

SEABIRD OBSERVATIONS FROM THE SOUTH AND CENTRAL ATLANTIC OCEAN, ANTARCTICA TO 30°N, MARCH-APRIL 1998 AND 2000

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Kampp K. 2001. Seabird observations from the South and Central Atlantic Ocean, Antarctica to 30°N, March-April 1998 and 2000. *Atlantic Seabirds* 3(1): 1-14. *Birds were counted in the early austral autumn (mid-March to late April) during two cruises from Ushuaia, Argentina, north to 30°N via the Antarctic Peninsula, passing South Georgia, Tristan da Cunha, the Cape Verdes and other islands. Records are summarised as mean number of each species seen per hour within 2° or 4° latitudinal zones. Pelagic birds occurred abundantly north to Tristan da Cunha, whereas they were scarce or very scarce during the remaining part of the two trips.*

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INTRODUCTION

The distribution at sea of most pelagic seabirds is still incompletely known. Vessels rarely operate far offshore with the specific aim of studying birds, so most records have been obtained from opportunistic observations onboard ships visiting or passing certain areas for other purposes. Less frequented ocean lanes thus have received the least attention. In addition to the spatial dimension, seabird distributions change over the year, meaning that many 'opportunistic' records must be combined before a full picture – for an area or a species – can be pieced together.

The present report from two almost identical transects, bisecting the Atlantic Ocean from Antarctica to the latitude of Tenerife in the early austral autumn, is intended as one such piece to the puzzle, providing raw material for more specific and/or comprehensive studies in the future. The observations are presented in a semiquantitative way, with some emphasis on latitudinal distribution patterns which seems natural, given the general south-north direction of the voyages. Records are also presented from the southward crossings of the Drake Passage.

Maps summarising the existing knowledge of the pelagic distribution of species mentioned in this paper may be found in Harrison (1983, 1987), Marchant & Higgins (1990) and del Hoyo *et al.* (1992, 1996), among others. Such maps integrate knowledge from throughout the year, however, and may be rather misleading for a particular season. Tickell & Woods (1972) and Bourne

Figure 1. The track of Professor Molchanov 18 March – 2 May 1998 (GPS positions). Thin lines indicate deviations from the 1998-track during the trip in 2000. Localities mentioned in the text are 1) Ushuaia, 2) Antarctic Peninsula, 3) South Orkney, 4) South Georgia, 5) Gough Island, 6) Tristan da Cunha, 7) St. Helena, 8) Ascension, 9) Cape Verde, 10) Tenerife, and 11) Azores.

Figuur 1. Route van Professor Molchanov, 18 maart - 2 mei 1998. Dunne lijntjes geven de afwijkingen van deze route in 2000 aan. In de tekst genoemde plaatsen zijn 1) Ushuaia, 2) Antarctisch Schiereiland, 3) Zuid Orkney eilande, 4) Zuid-Georgië, 5) Gough, 6) Tristan da Cunha, 7) St. Helena, 8) Ascension, 9) Kaap Verdische Eilanden, 10) Tenerife, and 11) Azoren.

Wandering Albatross *Diomedea exulans* *Reuzenalbatros* (photo C.J. Camphuysen)

& Curtis (1985) gave combined summaries from several voyages covering much of the South Atlantic Ocean, including parts of the area treated in the present report and at least in part from approximately the same season. The Drake Passage was part of the study area of Brown *et al.* (1975).

ITINERARY AND METHODS

The observations were made from *Professor Molchanov*, a refurbished Russian research vessel (2140 t displacement, 72 m in length) during two tourist cruises (Fig. 1) in 1998 and 2000, respectively, from Ushuaia on Tierra del Fuego via the tip of the Antarctic Peninsula to South Georgia, Tristan da Cunha, St. Helena, Ascension, Cape Verde Islands and, in 1998, Tenerife where I disembarked, while *Professor Molchanov* continued towards the Netherlands. In 2000, when I stayed aboard for the entire cruise, the route from Cape Verde

Table 1. Pelagic seabird occurrence (birds per hour) in 2° latitudinal zones of the Drake Passage, 19-20 March 1998 and 2000.

