

A Decade of Frontier Oceanography: Achievements during WAIS

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As a marine-based ice sheet, the West Antarctic Ice Sheet (WAIS) is influenced, if not controlled, by the oceanographic regime within which it stands – the Weddell, Ross, Amundsen, and Bellingshausen Seas of the Southern Ocean. Exploration and expeditions over the last century have brought us basic knowledge about the oceanographic environment of the WAIS, most notably in the Weddell and Ross Seas. The last decade, coinciding with the existence of the WAIS Initiative, has seen a particularly large increase in our knowledge about this unique oceanographic regime – the only seas in the world where approximately half of the coastline consists of floating glacier, features referred to as ice shelves. The physical and intellectual challenges presented by this frontier oceanographic regime have required the development of innovative observational and numerical modelling tools. In this talk, we review the key advances made in these areas over the last decade. We also highlight the understanding these advances have brought us and their relevance to other disciplines within the WAIS context.