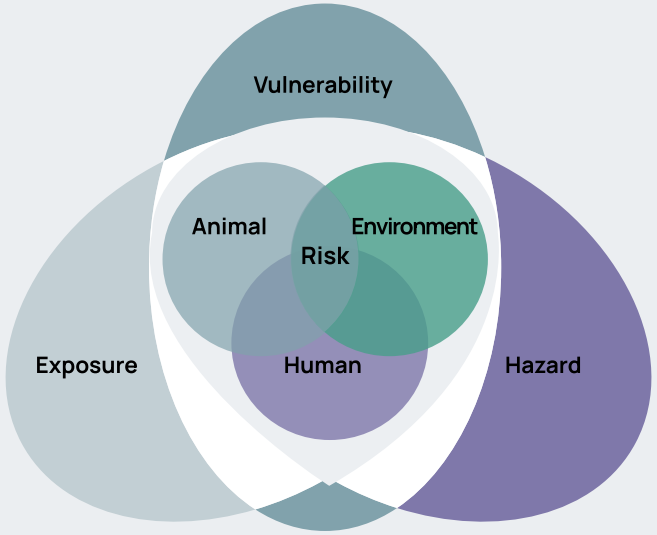
Global Health Resilience

In the Global Health Resilience group of the Earth Sciences Department at the Barcelona Supercomputing Center-Centro Nacional de Supercomputación (BSC-CNS), we advance science at the intersection of climate, health and digital technology. Through international collaboration and innovation, we co-design and develop tools that strengthen resilience and protect vulnerable communities against emerging climate-sensitive global health threats.



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GLOBAL HEALTH RESILIENCE

Strengthening resilience to emerging health threats

Barcelona Supercomputing Center
Centro Nacional de Supercomputación

Context

Extreme climatic events, biodiversity loss, and socio-economic inequalities are intensifying mortality and the emergence of climate-sensitive infectious diseases. These interacting drivers alter disease dynamics and demand transdisciplinary, data-informed health surveillance and resilience strategies.

Who we are

We are an interdisciplinary research group of climate and data scientists, epidemiologists, and modellers. Our combined background expertise in mathematics, environmental science, statistics, veterinary medicine, community engagement, physics, and public health allows the group to collaboratively bridge disciplines and tackle multi-faceted problems.

What we do

We develop early warning systems, impact-based forecasting models, and decision-support tools that anticipate climate-sensitive infectious disease risks. By leveraging large-scale, multi-source data and advanced analytical methods, we aim to strengthen global surveillance, preparedness, and response strategies.

Why we do it

Climate extremes are becoming more frequent, challenging public health preparedness. Despite the abundance of data, key gaps remain in understanding how climate change, environmental degradation, and social inequities shape disease risk. We develop advanced tools to help public health decision-makers anticipate and respond to climate-sensitive health threats worldwide.

How we do it

We adopt a transdisciplinary approach that brings together climate science, epidemiology, biology, and data science to develop digital health tools. Through collaboration with local stakeholders and global institutions, we harmonise data, apply AI and cutting-edge modelling, and ensure our outputs are actionable, context-specific, and policy-relevant.