plates, operationally defined as regions with water depths shallower than 656 feet (200 m).[2]

Term	Definition
Coproduction (of knowledge)	The integration of different knowledge systems and methodologies to systematically understand phenomena, systems, and processes.[26]
Coupled Model Intercomparison Project (CMIP)	A climate modeling activity from the World Climate Research Programme, which coordinates and archives climate model simulations based on shared model inputs by modeling groups from around the world. The CMIP Phase 3 (CMIP3) multimodel dataset includes projections using Intergovernmental Panel on Climate Change Special Report on Emissions Scenarios (SRES). The CMIP Phase 5 (CMIP5) dataset includes projections using the Representative Concentration Pathways (RCPs). The CMIP Phase 6 (CMIP6) involves a suite of common model experiments as well as an ensemble of CMIP-endorsed Model Intercomparison Projects (MIPs).[8] Related terms: Representative Concentrated Pathways, Shared Socioeconomic Pathways.
Cryosphere	All regions on and beneath the surface of the Earth and ocean where water is in solid form, including sea ice, lake ice, river ice, snow cover, glaciers, ice sheets, and frozen ground (e.g., permafrost).[2]
Cultural burning	The purposeful use of fire by a cultural group (e.g., family unit, Tribe, clan/moiety, society) for a variety of purposes and outcomes. Also called Indigenous prescribed burning.[27] Related terms: Prescribed fire, Wildfire.
Debris flow	Fast-moving landslides that generally occur during periods of intense rainfall or rapid snowmelt and usually start on hillsides or mountains. They can travel at speeds up to and exceeding 35 mph and can carry large items such as boulders, trees, and cars. Areas recently burned by a high-severity wildfire are especially susceptible to debris flows, including the areas downslope and outside of the burned area.[28] Related term: Landslide.
Decarbonization	Human actions to reduce carbon dioxide emissions from human activities.[7]
Deforestation	The process of removing or clearing trees from forested land with lasting conversion of that land to non-forest.[2] Related terms: Afforestation, Reforestation.
Degree days, cooling (CDD) / Degree days, heating (HDD)	A measure of the departure of the average daily temperature from a given standard: one degree day for each degree of departure above or below the standard for one day. Degree days can be accumulated over a "season" such that the total can be used as an index of the effect of past temperature on some quantity, such as plant growth, fuel consumption, or power output. CDDs are used to estimate energy requirements when the average daily temperature is higher than a given standard, while HDDs are used when the average daily temperature is lower than the standard. For example, if a standard/threshold of 65°F is used and a location has an average daily temperature of 75°F, then there were 10 CDDs for that day.[15,29]
Deoxygenation (aquatic)	See Hypoxia.
Detection (climate)	Detection (of change) is the process of demonstrating that climate or a system affected by climate has changed in some defined statistical sense, without providing a reason for that change. An identified change is detected in observations if its likelihood of occurrence by chance due to internal variability alone is determined to be small, for example, less than 10%.[6]
Disadvantaged community	See Overburdened community.

Term	Definition
Disaster risk management	Processes for designing, implementing, and evaluating strategies, policies, and measures to improve the understanding of current and future disaster risk, foster disaster risk reduction and transfer, and promote continuous improvement in disaster preparedness, prevention and protection, and response and recovery practices, with the explicit purpose of increasing human security, well-being, quality of life, and sustainable development.[7]
Discount rate (economics)	Discounting is a mathematical operation that uses a discount rate to make monetary (or other) amounts received or expended at different times (years) comparable across time. If the discount rate is positive, future values are given less weight than those today. The choice of discount rate(s) is debated as it is a judgment based on hidden and/or explicit values.[7]
Discrimination	The differential treatment of an individual or group of people on the basis of, for example, their race, color, national origin, religion, sex (including pregnancy and gender identity), age, marital and parental status, disability, sexual orientation, or genetic information.[30]
Dissolved oxygen	A measure of how much oxygen is dissolved in the water. Dissolved oxygen in surface water is used by all forms of aquatic life; therefore, this constituent typically is measured to assess the "health" of lakes and streams.[31] Related term: Hypoxia.
Disturbance regime (ecological)	The temporal and spatial characteristics of a disturbance agent and the impact of that agent on the landscape. More specifically, the cumulative effects of multiple disturbance events over space and time.[32]
Domoic acid (poisoning)	A harmful algal bloom toxin, domoic acid is a potent neurotoxin naturally produced by several species of the algal diatom genus *Pseudo-nitzschia*. Domoic acid usually transfers to higher-trophic-level animals via filter feeding bivalves or fish, exposing many vertebrate species including marine mammals, birds, and even humans. The clinical signs of acute domoic acid toxicity, well defined as amnesic shellfish poisoning, results in severe illness and sometimes death.[33]
Downscaling	A method that derives local- to regional-scale information from larger-scale models or data analyses. Two main methods exist: dynamical downscaling and empirical/statistical downscaling. The dynamical method uses the output of regional climate models, global models with variable spatial resolution, or high-resolution global models. The empirical/statistical methods are based on observations and develop statistical relationships that link the large-scale atmospheric variables with local/regional climate variables. In all cases, the quality of the driving model remains an important limitation on quality of the downscaled information. The two methods can be combined, for example, applying empirical/statistical downscaling to the output of a regional climate model consisting of a dynamical downscaling of a global climate model.[6] Related term: Climate model.

Term	Definition
Drought	An exceptional period of water shortage for existing ecosystems and the human population (due to low rainfall, high temperature and/or wind).[34] **Agricultural drought:** A period with abnormal soil moisture deficit that impinges on crop production, which results from a combined shortage of precipitation and excess evapotranspiration, generally during the growing season.[6,34,35] **Ecological drought:** Depending on the affected biome, an episodic deficit in water availability that drives ecosystems beyond thresholds of vulnerability, impacts ecosystem services, and triggers feedbacks in natural and/or human systems.[34] **Flash drought:** The rapid onset or intensification of drought. It is set in motion by lower-than-normal rates of precipitation, usually accompanied by abnormally high temperatures, winds, and incoming solar radiation.[6,34] **Hydrological drought:** A period with large runoff and water deficits in rivers, lakes, and reservoirs.[6,34] **Megadrought:** A very lengthy and pervasive drought, lasting much longer than normal, usually a decade or more.[6,34] **Meteorological drought:** A period with an abnormal precipitation deficit.[6,34]
Earth system	Earth functions as a system of interdependent parts. These parts include the physical, chemical, and biological processes that all interact to shape our planet and the organisms on it.[36] Related term: Earth system model.
Earth system model (ESM)	A coupled atmosphere–ocean general circulation model in which a representation of the carbon cycle is included, allowing for interactive calculation of atmospheric carbon dioxide or compatible emissions. Additional components (e.g., atmospheric chemistry, ice sheets, dynamic vegetation, nitrogen cycle, and urban or crop models) may be included.[6] Related term: Climate model.
Eco-anxiety	Also known as climate anxiety, a chronic fear of environmental doom.[37]
Ecosystem	A functional unit consisting of living organisms, their nonliving environment, and the interactions within and between them. The components included in a given ecosystem and its spatial boundaries depend on the purpose for which the ecosystem is defined. In some cases, ecosystem boundaries are relatively sharp, while in others they are diffuse, and they can change over time. Ecosystems are nested within other ecosystems, and their scale can range from very small to the entire biosphere. In the current era, most ecosystems either contain people as key organisms, or they are influenced by the effects of human activities in their environment.[2] Related term: Ecosystem services.
Ecosystem-based adaptation	The use of ecosystem management activities to increase the resilience and reduce the vulnerability of people and ecosystems to climate change.[7] Related term: Adaptation, climate.
Ecosystem services	Ecological processes or functions that have monetary or nonmonetary value to individuals or society at large. These are frequently classified as supporting services such as productivity or biodiversity maintenance, provisioning services such as food or fiber, regulating services such as climate regulation or carbon sequestration, and cultural services such as tourism or spiritual and aesthetic appreciation.[7] Related term: Ecosystem.

