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Editorial

Topics in modern geophysical fluid dynamics

U. Harlander[1], **A. Will**[2], **M. V. Kurgansky**[3,4], **and M. Ehrendorfer**[5]

[1]Department of Aerodynamics and Fluid Mechanics, Brandenburg University of Technology (BTU) Cottbus, Siemens-Halske-Ring 14, 03046 Cottbus, Germany
[2]Department of Environmental Meteorology, Brandenburg University of Technology (BTU) Cottbus, Burger Chaussee 2, Campus Nord, 03044 Cottbus, Germany
[3]Department of Geophysics, University of Concepción, Concepción, Chile
[4]A. M. Obukhov Institute of Atmospheric Physics, Moscow, Russia
[5]Department of Meteorology, The University of Reading, PO Box 243, Earley Gate, Building 58, Reading, RG6 6BB, UK

Vienna is a fascinating modern city with rich and glorious history and best known as a place where many new developments in literature, art, and of course music started. Less known to the public might be the fact that at the turn of the 20th century, Vienna was the center of meteorological research in Europe and the Viennese school of theoretical meteorology influenced the development of geophysical fluid dynamics during the whole 20th century.

Thus, to us there appears to be no better place for a session on geophysical fluid dynamics than Vienna. On Monday, 3 April 2006, and Thursday, 19 April 2007 the sessions "AS1.05 New aspects of theoretical geophysical fluid dynamics" and "AS1.05 Recent developments of geophysical fluid dynamics" took place in the Austrian Center Vienna, during the General Assemblies of the European Geosciences Union (EGU). Also as regards the time the sessions were fitting well, since meteorologists had a benchmark in 2006, namely the 50 year anniversary of Norman A. Phillips' numerical simulations of the general circulation of the atmosphere Phillips (1956) (see Fig. 1). For this paper, N. Phillips got the Sir Napier Shaw Memorial Prize and E. T. Eady Sutcliff et al. (1956) remarked that the numerical integrations carried out give us a unique opportunity to study large-scale meteorology as an experimental science.

Modern geophysical fluid dynamics includes numerical as well as laboratory experiments and also all the mathematical aspects of flows. In general, the word "geophysical" is used in a broad sense and Tritton and Davies (1981) pointed out that it is unfortunate that there is no single word meaning "geophysical, planetary physical, and astrophysical". The sessions covered all the aspects mentioned above but had a slight preference towards the fundamental side of rotating stratified flows. Nevertheless, we hope that the reader will share our satisfaction and enthusiasm when reading the collection of papers. Moreover, it is hoped and anticipated that these proceedings will be useful to those seeking subjects for further investigation.

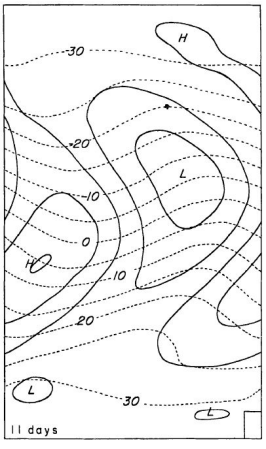

Fig. 1. First numerical prediction by N. A. Phillips in 1956. Distribution of 1000 mb contour height (solid lines) and 500 mb temperature at 5°C intervals (dashed lines) at 11 days.

References

Phillips, N. A.: The general circulation of the atmosphere : a numerical experiment, Q. J. Roy. Meteor. Soc., 82, 123–164, 1956.
Sutcliff, R. C., Sheppard, P. A., Eady, E. T., et al.: Discussions: The general circulation of the atmosphere : a numerical experiment, Q. J. Roy. Meteor. Soc., 82, 535–539, 1956.
Tritton, D. J. and Davies, P. A.: Instabilities in geophysical fluid dynamics, in: Topics in Applied Physics, edited by: Swinney, H. L. and Gollub, J. P., Springer, 45, 229–270, 1981.

Correspondence to: U. Harlander
(uwe.harlander@tu-cottbus.de)

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