

Contributions of Space Geodesy to Geodynamics: Crustal Dynamics

**David E. Smith
Donald L. Turcotte
*Editors***

Geodynamics Series Volume 23

American Geophysical Union
Washington, D.C.

CONTENTS

- Preface *D. L. Turcotte and D. E. Smith* xi
- Introduction *D. E. Smith and M. Baltuck* 1
- Space Geodesy and Plate Motions *S. Stein* 5
- Horizontal Crustal Deformation and Large Scale Plate Motions Inferred From Space Geodetic Techniques *J. W. Robbins, D. E. Smith, and C. Ma* 21
- Global Scale Tectonic Plate Motions Measured With CDP VLBI Data *J. W. Ryan, T. A. Clark, C. Ma, D. Gordon, D. S. Caprette, and W. E. Hinrich* 37
- Plate Tectonics From SLR and VLBI Global Data *S. Robaudo and C. G. A. Harrison* 51
- Observing Geodynamics From the Analysis of 7.3-Year LAGEOS Data *M. Murata* 73
- Geodetic Results From Lageos 1 and Doris Satellite Data *A. Cazenave, P. Gegout, L. Souderin, K. Dominh, F. Barlier, P. Exertier, and Y. Boudon* 81
- Vertical Positioning at Laser Observatories *P. J. Dunn, M. H. Torrence, R. Kolenkiewicz, and D. E. Smith* 99
- New Directions in Theoretical Studies of Tectonic Deformation: A Survey of Recent Progress *J. B. Rundle and D. L. Turcotte* 107
- Results From the CDP Mobile VLBI Program in the Western United States *D. Gordon, C. Ma, and J. W. Ryan* 131
- Horizontal Crustal Deformation in Southern California From Joint Models of Geologic and Very Long Baseline Interferometry Measurements *F. Saucier and E. Humphreys* 139
- Present-Day Crustal Deformation in the Salton Trough, Southern California *R. Reilinger and S. Larsen* 177
- Constraints on Deformation of the Resurgent Dome, Long Valley Caldera, California From Space Geodesy *T. H. Dixon, M. Bursik, S. Kornreich Wolf, M. Heflin, F. Webb, F. Farina, and S. Robaudo* 193
- Analysis of a 100 Year Geodetic Record From Northern California *L. E. Gilbert, J. Beavan, and C. H. Scholz* 215
- Geodetic Measurement of Static Displacement Associated With the 1987–1988 Gulf of Alaska Earthquakes *J. M. Sauber, T. A. Clark, L. J. Bell, M. Lisowski, C. Ma, and D. S. Caprette* 233
- Crust-Mantle Evolution, Structure and Dynamics of the Mediterranean-Alpine Region *S. Mueller and H-G. Kahle* 249
- The Wegener-Medlas Project Preliminary Results on the Determination of the Geokinematics of the Eastern Mediterranean *P. Wilson and E. Reinhart* 299
- Plate Kinematics in a Global and European Scale by Lageos Laser Ranging Data From 1983 to 1990 *G. Gendt, H. Montag, and G. Dick* 311

^ Crustal Motions in the Mediterranean Region Determined From Laser Ranging to LAGEOS
R. Noomen, B. A. C. Ambrosius, and K. F. Wakker 331

Tectonic Motion in the Mediterranean Area From Laser Ranging to LAGEOS *A. Cenci, M. Fermi, C. Sciarretta, R. Devoti, and A. Caporali* 347

Ten Years of SLR Data Analysis at DGFI/I *Ch. Reigber, P. Schwintzer, F.-H. Massmann, Ch. Foerste, and H. Drewes* 359

Crustal Motions From Short-Arc Analysis of LAGEOS Data *S. Zerbini* 371

A Short-Arc Method for Determination of Station Coordinates and Baselines Applied to the Mediterranean Area *A. T. Sinclair and G. M. Appleby* 389

First Results of European Crustal Motion Measurements With VLBI *J. Campbell, H. Hase, A. Nothnagel, H. Schuh, N. Zarraroa, A. Rius, E. Sardon, V. Tornatore, and P. Tomasi* 397

^ Preliminary Results of 1988 and 1990 GPS Measurements in Western Turkey and Their Tectonic Implications *M. B. Oral, R. E. Reilinger, M. N. Toksöz, A. A. Barka, and I. Kinik* 407

Monitoring West Hellenic Arc Tectonics and Calabrian Arc Tectonics ("WHAT A CAT") Using the Global Positioning System *H.-G. Kahle, M. V. Müller, S. Mueller, G. Veis, H. Billiris, D. Paradissis, H. Drewes, K. Kaniuth, K. Stuber, H. Tremel, S. Zerbini, G. Corrado, and G. Verrone* 417