

## PREFACE

The IAU Colloquium No. 56, the Second IAU Colloquium, "On Reference Coordinate Systems for Earth Dynamics," co-sponsored by the COSPAR and the International Association of Geodesy of IUGG was held in Warsaw, Poland, on September 8-12, 1980.

The Colloquium was organized by the Space Research Centre of the Polish Academy of Sciences and the Smithsonian Institution Astrophysical Observatory. It was sponsored by the Committee of Astronomy, the Committee of Geodesy, and the Committee of Space Research of the Polish Academy of Sciences. The first Colloquium devoted to this subject was held in Toruń, Poland, in 1974. The Scientific Organizing Committee consisted of:

### Cochairmen

Dr. E. M. Gaposchkin	USA
Dr. B. Kołaczek	Poland

### Members of the Program Committee

Prof. J. Kovalevsky	France
Prof. I. I. Mueller	USA
Prof. M. Rochester	Canada

### Members

Dr. M. Bursa	Czechoslovakia
Dr. H. K. Eichhorn	USA
Prof. W. Fricke	FRG
Dr. E. Hog	Denmark
Dr. Y. Kozai	Japan
Dr. Y. S. Yatskiv	USSR

The Local Organizing Committee consisted of:

Dr. B. Kołaczek, Chairman
Dr. W. Pachelski, Secretary
Dr. W. Dobaczewska
Dr. J. Kryński
Dr. G. Sitarski
Prof. J. Smak
Dr. J. B. Zieliński
Mr. W. Zarnowiecki

The duties of chairmen of the sessions were performed by Dr. J. Zieliński, Dr. P. Bender, Prof. W. Fricke, Dr. B. Kołaczek, Prof. K. Lambeck, Prof. H. Moritz, Prof. G. Veis, Dr. J. D. Mulholland, Prof. M. C. Rochester, Dr. C. Murray, and Dr. E. M. Gaposchkin. In addition, the occasion of the Colloquium was used to have a meeting of the IAU Working Group on Nutation organized by Dr. K. Seidelmann and a meeting of IAG Commission VIII headed by Prof. I. I. Mueller. The volume contains the texts or abstracts of papers presented at the Colloquium. An analysis and synthesis of what was learned and the consensus of the meeting on progress made and future prospects written by Prof. J. Kovalevsky and Prof. I. I. Mueller is also included.

This Colloquium was brought about by the unprecedented increase in accuracy of metric measurements from the ground and space, achieved in recent years, especially since the first Colloquium, and in the future, as well as significant progress of theory and model development. Geodesists and geophysicists are re-examining the principles and methods used for establishing terrestrial reference frames in the light of new understanding of the mobile Earth. Satellite and solar system dynamics require more careful definition. Galactic and extragalactic stellar reference frames are being redefined. All of these reassessments are fundamental, and none is independent of the others. This Colloquium brought together a unique combination of geophysicists, geodesists, dynamicists, astronomers, and astrometricists to discuss their common problems with reference frames and reference systems, each from his own point of view. The discussions were penetrating and on many points a consensus was actually obtained.

The editors want to thank Ms. J. Horn and Ms. Korniewicz for assistance in preparing the proceedings, Ms. P. Looney and Mr. S. Terry for excellent typing of manuscripts, the program committee for reviewing all the papers, the referees at the meeting who helped to insure a high standard of the proceedings, and Y. Bock for compiling the index. However, any errors in compiling these proceedings are the responsibility of the editors.

The organizers are very grateful for the financial support of the Polish Academy of Sciences (PAS), the Polish Astronomical Society, the Smithsonian Institution, IAU, COSPAR, and to the Copernicus Astronomical Centre of the PAS for making the meeting facilities available.