

RESEARCH NOTE

New at-sea records of pelagic seabirds in the South Atlantic Ocean and Antarctica

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Abstract

During ship-based seabird surveys in the south Atlantic and Antarctica in the austral summers of 1994/95, 2009, 2010, 2011 and 2012, we documented at-sea distributions of Buller's albatross (*Thalassarche bulleri*), Atlantic petrel (*Pterodroma incerta*), soft-plumaged petrel (*Pterodroma mollis*), Kerguelen petrel (*Lugensa brevirostris*) and great-winged petrel (*Pterodroma macroptera*). In some cases, sightings were considered as extralimital, but for other species updating their distributions in the literature seems warranted. Atlantic petrel, for example, has been regularly observed in the Drake Passage and north of the Antarctic Peninsula for about 30 years, but the distribution of this species has not been updated in the literature. The observations reported here will contribute to update the at-sea distributions of these species and to changes in their distributions.

The Argentine Navy ice-breaker *Almirante Irizar* and Argentina's National Scientific and Technical Research Council's research vessel RV *Puerto Deseado* conduct cruises in the Antarctic Peninsula and South Orkney Islands as part of a marine ecosystem monitoring programme. Performed every year in the same areas, these cruises constitute an opportunity to update seabird species distributions, especially species that are rarely observed. During these cruises, some seabird species were registered outside the distribution ranges given in the mainstream literature. The aim of this article is to report new records of the presence of these species to confirm and update their pelagic ranges and to contribute to a better understanding of their at-sea distributions.

Materials and methods

The study was carried out in austral summer seasons 2009, 2010, 2011 and 2012 (Table 1) in the Drake Passage and west of the Antarctic Peninsula to 65°S, and in the Scotia Sea and adjacent waters to the South Orkney Islands, an area limited by latitudes 57–64°S and

longitudes 38–50°W (Fig. 1). In addition, unpublished data from the summer of 1994/95 have been added to complete the information obtained in the 1990s. The observations resulted from 10-min strip transect censuses during daylight (SCAR 1981; BIOMASS Working Party on Bird Ecology 1984). Each 10-min count was followed by a 10-min break, giving a frequency of three 10-min counts per hour. Surveys were made from the Naval ice-breaker *Almirante Irizar* (for summer season 1994/95) and the RV *Puerto Deseado* (summer season 2009, 2010, 2011 and 2012) by two experienced observers who worked individually in staggered shifts of 4 h. An area about 180° ahead and 500 m from both sides of the ship was scanned with 10 × 50 binoculars. Only counts made when the ships were moving at least six knots per hour were included. For each 10-min count, species, group size, composition and activity were recorded. Environmental variables such as the sea state (Beaufort scale), speed and wind direction, air temperature and sea-surface temperature, among others, were recorded during the surveys by the ship's meteorological equipment (Table 1). The observer estimated ice cover as percentages

Table 1 Species recorded in summer seasons 1994/95, 2009, 2010, 2011 and 2012. TBUL, Buller's albatross (*Thalassarche bulleri*); PINC, Atlantic petrel (*Pterodroma incerta*); PMOL, soft-plumaged petrel (*Pterodroma mollis*); LBRE, Kerguelen petrel (*Lugensa brevirostris*); PMAC, great-winged petrel (*Pterodroma macroptera*). SCO: Scotia Sea; NSS, north of the South Shetland Islands; DRA, Drake Passage. Number in parentheses indicates the number of 10-min counts done for the indicated date on which species were recorded. In these cases, the coordinates given correspond to the first of these 10-min counts. Environmental variables were averaged.