Term	Definition
El Niño–Southern Oscillation (ENSO)	A natural interaction between surface air pressure and surface water temperature in the tropical Pacific Ocean. ENSO has two phases: the warm oceanic phase, El Niño, accompanies high surface air pressure in the western Pacific, while the cold phase, La Niña, accompanies low surface air pressure in the western Pacific. Each phase generally lasts 6 to 18 months. ENSO events occur irregularly, about every 3 to 7 years. The extremes of this climate oscillation cause extreme events (such as floods and droughts) in many regions of the world.[2]
Emissions	The release of climate-altering gases and aerosols into the atmosphere from human and natural sources.[5] [This definition is in reference to greenhouse gas emissions. For information on other emissions, see Air pollution.] Related terms: Air pollution, Anthropogenic emissions.
Emissions scenarios	Quantitative illustrations of how the release of different amounts of climate-altering gases and aerosols into the atmosphere from human and natural sources will produce different future climate conditions. Scenarios are developed using a wide range of assumptions about population growth, economic and technological development, and other factors.[5] Related term: Scenario.
Endemic (disease)	The constant or usual presence of a disease or infectious agent within a geographic area or population.[5]
Energy end use	Energy used for services such as transportation, cooking, indoor thermal comfort, refrigeration, and illumination.[2]
Energy supply	The processes for extracting energy resources and converting them into more desirable and suitable forms of secondary energy and for delivering energy to places where demand exists.[2]
Energy systems	Comprises all components related to the production, conversion, delivery, and use of energy.[7]
Ensemble (modeling)	A collection of comparable datasets that reflect variations within the bounds of one or more sources of uncertainty and that, when averaged, can provide a more robust estimate of underlying model behavior. Ensemble techniques are used by the observational, reanalysis, and modeling communities.[6]
Environmental injustice	Environmental actions, behaviors, laws, and policies that have not been fair, that have limited meaningful involvement in environmental decision-making, or have unjustly allocated the risks and benefits of environmental action across communities, most often based on race, color, national origin, income, and gender identity, among others.[1,38] Related terms: Environmental justice, Justice, Just transition.
Epidemiology	The study of the distribution and determinants of health conditions, states, or events in specified populations.[5]

Term	Definition
Equity	**Climate equity:** The principle of being fair and impartial and a basis for understanding how the impacts and responses to climate change, including costs and benefits, are distributed in and by society in more or less equal ways. Often aligned with ideas of equality, fairness, and justice and applied with respect to equity in the responsibility for, and distribution of, climate impacts and policies across society, generations, and gender, and in the sense of who participates and controls the processes of decision-making.[7] **Health equity:** The attainment of the highest level of health for all people, where everyone has a fair and just opportunity to attain their optimal health regardless of race, ethnicity, disability, sexual orientation, gender identity, socioeconomic status, geography, preferred language, or other factors that affect access to care and health outcomes.[39] **Social equity:** The consistent and systematic fair, just, and impartial treatment of all individuals—including individuals who belong to underserved communities and communities of color, people who belong to communities that may face discrimination, and people who live in rural areas—who have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life.[40]
Evaporative demand	Evaporative demand quantifies the potential loss of water from the surface as driven by atmospheric factors including temperature, wind speed, humidity, and cloud cover. Periods of high evaporative demand are connected to droughts and increased fire danger.[41]
Evapotranspiration	The combined processes through which water is transferred to the atmosphere from open water and ice surfaces, bare soil, and vegetation that make up the Earth's surface.[8] Related term: Transpiration.
Exclusive economic zone	An area of the ocean, generally extending 200 nautical miles (230 miles) beyond a nation's territorial sea, within which a coastal nation has jurisdiction over both living and nonliving resources.[42]
Exposure	The presence of people; livelihoods; species or ecosystems; environmental functions, services, and resources; infrastructure; or economic, social, or cultural assets in places and settings that could be adversely affected by climate change.[8] Related terms: Hazard, Risk.
Extratropical cyclone	A large-scale (on the order of 600+ miles) storm in the middle or high latitudes having low central pressure and fronts with strong horizontal gradients in temperature and humidity. A major cause of extreme wind speeds and heavy precipitation, especially in wintertime.[3]
Extreme events	A weather event that is rare at a particular place and time of year, including, for example, heatwaves, cold waves, heavy rains, periods of drought and flooding, and severe storms. Definitions of "rare" vary, but an extreme weather event would normally be as rare as or rarer than the 10% or 90% probability density function estimated from observations. By definition, the characteristics of what is called extreme weather may vary from place to place in an absolute sense.[2]
Extreme heat	Temperatures that are much hotter and/or humid than average. Because some places are hotter than others, this depends on what is considered average for a particular location at that time of year.[43] Related term: Heatwave.
Extreme precipitation	An extreme/heavy precipitation event is an event that is of very high magnitude with a very rare occurrence at a particular place. Types of extreme precipitation may vary depending on duration (hourly, daily, or multiday [e.g., 5 days]), although all of them qualitatively represent high magnitude.[6]

