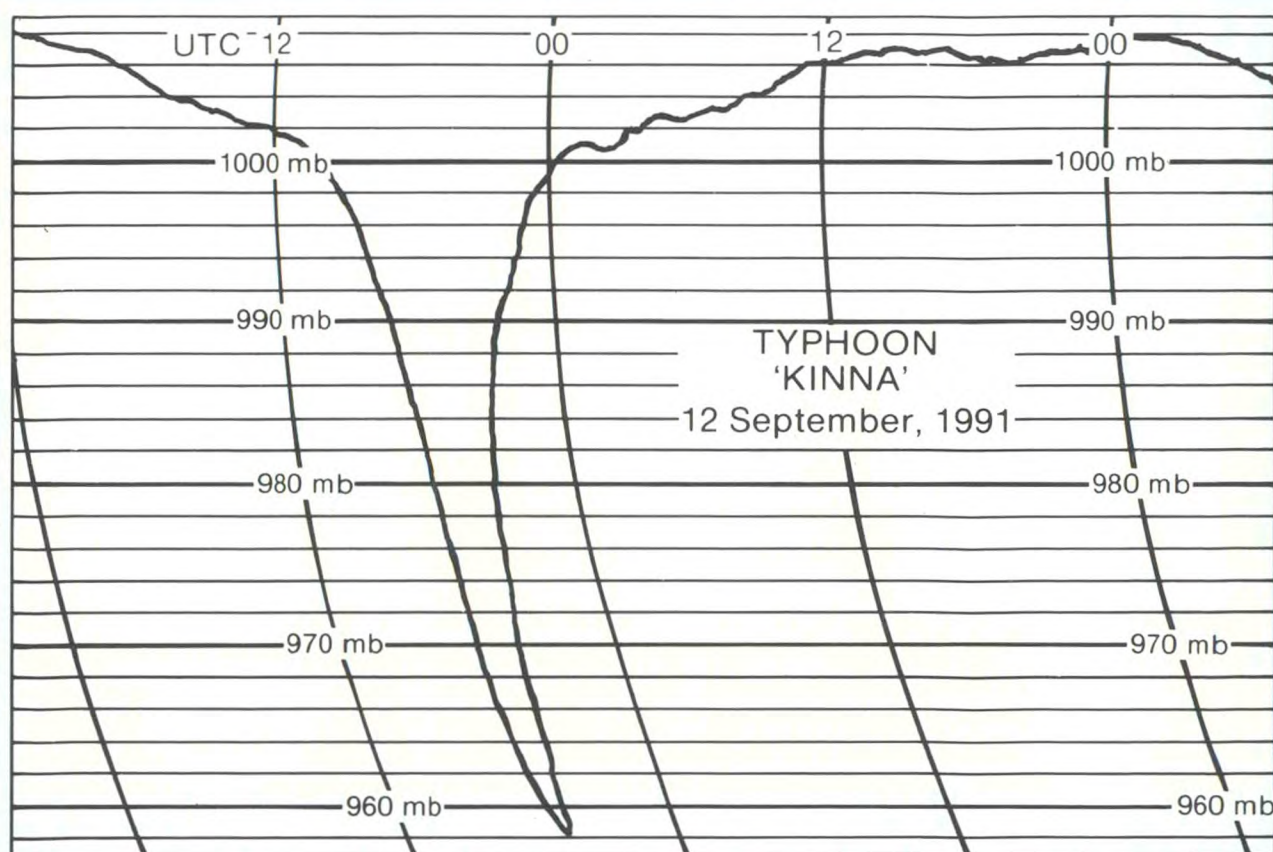


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The Marine Observer

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Meteorology*



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THE MARINE OBSERVER

A QUARTERLY JOURNAL OF MARITIME
METEOROLOGY PREPARED BY THE MARINE
DIVISION OF THE METEOROLOGICAL OFFICE

VOL. 62

No. 317

JULY 1992

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COVER ILLUSTRATION: Barograph trace from *Ambra Hunter* as the effects of Typhoon 'Kinna' were experienced in the East China Sea in September, 1991. (See page 108).

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LONDON: HMSO

EXCELLENT AWARDS 1991

Following assessment of the 861 meteorological logbooks received at the Marine Division in Bracknell from Selected Ships and Offshore units during 1991, certain awards have been made. Oil rigs and platforms will receive Certificates signed by the Chief Executive, and the voluntary observing ships' staff involved receive the customary annual awards, as shown in the following pages. These are the Masters, Principal Observing Officers and Radio Officers who have submitted the 100 best records for the year. In ships where no Radio Officer is carried, the next Deck Officer principally responsible for transmission of the weather messages is rewarded.

As usual, we have tried to take into account all the intricacies of observing with regard to the type and service of the ships concerned, and offer our congratulations to the successful individuals. Special thanks are due to Captain Hobson of James Fisher, as he appears in the list of top ships for the second year running. Our commiserations to those who did not quite make it into the top 100; the current year's awards list is already in the making, and those who missed out in one year may be fortunate in the next.

For 1991 the ships in the best categories were as follows:

1. r.v. *Cirolana*, Ministry of Agriculture, Fisheries and Food, Captain B.A. Chapman, Principal Observer R. Baty and Radio Officer F.D. Farthing.
m.v. *Pacific Teal*, James Fisher & Sons plc, Captain P.G.H. Hobson, Principal Observer C.A. Bates and Radio Officer P.G. Golson.
m.v. *Graigwerdd*, Idwal Williams Co. Ltd, Captain J.A. Coffin, Principal Observer P.I. Anderson and Radio Officer J.A. Laplana.
2. m.v. *Southland Star*, Blue Star Ship Management Ltd, Captain C.R. Mundy.
3. m.v. *Clydebank*, Andrew Weir plc, Captain D.L. Jones.
m.v. *Mairangi Bay*, P&O Containers Ltd, Captain B. Graham.
m.v. *ACT 7*, Blue Star Ship Management Ltd, Captain A.J. Chivers.
4. s.s. *Encounter Bay*, P&O Containers Ltd, Captains K.P. Byrne and B.V. Chipperfield.
m.v. *Harrier*, Mobil Shipping Co. Ltd, Captain P.J. Chambers.
m.v. *Oriental Bay*, P&O Containers Ltd, Captain A.C. McCulloch.
m.v. *West Moor*, Ambra Shipmanagement, Captain D.J. Lloyd.
5. m.v. *Flinders Bay*, P&O Containers Ltd, Captain D.A. Dornom.
m.v. *Liverpool Star*, Blue Star Ship Management Ltd, Captain R. Lyall.
R.R.S. *John Biscoe*, British Antarctic Survey, Captain E.M.S. Phelps.

Photographs of the three ships listed at No. 1 above are shown opposite. As usual, we have selected a dictionary, *Cassell's Concise English Dictionary*, the *Philip's International World Atlas*, and a special book, *Darwin* by Desmond & Moore; the allocations will all be made with regard to any awards received previously.

Advice in the shape of letters has already been sent to award nominees, but if anyone sees his or her name listed, contact us without delay, sending in your name, Discharge Book or Seaman's Book number and forwarding address for the award.

J.F.T.H.



Photo. by courtesy of MAFF

R.V. Cirolana (MAFF) Captain B.A. Chapman.



Photo. by courtesy of P.N.T.L.

Pacific Teal (James Fisher) Captain P.G.H. Hobson



Illustration by courtesy of Graig Shipping plc

Graigwerdd (Idwal Williams) Captain J.A. Coffin

**THREE OF THE SHIPS WHICH GAINED THE HIGHEST MARKS FOR
THEIR METEOROLOGICAL LOGBOOKS DURING 1991**

1980

2

EXCELLENT AWARDS (Year ended 31 December 1991)

CAPTAIN		COMPANY		CAPTAIN		COMPANY	
N.J. Adams	...	P&O Ship Management Ltd	...	R. A. W. Jarrett	...	BP Shipping Ltd	...
G. Bates	...	James Fisher & Sons plc	...	T.L. Jeffery	...	F.T. Everard & Sons Ltd	...
B. Berg	...	Swan Shipping, Norway	...	D.L. Jones	...	Andrew Weir Shipping plc	...
D.L. Beveridge	...	Scot. Fisheries Protection Agency	...	P.D. Kelly	...	Mobil Shipping Ltd	...
R.K. Bilton	...	Blue Star Ship Management Ltd	...	D.R. Lake	...	Shell Ship Management Ltd	...
H. Boese	...	Jeppesen Heaton Ltd	...	S.J. Lawrence	...	British Antarctic Survey	...
K.P. Byrne	...	P&O Containers Ltd	...	D.J. Lloyd	...	Jeppesen Heaton Ltd	...
J.M. Campbell	...	Jeppesen Heaton Ltd	...	R. Lyall	...	Denholm (I.O.M.) Ltd	...
P.J. Chambers	...	Mobil Shipping Co. Ltd	...	D.R. MacKillop	...	P&O Containers Ltd	...
B.A. Chapman	...	Minst. of Agr. Fisheries & Food	...	P.J.R. Manson	...	P&O Containers Ltd	...
A.J. Cheshire	...	P&O Containers Ltd	...	R. Maquestiau	...	Antwerp Bulk Carriers NV	...
B.V. Chipperfield	...	P&O Containers Ltd	...	C.H. March	...	Bibby Line Ltd	...
A.J. Chivers	...	Blue Star Ship Management Ltd	...	D. Marr	...	James Fisher & Sons plc	...
A.J. Clarke	...	Zapata Gulf Marine Ltd	...	C.H. Marsh	...	Bibby Line Ltd	...
J.A. Coffin	...	Idwal Williams & Co. Ltd	...	A.C. McCulloch	...	P&O Containers Ltd	...
M.J. Cole	...	British Antarctic Survey	...	J.M. Miller	...	James Fisher & Sons plc	...
D.J. Conway	...	Shell Ship Management Ltd	...	R. Monkman	...	CAM Shipping Ltd	...
F.G. Dagger	...	OOCL Ltd	...	D.B.C. Morris	...	P&O Containers Ltd	...
P.A. Darlow	...	BP Shipping Ltd	...	C.R. Mundy	...	Blue Star Ship Management Ltd	...
J.D. Dickinson	...	Harrisons (Clyde) Ltd	...	G. Nicholls	...	P&O Ship Management Ltd	...
D.A. Dornom	...	P&O Containers Ltd	...	J.B. Nicholls	...	J. Marr & Son Ltd	...
S.H. Duckworth	...	Denholm (I.O.M.) Ltd	...	D.R. Norman	...	The <i>Asrid</i> Trust	...
P.C. Dyer	...	Zapata Gulf Marine Ltd	...	B.W. Nuttall	...	Cunard Ellerman Shipping Co. Ltd	...
R.A.F. Edwards	...	Bibby Line Ltd	...	T.N. O'Driscoll	...	OOCL Ltd	...
P.J. Elder	...	Andrew Weir Shipping plc	...	G.J. Pearson	...	Rederiet H.R. Myhre A/S	...
C.R. Elliott	...	British Antarctic Survey	...	J.L. Peterson	...	P&O Containers Ltd	...
G.P. Eyles	...	Cardiff Ship Management Ltd	...	E.M.S. Phelps	...	British Antarctic Survey	...
A. Falconer	...	Chelston Ship Management Ltd	...	R.M. Pitts	...	Souter Shipping Ltd	...
A.J. Fee	...	P&O Containers Ltd	...	C.G. Pogue	...	Shell Ship Management Ltd	...
K. Fenwick	...	Shell Ship Management Ltd	...	D.L. Ratray	...	Scot. Fisheries Protection Agency	...
P.A. Furneaux	...	P&O Containers Ltd	...	D.J. Robertson	...	P&O Containers Ltd	...

B. Graham	...	P&O Containers Ltd	T. Robinson	...	Souter Shipping Ltd
I.S. Grant	...	P&O Containers Ltd	A. Ross	...	OOCL Ltd
J.C. Harley	...	Britship (I.O.M.) Ltd	C.C. Rowden	...	BP Shipping Ltd
P.E. Harwood	...	Logbridge Ltd	J.F. Rowe	...	P&O Containers Ltd
W.J. Harwood	...	Logbridge Ltd	A.I. Scott	...	Wallem Shipmanagement (I.O.M.) Ltd
R.J. Hemmings	...	Jeppesen Heaton Ltd	J. Sharp	...	Shell Ship Management Ltd
T.H. Henderson	...	Scot. Fisheries Protection Agency	J.A. Smeeton	...	P&O Ship Management Ltd
R.M. Herring	...	P&O Containers Ltd	E.D. Sones	...	Acomarit (U.K.) Ltd
M.A. Hill	...	P&O Ship Management Ltd	M. Stares	...	James Fisher & Sons plc
P.G.H. Hobson	...	James Fisher & Sons plc	A. Stobbs	...	BP Shipping Ltd
F.I. Hogg	...	Benmarine Ltd	E. Tanwoi	...	Mann Motorships Ltd
J.R. Holmes	...	Boston Putford Ltd	C.O. Thomas	...	Bibby Line Ltd
J.A. Holst	...	Denholm Shipmanagement U.K. Ltd	P.C. Thompson	...	Benmarine Ltd
P. Holtby	...	Blue Star Ship Management Ltd	D. Tracey	...	P&O Containers Ltd
L.E. Howell	...	P&O Containers Ltd	M.A. Watson	...	BP Shipping Ltd
J.R. Hughes	...	Bibby Line Ltd	G. Watson-Wood	...	Idwal Williams & Co. Ltd
J.H. Hutson	...	P&O Containers Ltd	M. Watts	...	P&O Containers Ltd
R.C. Jackson	...	Agentur für Seefracht	J.W. Welch	...	P&O Containers Ltd
P.J. Jameson	...	BP Shipping Ltd	D.P. Worsnop	...	P&O Containers Ltd

PRINCIPAL OBSERVING OFFICER		COMPANY		PRINCIPAL OBSERVING OFFICER		COMPANY	
P.I. Anderson	...	Idwal Williams & Co. Ltd	...	C.A. Bates	...	James Fisher & Sons plc	...
D.P. Andrew	...	Blue Star Ship Management Ltd	...	R. Baty	...	Minst. of Agr. Fisheries & Food	...
S. Azim	...	P&O Containers Ltd	...	R. Bjoerkman	...	Swan Shipping, Norway	...
S.T. Balfour	...	Blue Star Ship Management Ltd	...	C.R. Booker	...	Mobil Shipping Co. Ltd	...
N.P. Barrington	...	P&O Containers Ltd	...	T.J. Boulton	...	British Antarctic Survey	...
P. Bartlett	...	CAM Shipping Ltd	...	P.G. Bowett	...	P&O Containers Ltd	...
J.C. Barton	...	Scot. Fisheries Protection Agency	...	E.S. Boye	...	Acomarit (U.K.) Ltd	...

Excellent Awards (contd)

PRINCIPAL OBSERVING OFFICER		COMPANY	PRINCIPAL OBSERVING OFFICER		COMPANY
K. Bradshaw	...	P&O Containers Ltd	N.E. McInnes	...	Scot. Fisheries Protection Agency
A. Brown	...	The <i>Astrid</i> Trust	G.D. Mead	...	P&O Containers Ltd
F.N. Cambra	...	P&O Containers Ltd	C.R. Merry	...	P&O Containers Ltd
I. Campbell	...	Scot. Fisheries Protection Agency	A.B. Millar	...	P&O Containers Ltd
M.J. Catt	...	British (I.O.M.) Ltd	J.L. Mitchell	...	O.O.C.L. Ltd
G.P. Chapman	...	British Antarctic Survey	K.A. Molloy (Miss)	...	Denholm (I.O.M.) Ltd
D.C. Collins-Williams	...	P&O Containers Ltd	M. Monk	...	Souter Shipping Ltd
B.J.V. Cook	...	BP Shipping Ltd	R. Moore	...	P&O Containers Ltd
D.G. Cook	...	Boston Putford Ltd	I.J.J. Murillo	...	Jeppesen Heaton Ltd
P.W.R. Davidson	...	P&O Containers Ltd	R.G.C. Noble	...	Benmarine Ltd
S. De Jonge	...	Shell Ship Management Ltd	F.N. Noel-Hudson	...	The <i>Astrid</i> Trust
T.I. Dixon	...	James Fisher & Sons plc	T. Nyunt	...	Chelston Ship Management Ltd
D.L. Dodsworth	...	P&O Containers Ltd	I.C. Oke	...	Mann Motorships Ltd
D.P. Dosqueblos	...	Logbridge Ltd	I.A. Pakula	...	Idwal Williams & Co. Ltd
W.R. Durrans	...	James Fisher & Sons plc	S.J. Palmer	...	Bibby Line Ltd
I.G.C. Ferguson	...	Zapata Gulf Marine Ltd	S.L. Pradham	...	P&O Ship Management
A. Frost	...	Blue Star Ship Management Ltd	R.G. Pressler	...	P&O Containers Ltd
A.P. Gillen	...	Blue Star Ship Management Ltd	J.M. Reid	...	Cunard Ellerman Shipping Co. Ltd
E. Gilon	...	Antwerp Bulk Carriers NV	G. Ritchie	...	P&O Containers Ltd
D.E. Ginder	...	Andrew Weir Shipping plc	A.W. Robertson	...	Andrew Weir Shipping plc
A.J. Glass	...	BP Shipping Ltd	P.E.P. Roche	...	Shell Ship Management Ltd
D.P. Gomez	...	Rederiet H.R. Myhre A/S	D. Rogers	...	P&O Containers Ltd
J.R. Greenspan	...	O.O.C.L. Ltd	B.A. Ryan	...	Wallem Shipmanagement (I.O.M.) Ltd
D.E. Grief	...	Zapata Gulf Marine Ltd	H. Sachs	...	Jeppesen Heaton Ltd
J.C. Hague	...	Denholm (I.O.M) Ltd	M. Sayab	...	Logbridge Ltd
S.M. Hamer	...	Denholm Shipmanagement Ltd	A. Seragon	...	Acomarit (U.K.) Ltd
J.R. Harper	...	British Antarctic Survey	R.D. Serapio	...	Cardiff Ship Management Ltd
G. Harrison	...	Shell Ship Management Ltd	G. Shaw	...	Harrisons (Clyde) Ltd
G.C. Harwood	...	F.T. Everard & Sons Ltd	A.J. Skingley	...	P&O Containers Ltd
C.C. Heil	...	P&O Containers Ltd	N.B. Solanki	...	P&O Ship Management Ltd
R. Hood	...	Mobil Shipping Co. Ltd	R.C. Stewart	...	BP Shipping Ltd

