

## **Hilbert Problems for the Geosciences in the 21st Century**

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Here are some interesting problems in the Geosciences for the next century: (1) What is the coarse-grained structure of low-frequency atmospheric variability? (2) What can we predict beyond one week and how (3) What are the roles of intrinsic ocean variability and coupled modes in seasonal-to-interannual variability? (4) How does the oceans' thermohaline circulation change on interdecadal and longer scales? (5) What is the role of biogeochemical cycles in affecting climate, and vice-versa? (6) What can we learn about all this from other planets? (7) Can humans learn to control Earth's climate in an enlightened way?