

ment method that requires no harness, with the objective of annually covering key phases of the breeding season from early December (mid-incubation) to late March (when chicks are mostly unattended and have reached weights of 5000 g or more). Duty cycles were typically set to record approximately 10 hours of movement per day, and instruments were usually left on individuals long enough to capture multiple foraging trips. During the past five austral summers, we have deployed PTTs on 72 giant petrels and averaged about 28 days of deployment per individual (range, 8-53 days).

Preliminary analyses of our data suggest two broad patterns that are potentially significant as underlying explanations for the increasing populations of giant petrels in the Palmer Station area. The first is that during all seasons, individuals made repeated trips to the same areas, some of which are more than 1200 km away (Fig. 2). Key among these have been polynyas and residual summer ice edges, which are found primarily south of the Palmer Station giant petrel population, and which oceanographic cruises have shown are associated with regions of high primary production and prey abundance. This finding is important because we know most commercial fishing activities take place to the north of this population, suggesting, much as we suspected, a limited overlap between local breeding giant petrel foraging ranges and commercial fishing activities.

The second broad pattern is more complex, but it too has the effect of keeping foraging giant petrels away from more northern fishing activities during the breeding season. Although the longest foraging trips (6-12 days) to the most distant locations discussed above were especially common during the incubation phase, trips tended to decrease in distance and duration (1-9 days) during the brood and guard phases. The guard phase in giant petrels is coincident with fledging period in Adélie penguins (*Pygoscelis adeliae*), which are abundant and highly vulnerable to petrel predation both on land and at sea. Despite evidence that during some seasons this pattern was more gender-specific (i.e., males rather than females were the predominant penguin predators), the net effect on where giant petrels foraged relative to the activities of fishing vessels was nevertheless the same (Fig. 3), at least from the standpoint that either foraging strategy (distant vs. local) still minimized their exposure to northern fishing vessels.

Although our results suggest that the foraging ranges of breeding Southern giant petrels in the Palmer Station area are spatially isolated from commercial fishing operations to the north, we know much less about where the non-breeders and pre-breeders from this population forage. The Southern giant petrel breeding population in the Palmer Station vicinity is still increasing, in part due to a steady influx of new recruits. In future studies we intend to focus on this segment of the population to see if they too have foraging strategies that limit their spatial and temporal exposure to commercial fishing activities.

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New to Our Staff...

Lissa Werbos joined Microwave Telemetry in August 2002. A recent graduate of Massachusetts Institute of Technology, Lissa is chiefly involved in programming and analyzing Archival Pop-up Tag data. Those of you who have deployed archival tags know her well!

Lissa has many varied interests outside of programming. At MIT, she was a member of the ballroom dancing team (yes, MIT has one!) and she recently joined a community Shakespearean theater. Lissa made her debut as Aeneas in Shakespeare's history play, *Troilus and Cressida*. Her next role this spring will be Vitrovia in the tragedy, *Othello*.

In addition to her work at Microwave, Lissa is taking two postgraduate physics classes at the University of Maryland.

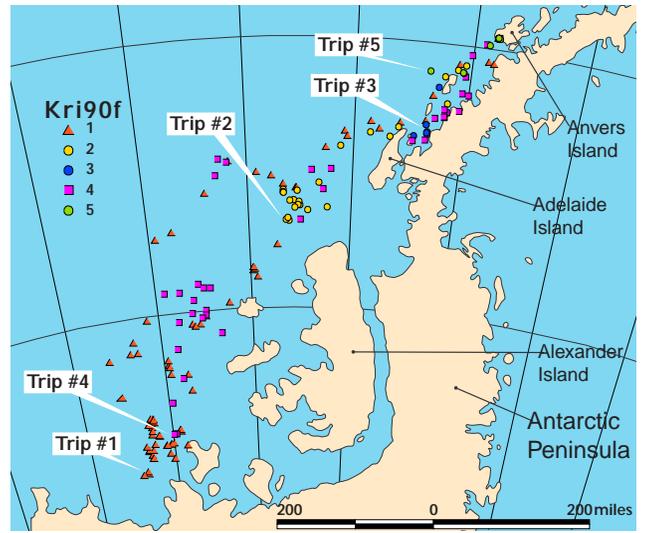


Fig. 2. Movements of a female Southern giant petrel that made five distinct foraging trips along the Antarctic Peninsula during summer 2000/01. Note the overlap between the foraging trips; giant petrels are drawn to predictably productive areas along the peninsula.

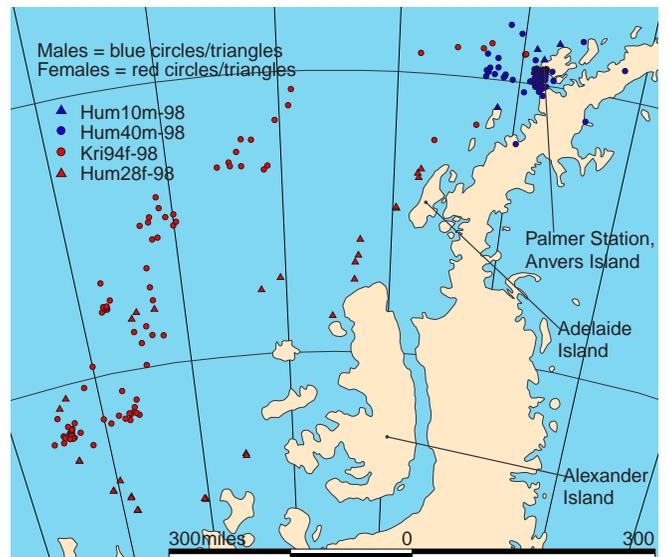


Fig. 3. Location data from the 1998/99 season illustrating a strongly gender-specific foraging pattern. Males remained local (within 100 km) while females fed up to 1200 km away.



Lissa in her role as software programmer