

## Climate Impact Assessment

Ablation refers to the process of ice or snow melting or sublimating, which is an essential concept in Climate Impact Assessment. Related terms include accumulation, calving, and glacier retreat. Ablation is a critical factor in understanding the impact of climate change on water resources, as it affects the availability of freshwater and the global sea level. For instance, the ablation of glaciers in the Himalayas has significant implications for the water supply in India and other downstream countries.

Absolute Humidity is the total amount of water vapor present in a given volume of air, usually expressed in terms of grams per cubic meter. Related terms include relative humidity, specific humidity, and saturation vapor pressure. Absolute humidity is an important parameter in Climate Impact Assessment, as it helps to understand the atmospheric conditions that lead to precipitation and other weather phenomena. For example, high absolute humidity can lead to heavy rainfall and flooding, while low absolute humidity can result in droughts and water scarcity.

Adaptation refers to the process of adjusting to climate change by modifying human systems, such as infrastructure, agriculture, and water management, to reduce the risks and impacts associated with climate change. Related terms include mitigation, resilience, and vulnerability. Adaptation is a critical concept in Climate Impact Assessment, as it helps to identify the most effective strategies for reducing the impacts of climate change on water resources and other sectors. For instance, adapting to sea-level rise by building sea walls and levees can help to protect coastal communities and prevent inundation.

Aerial Photography is the use of aircraft or satellites to capture images of the Earth's surface, which can be used to monitor and assess climate-related changes, such as deforestation, glacier retreat, and coastal erosion. Related terms include remote sensing, photogrammetry, and geographic information systems. Aerial photography is a valuable tool in Climate Impact Assessment, as it provides a visual record of changes over time and helps to identify areas of high conservation value. For example, aerial photography can be used to monitor the extent of glacier retreat in the Arctic and Antarctic regions.

Agricultural Water Management refers to the practices and techniques used to manage water resources in agriculture, such as irrigation, drainage, and water conservation. Related terms include crop water requirements, water productivity, and irrigation scheduling. Agricultural water management is a critical aspect of Climate Impact Assessment, as it helps to identify the impacts of climate change on agricultural productivity and water resources. For instance, changing precipitation patterns and increased evapotranspiration can affect crop yields and water availability, requiring adjustments to agricultural water management practices.

Air Quality refers to the quality of the air we breathe, which can be affected by climate change through changes in temperature, humidity, and atmospheric circulation. Related terms include air pollution, ozone depletion, and particulate matter. Air quality is an important consideration in Climate Impact Assessment, as

it can have significant health impacts on human populations and ecosystems. For example, poor air quality can exacerbate respiratory problems, such as asthma, and increase the risk of cardiovascular disease.

Albedo refers to the reflectivity of the Earth's surface, which can affect the amount of solar radiation that is absorbed or reflected. Related terms include solar irradiance, surface energy balance, and climate feedback. Albedo is a critical concept in Climate Impact Assessment, as it helps to understand the energy balance of the Earth's surface and the impacts of climate change on the atmosphere and hydrosphere. For instance, changes in land use and land cover can alter the albedo of the Earth's surface, affecting the global energy balance and climate.

Aquatic Ecosystems refer to the freshwater and marine ecosystems that support a wide range of plant and animal species, which can be affected by climate change through changes in water temperature, water quality, and sea level. Related terms include biodiversity, ecosystem services, and conservation biology. Aquatic ecosystems are a critical component of Climate Impact Assessment, as they provide essential ecosystem services, such as water filtration, shoreline stabilization, and food production. For example, coral reefs provide important habitat for marine species and protect coastal communities from storm surges and erosion.

Aquifer refers to a layer of permeable rock or soil that can store and transmit large amounts of water, which can be affected by climate change through changes in recharge rates and water quality. Related terms include groundwater, water table, and aquifer depletion. Aquifers are a critical component of Climate Impact Assessment, as they provide a vital source of freshwater for human consumption, agriculture, and industry. For instance, changes in precipitation patterns and evapotranspiration can affect the recharge of aquifers, leading to depletion and land subsidence.

