

 <p>Agreement on the Conservation of Albatrosses and Petrels</p>	<p><b>Ninth Meeting of the Population and Conservation Status Working Group</b> <i>Swakopmund, Namibia, 25 May 2026</i></p> <p><b>Fine-scale assessment of temporal variability in nest attendance using repeated drone surveys of Southern Giant Petrels</b> <b><i>Martín Brogger &amp; Flavio Quintana</i></b></p>
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**Source:** This information paper is based on the manuscript:

Brogger, M.I., Pereyra Suárez, M.A., & Quintana, F. *Any given survey day: How drone flight timing affects breeding population estimates in the Southern Giant Petrel*. Manuscript in preparation.

### SUMMARY

Accurate estimates of breeding population size are essential for the monitoring and conservation of Procellariiform seabirds, including albatrosses and petrels. Counts of sitting individuals obtained from aerial or drone imagery are widely used to estimate the number of active nests; however, these counts are influenced by temporal variability in nest attendance associated with breeding behaviour. While such variability is well recognised, its magnitude and implications for interpreting drone-based surveys remain poorly quantified.

This study provides a fine-scale evaluation of temporal variability in nest attendance in the Southern Giant Petrel *Macronectes giganteus*, a large colonial Procellariiform seabird used here as a model species. Repeated high-resolution drone surveys were conducted at a major breeding colony in northern Patagonia, Argentina, including three surveys conducted at different stages of the incubation period, together with additional observations across multiple time points within a 24-hour period. By tracking the spatial persistence of individual birds across surveys, we quantified the proportion of consistently occupied nest sites and examined how colony counts varied over short temporal scales.

Results showed substantial fluctuations in the number of sitting individuals recorded at different times of day, despite stable environmental conditions, reflecting behavioural cycles related to incubation and foraging. Repeated observations revealed that a large proportion of birds remained consistently present at the same locations, providing a robust proxy for active nests, while single-day counts alone captured only a snapshot of a dynamic attendance process.

These findings provide new empirical insight into the magnitude of temporal variability affecting drone-based colony counts and highlight the importance of considering availability-related processes when interpreting monitoring data. This work represents an initial step toward a more detailed understanding of detectability and attendance dynamics in seabird colony monitoring using non-invasive technologies, and contributes to ongoing efforts to refine the interpretation of population estimates within existing monitoring frameworks.