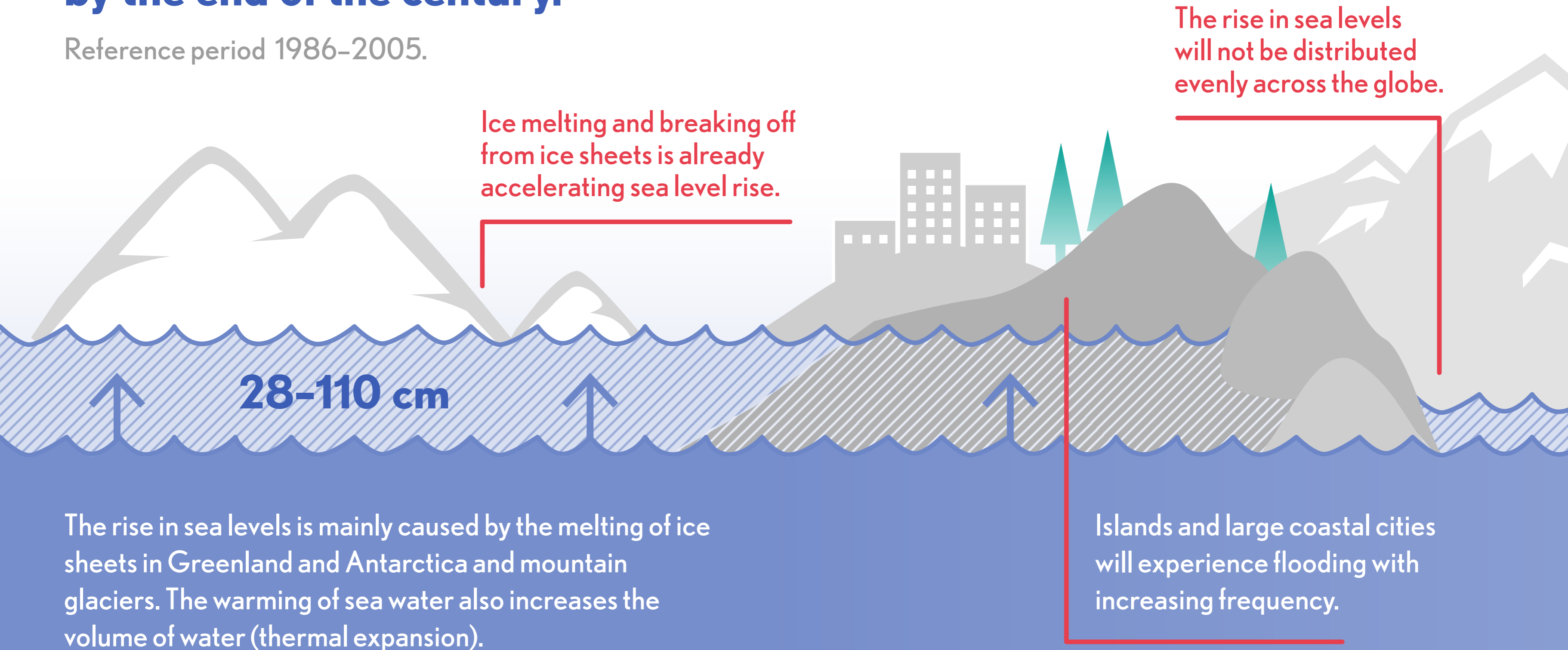


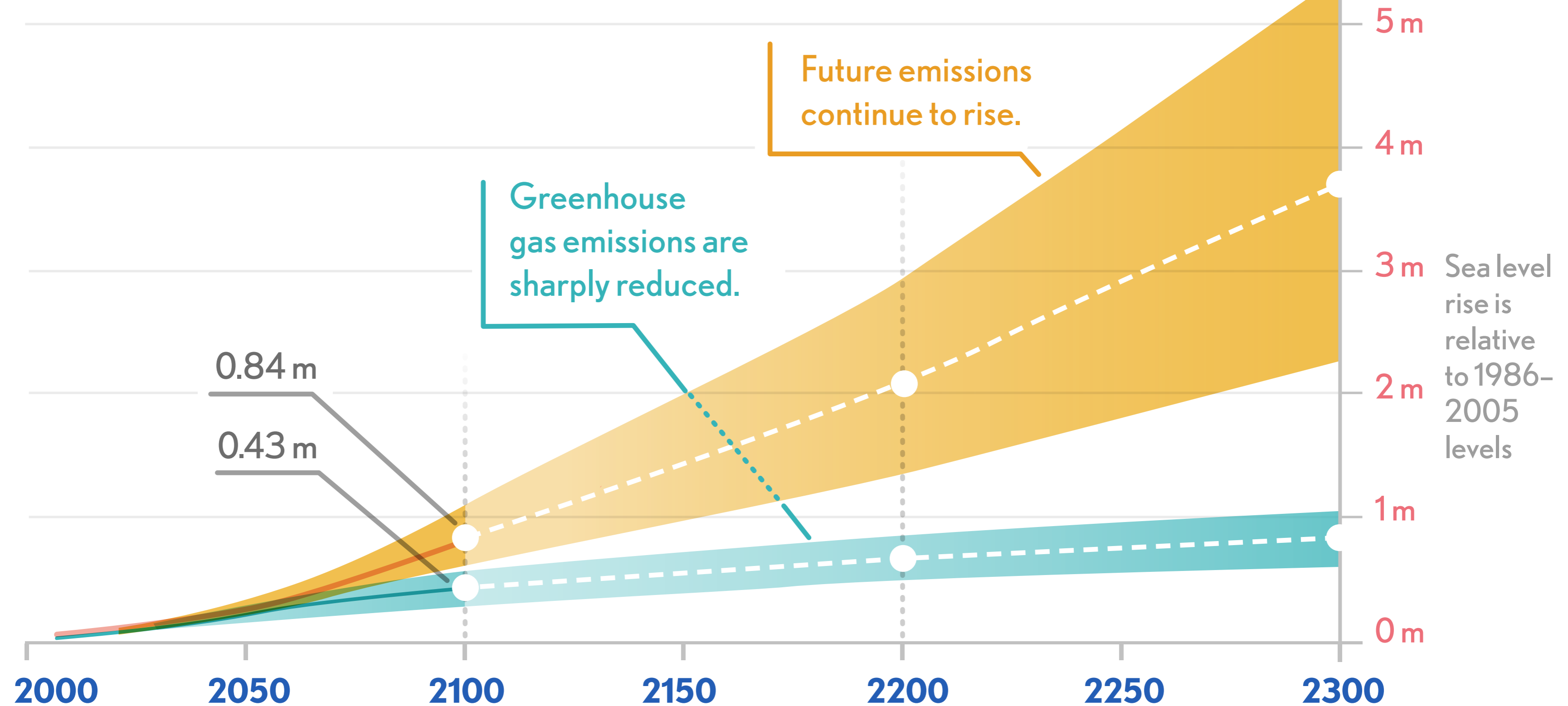
# Sea levels will rise 28–110 cm by the end of the century.

Reference period 1986–2005.



The rise in sea levels is mainly caused by the melting of ice sheets in Greenland and Antarctica and mountain glaciers. The warming of sea water also increases the volume of water (thermal expansion).

# Sea levels will continue to rise for centuries.



# Oceans are getting warmer.

More than 90% of the Earth's excess heat is stored in the oceans.

The warming of oceans is the result of human-induced climate change.

Marine heatwaves have doubled in frequency in the past 30 years.

The surface layers of the oceans warm more quickly than the deeper layers.

