

Preface

This special issue of *Earth, Planets and Space* is devoted to a selection of the contributed papers presented at the International Symposium on GPS: Application to Earth Sciences and Interaction with Other Space Geodetic Techniques (GPS99 Tsukuba), held in October 18–22, 1999 at the Tsukuba International Congress Center, Tsukuba-city, Ibaraki, Japan, in part joint with the third international meeting of the Asia-Pacific Space Geodynamics Program (APSG). It was held under the scientific sponsorship of many organizations including CSTG, Commission VIII in Section II of IAG (International Association of Geodesy) and Commission B.2 of COSPAR (Committee on Space Research), International GPS Service for Geodesy of Geodynamics (IGS), National Committee of Geodesy, Science Council of Japan, Geodetic Society of Japan, and so on. The symposium was attended by 366 participants from 39 countries, and more than 300 papers were presented in the following fourteen sessions,

- Session 1. Permanent GPS arrays, current and future (convenors, Y. Bock and Y. Hatanaka)
 - Session 2. GPS meteorology: atmospheric sensing with ground and space-based GPS receivers (convenors, Y.-H. Kuo, M. Bevis, Y. Bar-Sever, R. Ware, N. Mannoji, and T. Tsuda)
 - Session 3. A new view of the tectonic deformations in the Pacific and Asia using space geodetic techniques (convenors, S.-B. Yu, J. Freymueller, T. Tabei, and M. Kasahara)
 - Session 4. Determination and interpretation of global and regional plate motions deduced from space geodetic techniques (convenors, K. Larson and K. Heki)
 - Session 5. Combination of space geodetic techniques for global geodynamics and reference frames (convenors, T. Herring, Z. Altamimi, S. Matsuzaka, and Y. Takahashi)
 - Session 6. Space and terrestrial techniques for advanced crustal deformation research (convenors, W. Prescott, F. Webb, S. Shimada, and T. Matsushima)
 - Session 7. Application of GPS for monitoring Earth's environmental and global sea level change (convenors, E. R. Ivins and Y. Tamura)
 - Session 8. Application of GPS for ionospheric research and impact of solar maximum for GPS measurements (convenors, R. Langley and A. Saito)
 - Session 9. Modeling of the crustal process based on GPS measurements (convenors, P. Segall, M. Hashimoto, and T. Sagiya)
 - Session 10. Theory and methodology of GPS and other space techniques (convenors, P. Teunissen and P. Xu)
 - Session 11. Kinematic application of GPS technology to Earth sciences (convenors, O. Colombo and T. Yabuki)
 - Session 12. Issues of data quality management and hardware/software technological problems in GPS (convenors, J. L. Davis, P. Fang, and A. Yasuda)
 - Session 13. GPS for gravity field and geoid determination (convenors, R. Forsberg and Y. Fukuda)
 - Session 14. Innovative developments in GPS geodesy in support of the Earth sciences (convenors, C. Rizos and S. Nakao)
- and one tutorial session dedicated to those not familiar with GPS.

This special issue contains contributed papers that were submitted after the symposium and accepted for publication after the normal review process of the journal. Because of the number of papers, we had to impose page limit of six to all the contributors. However, we admitted one or two extra pages for special cases, e.g. when there were strong requests from reviewers to extend specific parts of the manuscripts. The first volume includes those from Sessions 1, 3, 4, 10, 11, 12, 13, and 14. The second volume includes the rest. The Session 2 (GPS Meteorology) was splitted into two; the first and the second volumes include geodesy-oriented, and meteorology-oriented papers, respectively.

We would like to thank the authors, the reviewers of the submitted papers, for making the publication of the special issue possible. We hope these two volumes will become a useful reference source for world-wide earth scientists using GPS as a tool.

Special issue guest editors

- Volume 1: Kosuke Heki, Division of Earth Rotation, National Astronomical Observatory, Mizusawa, Japan
Teruyuki Kato, Earthquake Research Institute, University of Tokyo, Tokyo, Japan
Chris Rizos, School of Geomatic Engineering, The University of New South Wales, Sydney, Australia
Peiliang Xu, Disaster Prevention Research Institute, Kyoto University, Uji, Japan
- Volume 2: Kazuro Hirahara, Graduate School of Science, Nagoya University, Nagoya, Japan
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