



Long-term monitoring reveals divergent population trends for six seabird species in the Maritime Antarctic

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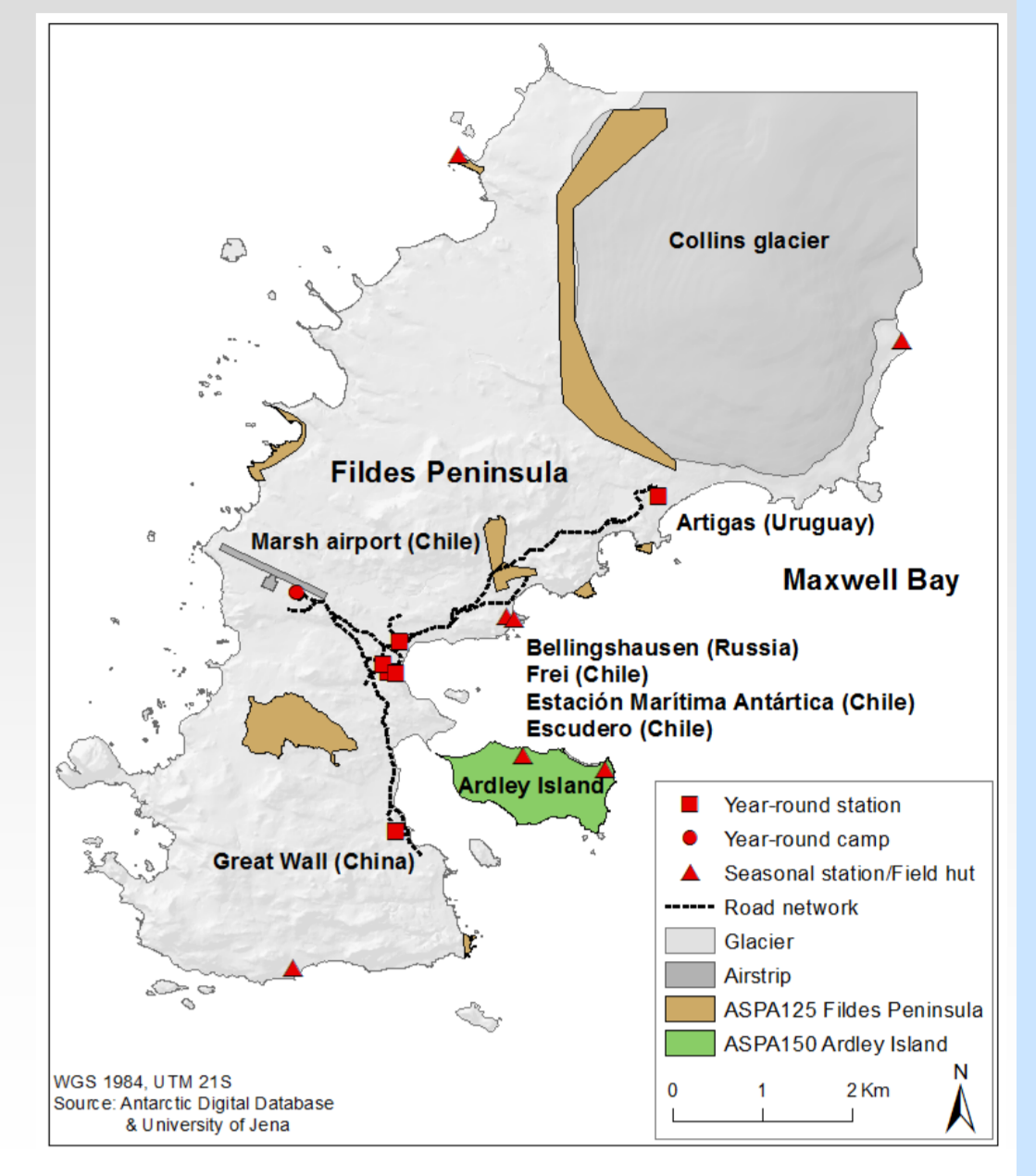
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Introduction

- The Fildes Peninsula and Ardley Island, King George Island, South Shetland Islands, represent one of the largest ice-free areas in the Maritime Antarctic.
- Due to the presence of six permanent stations, several field huts and a gravel runway, the area represents the main logistic hub for the South Shetland Islands and the Antarctic Peninsula.
- The Fildes Region is characterized by a high biodiversity and is a reproduction site for fourteen bird and five seal species (two Antarctic Specially Protected Areas (ASPAs) designated).
- Systematic seabird population data were collected in the Fildes Region by GPS-based ground census between 1979/80 and 2019/20.

