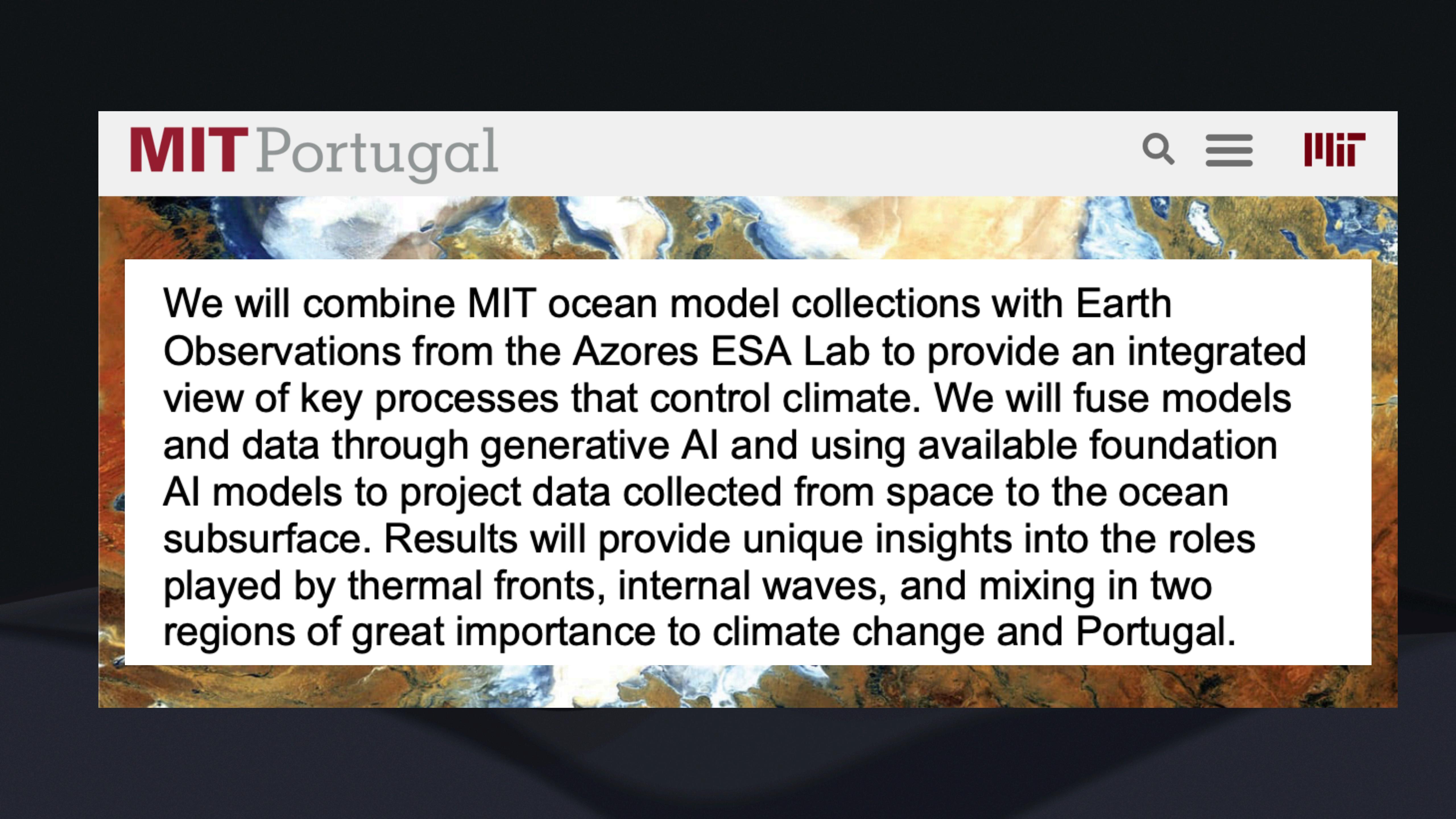


Model-Data Fusion for the Azores and the Tropical Pacific

Gaël Forget, Adriana Ferreira, Jorge Magalhães, João Pinelo, José Silva



We will combine MIT ocean model collections with Earth Observations from the Azores ESA Lab to provide an integrated view of key processes that control climate. We will fuse models and data through generative AI and using available foundation AI models to project data collected from space to the ocean subsurface. Results will provide unique insights into the roles played by thermal fronts, internal waves, and mixing in two regions of great importance to climate change and Portugal.