Term	Definition
Federally Recognized Tribes	An American Indian or Alaska Native tribal entity that is recognized as having a government-to-government relationship with the United States—with the responsibilities, powers, limitations, and obligations attached to that designation—and is eligible for funding and services from the Bureau of Indian Affairs.[44]
Fenceline community	Communities located adjacent to hazardous industrial facilities, which are disproportionately BIPOC (Black, Indigenous, and People of Color) and low-wealth communities (Ch. 15).[1] Related terms: Frontline community, Overburdened community, Vulnerable community.
Flood	The overflowing of the normal confines of a stream or other water body or the accumulation of water over areas that are not normally submerged.[6] **Flash flood:** A flood caused by heavy or excessive rainfall in a short period of time, generally less than six hours. Flash floods can occur within minutes or a few hours of excessive rainfall. They can also occur even if no rain has fallen, for instance, after a levee or dam has failed or after a sudden release of water by a debris or ice jam.[45] **High tide flooding:** Occurs when sea level rise combines with local factors to push water levels above the normal high tide mark. Changes in prevailing winds, shifts in ocean currents, and strong tidal forces (which occur during full or new moons) can all cause high tide flooding, inundating streets and other infrastructure even on sunny days.[46]
Food security	When all people at all times have both physical and economic access to enough food for an active, healthy life.[2,47] Related terms: Food sovereignty, Subsistence.
Food sovereignty	The ability for nations, Tribes, and communities to feed their own people on their own terms.[48] Related term: Subsistence.
Foodborne illness	Illness or disease caused by foods or drinks contaminated with biological or chemical toxins or pathogens, including disease-causing microbes or toxic chemicals.[5]
Forcing	A change or impact to a factor that affects Earth's climate.[2] Related term: Radiative forcing.
Fossil fuels	Carbon-based fuels from fossil hydrocarbon deposits, including coal, oil, and natural gas.[6]
Fractionated (land ownership)	As a result of the General Allotment Act of 1887, reservation land was divided up and allotted to individual Tribal members. After the death of the original allottee owner, title ownership was divided up among the heirs. As the land passed through each generation, the number of owners grew exponentially, resulting in the highly fractionated ownership of much Tribal land today.[49]
Fragmentation (habitat, land)	Occurs when a large, fairly continuous tract of vegetation is converted to other land cover or vegetation types such that only scattered fragments of the original type remain.[50] Related term: Land cover.
Frontline community	A community that includes people who are both highly exposed to climate risks (because of the places they live and the projected changes expected to occur in those places) and have fewer resources, capacity, social or economic safety nets, or political power to respond to those risks. Frontline communities are those that experience the "first and worst" consequences of climate change. These are often, but not limited to, communities of color and low-income communities.[1,9] Related terms: Overburdened community, Vulnerable community.

Term	Definition
Glacier	A perennial mass of ice, and possibly firn and snow, originating on the land surface by accumulation and compaction of snow and showing evidence of past or present flow. A glacier typically gains mass by accumulation of snow and loses mass by ablation. Land ice masses of continental size are referred to as ice sheets.[6] Related term: Ice sheet.
Global climate model (GCM)	See Climate model.
Global mean sea level (GMSL)	The average of relative sea level or of sea surface height across the ocean.[3]
Global warming	The increase in global surface temperature relative to a baseline reference period, averaging over a period sufficient to remove interannual variations (e.g., 20 or 30 years). A common choice for the baseline is 1850–1900 (the earliest period of reliable observations with sufficient geographic coverage), with more modern baselines used depending on the application.[6]
Global warming potential (GWP)	An index measuring the radiative forcing following an emission of a unit mass of a given substance, accumulated over a chosen time horizon, relative to that of the reference substance, carbon dioxide. The GWP thus represents the combined effect of the differing times these substances remain in the atmosphere and their effectiveness in causing radiative forcing.[6] Related term: Carbon dioxide equivalent.
Governance	The processes and structures that steer society and the multiplicity of actors who are involved. Institutional arrangements of governance comprise the sets of rules, norms, and shared practices that underlie decision-making.[2]
Green infrastructure	The strategically planned, interconnected set of natural and constructed ecological systems, green spaces, and other landscape features that can provide functions and services, including air and water purification, temperature management, floodwater management, and coastal defense, often with benefits for people and biodiversity. Green infrastructure includes planted and remnant native vegetation, soils, wetlands, parks, and green open spaces, as well as building and street-level design interventions that incorporate vegetation.[8] Related term: Nature-based solutions.
Greenhouse gas (GHG)	Gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation at specific wavelengths within the spectrum of radiation emitted by Earth's surface, by the atmosphere itself, and by clouds. This property causes the greenhouse effect. Water vapor, carbon dioxide, nitrous oxide, methane, and ozone are the primary GHGs in Earth's atmosphere. Other GHGs include sulfur hexafluoride, hydrofluorocarbons, chlorofluorocarbons, and perfluorocarbons; several of these are also ozone-depleting (and are regulated under the Montreal Protocol).[6] Related term: Anthropogenic emissions.
Greenhouse gas mitigation	See Climate mitigation.
Groundwater recharge	The process by which external water is added to the zone of saturation of an aquifer, either directly into a geologic formation that traps the water or indirectly by way of another formation.[7] Related term: Aquifer.
Growing degree days	A heat index that relates the development of plants, insects, and disease organisms to environmental air temperature. Growing degree days are calculated by subtracting a base temperature from the daily average temperature, and growing degree day values less than zero are set to zero. The reference temperature (base temperature) below which development either slows or stops is species dependent. For example, the base temperature for cool-season plants (canning pea, spring wheat, etc.) is 40°F (5°C); for warm-season plants (sweet corn, green beans, etc.), 50°F (10°C); and for very-warm-season plants (cotton, okra, etc.), 60°F (15°C).[15]

Term	Definition
Harden (infrastructure)	Hardening infrastructure means making infrastructure more resilient in the face of extreme events (such as hurricanes, tornadoes, and earthquakes) and other disasters, both natural and human-made.[1,51] Related terms: Built environment, Infrastructure.
Hardiness zones (plants, agriculture)	10°F geographic bands based on the annual lowest winter temperature in a particular location, averaged over a period of years. They serve as a standard by which gardeners and growers can determine which plants are most likely to thrive at a location.[52,53]
Harmful algal bloom (HAB)	A sudden, rapid growth of algae in lakes, estuaries, and ocean waters caused by various factors including warmer surface waters, increased nutrient levels, or increased light levels. Some HABs may be toxic or harmful to humans and ecosystems.[2]
Hazard	The potential occurrence of a natural or human-induced physical event or trend that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems, and environmental resources.[7] Related terms: Impact, Risk.
Health system / Healthcare system	All organizations, people, and actions whose primary intent is to promote, restore, or maintain health. This may include infrastructure or systems of medical care services such as hospitals, clinics, home care, long-term care facilities, assisted living, physicians, health plans, and other community services.[1,54,55]
Heatwave	A period of abnormally hot weather, often defined with reference to a relative temperature threshold, lasting from two days to months. Heatwaves and warm spells have various and, in some cases, overlapping definitions.[7] Related term: Marine heatwave.
Homelessness	See Unhoused and Unsheltered.
Hydrocarbon	A compound composed of hydrogen and carbon (e.g., petroleum products and fossil fuels).[2]
Hypoxia (aquatic)	Deficiency of oxygen in water bodies, defined as oxygen concentrations less than 2 milligrams per liter. Hypoxia can be a symptom of eutrophication (nutrient overloading). Deoxygenation (the process of removing oxygen) leads to hypoxia and the expansion of oxygen minimum zones.[2] Related term: Dissolved oxygen.
Ice sheet	An ice body originating on land that covers an area of continental size, generally defined as covering >19,000 square miles (>50,000 km^2) and that has formed over thousands of years through accumulation and compaction of snow.[6] Related term: Glacier.
Impact (climate)	The consequences of realized risks on natural and human systems, where risks result from the interactions of climate-related hazards (including extreme weather/climate events), exposure, and vulnerability. Impacts generally refer to effects on lives, livelihoods, health, and well-being; ecosystems and species; economic, social, and cultural assets; services (including ecosystem services); and infrastructure.[7] Related terms: Adaptation, Exposure, Hazard, Vulnerability, Risk.
Indicator, climate	An observation or calculation that allows scientists, analysts, decision-makers, and others to track environmental trends, understand key factors that influence the environment, and identify effects on ecosystems and society.[2]