Tabel 1. Voorkomen van zeevogels (aantal per uur) in 2° breedtezones in de Drake Passage, 19-20 maart 1998 en 2000.

2° latitudinal zones	56-58	58-60	60-62	Total
Obs. period (hrs)	15.0	1.9	14.4	birds
<i>Diomedea exulans</i>	0.47	0.52	0.14	10
<i>D. epomophora</i>	0.33			5
<i>D. melanophris</i>	2.80	1.57	1.53	67
<i>D. chrysostoma</i>	1.47	1.04	1.46	45
<i>Phoebastria palpebrata</i>	0.13			2
<i>Macronectes giganteus</i>	1.40	4.70	2.57	67
<i>M. halli</i>			0.07	1
<i>Fulmarus glacialis</i>	0.07		2.77	41
<i>Daption capense</i>	0.20	0.52	6.80	102
<i>Pterodroma lessonii</i>	0.07			1
<i>P. brevirostris</i>	0.47		0.21	10
<i>P. mollis</i>	1.53		2.15	54
<i>Halobaena caerulea</i>			0.14	2
<i>Pachyptila</i> sp.	2.00		3.95	87
<i>Procellaria aequinoctialis</i>	0.27		0.21	7
<i>Puffinus griseus</i>	0.47		0.07	8
<i>Oceanites oceanicus</i>	1.27	1.57	1.25	40
<i>Fregatta tropica</i>	0.40	1.04	5.55	88
<i>Pelecanoides</i> sp.	0.20		0.07	4
<i>Catharacta</i> sp.	0.07		0.07	2

went by the Azores, but observations are only reported for the first part north to 30°N. The route of the two voyages deviated slightly also in the southern part, going from Antarctica to South Georgia via Elephant Island in 1998, but via South Orkney in 2000, and in 1998 a detour past Gough was made between South Georgia and Tristan da Cunha. Dates for the various legs of both trips appear from Tables 1-5.

Using 10× binoculars, observations were made almost continuously during the day from the top deck (roof of the bridge) so that eye level was about 13 m above the sea. No attempt was made to employ a specific transect width, and most attention was paid to the near surroundings (mostly <200 m from the ship). Absolute bird densities thus cannot be calculated, and neither is it possible to compare numbers between species having different size and flight style; the comparison of abundance between areas for any particular species should not be compromised, however.

Table 2. Pelagic seabird occurrence (birds per hour) in 2° latitudinal zones between the Antarctic Peninsula and South Georgia, 22-24 March 1998 and 2000.

Tabel 2. Voorkomen van zeevogels (aantal per uur) in 2° breedtezones tussen het Antarctisch Schiereiland en Zuid-Georgië, 22-24 maart 1998 en 2000.

2° latitudinal zones Obs. period (hrs)	64-62 7.6	62-60 9.2	60-58 11.1	58-56 12.9	Total birds
<i>Diomedea exulans</i>		0.33	0.18	0.23	8
<i>D. melanophris</i>	3.16	2.73	1.08	2.86	98
<i>D. chrysostoma</i>	0.26	0.44	0.63	0.54	20
<i>Phoebastria palpebrata</i>	0.40		0.18	0.62	13
<i>Macronectes giganteus</i>	4.09	4.15	0.63	3.48	121
<i>M. halli</i>				0.08	1
<i>Fulmarus glacialisoides</i>	37.58	4.58	0.18	0.08	330
<i>Thalassoica antarctica</i>	0.13				1
<i>Daption capense</i>	14.11	2.73	0.90	1.39	160
<i>Pagodroma nivea</i>		0.11			1
<i>Pterodroma brevirostris</i>	0.26	1.53	2.98	0.54	56
<i>P. mollis</i>			0.09	0.08	2
<i>Halobaena caerulea</i>	0.79	5.67	1.35	16.57	287
<i>Pachyptila</i> sp.	13.32	1.09	7.22	3.72	239
<i>Procellaria aequinoctialis</i>	4.09	0.87	2.08	3.72	110
<i>Oceanites oceanicus</i>	2.90	5.35		0.77	81
<i>Fregatta tropica</i>	1.45	6.65	1.08	1.01	97
<i>Pelecanoides</i> sp.		0.11		4.49	59
<i>Catharacta</i> sp.				0.08	1
<i>Larus dominicanus</i>		0.22			2
<i>Sterna vittata</i>		0.33			3