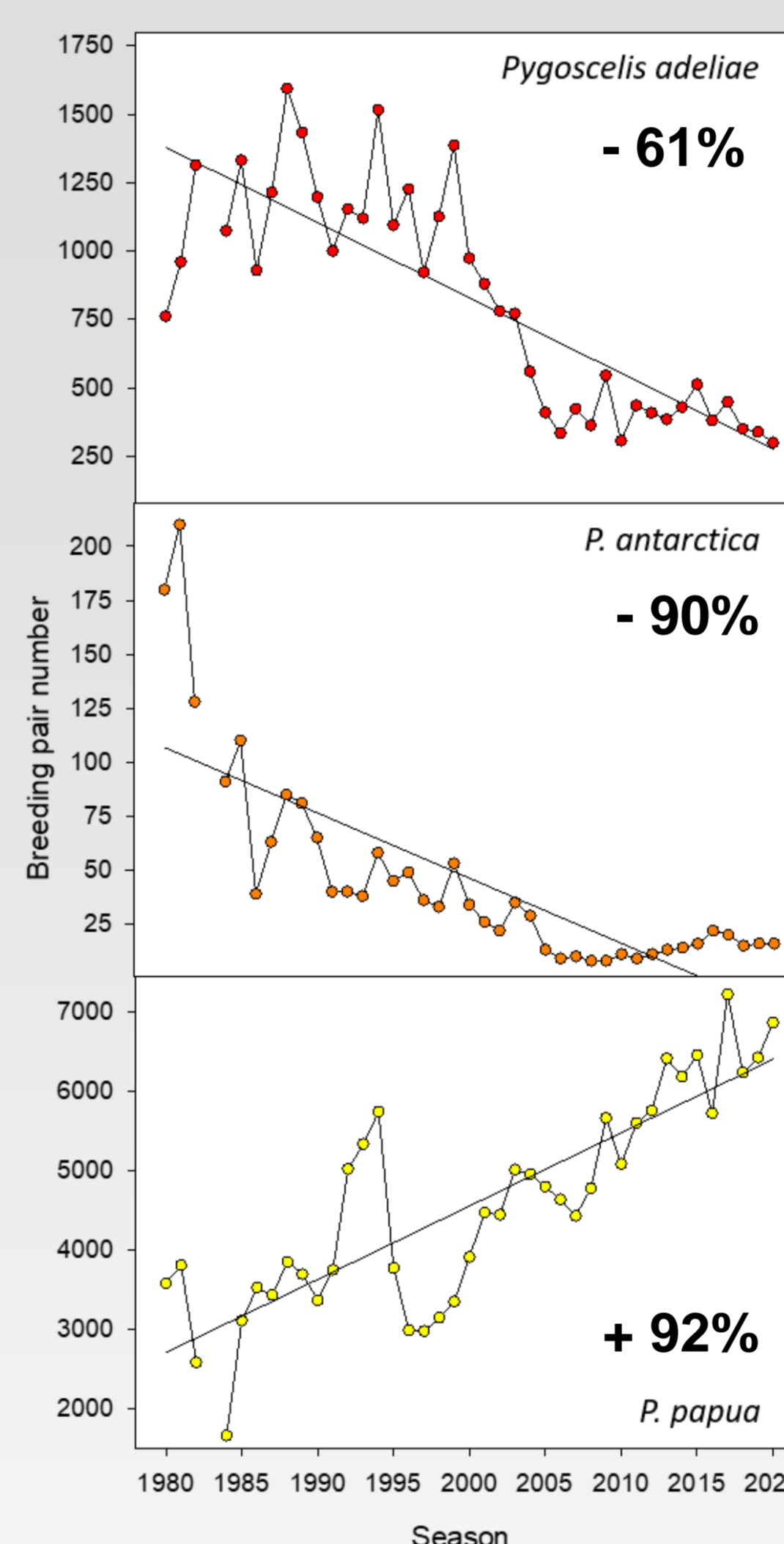
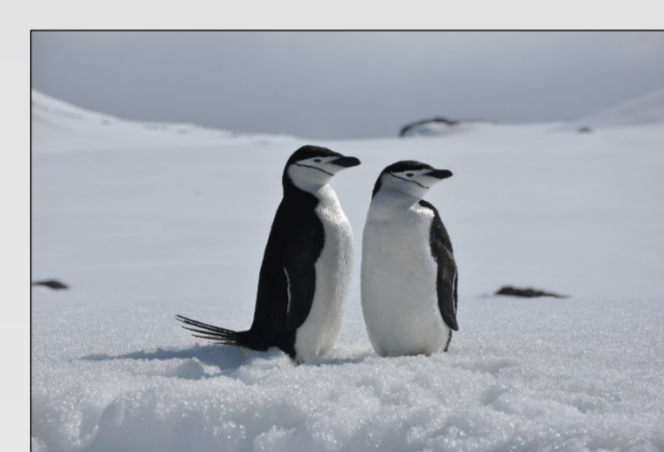
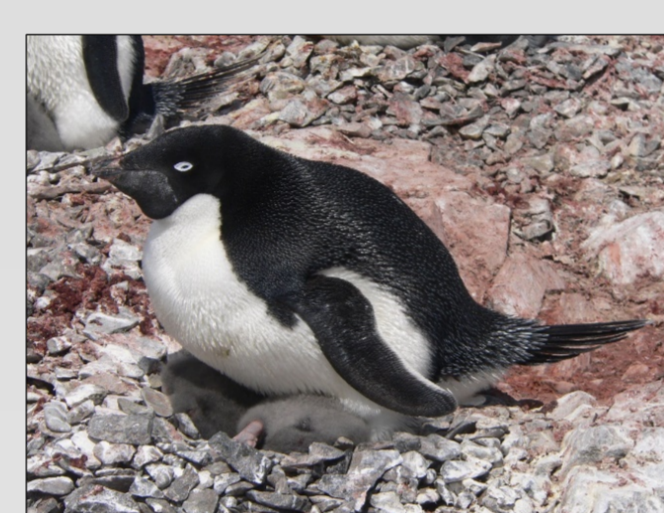