N.C. Horner	...	Jeppesen Heaton Ltd	M.C.P. Sutcliffe	...	P&O Containers Ltd
I.D. Howard	...	Bibby Line Ltd	J.G. Swindlehurst	...	P&O Containers Ltd
F.F. Kuhn	...	J. Marr & Son Ltd	D.W. Temple	...	Scot. Fisheries Protection Agency
R. Latko	...	BP Shipping Ltd	D.H. Thomas	...	Shell Ship Management Ltd
T.T. Latto	...	BP Shipping Ltd	D.W. Tucker	...	Jeppesen Heaton Ltd
Leu Kon Man	...	OOCL Ltd	R.K. Vermer	...	P&O Ship Management Ltd
D.A. MacKinnon	...	Bibby Line Ltd	D.J. Vickery	...	P&O Containers Ltd
I.G. MacNeil	...	Bibby Line Ltd	R.M. Watt	...	James Fisher & Sons plc
S.M.F. Masud	...	Shell Ship Management Ltd	J. White	...	F.T. Everard & Sons Ltd
W. McCann	...	Souter Shipping Ltd	D.J. Williams	...	BP Shipping Ltd
P.L. McGill	...	James Fisher & Sons plc			

RADIO OFFICER		COMPANY		RADIO OFFICER		COMPANY	
M. Albrow*	...	Putford Offshore Ltd	...	S.R. Cloutte	...	P&O Containers Ltd	...
P.J. Appleyard	...	J. Marr & Son Ltd	...	I. Conn	...	Harrisons (Clyde) Ltd	...
D. Auckland*	...	CAM Shipping Ltd	...	C.Y. Constantinou	...	P&O Containers Ltd	...
J.L. Baker	...	Marconi Int. Marine Co. Ltd	...	G.A. Coutts	...	Seascot Ship Trading Ltd	...
R. Ball	...	Atlantic Marine, Hamilton	...	J.I. D'Souza	...	V.Ships (U.K.) Ltd	...
N.N. Bark	...	Denholm Ship Management U.K. Ltd	...	P. Davies	...	P&O Containers Ltd	...
R.N. Barker	...	Andrew Weir Shipping plc	...	P.A. Dews	...	Souter Shipping Ltd	...
S.C. Benstead*	...	Jeppesen Heaton Ltd	...	B. Donaldson	...	Marconi Int. Marine Co. Ltd	...
J.K. Bhadra	...	P&O Ship Management Ltd	...	M.R. Dunn*	...	Andrew Weir Shipping Ltd	...
D.W. Bone	...	BP Shipping Ltd	...	D.A. Drummond	...	Pacific Nuclear Transport Ltd	...
S.J. Braithwaite	...	P&O Containers Ltd	...	F.D. Farthing*	...	Minst. of Agr. Fisheries & Food	...
C.R. Brooks	...	P&O Containers Ltd	...	R.S. Farwah*	...	Barber Ship Management (U.K.) Ltd	...
B. Brycki	...	Dorchester Maritime Ltd	...	A.G. Fielding	...	Shell Ship Management Ltd	...
J.B. Carter	...	S.T. & C. International Marine	...	F. Fletcher	...	OOCL Ltd	...
M. Chapman*	...	Boston Putford Ltd	...	M.D. Frazer	...	S.T. & C. International Marine	...
P. Clemence	...	BP Shipping Ltd	...	N.C. French	...	Chelston Ship Management Ltd	...

Excellent Awards (contd)

RADIO OFFICER		COMPANY		RADIO OFFICER		COMPANY	
R. B. Fuller	...	P&O Containers Ltd		M.A. O'Brien	...	Shell Ship Management Ltd	
K.J.J. Gaughan	...	P&O Containers Ltd		M. O'Donnell	...	British Antarctic Survey	
R. Gaul	...	Shell Ship Management Ltd		J.M.A. O'Sullivan	...	Marconi Int. Marine Co. Ltd	
M.E.P. Gloistein	...	British Antarctic Survey		L.N. Paul	...	Wallem Shipmanagement (I.O.M.) Ltd	
P.G. Golson	...	James Fisher & Sons plc		P.N. Pouchet	...	Bibby Line Ltd	
R.E. Goring	...	P&O Containers Ltd		J. Ramsay	...	S.T. & C. International Marine	
V.A. Gorny	...	P&O Containers Ltd		A.S. Reuben	...	Barber Ship Management (U.K.) Ltd	
A.N. Grant	...	Wallem Shipmanagement (I.O.M.) Ltd		D.A. Richards	...	BP Shipping Ltd	
C.B. Hardie	...	Radio & Electronic Services		M.S. Rippon*	...	Jeppesen Heaton Ltd	
P.M. Haslam	...	S.T. & C. International Marine		D. Sequeira	...	P&O Ship Management Ltd	
C.W. Hodgeson	...	P&O Containers Ltd		N.Sheard*	...	Zapata Gulf Marine Ltd	
S. Horsburgh	...	Scot. Fisheries Protection Agency		R.J. Sheldon	...	Scot. Fisheries Protection Agency	
A.D. Hutchinson	...	P&O Containers Ltd		D.A. Simcox	...	BP Shipping Ltd	
P.W. Jackson*	...	Denholm (I.O.M.) Ltd		G.J. Simpson	...	Bibby Line Ltd	
T.S. Jarra	...	OOCL Ltd		K.A.E. Smith	...	Boston Putford Ltd	
S. Joshi	...	OOCL Ltd		V. Srisamulu	...	P&O Containers Ltd	
D.A. Kelsall	...	P&O Containers Ltd		R.J. Stevens	...	Marconi Offshore Ltd	
P.K. Kielthy	...	BP Shipping Ltd		S.P. Taylor	...	BP Shipping Ltd	
J.A. Laplana	...	Idwal Williams & Co. Ltd		A. Thomas	...	Bibby Line Ltd	
L. Lim	...	Rederiet H.R. Myhre A/S		R. Thomas*	...	Zapata Gulf Marine Ltd	
D.H. Logie	...	Harrissons (Clyde) Ltd		A.G. Thomson	...	Bibby Line Ltd	
T.E. Lowe	...	BP Shipping Ltd		C.K. Thornalley	...	P&O Containers Ltd	
A. MacCallum	...	Scot. Fisheries Protection Agency		R.B. Villarin	...	Rederiet H.R. Myhre A/S	
N. Marwood	...	P&O Containers Ltd		C.A. Waddicor	...	British Antarctic Survey	
B.W. Matten	...	P&O Containers Ltd		C. Wade	...	Bibby Line Ltd	
M.J.A. McKenny	...	P&O Containers Ltd		T.D. Walton	...	Shell Ship Management Ltd	
S. McClane*	...	Boston Putford Ltd		B. Wilkinson	...	P&O Containers Ltd	
H.G. Moran	...	Blue Star Ship Management Ltd		T.P. Williams	...	Andrew Weir Shipping plc	
P. Murphy	...	P&O Containers Ltd		R.A. Wilson	...	Curnow Shipping Ltd	
B. Neary	...	Blue Star Ship Management Ltd		J.C. Yates	...	S.T. & C. International Marine	
F. Nottingham	...	Boston Putford Ltd					

‘MARID’ SHIPS†

OBSERVERS	COMPANY
Captain J. Davies; Chief Officer P. Houlton; Second Officer J.A. Aspinall Chief Officer J.A. Dunlop; Second Officers G. Sutherland and A.K. Shaw Captains B. Hayball; G. Haig-Brown and P.G. Fry	Esso Petroleum Co. Ltd Esso Petroleum Co. Ltd Commodore Shipping (C.I.) Ltd

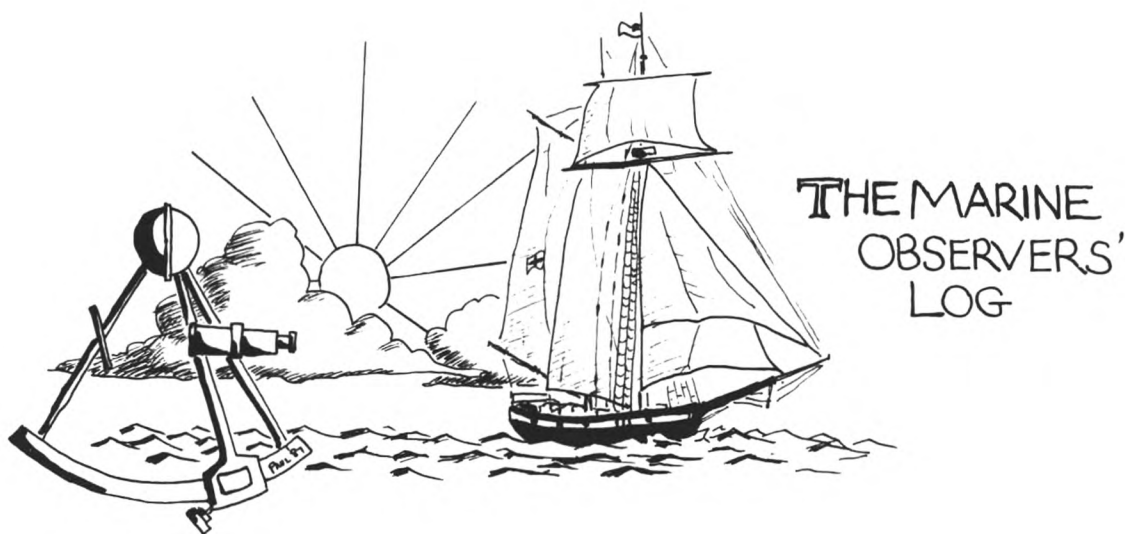
* Deck Officer

† Vessels recruited for the purpose of observing and transmitting sea temperatures with non-instrumental observations in the North Sea.

The following have still not claimed their Excellent Awards for the year 1990:

Principal Observers A.T. Aportadeira, K. Bimpeh, K.S. Dastour, T.P. Gunanayagan, S. Horsburgh, N.A. Patel, S.K. Saggi and R. Tejada; Radio Officers T. Adrian, K.M. Amoa, A.A. Armah, A.B. Balog, S. Nablea and R. Shirley.

Any person knowing how any of the above may be contacted is kindly asked to notify the Marine Division.



July, August, September

The Marine Observers' Log is a quarterly selection of observations of interest and value. The observations are derived from the logbooks of marine observers and from individual manuscripts. Responsibility for each observation rests with the contributor.

TYPHOON 'BRENDAN'

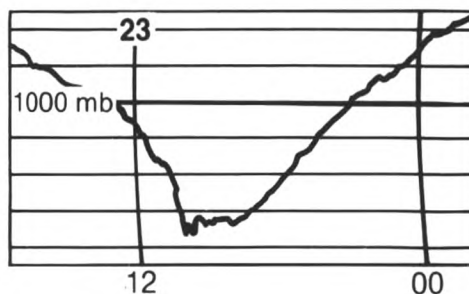
South China Sea

m.v. *Table Bay*. Captain P.J.R. Manson. Alongside, Hong Kong. Observers: the Master, Mr I.M. Hill, 1st Officer, Mr M.C. Sutcliffe, 2nd Officer, Mr S. Paine, 3rd Officer and members of ship's company.

23 July 1991. On the approach of typhoon Brendan to Hong Kong, the berths were cleared and ships sent out to anchorages, but *Table Bay* managed to complete cargo work before pilotage was suspended, and was the last ship to leave Kwai Chung Container Terminal. On the way out, the area between Lamma Island and Dangan Island was seen to be crowded with anchored ships. At this time the storm centre was forecast to be due south of Hong Kong, and the decision to proceed to sea was taken. As the ship cleared the land on an easterly course, an ENE'ly wind of force 9 was encountered, confirming that the storm centre was passing to the south of the ship.

The following observations and barograph trace indicate the weather conditions experienced.

Time (UTC)	Wind		Temperature (°C)		Pressure (mb)
	Dir'n	Force	Air	Wet	
1600	E×S	8-9	28.5	26.0	992.7
1700	E×S	8	27.5	25.5	993.5
1800	SE	8	27.4	26.0	994.8
1900	S×E	5	26.7	25.3	996.5
2000	S×E	5	27.1	25.2	997.5



The wind veered E'yly as the pressure levelled off and, after a further two or three hours began to veer steadily to southward. Keeping the wind about 2 points on the starboard bow, the ship was gradually brought round onto a southerly course.

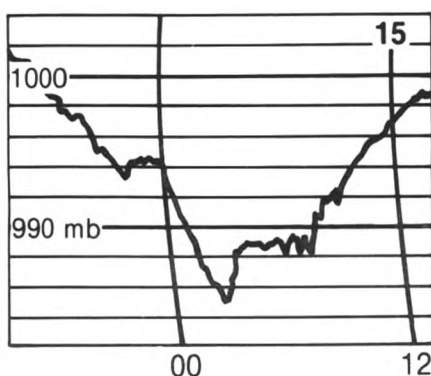
Position of ship at 1600 UTC: 22° 05'N, 114° 40'E.

TYPHOONS 'ELLIE', 'FRED', 'GLADYS'

South China Sea

m.v. *Kowloon Bay*. Captain I.W. Collister. Singapore to Hong Kong. Observers: the Master and ship's company.

13–21 August 1991. At 2100 UTC the vessel commenced three-hourly observations at the request of Hong Kong Radio as it was in the vicinity of typhoon Fred (9111). By this time on the 14th the wind had increased to W'yly, force 7 whilst the pressure was 995.7 mb, falling rapidly. An hour later the vessel altered course from 001° to 140° in order to avoid Helen Shoal and encountering Fred in that area. The weather was overcast and there were heavy rain showers. The following observations and barograph traces show the conditions experienced.

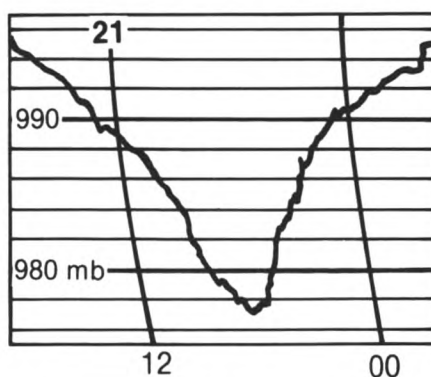


- 15th 0000: Wind W×N'yly, force 7–8; pressure 995.8 mb. Overcast with heavy rain showers. A/C 090° and, at 0010, A/C 040°.
- 0100: Wind W'yly, force 9; pressure 992.3 mb. Continuous heavy rain with visibility less than 1 n.mile.
- 0300: Wind W'yly, force 10; pressure 985.9 mb. Continuous heavy rain. Seas increasing to 4 m; A/C 070° to reduce heavy rolling.
- 0400: Wind SSW'yly, force 10; pressure 989.9 mb. Continuous heavy rain. A/C 030° to keep wind astern and attempt to resume passage. At 0410, A/C 349°.
- 0500: Wind SSW'yly, force 10; pressure as above. Heavy rain showers every 10–15 minutes. Seas confused, height 3–4 m.

- 0600: Wind SSW'ly, force 9-10; pressure 989.9 mb. Heavy rain showers becoming less frequent. Heavy confused swell, height approximately 6 m.
- 0900: Wind ESE'ly, force 10; pressure 994.5 mb. Continuous moderate/heavy rain. Visibility 2-3 n.mile.
- 1200: Wind ESE'ly, force 8; pressure 999.0 mb. Overcast sky, rain ceased. / Heavy confused swell, height 4-5 m.

On 17 August at 0440, whilst on passage from Hong Kong to Keelung, the vessel was informed that the port of Keelung was closed owing to the forecast approach of typhoon Ellie (9110). At 1230 the vessel commenced drifting whilst awaiting information from Keelung and was allowed to proceed by 2000, the wind at this time being NE×E'ly, force 6. The vessel berthed at 0300 on the 18th.

On 21 August, whilst on passage from Busan to Kobe typhoon Gladys (9112) was encountered. At 1500 the wind was NE'ly, force 8 and the pressure was 985.7 mb, but by 1800 the wind had increased to E'ly, force 11 while the pressure



decreased to 978.4 mb. One hour later the wind was force 12 and the visibility had been reduced to 1-2 n.mile by heavy spray. The vessel's speed was reduced to 17 knots owing to the heavy easterly seas. At 2100 severe rolling commenced, causing equipment to break loose in the Engine Room; the vessel then altered course into the wind to reduce the motion because of an injury sustained by the 1st Engineer Officer. At this time the wind was still ESE'ly, force 11 but there was no rain in sight. The Engine Room equipment was secured by 2200 and the course for Kobe was resumed. The wind had started to abate by 2300 and the pressure was rising, but a heavy easterly swell of 7 m remained until 0000 on the 22nd when it too began to decrease. At 0100 the vessel altered course to 052° and speed was increased to 22 knots.

Position of ship at 2200 UTC on the 14th: approximately 19° 07'N, 113° 35'E.

Position of ship at 1500 UTC on the 21st: 31° 38'N, 129° 30'E.

TYPHOON 'KINNA'

East China Sea

m.v. *Ambra Hunter*. Captain J.R. Lobo. Oita to Singapore. Observers: the Master, Mr M.N. Anwar and ship's company.

