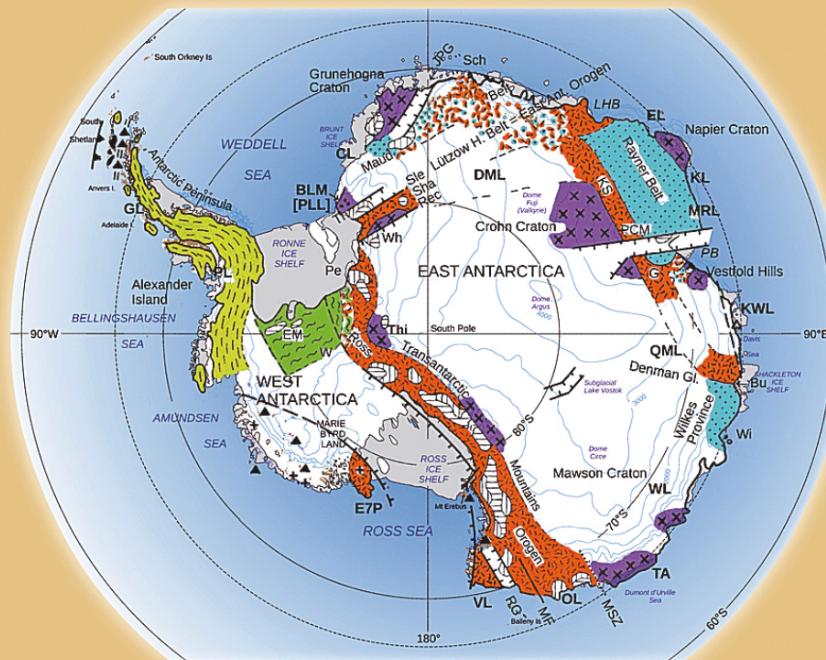


The Geology of the Antarctic Continent



Borntraeger Science Publishers

Siddoway, C., 2021, Geology of West Antarctica (Chapter 3), in Kleinschmidt, G., ed., Geology of the Antarctic Continent; pp. 87-131. Stuttgart: Schweizerbart Science Publishers, ISBN 978-3-443-11034-5.

3. The Geology of West Antarctica

Christine Siddoway

3.1. Overview

The physiographic province of West Antarctica (Fig. 3-1) borders the Pacific sector of the Southern Ocean and supports the West Antarctic Ice Sheet. Unlike East Antarctica, it has no cratonic elements and consists largely of thinned continental crust of the West Antarctic rift. In geographical terms, West Antarctica is that portion of the Antarctic continent that resides primarily in the western hemisphere, seaward of the 030° W – 170° E meridian. Bounded by the Transantarctic Mountains along its interior margin, West Antarctica encompasses Marie Byrd Land, Thurston Island, and the Ellsworth Mountains block, with the Ross Embayment and Weddell Sea, which altogether comprise the West Antarctic rift province and its seaward margins (Fig. 3-2). The West Antarctic ice sheet, with its dynamic fast-flowing glacier ice streams, lies within the bounds of the rift. The Paleozoic-Mesozoic bedrock of this glaciated region crops out in coastal exposures and forms extensive subglacial bedrock, encountered in offshore dredge and drill

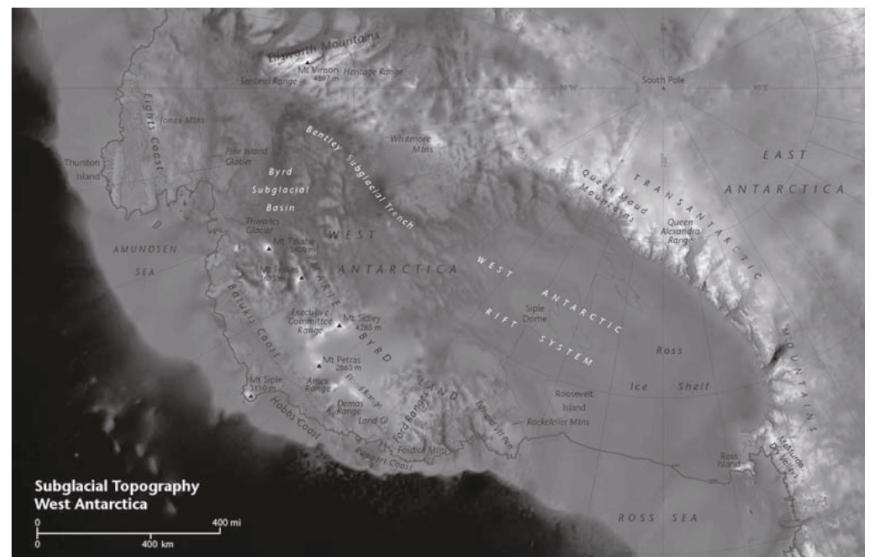


Fig. 3-1. Map of West Antarctica, showing selected place names, tectonic terranes, and physiographic features mentioned in the text. Gridded basemap is BEDMAP2 digital elevation model (Fretwell et al. 2013). Cartography by Brad Herried, Polar Geospatial Center, USA.