

地球自转动力学中的两个问题

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摘 要

介绍了地球自转动力学中的两个目前正在研究的问题:

1. Chandler 摆动的随机激发。在分析 Chandler 摆动各种激发的可能性后, 认为随机运动是最可能的激发源。在此基础上, 提出了一个研究 Chandler 摆动激发的动力学模型, 并从理论和数值模拟两方面对此模型做了统计分析研究。描述了今后对此问题的研究思路。

2. 地球内部动力学是目前国际地球动力学界的一个热点研究课题。介绍了它的现状和最近的发展动态以及准备在这方面开展研究工作的打算。

关键词 地球自转 — 动力学 — Chandler 摆动

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Two Problems in Dynamics of the Earth Rotation

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Abstract

Two important problems in the study of the Earth rotation dynamics are introduced:

1. Stochastic excitations of the Chandler wobble. Based on the investigation on the possible exciting sources of the Chandler wobble, stochastic motion is found to excite the wobble with the highest possibility compared with the other exciting sources. A dynamical model to study the Chandler wobble is proposed and the corresponding statistic analysis are pressed from both views of theory and numerical simulation. The future route of researching this problem is stated.

2. Dynamics of the Earth interior. This is a popular problem in geodynamics at present. Its developing tendency and our future research plan are described.

Key words Earth rotation—Dynamics—Chandler wobble