12-13 September 1991. After sailing, some defects occurred in the radio equipment and so radio reports were not available. On the morning of the 12th the weather experienced was light and variable wind with a slight sea and low swell, while the sky was partly covered by cumulus cloud. During the afternoon watch, at 0500 UTC, the wind was noted to be ENE'ly, force 4 and the sky was

almost covered by cumulus and stratocumulus. After the 0600 observation there was a feeling of uneasiness on the ship owing to the prevailing conditions combined with falling pressure, and the possibility of a depression or storm to the south was considered. At 0900 a VHF broadcast from Okinawa Shima confirmed the presence of a typhoon. The fax receiver had been repaired by this time and at 0920 the typhoon centre was given as 24.2° N, 129.2° E (at 0600) and was moving north-west at 16 knots with a central pressure of 980 mb. The indications were that it would pass to the south of the vessel and the decision was taken to maintain course. By then, the vessel was east of Okinawa Shima, but the typhoon had recurved and, having no searoom to the west, the vessel passed the eye of the storm between 1825 and 1905 on the night of the 12th.

After entering the eye of the storm, the wall of it could be seen on the radar (24-n.mile range) and had a diameter of about 10 n.mile. The ship's path described a chord of about 7 n.mile passing from the north-westerly section of the eye. Some observations made during the period follow, and the barograph trace [see front cover] shows the pressure change.

Date and time	Wind Dir'n	Force	Pressure (mb)	Sea	Swell (m)	Cloud (oktas)	Remarks
12th 0600	080°	5	1007.2	1	1	7	Light rain in vicinity. Wind and sea on port quarter.
1200	080°	7	1002.9	2	2.5	6	Sheet and fork lightning. Moderate intermittent rain. Vessel rolling mod/heavily.
1600	080°	10/11	995.0	5	5	8	Wind and sea as above. Sheet lightning. Heavy rain showers, drifting spray. Visibility seriously affected. Pressure falling rapidly. Vessel rolling violently and pitching heavily. Wind and sea as above.
1800	080°	12	974.6	6	5	8	Weather conditions as above. Vessel rolling more than 40° (limit of inclinometer).
1825	—	—	—	—	—	—	Vessel crossed eye wall. Rain ceased. Wind dropped suddenly. Very heavy swell.
1905	290°	14	978.3	8	6	8	Vessel crossed eye wall again. Lowest pressure reading recorded 961 mb. Pressure increasing rapidly. A/C 150°.
13th 0000	280°	11	1002.0	5	6	7	Heavy rain showers with drifting spray. Visibility seriously affected. Pressure increasing rapidly. Vessel rolling and pitching violently. Wind on starboard quarter.

At 0600 the wind had decreased to force 7, the seas were lower, the vessel was much more comfortable and the charted course was resumed. A long night had ended and with it the worst storm experienced by all on board, to date.

Position of ship at 0500 UTC on the 12th: 28° 00'N, 129° 47'E.

HURRICANE 'BOB'

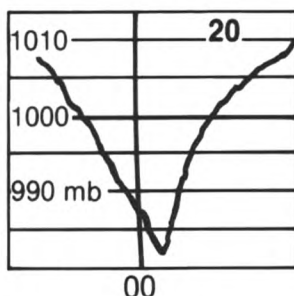
Western North Atlantic

Yacht *Ocean Goose*. Captain D.A. Church. At South Brooksville, Maine. Observers: Captain and Mrs Church.

19 August 1991. Whilst on a mooring in Bucks Harbour, South Brooksville, reports were received on the progress of hurricane Bob. At that time the eye of the hurricane was approaching the Carolinas from the Bahamas, moving at around 15 knots. By about 0000 UTC on the 19th it was situated off Cape Hatteras and moving north-north-east with a central pressure of 962 mb and with maximum sustained wind speeds of 100 knots, a Grade 3 hurricane. During the night a cold front with heavy overcast skies and torrential rain but little wind was experienced.

At 1400 on the 19th Bob was off the coast of New Jersey, still moving north-north-east but speeding up at 30 knots and with a central pressure of 953 mb. Unless there was a change in its course or status the yacht would be in its direct path.

Bucks Harbour is a recognised hurricane hole and all vessels started making all the necessary preparations. The yacht was first moved to a much heavier mooring before extra pennants were put on to the mooring and chafing gear wrapped on all ropes as they led over the stem roller. The observers decided against laying out additional anchors because the bottom was rocky and was likely to be foul as the harbour was full of moorings. All awnings and loose gear were removed from the deck and stowed below. The roller-furler genoa was taken down and stowed and heavy lashings wrapped around the main and mizzen sail covers. Other boats in the harbour took similar precautions. The barograph trace shows the pressure change taking place.



By 1600 it was still heavily overcast but the rain had eased a little. Hurricane Bob was approaching Cape Cod and was maintaining its course and speed; the forecast was for E'ly winds increasing to about 85 knots by evening and accompanied by a possible 2-m tidal surge. Two hours later the observers left the yacht and moved a few miles inland and continued to monitor the hurricane through NOAA Weather Radio, but the reports of Bob's position were becoming sparse and rather vague; the forecast had not changed. In the absence of good information via radio, the local television channel was tried. The 'Weatherman' displayed a magnificent computer chart showing the track of the storm and said, 'This is Bob's latest position, at a location I have yet to identify'. The television was switched off. The time was 2200 and there was almost continuous heavy rain with gusts of wind to forty knots. At 2300 the forecast was unchanged and by 0300 the next day the rain had stopped and the wind had died away to practically nothing.

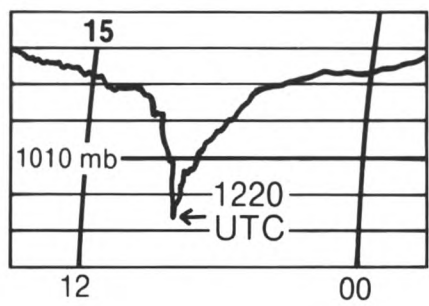
Later in the day it was found that Bob had turned inshore up Narragansett Bay and passed over Boston but was, by then, downgraded to a tropical storm and was continuing to lose energy. What was left of the hurricane had passed about 25 miles inland at about 0100 on the 20th.

Position of ship: 44° 20'N, 68° 44'W.

DEPRESSION
North Atlantic Ocean

m.v. *Zetland*. Captain M.A. Hill. Gibraltar to Hampton Roads. Observers: the Master, Mr A.R. Dingankar, 3rd Officer and ship's company.

15 September 1991. During the day the effects of an intense depression were experienced. The fall and rise in pressure was extraordinarily rapid as the following observations and barograph trace show. (Barograph error: +3.5 hours.)



Time (UTC)	Wind Dir'n	Force	Pressure (mb)	Remarks
0600	S×W	3	1016.7	Lightning to west.
0900	S	4	1025.7	
1200	N	9	1008.4	Sudden, drastic wind change. Very heavy rain showers. Poor visibility.
1220	NW×N	5	1009.0	Cessation of showers. Visibility improving.
1500	NW×W	5	1014.4	Cloud cover 3 oktas small cumulus. Good visibility.

The weather map obtained from Halifax for 1200 put the vessel in the vicinity of the low pressure with the associated warm front extending to the north-east.

Position of ship at 0600 UTC: 35° 30'N, 46° 42'W.

Southern Indian Ocean

m.v. *Roro Barrier*. Captain D.A. Rennie. Durban to Port Elizabeth. Observers: the Master, Mr G. Walsh, 2nd Officer, Mr M. Russell, 2nd Officer, Mr R. Munro, 3rd Officer and ship's company.

2 August 1991. The vessel sailed at 1348 UTC on a south-westerly course and headed out to about 9 n.mile off the coast to gain the greatest effect of the Agulhas Current. Prior to departure all weather reports indicated the presence of a depression moving up the coast in a northerly direction, which was quite normal for the time of year. The wind on departure was E'ly, force 3 and the

Master's standing orders were that should the wind veer SW'ly, then the vessel should be taken to 4 n.mile from the coast which is standard practice when SW'ly winds of more than force 5 are encountered. In these conditions abnormal waves can be found where the Agulhas Current is strongest, on the continental shelf.

At 0200 on the 3rd the vessel encountered W'ly winds of force 5 approximately 25 n.mile north-east of East London and courses were altered to take it within 4 n.mile of the coast. The following details have been extracted from observations made whilst the vessel passed through the depression.

Time	Wind		Pressure (mb)	Temperature (°C)		Remarks
	Dir'n	Force		Dry-bulb	Sea	
0200	W	5	1002	19	—	Sky partly cloudy. Sea 4 m.
0400	SW	6/7	1001	19	—	Cloudy. Sea 4/5 m.
0500	SW	7/8	1000	19	—	Cloudy. Sea 4/5 m.
0600	SW	10	1001	18	20	Cloudy. Sea 6 m.
0700	SW	12	1001	16	17	Overcast, rain. Sea 8 m.
1000	SW	12	1008	13	16	Cloudy, rain. Sea 9 m.
1100	SW	9	1010	13	16	Cloudy. Sea 8 m.
1800	SW	8	1020	14.5	17	Rain. Sea 7 m.

At approximately 0930 numerous squalls were encountered and the vessel started shipping water over the main whilst visibility was impaired by spray and rain. No damage was sustained by cargo or structure owing to a timely reduction in speed and eventually hoving to from noon until 1900.

At 0001 on the 3rd, the passenger vessel *Oceanus* was some 200 n.mile to the north-east of the ship when she sent her first MAYDAY, while the Norwegian tanker *Mimosa* was to the south of Cape Recife and lost her rudder and sustained structural damage in the same storm, leaving a 12-mile oil slick.

Position of ship: approximately 32° 48'S, 28° 36'E.

Note. The *Roro Barrier* is a vessel of the South African Voluntary Observing Fleet.

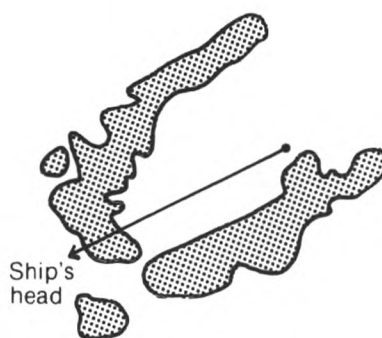
SQUALL

North Atlantic Ocean

m.v. *Scottish Star*. Captain M. Power. Antwerp to Fernandina Beach, Fla. Observers: the Master, Mr E.T. Bibby, 3rd Officer and Mr G.B. Randall, Radio Officer.

26 August 1991. At 1010 UTC the vessel was experiencing heavy showers with thunder and lightning. Huge cumulonimbus and towering cumulus clouds could be seen through breaks in the nimbostratus and pannus. At the same time a very distinct echo was seen on the radar display, as shown in the sketch. Shortly before entering the squall, the wind veered to SW×W'ly, remaining at force 6, but as the vessel entered the line of the squall at 1023, the wind speed increased rapidly to 63 knots relative by hand-held anemometer. Given the ship's speed of 20 knots, this would have made the actual wind speed in the region of force 9.

Despite this increase the sea state was not greatly affected owing to the lack of fetch although the sea surface was streaked with foam. Indeed, the sea was slightly quelled by the effects of the torrential downpour of rain associated with



the squall, while the visibility was reduced to about 200 m. At 1026 the rain eased off, the wind returned to force 6 and backed to its original SSE'ly direction and the sea returned to an unstreaked condition characteristic of that force. Visibility increased to 3 n.mile and the definite radar echo previously noted began to diffuse.

At 1036 when the vessel was well clear of the squall, there was no real definition remaining of the precipitation echo. Weather conditions prior to the event were: air temperature 18.3 °C, wet bulb 17.5°, pressure 1011.1 mb.

Position of ship: 37° 27'N, 42° 35'W.

WATERSPOUTS

Western Mediterranean

m.v. *Staffordshire*. Captain R.A.F. Edwards. Terneuzen to Port Said. Observers: the Master, Mr D.I. Mackinnon, 3rd Officer, Mr G.J. Simpson, Radio Officer and Mr M. Malone, Cadet.

28 September 1991. At 0555 UTC a waterspout was observed off the starboard quarter about 2 n.mile from the vessel. It was well defined at the top and bottom, where the surface water movement was clearly visible, but 'straggled' in the middle section where it was not quite as clear. The waterspout continued to move further astern, gradually reducing in intensity until it finally dissipated after 20 minutes. Cloud cover at this time was 3 oktas of cumulonimbus and 3 oktas of small cumulus (bases at about 700 feet) and was present from about right ahead to right astern, the port side being relatively clear. Another waterspout was observed five minutes before the decay of the first one, again just off the starboard beam but was not as well defined as the first one although it was developed at top and bottom. This one moved astern also and was accompanied by a third spout off the starboard beam and was better defined than the second

one, forming a shallow arc from cloud to sea. At 0638 the second spout dissipated astern, while at 0642 a narrow funnel formed from the cloud base just off the starboard bow. No disturbance of surface water was evident at this point but two minutes later disturbance was noted and a waterspout developed; it was weak throughout until dissipating along with the third spout at 0647. Heavy rain was observed off the starboard beam at 0700 and the fourth spout reformed off the starboard beam at 0705 causing only minor surface disturbance before quickly



Photo. by G.J. Simpson

Two of the fifteen waterspouts

dissipating. At this time, a developed waterspout was observed bearing 090° and, five minutes later, two more large funnels were observed either side of it. All three appeared to be in a line roughly reciprocal to the vessel's course. At 0712 the fifth spout dissipated and the funnel which was finer to starboard developed into a spout while another large funnel was noted off the starboard beam. Light rain was now falling at the vessel and at 0719 the fifth spout reformed as did the remaining funnel on the starboard beam; there were now four developed waterspouts in a line from the starboard bow to the starboard beam.

At 0722 the two spouts furthest forward and the one on the beam dissipated leaving one which was of quite a large diameter, about 20 m as seen at a range of about 300 m. The direction of rotation of the water in the spout was clearly seen. Although the observers were aware that the direction of rotation should be anticlockwise in this case, they decided (with great surprise) that the direction of this particular one was clockwise. The only other spout that passed closer, within 15 m, was very weak, but the direction of rotation at the surface was clearly anticlockwise.

Waterspouts continued to form from large funnels at the cloud base and pass down the starboard side, eventually dissipating astern. This pattern was maintained until 15 waterspouts had been observed, the last one dissipating at 0750; light rain continued to fall until 0810.

Position of ship: 36° 54'N, 02° 28'E.

Note. Mr M. Rowe, of the Tornado and Storm Research Organisation, comments:

‘This is an exceptionally good report of multiple waterspouts. It is not unusual to see more than one spout, but to see 15 in a short period is rare. The timing, development and position of the spouts is described with great care and precision; often reports of multiple spouts are vague about such points, if they are mentioned at all.

‘The observers are quite correct in saying that the spouts should rotate anticlockwise in the Northern Hemisphere. There is a fair number of reports of clockwise rotation some of which can be questioned, so I am very glad to have a convincing report; there were at least two observers who could not be accused of “seeing what they wanted to see”, as they were expecting rotation to be anticlockwise.’

CETACEA

North Atlantic Ocean

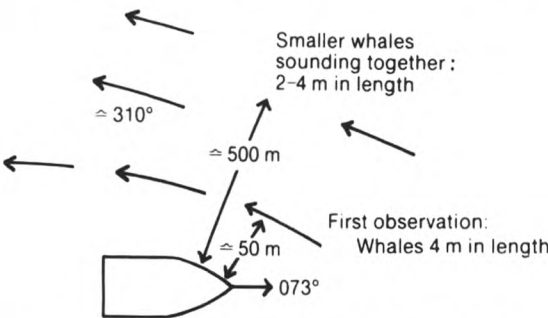
m.v. *Scottish Star*. Captain P. Holtby. Cristobal to Antwerp. Observers: Mr P. Wilkinson, Cadet and Mr R. Powell, SM1A.

15–16 August 1991. At 1635 UTC on the 15th a whale was sighted approximately 0.5 n.mile north of the vessel. It was immediately identified as a Killer Whale (*Orcinus orca*) by the tall, erect and distinctive dorsal fin which also indicated that the specimen was a male. No white patch was noticed above the eye, and its body size was impossible to determine owing to the distance off and the limited portion of the whale to view.

Only the forehead, forward half of the back and the dorsal fin were observed as the whale sounded at intervals of about 8 seconds. Five or six soundings were noted before the whale turned sharply to the north-west and dived. The observers waited for about 90 seconds but there were no further sightings of the whale. There was no evidence to suggest that this one was in the company of any others.

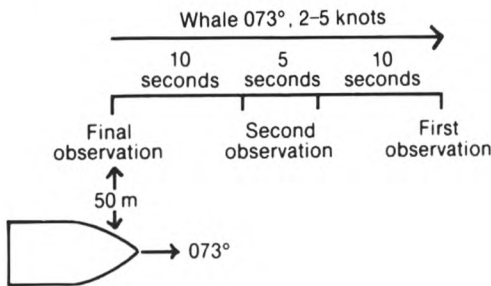
Whales of the World, by Lyall Watson, states that Killer Whales are ‘most often seen in shallow bays and estuaries, but we have come across a pod on the equator in very deep water, 750 km (400 nautical miles) from the nearest land’. In this instance, the lone whale was observed with the nearest land being the island of Flores in the Azores which was about 360 n.mile distant, and the water depth in the position of the sighting was charted as in excess of 3000 m. Other than the Azores, the nearest land was Newfoundland, being about 650 n.mile away.

On the 16th at 2024, when about 450 n.mile north-north-west of the Azores, a group of Longfin Pilot Whales was observed. At first, the group was believed to be small with only large specimens of 4 m or more sounding, but random soundings were then observed over a large area. Following this, a group of



roughly 50 smaller specimens of approximately 2–4 m in length sounded together some 500 m off the vessel’s port shoulder, see first sketch. Due to the large area that the pod covered, an estimate of numbers was difficult, but there was a minimum of 100 specimens present.

