

UK-US Thwaites Glacier Collaboration

Plan and Challenges



Natural Environment Research Council



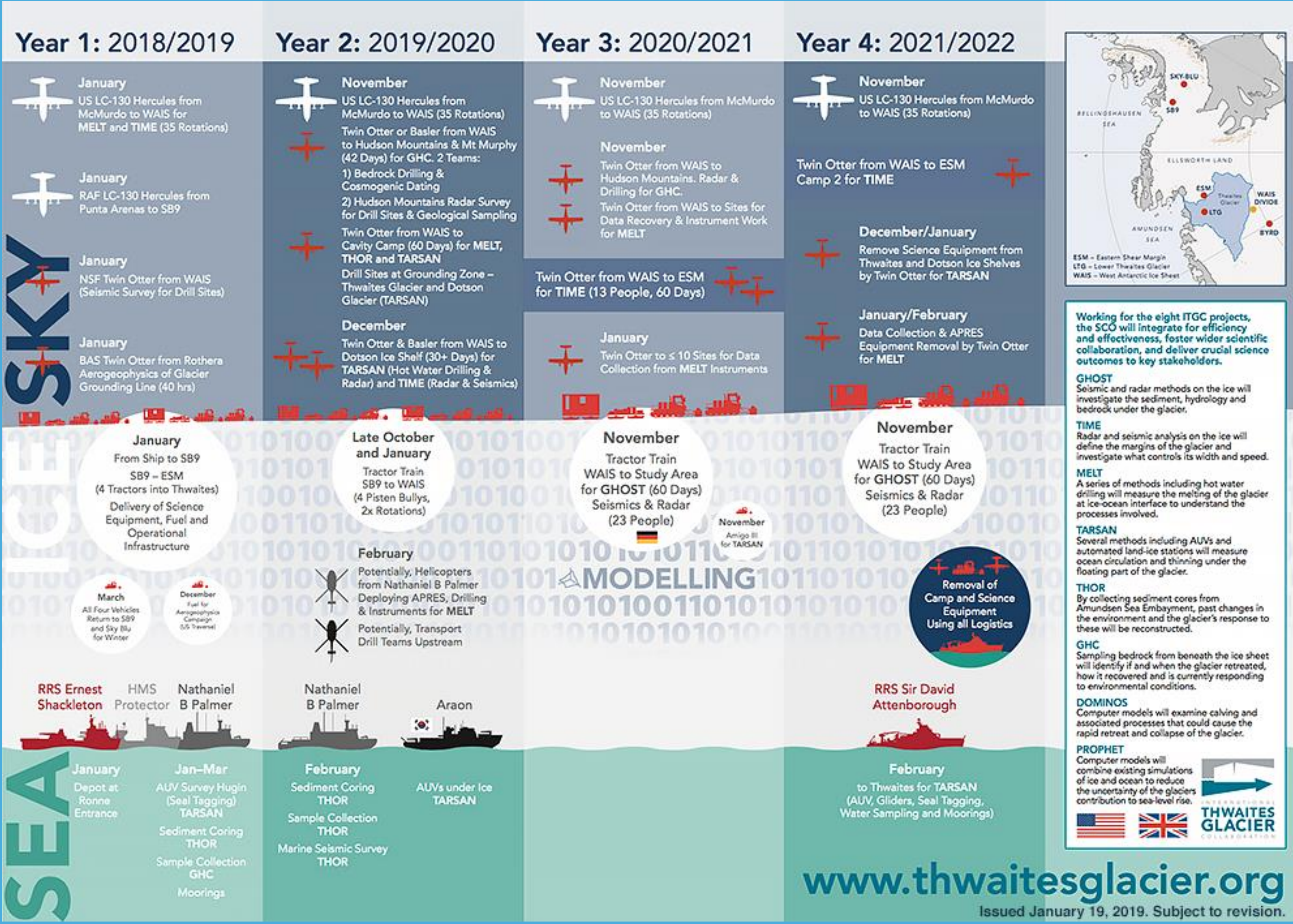
National Science Foundation Office of Polar Programs

Overview

The 1st SCAR Antarctic and Southern Ocean Science Horizon Scan identified questions of Antarctic ice sheet mass balance and potential input to sea level rise as critical research priorities. The U.S. National Science Foundation (NSF) and the UK Natural Environment Research Council (NERC) funded the International Thwaites Glacier Collaboration (ITGC) to address these pressing questions through a large-scale field program supported by the U.S. Antarctic Program (USAP) and the British Antarctic Survey (BAS). The British Rothera Station and the U.S. McMurdo Station sit at opposite edges of the West Antarctic Ice Sheet and are well-positioned to undertake this investigation. The goal of the logistics collaboration is to support a field effort larger than what either program can support independently by combining complimentary logistics capabilities. BAS and USAP have contributed resources comprised of research and operational vessels, aircraft, over-snow traverse, and field equipment and staffing. Since the first field activities in 2018, the collaboration has experienced challenges and delays associated with the COVID-19 pandemic, ship construction, and aging equipment, along with routine Antarctic uncertainties like poor weather. This poster summarizes the original logistics plans and the new path.

