Special Issue

Climate-Driven Shifts in Snow Drought and Hydrological Extremes: Ecological Impacts and Resilience

Message from the Guest Editors

Snow droughts are emerging as critical climate risks, exacerbating soil moisture deficits and disrupting ecosystems. These changes threaten water resources, biodiversity, and carbon sequestration, particularly in snow-dependent regions. Understanding the interplay between snow droughts, ecological dynamics, and climate feedbacks is urgent to inform adaptation strategies. This Special Issue explores these linkages to address gaps in predicting cascading impacts under future climate scenarios. We welcome original research, reviews, and case studies addressing:

- Climate linkages: How temperature-driven precipitation phase changes (rain vs. snow) and altered snowmelt timing exacerbate soil moisture stress.
- Ecological cascades: Impacts on plant productivity, species composition, and carbon cycling under coupled snow drought and meteorological droughts.
- Feedback mechanisms: Interactions between snow loss, land-atmosphere feedbacks (e.g., albedo shifts), and extreme climate events (heatwaves).

Submissions integrating multiscale data (remote sensing, in situ monitoring) or advanced techniques (e.g., deep learning) are encouraged.

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Editor-in-Chief

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