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Late Neogene Cenozoic history of the Ross Sea continental margin IODP proposal: the missing link between the inner shelf and the Southern Ocean records

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The existing Ross Sea IODP proposal, last revised in 1999, raised several important questions concerning the Cenozoic evolution of the West Antarctic Ice Sheet spanning from Eocene to present. More recently ODP leg 178, 188, Cape Roberts and ANDRILL drilling projects addressed some of these questions in other areas of the Antarctic margin. However the outer shelf expanded record of the late Neogene WAIS in the Ross Sea sector is still missing. The revised Ross Sea IODP proposal will specifically focus on this time interval of the West Antarctic Ice Sheet history, rather than investigating the Cenozoic record since the onset of glaciation. This strategy will permit us to identify and sample, during one IODP leg, coeval stratigraphic section in both ice-proximal continental shelf (central and eastern Ross Sea) and ice-distal continental rise settings. This should guarantee that we ground-truth coeval section in a more than a single environmental setting. In addition, it should offer the best opportunity to link proximal and distal settings from a process stand point. A deep-water location on the rise should permit us to evaluate and link changes in water-mass characteris-

tics to conditions on the continental shelf. The more continuous record that we expect to recover from the continental rise, should also permit to evaluate temporal links between the WAIS and larger-scale Southern Ocean paleoenvironmental changes as well as those changes to be targeted in other proposals being developed (e.g. pre-proposal: "Cenozoic Southern Ocean Pacific (CESOP) (revised 625-pre), Proponent(s): Rainer Gersonde, Karsten Gohl, et al.). Ross Sea AGU-ANTOSTRAT published data and maps and unpublished backstripped paleobathymetric maps have been used to evaluate best identify sites to get records from fundamental missing time intervals (e.g. the mid Miocene climatic Optimum, the late Miocene - Pliocene transition, the Pliocene warm-cold cycles, the Quaternary ice age cycles, the Holocene high resolution record). These sections in the new IODP sites will represent the distal ANDRILL record in the central-Eastern Ross Sea and the WAIS fluctuation record across the eastern Ross Sea. High resolution data collected since 1999 (date of last submission of the Ross Sea ODP proposal 489) have been also considered in order to best locate the new proposed drill sites, to achieve potentially datable, most expanded and continuous record from the continental shelf.