

Glacial history of the Ellsworth Mountains, Weddell Sea embayment, West Antarctica

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We report here the initial results from a programme of geomorphological mapping and sampling for cosmogenic isotope analysis in the Ellsworth Mountains. The overall aim of the project is to establish the timing and rate of thinning of the West Antarctic Ice Sheet from its maximum extent in an area inland of the Weddell Sea embayment. In season 05/06 we worked along a c. 350 km transect, stretching from Pirrit Hills (81° 06' S, 85° 31' W) in the south to the ridge between Mt Bentley and Mt Hubley in the north (78° 09' S, 86° 41' W). Most sites were on the western (West Antarctic Ice Sheet) side of the range but we also worked in the Flowers Hills (78° 24' S, 84° 31' W) on the east side of the range, adjacent to the Rutford Ice Stream. We studied the geomorphology of 11 field locations in detail, including studies of drift sheets, and weathering of sediments and bedrock plus closely-spaced sampling of erratics and bedrock along altitudinal transects at each site. Our geomorphological mapping has allowed us to determine a series of ice sheet advances and we discuss a preliminary landscape and glacial history of the Ellsworth Mountains extending from the pre-Quaternary to the present-day. The first exposure dates will also be presented.