The mean speed of the ship varied between 4.5-12.1 knots (over 4 hours) and most often was 8-10 knots. The visibility was good to excellent in 1998 except for short periods with fog or showers during a few days, while in 2000 visibility was rather poor on most days between Antarctica and 48°S. The Drake Passage was calm in both years, with weak southerly winds. The calm weather continued in 1998 until north of South Georgia, where somewhat fresher winds blew from between north and east, and fairly strong northerly winds prevailed during most days between South Georgia and Tristan da Cunha in 2000. North of Tristan we entered the trade winds and experienced moderate to rather strong, easterly winds for the rest of both trips (as far as covered in this report) which hampered observations to some extent, particularly north of Cape Verde.

SEABIRD OBSERVATIONS

General. Seabirds observed offshore (generally with no land in sight) are summarized in Tables 1-5 as numbers seen per hour within 2° or 4° latitudinal zones. The varying amount of time indicated for each zone is chiefly due to differences in night time and time spent inshore and ashore at islands in the zones. The order and names of species are those of del Hoyo *et al.* (1992, 1996).

For most species the given numbers represent accurate counts of individual birds seen in the zones, but for certain species the numbers are approximate. First, shipfollowing species (albatrosses, fulmarine petrels like Giant *Macronectes* spp. and Cape Petrels *Daption capense*, prions *Pachyptila* spp., *Procellaria* petrels) cannot always be counted accurately; numbers shown are assumed minima and may in a few cases underestimate actual numbers rather considerably. In case of the Wandering Albatross *Diomedea exulans*, however, which may follow ships for hours, temporarily falling far behind and later catching up again, it is usually easy to keep track of individual birds due to the greatly varying plumage in this species. Second, a few species occasionally occurred in great numbers, and in such situations counts were rather rough and, possibly, low. The most notable example is the Great Shearwater *Puffinus gravis* in the Gough – Tristan da Cunha area (40-36°S, Table 3).

Seabirds were generally abundant in the Drake Passage and between Antarctica and Tristan da Cunha, at 37°S. North of Tristan seabird densities decreased dramatically and remained low or very low for the rest of the trip on both voyages. Concordant with the reduced seabird abundance the diversity of species decreased as well, although at a higher taxonomic level the composition of the seabird community became more varied with the appearance of several pelecaniiform and charadriiform species and a corresponding diminished dominance of the procellariiforms.

The proximity of land (breeding grounds) appears to have influenced the abundance of some of the species shown in Tables 1-5, particularly around Ascension (8°S; Table 4) and Cape Verde (15-17°N; Table 5).

Inter-year differences. As a broad generalisation birds were more abundant in 1998 than in 2000 in the rich waters south of Tristan da Cunha (Tables 2-3). This appeared to be a real difference, although the less favourable observation conditions experienced in 2000 probably explain part of it. For some species this meant a somewhat more extended apparent distribution in 1998 compared to 2000; in 2000, for example, there was a gap from 52-48°S where not a single *Fregatta* storm-petrel was seen, so the broad overlap of the two species in Table 3 is due solely to observations from 1998. For a few species, especially the

Table 3. Pelagic seabird occurrence (birds per hour) in 2° latitudinal zones between South Georgia and Tristan da Cunha, 28 March - 6 April 1998 and 28 March - 3 April 2000.

