



UCAR Africa Initiative Seminar

Coastal upwelling off south-west and north-west Africa - how well is it represented in global and regional climate models?

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Date: Thursday Jan 24th, 2024, 09:30 am – 10:30 am (MT)

Location: FL2 1001 seminar room and online

Webcast: <https://operations.ucar.edu/live-africa-initiative>

ABSTRACT

The eastern boundary upwelling systems (EBUS) such as those off Angola, Namibia and South Africa (Benguela system), off Senegal, Western Sahara, Mauritania and Morocco (North-west Africa upwelling) as well as off Peru and Chile, and western USA (see Fig. 1 for locations) are among the most productive ocean ecosystems, and support about one-fifth of the world's wild marine fish harvest. The ocean circulation in the EBUS is driven by alongshore winds (Fig. 1) on the boundary between oceanic subtropical highs and thermal lows over the continents: the atmospheric pressure gradients can be enhanced by the presence of coastal mountains and coastline curvature. Upwelling of cold, nutrient-rich water occurs in response to the strong winds, which supports the ecosystem.

In this talk I will assess the status of representation of the western African upwelling systems in global and regional climate models, including the results from high resolution models performed in conjunction with Texas A&M and international partners. The talk will include discussion of how well the ecosystem is represented, and possible future changes in upwelling.

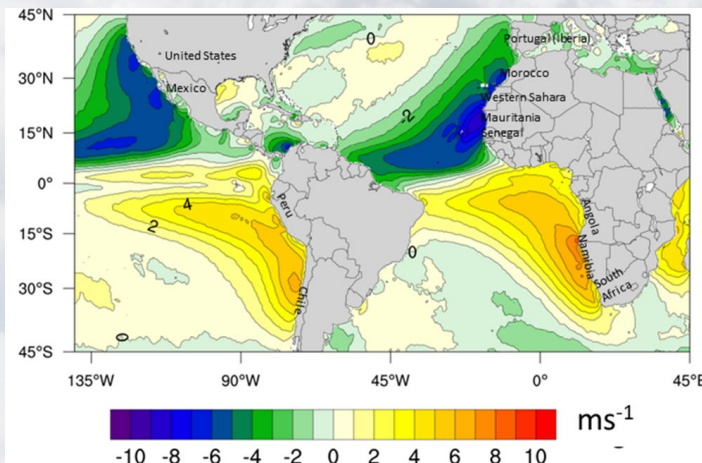


Fig. 1. Meridional wind component in April with countries marked. Coastal upwelling is associated with strong southward winds in northern hemisphere (negative in plot) and strong northward winds in southern hemisphere (positive in plot).

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