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Preface

Our ability to understand and predict the atmosphere/land/ocean system, and climate change, depends critically on our capability to observe and model the processes governing the water and the energy cycles. Because of the very high temporal and spatial variability, there is insufficient knowledge today about the water and energy cycles. To address these issues, a special programme, GEWEX, the Global Energy and Water Cycle Experiment, has been established within the World Climate Research Programme (WCRP). Within GEWEX, 5 regional programmes in different climate regions have now been established. The Baltic Sea Experiment (BALTEX) is a European contribution to GEWEX. The Baltic Sea and its drainage basin comprises an area that is about 17% of the European continent, and the area has a climate that undergoes large interannual, seasonal and regional variations.

Studies of the water and energy balances have a long tradition in the countries surrounding the Baltic Sea. The latest large international effort to understand the water cycle of the Baltic Sea was summarized by the Helsinki Commission in 1986. Thus, an extensive knowledge of the water cycle was achieved through a long-term international co-operation between countries with different economic conditions and socio-political systems. However, the water cycle was studied without consideration of the energy cycle or the feedback mechanisms in the system. Calculations of the water and energy cycles should not be made in isolation, but coupled atmosphere/land/ocean models need to be developed to give the correct feedback on the different components in the system. This is also one of the main aims of the BALTEX, a comprehensive programme including a combination of model and observation developments, re-analysis of existing data and field experiments.

This special issue presents 15 contributions from the **First Study Conference on BALTEX** held in Visby, Sweden 28 August–1 September 1995. The main objective of the conference was to summarize and review the present state-of-the-art with respect to the water and energy cycles in the Baltic Sea drainage basin, and to form the start of the BALTEX programme. The Conference was attended by about 150 scientists from 18 countries. The organizers of the conference were the International BALTEX Steering Committee, the Swedish Meteorological and Hydrological Institute, the Swedish National Committee for the IGBP and the WCRP of the Royal Swedish Academy of Sciences. The papers presented at the meeting have been collected in a Conference Proceedings and a part of them in this issue of *Tellus A*. The latter papers have all undergone the normal review process.

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