Tabel 3. Voorkomen van zeevogels (aantal per uur) in 2° breedtezones van Zuid-Georgië tot Tristan da Cunha, 28 maart-6 april 1998, 28 maart - 3 april 2000.

2° latitudinal zones Obs. period (hrs)	54-52	52-50	50-48	48-46	46-44	44-42	42-40	40-38	38-36	Total birds
<i>Diomedea exulans</i>	0.25	0.12	0.14	0.65	0.69	1.21	1.17	1.95	1.55	85
<i>D. epomophora</i>						0.09				1
<i>D. melanophris</i>	1.52	0.12	0.14	0.92	0.79	1.02	0.21	0.11	0.07	60
<i>D. cauta</i>						0.47	0.21	1.08		17
<i>D. chlororhynchos</i>				0.46	0.59	0.37	1.06	2.92	7.76	162
<i>D. chrysostoma</i>	1.39	0.99	1.29	1.02	0.10					60
<i>Phoebastria fusca</i>	1.01	0.12	0.29	1.02	1.38	0.93	4.46	1.30	2.26	142
<i>P. palpebrata</i>	0.06		0.14	0.28		0.09				7
<i>Macronectes giganteus</i>	0.76						2.02	0.86	1.13	55
<i>M. halli</i>	0.32	0.12			0.10					7
<i>Fulmarus glacialisoides</i>	0.51									8
<i>Daption capense</i>	0.76	0.12	0.07							14
<i>Pterodroma macroptera</i>				0.37			0.53	0.11	3.81	64
<i>P. incerta</i>			0.43	0.92	1.97	11.26	5.63	3.89	0.92	259
<i>P. brevirostris</i>	6.25	1.24	0.36	0.37						118
<i>P. mollis</i>	6.00	4.21	4.89	5.91	6.69	7.53	7.01	5.62	6.28	617
<i>Halobaena caenulea</i>	0.57									9
<i>Pachyptila</i> sp.	1.45	3.22	1.01	1.29	3.05	7.53	7.12	14.70	0.28	396
<i>Procellaria cinerea</i>	0.63	0.99	0.79	1.75	0.59	1.02	1.06	0.11		76
<i>P. aequinoctialis</i>	1.77			0.28	0.69	0.93	1.91	2.05	1.20	102
<i>P. (a.) conspicillata</i>			0.29	0.18	0.79	0.93	0.85	2.16	4.80	120
<i>Puffinus gravis</i>	5.75	3.22	2.87	7.29	7.48	7.26	3.82	39.14	8.33	906
<i>P. griseus</i>	0.06			0.09		1.02	0.11	0.76	0.07	22
<i>P. assimilis</i>		0.12		2.86	3.64	1.67	1.38	0.11	0.42	107
<i>Oceanites oceanicus</i>	0.95	0.37	0.07	1.29	0.69	0.19	0.21		0.56	52
<i>Pelagodroma marina</i>							0.11			1
<i>Fregetta tropica</i>	9.60	2.72	0.65							183
<i>F. grallaria</i>	0.32	1.48	4.89	0.65	3.15	1.30	3.82	0.65	2.96	222
<i>Pelecanoides</i> sp.	1.52	1.98	0.07		0.10	0.09				43
<i>Catharacta</i> sp.	0.06	0.12	0.07		0.10	0.74	0.74	0.86	0.64	36
<i>Stercorarius</i> sp.					0.10	0.09			0.07	3

Kerguelen Petrel *Pterodroma brevirostris* (see below), the distributions in the two years may have been genuinely different.

