

Special Issue

The Biosphere and Earth's Planetary Boundaries

Message from the Guest Editor

This Special Issue of *Biosphere* seeks high-impact contributions on the biosphere's role in maintaining Earth's planetary boundaries amid accelerating environmental disruption and growing systemic risk. The planetary boundary framework identifies critical thresholds for keeping humanity within a safe operating space. Crossing these boundaries increases the risk of tipping points, irreversible change, and cascading impacts across the Earth system. Recent assessments indicate that seven of the nine planetary boundaries have already been transgressed.

Planetary-boundary assessment draws on observations, modeling, and expert evaluation to define safe operating thresholds and support responsible Earth-system management. We invite original submissions that advance planetary-boundary science and provide timely insights for policy, management, and practice. We particularly welcome contributions that identify emerging risks, clarify biosphere feedback, and define credible pathways to reduce pressures, strengthen resilience, and help avert irreversible Earth-system change.

We welcome experiments, observational studies, modeling and scenario analyses, reviews, and short commentaries.

Guest Editor

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About the Journal

Message from the Editor-in-Chief

The editorial board of *Biosphere* invites papers resulting from disciplinary and interdisciplinary research, modeling and literature reviews on the current state of the field and its future projections. The main purpose of *Biosphere* is to enhance our scientific understanding and use the resulting knowledge and information for the practical management and stewardship of nature and the services it provides to humans and other species on Earth. Such contributions can be in the form of individual papers, a special collection of papers, and dedicating a Special Issue of the journal to topic(s) of interest to authors. Interested contributors can also propose to serve as a guest editor for organizing a special topical issue of the journal.

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