Atmospheric Circulation refers to the movement of air in the atmosphere, which can be affected by climate change through changes in temperature, humidity, and atmospheric pressure. Related terms include wind patterns, precipitation patterns, and climate variability. Atmospheric circulation is a critical concept in Climate Impact Assessment, as it helps to understand the global distribution of heat and moisture and the impacts of climate change on weather patterns and climate extremes. For example, changes in atmospheric circulation can lead to more frequent and intense heatwaves, droughts, and storms.

Biodiversity refers to the variety of plant and animal species that exist in an ecosystem, which can be affected by climate change through changes in temperature, precipitation, and sea level. Related terms include ecosystem services, conservation biology, and species extinction. Biodiversity is a critical component of Climate Impact Assessment, as it provides essential ecosystem services, such as pollination, pest control, and nutrient cycling. For instance, changes in climate can lead to the extinction of species that are unable to adapt to the new conditions, resulting in the loss of ecosystem services and biodiversity.

Carbon Cycle refers to the movement of carbon through the atmosphere, oceans, land, and living organisms, which can be affected by climate change through changes in carbon emissions and carbon sequestration. Related terms include carbon dioxide, greenhouse gases, and climate change mitigation. The carbon cycle is a critical concept in Climate Impact Assessment, as it helps to understand the global carbon budget and the impacts of climate change on the atmosphere and hydrosphere. For example, changes in

land use and land cover can affect the carbon sequestration potential of ecosystems, such as forests and grasslands.

Catchment refers to an area of land that drains water into a river, lake, or ocean, which can be affected by climate change through changes in precipitation patterns, evapotranspiration, and water quality. Related terms include watershed, drainage basin, and hydrologic cycle. Catchments are a critical component of Climate Impact Assessment, as they provide a vital source of freshwater for human consumption, agriculture, and industry. For instance, changes in precipitation patterns and evapotranspiration can affect the water yield of a catchment, leading to droughts or floods.

Climate Change refers to the long-term warming of the planet, which is primarily caused by the increase in greenhouse gases in the atmosphere, such as carbon dioxide, methane, and nitrous oxide. Related terms include global warming, climate variability, and climate extremes. Climate change is a critical concept in Climate Impact Assessment, as it helps to understand the global climate system and the impacts of climate change on the atmosphere, hydrosphere, and biosphere. For example, climate change can lead to more frequent and intense heatwaves, droughts, and storms, as well as sea-level rise and ocean acidification.

Climate Model refers to a computer simulation of the climate system, which can be used to predict future climate change and its impacts on the environment and human societies. Related terms include general circulation model, regional climate model, and climate scenario. Climate models are a critical tool in Climate Impact Assessment, as they provide a quantitative estimate of the impacts of climate change on the atmosphere, hydrosphere, and biosphere. For instance, climate models can be used to predict the probability of extreme weather events, such as heatwaves and floods, and to identify the most effective adaptation and mitigation strategies.

Climate Scenario refers to a plausible and coherent description of a possible future climate, which can be used to assess the impacts of climate change on the environment and human societies. Related terms include climate model, emission scenario, and climate projection. Climate scenarios are a critical component of Climate Impact Assessment, as they provide a framework for evaluating the impacts of climate change on the atmosphere, hydrosphere, and biosphere. For example, climate scenarios can be used to predict the probability of sea-level rise and ocean acidification and to identify the most effective adaptation and mitigation strategies.

Conservation refers to the practice of protecting and preserving the natural environment, including wildlife, ecosystems, and natural resources, which can be affected by climate change through changes in temperature, precipitation, and sea level. Related terms include sustainability, environmental management, and ecosystem services. Conservation is a critical concept in Climate Impact Assessment, as it helps to identify the most effective strategies for reducing the impacts of climate change on the environment and human societies. For instance, conserving forests and grasslands can help to sequester carbon and reduce the risk of extreme weather events.

Dam refers to a barrier constructed across a river or stream to impound water, which can be affected by climate change through changes in precipitation patterns, evapotranspiration, and water quality. Related terms include reservoir, hydroelectric power, and water storage. Dams are a critical component of Climate

Impact Assessment, as they provide a vital source of freshwater for human consumption, agriculture, and industry. For instance, changes in precipitation patterns and evapotranspiration can affect the water yield of a dam, leading to droughts or floods.