Term	Definition
Indigenous communities / Indigenous Peoples	Unless otherwise noted, this term is used in NCA5 to refer to culturally and politically self-determining groups whose right to self-determination in North America, Hawai'i, the US-Affiliated Pacific Islands, Puerto Rico, and the US Virgin Islands began before the establishment of the United States.[1]
Indigenous Knowledges	Bodies of dynamic and experiential knowledges gained over time by Indigenous Peoples, often associated with a specific place. Indigenous Knowledge includes observations, oral and written knowledge, innovations, practices, rituals, and beliefs; some Indigenous Knowledge is considered sacred and secret to a group or individuals. Indigenous Knowledge is inherently heterogeneous due to the cultural and geographic contexts from which it is derived. Also known as Native Science, Traditional Knowledges, Traditional Ecological Knowledges, or Indigenous Ways of Knowing.[1]
Industrial era	The multicentury period from the onset of large-scale industrial activity around 1750 to the present day. The reference period c. 1850–1900 is used to approximate preindustrial global average surface temperature.[6] Related term: Industrial Revolution.
Industrial Revolution	A period of rapid industrial growth with far-reaching social and economic consequences, beginning in Britain during the second half of the 18th century and spreading to Europe and later to other countries, including the United States. The invention of the steam engine was an important trigger of this development. The Industrial Revolution marks the beginning of a strong increase in the use of fossil fuels, initially coal, and hence emissions of carbon dioxide.[6] Related terms: Industrial era.
Inequity	An unfair or unjust difference in the distribution, allocation, management, or use of a resource, benefit, or burden between groups of people.[1,56,57] Related terms: Equity, Injustice, Justice.
Infrastructure	The physical structures, services, and institutions (i.e., roads, electric utilities, legal systems) needed by a community, organization, or country.[5] Related terms: Green infrastructure, Built environment.
Injustice	Occurs when some benefit to which a person is entitled is denied without good reason or when some burden is imposed unduly.[58] Related terms: Equity, Inequity, Justice.
Integrated assessment model (IAM)	Models that integrate knowledge from two or more domains into a single framework. They are one of the main tools for undertaking integrated assessments. One class of IAM used in respect to climate change mitigation may include representations of multiple sectors of the economy, such as energy, land use, and land-use change; interactions between sectors; the economy as a whole; associated greenhouse gas emissions and sinks; and reduced representations of the climate system. This class of model is used to assess linkages between economic, social and technological development, and the evolution of the climate system. Another class of IAM additionally includes representations of the costs associated with climate change impacts but includes less detailed representations of economic systems. These can be used to assess impacts and mitigation in a cost–benefit framework and have been used to estimate the social cost of carbon.[6,8]
Internal (climate) variability	See Climate variability.
Inundation (hydrology)	The total water level that occurs on normally dry ground as a result of flooding. Along the coast, there are a few common sources of inundation, including abnormally high tides, storm surge, persistent onshore winds, and waves. In rivers and tidal estuaries, runoff from excessive rainfall can provide another source of inundation.[59]
Invasive species	A species that is not native to a specific location or nearby, lacks natural controls, and tends to rapidly increase in abundance, displacing native species. Invasive species may also damage the human economy or human health.[7]

Term	Definition
Irreversible (climate changes)	Changes in components of the climate system that either cannot be reversed or can only be reversed on timescales much longer than the timescale of interest.[3]
Just transition	A set of principles, processes and practices that aim to ensure that no people, workers, places, sectors, countries, or regions are left behind in the transition from a high-carbon to a low-carbon economy. It stresses the need for targeted and proactive measures from governments, agencies, and authorities to ensure that any negative social, environmental, or economic impacts of economy-wide transitions are minimized, while benefits are maximized for those disproportionately affected. Key principles of just transitions include respect and dignity for vulnerable groups, fairness in energy access and use, social dialogue and democratic consultation with relevant stakeholders, the creation of decent jobs, social protection, and rights at work. Just transitions could include fairness in energy, land use, and climate planning and decision-making processes; economic diversification based on low-carbon investments; realistic training/retraining programs that lead to decent work; gender-specific policies that promote equitable outcomes; the fostering of international cooperation and coordinated multilateral actions; and the eradication of poverty. Lastly, just transitions may embody the redressing of past harms and perceived injustices.[8] Related term: Climate justice.
Justice	The moral or legal principles of fairness and equity in the way people are treated, often based on the ethics and values of society.[7] Related term: Equity. **Climate justice:** Justice that links development and human rights to achieve a human-centered approach to addressing climate change, safeguarding the rights of the most vulnerable people, and sharing the burdens and benefits of climate change and its impacts equitably and fairly.[7] Related term: Just transition. **Distributional justice:** Allocating resources and opportunities, including access to information, so that no single group or set of individuals receives disproportionate benefits or burdens (Chs. 1, 20).[1] **Environmental justice:** The just treatment and meaningful involvement of all people regardless of income, race, color, national origin, Tribal affiliation, or disability with respect to the development, implementation, and enforcement of environmental decision-making, laws, regulations, policies, and other related activities.[1,2,60] Related term: Environmental injustice. **Procedural justice:** Ensuring that the people interested in and affected by outcomes of decision-making processes are fairly and meaningfully engaged and included (Chs. 1, 20).[1] **Recognitional justice:** Acknowledging that certain people have borne disparate burdens related to current and historical social injustices and thus may have different needs (Chs. 1, 20).[1] **Social justice:** Just or fair relations within society that seek to address the distribution of wealth, access to resources, opportunity, and support according to principles of justice and fairness.[7]
La Niña	See El Niño–Southern Oscillation.
Land cover	The physical characteristics of the land surface such as crops, trees, or concrete.[2] Related term: Land use.
Land use	Describes the human use of land. It represents the economic and cultural activities (e.g., agricultural, residential, industrial, mining, and recreational uses) that are practiced at a given place. Land use differs from land cover in that some uses are not always physically obvious.[61] Related term: Land cover.
Landslide	The movement of a mass of rock, debris, or earth down a slope.[62] Related term: Debris flow.

