

## Like a Mangrove out of Water: Dispersal Limitation and Adaptive Responses of Dominant Coastal Trees to Freshwater Limitation

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As climate changes, freshwater unavailability due to reducing precipitation, lower air humidity, and rising temperatures may increase mass tree mortality not only in arid regions, but also in tropical and subtropical environments like mangroves forests. These tree communities inhabit the habitats between land and sea and are composed by few broadly distributed plants whose populations face high environmental heterogeneity, from arid to rainy/wet sites, and from subtropical to equatorial regions. Thus, mangroves provide suitable models to unveil the mechanisms underlying trees adaptation to freshwater limitation. First, this presentation will be focused on how geography and oceanography shape the dispersal of mangroves along the Brazilian coast. As intraspecific gene flow is limited in this region, local adaptation is expected to take place as one observes contrasting environments, at different geographic scales. Then, I will explore recent findings on the adaptive responses of two black mangroves species (*Avicennia*) across the Brazilian coast to drought tolerance or response to hydric stress. Evidence of natural selection has also been observed at much smaller geographic scale. There are signs of natural selection in *A. germinans* in response to abrupt limitation in access to soil freshwater, after a road was constructed in the mid-70s. To conclude, there will be a brief discussion on how these findings may support mangrove trees conservation and its associated challenges.

