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British Antarctic Survey's Aerogeophysics Data: Releasing 25 Years of Gravity, Magnetics, and Radar Datasets over Antarctica

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Over the past 50 years, the British Antarctic Survey (BAS) has been one of the major acquirers of airborne geophysical data over Antarctica, providing scientists with gravity, magnetics and radar datasets that have been central to many studies of the past, present, and future evolution of the Antarctic Ice Sheet. Until recently, many of these datasets were unpublished in full, restricting the further usage of the data for different glaciological and geophysical applications. Starting in 2020, scientists and data managers at the British Antarctic Survey have worked on standardising and releasing large swathes of aerogeophysical data acquired during the period 1994-2020, including a total of 64 datasets from 24 different surveys, amounting to ~450,000 line-km (or 5.3 million km²) of data across West Antarctica, East Antarctica, and the Antarctic Peninsula. Amongst these are the extensive surveys over the fast-changing Pine Island (2004-05) and Thwaites (2018-20) glacier catchments amongst others. Considerable effort has been made to standardise these datasets to comply with the FAIR (Findable, Accessible, Interoperable and Re-Usable) data principles, as well as to create a new Polar Airborne Geophysics Data Portal (<https://www.bas.ac.uk/project/nagdp/>), which serves as a user-friendly interface to interact and download the newly published data. Here, we review how these datasets were acquired and processed, and present the methods used to standardise them. We then discuss the new data portal infrastructure and interactive tutorials that were created to improve the accessibility of the data. We believe that this newly released data will be a valuable asset to future geophysical and glaciological studies over Antarctica and extend significantly the life cycle of the data. All datasets included in this data release are now fully accessible at the UK Polar Data Centre, now certified by the CoreTrustSeal: <https://data.bas.ac.uk>.