Term	Definition
Leakage	Can refer to leakage of methane or other gases during drilling and storage and during transfers through pipelines. Leakage also can refer to the situation in which a carbon sequestration activity (e.g., tree planting or avoided deforestation) on one piece of land inadvertently, directly, or indirectly triggers an activity that in whole or in part counteracts the carbon effects of the initial activity.[2]
Maladaptation (climate)	Occurs when actions are taken that may lead to increased risk of adverse climate-related outcomes, including via increased greenhouse gas emissions, increased or shifted vulnerability to climate change, more inequitable outcomes, or diminished welfare, now or in the future. Most often, maladaptation is an unintended consequence.[7]
Managed retreat	See Planned relocation.
Marginalized population / Marginalized community	Community excluded from mainstream social, economic, educational, and/or cultural life. Examples of marginalized populations include, but are not limited to, groups excluded due to race, gender identity, sexual orientation, age, physical ability, language, and/or immigration status.[1,63] Related terms: Overburdened community, Underrepresented community.
Mariculture	Generally, aquaculture is the production of aquatic organisms under controlled conditions throughout part or all their life cycle. Mariculture (short for marine aquaculture) refers specifically to the culturing of oceanic species (as opposed to freshwater species).[14,64] Related term: Aquaculture.
Marine heatwave	A period during which water temperature is abnormally warm for the time of the year relative to historical temperatures, with that extreme warmth persisting for days to months. The phenomenon can manifest in any place in the ocean and at scales of up to thousands of kilometers.[8]
Meteorological	Referring to the atmosphere and its phenomena, particularly weather and weather forecasting.[5]
Methane (CH_4)	A greenhouse gas that is the major component of natural gas and is associated with all hydrocarbon fuels. Significant anthropogenic emissions of CH_4 also occur as a result of animal husbandry and paddy rice production. CH_4 is also produced naturally where organic matter decays under anaerobic conditions, such as in wetlands.[8]
Microgrid	A group of interconnected energy-consuming devices and equipment (e.g., homes, businesses, or industrial facilities) and distributed energy resources within clearly defined electrical boundaries that act as a single controllable entity with respect to the utility grid. These microgrids generally operate while connected to the utility grid but can disconnect from the conventional utility grid and operate autonomously to meet anticipated or potential utility outages. A microgrid typically consists of a smart distribution network limited to a well-defined boundary, a load management system, distributed energy resources, and storage solutions. Distributed energy resources generate power in the form of solar panels, wind turbines, engine generators, or other power generation sources.[65]
Migration (human)	Movement of a person or a group of persons either across an international border or within a nation. It is a population movement encompassing any kind of movement of people, whatever its length, composition, and causes; it includes migration of refugees, displaced persons, economic migrants, and persons moving for other purposes, including family reunification.[7]

Term	Definition
Mitigation	**Climate mitigation:** Measures to reduce the amount and rate of future climate change by reducing emissions of heat-trapping gases or removing carbon dioxide from the atmosphere.[2] **Hazard mitigation:** Any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards.[66]
Monsoon	A shift in winds that often causes a very rainy season or a very dry season. Although monsoons are usually associated with parts of Asia, they can happen in many tropical and subtropical regions—including several locations in the United States.[67] **North American Monsoon:** A regional-scale atmospheric circulation system with increases in summer precipitation over northwestern Mexico and the southwestern United States. The monsoonal characteristics of the region include a pronounced annual maximum of precipitation in boreal summer (June–July–August) accompanied by a surface low-pressure system and an upper-level anticyclone, although seasonal reversal of the surface winds is primarily limited to the northern Gulf of California.[6]
Morbidity	A disease or condition that reduces health and quality of life.[5]
Natural variability (climate)	Climatic fluctuations that occur without any human influence; that is, internal variability combined with the response to external natural factors such as volcanic eruptions, changes in solar activity, and, on longer timescales, orbital effects and plate tectonics.[6] Related term: Climate variability.
Nature-based solutions (NBSs)	Actions to protect, sustainably manage, and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.[8] Related term: Green infrastructure.
Negative feedbacks	See Climate feedback.
Net-zero CO_2 emissions	Condition in which anthropogenic carbon dioxide (CO_2) emissions are balanced by anthropogenic CO_2 removals over a specified period.[6]
Net-zero greenhouse gas emissions	Condition in which metric-weighted anthropogenic greenhouse gas (GHG) emissions are balanced by metric-weighted anthropogenic GHG removals over a specified period. The quantification of net-zero GHG emissions depends on the GHG emissions metric chosen to compare emissions and removals of different gases, as well as the time horizon chosen for that metric.[6]
Nitrous oxide (N_2O)	The main anthropogenic source of N_2O, a greenhouse gas, is agriculture (soil and animal manure management), but important contributions also come from sewage treatment, fossil fuel combustion, and chemical industrial processes. N_2O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests.[6]
North Atlantic Oscillation (NAO)	The leading mode of large-scale atmospheric variability in the North Atlantic basin characterized by alternating (see-saw) variations in sea level pressure or geopotential height between the Azores High in the subtropics and the Icelandic Low in the mid- to high latitudes, with some northward extension deep into the Arctic.[8]
Nutrients (ecological)	Chemicals such as nitrogen and phosphorous that plants and animals need to live and grow. At high concentrations, particularly in water, nutrients can become pollutants.[2,5] Related term: Harmful algal bloom.

Term	Definition
Overburdened community	Population or geographic location in the United States that experiences disproportionate environmental and climatic harms and risks. This disproportionality can be a result of greater vulnerability to environmental hazards, lack of opportunity for public participation, or other factors. Increased vulnerability may be attributable to an accumulation of negative or lack of positive environmental, health, economic, or social conditions within these populations or places. The term describes situations where multiple factors, including both environmental and socioeconomic stressors, may act cumulatively to affect health and the environment and contribute to persistent environmental health disparities.[9,68] Related terms: Marginalized community, Underrepresented community, Underserved community.
Ozone (O_3)	The triatomic form of oxygen and a gaseous atmospheric constituent. In the troposphere, O_3 is created both naturally and by photochemical reactions involving gases resulting from human activities. Tropospheric O_3 acts as a greenhouse gas. O_3 in the upper atmosphere protects Earth from harmful levels of ultraviolet radiation from the sun. In near-surface air, O_3 is an air pollutant with harmful effects on human health.[2,6]
Pacific Decadal Oscillation (PDO)	A long-term ocean fluctuation of the Pacific Ocean. The PDO waxes and wanes approximately every 20 to 30 years. From ocean surface topography data, together with other ocean and atmospheric data, scientists can determine whether we are in a "cool" phase or a "warm" phase. The cool phase is characterized by a cool wedge of lower-than-normal sea surface heights and ocean temperatures in the eastern equatorial Pacific and a warm horseshoe pattern of higher-than-normal sea surface heights connecting the north, west and southern Pacific. In the warm, or "positive," phase, the west Pacific Ocean becomes cool, and the wedge in the east warms.[69]
Paleoclimate	Climate during periods prior to the development of measuring instruments, including historic and geologic time, for which only proxy climate records are available.[6]
Paris Agreement	An international climate agreement adopted in 2015 with the central aim to hold global temperature rise in this century to well below 2°C above preindustrial levels and to pursue efforts to limit the temperature increase even further to 1.5°C. Under this agreement, all parties agreed to put forward emissions-reduction targets and to strengthen those efforts in the years ahead, as the agreement is assessed every five years. Each country's proposed mitigation target (the "intended nationally determined contribution") becomes an official "nationally determined contribution" when the country ratifies the agreement. Parties also agreed to adaptation efforts and finance mechanisms to support low greenhouse gas emissions and climate-resilient development.[3,70]
Particulate matter (e.g., $PM_{2.5}$ and PM_{10})	A term for atmospheric aerosols often used when discussing surface air quality. Of greatest concern for health are particles of aerodynamic diameter less than or equal to 10 micrometers, usually designated as PM_{10}, and less than or equal to 2.5 micrometers, usually designated as $PM_{2.5}$.[8] Related term: Aerosols.
Pathogen	Microorganisms (e.g., bacteria) or viruses that cause disease.[2]
Peatlands	Peatlands are wetland ecosystems where soils are dominated by peat. In peatlands, net primary production exceeds organic matter decomposition as a result of waterlogged conditions, which leads to the accumulation of peat.[7] Related term: Soil organic matter.
Permafrost	Ground (soil or rock and included ice and organic material) that remains at or below 32°F (0°C) for at least two consecutive years.[7]
pH	A dimensionless measure of the acidity of water (or any solution) given by its concentration of hydrogen ions (H+). pH is measured on a logarithmic scale where pH = −log10(H+), where the concentration of hydrogen ions is measured in units of moles per liter. Thus, a pH decrease of 1 unit corresponds to a 10-fold increase in the concentration of H+, or acidity; a decrease of units corresponds to alkalinity; and 7 is a neutral reference point.[2]

