Preliminary Results of Heat flow Measurements across the Eastern Flank of the Adare Trough, Antarctica

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Abstract Body:

Marine heat flow measurement on the ridge is a direct and useful approach to know the current state of thermal regime below the lithosphere. Measurements in ridges located in the Antarctica are practically challenged by harsh conditions such as extensive and moving sea ice cover and stiff seafloor composed of diatomaceous sediments. We planned heat flow measurements across the Adare Trough, north of the Ross Sea, during the recent Korean icebreaker R/V Araon's Antarctic expedition (ANA05B; Dec 12th 2014-Feb 25th 2015) to get thermal information which is a missing piece in terms of geophysical data in this region to describe its asymmetric activity in spreading rate. Finally, we collected information only at three stations across the eastern flank of the Adare Trough over 70 km along with NBP9702 seismic line because of various limitations above. It is a preliminary result that observed heat flow seems significantly higher than estimated one from known magnetic anomaly age using a global age-heat flow curve. In order to conclude some suggestion, we need further studies regarding identification of 'real' heat flow from lithosphere, and increase of the number of data. More heat flow measurements will be carried out again on the eastern flank in the next Araon's Antarctic expedition (tentatively ANA06C; March 2016) to supplement the small number of data.

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