



TOPIC: ANTARCTIC GAMBURTSEV PROVINCE – A MYSTERIOUS MOUNTAIN RANGE HIDDEN BENEATH THE ICE SHEET

PROJECT PERSONNEL:

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GENERAL BACKGROUND INFORMATION ON THE SUBJECT:

Some problems are too hard to solve alone, and some places are too hard to go to. The Gamburtsev Mountains are deep in Antarctica lying beneath Dome A (the highest and perhaps the coldest place in East Antarctic Ice Sheet), and just west of the Pole of Inaccessibility. This location is so remote that it is difficult and expensive for any single country to try and get to. The International Polar Year (IPY) provides opportunities for international collaboration, with countries working together to plan projects and share their resources, science programs and results. This study will involve scientists from US, Germany, Britain, China and Australia and is only possible because of the international collaboration of IPY.

Fun Fact: There is a statue of Vladimir Lenin (former Soviet leader) left here in 1958!

TERMS YOU SHOULD KNOW (VOCABULARY):

Precambrian – old geologic time ~500 my

Craton – old piece of continent – a stable part of continental crust

Ice core – sample of an ice sheet collected by drilling a hole through

IPY – 125 year old concept when scientists work together to solve a really hard problem

Dome A – Highest point on the East Antarctic Ice Sheet

Pole of Inaccessibility – way in the interior of the continent & the point furthest away from any Antarctic station.

WHY ARE WE STUDYING THIS IN THE POLAR REGIONS?

These are Mysterious Mountain Ranges – Mountains are normally formed by either (1) continents colliding into one another; OR (2) hot spots creating volcanoes as they push up OR (3) continents tearing apart. None of these have happened recently in East Antarctic. It is a precambrian craton - old and stable - . There is no good reason for a mountain range to be there, but this is a big mountain range! About the size of the European Alps!!

This is Changing Ice - Ice sheets are changing today. They can change by melting the ice floating in the ocean that is holding them back. The ice in the ocean acts like someone holding the front edge of a snowboard on a hill. Once they let go the snowboard slides down the hill. The other way an ice sheet can go faster is by greasing the bottom. Water is like grease for an ice sheet. Water in an ice sheet can come from the top or from the bottom (from subglacial lakes!)

HOW DOES THIS AFFECT US HERE IN THE UNITED STATES?

This is OLD ICE - Ice contains samples of air and water so old ice tells us about old climate. To understand changing climate today we want to find the oldest possible ice, and this is probably close to the Gamburtsev Mountains. Scientists are looking for the oldest ice to study!

TO LEARN MORE ABOUT THIS TOPIC:

<http://www.ideo.columbia.edu/gambit>