Species	Area	Date	Longitude (S), latitude (W)	Number of individuals	Wind direction	Wind speed ^a	Sea-surface temperature (°C)	Sea state ^b	Ice cover (%)	Distance to nearest coast (km)	
TBUL	SCO	05/03/12	59°39, 45°49'	1	WSW	6	2.90	5	0	49	
PINC	SCO	11/03/09 (2)	57°32, 63°11'	2	W	5	5	4	0	140	
	NSS	05/03/09 (2)	60°15, 55°19'	3	NW	7.5	2.00	6	0	51	
		10/03/09 (4)	61°06, 56°19'	5	W	5	2.20	4.5	0	46	
		13/02/11 (8)	60°38, 53°12'	11	N	6	2.80	5	0	131	
	DRA	02/03/11 (4)	61°33, 56°12'	5	NW	5	3.00	4	0	7.40	
		11/03/09 (3)	58°26, 61°21'	3	NW	6	5.30	5	0	200	
		12/02/11 (3)	58°25, 64°40'	3	NNE	5	4.70	4	0	179	
		20/01/11 (4)	58°28, 48°27'	4	S	4	3.10	3	0	162	
		18/02/12 (9)	58°38, 52°27'	9	WSW	6	3.60	5	0	234	
	LBRE	SCO	22/12/94 (12)	61°02, 38°05'	14	W	5	1.00	4	30	211
NSS		08/01/95 (14)	60°46, 27°26'	52	S	4	-1.80	5	60	76	
		09/03/12	61°03, 46°05'	1	WNW	4	3.10	5	0	19	
DRA		13/02/10	61°33, 63°14'	1	N	0	0.0	0	0	82	
PMOL	NSS	27/02/12	61°24, 62°13'	1	WNW	4	1.0	3	25	185	
	DRA	02/02/10	58°03, 62°46'	1	NNW	3	4.00	2	0	192	
		14/02/10 (7)	58°50, 64°38'	9	S	4	1.00	3	0	193	
		15/02/10 (2)	55°39, 66°04'	2	NNW	7	1.00	6	0	27	
		19/02/10 (2)	58°03, 62°43'	5	SW	7	2.00	6	0	192	
		11/03/10 (4)	59°53, 60°00'	7	NNW	7	1.00	6	0	131	
		20/01/11	58°34, 48°21'	1	WNW	4	2.90	3	0	145	
		01/02/11	58°11, 52°16'	1	WNW	4	3.37	3	0	184	
		01/02/11 (6)	59°00, 50°23'	13	WNW	4	1.90	3	0	163	
		02/02/11 (8)	57°42, 55°37'	8	WNW	4	4.20	5	0	201	
		09/03/11	57°30, 59°23'	1	N	5	5.11	4	0	230	
		13/02/11 (2)	61°09, 63°26'	2	N	6	2.70	5	0	100	
		02/03/11	61°01, 53°25'	1	WNW	6	2.50	5	0	18	
		08/03/11 (9)	59°40, 52°04'	9	WNW	5	2.40	5	0	104	
		09/03/11 (6)	58°11, 57°07'	8	N	4	4.50	5	0	203	
		18/02/12 (2)	58°14, 62°39'	2	W	5	3.60	5	0	250	
PMAC	DRA	04/03/12	58°06, 41°25'	1	W	2	3.30	1	0	180	
		22/03/12	57°23, 60°05'	1	S	3	5.70	2	0	247	
		09/03/12	61°03, 46°05'	1	WNW	6	3.10	5	0	19	
		NSS	21/03/12	60°21, 62°07'	1	WSW	6	2.50	5	0	141
		SCO	15/03/12 (2)	60°26, 49°55'	2	NNW	8	1.50	6	0	113

^aIn knots, Beaufort scale.

^bSea state, Beaufort scale.