Term	Definition
Phenology	The pattern of seasonal life-cycle events in plants and animals, such as timing of blooming, hibernation, and migration.[2]
Photosynthesis	The process by which green plants, algae, and other organisms use sunlight to synthesize energy from carbon dioxide and water. Photosynthesis in plants generally involves the green pigment chlorophyll, consumes carbon dioxide and water, and generates oxygen as a by-product.[2]
Photovoltaic (PV; solar)	A system that converts sunlight directly into electricity using cells made of silicon or other conductive materials. When sunlight hits the cells, a chemical reaction occurs, resulting in the release of electricity.[71] Related term: Renewable energy.
Phytoplankton	Microscopic algae or other microorganisms that live in saltwater and freshwater environments.[2]
Planned relocation	In human systems, a form of mobility in response to direct climate impacts and/or indirect economic costs of estimated and projected climate impacts. Planned relocation, also referred to as managed retreat, is typically initiated, supervised, and/or implemented by public, private, and civic stakeholders and involves small communities and individual assets but may also involve large populations.[1,8]
Positive feedbacks	See Climate feedback.
Post-traumatic stress disorder (PTSD)	A mental health problem that can occur after war, assault, accident, natural disaster, or other trauma.[5] Related term: Trauma.
Potential evapotranspiration (PET)	The potential rate of water loss from wet soils and from plant surfaces, without any limits imposed by the water supply.[6] Related term: Evapotranspiration.
Precursor emissions (biogeochemistry)	As it refers to climate change, emissions of atmospheric compounds that are not greenhouse gases (GHGs) or aerosols but that have an effect on GHG or aerosol concentrations by taking part in physical or chemical processes regulating their production or destruction rates.[6] Related term: Air pollution.
Premature death	Death that occurs earlier than a specified age, often the average life expectancy at birth.[5]
Prescribed fire	The controlled application of fire by a team of fire experts under specified weather conditions to meet management objectives. Sometimes called a controlled burn or prescribed burn.[72,73] Related terms: Cultural burning, Wildfire.
Primary productivity	The synthesis of organic compounds by plants and microbes, on land or in the ocean, primarily by photosynthesis using light and carbon dioxide as sources of energy and carbon, respectively. It can also occur through chemosynthesis, using chemical energy, for example, in deep sea vents.[6]
Proxy (data)	Indirect measurement of climate aspects. Examples of proxy data are biological or physical records from ice cores, tree rings, and soil boreholes.[2]

Term	Definition
Radiative forcing	The change in the net (downward minus upward) radiative flux (expressed in watts per square meter) at the tropopause or at the top of atmosphere due to a change in an external driver of climate change, such as a change in the concentration of carbon dioxide or in the output of the sun. Sometimes, internal drivers are still treated as forcings even though they result from the alteration in climate, for example, aerosol or greenhouse gas changes in paleoclimates. The traditional radiative forcing is computed with all tropospheric properties held fixed at their unperturbed values and after allowing for stratospheric temperatures, if perturbed, to readjust to radiative-dynamical equilibrium. Radiative forcing is instantaneous if no change in stratospheric temperature is accounted for. The radiative forcing once rapid adjustments are accounted for is the effective radiative forcing.[3]
Redlining	A practice in which lenders avoid providing services to individuals living in communities of color because of the race or national origin of the people who live in those communities. Redlining is now prohibited by the Fair Housing Act and the Equal Credit Opportunity Act.[74]
Reforestation	The process of establishing a new forest by planting or seeding trees in an area where trees have previously been removed.[2] Related terms: Afforestation, Deforestation.
Relative humidity	The ratio of actual water vapor pressure to that at saturation with respect to liquid water or ice at the same temperature.[6]
Relative sea level	The height of the sea surface, measured with respect to the height of the land at a particular location. Relative sea level changes in response to both changes in the height of the sea surface and changes in the height of the underlying land.[3,75]
Remote sensing	The process of detecting and monitoring the physical characteristics of an area by measuring its reflected and emitted radiation at a distance (typically from satellite or aircraft).[76]
Remotely sensed data	Data obtained via remote sensing.
Renewable energy	Any form of energy that is replenished by natural processes at a rate that equals or exceeds its rate of use.[8]
Representative Concentration Pathways (RCPs)	Scenarios that include time series of emissions and concentrations of the full suite of greenhouse gases and aerosols and chemically active gases, as well as land use and land cover. The word "representative" signifies that each RCP provides only one of many possible scenarios that would lead to the specific radiative forcing characteristics. The term "pathway" emphasizes that not only the long-term concentration levels are of interest but also the trajectory taken over time to reach that outcome. RCPs usually refer to the portion of the concentration pathway extending up to 2100, for which integrated assessment models produced corresponding emissions scenarios. Extended concentration pathways describe extensions of the RCPs from 2100 to 2300 that were calculated using simple rules generated by stakeholder consultations and do not represent fully consistent scenarios.[6] Related terms: Radiative forcing, Scenario.

Term	Definition
Resilience	The ability to prepare for threats and hazards, adapt to changing conditions, and withstand and recover rapidly from adverse conditions and disruptions.[1] **Climate resilience:** The capacity of interconnected social, economic, and ecological systems to cope with a climate change event, trend, or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure. Climate resilience is a subset of resilience against climate-induced or climate-related impacts.[1,7] Related terms: Hazard, Risk, Vulnerability. **Community resilience:** The ability of communities to withstand and recover and learn from past cumulative or compounding disasters to strengthen future response and recovery efforts. This can include, but is not limited to, physical and psychological health of the population, social and economic equity and well-being of the community, effective risk communication, integration of organizations (governmental and nongovernmental) in planning, response, and recovery.[77] **Ecological resilience:** The capacity of natural systems subject to instability to absorb disturbances without shifting to a fundamentally different ecosystem domain.[1,78,79]
Respiration (biogeochemistry)	Metabolic pathways that break down complex molecules to release chemically stored energy for maintenance, growth, and reproduction, resulting in the release of waste products such as carbon dioxide, nitrous oxide, or methane.[2]
Riparian	Riparian zones, or areas, are lands that occur along the edges of rivers, streams, lakes, and other water bodies. Examples include streambanks, riverbanks, and floodplains.[80]
Risk	Threats to life, health, and safety, the environment, economic well-being, and other things of value. Risks are evaluated in terms of how likely they are to occur (probability) and the damages that would result if they did happen (consequences).[2,5] **Transition risk:** A risk associated with uncertain impacts, including financial and economic, that could result from a transition to a net-zero emissions economy.[81] Related term: Net-zero CO_2 emissions
Risk assessment	Studies that estimate the likelihood of specific sets of events occurring and their potential positive or negative consequences.[5]
Risk perception	The psychological and emotional factors that affect people's behavior and beliefs about potential negative hazards or consequences.[5]
Riverine	Includes all wetlands and deepwater habitats contained within a channel—except for wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, or habitats with water containing ocean-derived salts of 0.5 parts per trillion or greater.[82]
Runoff	The flow of water over the surface or through the subsurface, which typically originates from the part of liquid precipitation and/or snow/ice melt that does not evaporate, transpire, or refreeze and returns to water bodies.[7]
Saltwater intrusion	Displacement of fresh surface water or groundwater by the advance of salt water due to its greater density. This usually occurs in coastal and estuarine areas due to decreasing land-based influence (e.g., from reduced runoff or groundwater recharge or from excessive water withdrawals from aquifers) or increasing marine influence (e.g., relative sea level rise).[7]

