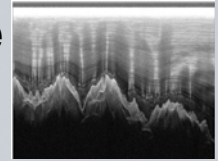




Use Geophysics to 'Look' Beneath the Ice

Lamont-Doherty Earth Observatory
COLUMBIA UNIVERSITY | EARTH INSTITUTE



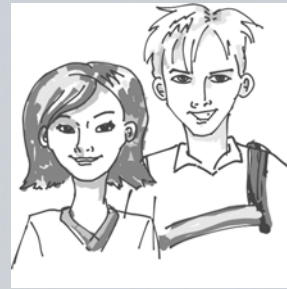
Our Plane Outfitted with Tools of Airborne Geophysics

INSTRUMENTS: Starting with ice surface & working down:

- LASERS measure the ice surface elevation & surface roughness
- RADAR measures through the ice for ice-thickness, internal ice layers and down to the bedrock for bed roughness
- GRAVITY provides the density of the Earth under the ice, and the size of subglacial waterbodies
- MAGNETICS provides the Earth composition/materials under the ice
- GPS is used to precisely locate the aircraft on the Earth's surface



Lamont scientists use Airborne Geophysics to better understand the polar regions. The poles are changing rapidly and these changes will impact the rest of the Earth. We need to 'see' under the ice to understand why these changes are occurring. Radar, magnetics, gravity and laser measurements are helping us.



TODAY! Be a Geophysicist and use your plane to fly over the ice sheet and image the land surface below. Create a graph to show what you found under the ice.

AGAP Project 2008/2009 East Antarctica



The AGAP project (above) used geophysics to locate a ~8500 foot mountain range in East Antarctica under ice up to 2 miles thick. An early composite of the mountain range (below) allows us to 'see' through the ice to a landscape long hidden by an ice sheet.