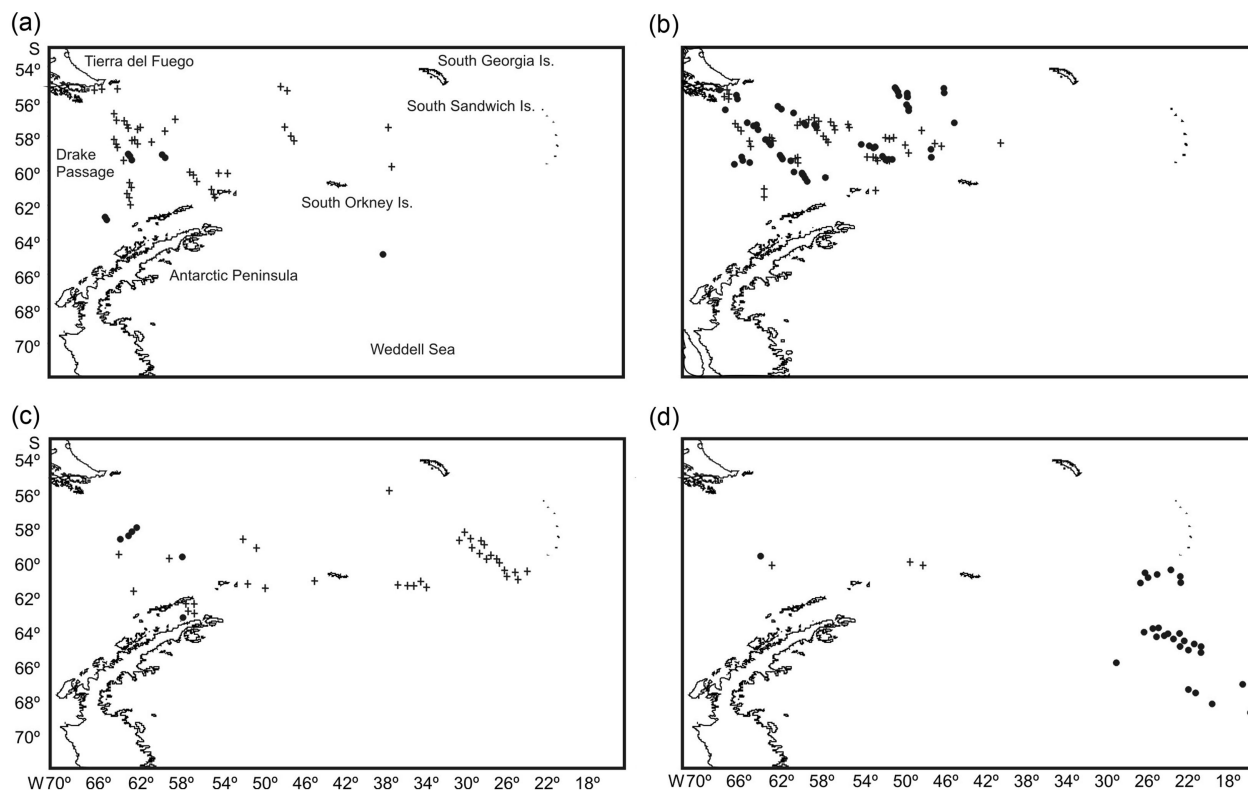


Fig. 1 Records of the studied species' distribution (except Buller's albatross). New sightings reported in this article (summer seasons 1994/95, 2009, 2010, 2011 and 2012) are represented with crosses. Black dots: historical sightings in the summer seasons of 1990, 1992, 1993 and 1996 (Montalti et al. 1999; Orgeira 1997, 2001, in press). Each cross/dot is a 10-min count, which indicates where species were recorded. The number of individuals is not shown. Ships' tracks have been omitted for readability. (a) Atlantic petrel; (b) Kerguelen petrel; (c) soft-plumaged petrel; (d) great-winged petrel.

of the study area. Geographical positions of all 10-min counts in which species were recorded in this work and in other published studies are summarized in Fig. 1.

Results and discussion

Species observed

Buller's albatross (*Thalassarche bulleri*). A single individual was recorded north of Orkney Island. There is no photographic record but diagnostic features were noted, including its distinctive whitish forehead and crown and upper and lower yellow bill, which is sharper than that of the grey-headed albatross (*Thalassarche chrysostoma*) or the Atlantic yellow-nosed albatross (*Thalassarche chlororhynchos*). Buller's albatross is endemic to New Zealand (Stahl et al. 1998) and is distributed in subtropical and sub-Antarctic waters of the South Pacific Ocean (Onley & Scofield 2007), reaching the west coast of Chile. There are two subspecies: the southern Buller's albatross: *T. b. bulleri* and northern Buller's albatross (*T. b. platei*). We were not able to identify which of the

two subspecies the observed individual belonged to, but the subspecies' known distribution and migratory habits make it likely that the individual recorded was *T. b. platei*. This is the first record of the Buller's albatross for the Atlantic region of the Southern Ocean.

Atlantic petrel (*Pterodroma incerta*). A total of 45 Atlantic petrel individuals were recorded, most of them in the Drake Passage and north of the South Shetland Islands. In summer 1990, a flock of five individuals was recorded in the Weddell Sea, at 65°12'S, 41°05'W (Orgeira 1997, 2001), the southernmost record obtained for this species (Fig. 1a). In summer 2001, 24 individuals were observed in the Drake Passage between 56 and 59°S and seven near the South Shetland Islands (Orgeira 2001). During the austral summer 2009, another 17 individuals were recorded, eight in Antarctica and the rest in the Drake Passage and south of Tierra del Fuego and Isla de los Estados (Orgeira in press). According to our records, most Atlantic petrel observations occurred when winds were blowing from the north–west, which

would be utilized for dispersal to higher latitudes, so it is possible that these individuals belong to the South Atlantic Ocean population. The Atlantic petrel is distributed in the South Atlantic Ocean north of 55°S (Watson 1975; Clark 1986; Harrison 1987; del Hoyo et al. 1992; Narosky & Izurieta 2003, 2004; Chébez 2008; Rodríguez Mata et al. 2006; Onley & Scofield 2007), so all individuals reported in this article and those reported by Orgeira (1997, 2001, in press) and Montalti et al. 1999 were observed outside the accepted pelagic range of this species in the literature cited above.

