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A PRELIMINARY SOIL MAP OF ANTARCTICA

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Only 0.33% of the 14 million km^2 Antarctic region (≥60ºS) is ice-free. Ice-free areas, which include exposed bedrock as well as unconsolidated materials, can be divided into eight subregions. The Transantarctic Mountains (TAM; subregion 5b), which bisect the continent, contain about 45% (20,000 km^2) of the ice-free area. The Antarctic Pensinsula and its offshore islands (subregion 8) constitute the second largest ice-free area at 13,600 km^2 (35% of area). The other ice-free regions, including the Vestfold Hills (subregion 4), Queen Maud Land (subregion 1), the Pensacola Mountains (subregion 5a), the Ellsworth Mountains (subregion 6), Marie Byrd Land (subregion 7), Enderby Land (subregion 2), and Wilkes Land (subregion 4), contain the remaining 20% of the ice-free area. The McMurdo Dry Valleys (MDV, 4,800 km^2) in the central TAM constitute the single largest ice-free area in Antarctica. In this study we provide preliminary soil maps for subregions 3, 4, 5b, 6, and 8, the MDV, and Victoria, Wright and Taylor Valleys within the MDV. Collectively, the maps cover about 39,000 km^2 or 86% of the total ice-free area. Based on *Soil Taxonomy* (1999), Typic Haploturbels are the dominant soil subgroup, occurring in coastal areas throughout the Antarctic region where ice-cemented permafrost is within <70 cm of the surface. Typic Anhyorthels occur in central parts of ice-free valleys throughout the TAM. Lithic Anhyorthels are common on nunataks throughout the continent. Salt-enriched soils (Salic and Petrosalic Anhyorthels and equivalent subgroups enriched in gypsum or soda niter) occur on pre-Quaternary geomorphic surfaces throughout the TAM (subregion 5) and possibly in the Sør Rondane Mountains (subregion 1) and Prince Charles Mountains (subregion 4). Two key challenges in classifying soils of Antarctica are (i) identifying anhydrous conditions, which are important in ST at the great-group level, and (ii) classifying soils of penguin rookeries. Abandoned penguin rookeries have Spodosol-like soils in East Antarctic (subregions 2 and 4) and the Antarctic Peninsula (subregion 8) where ice-cemented permafrost is absent, discontinuous, or >100 cm in depth.