Introduction

At the XXIV EGS General Assembly held in The Hague in 19-23 April 1999, Session G18 on "High frequency and subseasonal oscillations of Earth rotation" was organized in order to present and discuss recent results concerning determinations and interpretations of these oscillations.

Fourteen papers were presented at the Session of which nine are published here. Four additional papers were added to this volume.

High frequency and subseasonal oscillations of Earth rotation have been extensively studied over the last decade thanks to the achievement of high accuracy and resolution in the space-geodetic techniques of VLBI, SLR and GPS. These signals can now be determined with an accuracy better than one millisecond of arc with a time resolution of a few hours.

Analyses of Earth Orientation Parameters (EOP) using Wavelet Transform (WT) and Fourier Transform Band Pass Filter (FTBPF) techniques have been used to determine and study time variations of high frequency variations of both Earth rotation and of effective atmospheric angular momentum functions (EAAM) which are highly correlated.

Results concerning high frequency oscillations of Earth rotation, including those on diurnal and semidiurnal scales, have yielded significant improvements in theories of tides and nutation. Furthermore, the effect of different geophysical phenomena on Earth rotation has been better understood because of the EAAM results.

Papers of this volume deal with the following problems.

- Methods of analyses of EOP and EAAM data and their results (Schmidt, Schuh and Schmidt, Kosek and Popinski, Nastula and Salstein)
- Determinations of EOP data by VLBI and GPS (Titov and Schuh, Weber and Rothacher)
- Atmospheric excitation of high frequency oscillations of ERP (Brzezinski)
- Irregular variations of EOP (Kosek)
- Improvements in nutation theory (Souchay and Folgueiza, Weber and Rothacher)
- Improvements in tidal terms in Earth rotation (Ray, Titov, Zharov *et al.*, Arfa-Kaboodvand *et al.*)