



Towards improved geological maps of Antarctic rocks and surficial deposits

Underpinning datasets for studies of glacial dynamics and climate change

There are numerous, hard-copy, regional-scale geological maps of Antarctica that were developed last century. Many have been scanned, some have been georeferenced, but few are more than raster digital information. For the most part they are geologically reliable for defining bedrock geology ('deep time') but unfortunately they contain little representation of glacial geology. The maps have poor spatial reliability in the context of modern science (located by GPS and other satellite sensors), and the maps have not kept pace with the present importance of Antarctica's role in climate change.

Antarctica's geologic exposures are small compared to its overall landmass, but the rock and cover deposits contain a geomorphological and geological history of the waxing and waning of ice sheets. Some relatively small areas have been represented by detailed local maps in journals, but there are no modern attribute-rich GIS datasets to provide holistic information at the scale of the ice sheets/ice shelves. Meanwhile, large quantities of satellite data are being rapidly acquired, offering the opportunity to precisely locate outcrops and derive compositional information at sub-metre scales. There is a growing need for a comprehensive digital dataset to define the exposed geosphere, for pinpointing the locations of glacial deposits, indicate their mode of formation, age, and likely source. Such key underpinning information are needed to constrain biological and ecological research, identify geoindicators of climate change, and help improve our understanding of Antarctica's influence on global climate.

A new SCAR Action Group has formed to update geologic geospatial information of Antarctica by gathering both rock and surficial deposit information and compiling it into a modern digital framework. This workshop aims to: focus on the scope and purpose of such a dataset; exemplify some significant advances already achieved; introduce high resolution satellite and other new technologies available, as well as methods of GIS capture and delivery; discuss an overarching high level digital stratigraphic plan/nomenclature and data design; determine areas of international interest in providing existing map data and/or compiling different regions; establish a working team, timetable and action plan.

All interested parties are welcome to attend. Wide international representation is expected.

Convenors:

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