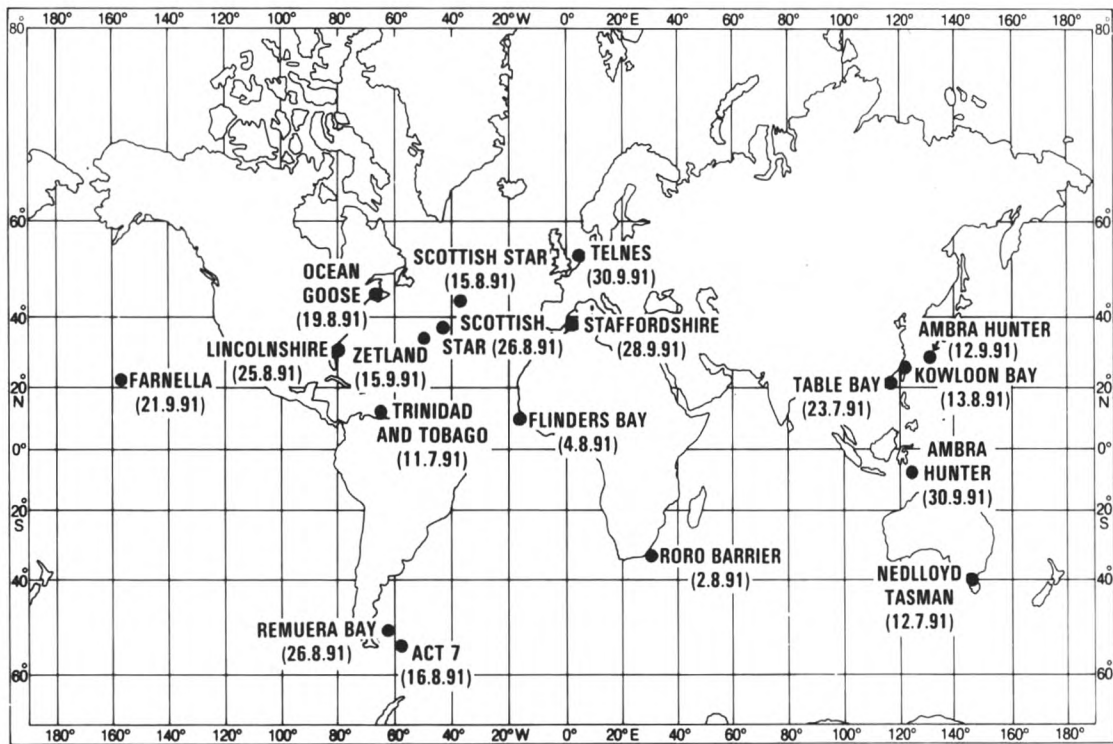
At 2109 a whale identified as a possible Great Right Whale (*Balaena glacialis*) was observed. The following characteristics were used for identification during three observations indicated in the second sketch: it was lighter in colour than



the pilot whales seen earlier, no dorsal fin was observed and the flukes of approximately 2 m wide were raised out of the water during the diving sequence; additionally, callosities were observed around the blowhole. Water depth in the area of the sighting was about 2200 m.

Position of ship on the 15th: 43° 04'N, 38° 44'W.

Position of ship on the 16th: 46° 38'N, 26° 28'W.



Position of ships whose reports appear in the *Marine Observers' Log*.

ALLIGATOR

Western North Atlantic

m.v. *Lincolnshire*. Captain R.J. Court. At Savannah, Ga. Observers: the Master and members of ship's company.

25 August 1991. Whilst berthed at Savannah discharging a full cargo of anhydrous ammonia a sighting was made of what appeared to be a log of about 2.1 m floating down the port side of the ship. On careful inspection it was found that what had appeared to be a log was, in fact, a 2.1 m-long alligator. The reptile swam gently down the side of the vessel and, as it came closer, its very rough back and two bulging eyes became much more noticeable.

According to the locals who were working on the terminal, there were about three such reptiles in the area and that it was against the local law to interfere with them.

Position of ship: approx. 32° 02'N, 81° 07'W.

Note. Mr C. McCarthy, of the Department of Zoology, Natural History Museum, comments:

'This was an American Alligator (*Alligator mississippiensis*). It is found on the Atlantic coastal plain of the U.S.A. from Virginia south to southern Florida and west to the Rio Grande; it follows the Mississippi River north to south Arkansas and part of Oklahoma, where it occurs in a variety of wet habitats e.g. marshes, swamps, rivers, lakes, tidal areas and, rarely, the ocean. It is indeed offered local protection through the United States Endangered Species Act and by various state regulations and has recovered markedly in some parts e.g. Louisiana where numbers have risen from 26,000 in 1957 to over 300,000 by 1982.'

TURTLES

Flores Sea

m.v. *Ambra Hunter*. Captain J.R. Lobo. Port Walcott to Mizushima. Observers: Mr M.N. Anwar, 2nd Officer, Mr S.A. Shafqat, 3rd Engineer Officer and lifeboat crew.

30 September 1991. At 0130 UTC a 'man overboard' drill was carried out and the lifeboat was used to recover the lifebuoy. On the way back to the ship a section of fishing net was found adrift and, on closer inspection was found to hold marine life. The net was then hauled into the boat and was found to have trapped two turtles, one shark (dead) and numerous small fish. The fish were put back into the sea immediately, but the turtles and shark were brought back to the ship for all on board to see.

The shark was 85 cm long and the turtles were 46 cm long overall and 30 cm in breadth; their shells were a beautiful brown and black design on the top, as shown in the photograph on page 128, and white underneath. Had they not been freed the turtles would probably have met the same fate as the shark; they were housed in the swimming pool overnight and the next day were released half a mile to the east of Sanana Island.

Position of ship on the 30th: 08° 01'S, 124° 03'E.

Note. Mr C. McCarthy comments:

'This was a Green Turtle (*Chelonia mydas*), generally regarded as the most common sea turtle in Indonesia. However, recent assessments have shown marked declines in numbers (Green Turtle

adults and eggs are exploited for food). The situation is apparently particularly worrying on Bali where the local population has been severely depleted and the turtles seem no longer to nest on the island (Ref: Groombridge and Luxmoore, 1989. *The Green Turtle and Hawksbill, world status, exploitation and trade*. CITES publication, Lausanne, Switzerland, pp.601.)

BIRDS

Bass Strait

m.v. *Nedlloyd Tasman*. Captain I.S. Grant. At Burnie. Observers: the Master, Mr S. Azim and ship's company.

12 July 1991. Between the 10th and 12th the vessel was berthed portside to the container berth at Burnie and container loading was underway. During the morning of the 12th a large albatross-type bird, shown in the photograph on page 128, was observed on the starboard side of the promenade deck, alternating its position between the side bulwark and the deck.

Observations were made from a cabin window about 1 m from the bird which seemed unconcerned by all the attention it was receiving. The albatross remained on board for about three hours and was not seen in flight.

Using *Harrison's Seabirds* the bird was identified as a sub-adult Black-browed Albatross (*Diomedea melanophris*).

Position of ship: approximately 41° 00'S, 145° 54'E.

Note. Captain P.W. Chilman, of the Royal Naval Birdwatching Society, comments:

'I agree with the observers' identification and think the bird is a juvenile, judging by the bill which appears to be uniform grey except for the black tip. It is most unusual to have one on board. They breed all around the Southern Ocean and are probably the most common and widespread albatross.'

Southern North Sea

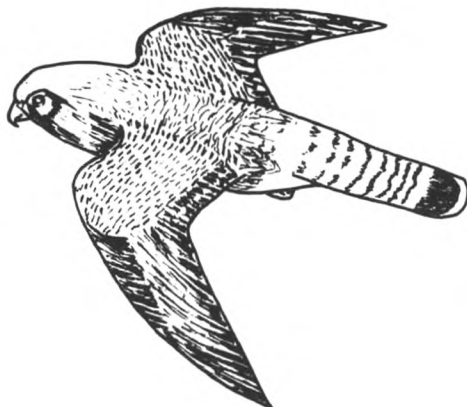
m.v. *Telnes*. Captain A. Gatt. Ijmuiden to Kingsnorth. Observers: Mr D.J. Ayling, 2nd Officer and Mr B. Ahmed, SG1A.

30 September 1991. At 1000 UTC the small bird shown in the first sketch landed on the starboard bridge wing and then flew down to the deck of the bridge wing. However, unsettled it returned to its landing place where it then had trouble keeping its balance before flying on to the monkey island. After that it was not seen again.



The bird was identified as a Firecrest: it had a yellowish, light-green back and a lighter pale-green breast, whitish throat, black bill with a black streak above and just below the eye and also a white streak above the eye. There was also a bright orange crest, black markings on the wings, black legs and light-green tail feathers.

At 1110 what was believed to be male kestrel, see second sketch, was seen hovering over the foredeck before flying forward and landing on the port side of the forward housing for the boom, where it perched for a few minutes. It then flew off and circled the ship and was last seen heading east towards land. The



overall plumage was a speckled chestnut colour becoming darker towards the edges of the wings while the underbelly was white near the legs. The kestrel had a yellow cere, a black circle around its eyes and yellow legs, whilst the tail had black bands and there were lighter bands running across the lower back and tail feathers. The wind during both sightings was N'y, force 6–7 and the sky was overcast with heavy rain.

Position of ship at 1110 UTC: 52° 25'N, 04° 10'E.

BEETLE

Eastern North Atlantic

m.v. *Flinders Bay*. Captain D.A. Dornom. Barcelona to Cape Town. Observers: Mr G.H. Smith, 4th Officer and Mr C. Tucker, SM2.

4 August 1991. At about 0900 UTC the beetle shown in the sketch was found on the bridge wing; it was approximately 1 cm in length and had a black body with several light-yellow stripes running down its length. The head was bright-orange and appeared to be divided into two sections both of which had black patches on them.



The beetle was eventually captured and placed in a specimen bottle containing formalin. Weather conditions at the time were: dry-bulb temperature 27 °C, wind W×N'y, force 3.

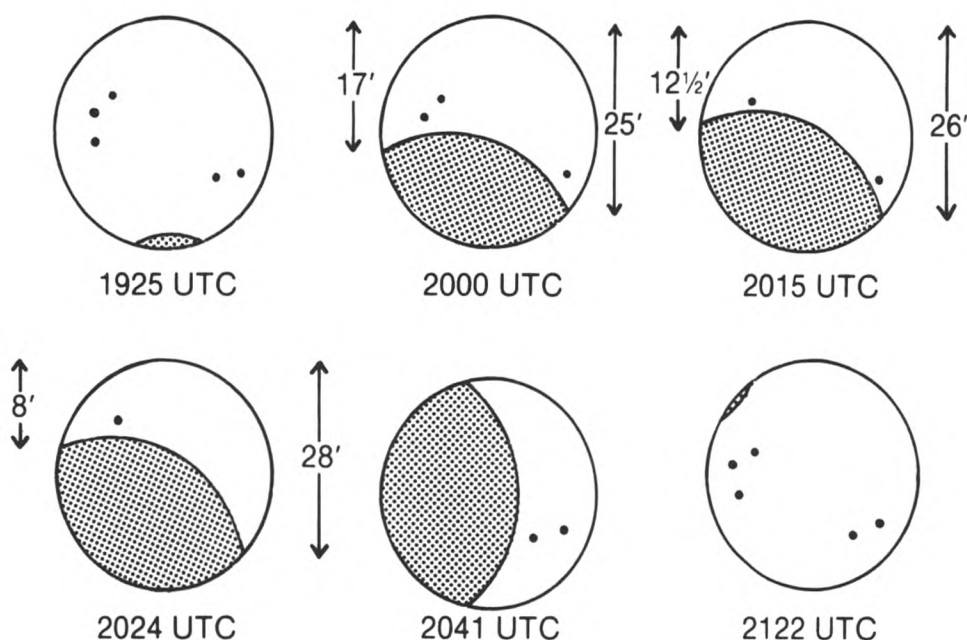
Position of ship: 11° 23'N, 17° 37'W.

PARTIAL ECLIPSE

Caribbean Sea

m.v. *Trinidad and Tobago*. Captain M.J. Knight. At Puerto La Cruz. Observer: the Master and Mr B.E.N. Joseph, 3rd Officer.

11 July 1991. Whilst at anchorage observations of a partial eclipse of the sun were made using the ship's sextants. It was noted that the eclipse commenced from the sun's lower limb at about 1924 UTC; the following sketches show the aspect of the eclipse at the time given.



The dullness of the atmosphere had increased considerably by 2020 reaching its maximum by 2040. It was estimated that the visibility had decreased from about 13 n.mile at 1924 to about 10 n.mile at 2041. The sun became totally unobscured at about 2124.

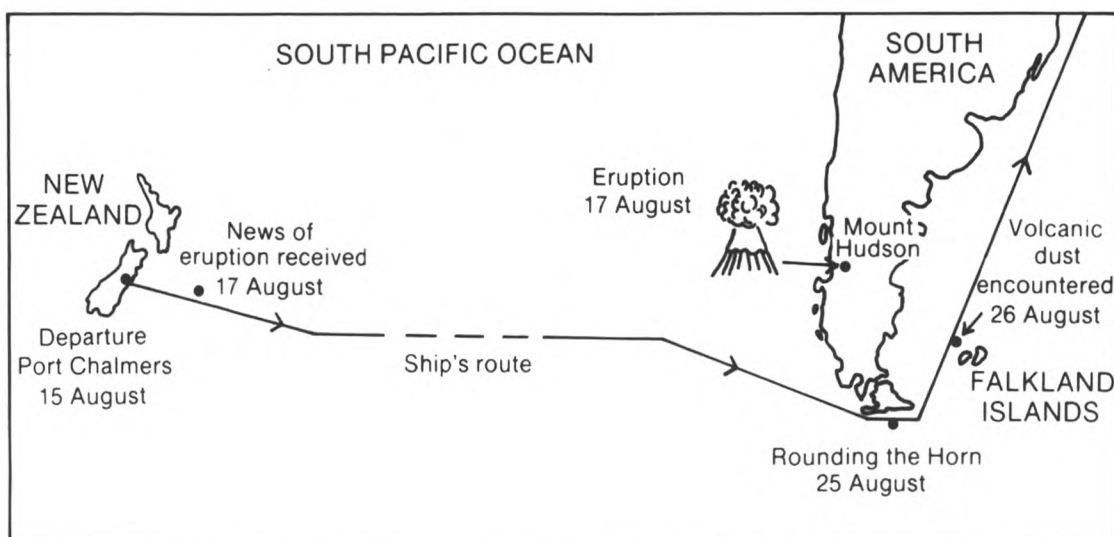
Position of ship: 10° 15'N, 64° 39'W.

VOLCANO

South Atlantic Ocean

m.v. *Remuera Bay*. Captain P.A. Furneaux. Port Chalmers to Lisbon. Observers: the Master, Mr P.M. Reid, 2nd Officer and ship's company.

26 August 1991. The vessel had sailed on the 15th and on the 17th it was reported that Mount Hudson in Chile had erupted and within 24 hours was depositing volcanic ash on the Falkland Islands. The sketch shows the sequence of events as the ship approached the area.



On the 25th at 2230 UTC the ship rounded Cape Horn and the following day was on a course of 027° at a speed of 19.6 knots. For 50 n.mile either side of the position given below, a grey-green haze was encountered and deposits of dust were left on the ship's superstructure. The dust was assumed to be volcanic and coming from the Mount Hudson eruption.

Position of ship: $51^\circ 00'S$, $61^\circ 42'W$.

m.v. *ACT 7*. Captain I. MacKillop. Port Chalmers to Lisbon. Observers: the Master and ship's company.

16 August 1991. The vessel had rounded Cape Horn on the 15th and was on a course to pass 10 n.mile east of the Falkland Islands and it was during this leg of the voyage that news was first received of the eruption of Mount Hudson and of the ash that had been thrown into the atmosphere. By midday on the 16th the vessel was 20 n.mile south of East Falkland and the first sighting of the ash from the volcano came as it landed on the ship's windows. At 1700 when 10 n.mile to the east of Port Stanley the Chief Officer noted that the visibility was starting to decrease gradually, and by 1900 it had been reduced to about 2 km.

During the night the cloud cover was minimal so the moon and a few stars could be seen; the moon finally sinking into the dust and becoming obscured when approximately 30° above the horizon. As midnight approached, a sulphurous smell was clearly detectable by observers on the bridge wing. A fine layer of dust had started to settle and the visibility had become very poor, making the foremast hard to see at times. The 'dust storm' and poor visibility continued throughout the night; at daybreak, a layer of dark brown/red dust was found to have covered the entire vessel. At 0945 the ship cleared the dust (260 n.mile north-east-by-north of the Falkland Islands), but the next day there were fresh traces of dust following the passage of several small rain showers. The wind direction throughout the period was predominantly NW'ly, force 8, later decreasing to force 5.

Position of ship at 1200 UTC on the 16th: $52^\circ 37'S$, $59^\circ 03'W$.

Note. The effects of the eruption were also reported by *Bora Universal* on 18 August in position $48^\circ 34'S$, $64^\circ 05'W$, when Mr M.M. Hassan, 2nd officer noted that the visibility was reduced to 1 km by volcanic dust between 1800 and 2200, the wind being W'ly, force 5. Conditions improved when the ship reached $47^\circ 29'S$, $63^\circ 08'W$.