Term	Definition
Scenario	A plausible description of how the future may develop based on a coherent and internally consistent set of assumptions about key driving forces (e.g., rate of technological change, prices) and relationships. Note that scenarios are neither predictions nor forecasts but are used to provide a view of the implications of developments and actions.[6] Related terms: Representative Concentration Pathways, Shared Socioeconomic Pathways.
Sea level change	See Sea level rise.
Sea level rise	Increase to the height of sea level, both globally and locally (relative sea level change) due to a change in ocean volume as a result of a change in the mass of water in the ocean (e.g., due to melt of glaciers and ice sheets), changes in ocean volume as a result of changes in ocean water density (e.g., expansion under warmer conditions), changes in the shape of the ocean basins, and changes in Earth's gravitational and rotational fields, as well as local subsidence or uplift of the land. Sea level change refers to sea level rise or sea level fall.[7]
Sexual and gender minority (SGM)	SGM populations include, but are not limited to, individuals who identify as lesbian, gay, bisexual, asexual, transgender, Two-Spirit, queer, and/or intersex (i.e., LGBTQI+). It is an umbrella term that refers to all people who are minorities based on their sexual orientation, gender identity and/or expression, and/or sex characteristics. LGBTQI+ people are SGM: lesbian, gay, and bisexual people are minorities based on their sexual orientation; transgender people are minorities based on their gender identity and/or expression; and intersex people are minorities based on their sex characteristics.[83,84]
Shared Socioeconomic Pathways (SSPs)	A basis for emissions and socioeconomic scenarios, an SSP is one of a collection of pathways that describe alternative futures of socioeconomic development in the absence of climate policy intervention. The combination of SSP-based socioeconomic scenarios and Representative Concentration Pathway–based climate projections can provide a useful integrative frame for climate impact and policy analysis.[3] Related term: Scenario.
Sink	Any process, activity, or mechanism that removes a greenhouse gas, an aerosol, or a precursor of a greenhouse gas from the atmosphere.[8] Related terms: Carbon sequestration, Carbon sink.
Snow water equivalent (SWE)	The depth of liquid water that would result if a mass of snow melted completely.[3] Related term: Snowpack.
Snowpack	Snow that accumulates over winter and slowly melts to release water in spring and summer.[2] Related term: Snow water equivalent.
Social determinants of health	The conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks. Social determinants of health can be grouped into five domains: economic stability, education access and quality, healthcare access and quality, neighborhood and built environment, and social and community context.[85]
Socioeconomic	Referring to a combination of social and economic factors, such as the education, income, and work status of individuals or communities.[5]
Soil carbon	The carbon content of soils, which can be from organic or inorganic sources. Related terms: Soil organic carbon, Soil organic matter.[1]
Soil organic carbon	The organic carbon content of soil organic matter. Soil organic matter and soil organic carbon in soil result from an imbalance between the supply of raw materials, such as plant, microbial, and animal parts and the decay of those materials by the soil microbial community and other biogeochemical processes.[2] Related term: Soil organic matter.

Term	Definition
Soil organic matter	Organic material (e.g., carbon and other elements such as nitrogen) in soils. Soil organic matter results from an imbalance between the supply of raw materials such as plant, microbial, and animal parts and the decay of those materials by the soil microbial community. Soil organic matter forms the basis of life on Earth, enabling persistence and growth of the entire biosphere and can be considered in terms of its carbon content (e.g., soil organic carbon).[2] Related term: Soil organic carbon.
Special Report on Emissions Scenarios (SRES)	A set of emissions scenarios from the Intergovernmental Panel on Climate Change Special Report on Emissions Scenarios, released in 2000, that describe a wide range of potential future socioeconomic conditions and resulting emissions.[5] Related term: Scenario.
Stakeholder	An individual or group that is directly or indirectly affected by or interested in the outcomes of decisions.[2]
Statistical downscaling	See Downscaling.
Storm surge	The temporary increase, at a particular locality, in the height of the sea due to extreme meteorological conditions (low atmospheric pressure and/or strong winds). The storm surge is defined as being the excess above the level expected from the tidal variation alone at that time and place.[2]
Stressor	A factor that negatively affects people and natural, managed, and socioeconomic systems. Multiple stressors can have compounded effects, such as when economic or market stress combines with drought to negatively impact farmers.[2]
Subsidence	Sinking of the ground because of underground material movement. Subsidence is most often caused by the removal of water, oil, natural gas, or mineral resources out of the ground by pumping, fracking, or mining activities. Subsidence can also be caused by natural events such as earthquakes, soil compaction, glacial isostatic adjustment, erosion, sinkhole formation, and the addition of water to fine soils deposited by wind.[86] Related term: Permafrost.
Subsistence	Taken broadly, refers to any human system that seeks to secure survival and flourish within particular ecosystems. In some legal and policy contexts, the term may be used more narrowly to refer to the provision of food that is a necessary part of a household's or a community's regular diet or to legal entitlements to harvesting rights in particular situations. In some contexts, subsistence means the harvest or use of naturally produced renewable resources for direct personal or family consumption, such as food, shelter, fuel, clothing, tools, or transportation, or for production of handicrafts for customary and traditional trade, barter, or sharing.[23] Related term: Food sovereignty.
Surveillance (health)	The collection, analysis, interpretation, and dissemination of health data.[5] Related term: Health system / Healthcare system.
Sustainable development	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs and that balances social, economic, and environmental concerns.[7]
Thermokarst	Characteristic landforms that result from the thawing of ice-rich permafrost or the melting of massive ground ice.[2]
Threshold	The value of a parameter summarizing a system, or a process affecting a system, at which a qualitatively different system behavior emerges. Beyond this value, the system may not conform to statistical relationships that described it previously. For example, beyond a threshold level of ocean acidification, wide-scale collapse of coral ecosystems may occur.[2] Related term: Tipping point.

