

Contents

<i>Preface</i>	vii
<i>Foreword</i>	ix
1. Introduction	1
George Plafker and Henry C. Berg	

REGIONAL GEOLOGY

2. Geology of the Arctic continental margin of Alaska	17
Arthur Grantz, Steve D. May, and Patrick E. Hart	
3. Geology of northern Alaska	49
Thomas E. Moore, Wesley K. Wallace, Kenneth J. Bird, Susan M. Karl, Charles G. Mull, and John T. Dillon	
4. Geology of Seward Peninsula and Saint Lawrence Island	141
Alison B. Till and Julie A. Dumoulin	
5. Geology of part of east-central Alaska	153
James H. Dover	
6. Geology of the Yukon-Tanana area of east-central Alaska	205
Helen L. Foster, Terry E. C. Keith, and W. David Menzie	
7. Geology of west-central Alaska	241
William W. Patton, Jr., Stephen E. Box, Elizabeth J. Moll-Stalcup, and Thomas P. Miller	
8. Geology of the eastern Bering Sea continental shelf	271
Michael S. Marlow, Alan K. Cooper, and Michael A. Fisher	
9. Geology of southwestern Alaska	285
John Decker, Steven C. Bergman, Robert B. Blodgett, Stephen E. Box, Thomas K. Bundtzen, James G. Clough, Warren L. Coonrad, Wyatt G. Gilbert, Martha L. Miller, John M. Murphy, Mark S. Robinson, and Wesley K. Wallace	
10. Geology of south-central Alaska	311
Warren J. Nokleberg, George Plafker, and Frederic H. Wilson	

- 11. *Geologic framework of the Aleutian arc, Alaska* 367**
 Tracy L. Vallier, David W. Scholl, Michael A. Fisher, Terry R. Bruns, Frederic H. Wilson,
 Roland von Huene, and Andrew J. Stevenson
- 12. *Geology of the southern Alaska margin* 389**
 George Plafker, J. Casey Moore, and Gary R. Winkler
- 13. *Geology of southeastern Alaska* 451**
 George E. Gehrels and Henry C. Berg

SUCCESSOR BASINS

- 14. *Interior basins of Alaska* 469**
 Charles E. Kirschner

CRYSTALLINE ROCKS

- 15. *Metamorphic history of Alaska* 495**
 Cynthia Dusel-Bacon
- 16. *Pre-Cenozoic plutonic rocks in mainland Alaska* 535**
 Thomas P. Miller
- 17. *Some accreted volcanic rocks of Alaska and their elemental abundances* 555**
 Fred Barker, with contributions by John N. Aleinikoff, Stephen E. Box, Bernard W. Evans,
 George E. Gehrels, Malcolm D. Hill, Anthony J. Irving, John S. Kelley, William P. Leeman,
 John S. Lull, Warren J. Nokleberg, John S. Pallister, Brian E. Patrick, George Plafker,
 and Charles M. Rubin
- 18. *Latest Cretaceous and Cenozoic magmatism in mainland Alaska* 589**
 Elizabeth J. Moll-Stalcup
- 19. *Latest Mesozoic and Cenozoic magmatism in southeastern Alaska* 621**
 David A. Brew
- 20. *Crustal melting events in Alaska* 657**
 Travis L. Hudson
- 21. *Ophiolites and other mafic-ultramafic complexes in Alaska* 671**
 William W. Patton, Jr., Stephen E. Box, and Donald J. Grybeck
- 22. *Aleutian magmas in space and time* 687**
 Suzanne Mahlburg Kay and Robert W. Kay
- 23. *Age, character, and significance of Aleutian arc volcanism* 723**
 John H. Fournelle, Bruce D. Marsh, and James D. Myers
- 24. *Quaternary volcanism in the Alaska Peninsula and Wrangell Mountains, Alaska* 759**
 Thomas P. Miller and Donald H. Richter
- 25. *Isotopic composition of the igneous rocks of Alaska* 781**
 Joseph G. Arth

PALEOMAGNETISM

26. *Paleomagnetic data from Alaska* 797
 John W. Hillhouse and Robert S. Coe

QUATERNARY GEOLOGY

27. *Late Cenozoic glaciation of Alaska* 813
 Thomas D. Hamilton

28. *Permafrost in Alaska* 845
 Oscar J. Ferrians, Jr.

