# Reconstruction of the East Antarctic Ice Sheet variability and understanding of the abrupt ice mass loss

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Recent advances in satellite gravimetry and ice-sheet modelling have yielded refined estimates of East Antarctic Ice Sheet (EAIS) mass balance and allowed for a reexamination of its response to global climatic changes. However, because space-geodetic observations of ice-sheet change only exist for a few decades, EAIS behavior before the 1970s remains largely unknown. Modelling studies of ice-sheet sensitivity to climate change and sea-level rise also require well-constrained records of past ice-sheet changes for model validation and refinement. Together, these factors highlight the need for long-term glacio-geological records of EAIS changes. Therefore, we proposed a new project, Sub-Theme 1-2 "Reconstruction of the East Antarctic Ice Sheet Variability and Understanding of the Abrupt Ice Mass Loss", in the Phase X Priority Research Program of the Japanese Antarctic Research Program (2022-2026). In this project, we will conduct a seamless sediment coring project, which includes deep-sea sediment coring by using the icebreaker "SHIRASE", lake and shallow marine sediment coring from frozen lake/sea surface, and sediment drilling of the ice-free area along the Antarctic coast using a newly developed sediment coring and drilling system. Furthermore, we aim to reconstruct the EAIS change over the past several hundred thousand years and to elucidate the actual conditions and mechanisms of the rapid and large-scale melting of the ice sheet during the transition during the terminations from glacial periods to interglacial periods. In addition, this project will contribute to international drilling projects, such as the SWAIS-2C project, which will carry out the first sediment coring under the Ross Ice Shelf in West Antarctica. This presentation will outline the research plans and the schedule of the research activities in this project for the next 6 years.