



ScienceWatch - Increased Winds Boost a Wanderer

“The increase in the wind is a general phenomenon all over the oceans, but in the Southern Ocean it is more marked.” – H. Weimerskirch

The wandering albatross (*Diomedea exulans*) is a pelagic bird with a wing span of 11 feet, the largest of any living bird. It depends on prevailing winds to use little or no energy while it soars aloft for hours at a time seeking out fish and squid. During the breeding season the birds travel long distances, an average of 1284 km (800 miles), from breeding sites to foraging sites.

The range of *D. exulans* extends across the Southern Ocean from South America to Australia. Breeding occurs on subantarctic land masses like the Crozet islands, 1,000 km (600 mi.) off the southern tip of Africa. Even in such remote regions the birds are not safe from the destructive effects of human activity. Many drown when they mistake bait put out by long line fishermen for food. Pollution, mainly plastic bags and fish hooks has also taken its toll. The result has been a decades-long decline in albatross populations. But now a report in the January 13, 2012 issue of *Science* provides a ray of hope.

Since 1960 seabird ecologists have been studying the health and breeding success of a population of wandering albatrosses on the Crozet islands. As a result of climate change westerly wind speeds have increased 15% on average. Stronger winds in the Southern Ocean make life easier for these birds, according to Henri Weimerskirch and his colleagues at the Center of Biological Studies of Chizé, Villiers en Bois, France. For the last 20 years Weimerskirch *et al.* have been fitting breeding birds with transmitters that signal location and travel distance over time for each bird. These satellite telemetry data allow the team to determine speed, range and length of time for each foraging trip.

During the breeding season each parent in turn must stay on the nest and fast while incubating the eggs until the other has returned from a foraging trip that may last up to 35 days. So the probability of breeding success increases with shorter trips. Weimerskirch *et al.* found that the average foraging time has decreased from 12.4 days in 1970 to 9.7 days in 2008, a drop of almost three days. This corresponds with an increase in breeding success from 66% to 78% and an average weight gain for males and females of a kilogram (2.2 lbs.).

The scientists attribute all these beneficial changes to the increased wind speeds, which allow the birds to spend less time



away from the nest. “Winds have increased over all the world’s oceans, with some areas being more affected than others, but still the increase is global. The advantage we have with Crozet is that we have a long-term record of population parameters, and also movements of the birds,” said Weimerskirch. The winds have also shifted to the south, causing the birds to forage closer to the pole and away from fishermen—an added benefit.

Unfortunately, it all may prove to be temporary. The researchers point to weather models showing that the current trend will continue, producing even stronger and more southerly winds that will ultimately decrease the bird’s soaring ability and make it more difficult to use Crozet as a central breeding location.

Climate change affects everyone and everything.

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