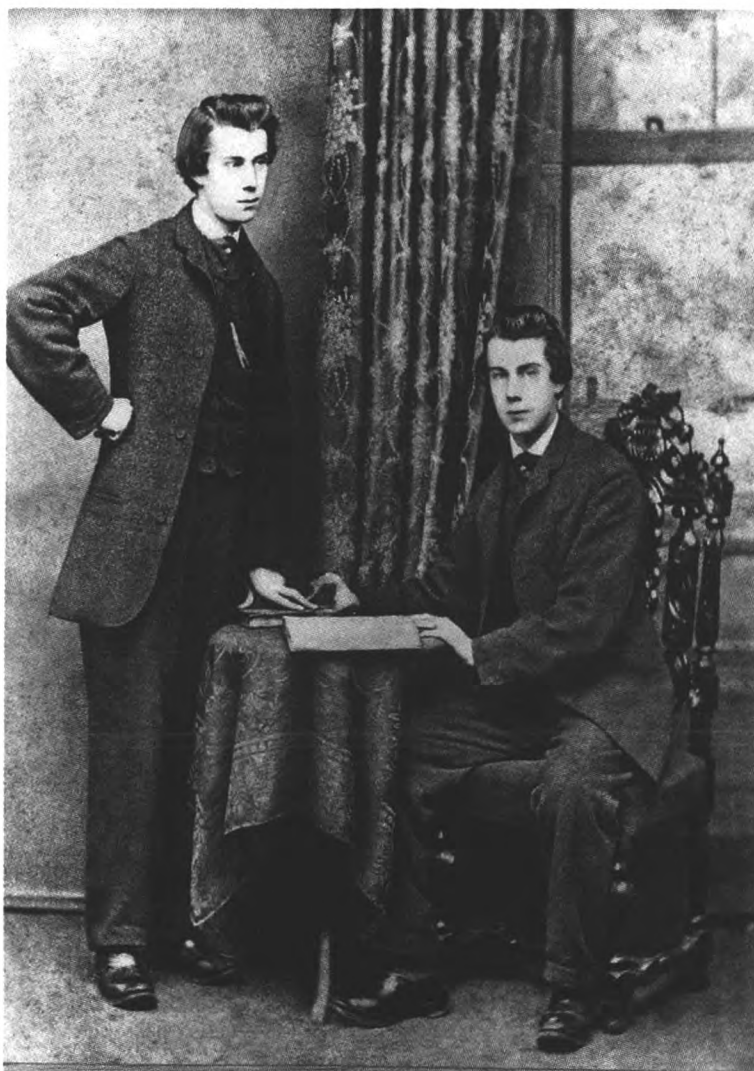
‘Blue chip’ approach proves its worth *

By ANDREW GUEST

In the modern world of international shipping the Denholm name is synonymous with blue-chip shipmanagement, but 125 years ago the term would have been an unfamiliar one to James Denholm of Greenock who, at the age of 20, set himself up as a Factor.

In 1866 the 20-year old James Denholm had already been working for six years as a clerk in law offices before he set himself up in business. While he did not go to sea himself, his father, uncle and grandfather had all been to sea and it was to be the sea which would provide James with his route to success.

From factoring the young Denholm expanded into ship’s agency and shipbroking, rapidly establishing himself as a name on the Clyde. In 1869 he was joined in the business by his younger brother John and together they founded J. and J. Denholm.



John and James Denholm *circa* 1870.

* Reproduced from *Lloyd's List*, 14 January, 1992, by kind permission of the Editor.

In 1872 they acquired for £2,500 their first ship, the *David Sinclair*, a Brixham topsail schooner, then plying the Newfoundland-Europe trade but put to work by the two Denholms in the West Indies trade carrying coal out and grain, sugar and resin back.

James Denholm died in 1875 of tuberculosis and John, then aged 22, assumed control of the family business and soon showed that the potential for shipmanagement already existed even in the late 19th century. The *David Sinclair* was sold on to another company controlled by John Denholm.

By 1882 the Denholm fleet had expanded to 12 ships — all wooden sailing ships employed mostly in the west Indies trade. In that year the company also took a major step forward when it acquired its first steamship, the *Carronpark* of 388 tons, for the sum of £8,300.

As the fleet of steamships grew, the sailing fleet was reduced. The Denholm business was also expanding as each new ship was put under a separate company but this proved too unwieldy and in 1909 was rationalised.

The six ships were transferred to a new company, the Denholm Steamers Line Ltd, managed by J. & J. Denholm, which in 1916 was incorporated as a limited liability company. Shortly before the outbreak of the First World War the Denholm fleet numbered seven ships valued at a total of £89,000.

During the war the fleet expanded and contracted through Admiralty requisitions, German seizure, torpedoing, groundings, collisions and new buildings.

By the end of the war the fleet was still seven ships: *Broompark*, *Carronpark*, *Denpark*, *Elmpark*, *Glenpark*, *Holmpark* and *Wellpark*.

In 1919, when profits were announced as £78,634, the Denholm Shipping Company was formed as a joint venture between Denholms and the Greenock & Grangemouth Dockyard Co. in order to take over and run ships being built speculatively by the latter. Ten years later it was absorbed into Denholm Line Steamers.

Meanwhile two sons of John Denholm, John C. and William, had become directors of J. & J. Denholm, still run by their father as the world entered the depression of the 1920s.

In 1925 John Denholm Snr was elected president of the Chamber of Shipping and a vice-president of the forerunner of BIMCO, the Black and White Sea Conference.

To survive the 1920s depression the Denholms sold and bought ships, so that by 1929 the fleet numbered 18 ships, many now exceeding 18,000 tons and trading worldwide. But by the early 1930s the collapsing freight markets had taken their tolls and the fleet of Denholm Shipping Company had shrunk to five ships which were bought from it by the Denholm Line and later sold.

The recovery had just begun in 1937 when John Denholm died at the age of 84 and was succeeded as chairman of both J. & J. Denholm and the Denholm Line Steamers by his son, John C. Denholm.

Just before the onset of the Second World War, in September 1938, the Denholm fleet stood at nine ships, with two new steamers on order at Lithgows. As in the First World War, the fleet was subject to requisitioning and enemy action, but in this war even the employees ashore were not safe from the depredations of a hostile force. Air raids caused the loss of both the Greenock and London offices in one week.

By the end of the war the two Denholm brothers had only two ships left and to them fell the daunting task of rebuilding the shipping enterprise in the period of post-war austerity, a time when shipbuilding prices had soared to twice those of pre-war days.

Undaunted, the Denholms ordered two new ships from Charles Connell & Co. and also began buying and chartering surplus government ships. By 1951 they built the fleet to seven ships, acquired at bargain prices in a gamble that paid off. In the same year they began a profitable relationship with shipbrokers H. Clarkson and Co. of London.

Clarksons, Denholms, Charles Connells and the Norwegian shipowners Mowinkels formed a company called Norscot Shipping Company which built and operated the 18,000 tonne tanker *Norscot*. The management of the tanker was entrusted to the Denholms.

In order to avoid what is now termed 'excessive gearing', the ship had been built to a long-term charter from Esso — one of the first British ships to be financed by a British bank against a time-charter. A second ship, the *Scotstoun*, was similarly financed, this time with a BP charter.

Also in 1951 Denholms joined Clarksons, Connells and Lithgows in setting up Scottish Ore Carriers which established a fleet of six ore carriers chartered by BISC (Ore) for 15 years. Management of the ships was again awarded to Denholms.

While the increasing number of joint ventures brought fresh capital into the Denholm shipping business, the shipmanagement side was fast becoming a major concern. It was entrusted to William Denholm's two sons, Ian and Robert.

By 1957 the Denholm owned and managed fleet had reached 19 ships of 289,000 tonnes deadweight: seven cargo ships in Denholm Line Steamers, two ore carriers in St Andrews Shipping Company, three ore carriers in Scottish Ore Carriers, the two tankers, *Norscot* and *Scotstoun*, and five other ships for third-party owners.

In that same year came the first contact in what was to become one of Denholms most prestigious and reputation-setting ship-management contracts. The renowned Norwegian shipowner, Erling Naess, then based in New York, purchased a ship through Clarksons who recommended Denholms as managers.

Two years later Naess switched the management of his 14-strong, Liberian-flag fleet to Denholm management, the company's first non-British flag ships. A close partnership between Naess and Denholm followed and, through other management contracts, the fleet expanded through the 1950s to stand at 38 ships of 736,000 tonnes deadweight by the end of the decade.

By now the company was established as one of the world's leading shipmanagers with the ship-management business representing the major activity of the Denholm group. By 1964 it had a fleet of 48 ships of 1,332,000 tonnes, although the Denholm-owned fleet was struggling in the post-Suez crisis recession. In the mid-1960s it was employing almost 2,500 people, 125 of them ashore.

Even so, in 1965 William Denholm was knighted for services to shipping and the *Mountpark* — at 33,000 tonnes the biggest ship to be owned by the group — was ordered from Connells at a cost of £1,350,000.

In 1969 an office in Hong Kong was opened to handle the increasing numbers of Chinese seafarers being employed. In 1971 in a joint venture with Lord MacLay a fleet of 3,000-tonne mini-bulkers was developed.

Although Denholm later bought out his interest, Lord Maclay was to return to Denholms and is today marketing director of the shipmanagement business. At this time Denholm's shipbroking arm, Denholm Coates & Co., also set up the Atlantic Bulkiers Pool, a pool of handy-sized bulk carriers trading world-wide.

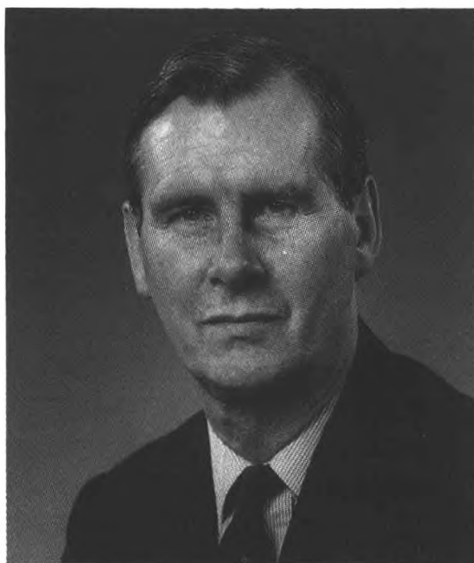
By now the decision had been taken to change the company's name to Denholm Ship Management Ltd to reflect the newly dominant activity. The commitment to British shipping was maintained through the 1970s with the commissioning in 1977 of a cadet training ship, the *Wellpark*. In the same year the company took over the management of the ULCC, *Burmah Endeavour* — at 457,841 tonnes deadweight the biggest British ship.

Also in 1977 Sir John and Sir William Denholm retired from the board of the company their father had established and handed over the reins to the two sons of Sir William, Ian and Robert. They inherited a company managing more than 50 ships and representing in deadweight tonnage one per cent of the world fleet.

The depression of the 1970s and 1980s meant that, despite the cushion afforded them by shipmanagement, the company had to diversify. Companies in the travel business and ship's agency were acquired or set up.

Diversification gathered pace in 1983 when it was decided to sell off the last of the mini-bulkers and in 1986 when the seafoods business of Christian Salvesen Plc — fishing boats, fish factories and fish merchanting — was bought for £5.5m.

By now both Sir John and Sir William had died, while Sir William's son Robert had also died in 1983. Ian, chairman since 1974, and his son John were left to carry on the family tradition. The impact of the recession on British shipping also meant the company, once the second biggest employer of British seafarers, had reduced its sea staff from 4,000 to less than 1,000.



Sir Ian Denholm, Chairman since 1974.

With the shipping recovery in the late 1980s, Denholm decided not to rebuild its fleet but to concentrate instead on expanding the shipmanagement and shipagency business, as well as the newly acquired seafoods business.

Today Denholms is a company capitalised at £30m, employing 600 ashore in the U.K. Its biggest business is Denholm Seafoods, employing over 240 people and half the group's capital. The agency and forwarding division has a turnover of £13m and employs 140 people in the U.K.

The Denholm Line Steamers, continuing as the group's shipowning subsidiary, owns two ships, the *Broompark* and the *Ga Chau*, ex-*Wellpark*, the latter now reconverted to its cadet-training role.

Denholm Ship Management employs 2,500 people in or through its four main centres of operation — the head office in Glasgow, Hong Kong, the Isle of Man and Houston. Its fleet of managed ships stands at over 100, aggregating some £5.5m tonnes deadweight, and representing over 40 separate shipowning clients.

Denholms was also a leading figure in the establishment of the International Ship Managers' Association last year, a role reflected in the fact that the current managing director of Denholm Ship Management Ltd, David Underwood, is the association's first chairman.

In British shipping the Denholm name is still maintained with Sir Ian (knighted in 1989) currently in his second term as president of the Chamber of Shipping (formerly the General Council of British Shipping). Last year he was also elected president of BIMCO.

This position was held by his grandfather in 1927, reflecting the tradition and continuity which runs through Denholms.

Meteorological Office Association with the Denholm Group

Whilst the majority of Denholm Ship Management ships built or purchased since 1960 have become members of the Voluntary Observing Fleet, no records of the involvement of J. & J. Denholm vessels up to the end of World War II can be found in our Archives, where registers and logs of all co-operating ships since the founding of the Met. Office in 1854 are preserved.

The *Glenpark* of 1939–1951 is shown in a Fleet List in *The Marine Observer*, but no logs can be found. The first recorded entries discovered are a Met. Form and a logbook for the *Fort Nakasley*, Captain A. Cromarty, OBE, marked VG+ and received at the Office in December 1947 and registered with 'J. & J.' at 37 Renfield Street, Glasgow. This log, No. 398 since the War, recorded the weather conditions on voyages from London to St. John, New Brunswick and thence to Basra via Suez, between 13 June and 7 October 1947. There is evidence that the ship was delayed in the Persian Gulf for most of August and September, the hottest months of the year at a time when there would not be any air-conditioning on a war-built *Fort* ship. The maximum air temperature recorded was 97 °F in the Red Sea on the outward passage, whilst the highest sea temperature was 90 °F in the Gulf itself. The next ship for which logs are found was *Duncraig* in November 1959, one of the four 14,000-ton Scottish Ore Carriers built at Lithgows in 1952.

J.F.T.H.



s.s. *Cathcartpark*, 1897, 840 grt. Together with five other early Denholm ships, she was named after a park in Greenock, but her name proved expensive in the early days of wireless telegraphy.



m.v. *Vancouver Forest*, 17,658 grt, built in 1969 as a timber bulk carrier, and managed by Denholm Ship Management in the Scanscot Pool for Broström's of Gothenburg subsidiary Leffler. Here she is loading paper products in a wintry northern British Columbian port. She was later converted to a self-loading container ship for the north Europe to Arabian Gulf service. The writer enjoyed periods of command in *Vancouver Forest* in both her rigs.



Photos. by courtesy of Denholm Ship Management

m.v. *Ga Chau*, Cadet Training Ship, 18,622 grt, built as *Wellpark* in 1977. In the same year, Denholms undertook management of their first ultra-large crude carrier *Burmah Endeavour*, which, at 457,841 tons deadweight, was then the largest British ship.



Photo. by M.N. Anwar

Green Turtle pictured from *Ambra Hunter*. (See page 117.)



Photo. by S. Azim

Black-browed Albatross on board *Nedlloyd Tasman*. (See page 118.)



Photo. by Captain J.B. Nicholls

A Barn Owl which stayed for several hours on board *Farnella* whilst the vessel was conducting oceanic tests on 21 September, 1991, when 20 n.mile south of Molokai Island.



Photo. by P.J. Flanagan

Galahs on *Encounter Bay* while off Fremantle, 17 August, 1991.

Monitoring of a giant iceberg in the South Atlantic *

By SERVICIO METEOROLOGICO NACIONAL, ARGENTINA

International co-operation in respect of meteorology started in the nineteenth century with the founding of the International Meteorological Organization (IMO), the forerunner of WMO, whose co-ordinated efforts aimed at improving safety of life at sea. Marine meteorology now has a large number of supporting elements, many of which come within the scope of the World Weather Watch (WWW). Of these elements, one of the most recent is the special Global Observing System (GOS) Subsystem, which is composed of geostationary and polar-orbiting meteorological satellites operated by Members of the Organization.

According to the *Manual on Marine Meteorological Services* (WMO-No. 558), the ocean area south of 33°S between 20°W and 70°W is assigned to Argentina's responsibility for the issue of weather and sea bulletins. Because of this responsibility, the National Meteorological Service (NMS) of Argentina has been monitoring the movement of an iceberg of extraordinary dimensions which is currently drifting in the South Atlantic Ocean, and issuing information about its trajectory. The photograph (Figure 1) shows the iceberg's position on 9 September 1991 at the level of Elephant and Clarence Islands.