North of Tristan da Cunha, especially between Tristan and St. Helena (16°S), birds occurred very sparsely in both years but nevertheless were not quite so uncommon in 2000 as in 1998. All the Great-winged Petrels *Pterodroma macroptera* between 36-32°S (Table 4) were seen in 2000, some of them following the ship throughout the day of 4 April. Also following the ship during this and the next two days were several Spectacled Petrels (a taxon

Table 4. Pelagic seabird occurrence (birds per hour) in 4° latitudinal zones between Tristan da Cunha and Ascension, 7-15 April 1998 and 4-13 April 2000.

Tabel 4. Voorkomen van zeevogels (aantal per uur) in 4° breedtezones tussen Tristan da Cunha en Ascension, 7-15 april 1998, 4-13 april 2000.

2° latitudinal zones Obs. period (hrs)	36-32	32-28	28-24	24-20	20-16	16-12	12-08	Total birds
<i>Diomedea chlororhynchos</i>			0.07					1
<i>Pterodroma macroptera</i>	1.61							20
<i>P. incerta</i>	0.32							4
<i>Bulweria bulwerii</i>						0.06	0.04	2
<i>Procellaria aequinoctialis</i>	0.32		0.07					5
<i>P. (a.) conspicillata</i>	0.89	3.23	0.71					66
<i>Calonectris diomedea</i>	0.08		0.21	0.07		0.06		6
<i>Puffinus gravis</i>	0.24	0.29	0.07					8
<i>P. griseus</i>	0.08	0.14						3
<i>Fregetta grallaria</i>	0.08							1
<i>Oceanodroma castro</i>		0.22	0.07		0.08	0.06	0.04	7
<i>Phaethon aethereus</i>				0.14	0.08			3
<i>P. lepturus</i>							0.04	1
<i>Sula dactylatra</i>					0.08		0.25	8
<i>S. leucogaster</i>							0.04	1
<i>Fregata aquila</i>							0.98	27
<i>Stercorarius</i> sp.	0.08		0.07				0.15	6
<i>Sterna paradisaea</i>	0.08		0.14	0.07	1.85	0.31	1.96	87
<i>S. fuscata</i>							6.53	180
<i>Anous stolidus</i>							0.51	14
<i>Gygis alba</i>							0.62	17

usually treated as a subspecies of the White-chinned Petrel *Procellaria aequinoctialis*, but according to Ryan (1998) best considered a full species *P. conspicillata*). Flocks of Spectacled Petrels were also seen sitting on the water at several occasions during this part of the trip.

All Sooty Terns *Sterna fuscata* seen offshore (Tables 4-5) were recorded in 1998. In Ascension this species follows a 9.6-month breeding cycle (del Hoyo *et al.* 1996); it was absent from its breeding grounds in 1998 but present in 2000, where the few nests approached closely contained eggs, and numerous adults and immatures occurred around the island (and one adult was seen just off St. Helena).

Table 5. Pelagic seabird occurrence (birds per hour) in 4° latitudinal zones between Ascension and Tenerife (1998) or the corresponding latitude farther west (2000), 19 April – 1 May 1998 and 16-26 April 2000.

Tabel 5. Voorkomen van zeevogels (aantal per uur) in 4° breedtezones tussen Ascension en Tenerife (1998) of tot dezelfde breedtegraad verder westwaarts (2000), 19 april-1 mei 1998, 16-26 april 2000.

2° latitudinal zones Obs. period (hrs)	06-02	02-02	02-06	06-10	10-14	14-18	18-22	22-26	26-30	Total birds
<i>Pterodroma feae</i>						0.10	0.42			9
<i>Bulweria bulwerii</i>	0.19	0.30	0.66	0.58	0.55	1.49	0.69	1.49	1.46	128
<i>Calonectris diomedea</i>	0.10	1.51	0.82	0.40	0.13	14.98	0.32	0.38	2.63	258
<i>Puffinus assimilis</i>						3.27	0.05			34
<i>Pelagodroma marina</i>								0.05		1
<i>Hydrobates pelagicus</i>			0.11							2
<i>Oceanodroma castro</i>	1.82	2.94	13.21	4.27	1.06	0.30	0.74	3.98	0.06	520
<i>Phaethon aethereus</i>						1.98				20
<i>Sula dactylatra</i>	0.29									3
<i>S. leucogaster</i>						1.19				12
<i>Larus fuscus</i>								0.05		1
<i>Xema sabini</i>						0.60		0.19	0.06	11
<i>Rissa tridactyla</i>							0.05			1
<i>Sterna paradisaea</i>		0.45	1.26	3.01	2.66	2.68	0.11		0.06	189
<i>S. fuscata</i>	0.19	2.94								41
<i>Catharacta</i> sp.				0.04						1
<i>Stercorarius</i> sp.		0.15		0.27	0.08			0.14		13