RESOURCES

29. *Metallogeny and major mineral deposits of Alaska* 855
 Warren J. Nokleberg, David A. Brew, Donald Grybeck, Warren Yeend, Thomas K. Bundtzen,
 Mark S. Robinson, Thomas E. Smith, and Henry C. Berg
 With contributions by Gary L. Andersen, Edward R. Chipp, David R. Gaard, P. Jeffery Burton,
 John Dunbier, D. A. Scherkenbach, Jeffrey Y. Foley, Gregory Thurow, J. Dean Warner,
 Curtis J. Freeman, Bruce M. Gamble, Steven W. Nelson, Jeanine M. Schmidt,
 Charles C. Hawley, Murray W. Hitzman, Brian K. Jones, Ian M. Lange, Christopher D. Maars,
 Christopher C. Puchner, Carl I. Steefel, W. David Menzie, Paul A. Metz, J. S. Modene,
 Joseph T. Plahuta, Loren E. Young, Clint R. Nauman, Steven R. Newkirk, Rainer J. Newberry,
 Robert K. Rogers, Charles M. Rubin, Richard C. Swainbank, P. R. Smith, and Jackie E. Stephens

30. *Petroleum resources in Alaska* 905
 Leslie B. Magoon III

31. *Coal in Alaska* 937
 Clyde Wahrhaftig, Susan Bartsch-Winkler, and Gary D. Stricker

32. *Geothermal resources of Alaska* 979
 Thomas P. Miller

SYNTHESIS

33. *Overview of the geology and tectonic evolution of Alaska* 989
 George Plafker and Henry C. Berg

***Index* 1023**

Plates

(in accompanying slipcase)

Plate 1. Geologic map of Alaska, 1 sheet, scale 1:2,500,000 (Helen M. Beikman)

Plate 2. Maps of physiographic divisions of Alaska, 1 sheet, scale 1:2,500,000 (Clyde Wahrhaftig)

Plate 3. Lithotectonic terrane map of Alaska and adjacent parts of Canada, 1 sheet, scale 1:2,500,000 (Norman J. Silberling, David L. Jones, James W. H. Monger, Peter J. Coney, Henry C. Berg, and George Plafker)

Plate 4. Map and table showing metamorphic rocks of Alaska, 2 sheets, scale: 1:2,500,000 (Cynthia Dusel-Bacon)

Plate 5. Latest Cretaceous and Cenozoic magmatic rocks of Alaska, 1 sheet, scale: 1:2,500,000 (Elizabeth Moll-Stalcup, David A. Brew, and Tracy L. Vallier)

Plate 6. Generalized geologic map and sections for northern Alaska, 1 sheet, scale: 1:2,500,000 (Thomas E. Moore, Wesley K. Wallace, Charles G. Mull, Susan M. Karl, and Kenneth J. Bird)

Plate 7. Map showing sedimentary basins in Alaska, 1 sheet, scale: 1:2,500,000 (Charles E. Kirschner)

Plate 8. Map and table showing isotopic age data in Alaska, 1 sheet, scale: 1:2,500,000, with tables (Frederic H. Wilson, Nora Shew, and Gregory D. DuBois)

Plate 9. Incomplete isostatic gravity map of Alaska, 1 sheet, scale: 1:2,500,000 (David F. Barnes, John Mariano, Robert L. Morin, Carter W. Roberts, and Robert C. Jachens)

Plate 10. Composite magnetic anomaly map of Alaska and adjacent offshore areas, 1 sheet, scale: 1:2,500,000 (Richard H. Godson)

Plate 11. Metallogenic map of significant metalliferous lode deposits and placer districts in Alaska, 1 sheet, scale: 1:2,500,000 (Warren J. Nokleberg, Thomas K. Bundtzen, Henry C. Berg, David A. Brew, Donald Grybeck, Mark S. Robinson, Thomas E. Smith, and Warren Yeend)

Plate 12. Neotectonic map of Alaska, 1 sheet, scale: 1:2,500,000, with tables and text (George Plafker, Lou M. Gilpin, and John C. Lahr)

Plate 13. Map showing major occurrences of accreted volcanic rocks and the pre-Cenozoic and some early Tertiary plutonic rocks of Alaska, 1 sheet, scale: 1:2,500,000, with tables (Fred Barker, Thomas P. Miller, and George E. Gehrels)