Term	Definition
Tipping point	The point at which a change in the climate triggers a significant environmental event, which may be permanent, such as widespread bleaching of corals or the melting of very large ice sheets.[2] Related term: Threshold.
Transpiration (biogeochemistry)	The evaporation of water through plant leaves.[2]
Trauma	An adverse physical or psychological state caused by physical injury or mental stress.[5]
Tundra	A type of biome common to extreme northern and southern latitudes where tree growth is inhibited by low temperatures and short growing seasons.[2]
Turbidity (hydrology)	A measure of the level of particles such as sediment, plankton, or organic by-products in a body of water. As the turbidity of water increases, it becomes denser and less clear due to a higher concentration of these light-blocking particles.[87]
Uncertainty (statistical)	An expression of the degree to which a quantity or process is unknown. In statistics, a term used to describe the range of possible values around a best estimate, sometimes expressed in terms of probability or likelihood. Uncertainty about the future climate arises from the complexity of the climate system and the ability of models to represent it, as well as the inability to predict the decisions that society will make. There also is uncertainty about how climate change, in combination with other stressors, will affect people and natural systems.[2]
Underrepresented community	A community that has limited or no access to resources, is not well represented or meaningly involved in decision-making, or is otherwise disenfranchised. These communities may include people who are socioeconomically disadvantaged, people with limited English proficiency, geographically isolated or educationally disenfranchised people, people of color as well as ethnic and national-origin minorities, women and children, individuals with disabilities and others with access and functional needs, and seniors.[1,88] Related term: Underserved community.
Under-resourced community	See Underserved community.
Underserved community	A community that, due to continuous systemic discrimination, under- or disinvestments, and limited access to efficient, healthy, and affordable services and infrastructure, experiences disproportionate environmental and climatic harms and risks and lacks access to adequate resources to mitigate, respond to, and recover from impacts. Increased vulnerability may be attributable to harmful environmental, health, economic, or social conditions—or to a lack of support for positive conditions—within these populations or places. The term describes situations where disproportionate vulnerability is often due to discrimination based on geography; access to authority or representation in governance; or social identities, including race, ethnicity, gender, culture, economic status, or ability.[1,89,90]
Unhoused	US Code defines a person or persons experiencing homelessness (i.e., an unhoused person or people) as an individual or family who lack(s) a fixed, regular, and adequate nighttime residence, such as those living in emergency shelters, transitional housing, or places not meant for habitation.[91] Related term: Unsheltered.
United Nations Framework Convention on Climate Change (UNFCCC)	An international environmental treaty adopted on May 9, 1992, and ratified on March 21, 1994. The objective of the UNFCCC is to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.[2]

Term	Definition
Unsheltered	An *unsheltered* unhoused person (i.e., a person experiencing homelessness) resides in a place not meant for human habitation, such as cars, parks, sidewalks, or abandoned buildings. A *sheltered* unhoused person resides in an emergency shelter or in transitional housing or supportive housing for unhoused persons who originally came from a place not meant for human habitation or emergency shelters.[92] Related term: Unhoused.
Urban heat island effect	The tendency for higher air temperatures to persist in urban areas because of heat absorbed and emitted by buildings and asphalt, tending to make cities warmer than the surrounding countryside.[2]
Urban infrastructure	See Infrastructure and Built environment.
Vapor pressure deficit (VPD)	The difference between how much moisture is in the air and the amount of moisture in the air at saturation (i.e., at 100% relative humidity) (Ch. 21 of NCA4).[4] Related term: Water vapor.
Vector (disease)	An organism, such as an insect, that transmits disease-causing microorganisms such as viruses or bacteria. Vector-borne diseases include, for example, malaria, Lyme disease, Zika, and chikungunya.[1,2] Related term: Zoonotic disease.
Volatile organic compounds (VOCs)	An important class of organic chemical air pollutants that evaporate readily at ambient air conditions. Other terms used to represent VOCs are hydrocarbons, reactive organic gases, and non-methane volatile organic compounds (NMVOCs). NMVOCs are major contributors—together with nitrogen oxides and carbon monoxide—to the formation of photochemical oxidants such as ozone.[6] Related terms: Precursor emissions, Air pollution.
Vulnerability (climate)	The degree to which physical, biological, and socioeconomic systems are susceptible to and unable to cope with adverse impacts of climate change.[2]
Vulnerable community	Communities of people who face disproportionate and unequal risks from projected and realized climate change impacts and who are least able to anticipate, cope with, and recover from these adverse impacts. Socioeconomic factors may include, but are not limited to, income, educational attainment, race and ethnicity, and age.[1,89] Related terms: Frontline community, Overburdened community.
Water cycle	The cycle in which water evaporates from the ocean and the land surface, is carried over the Earth in atmospheric circulation as water vapor, condenses to form clouds, precipitates over the ocean and land as rain or snow—which on land can be intercepted by trees and vegetation, potentially accumulating as snow or ice—provides runoff on the land surface, infiltrates into soils, recharges groundwater, discharges into streams, and ultimately flows into the oceans as rivers, polar glaciers, and ice sheets, from which it will eventually evaporate again. The various systems involved in the water cycle are usually referred to as hydrological systems.[6]
Water quality	Water quality can be thought of as a measure of the suitability of water for a particular use, such as for drinking water or supporting aquatic organisms and ecosystems, based on selected physical, chemical, and biological characteristics.[93,94]
Water stress	Water stress occurs when demand for water by people and ecosystems exceeds available supply.[2]
Water vapor	Water in the atmosphere in its vapor (gaseous) form. This gas absorbs and emits infrared radiation, which traps heat energy near Earth's surface.[95]
Watershed	An area of land that drains water to a particular stream, river, lake, bay, or ocean.[5]

Term	Definition
Weather	The state of the atmosphere, mainly with respect to its effects on life and human activities. As distinguished from climate, weather consists of short-term (minutes to days) variations in the atmosphere. Popularly, weather is thought of in terms of temperature, humidity, precipitation, cloudiness, visibility, and wind.[15] Related term: Climate.
Well-being (human)	A state of existence that fulfills various human needs, including material living conditions and quality of life, as well as the ability to pursue one's goals, to thrive, and to feel satisfied with one's life.[7]
Wetlands	Soils that are inundated or saturated by water at a frequency and duration sufficient to support—and that do support under normal circumstances—a prevalence of vegetation typically adapted for life in saturated conditions. Tidal wetlands are influenced by ocean tides and may be saturated with salt water or fresh water. Terrestrial wetlands are nontidal and are saturated with fresh water.[2]
Wildfire	A wildland fire originating from an unplanned ignition, such as lightning, volcanos, unauthorized and accidental human-caused fires, and prescribed fires that are declared wildfires.[96] Related terms: Wildfire intensity, Wildfire severity.
Wildfire intensity	The product of the available heat of combustion per unit of ground and the rate of spread of the fire, interpreted as the heat released per unit of time for each unit length of fire edge.[96] Related terms: Wildfire, Wildfire severity.
Wildfire severity	The effect that wildfire has on vegetation, soils, buildings, watersheds, and similar physical features of the landscape.[97] Related terms: Wildfire, Wildfire intensity.
Wildland–urban interface (WUI)	The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetation.[96]
Woody encroachment (woody plants and shrubs)	Refers to woody plants increasing in abundance or dominance in grasslands or other non-forested ecosystems.[2]
Zoonotic disease	A disease that can spread to people from other vertebrate animals. Examples of zoonotic diseases include Lyme disease, West Nile virus infection, Rocky Mountain spotted fever, and rabies.[5] Related term: Vector.

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