

Abstract Submitted
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Modeling huddling penguins FRANCOIS BLANCHETTE, AARON WATERS, ARNOLD KIM, University of California Merced — We present a model of the behavior of huddling penguins. We focus on the densest huddles, formed during storms, where penguins may be considered to leave no openings in the interior of the huddle. We compute a temperature distribution around the huddle, accounting for the effects of the wind. The dynamics of the huddle are based on an iterative process where the most exposed penguin relocates to the most sheltered location available. We study the effects of wind strength, number of penguins, and random perturbations. We find that our model produces huddles that agree qualitatively with actual huddles in terms of shape and downwind displacement. Moreover, the exposure to the wind appears to be shared nearly equally among penguins, despite the fact that our model assumes only that each penguin aims to minimize its own heat loss.

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