Results

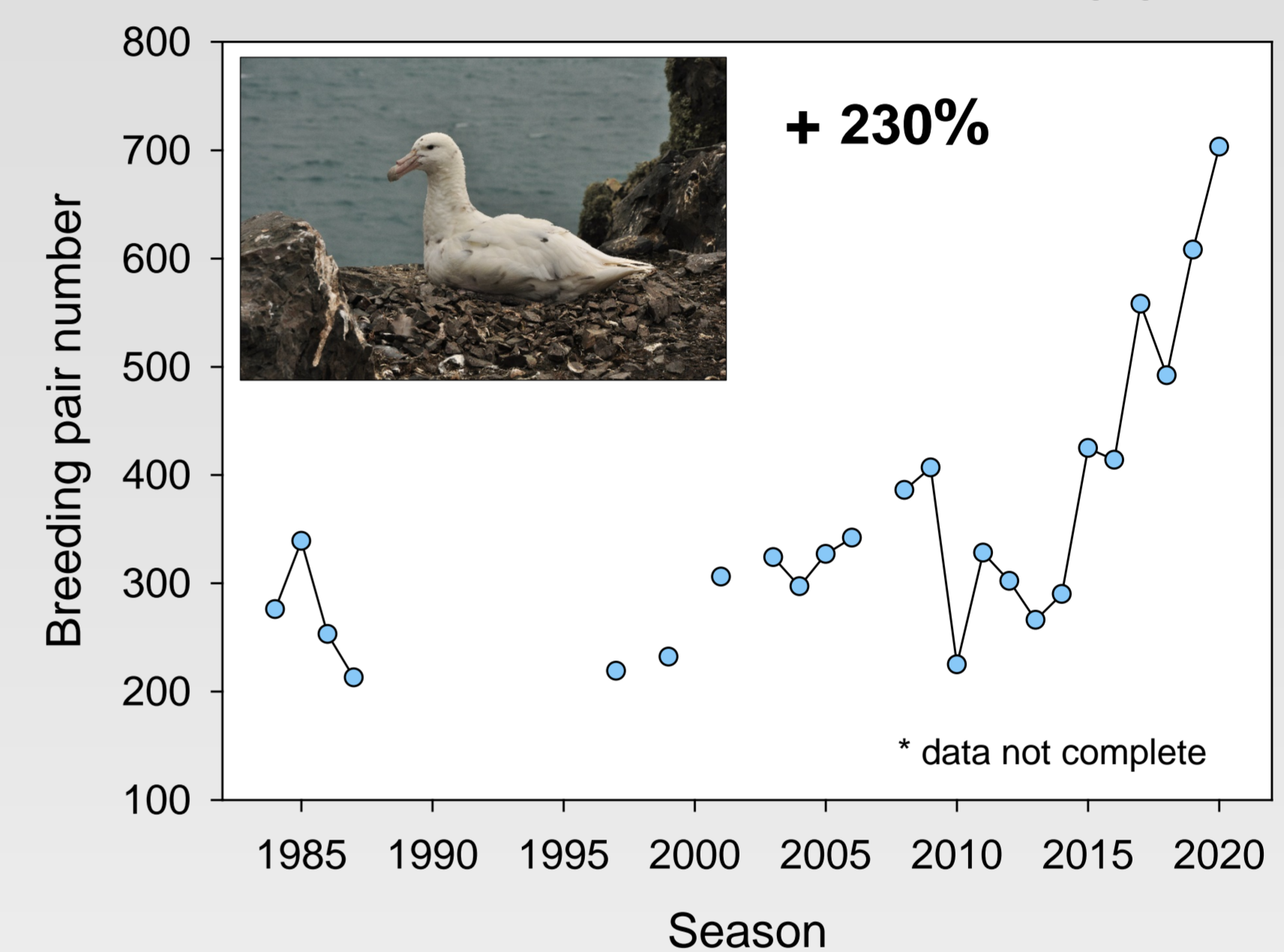
Chinstrap, Adélie & gentoo penguins

(*Pygoscelis antarctica*, *P. adeliae*, *P.*, *P. papua*)

While Adélie and chinstrap penguins in the area has declined considerably and has now stabilized at a low level, the breeding pair number of gentoo penguins showed a substantial growth and turned the colony on Ardley Island into the biggest colony of this species in the Antarctic.



Southern giant petrel (*Macronectes giganteus*)