Julia Island ... the Origin Story

2022 Symposium on Advances in Ocean Observations

The goal :

“Bring together a small yet highly motivated group of experts focusing on smarter methods in ocean observation. The aim is to generate ideas across science and technology, to advance ocean observation in novel ways.”

My contribution :

👉 Here is a framework to demonstrate and evaluate new observational concepts in Julia!



Figure reproduced from ***Digital Twins for Ocean Robots***. G Forget 2024. Proceedings of the JuliaCon Conferences 6 (65), 164. Depiction of thermal fronts in MIT general circulation model.

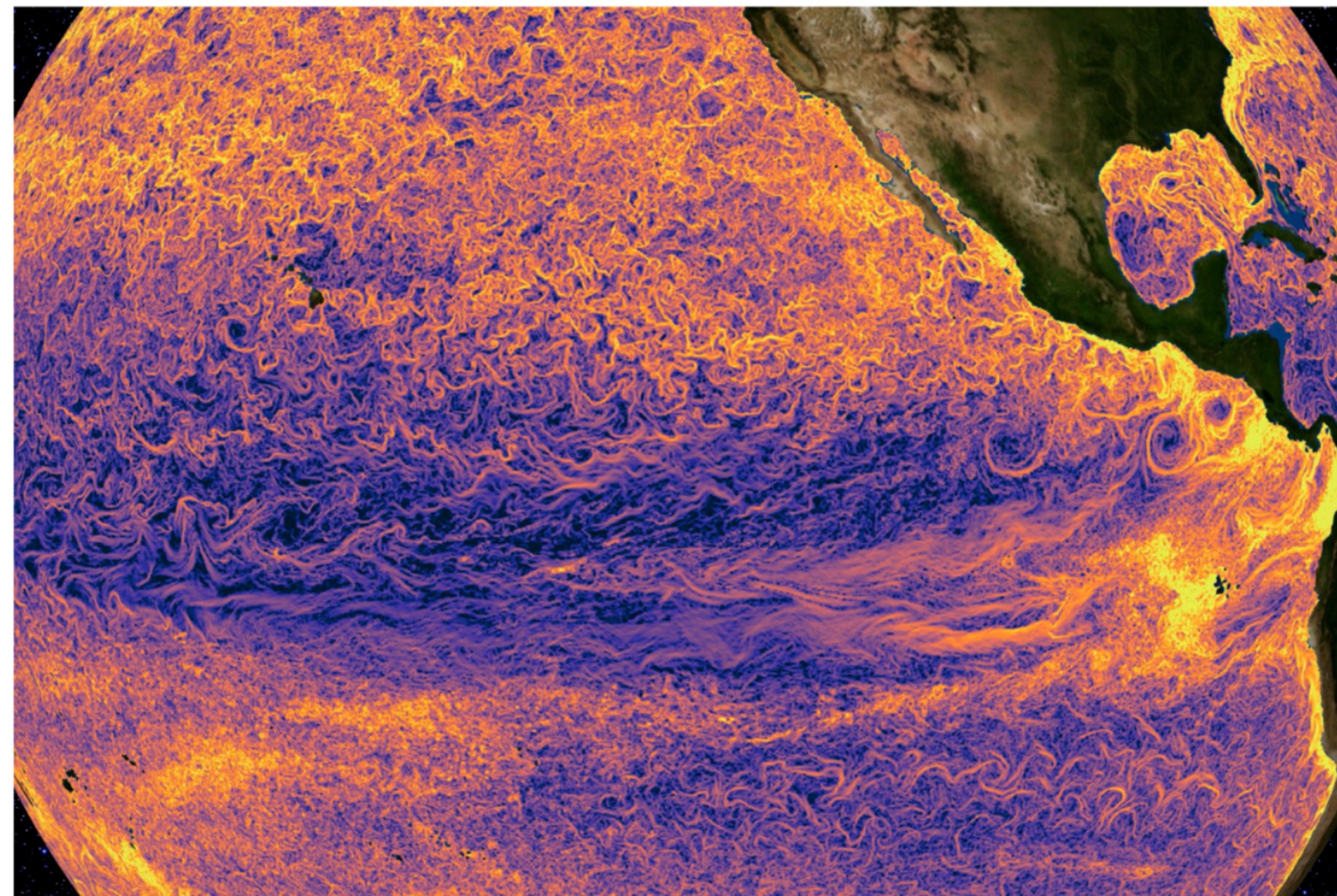
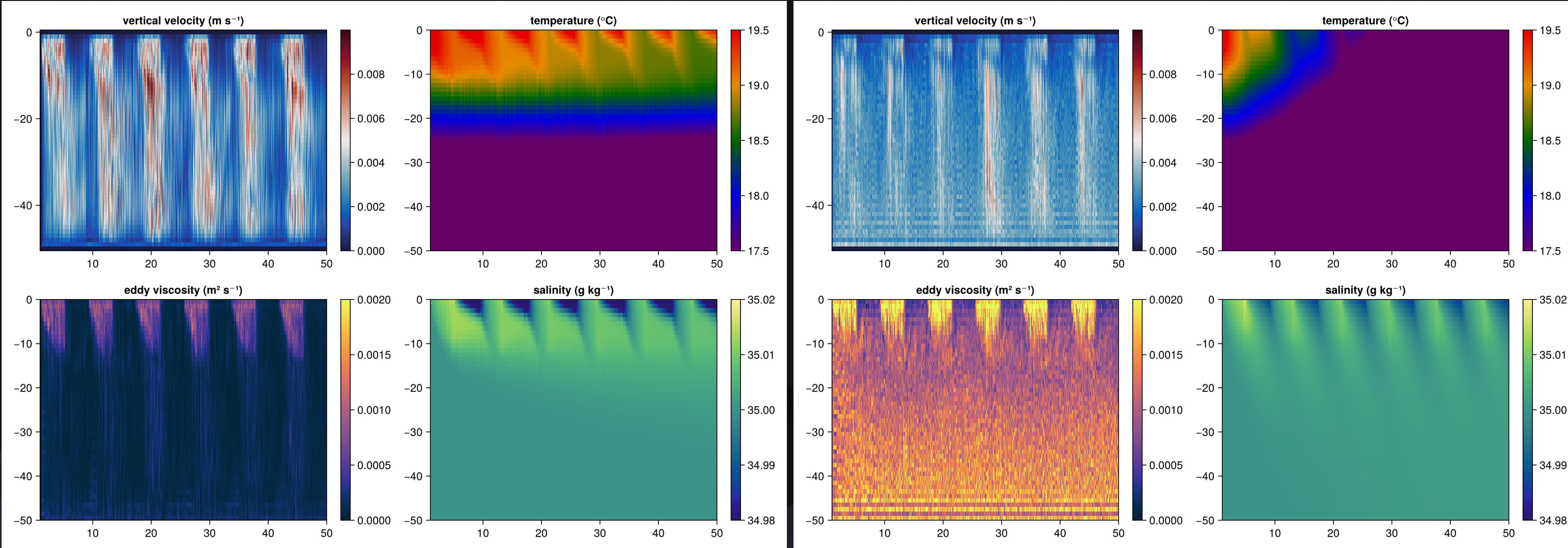


Fig. 8: Temperature fronts in a global km-scale MITgcm simulation. Plotted is the logarithm of the spatial gradient of a temperature snapshot.

We have been Ready to Use Oceananigans for years but ...



Oceananigans.jl v0.95.5 (one year ago)

Oceananigans.jl v0.103.1 (now)