Contents

1. Field-trip guide to the Catalina-Rincon metamorphic core complex, Tucson, Arizona 1
   George H. Davis, Jon E. Spencer, and George E. Gehrels

2. Accessibility and inclusion in the field: A field guide for central Arizona and Petrified Forest
   National Park 39
   Christopher L. Atchison, William G. Parker, Nancy R. Riggs, Steven Semken, and
   Steven J. Whitmeyer

3. A river is born: Highlights of the geologic evolution of the Colorado River extensional
   corridor and its river: A field guide honoring the life and legacy of Warren Hamilton 61

4. Exploring Arizona earth fissures: An anthropogenic geologic hazard 115
   Grace Carlson, Lorraine K. Carnes, and Joseph P. Cook

5. Volcanology and associated hazards of the San Francisco volcanic field 127
   Nancy Riggs, Michael Ort, Chuck Connor, Fabrizio Alfano, and Michael Conway

6. Journey to the Grand Canyon: A geologic and hydrologic excursion across Arizona’s
   magnificent heartland 147
   Wayne Ranney and Marvin Glotfelty

7. Mesoproterozoic rocks of the McDowell Mountains, Arizona—Journey into
   the magmatic gap 169
   Steven J. Skotnicki and Dan Gruber

8. Volcanic and marine stratigraphy along the El Álamo Canyon, Santa Rosalía Basin,
   Baja California Sur 187
   Susana Osorio-Ocampo, Laura García-Sánchez, Reyna Marcela Lira-Beltrán, José Luis Macías,
   Antonio Pola, Denis Ramón Avellán, Yam Zul Ernesto Ocampo-Díaz, Gianluca Groppelli,
   Roberto Sulpizio, Felipe García-Tenorio, Gerardo González-Barba, and Giovanni Sosa-Ceballos

   from lower lithosphere xenoliths and volcanic host rocks 209
   Alan D. Chapman, Nancy Riggs, Mihai N. Ducea, Jason B. Saleeby, Ojashvi Rautela, and
   Jessie Shields

10. Evidence for Mesoproterozoic ca. 1470–1444 Ma regional deformation of the Mazatzal Group
    and equivalent rocks in the type area of the Mazatzal orogeny, Tonto Basin, Arizona 237
    Michael F. Doe and Christopher G. Daniel
Contents

11. Unraveling volcanic and related processes using remotely sensed data sets: Perspectives from a Miocene-aged volcanic terrain in northwest Arizona. 273
Nicholas P. Lang, Susanne M. McDowell, Cole A. Nypaver, Brandt M. Gibson, Briana Li-Vidal, Calvin F. Miller, Lily L. Claiiborne, Autumn Helfrich, Joseph McCosby, Eli Schwat, Ian P. Thompson, Blake Wallrich, Michelle Foley, Sarah McGuinness, and Carlos Gomez

12. Walk in the footsteps of the Apollo astronauts: A field guide to northern Arizona astronaut training sites 307
R. Greg Vaughan, Kevin Schindler, Jeanne Stevens, and Ian Hough

13. Crustal shortening and porphyry copper mineralization in the Laramide arc and superimposed extension: Introduction and theme 319
Eric Seedorff, Carson A. Richardson, Daniel A. Favorito, Mark D. Barton, and Roy E. Greig

Carson A. Richardson, Daniel A. Favorito, Simone E. Runyon, Eric Seedorff, David J. Maher, Mark D. Barton, and Roy E. Greig

15. Temporal evolution of the Laramide arc: U-Pb geochronology of plutons associated with porphyry copper mineralization in east-central Arizona 369

16. Regional-scale evolution of the Laramide arc and porphyry copper province, southwestern North America 401
Roy E. Greig and Mark D. Barton

17. Mesozoic to Cenozoic sedimentation, tectonics, and metallogeny of Sonora, Mexico 407
Jason B. Price, Thierry Calmus, Scott E.K. Bennett, and Lucas Ochoa-Landín

18. Geology and paleontology of the early-middle Pleistocene El Golfo beds, Sonora, Mexico—A field guide 499
Christopher A. Shaw and Fred W. Croxen III

19. Back to the Jurassic: Architecture of eolian, wadi, microbialite, and disturbed facies, Carmel Formation and Navajo Sandstone, Kane County, south-central Utah 519
Mario V. Caputo and Thomas B. Anderson

20. The “Holey Tour” planetary geology field trip, Arizona (abstract) 553
Ronald Greeley