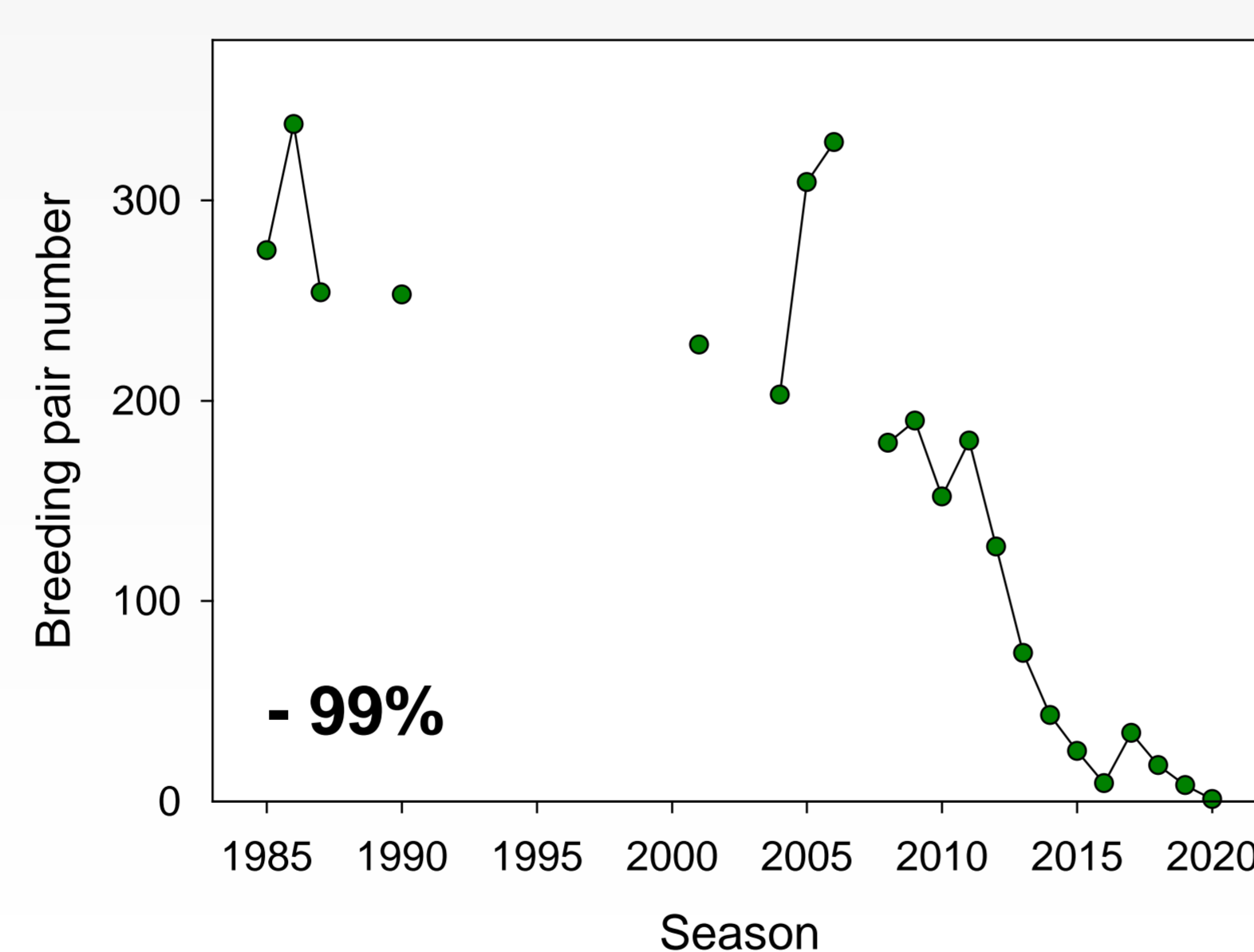


The southern giant petrel population was negatively affected by the establishment of new Antarctic stations in the 1980s. Recently, formerly abandoned colonies were reoccupied and the overall trend for this species is now positive.

Cape petrel

(*Daption capense*)

