

Insolation and Heat Balance

Chapter 10: Insolation and Heat Balance · Topic 1

Key Concept

Insolation varies by latitude, with the equator receiving more direct sunlight than the poles, creating temperature differences across Earth.

Earth absorbs solar energy but also radiates heat back into space, and this balance keeps Earth's overall temperature relatively stable.

Factors like cloud cover, atmospheric composition, and surface type (land, water, ice) affect how much insolation is absorbed or reflected.

Understanding insolation and heat balance helps explain climate patterns, seasonal variations, and the greenhouse effect's role in global warming.

Quick Revision Notes

- Insolation is solar energy Earth receives.
- It varies by latitude.
- The equator receives more direct sunlight than poles.
- Earth absorbs and radiates heat back to space.
- This balance keeps temperature stable.
- Cloud cover and surface type affect absorption.
- This explains climate patterns.
- It also relates to the greenhouse effect.

Practice Questions

- 1 Discuss why the equator is warmer than the poles.
- 2 Research how clouds affect insolation.
- 3 Explain Earth's heat balance in your own words.
- 4 Discuss the connection to the greenhouse effect.
- 5 Research how surface type affects heat absorption.
- 6 Create a diagram showing insolation variation by latitude.