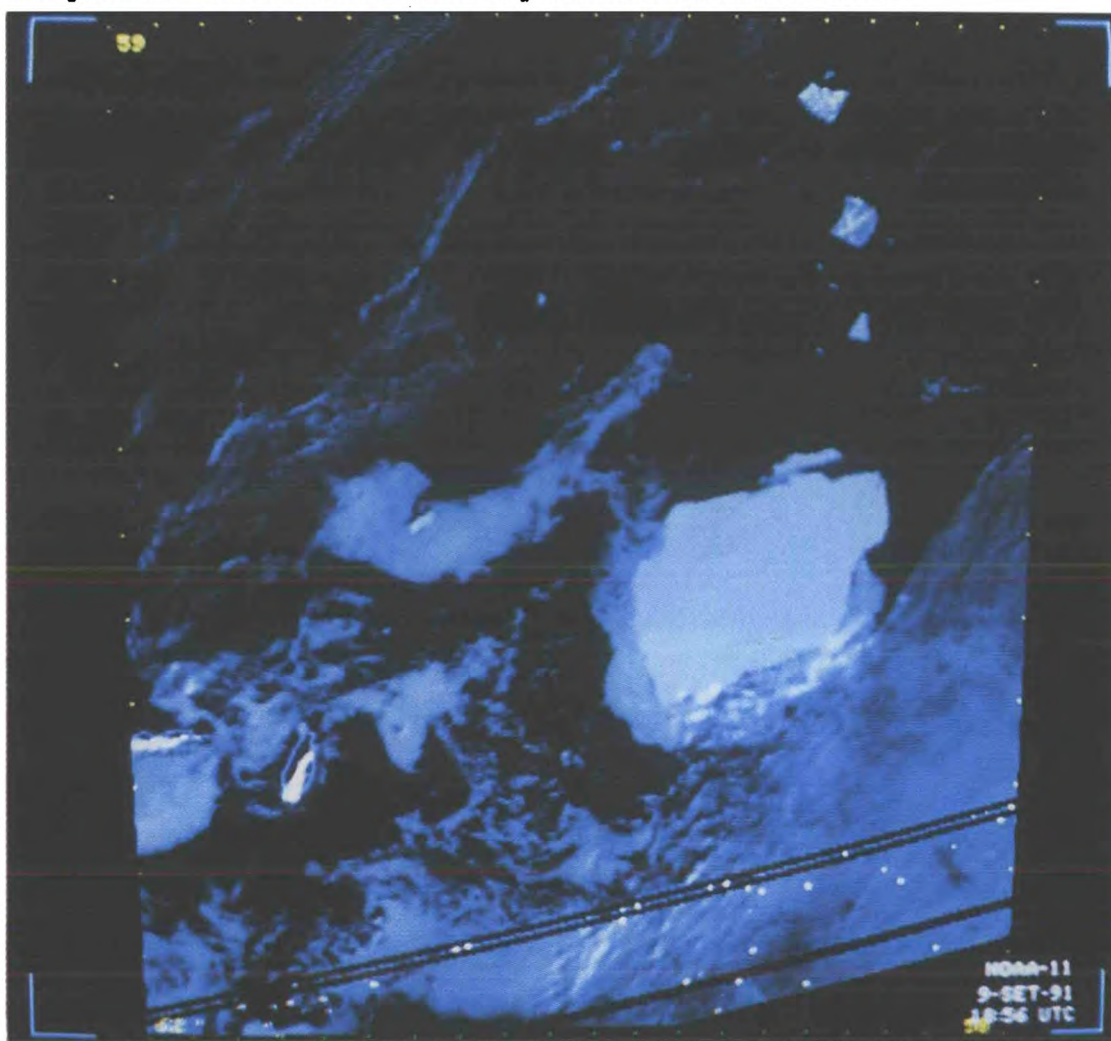


Figure 1. The giant iceberg as seen by NOAA-11 satellite on 9 September 1991.

* Reproduced from *WMO Bulletin* 41(1), January 1992, by kind permission of the Editor.

Until 1986, this iceberg formed part of the Filchner Barrier in the far south of the Weddell Sea. During the Atlantic winter of this year, some 13,000 km² of this barrier broke away, including the area on which the original Belgrano Base (Argentina) had been located. (As a precaution against this imminent detachment, this base had already been abandoned in 1980 and moved to its present location on Coats Land (Belgrano Base II).)

As the ice broke away, three large ice islands were formed which are identified by the letters A, B, and C in Figure 2. At that time, it was estimated that the

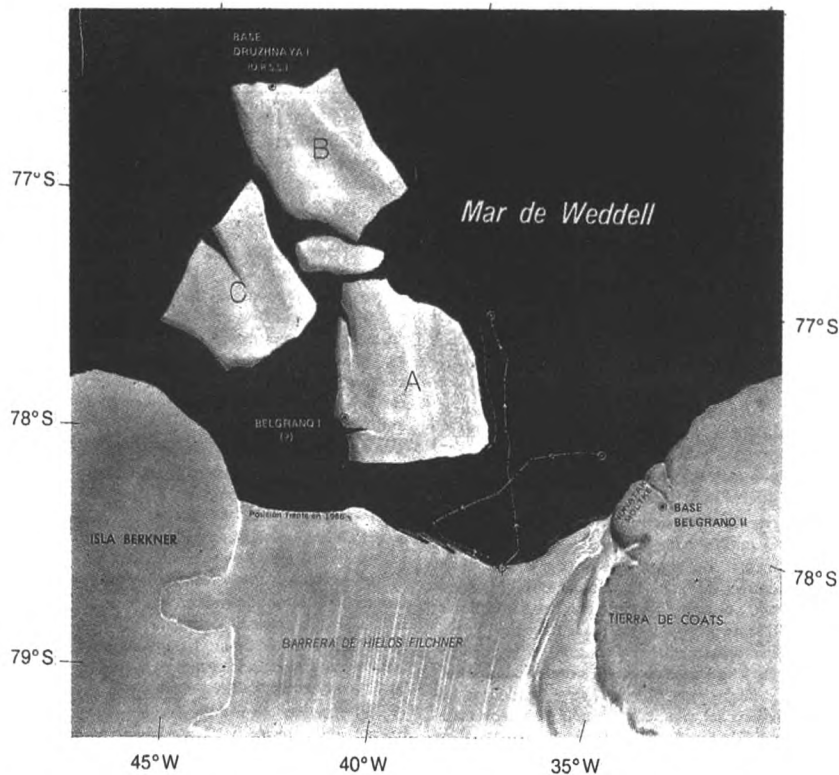


Figure 2. Approximate positions of ice islands 'A', 'B' and 'C' derived from NOAA satellite image of 1 August 1988.

islands might become trapped close to their original position because of their great thickness (230–250 m) and because of the shallow water in that area, the so-called 'Belgrano low water' (250–300 m).

This hypothesis seemed valid for a time but the largest ice island 'A' has recently been dislodged to become a tabular berg of considerable size (approximately 3,800 km²), which is being moved along by the sea currents. It must be pointed out here that the wind has virtually no influence on the motion of such a large mass of ice, given that most of its height is below sea-level.

Over the last few months, this tabular berg has been displaced across the Weddell Sea along the eastern coast of the Antarctic Peninsula and has penetrated the South Atlantic Ocean (Figure 3). Its position has been recorded daily since 28 August 1991 by the HRPT (high-resolution picture transmission) receiving station of the NMS which is in the Buenos Aires Central Observatory, using the information transmitted by the NOAA-11 and NOAA-12 satellites. On 28 August 1991, ice island 'A' was at 61°S, 52°W, some 100 km east of Clarence Island (South Shetland Islands). Its area has been reduced by barely one-fifth of its original size, since it is 83 km long and 54 km wide.

Between 28 August and 9 September 1991, a large iceberg of about 300 km² became detached and has since produced four secondary fragments. Figure 4 shows the successive positions recorded between 28 August and 1 October 1991,

which help us to visualize both the trajectory and the rotation of the iceberg and constitutes a collection of information which will permit in-depth studies to be carried out on the dynamics of air-sea interaction. On 14 October 1991, the iceberg was at 58.7°S, 51.7°W and was moving at about 5 km h⁻¹.

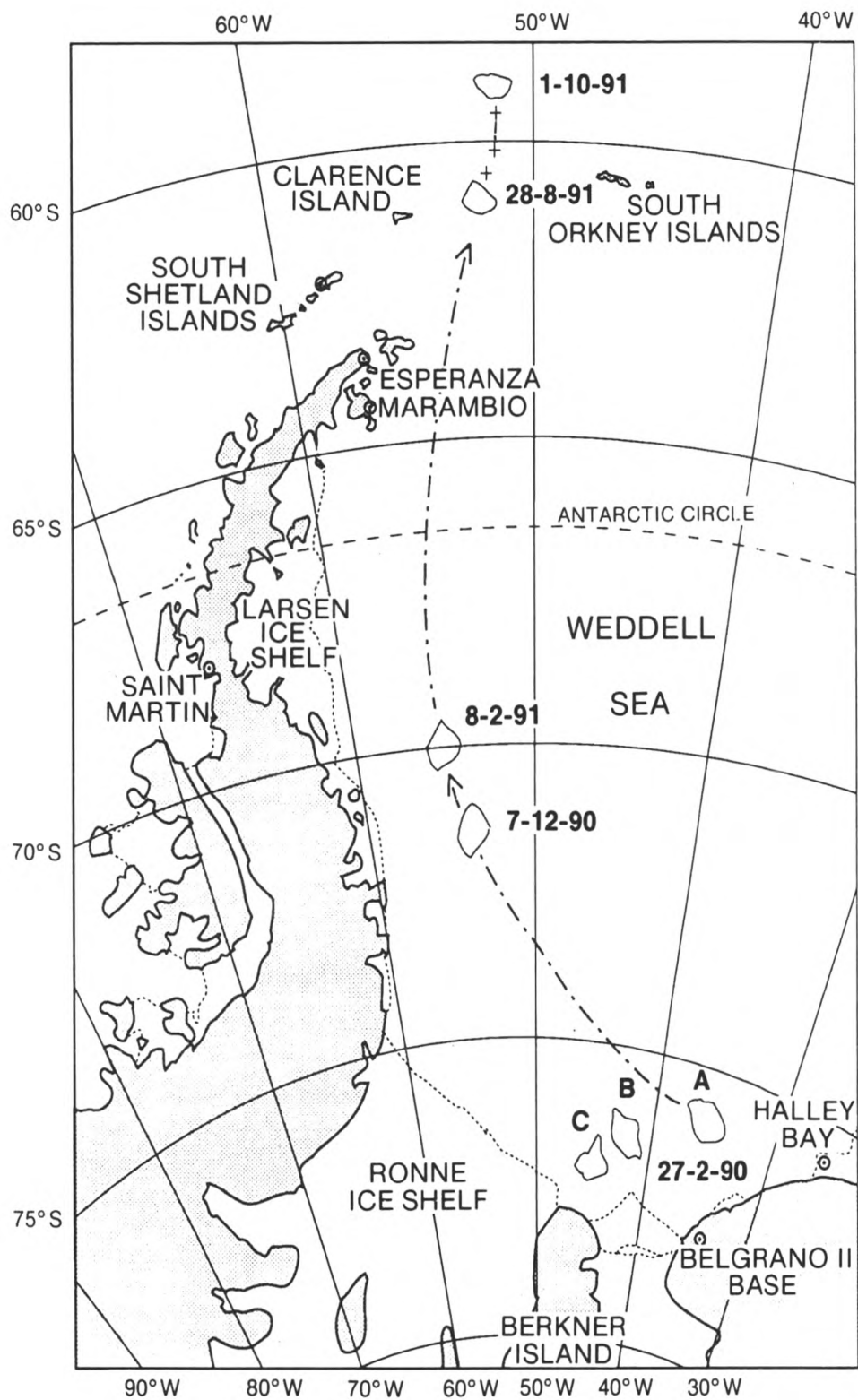


Figure 3. Approximate track of ice island 1986A.

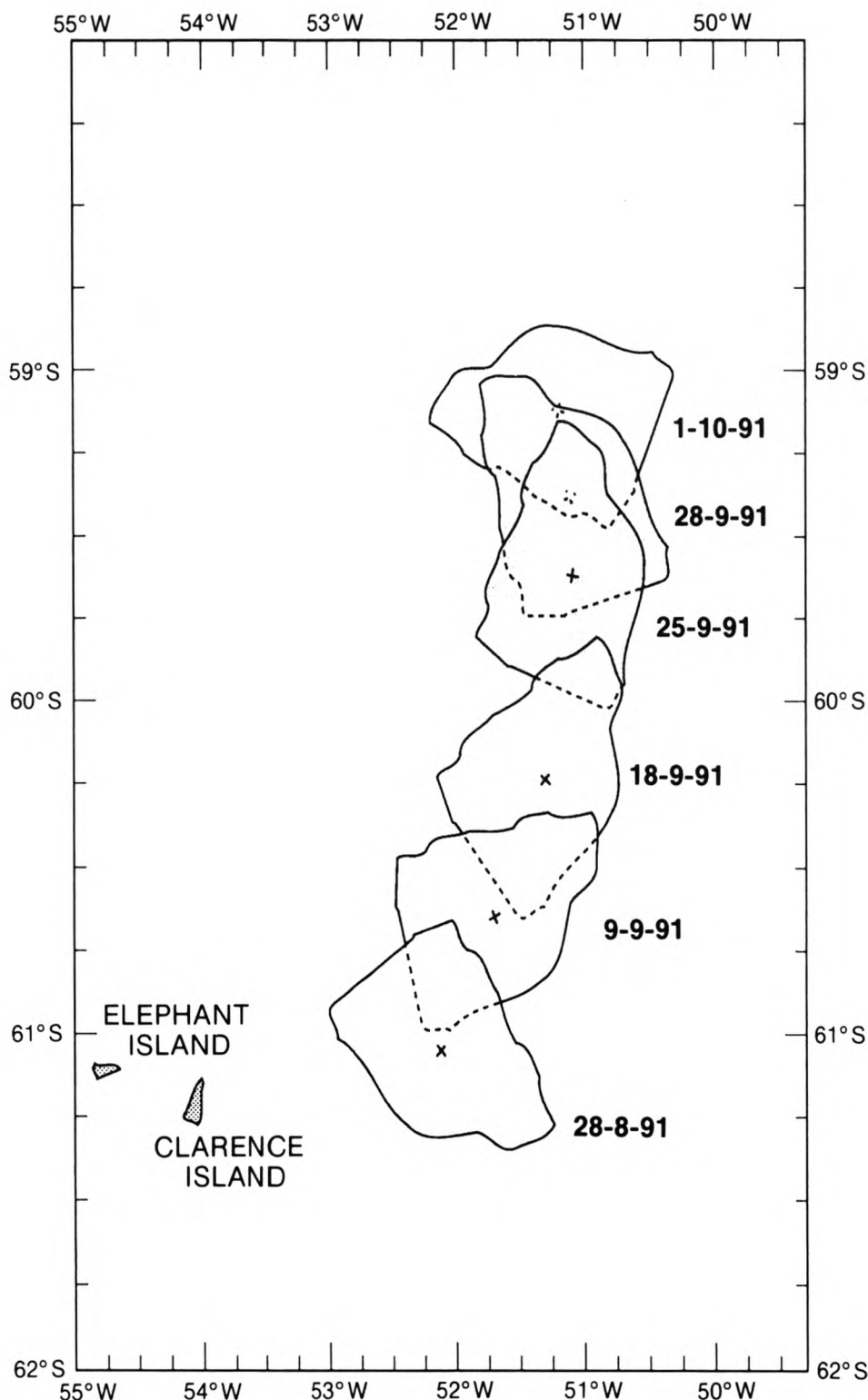
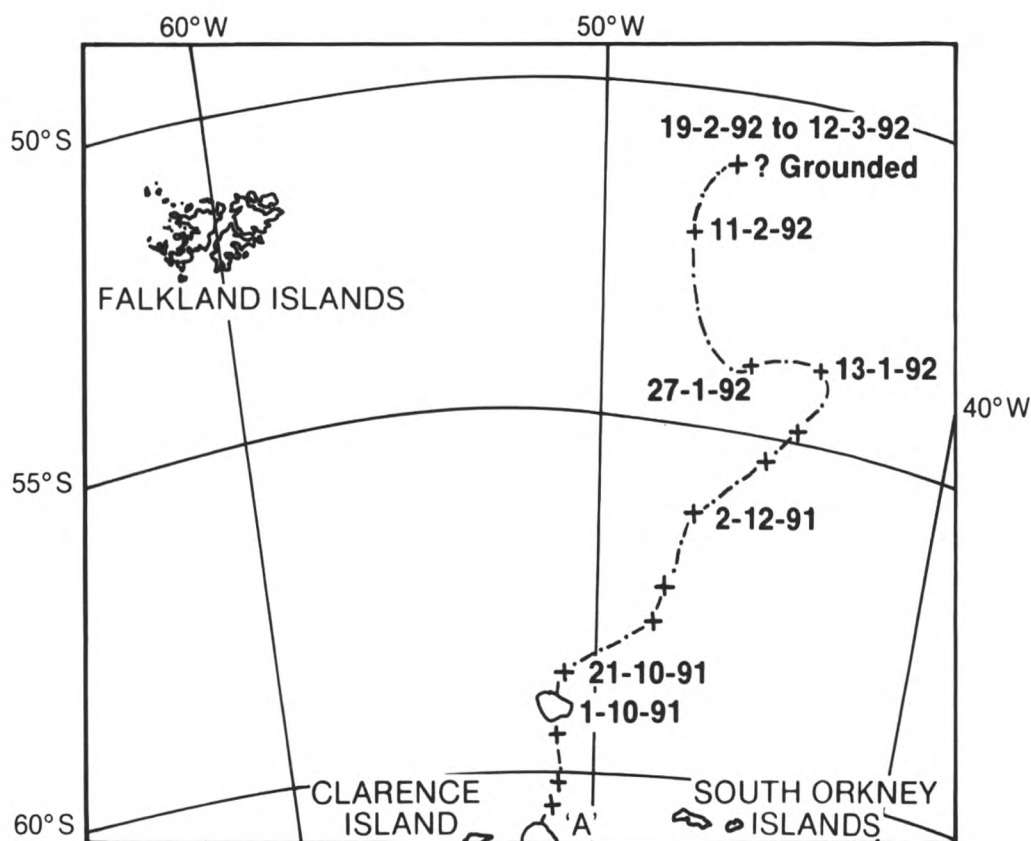


Figure 4. Graphic representation of the estimated position, shape and size of the giant iceberg 'A' recorded between 28 August and 1 October 1991 by NOAA-11.

All the data emanating from the monitoring of this extraordinarily large iceberg have been placed at the disposal of various national and international research bodies. In addition, the NMS has recently included the position of the ice block in the weather and sea bulletin for shipping which is issued daily to ships sailing within the iceberg's zone of influence. Before the advent of meteorological satellites, it was not possible to provide these two important services.

Iceberg update

A follow-up article to the above, by Mario J. Garcia of Servicio Meteorologico Nacional Argentina, is to appear in the July 1992 edition of the *WMO Bulletin*. From that article and NOAA AVHRR imagery it would appear that the iceberg continues to drift generally NNE-wards as shown on the extension of the map in Figure 3. Sr. Garcia writes that monitoring this phenomenon with high-



Update on drift of iceberg 1986A.

resolution meteorological satellite pictures can contribute towards a better understanding of sea currents in the north-east sector of the South Shetland Islands and constitutes a contribution to the international Iceberg Observing Programme, whose objective is to study the distribution of icebergs in the southern seas. The drift of iceberg 1986A will continue to be monitored by the HRPT receiving station of the SMN for as long as it remains within the geographical range of its antenna.