Desalination refers to the process of removing salt and other minerals from seawater or brackish water to produce freshwater, which can be affected by climate change through changes in sea level, water temperature, and water quality. Related terms include water treatment, reverse osmosis, and water purification. Desalination is a critical concept in Climate Impact Assessment, as it helps to identify the most effective strategies for reducing the impacts of climate change on water resources and human societies. For example, desalination can provide a vital source of freshwater for human consumption, agriculture, and industry in areas where water scarcity is a major concern.

Drought refers to a period of abnormally low precipitation that can lead to water scarcity and have significant impacts on the environment and human societies. Related terms include water scarcity, drought management, and climate change adaptation. Drought is a critical concept in Climate Impact Assessment, as it helps to identify the most effective strategies for reducing the impacts of climate change on water resources and human societies. For instance, drought can have significant economic and social impacts, particularly in areas where agriculture is a major sector of the economy.

Ecosystem refers to a community of living and non-living components that interact with each other in a specific environment, which can be affected by climate change through changes in temperature, precipitation, and sea level. Related terms include biodiversity, ecosystem services, and conservation biology. Ecosystems are a critical component of Climate Impact Assessment, as they provide essential ecosystem services, such as pollination, pest control, and nutrient cycling. For example, changes in climate can lead to the extinction of species that are unable to adapt to the new conditions, resulting in the loss of ecosystem services and biodiversity.

Ecosystem Services refer to the benefits that humans derive from functioning ecosystems, including pollination, pest control, nutrient cycling, and water filtration. Related terms include biodiversity, conservation biology, and environmental management. Ecosystem services are a critical component of Climate Impact Assessment, as they provide essential benefits to human societies, including food security, water security, and human health. For instance, changes in climate can lead to the degradation of ecosystem services, resulting in significant economic and social impacts.

Energy Balance refers to the balance between the amount of energy that is absorbed and emitted by the Earth's surface, which can be affected by climate change through changes in temperature, albedo, and atmospheric circulation. Related terms include surface energy balance, climate feedback, and global warming. Energy balance is a critical concept in Climate Impact Assessment, as it helps to understand the global climate system and the impacts of climate change on the atmosphere, hydrosphere, and biosphere. For example, changes in energy balance can lead to more frequent and intense heatwaves, droughts, and storms.

Evapotranspiration refers to the process by which water is transferred from the land surface to the atmosphere through evaporation and transpiration, which can be affected by climate change through

changes in temperature, humidity, and atmospheric circulation. Related terms include water balance, hydrologic cycle, and climate change adaptation. Evapotranspiration is a critical concept in Climate Impact Assessment, as it helps to identify the most effective strategies for reducing the impacts of climate change on water resources and human societies. For instance, changes in evapotranspiration can affect the water yield of a catchment, leading to droughts or floods.

Flood refers to an overflow of water that can occur when the water level in a river, lake, or ocean exceeds the capacity of the surrounding landscape, which can be affected by climate change through changes in precipitation patterns, sea level, and storm surges. Related terms include flood management, flood risk, and climate change adaptation. Floods are a critical concept in Climate Impact Assessment, as they can have significant economic and social impacts, particularly in areas where urbanization is high and flood protection is inadequate.

Geographic Information System (GIS) refers to a computer-based tool that is used to capture, store, and analyze geographic data, which can be affected by climate change through changes in land use, land cover, and environmental conditions. Related terms include remote sensing, spatial analysis, and mapping. GIS is a critical tool in Climate Impact Assessment, as it helps to identify the most effective strategies for reducing the impacts of climate change on the environment and human societies. For instance, GIS can be used to map flood-prone areas, drought-prone areas, and areas of high conservation value.

Glacier refers to a mass of ice that forms on land by the accumulation and compaction of snow over time, which can be affected by climate change through changes in temperature, precipitation, and sea level. Related terms include ice sheet, ice cap, and glacier retreat. Glaciers are a critical component of Climate Impact Assessment, as they provide a vital source of freshwater for human consumption, agriculture, and industry. For example, changes in glacier extent can affect the water yield of a catchment, leading to droughts or floods.

