

Penguins as Ecosystem Guardians: Navigating Extreme Events in the Southern Hemisphere

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Extreme events have profound consequences for marine ecosystems. Spanning from the equatorial Galapagos Islands to the polar expanse of Antarctica, penguins provide a unique opportunity to evaluate extreme events driven impacts up to top predators in different ecosystems through the whole Southern Hemisphere. Moreover, penguins are one of the most threatened group of seabirds by climate change and human activities. Extreme events may pose an additional acute threat to these species. Previous studies highlight the adverse effects of extreme events on penguins, hindering their foraging behavior and diminishing breeding success. In this study we identify regions and species subject to heightened exposure to individual and cumulative extreme events. We focus on extreme winds, marine heat waves, chlorophyll levels and intensified precipitation within the 18 penguin species hotspots. Therefore, this research provides essential insights to guide conservation strategies aimed at mitigating potential ecological disruptions.