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Some mathematical problems in geophysical fluid dynamics. (English) Zbl 1222.35145

Friedlander, S. (ed.) et al., Handbook of mathematical fluid dynamics. Vol. III. Amsterdam: Elsevier/North Holland (ISBN 0-444-51556-9/hbk). 535-567 (2004).

Summary: This chapter addresses some mathematical aspects of the equations of geophysical fluid dynamics namely, existence, uniqueness, and regularity of solutions of the primitive equations (PEs) of the ocean, the atmosphere and the coupled atmosphere-ocean. The emphasis is on the case of the ocean which encompasses most of the mathematical difficulties.

For the entire collection see [Zbl 1051.76002].

MSC:

35Q30	Navier-Stokes equations
86A05	Hydrology, hydrography, oceanography
76B03	Existence, uniqueness, and regularity theory for incompressible inviscid fluids
76D05	Navier-Stokes equations for incompressible viscous fluids
76U05	General theory of rotating fluids
86A10	Meteorology and atmospheric physics