DEVELOPMENTS IN STRUCTURAL GEOLOGY AND TECTONICS 5

PROBLEMS AND SOLUTIONS IN STRUCTURAL GEOLOGY AND TECTONICS

EDITED BY ANDREA BILLI & ÅKE FAGERENG

This self-guided reference explores new and complex problems and their solutions, including:

- Chapters that allow self-study and include background theory, equations, and definitions of research and industry jargon
- Examples of practical solutions to industry-related challenges
- Full color diagrams to illustrate the problems and solutions and emphasise 3D visualization

Problems and Solutions in Structural Geology and Tectonics, the latest volume in the Developments in Structural Geology and Tectonics series from Elsevier, presents students, researchers, and practitioners with an all-new set of problems and solutions commonly faced by structural geologists and tectonics researchers. Topics covered include: the interpretation of structures to understand tectonics, from cross-section balancing to integrating geodesy and geology; inferring strains and stresses from observations; field methods and modern satellite analysis; structural techniques in petroleum geoscience; and novel integration of structural geology and computer science. This book is an essential how-to guide for students of structural geology and tectonics, and can be used as practice and inspiration for professional geologists.

Andrea Billi received his PhD in geodynamics from Roma Tre University, Italy, in 2001. He spent 8 years at the Department of Geological Sciences of this University before moving into the position of Scientist (Ricercatore in 2009) and then Senior Scientist (Primo Ricercatore in 2010) at the National Research Council (CNR-IGAG) of Rome, where he currently works. He has taught Structural Geology as Assistant Professor at Roma Tre University and currently as professor at Sapienza University of Rome. He is a regular reviewer for numerous international journals and serves on the editorial boards of the *Journal of Structural Geology, Lithosphere, Scientific Reports, and Frontiers in Earth Science*. Dr. Billi has published more than 70 papers in international peer-reviewed journals on research fields as diverse as fault zone architecture, seismic faults, regional geodynamics, tsunamis, travertines, and hydrothermalism (www.andreabilli.com).

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ISBN 978-0-12-814048-2

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Part II

RELATING OBSERVED DEFORMATION TO STRESS AND/OR STRAIN HISTORY

Part IV

ADDING MODERN METHODS TO FIELD GEOLOGY

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NOVEL INTEGRATION OF MATHEMATICAL METHODS, COMPUTER SCIENCE, AND STRUCTURAL GEOLOGY