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Session08: Evolution of Antarctic topography and bathymetry: understanding links between erosion, deposition, isostasy and ice sheet behaviour

## **Ice thickness and bedrock topography of Mac. Robertson, Princess Elizabeth and Wilhelm II Lands (East Antarctica) according to the Russian data collected from 1971 to 2018**

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Russian (former Soviet) scientific investigations in Antarctica have been started since 1956. After eight years, the first radio-echo sounding (RES) tests were done and very perspective new geophysical method was adopted for future investigations. RES is the most effective way to study ice sheet structure as well as bedrock topography and morphology. The first Russian airborne RES survey was carried out in February 1968 in Enderby Land. Afterwards, ground-based and airborne RES have covered about 6 mln. sq. kilometers of Antarctic territory from Filchner-Ronne Ice Shelf in the West to Wilhelm II Land in the East.

Russian geophysical investigations of 1971-1974 were adjusted to study the Lambert rift zone which is one of the most massive (about 1.000 km long) tectonic structure of Antarctica. The investigations included airborne RES and reflection seismic on the Amery Ice Shelf. These data firstly demonstrated relief of the sea bottom under the ice shelf and are using until now. After the short interruption when we work in West Antarctica this kind of investigations were resumed in 1985 on new scientific and technique base. Since 1986 till nowadays airborne RES with 5 km distance between profiles has been carried out on the extensive coastal area of eastern Antarctica and about 500 km inland, including the lands of Mac. Robertson, Princess Elizabeth and Wilhelm II. For the last 5 years short-range Antonov aircraft and ice-penetrating radar with frequency 60 MHz and 130 MHz is allying for the ice sheet and bedrock topography studying.

Since 2004 to 2014 ground-based RES in the band of Mirny-Vostok and Progress-Vostok logistic traverse have been completed. Ground-based RES results were provided by geodetic and glaciological observations Received data are the most reliable complement to the aerogeophysical dataset.

Bedrock topography and ice thickness maps on lands of Mac. Robertson, Princess Elizabeth and Wilhelm II compiled on RES data collected during twenty-seven field seasons and reflection seismic collected on three field seasons are demonstrated in our presentation.

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