The MARID Fleet

By A.P. MAYTHAM

Sea Ice Unit

Since its inauguration, the Met. Office has relied upon reports from ships at sea, with Admiral FitzRoy (of H.M.S. *Beagle* and Charles Darwin fame) as its first Director.

Over the years the Met. Office has compiled data banks from these reports to assist in climatology and in obtaining daily, weekly, monthly and even global mean data.

On the ice bench, our areas of concern are the sea surface temperatures and the sea ice. The bench compiles two charts, the AXXX isotherm chart on Mondays, Wednesdays and Fridays; and the SXNT Sea Ice Chart, compiled on Tuesdays and Thursdays. These charts are sent by radio facsimile via GKA and GKE to all who wish to receive them. They are also sent by document facsimile to various authorities and concerns, who use the data for local and coastal work.

The data used arrive in all forms, usually from known sources, and identification is included as part of the report. Sea surface temperatures are mainly received from vessels of the Voluntary Observing Fleet (VOF) in the form of the six-hourly observations. There are also miscellaneous reports from vessels which do not wish to be identified, for whatever reasons, and these arrive two days in arrears. Then there is the MARID Fleet of vessels, which also report on a six-hourly basis, but predominantly from coastal waters.

The MARID Fleet

The MARID Fleet is one of the most important sources of data for the sea ice bench. These data come from inshore areas, where deep sea vessels 'fear to go', and VOF vessels usually cease reports in coastal waters in any case — for navigation purposes.

The MARID vessels ply their trade in the near coastal region, usually close to the shore as navigation permits. Their reports greatly assist in the compilation of the AXXX isotherm chart, inshore data from other sources, such as satellite images and marine observers, being largely unobtainable.

The AXXX charts are used by various rescue services, there being no restrictions on the age of people using United Kingdom beaches nor on going to sea from those beaches — no restrictions whatsoever. Adults and children alike put to sea from the beaches in anything from dinghies to inner tubes, as there are also no restrictions on the size of craft allowed.

All kinds of people find themselves in difficulties in coastal waters; fishing vessels, the yachting fraternity, *Torrey Canyon* and all manner of craft run the same risks as the young lad with the inner tube. It can be safely assumed that, in the general scheme of things, age of person and size of craft are largely irrelevant when getting into trouble at sea.

When a vessel, or persons, are in trouble the problem comes to the attention of the authorities, who are required to take action, and to the rescue services who fulfil their role accordingly.

When assessing whether or not the persons in distress are alive, or likely to have any chance of being in that state when removed from the water, the first consideration is the temperature of the water. In European waters the range of temperature varies from tide to tide and from sea area to sea area. For the authorities to evaluate conditions does not take long, and the Sea Surface Temperature (SST) is one of their first considerations. This affects most activities, from deciding on the state of the people in the water, to equipment and survival clothing to be worn by rescue teams. The optimum temperature for survival clothing is 10 °C; below this, upgraded, uncomfortable clothing has to be worn by the flying crews and other parties involved. Other bodies have their own regulations governing their crew members. The survival clothing is of paramount importance to the safety of the rescue teams. People in the water also have a better chance when the temperatures are above 10 °C, but they still need to be rescued.

The Met. Office collects these data for the SST charts from all observing vessels at sea. Most of the data are entered into the Global Telecommunications System and are retrieved for use on the isotherm charts. The global data are used for compilations of charts for meteorological uses. The coastal data are used for the compilation of the Met. Office charts F31–SXNT and F19–AXXX; the latter is the U.K. waters five-day mean chart.

The landfall of the isotherms and the gradient in coastal waters is derived solely from data supplied by the MARID fleet of vessels. MARID vessels are recruited in the same way as the deep sea fleet. A Port Met. Officer arrives on board and requests the Master to accept the equipment and, when safe and practicable, to transmit a MARID report to a local radio station. The costs of the messages are borne by the Met. Office. The reports are also logged on a return sheet. The data supplied are used by forecasters in the Central Forecasting Office. The reports are used in forecasting fog, and confirming the existence of fog in an area. The data are used in compiling, as accurately as possible, the AXXX Five-Day Mean Isotherm Chart, used in assessing rescue operations, from whatever reason, in our coastal waters.

The efforts made by these MARID vessels are largely unrecognised. Most of the community know that ships at sea send in reports, to assist in compiling weather charts. Very few people know of the part played by inshore vessels. They take the sea temperatures, log them, call them to a shore station, which may or may not be helpful, and have them passed to the Met. Office. It takes time and effort to acquire the data, then further effort to despatch them: not long perhaps, but actions which have to be planned and thought through. One cannot merely leave the bridge of a ship at sea for two minutes: there are alter course positions to be taken care of, the approach of a fishing vessel to watch as it may alter course unpredictably in one's path.

The largely unsung efforts of these mariners are extremely important to all who use their data. From the forecasters to the rescue services, and finally to the distressed in need of assistance, very few of whom will understand the activities of these small MARID vessels, they should all be thankful. Without their assistance the warnings concerning sea conditions, including fog, would be hampered and delayed by uncertainty of the sea temperatures in any given area. The preparations of the rescue services must not be delayed from ignorance of the conditions.

**Extract from the meteorological logbook of barque
Highland Forest, Captain W.J. Dirmody,
Timaru to London.**

(Received in the Marine Division on 3 August, 1893)

May 3rd, 1893, noon position 55° 08'S, 129° 00'W by dead reckoning. At 1.30 a.m. wind shifted to W×N. At 4 a.m. wind raging furiously. At 8 a.m. furled main upper topsail. Blowing a hurricane with a large sea on. Shipping vast quantities of water on deck, stove main hatch in at 9 a.m., and washed all movables out of galley.

May 3rd: 10 a.m. Blowing at terrific force, sea coming over the poop and threatening every moment to swamp ship, main deck completely

filled with water. Lashed two men to taffrail to steer ship and also lashed myself (Captain) with 3½ in. manilla rope to an iron bitt.

10 p.m. Snowing heavily, ship labouring very much.

10.40 a.m. Shipped enormous sea over poop, broke wheel in two pieces and washed men at wheel and Captain down on main deck, breaking their lashings and severely injuring both of them. Broke wheel and wheel box to atoms, also companionway. Hauled foresail in, pressed yards up on port tack; brought all hands aft and brought ship to wind. Unable to steer with a half wheel as sea was completely covering poop. When coming to wind, shipped an enormous sea which hove ship on her beam ends, with ends of fore and main yards under water. I thought the ship was going to capsize. Washed everything on starboard side of deck overboard. The ship was lying abeam of the sea. Cut away fore lower topsail and foresail, the ship then came more head to wind and righted a little. Cut lashings of two water casks and let them go as they were full of water and hauled foot of spanker out. Then went into hold and shifted as much cargo to windward as I could get at. Ship's starboard side completely under water, expecting her bulwarks to go every moment; front of cabin started leaking badly. Cabin and lazaret full of water. Sea very high.

8 p.m. Gale taking off a little. Sea still confused and dangerous; some stars making their appearance. Case of dry- and wet-bulb thermometers was broken, unable to find a place for [at present?].

Midnight. Crew still shifting cargo to windward. Gale taking off a little and sea going down.

May 4th: 4 a.m. Ship a little more upright. Men stopped work as they said they could do no more.

8 a.m. Freezing very hard. Unable to cook any food as all fires were out.

Noon. More moderate. Found [?] bulwark stanchions broke, 12 in number, and mastcoat of foremast being torn by piece of pighthouse going right through!. Got all ropes hauled in. Parall of main upper topsail was broke, got it lashed.

4 p.m. Got some fire in galley. Made some warm tea, it being a godsend.

May 5th: 4 a.m. Moderate gales with dull, gloomy weather. Burnt lower topsail and foresail. Wind freshening, more sea coming along.

Noon. Engaged in repairing topsail yard and wheel. Lighted fire in cabin again.

Columbus 500

To celebrate the departure of Christopher Columbus' fleet on his epic voyage to the New World from Cadiz on 3 August 1492, the Grand Regatta of sailing vessels is due to visit eight ports in five countries, starting in April. Vessels were first due to race from Genoa and Lisbon to Cadiz, with between 200 and 300 vessels in the combined fleet sailing from Cadiz on 3 May. Vessels have come from as far afield as Australia, with the brigantine *Young Endeavour*, Germany's *Alexander von Humboldt* and many more.

Two of Square Sail's vessels, the brigantine *Phoenix* and the topsail schooner *Carrie*, have been transformed into the likeness of Columbus ships *Santa Maria* and *Pinta*. Spanish built replicas of the three ships in the original Columbus fleet sailed earlier in the year from Genoa and made a series of visits to ports from Florida and the Gulf northwards to New York, where they will meet the other vessels for the Parade of Sail on the Fourth of July before crossing the Atlantic to Liverpool.

The official Grand Regatta programme, with about 100 of the world's greatest sailing ships coming together, should be a fine five-day spectacle along the Mersey in August, and is expected to attract about two million visitors. There is to be a further 'Festival of Sail' at Bremerhaven from 26 to 30 August.

Meanwhile, 1992 sees the twentieth anniversary of the sponsorship of the Tall Ships Races by Cutty Sark Scotch Whisky. The event will start in Kiel on 12 July, where the large fleet of sail training ships will be berthed from 9 July. The Cutty Sark fleet will cruise in company to Karlskrona, Sweden, where they will be from 15 to 18 July, for the first race of 435 n.mile up the Baltic to Kotka, Finland (25 to 28 July). They then sail on to Tallinn, Estonia (30 July to 2 August) for the second race of 370 n.mile to Gdynia, Poland for the finish on about 7 August. They finally part company on 10 August.

AURORA NOTES JULY TO SEPTEMBER 1991

By R.J. LIVESEY

(Director of the Aurora Section of the British Astronomical Association)

In Table 1 are listed the observations of the aurora made by mariners during the period under review. The aurora of 9/10 July seen by *Resolution Bay* ties up with activity widely observed by 16 members of the Royal New Zealand Astronomical Society Aurora Section. This group also observed active aurorae on 5/6 and 13/14 July and on 9/10, 13/14 and 19/20 August. After the extensive auroral and magnetic activity of June there was a decline in July, a rise in August followed by a decline again in September. Aurora was not extensively observed in the Northern Hemisphere, partly owing to cloud cover and summer twilight, but the clear and darker skies of North Dakota enabled Jay Brausch to detect aurora on 16 nights in July, 23 in August and 16 in September. The corresponding nights on which coronal or all-sky structures took place were 1, 6 and 0. The reports by *Antwerpen* and *Storm Petrel* tie in with these very active nights.

In Table 2 are given the lowest geomagnetic latitudes and numbers of events reported for the period in the region of the British Isles. Maglat 62 relates to the Shetland Isles and maglat 53 to the south Kent coast.

Table 1 — Marine Aurora Observations July to September 1991

DATE	SHIP	GEOGRAPHIC POSITION	TIME (GMT)	FORMS IN SEQUENCE
9/10 Jul.	.. Resolution Bay	.. .. 45° 47'S, 169° 20'E	1120-1230	G.RA.mP.RR. p ₂ CRR.
1/2 Aug.	.. Antwerpen	.. .. 44° 05'S, 172° 54'E	0958-1026	HB.RB. + R ₃ R. p ₁ RR.HB.RR. Max. elev. 31°
5/6	.. Cumulus	.. .. 56° 56'N, 19° 43'W	0217	qHV. mp ₂ RR. Max. elev. 60°.
6/7	.. Cumulus	.. .. 56° 57'N, 19° 13'W	0235-0415	qN.ma ₃ .R ₂ R. Max. elev. 50°.
10/11	.. Cumulus	.. .. 57° 39'N, 18° 16'W	0250	qHN. Max. elev. 15°.
18/19	.. Storm Petrel	.. .. 58° 51'N, 02° 51'W	0010-0155	m ₂ RA.RR + HA. HA + R ₃ R.HA + RR HA.HA. Max. elev. 90°.
21/22	.. Cumulus	.. .. 55° 56'N, 20° 48'W	0255-0400	fp ₂ NRR.qN. Max. elev. 15°.
1/2 Sep.	.. Buffalo	.. .. 53° 22'N, 05° 58'W	2330-2345	G.RR.RR red. RR white.

KEY: a = active, f = fragmentary, m = multiple forms, p₁ = flaming upwards, p₂ = flickering, q = quiet, A = arc, B = band, C = corona, G = glow, H = homogeneous, N = unspecified, R = ray, R₃ = long rays, RR = ray structure.

Table 2 — Lowest geomagnetic latitude and frequency at which aurora was seen from the British Isles.

GEOMAGNETIC LATITUDE		53	54	55	56	57	58	59	60	61	62	63
FREQUENCY:	JULY			1			1					
	AUGUST	1	1			2		1	2	4	4	1
	SEPTEMBER		4			1		2	1	4		

Ground and marine based observations of the aurora are very dependent upon weather and cloud conditions together with the availability of observers. A feature of 1991 has been the number of nights upon which auroral light has been seen at the lower English latitudes and, on occasions, the Channel coast. Two factors have affected these results, namely, the level of solar activity and a greater awareness among laymen that aurora is not such a rare event in the south as some authorities might have them think. The big aurora of 13/ 14 March, 1989 kindled this awareness and thus a wider network of interested observers evolved. Hitherto, many people did not believe that aurora could be seen in the south, except on rare occasions, and consequently did not look for it. This increase of interest is reflected in the doubling of postal traffic between the BAA Aurora Section and its increasing number of observer correspondents from 1989 onwards. Unfortunately, the decrease in the number of ships in the British merchant navy is also reflected in the decline of marine observations received.

In Figure 1 a comparison is made between Northern Hemisphere auroral observations received and that of magnetic activity for the whole of 1991. Note the low level of aurora observed during the summer in British waters although

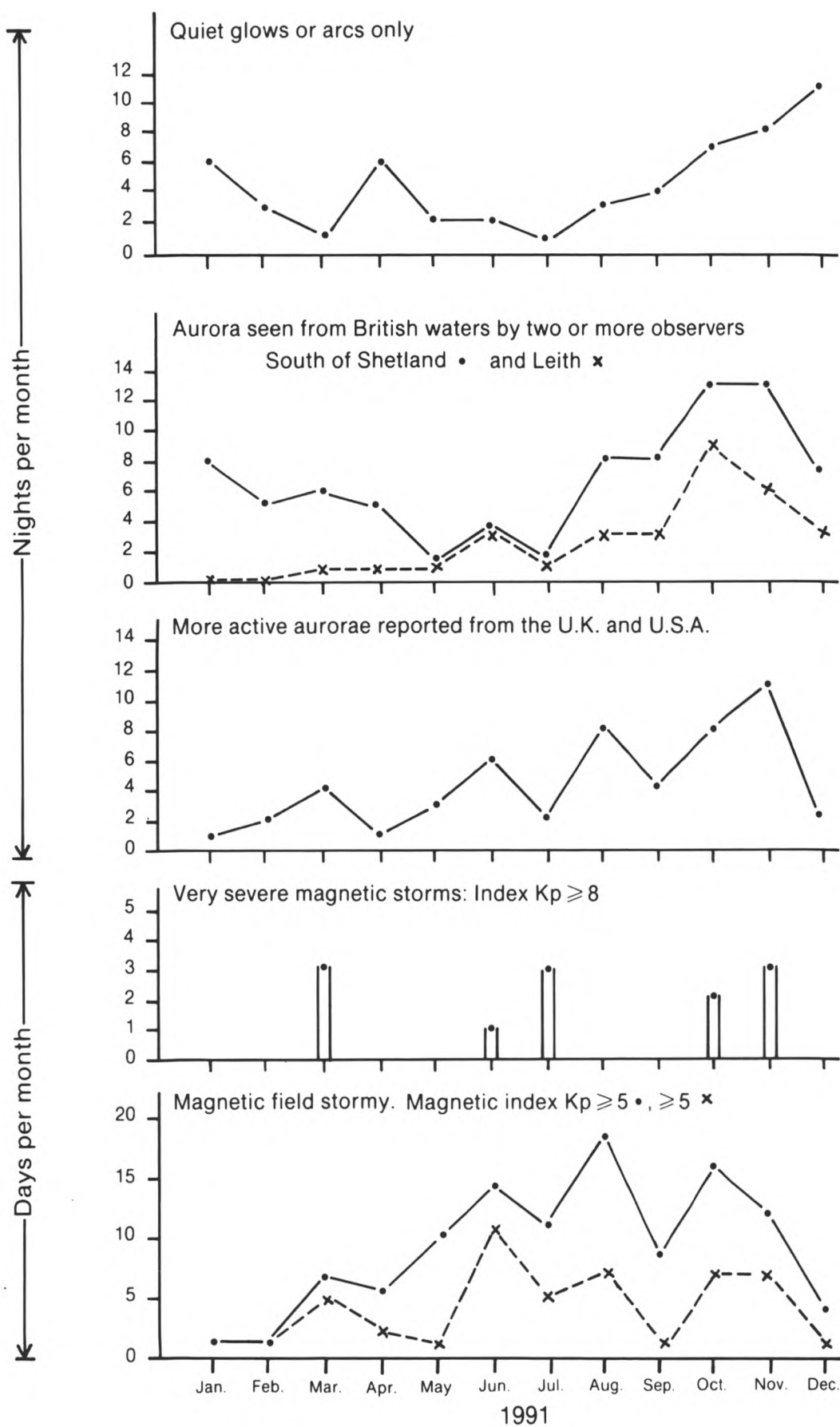


Figure 1. Comparison of mid-latitude auroral activity and magnetic activity in 1991.

magnetic activity was rising at the time. The most active magnetic events took place on 9 and 13 August, the former not causing as big an aurora in North America as did the latter. Note, however, the correlation with the Southern Hemisphere activity given above.