NOTES ON PARTICULAR SPECIES

Penguins are rarely seen at sea unless conditions are unusually favourable, and even then they are difficult to identify. An exception is penguins resting on offshore icebergs and floes, but data on these may tell more about the distribution of floating ice than of penguins. During the present two cruises, penguins were seen in great numbers near breeding stations but infrequently offshore, those farthest from land being small flocks of King *Aptenodytes patagonicus* and Macaroni Penguins *Eudyptes chrysolophus* up to 520 km northeast of South Georgia.

Kerguelen Petrel *Pterodroma brevirostris*. All except one of 118 birds seen north of South Georgia (Table 3) were recorded in 1998, whereas not a single bird was seen in the Drake Passage that year (10 in 2000, Table 1). This species, and the **Soft-plumaged Petrel** *P. mollis*, both breed on Gough and the

Tristan group but apparently nowhere else in the South Atlantic (Richardson 1984, Prince & Croxall 1996), and their autumn occurrence far south and west of these islands represents a post-breeding dispersal of these populations and, probably, populations in the southern Indian Ocean. Not a single bird of either species was recorded during five crossings of the Drake Passage in December (1992-1995; own unpubl. data).

Cape Verde Petrel *Pterodroma feae*. This close relative of the Soft-plumaged Petrel breeds in the Cape Verdes and on Bugio I. off Madeira but appears to be rare, with a combined population estimated at less than 1200 pairs (Zino & Bischoff 1994, Hazevoet 1995). Breeding in the Azores has been suggested, but recent comprehensive surveys have failed to locate the species (Monteiro *et al.* 1999). All but one of the 9 birds in Table 5 (2 in 1998, 6 in 2000) occurred north of Cape Verde, the northernmost at 20°37'N.

Prions *Pachyptila* spp. All of the rather few prions definitely identified to species (including some found aboard) were Antarctic Prions *P. desolata* or Broad-billed Prions *P. vittata*, the former only identified south of 45°S and the latter north hereof. For the status of various prion species in South Georgia, see Prince & Croxall (1996).

Westland Petrel *Procellaria westlandica*. Not seen in 1998 or 2000, but birds having distinct black tips to the beak were seen in the eastern part of the Beagle Channel on 19 and 30 December 1992, and a single black-tipped bird in heavy wing moult was seen at sea farther south, at 55°25'S 65°55'W, on 18 December 1993 (own unpubl. data). The latter bird followed the ship accompanied by a normally looking White-chinned Petrel. These observations appeared very confusing because they were made before I became aware of the paper by Whitney & Stejskal (1992) reporting on the occurrence of Westland Petrel in the area, and pointing out that adults of this species, contrary to White-chinned Petrels, were likely to show wing moult in November-February.

Sooty Shearwater *Puffinus griseus*. Only two Sooty Shearwaters were seen outside the Beagle Channel in 1998, in the Gough – Tristan da Cunha area. All other records (Tables 1, 3, 4) are from 2000.

