

Poster for session 5. Feeding Ecology and Foraging Area

Eco-morphological studies in Antarctic fulmarine petrels: flight musculature and wing morphology in relation to foraging strategies.

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In this paper we looked at the foraging strategies of Antarctic fulmarine petrels in relation to their flight muscles and wing morphology. The fulmarine petrels are a group of medium-sized procellariiforms, which are highly adapted to the extreme polar conditions and are the most abundant birds in the Antarctic ecosystem. In particular we looked at: Antarctic Petrel, Southern Fulmar, Cape Petrel, Snow Petrel, but unfortunately the Southern and Northern Giant Petrels could not be included yet. Our four study species have a similar diet, and their breeding habitat overlaps along the coast of East Antarctica. However, earlier studies showed that two species (Antarctic Petrel, Snow Petrel) were found almost exclusively within the seasonal ice zone or near the ice edge, whereas the other two (Southern Fulmar, Cape Petrel) forage more in open waters. Foraging trips were not related to body size, but to the habitat where they forage. The ice-zone species had foraging trips to up to twice as long as open-water species. It was investigated whether flight muscles differed between the species, and how the ratio between different parts of the flight muscles varied among species. Because we only could determine the flight muscles of a few individuals, we took also measurements of the crest (where the flight muscles attach). Furthermore we looked in detail to the wing morphology, because their wings might be differently adapted to the foraging strategies and to the area where they forage. For example, ice-zone species might need higher maneuverability for foraging around icebergs, as well as using more flapping flight in the absence of waves. Conversely, open-water species are expected to use more gliding flight to make optimal use of the waves. We intend to extend this study with specimens of other procellariiform species, also from more moderate areas. Furthermore we aim to test aerodynamic properties of different parts of the wing and different wings, especially of species that differ in flight styles (gliding-flapping) and foraging strategies (diving, surface seizing, scavenging, etc..). Therefore, we would like to collaborate with other researchers which could help us with expertise and specimens (e.g. longline-fishery victims, carcasses left over from other studies).