

Principle 3: Grades 9-12

Principle 3: The ocean has a major influence on weather and climate.

The interaction of oceanic and atmospheric processes control weather and climate by dominating Earth's energy system.

Consequences of Global Climate Change

C.
Changes to weather and climate, which result from changes to the ocean/atmosphere system, have physical, chemical, biological, economic and social consequences.

C.1.
Climate change may affect the frequency and intensity of hurricanes and cyclones.

C.2.
Climate change may alter the frequency and intensity of El Niño and La Niña events.

C.4.
Increased carbon dioxide in the atmosphere can lead to ocean acidification.

C.6.
Climate change affects species distribution, productivity and diversity in the ocean.

C.8.
As the climate warms, the rate at which glaciers and ice caps melt increases.

C.3.
More frequent and/or intense El Niño and La Niña events may have worldwide economic impacts, e.g., collapse of fisheries, decreased agricultural production, etc.

C.5.
Ocean acidification may alter biological activity, including inhibiting the ability of organisms to form shells, bones and exoskeletons, and may also dissolve these structures.

C.7.
Climate change is changing ocean temperature, which can result in ecosystem changes, such as coral bleaching and redistributions of commercially valuable species.

C.9.
As glaciers and ice caps melt, sea level rises. Rising sea level can inundate coastal regions and low-lying islands, destroying habitats and submerging ecosystems and human communities.

C.10.
Ice reflects a large amount of heat from the sun back into the atmosphere. When ice melts, less heat is reflected back into the atmosphere, further warming the land and causing more ice to melt.

C.11.
An increase in melting ice may cause a decrease in regional salinity. This can change ocean circulation.

See Principle 1: B2

See Principle 5: C35

See Principle 5: C36

See Principle 1: D5