Swinhoe's Storm-petrel *Oceanodroma monorhis* ? Two all-dark storm-petrels were recorded in 1998, on 14 April (13°48'S 8°08'W) and 21 April (3°51'N 19°01'W). The latter was seen close by together with a Madeiran Storm-petrel *O. castro* and appeared to be of the same size or very slightly smaller. Dark-rumped storm-petrels indistinguishable from Swinhoe's Storm-petrel began to turn up in Europe and at Salvages (Madeira) in the 1980s, and the existence of an undiscovered population of Swinhoe's Storm-petrel breeding at some unknown location in the North Atlantic has been suggested (Bretagnolle *et al.* 1991). Dark-rumped storm-petrels have also been recorded from Ascension (Bourne & Simmons 1998).

Subantarctic Skua Catharacta antarctica Subantarctische Grote Jager (photo C.J. Camphuysen)

Diving-petrels *Pelecanoides* spp. The two diving-petrels most likely to encounter along the present transects are Common *P. urinatrix* and South Georgia Diving-petrel *P. georgicus*, which are almost impossible to distinguish at sea. One bird found aboard near South Georgia was a Common Diving-petrel, as was probably most of those seen at sea. A total of five birds with very distinct pale tips to the scapulars, hence likely to be South Georgia Diving-petrels, were recorded north of South Georgia at 49°40'–52°40'S, and one south of the island at 56°40'S.

Skuas. No *Catharacta* skuas seen at sea were identified to species, but most likely all seen in the southern hemisphere (Tables 1-3) were Brown Skua *C. antarctica*, south of 46°S *C. a. antarctica* and north hereof *C. a. hamiltoni*, whereas a single bird seen knocking a Cory's Shearwater *Calonectris diomedea* down on the water at 8°38'N (Table 5) probably was a Great Skua *C. skua*. Of the 9 *Stercorarius* skuas seen south of Equator (Tables 3-4), 7 were tentatively

or definitely identified as Long-tailed Skuas *S. longicaudus* and 2 as Arctic Skuas *S. parasiticus*, while the number recorded north of Equator of these two species was 4 and 6, respectively (Table 5). In addition, three Pomarine Skuas *P. pomarinus* were seen at 7°19'N, 22°54'N and 23°21'N, respectively (Table 5). Off St. Helena skuas were quite numerous in 2000, and at sunset on 11 and 12 April about 25 settled on the water off the anchorage at Jamestown. The few seen close by were Arctic Skuas.

Arctic Tern *Sterna paradisaea*. North-migrating birds were recorded on most days north of Tristan da Cunha (Tables 4-5), as singles or small flocks of up to 8 birds, on two occasions more than 30. The total number recorded was 369, 211 in 1998 and 158 in 2000. Not all of them could be identified with certainty, so the possibility that other species (particularly the Common Tern *S. hirundo*) were also involved cannot be excluded.

Land birds recorded at sea have not been considered in this report, but an exception should probably be made in case of the Cattle Egret *Bubulcus ibis*: one bird followed the ship for 20 min on 24 March 1998 south of South Georgia, at 56°07'S 39°01'W, and in the same area (58°02'S 40°13'W) one was seen on 24 March 2000. Similar observations have been made previously (Bourne & Curtis 1985), and this remarkable species is now a regular visitor to South Georgia (Prince & Croxall 1996).

DISCUSSION

The present report is based on two transects only, which implies some obvious limitations in the generalisations that should be made from the data. It may also have its merits, however: observations were made at a specific season, so the picture emerging should represent a snapshot of the 'normal' situation in the covered area during the early austral autumn.

This supposition raises the question whether things were in fact 'normal' during the two cruises – for example, the voyage in March-April 1998 took place during the waning phase of the strong 1997/98 El Niño event. However, El Niño effects are not known to be marked in the South Atlantic, and with few exceptions differences in seabird distributions between 1998 and 2000 were small and apparently explainable as short-term variations caused by local weather patterns, combined with the difficult observation conditions prevailing during part of the trip in 2000. Neither do the presented data suggest any marked anomalies when compared with known distributions as given in the general works quoted in the Introduction.