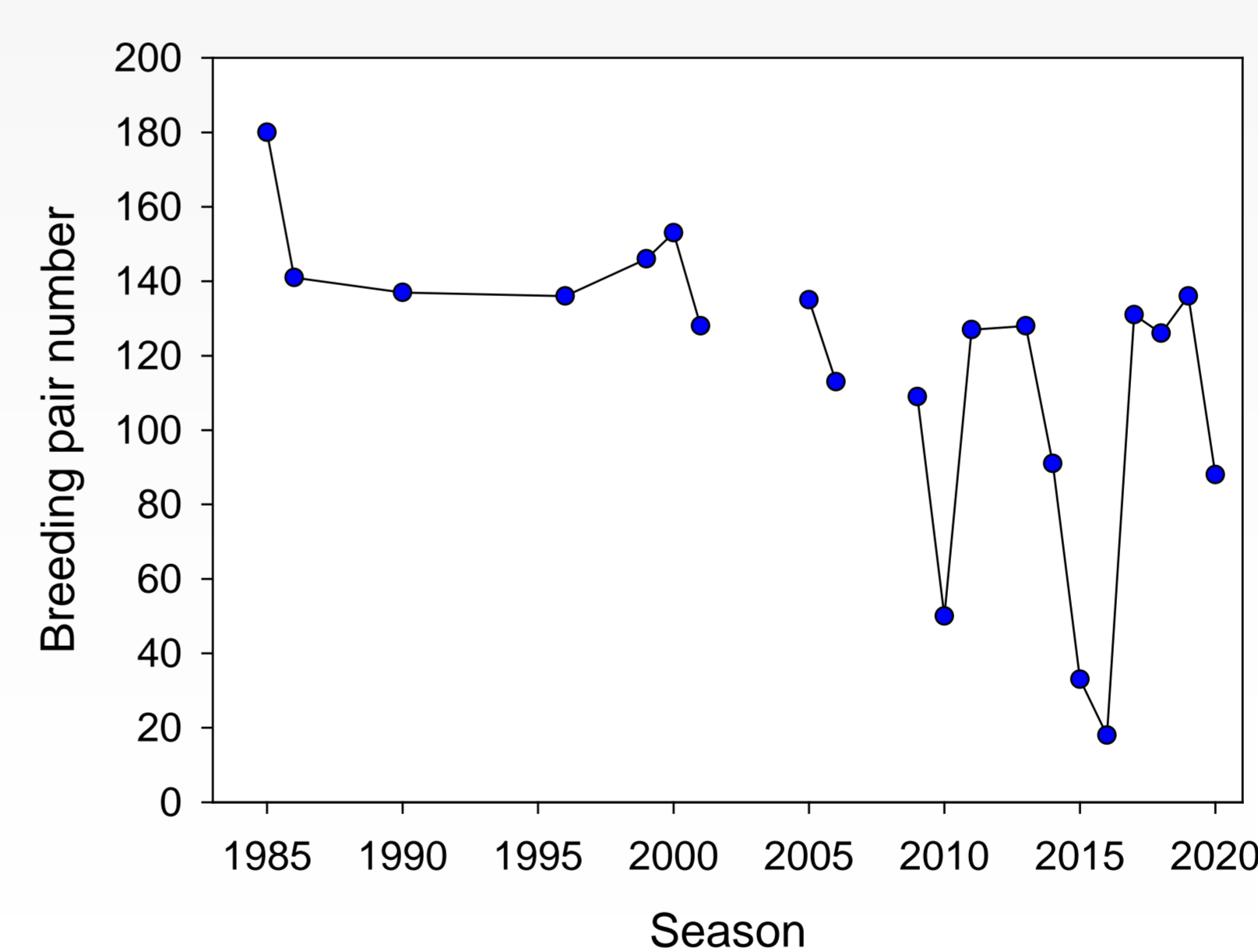
The breeding population of cape petrels declined dramatically and almost completely disappeared in the area.



Kelp gull

(*Larus dominicanus*)

The population of kelp gulls showed considerable variation and declined slightly during the study period.



Conclusions

- The seabird population trends in the Fildes Region are either concordant to observed trends along the Western Antarctica Peninsula (WAP) area (*Pygoscelis*), contradictory (southern giant petrel) or hardly comparable due to a lack of published data (cape petrel, kelp gull).
- The contrary seabird population trends in the study area are attributed to a divergent reaction to environmental variations, e.g. food availability, climatic conditions, human disturbance, predation pressure.
- As seabirds provide crucial information about the state of marine and coastal ecosystems, the long-term monitoring data set for the Fildes Region represents an exceptional high value as it contribute to the knowledge of the seabird population development in the WAP area.

Umwelt Bundesamt

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see also:

Braun, C., Hertel, F., et al. (2017): Environmental Management - The Fildes Peninsula Paradigm. In: K. Dodds, Hemmings, A.D. & Roberts, P. (eds.). Handbook of the Politics of Antarctica, Edward Elgar Publishing, 351-367.

Peter, H.-U., Braun, C., et al. (2013): The current environmental situation and proposals for the management of the Fildes Peninsula Region. German Environment Agency. Texte 03/2013. Dessau-Rosslau.

Braun, C., Mustafa, O., et al. (2012): Environmental Monitoring and Management Proposals for the Fildes Region (King George Island, Antarctica). Polar Research 31, 1-18.

Peter, H.-U., Buesser, C., et al. (2008): Risk assessment for the Fildes Peninsula and Ardley Island, and the development of management plans for their designation as Antarctic Specially Protected or Specially Managed Areas. German Environment Agency. Texte 20/2008. Dessau-Rosslau.

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