Greenhouse Gas refers to a gas that contributes to the greenhouse effect by absorbing and emitting radiation within the atmosphere, which can be affected by climate change through changes in emission rates and atmospheric circulation. Related terms include carbon dioxide, methane, and nitrous oxide. Greenhouse gases are a critical concept in Climate Impact Assessment, as they help to understand the global climate system and the impacts of climate change on the atmosphere, hydrosphere, and biosphere. For instance, changes in greenhouse gas emissions can lead to more frequent and intense heatwaves, droughts, and storms.

Groundwater refers to the water that is stored beneath the Earth's surface in rock and soil, which can be affected by climate change through changes in recharge rates, water quality, and land subsidence. Related terms include aquifer, water table, and groundwater management. Groundwater is a critical component of Climate Impact Assessment, as it provides a vital source of freshwater for human consumption, agriculture, and industry. For example, changes in groundwater levels can affect the water yield of a catchment, leading to droughts or floods.

Hydroelectric Power refers to the generation of electricity from the energy of moving water, which can be affected by climate change through changes in precipitation patterns, water temperature, and sea level.

Related terms include hydropower, renewable energy, and energy security. Hydroelectric power is a critical concept in Climate Impact Assessment, as it helps to identify the most effective strategies for reducing the impacts of climate change on energy security and human societies. For instance, changes in hydroelectric power generation can affect the energy mix of a country, leading to energy insecurity and economic instability.

Hydrologic Cycle refers to the continuous process by which water is circulated between the atmosphere, land, and oceans, which can be affected by climate change through changes in precipitation patterns, evapotranspiration, and sea level. Related terms include water balance, catchment, and flood risk. The hydrologic cycle is a critical concept in Climate Impact Assessment, as it helps to understand the global water system and the impacts of climate change on water resources and human societies. For example, changes in the hydrologic cycle can lead to more frequent and intense floods, droughts, and storms.

Ice Sheet refers to a mass of ice that covers a large area of land, which can be affected by climate change through changes in temperature, precipitation, and sea level. Related terms include glacier, ice cap, and ice sheet melting. Ice sheets are a critical component of Climate Impact Assessment, as they provide a vital source of freshwater for human consumption, agriculture, and industry. For instance, changes in ice sheet extent can affect the water yield of a catchment, leading to droughts or floods.

Impervious Surface refers to a surface that does not allow water to penetrate, such as asphalt or concrete, which can be affected by climate change through changes in precipitation patterns, sea level, and storm surges. Related terms include urbanization, flood risk, and stormwater management. Impervious surfaces are a critical concept in Climate Impact Assessment, as they can increase the risk of floods and stormwater pollution, particularly in areas with high urbanization and inadequate stormwater infrastructure.

Infiltration refers to the process by which water enters the soil and becomes groundwater, which can be affected by climate change through changes in precipitation patterns, soil moisture, and land use. Related terms include percolation, recharge, and groundwater management. Infiltration is a critical concept in Climate Impact Assessment, as it helps to identify the most effective strategies for reducing the impacts of climate change on water resources and human societies. For instance, changes in infiltration rates can affect the water yield of a catchment, leading to droughts or floods.

Intergovernmental Panel on Climate Change (IPCC) refers to the leading international body for the assessment of climate change, which provides scientific information and guidance to policymakers on the impacts of climate change and the most effective strategies for reducing those impacts. Related terms include climate change, global warming, and sustainable development. The IPCC is a critical component of Climate Impact Assessment, as it provides a comprehensive and authoritative assessment of the impacts of climate change on the environment and human societies. For example, the IPCC reports provide a framework for evaluating the impacts of climate change on water resources, energy security, and human health.

Irrigation refers to the application of water to land or crops to support agriculture and horticulture, which can be affected by climate change through changes in precipitation patterns, water temperature, and sea level. Related terms include agricultural water management, water conservation, and crop water

requirements. Irrigation is a critical concept in Climate Impact Assessment, as it helps to identify the most effective strategies for reducing the impacts of climate change on agriculture and food security. For instance, changes in irrigation practices can affect the water yield of a catchment, leading to droughts or floods.