A more detailed comparison can be made with a few transects (South Georgia – Tristan da Cunha – St. Helena) in Tickell & Woods (1972), although their data were collected 4-6 weeks later in the season, and most of the apparent

discrepancies probably reflect this small but significant seasonal difference. This explanation certainly applies to the absence of Great Shearwater south of Tristan da Cunha in May, and presumably also to the less extreme paucity of birds (albatrosses, Soft-plumaged Petrel) between Tristan and St. Helena in late May (Tickell & Woods *l.c.*) as compared with early-mid April (this report). A seasonal explanation of the striking absence from the report by Tickell & Woods of Kerguelen Petrel and Little Shearwater appears less obvious, however. The latter species was characterized as regular between 38-50°S by Bourne & Curtis (1985), in complete agreement with the present report. The Kerguelen Petrel was found to be common south of 40°S by Bourne & Curtis (*l.c.*), and its sparse occurrence west of South Georgia during the cruise by Jehl *et al.* (1979) may merely reflect that the species becomes less common towards the west in the South Atlantic. However, a rather variable autumn distribution in the South Atlantic is suggested by the fact that the difference in occurrence between 1998 and 2000 was more marked in the Kerguelen Petrel than in any other species.

Perhaps the most anomalous occurrence reported here, at least compared with information in general works, is the presence of Soft-plumaged Petrel in the Drake Passage. However, the species has previously been characterized as abundant there in the austral autumn (Prince & Croxall 1996), and actual records from the Drake Passage south to 60°32'S are given in Brown *et al.* (1975) and Bourne & Curtis (1985).

In conclusion, the latitudinal distributions of seabirds in the South Atlantic Ocean reported in this paper are probably normal for the early autumn. They contain no great surprises but generally confirm previous knowledge and assumptions. The semiquantitative presentation and the degree of detail may hopefully be of use in future work in the area.

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ZEEVOGELWAARNEMINGEN IN DE ZUIDELIJKE EN CENTRALE ATLANTISCHE OCEAAN, VAN ANTARCTICA TOT 30°NB, MAART-APRIL 1998 EN 2000

Tijdens twee vaartochten met de Professor Molchanov in 1998 en 2000 vanuit Ushuaia, Argentinië, via het Antarctische schiereiland, langs Zuid-Georgië, Tristan da Cunha, de Kaap-Verdische Eilanden en enkele andere eilanden werden vogels geteld gedurende het begin van de zuidelijke zomer (halfmaart tot eind april). De waarnemingen zijn in tabellen samengevat als gemiddelden per waarnemingsuur in stroken van 2 tot 4 breedtegraden. In beide jaren waren zeevogels over het algemeen talrijk in de Drake Passage en tussen Antarctica en Tristan da Cunha. Ten noorden van Tristan da Cunha namen de dichtheden sterk af en waren zeevogels (zeer) schaars. Ook de diversiteit nam naar het noorden toe af. De aantallen van sommige soorten werden positief beïnvloed

door de nabijheid van hun broedgebieden. In de rijke wateren ten zuiden van Tristan da Cunha waren zeevogels in 1998 talrijker dan in 2000. Tussen Tristan da Cunha en St. Helena waren vogels schaars, maar juist in 2000 talrijker. Zo werden in 2000 Langvleugelstormvogels *Pterodroma macroptera* waargenomen tussen 36-32°ZB. Ook werden dat jaar verscheidene Brilstormvogels *Procellaria conspicillata* tussen beide eilanden waargenomen. Het verschil in waarnemingen van de Bonte Stem *Sterna fuscata* wordt verklaard door de 9.6-maandelijkse broedcyclus; in 1998 toen er niet gebroed werd (ook) ver op zee, in 2000 toen er gebroed werd uitsluitend in de nabijheid van land. Over het algemeen bevestigt de beschreven verspreiding van zeevogels de bestaande kennis en aannames.

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