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The glacial history of Sor Rondane Mountains in Dronning Maud Land, East Antarctica The glacial history of Sor Rondane Mountains in Dronning Maud Land, East Antarctica

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Antarctic ice sheet volume and sea ice extent are driven by Earth's global climatic system and more regional parameters such as albedo, thermohaline circulation, productivity of marine organisms, and erosion or weathering rate of base rock. A reconstruction of Antarctic ice sheet variability is essential to begin to understand their interactions. Previous studies have estimated a significant decrease in ice sheet thickness during the last several million years (e.g., Liu et al., 2010). However, the geographical extent of this decrease and its response and feedback to the global climate remain uncertain and topic of debate.

In this study, we focus on the past change of the ice sheet thickness at Sor Rondane Mountains in Dronning Maud Land, East Antarctica, because little is known about this region's deglaciation history. In 2010, we carried out a field expedition to investigate the past change of the ice sheet elevation based on detailed geomorphologic evidence and precise surface exposure ages using the cosmogenic isotopes Be-10 and Al-26. In total, 34 bedrock or erratic samples had been corrected from ca 1000 - 2500 m a.s.l. at the western and central part of Sor Rondane Mountains. Based on these data, we will discuss a relationship between East Antarctic ice sheet change and global climate.