



Practice Problem 2



Rising Sea Levels

Science & Technology

How might rising sea levels impact our coastlines, industries, and people's lives in the future?



Visit our topic center to learn more about our Rising Sea Levels topic, view suggested readings and access additional resources.

Context

Historically, human civilizations have responded to the risk of rising sea levels with retreat and adaptation. As our cities have become more permanent in modern times, defensiveness is the preferred strategy. The adequate protection of low-lying regions and coastal cities from flooding, land loss, water-logging, and groundwater salinity is costly and technologically complex. Small island nations are most vulnerable to the relocation of coastal communities.

Sea level rise is already occurring around the globe at unprecedented rates. The challenges will only continue to grow in the next few decades. It is important for scientists and engineers to work directly with communities to create policies that work for the unique circumstances of each vulnerable coastline.

Background

Two processes cause sea-level rise: thermal expansion (ocean water expansion as it heats up) and additional water flow into oceans from ice that melts on land. The IPCC (Intergovernmental Panel on Climate Change) reports that sea levels have risen by 0.19 meters since the beginning of the 20th Century. Sea level rise will continue for centuries, if not thousands of years, after greenhouse gas concentrations are stabilized, due to the long lag times involved in warming the oceans and ice sheets' response, possibly affecting over 400 million people.

Challenge

- How might the rate of rising sea levels be slowed?
- What can be done to protect coastal communities from rising sea levels?
- How might displaced people survive the hardships associated with the loss of their homes and their livelihoods due to future rising sea levels?

Central Themes

1. Ice melts
2. Thermal expansion
3. Impact on humans
4. Ecosystems at risk