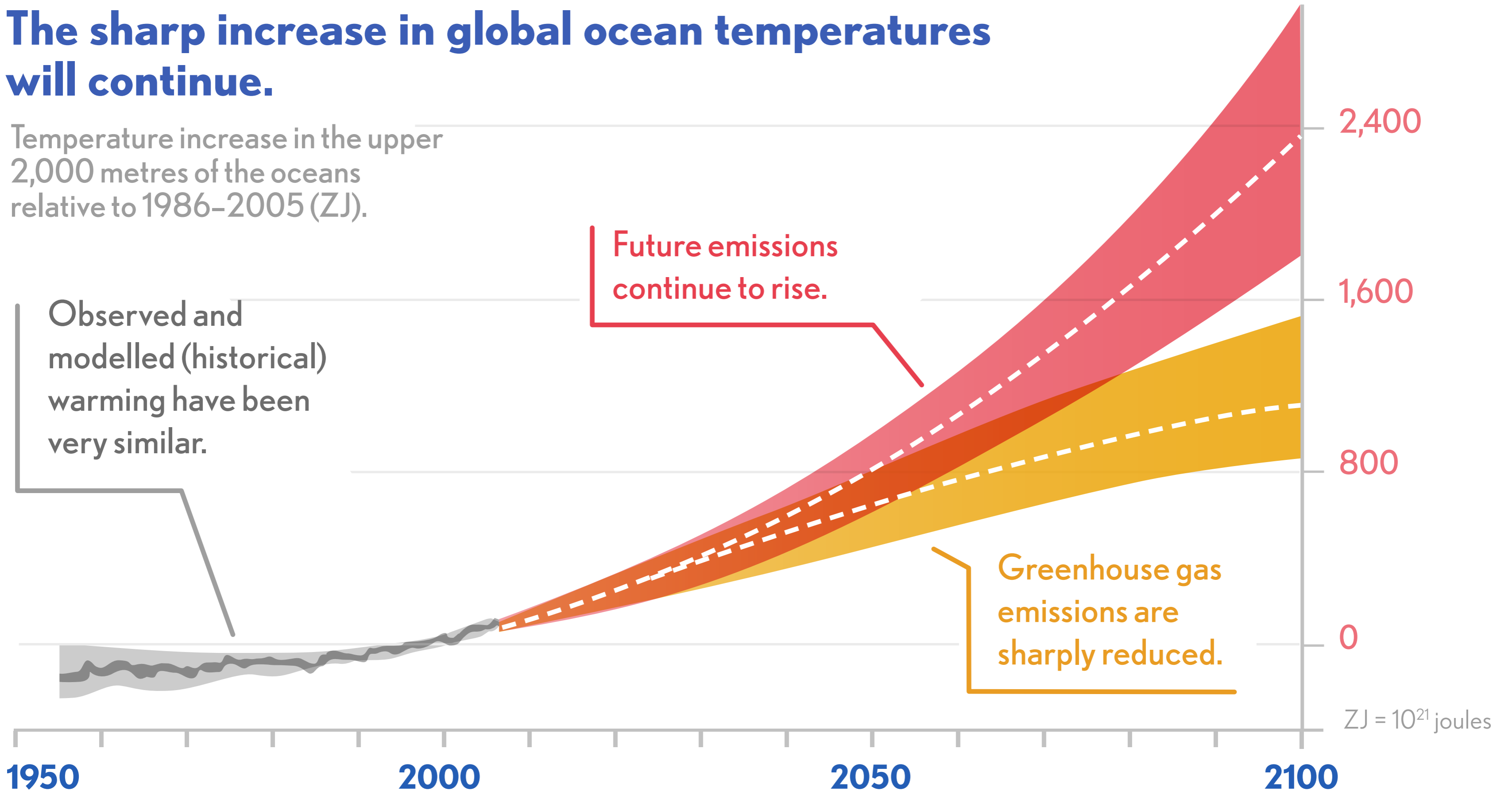
# The sharp increase in global ocean temperatures will continue.

Temperature increase in the upper 2,000 metres of the oceans relative to 1986–2005 (ZJ).

Observed and modelled (historical) warming have been very similar.

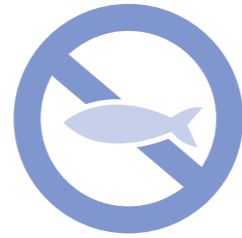
Future emissions continue to rise.

Greenhouse gas emissions are sharply reduced.



# Climate change affects ecosystems in tropical oceans.

Stronger thermal stratification of water decreases the primary production of phytoplankton, causing fish yields to decline.

