



# Extreme climate event in Rio Grande do Sul in May 2024: impacts, adaptation and vulnerabilities

Evento climático extremo no Rio Grande do Sul, em maio de 2024: impactos, adaptação e vulnerabilidades

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We are pleased to introduce this landmark volume, which brings together contributions from leading experts in planetary health. These articles offer valuable insights into this vital field and serve as a lens through which to reflect on the extreme weather event that struck the state of Rio Grande do Sul in May 2024.

This issue also marks the debut of *Trends in Health Sciences*, the official scientific journal of Associação Médica do Rio Grande do Sul (AMRIGS). With this publication, we aim to foster scientific excellence and contribute to the pursuit of healthier lives for all.

There was broad agreement that the first issue should focus on one of the most pressing challenges of our time: the climate, human, and planetary health emergency. The devastating floods that struck Southern Brazil in 2024 – where AMRIGS is headquartered – serve as a painful reminder of the increasing frequency and intensity of extreme climate events, and of the urgent need for action. In this special issue, invited authors delve into key topics such as planetary health, climate change, health care system resilience, and sustainability.

Climate change is the defining health challenge of the 21st century. Its fingerprints are everywhere. The 2024 floods in Rio Grande do Sul, which displaced hundreds of thousands, mirror extreme weather events around the world – record-breaking heatwaves across Europe, wildfires in Canada and Brazil, typhoons sweeping through Southeast Asia, and melting glaciers driving sea-level rise and threatening to engulf island nations like Tuvalu and Kiribati, forcing entire populations to relocate. At the same time, ambient air pollution – intensified by fossil fuel combustion, the main driver of global warming – claims over 4 million lives each

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year, hitting the most vulnerable the hardest. These interconnected crises demand urgent action rooted in the principles of planetary health, where health equity and social justice are central to sustainability.

The extreme climate events that struck Rio Grande do Sul in May 2024 – including unprecedented floods – underscore the urgent need for a sustainable health system, one capable of responding to crises while minimizing environmental harm. Health systems occupy a paradoxical position in the planetary health crisis: they are vital for protecting and promoting human health, yet they also contribute substantially to environmental degradation – accounting for roughly 5% of global carbon emissions – through intensive resource use and waste generation. To meet today's challenges, health systems must evolve. A truly sustainable system must be climate-resilient, reduce its ecological footprint, and adapt to the growing threat of extreme weather events – ensuring both immediate response capabilities and long-term environmental responsibility.

Greening health care is essential – but it is not enough. Health professionals are uniquely positioned to help lead the sweeping societal transition to a net-zero carbon economy. Trusted by society and deeply embedded in our communities, we have the power to lead by example in our daily lives, to counter misinformation and fake news, and to advocate for evidence-based policies – such as the implementation of health impact assessments (HIA), akin to environmental impact assessments. While the scale of the challenge may seem

overwhelming, hope through action remains a powerful antidote to despair. History has shown what health professionals can achieve – from eradicating smallpox to rapidly developing vaccines and implementing lockdowns during the COVID-19 pandemic. In a time of ideological divisions, even among friends and colleagues, the science of planetary health and the practice of collective, pragmatic action can help us rediscover community, purpose, and even joy. A shining example of this is the visionary Planetary Health Group Brazil (Grupo Saúde Planetária Brasil [SPBr]). Based at the Instituto de Estudos Avançados da Universidade de São Paulo, and founded in 2019 as part of the global Planetary Health Alliance, SPBr has mobilized a growing network of individuals, universities, and organizations. Its mission: to break down disciplinary silos, foster innovative collaborations, and help build the path toward a carbon-neutral future.

Finally, the 30th United Nations Climate Change Conference (COP30), set to take place in Belém, Brazil, presents a pivotal opportunity to advance strategies for addressing climate emergencies and to reaffirm our collective commitment to effective action for climate and planetary health.

We hope this inaugural issue of *Trends in Health Sciences* will contribute to identifying practical, impactful actions – both within health systems and across society – that can help us face this defining challenge of our time.

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