Land Degradation refers to the decline in the quality of land due to human activities, such as deforestation, overgrazing, and soil erosion, which can be affected by climate change through changes in temperature, precipitation, and sea level. Related terms include desertification, land use change, and sustainable land management. Land degradation is a critical concept in Climate Impact Assessment, as it can have significant economic and social impacts, particularly in areas where agriculture is a major sector of the economy.

Land Use Change refers to the conversion of land from one use to another, such as from forest to agriculture or from grassland to urban use, which can be affected by climate change through changes in temperature, precipitation, and sea level. Related terms include land degradation, deforestation, and urbanization. Land use change is a critical concept in Climate Impact Assessment, as it can have significant impacts on the environment and human societies, including the loss of biodiversity, the degradation of soil and water resources, and the emission of greenhouse gases.

Mitigation refers to the actions taken to reduce the impacts of climate change, such as reducing greenhouse gas emissions or implementing adaptation measures, which can be affected by climate change through changes in temperature, precipitation, and sea level. Related terms include adaptation, climate change mitigation, and sustainable development. Mitigation is a critical concept in Climate Impact Assessment, as it helps to identify the most effective strategies for reducing the impacts of climate change on the environment and human societies. For instance, reducing greenhouse gas emissions can help to mitigate the impacts of climate change on water resources, energy security, and human health.

Monitoring refers to the process of observing and recording climate-related data, such as temperature, precipitation, and sea level, which can be affected by climate change through changes in measurement techniques and data quality. Related terms include observation, data analysis, and climate modeling. Monitoring is a critical concept in Climate Impact Assessment, as it helps to identify the most effective strategies for reducing the impacts of climate change on the environment and human societies. For example, monitoring climate-related data can help to predict extreme weather events and climate-related hazards, such as heatwaves, droughts, and floods.

Ocean Acidification refers to the decline in the pH level of the oceans due to the absorption of carbon dioxide from the atmosphere, which can be affected by climate change through changes in ocean circulation, temperature, and sea level. Related terms include climate change, ocean chemistry, and marine ecosystems. Ocean acidification is a critical concept in Climate Impact Assessment, as it can have significant impacts on marine ecosystems, including the decline of coral reefs and the disruption of food webs.

Permafrost refers to the permanently frozen soil and rock that is found in arctic and subarctic regions, which can be affected by climate change through changes in temperature and thawing. Related terms include frozen ground, thawing, and methane emissions. Permafrost is a critical component of Climate Impact Assessment, as it can have significant impacts on the environment and human societies, including the

release of methane and the disruption of ecosystems.

Precipitation refers to the water that falls to the Earth's surface, including rain, snow, sleet, and hail, which can be affected by climate change through changes in temperature, humidity, and atmospheric circulation. Related terms include rainfall, snowfall, and precipitation patterns. Precipitation is a critical concept in Climate Impact Assessment, as it helps to identify the most effective strategies for reducing the impacts of climate change on water resources and human societies. For instance, changes in precipitation patterns can affect the water yield of a catchment, leading to droughts or floods.

Remote Sensing refers to the acquisition of information about the Earth's surface through the use of satellites or aircraft, which can be affected by climate change through changes in land use, land cover, and environmental conditions. Related terms include aerial photography, satellite imagery, and geographic information systems. Remote sensing is a critical tool in Climate Impact Assessment, as it helps to identify the most effective strategies for reducing the impacts of climate change on the environment and human societies. For example, remote sensing can be used to monitor land use change, deforestation, and glacier retreat.

Reservoir refers to a body of water that is stored behind a dam or other barrier, which can be affected by climate change through changes in precipitation patterns, evapotranspiration, and water quality. Related terms include dam, water storage, and hydroelectric power. Reservoirs are a critical component of Climate Impact Assessment, as they provide a vital source of freshwater for human consumption, agriculture, and industry. For instance, changes in reservoir levels can affect the water yield of a catchment, leading to droughts or floods.

Runoff refers to the flow of water that occurs when the soil is saturated and excess water