Original Plan

NSF and NERC envisioned ITGC as a four-year field effort to support six research projects, with a first season of logistics input and initial science observations on land and at sea, followed by three primary science seasons with land-based work, research cruises, and final retrograde. Germany and Sweden would contribute instruments and equipment. South Korea planned a cruise with complementary research goals.

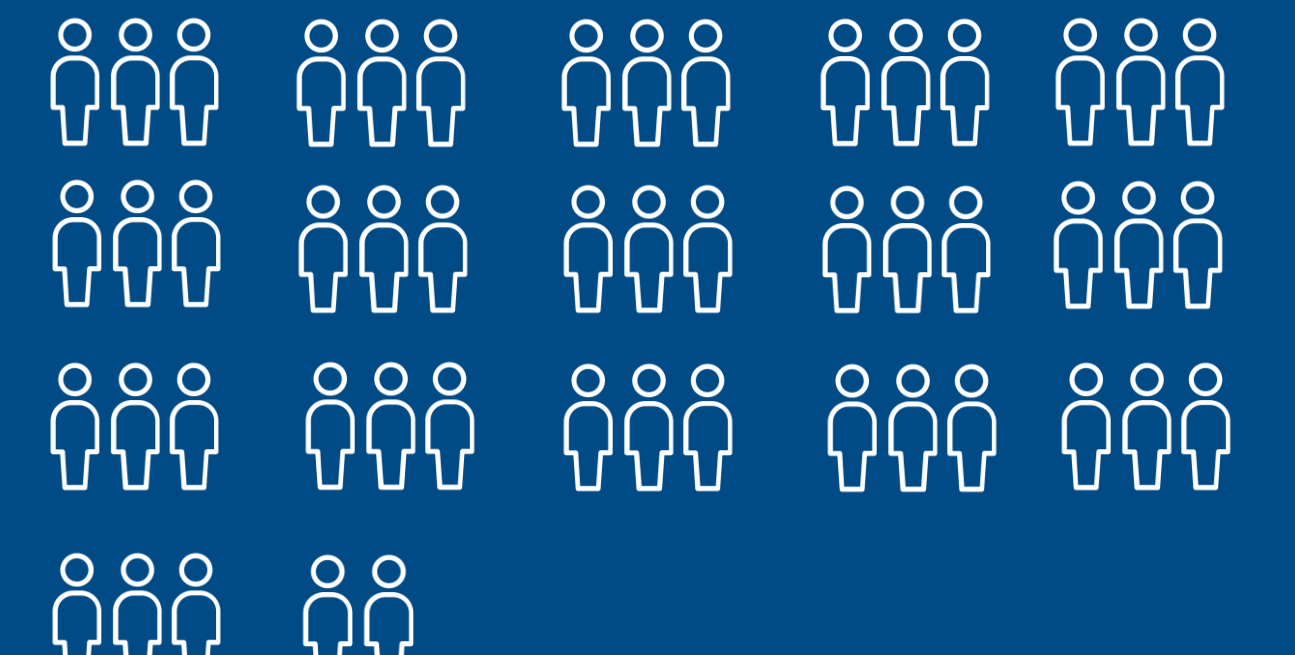


ITGC By the Number

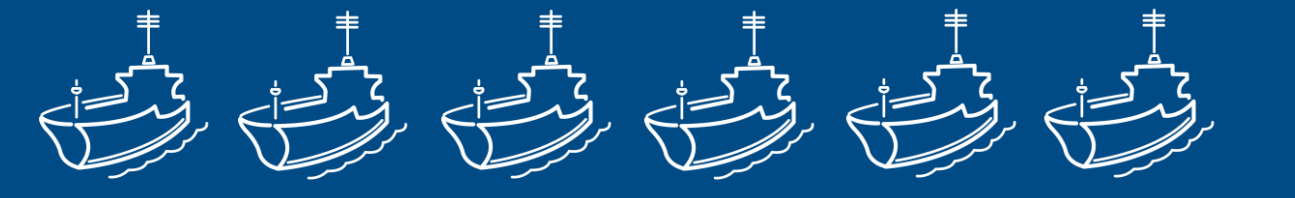
Science Days in the Field = 150 days



Science Days at Sea = 150 days



Research Vessel Ship Days = 30 days



Fuel Delivery = 10,000 U.S. gal



Vessel Tanker & Tractor delivery



Air Drop



Updated Plan

Following a one-year reduction of field work during the COVID-19 pandemic, NSF and BAS restarted fieldwork at a reduced level in the 2021-2022 field season, focusing on instrument and equipment rescue. The U.S. R/V Nathaniel B. Palmer replaced the UK RRS Sir David Attenborough for a third research cruise. Field activities in 2022-2023 were again interrupted by COVID, and retrograde activities are shifted into a seventh project year to allow maximum field time in 2023-2024.



2021/2022 Science Instrument and Field Equipment Rescue



U.S. Antarctic Program www.usap.gov



British Antarctic Survey NATURAL ENVIRONMENT RESEARCH COUNCIL

Jessie Crain, NSF Antarctic Research Support Manager jlcra@nsf.gov

Tim McGovern, NSF Ocean Projects Manager tmcgover@nsf.gov

James Wake, BAS Head of Field Operations jake@bas.ac.uk

Nick Gillett, BAS Field Operations Manager nicgil@bas.ac.uk