Soft-plumaged petrel (*Pterodroma mollis*). A total of 73 pale-phase soft-plumaged petrels were observed, most of them in Drake Passage (Fig. 1b). In all cases, they were seen flying about 10–15 m a.s.l. In March 1990, 45 individuals were recorded near the South Shetland Islands (Montalti et al. 1999). According to the literature, the soft-plumaged petrel is normally distributed in the south-west Pacific, South Atlantic Ocean and Indian Ocean as far as 55°S (del Hoyo et al. 1992; Rodríguez Mata et al. 2006; Onley & Scofield 2007). However, our observations match those reported by Woods (1988) and Montalti et al. (1999), who have reported them up to 60°S (Fig. 2).

Kerguelen petrel (*Lugensa brevirostris*). One individual was recorded in the austral summer 2010 in the Drake Passage and two were recorded in the Antarctic, in the austral summer 2012, one east of Clarence Island, South Shetland Islands and the other south of the South Orkney Islands (Fig. 1c). When the

first individual was recorded in the Antarctic, ice cover was estimated at 25%. In addition, in the austral summer 1994/95, 66 Kerguelen petrels were observed when ice was present; most of the petrels were sighted more than 100 nautical miles south of the South Orkney Islands (Table 1). The southernmost record obtained for the Kerguelen petrel was on 8 March 1993, at 62° 43'S, 57° 57'W, also in the presence of ice (unpubl. data). Kerguelen petrel has a circumpolar distribution in the Southern Ocean, usually at the ice edge (Onley & Scofield 2007). In fact, all observations of this species in our surveys were made where ice was present. The published records of this species south of 60°S are extremely scarce; however, our observations confirm its distribution in Antarctic waters. The Kerguelen petrel nests on Gough, Tristan da Cunha Group, Prince Edward, Kerguelen and other islands east of our study area. Given that we made our observations in late austral summer, it is likely the birds were post-reproductive individuals.

Great-winged petrel (*Pterodroma macroptera*). We recorded three individuals, all in Antarctica, in the presence of strong winds and cold, ice-free water (Table 1). One of the birds flew about 15 m a.s.l. and followed the ship for a few seconds. This species has been previously recorded in Antarctic waters. In February 1994, 64 great-winged petrels in flocks of up to five were observed in the eastern Weddell Sea between 64 and 69°S, the southernmost record at 69°05'S and 21°24'W (Montalti et al. 1999; Fig. 1d). According to del Hoyo et al. (1992), the great-winged petrel is highly pelagic, widespread, but sparsely distributed at sea and occasionally strays into sub-Antarctic and Antarctic



Fig. 2 Soft-plumaged petrel, north-east of the South Orkney Islands, February 2012. Photo: J.L. Orgeira.

zones. Records from Montalti et al. (1999) and our observations are the only ones known for the Antarctic Peninsula and South Orkney Islands.

Conclusions

Our Buller's albatross sighting can be considered an extralimital record. In our opinion, the presence of this species in the study area might be due to the strong prevailing westerly winds at the time of observation. However, for the other species, their presence seems to be not accidental as they have been previously recorded in the study area.

Flocks of soft-plumaged petrel, Kerguelen petrel and great-winged petrel reported in the 1990s in the same area, in the same month and under the same environmental conditions where they were observed in recent years (Montalti et al. 1999) suggest a normal distribution for the species rather than vagrant occurrences. One of the most interesting cases is the Atlantic petrel since it has been recorded in areas that, according to the literature (Onley & Scofield 2007), are not part of its usual pelagic ranges. The number of individuals registered has never been high, but the historical records show that for over 30 years, the Atlantic petrel regularly occurs in the Drake Passage and north of the Antarctic Peninsula (Orgeira in press; Fig. 1). The specimens recorded in the Weddell Sea in summer 1990 suggest that this species has a great capacity to adapt to extreme environments, favouring its dispersion. The main contribution of at-sea surveys is to establish and update the at-sea species' distributions. Our at-sea observations contribute to this endeavour.

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