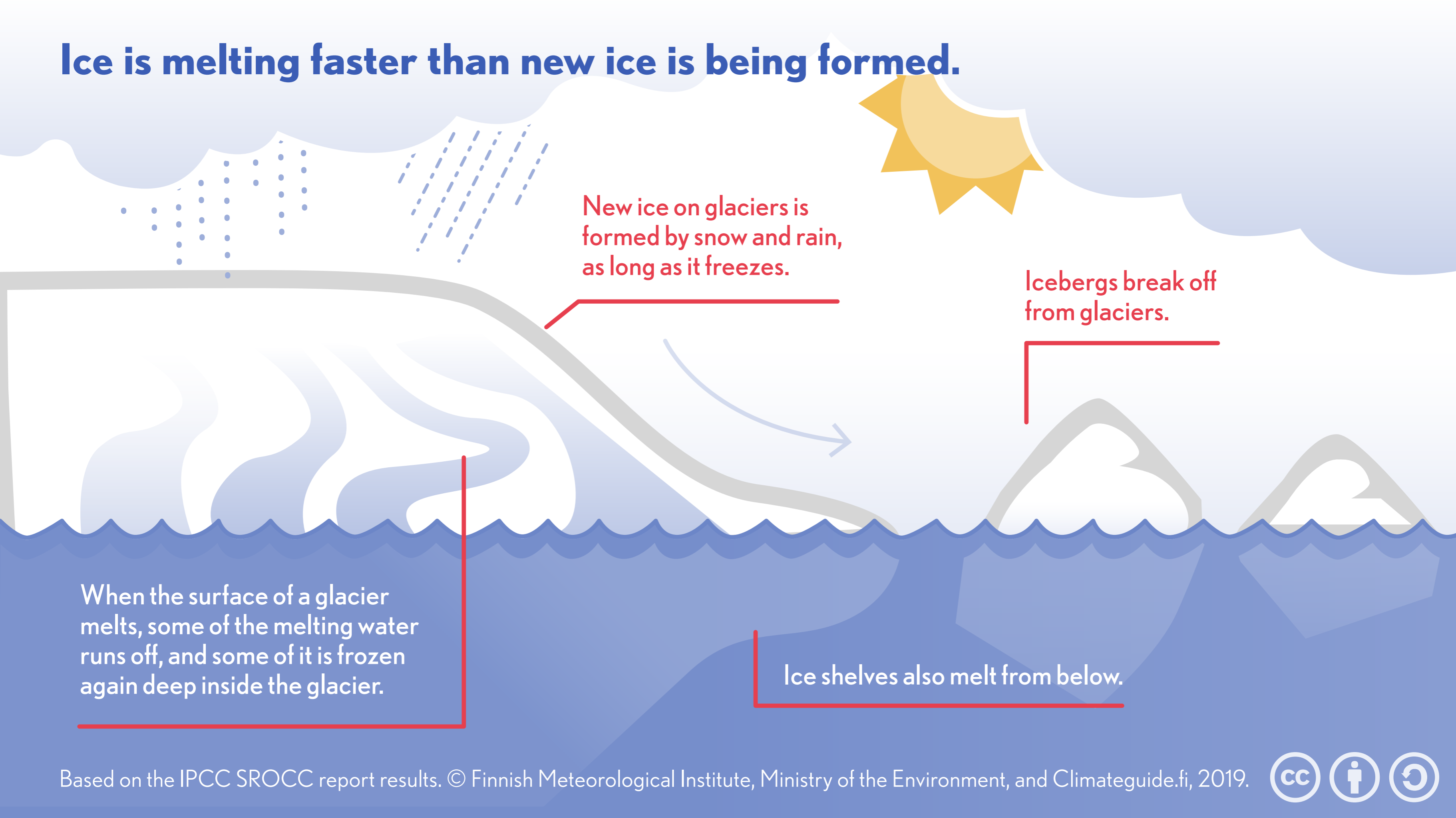


Heat waves and rising sea levels harm important coastal habitats.

Less organic material sinks to the bottom. Organisms living at the bottom of the ocean suffer from reduced nutrients, heat waves, and increased acidity of the oceans.

The global biomass of marine animals will decrease by an average of 15% – the decline is greatest in the tropics.

# Ice is melting faster than new ice is being formed.



New ice on glaciers is formed by snow and rain, as long as it freezes.

Icebergs break off from glaciers.

When the surface of a glacier melts, some of the melting water runs off, and some of it is frozen again deep inside the glacier.

