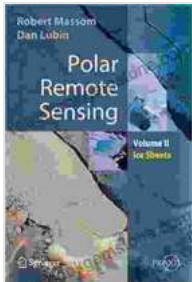


# Ice Sheets: The Ultimate Guide to the Earth's Frozen Giants



## Polar Remote Sensing: Volume II: Ice Sheets (Springer Praxis Books Book 2) by Christopher L. Cirillo

★★★★☆ 4.4 out of 5

Language : English

File size : 11439 KB

Text-to-Speech: Enabled

Screen Reader: Supported

Print length : 458 pages



Ice sheets are vast, thick masses of ice that cover large areas of land. They are found in the polar regions of the Earth, and they play a crucial role in the global climate system.

Ice sheets are formed when snow accumulates and compresses over time. As the snowpack increases in thickness, it begins to deform under its own weight. This deformation causes the snow to recrystallize into ice. Over time, the ice sheet will grow in size and thickness.

Ice sheets are typically hundreds of meters thick, and they can cover areas of up to several million square kilometers. The largest ice sheets are found in Greenland and Antarctica.

## Structure of Ice Sheets

Ice sheets are composed of a variety of different types of ice. The surface of an ice sheet is typically covered by a layer of snow. Below the snow, there is a layer of firn. Firn is a mixture of snow and ice crystals. Below the firn, there is a layer of glacial ice. Glacial ice is solid ice that has been deformed by the weight of the overlying snow and ice.

The bottom of an ice sheet is typically in contact with the bedrock. The bedrock is the solid rock that forms the Earth's crust. The contact between the ice sheet and the bedrock is often irregular. This irregularity can cause the ice sheet to move in a variety of different ways.

### **Movement of Ice Sheets**

Ice sheets are constantly moving. The movement of ice sheets is driven by gravity. The weight of the ice sheet causes it to deform and flow. The ice sheet flows from the center of the ice sheet to the edges.

The movement of ice sheets is a slow process. The ice sheet in Greenland moves at an average rate of about 100 meters per year. The ice sheet in Antarctica moves at an average rate of about 200 meters per year.

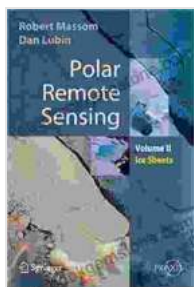
The movement of ice sheets can have a significant impact on the environment. The movement of ice sheets can cause glaciers to form. Glaciers are rivers of ice that flow from ice sheets. Glaciers can erode the landscape and create new landforms. The movement of ice sheets can also cause sea levels to rise. Sea level rise can threaten coastal communities and infrastructure.

### **Impact of Ice Sheets on the Climate**

Ice sheets play a crucial role in the global climate system. Ice sheets reflect solar radiation back into space. This helps to keep the Earth's temperature cool. Ice sheets also absorb carbon dioxide from the atmosphere. Carbon dioxide is a greenhouse gas. Greenhouse gases trap heat in the atmosphere. The absorption of carbon dioxide by ice sheets helps to slow the rate of climate change.

The melting of ice sheets can have a significant impact on the climate. The melting of ice sheets releases water into the ocean. This water can cause sea levels to rise. Sea level rise can threaten coastal communities and infrastructure. The melting of ice sheets can also release methane into the atmosphere. Methane is a greenhouse gas. Greenhouse gases trap heat in the atmosphere. The release of methane by ice sheets can accelerate the rate of climate change.

Ice sheets are vast, thick masses of ice that cover large areas of land. They are found in the polar regions of the Earth, and they play a crucial role in the global climate system. The formation, structure, movement, and impact of ice sheets are all important topics of study for scientists. The study of ice sheets can help us to better understand the Earth's climate system and the impacts of climate change.



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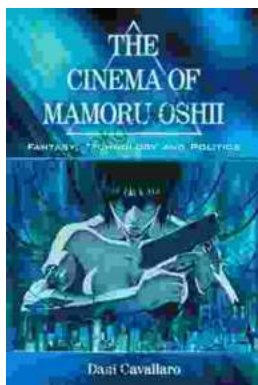
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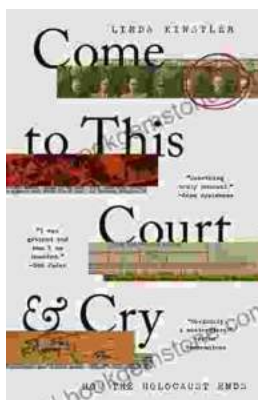
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