Paleozoic and Mesozoic tectonic evolution of central Asia: From continental assembly to intracontinental deformation

Edited by

Marc S. Hendrix
Department of Geology
University of Montana
Missoula, Montana 59812
USA

and

Gregory A. Davis
Department of Earth Sciences
University of Southern California
Los Angeles, California 90089
USA

2001
Contents

Preface ................................................................. v

1. Assembly of central Asia during the middle and late Paleozoic ...................... 1
   Christoph Heubeck

2. Paleozoic tectonic amalgamation of the Chinese Tian Shan: Evidence from a
   transect along the Dushanzi-Kuqa Highway ............................................ 23
   Da Zhou, Stephan A. Graham, Edmund Z. Chang, Baoyu Wang, and Bradley Hacker

3. Sinian through Permian tectonostratigraphic evolution of the northwestern
   Tarim basin, China ...................................................................................... 47
   Alan R. Carroll, Stephan A. Graham, Edmund Z. Chang, and Cleavy McKnight

4. Uplift, exhumation, and deformation in the Chinese Tian Shan ...................... 71
   Trevor A. Dumitru, Da Zhou, Edmund Z. Chang, Stephan A. Graham,
   Marc S. Hendrix, Edward R. Sobel, and Alan R. Carroll

5. Tectonic correlation of Beishan and Inner Mongolia orogens and its implications
   for the palinspastic reconstruction of north China ...................................... 101
   Yongjun Yue, Juhn G. Liou, and Stephan A. Graham

6. Paleozoic sedimentary basins and volcanic arc systems of southern Mongolia:
   New geochemical and petrographic constraints ........................................ 117
   Melissa A. Lamb and Gombosuren Badarch

7. Tectonic significance of early Paleozoic high-pressure rocks in
   Altun-Qaidam-Qilian Mountains, northwest China .................................... 151
   Jingsui Yang, Zhiqin Xu, Jianxin Zhang, Ching-Yen Chu, Ruyuan Zhang, and
   Juhn-Guang Liou

8. Mesozoic tectonic evolution of the Yanshan fold and thrust belt, with emphasis
   on Hebei and Liaoning provinces, northern China .................................... 171
   Gregory A. Davis, Zheng Yadong, Wang Cong, Brian J. Darby, Zhang Changhou,
   and George Gehrels

9. Structural evolution of the southwestern Daqing Shan, Yinshan belt,
   Inner Mongolia, China ............................................................................. 199
   Brian J. Darby, Gregory A. Davis, and Zheng Yadong

10. Fission-track constraints on Jurassic folding and thrusting in southern Mongolia
    and their relationship to the Beishan thrust belt of northern China ........... 215
    Trevor A. Dumitru and Marc S. Hendrix
11. Kinematics of exhumation of high- and ultrahigh-pressure rocks in the Hong’an and Tongbai Shan of the Qinling-Dabie collisional orogen, eastern China .......... 231
Laura E. Webb, Lothar Ratschbacher, Bradley R. Hacker, and Shuwen Dong

12. Jurassic to Cenozoic exhumation history of the Altyn Tagh range, northwest China, constrained by $^{40}$Ar/$^{39}$Ar and apatite fission track thermochronology .......... 247
Edward R. Sobel, Nicolas Arnaud, Marc Jolivet, Bradley D. Ritts, and Maurice Brunel

13. Paleozoic to Cenozoic deformation along the Altyn-Tagh fault in the Altun Shan massif area, eastern Qilian Shan, northeastern Tibet, China .......... 269
Nathalie Delville, Nicolas Arnaud, Jean-Marc Montel, Françoise Roger, Maurice Brunel, Paul Tapponnier, and Edward Sobel

14. Mesozoic northeast Qaidam basin: Response to contractional reactivation of the Qilian Shan, and implications for the extent of Mesozoic intracontinental deformation in central Asia .................. 293
Bradley D. Ritts and Ulderico Biffi

15. Sedimentary record of Mesozoic deformation and inception of the Turpan-Hami basin, northwest China .................. 317
Todd J. Greene, Alan R. Carroll, Marc S. Hendrix, Stephan A. Graham, Marwan A. Wartes, and Oscar A. Abbink

16. Sedimentary record of Mesozoic intracontinental deformation in the eastern Junggar Basin, northwest China: Response to orogeny at the Asian margin .......... 341
Stephen John Vincent and Mark B. Allen

17. Sedimentology and provenance of Mesozoic nonmarine strata in western Mongolia: A record of intracontinental deformation .................. 361
Derek J. Sjostrom, Marc S. Hendrix, Demchig Badamgarav, Stephan A. Graham, and Bruce K. Nelson

18. Triassic synorogenic sedimentation in southern Mongolia: Early effects of intracontinental deformation .................. 389
Marc S. Hendrix, Mary A. Beck, Gomboasuren Badarch, and Stephan A. Graham

19. Sedimentary and structural records of late Mesozoic high-strain extension and strain partitioning, East Gobi basin, southern Mongolia .................. 413
Cari L. Johnson, Laura E. Webb, Stephan A. Graham, Marc S. Hendrix, and Gomboasuren Badarch

Index .................. 435