The question of interference to auroral observing by extraneous light is a current topic of discussion. Deck lighting conditions on board ship have been considered as a cause for variations in auroral detection among the various weatherships employed in the past; it will be noted from Table 2 that there were 11 occasions when aurora could have been observed at or to the south of Leith (magnetic latitude 59) during the period of review. The writer has made a point of checking that when aurora was above roof level in Edinburgh it was capable of being seen from a street lit by sodium lights, provided the auroral light was brighter than a minimum level, but not bright. Aurora has been detected overhead in north London; it would seem therefore, that urban and port lighting will not preclude the detection of other than faint aurora, given that it is high enough above the horizon. However, we land observers are envious of the light-free conditions that can be obtained by ships at sea well away from drilling rig flares stacks, and the like. These emissions are so bright that they appear as bright as whole cities when photographed from an artificial earth satellite.

Artificial earth satellites, like ships at sea, are affected by the local weather, in this case of an interplanetary nature. A strong auroral storm heats up the higher atmosphere which expands and interferes with the orbits of low-level satellites, a consequence of which is that their orbital parameters have to be recalculated after the changes have been observed. Further out, geostationary satellites normally orbit inside the Earth's magnetic field; however, when a high-speed shock wave of solar wind particles impacts the magnetic field boundary, the field may be compressed sufficiently so that the satellite finds itself outwith the field boundary and no longer in contact with the Earth's magnetic field, but in the interplanetary magnetic field controlled by the sun. During this unstable stage, the field boundary may cross and recross the satellite's orbit several times. Such an event was experienced by GOES-7 on 13 July and was associated with the aurora on that occasion.

LETTERS TO THE EDITOR

(Letters to the Editor, and books for review, should be sent to the Editor, *The Marine Observer*, Meteorological Office, Eastern Road, Bracknell, Berkshire RG12 2PW, U.K.)

Valete Ellermans?

We, the undersigned, are enclosing with this letter the last Ship's Meteorological Logbook of m.v. *City of Ipswich* (formerly *Liverpool Star*, *Manchester Fulmar* and *City of Ipswich*), as we are advised that the meteorological instruments on loan to us from the Met. Office are to be uplifted shortly, this ship being sold to foreign buyers and replaced with foreign flag tonnage.

Similarly, we understand that our sister ship, m.v. *City of Plymouth*, is also to be replaced. Together, these two ships represent the last two British manned Ellerman vessels in the Voluntary Observing Fleet. (The t.s.m.v. *City of Durban* is now owned by P&O Containers).

No doubt as a consequence of the foregoing, some, if not all, of the undermentioned will be seeking alternative employment in the near future and

this may sever these observers' collective link of about 100 years, between Ellerman ships and the Marine Division of the Met. Office.

We note the comments in the opening paragraph of the Editorial to the October 1991 edition of *The Marine Observer* [decline in standards caused by changes in manning practices] and it is to be hoped that we may be able to play some future part in shipping, and indeed voluntary weather observing.

Whatever happens, the collective 100 years has been enjoyable, meaningful and worthwhile; shall we say nearly so, remembering occasions attempting to obtain sea water samples in a rubber bucket during winter storms on a dark night. Where contact has occurred with Met. Office shore staff, it has always been polite, constructive and helpful, and so it is with regret that we bid you 'adieu' with many thanks for the past, and best wishes for the future to you and your staff.

Captain R.H. Nightingale, Captain G.M. Railson, Chief Officer P.W. Jackson, 2nd Officer A.D. Macpherson, 2nd Officer R.H. Roemmele.

The Marine Superintendent and staff of the Marine Division, thank the above for the sentiments expressed in their joint letter.

As professional colleagues we wholly sympathise with your demise and with the fact that the Merchant Service as well the Met. Office may lose your expertise, through no fault of your own, built up over long careers at sea. Our records show that we started receiving meteorological logs from you as long as thirty years ago, and we earnestly hope to have the continued benefit of your experience after your farewell to the *City of Ipswich*, and can only reiterate our appreciation of your keen co-operation to date.

Yangtse Dolphin?

Whilst on passage down Chang Jiang (Yangtse) River in the vicinity of Jiangyin, about 120 miles from the mouth of the river, a small dolphin was observed swimming upstream. The dolphin was swimming close to the surface for approximately 30 seconds and was easily distinguishable as that type of mammal. We found it very unusual to spot a dolphin so far away from the sea in such a polluted mass of water.

We wonder, could this possibly have been a sighting of the species known as the Yangtse Dolphin, or is it quite common for other types of dolphin to travel so far upstream.

Mrs K. Evans, Supernumerary, *BP Argosy*, BP Shipping Ltd.

Green Flash

The 'green flash' is a perfectly normal optical phenomenon of refraction, more often seen with cloudless skies, or in the tropics with a calm sea and cloudless sky for hundreds of miles beyond the horizon, and therefore not a common occurrence. At sunset or sunrise the sun's rays are bent more than is usual at higher altitudes, as there is a thicker layer of the Earth's atmosphere to penetrate at such an angle. The result is like the bending of the sun's rays through a prism or a rainbow, in a band of colours from red through yellow, green and blue to purple. In effect the yellow sun disappears first below the horizon, leaving the tip of the overlapping green sun for two to three seconds of time or one to two minutes of arc as the so-called green flash. On rare occasions of cloudless skies, with binoculars one may just see it turn blue.

Obviously the same can be seen at sunrise, and with a sharp and distant land ridge without trees. Mariners have occasionally reported it when the sun disappears behind a distant sharp-edged cloud of very low altitude. Even more rare are reports of the red flash as the sun emerges below a sharp cloud of low altitude.

It is all part of the same refraction phenomenon, that at sunset the sun appears red and elliptical, with a longer horizontal axis because the greater curvature of the atmosphere in that horizontal direction acts like a lens.

The effective horizontal curvature of the atmosphere is centred at the eye of the observer, whereas the vertical curvature is centred at the Earth's centre, so that the greater the latitude the more pronounced is the elliptical effect of 'squashing' of the sun's vertical axis, partly dependent on $\cos \text{Lat} \pm \text{Dec}$. Literature on the subject probably has not explained that elliptical effect before. Mariners' reports of sextant angles of the sun's two diameter axes just before sunset sent to the Marine Division of the Met. Office would be interesting. Reports should include date, UTC, position, altitude of the sun's lower limb and weather conditions. Two or three sets of observations a few minutes apart could be made.

But be warned, never use binoculars on the red or yellow sun, as this could be very dangerous to the eyesight; use of sextant shades is safer.

P.S. Just before sunset, the horizontal diameter of the sun is undoubtedly increased. I am not quite so sure about the reasons for the apparent squashing of the sun's vertical diameter. I recall a shipboard discussion about it many years ago, when some held that the lower limb was encountering greater refraction than the upper limb. If that is the case, a series of observations with differing $\text{Lat} \pm \text{Dec}$, and different altitudes, would be very interesting.

Commander J.M. Sharpey-Schafer, RN, Editor, *Open University Computer, Sci-Tech & Space Society*, Hydrographic Surveyor.

The following entry appears in the sixth edition (1991) of the Met. Office *Meteorological Glossary*, under **green flash**:

On some rare occasions the last glimpse of the sun at sunset, or the first glimpse at sunrise, is a brilliant green — the 'green segment' — lasting a few seconds. On still rarer occasions a 'green flash' or 'green ray', also lasting a few seconds, shoots above the horizon from the upper limb. The explanation is the greater refraction of the short waves (violet, blue, green) than of the long waves (red) of white sunlight, coupled with the greater degree of 'Rayleigh scattering' [scattering of incident solar radiation by air molecules in a manner which explains the blue of the sky] experienced by the violet and blue rays. In a hazy atmosphere such differential scattering may not be appreciable and the flash may then appear blue or violet. It is probable, though not yet confirmed, that an unusual degree of refraction, such as occurs with a low-level inversion of temperature, is required for the phenomenon.

Differential refraction of white light is also the cause of the analogous very rare phenomenon of the 'red flash' which may occur when the sun's disc appears just below a bank of clouds near the horizon.

The green flash has been observed in association with the moon and planets on rare occasions.

Book Reviews

Christopher Columbus: Master of the Atlantic by David A. Thomas. 195 mm × 265 mm, 212 pp., *illus.* Andre Deutsch, 105–106 Great Russell Street, London WC1B 3LJ. Price: £14.99 paperback.

Of several books now being launched in recognition of the quincentennial of Columbus' arrival in the New World, this may be the easiest to digest and browse through, even if it is not the most erudite. The myriad facts, and lavish selection

of illustrations in black-and-white, put together by David Wilson make for easy reading and reference. The author has consulted the findings of many researchers to produce a most informative over-view of a story which still fascinates most people today.

Some surprising facts emerge: Columbus, son of Genoa, renowned admiral and good Catholic that he was, also visited Bristol and London in early 1477, 'initiated' the slave trade, kept two mistresses and from his third voyage of discovery to Trinidad and within sight of South America, returned home to Cadiz imprisoned in chains. His life is shown to be full of colour and eccentricity, but his greatness is equally evident throughout this interesting and absorbing account.

J.F.T.H.

Personalities

(Readers are invited to notify the Editor of observing officers retiring from the Navigating and Radio Departments.)

RETIREMENT — CAPTAIN D.H. RUTHERFORD retired as Port Meteorological Officer for North-east England on 31 March 1992.

Derek Rutherford has served the Met. Office in various locations over the last 15 years, starting at Bracknell H.Q. and later as Port Met. Officer at Hull, Newcastle and Middlesbrough.

He took his pre-sea training at the School of Navigation, Warsash, Southampton and was apprenticed to Anglo-Saxon Petroleum Co. in February 1944, his first ship being *Cardium*. He remained with that company, which became Shell Tankers (UK), for the whole of his seagoing career until he was invalided ashore in June 1976. He gained his Master's Certificate in 1952 and was appointed to his first command, the *Hinnites* in July 1965. His weather observing record shows his first meteorological logbook arriving at the Office from the *Velletia* in December 1958, and his thirteenth and final when he was Master of *Methane Princess* in March 1974.

His career with the Met. Office began when he was appointed as a Nautical Officer to the Ship Routeing Service in January 1977. He was subsequently posted to the Port Met. Office at Hull in July of the same year and in January 1979 to the then recently established office in Newcastle. When in June 1982 that Port Met. Office was transferred to Middlesbrough, Derek Rutherford went with it and has spent the last ten years as Port Met. Officer there.

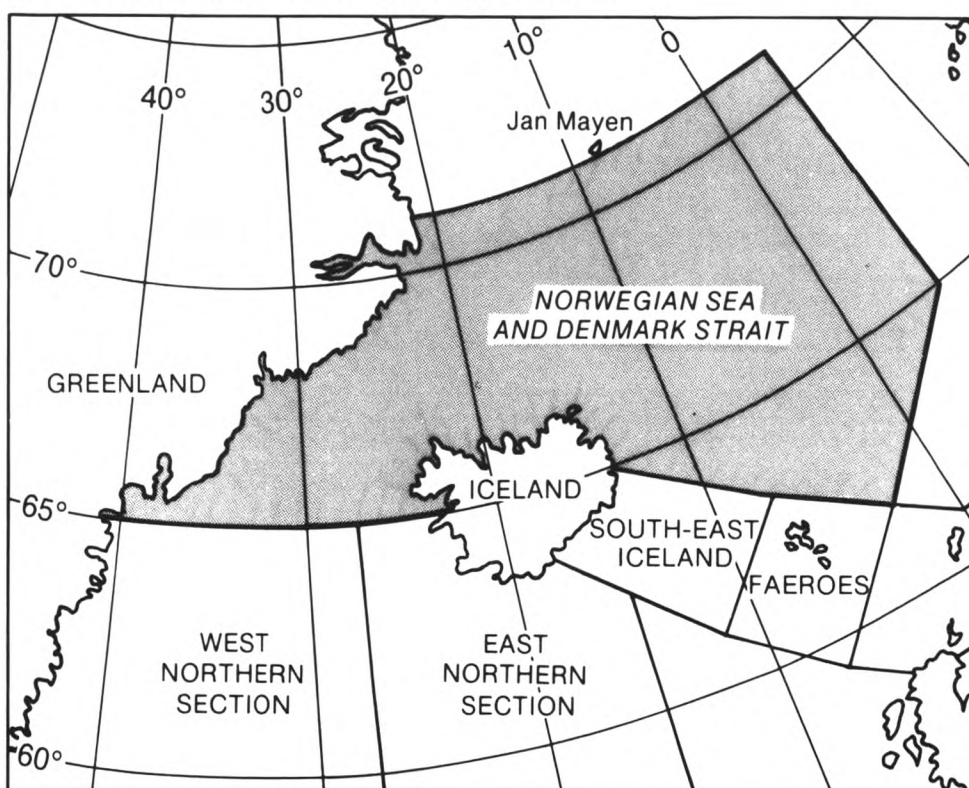
We wish him a long and happy retirement with his wife and family at their home in Whitby.

Notices to Marine Observers

GMDSS AND THE ATLANTIC WEATHER BULLETIN

New sea area

As a result of the changes introduced for the Global Maritime Distress and Safety System, sea areas Denmark Strait and North Iceland have been replaced by a new area in the texts both for the *North Atlantic Bulletin for Shipping* and of the forecasts for issue by INMARSAT. As an interim measure until an agreed name could be devised and promulgated, the new area has been defined using the name Denmark Strait, North Iceland and the remainder of GMDSS Area I north of 65°N, from the Greenland coast to 5°E.



As from 1 September 1992 this new area will be known as Norwegian Sea and Denmark Strait, with boundaries as follows:

Westwards from the coast of Iceland in 23° 15'W to the Greenland coast in 40°W on the 65°N parallel, northwards along the Greenland coast to 71°N, eastwards to 5°E, southwards to 65°N, thence south-westwards to 61° 50'N, 02° 30'W, thence north-westwards to 65°N, 13° 35'W and the north coast of Iceland to 65°N, 13° 35'W.

Publications affected will be amended at their next routine reprint.

In the notice on page 44 of the January 1992 edition of this journal, concerning introduction of the EGC SafetyNET service for the GMDSS, we said that parts 5 and 6 of the *Atlantic Weather Bulletin* would be broadcast. However, the United Kingdom does not broadcast these parts, although some other countries do include them in their shipping bulletins.

Part 4 of the U.K. bulletin will continue to be broadcast, subject to the results of a recently conducted review of this requirement for marine users.

APPOINTMENT OF NEW PORT METEOROLOGICAL OFFICER, NORTH-EAST ENGLAND

Captain J. Steel has been appointed to the Port Met. Office at Middlesbrough to succeed Captain D. Rutherford on his retirement.

John Steel joined Andrew Weir and Co. as Deck Apprentice after leaving school in 1963, and served with that company until leaving due to fleet reductions in 1984. After studying for all his Certificates of Competency at Hull Nautical College, he obtained his Master's in 1973. He was appointed Master in March 1978 and went on to command ten of Bank Line's cargo vessels, some of them on the South Pacific round-the-world-service.

Captain Steel provided 13 meteorological logbooks during this period in command, the first from *Ruddbank* in November 1980. He transferred to Coe-Metcalf Shipping in 1986, serving as Master of their drilling research ship *Pholas* in the North Sea oil fields.

In 1987 he was appointed Deputy Director of Maritime Affairs for the Bahamas Ministry of Transport in London and from 1988 was self-employed from home until gaining his present appointment.

THE ROYAL INSTITUTE OF NAVIGATION COMPETITION 1992

The closing date for entries to this year's RIN Competition for Young 'Navigators' is 1 October 1992. The idea of the competition is to show that navigation is not only an esoteric subject practised by seamen and aviators, but is something that everyone practises in their daily lives, and which the young could study to their benefit and find interesting.

The activities about which competitors have written in the past include sailing, orienteering, exploring, potholing and gliding, to name but a few of the ingenious entries about navigators past and present. The competition is open to young people from 8 to 23 years old, and the Judges take age and opportunity fully into account. Prizes include activities with the Royal Navy, the Royal Air Force, civil aircraft, merchant ships and sailing ships as well as instruments and books.

Further details and an entry form can be obtained from The Administrator, The Royal Institute of Navigation, 1 Kensington Gore, London SW7 2AT.

Fleet Lists

Fleet Lists

GREAT BRITAIN (Information dated 12.3.92)

The following is a list of British ships which have been equipped with instruments and which voluntarily co-operate with the Marine Division of the Meteorological Office. The names of the Masters, Observing Officers and Senior Radio Officers are given as ascertained from the last written returns received. The date of receipt of the last return is given in the second column. An asterisk indicates a new recruitment who has not yet sent in a logbook.

All returns received from observing ships will be acknowledged, direct to the ship, by the Marine Superintendent of the Meteorological Office.

The Port Meteorological Officers will make personal calls on the Masters and Observing Officers as opportunity offers, or on notification from the ship at any time when their services are desired.

Excellent Awards are made at the end of each calendar year. The names of the Masters, Principal Observing Officers and Radio Officers gaining these awards are published each July in *The Marine Observer*. It is requested that prior notification of changes of service, probable periods of lay-up, transfer of Master or other circumstances which may prevent the continuance of voluntary meteorological service at sea, may be made to a Port Meteorological Officer or to the Marine Superintendent of the Meteorological Office at Bracknell.

Masters and Officers are invited to point out any errors or omissions which may occur in the list.

Selected and Supplementary Ships

NAME OF VESSEL	LAST RETURN RECEIVED	MASTER	OBSERVING OFFICERS	SENIOR RADIO OFFICER	OWNER/MANAGER
Abbey	10.2.91	R. Gibbons	R. Paganpan, D. Lyon, E. De Guzman	K.E. Changezi	Furness Withy (Shipping) Ltd
Adviser	9.12.91	R.J. