Science 10

Unit D: Energy flow in global systems

Climate science and decisions

Decisions under uncertainty

- Alberta winters, farming, forestry, and northern communities feel climate variability.
- Science informs choices, and values and perspectives still shape them.



A model can support choices without promising certainty.
Name whose evidence and perspectives are included.

Decisions that cite evidence

- Name the evidence before you recommend a climate action.
- Say what is still uncertain, and who would live with the result.
- A transit proposal, for example, still needs emissions data and a list of people affected.

Key terms

Intergovernmental Panel on Climate Change

A United Nations body that assesses published research about climate change. (IPCC)

model

A simplified representation used to explain evidence, test ideas, or make predictions.

perspective

A viewpoint shaped by evidence, experience, responsibilities, and values.

stewardship

Responsible care and management of land, water, living systems, and resources.

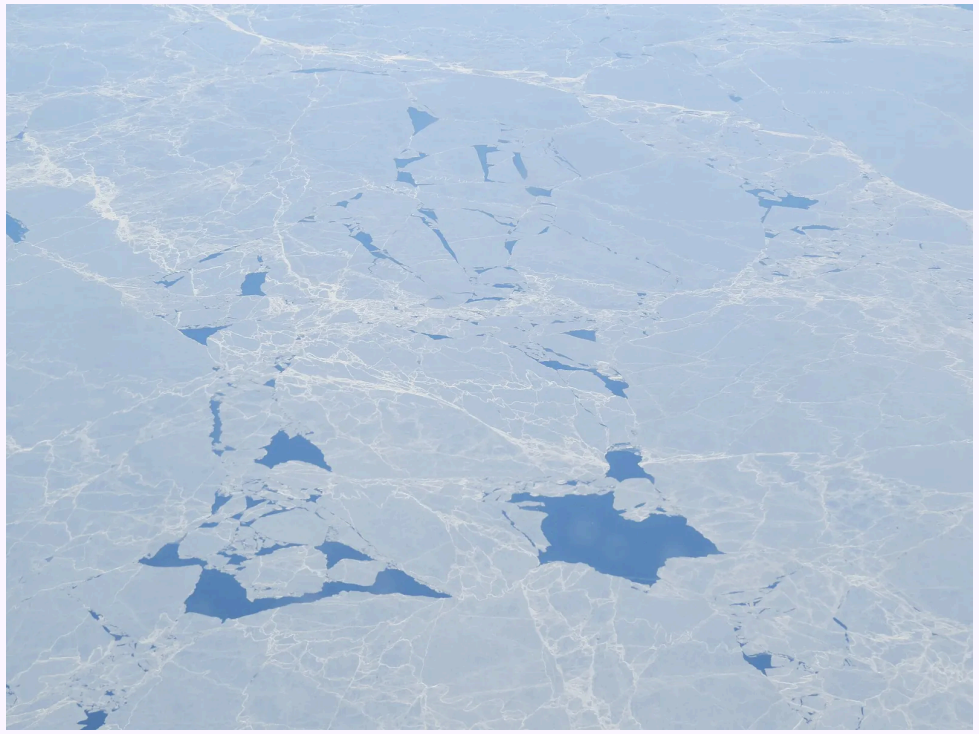
Key terms

biome

A large region with characteristic climate, plants, and animals.

Sensitive biomes and peoples

- Less Arctic ice changes habitats for species and for Indigenous societies that rely on ice for travel and hunting.
- Connect local observations to global energy balance studied earlier in Unit D: Energy flow in global systems.



Global collaboration in science

- Weather agencies, Global Atmosphere Watch, and the IPCC pool measurements and review one another's conclusions.
- Satellites and ground stations record greenhouse gases and changes at Earth's surface.



Limits of knowledge

- Predictions for agriculture, forestry, oceans, and shifting circulation all carry uncertainty.
- Good decisions state assumptions and what would change the conclusion.



Evaluating a proposal

- Take a proposal such as expanding public transit to reduce emissions from transportation.
- List the benefits, the risks, the evidence you still need, and who is affected before you choose.

Multiple perspectives

- Compare the Gaia hypothesis with Indigenous perspectives that see the land as a web of relationships.
- A decision should weigh economic, social, environmental, and cultural consequences together.

Structured debate

- Teams present a course of action to reduce greenhouse gases from goods and people transport.
- The audience should hear the evidence, the limits of the claim, and more than one perspective.

Position with evidence

- Groups defend one transport-emissions reduction strategy using two evidence sources and one limitation.
- A complete answer cites the data, says what is still uncertain, and takes more than one perspective seriously.

Course closure

- Before a final assessment, be ready to read a radiation budget and a biome climatograph again.
- This course connects chemical change, energy technologies, living systems, and the flow of energy across Earth.

Image credits

Luke Jones (Accretion Disc on Flickr), Pack Ice in the Beaufort Sea - 2013-05-25, CC BY 2.0