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## **Antarctic birds 'breeding later'**

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**Antarctic seabirds may be breeding later in response to climate change, according to a scientific study.**

French researchers analysed records stretching back to the 1950s and think the breeding delays are linked to changes in East Antarctic sea ice.

Bird species are arriving at their colonies an average of nine days later and laying eggs on average two days later than they did in the 1950s.

Details appear in Proceedings of the National Academy of Sciences journal.

Researchers have found that spring events such as the arrival of migrant birds and the blossoming of trees, have been occurring progressively earlier in the Northern Hemisphere during the 20th Century.

But little information exists for the Southern Hemisphere due to a paucity of long term data sets.

### **Late arrivals**

Christophe Barbraud and Henri Weimerskirch from the Centre

d'Etudes Biologiques de Chize in Villiers en Bois, France, have now analysed the only long term record of arrival and egg-laying for all species of seabird that come to breed in continental Antarctica.



Data on the nine species of bird were collected by ornithologists at the Dumont d'Urville Antarctic research station between 1950 and 2004.

Over this period, four species showed a clear trend towards arriving later in Antarctica and two showed a clear trend toward later breeding.

Most other species arrived and bred later, but the trends were not statistically significant at levels set by the French team.

This is the opposite pattern to that seen in the Northern Hemisphere. It is likely that progressively warmer Northern Hemisphere spring temperatures since the mid-20th Century have increased the availability of food supplies.

In eastern and continental Antarctica, no warming or cooling has been observed since the early 1950s.

### **Breeding success**

Here, a 12-20% reduction in the extent of sea ice over the last 50 years has been linked to a decline in numbers of the krill and other marine organisms that are the major food source for seabirds.

In addition, the sea ice season has been getting longer since the 1970s. The late break-up of sea ice is known to delay access to seabird colonies and food resources at sea.



These two factors reduce the quantity and accessibility of food supplies available in early spring, with birds requiring more time to build up the reserves they need to breed.

"We think both these factors contribute to the delays observed but do not explain all of the delays observed," Dr Barbraud told the BBC News website.

The changes in sea ice explain only 24% of the variation in arrival and egg-laying, so other factors must be at work. Dr Barbraud said these would need to be identified before predicting how the observed trends would affect breeding success.

But if seabirds continue to arrive and breed later and later, it looks likely that juveniles will fledge - gain the ability to fly - just before winter.

"They would face very harsh conditions just after fledging," Dr Barbraud explained, "They would have less time to learn how

to find resources on their own."

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