Ice shelves also melt from below.

# Significant changes are taking place in polar and mountain regions.

Wildfires increase in Arctic regions.

The extent of Arctic sea ice decreases.

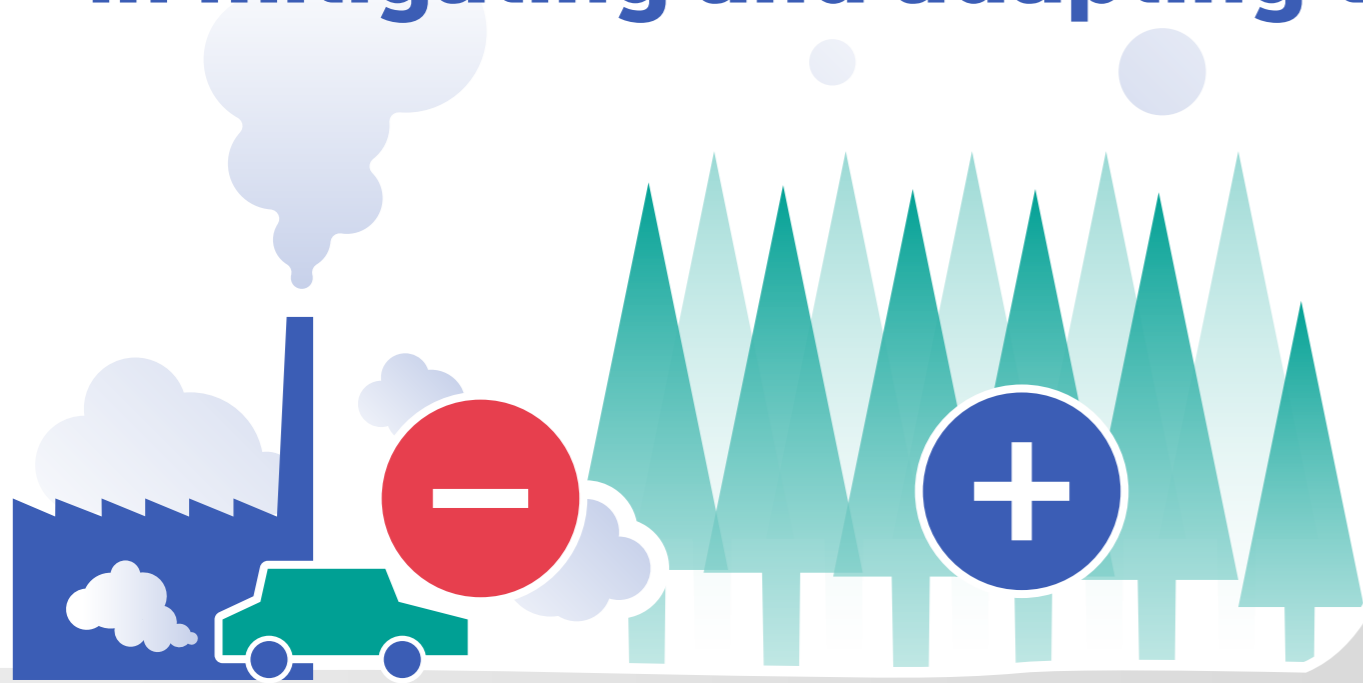
Snow line rises, harming species in the mountains and the Arctic region.

Permafrost thaws.

Species distributions change, with new species spreading toward the Antarctic and the Arctic Ocean.

The primary production of phytoplankton increases, with greater fish yields in some areas.

# Sustainable development requires urgent global action in mitigating and adapting to climate change.



## CLIMATE CHANGE MITIGATION

- Reducing greenhouse gas emissions
- Increasing carbon sinks and managing carbon pools

## CLIMATE CHANGE ADAPTATION AND RISK MANAGEMENT

- Adapting administration and decision-making processes to the consequences of climate change
- Protecting and restoring vulnerable habitats
- Greater reduction in emissions from nutrients and harmful substances
- Citizen involvement in decision-making
- Forecast and warning systems
- Flood protection improvements, e.g. levees
- Ensuring futures for people living in areas rendered uninhabitable by climate change



# Regional sea level is impacted by multiple factors.

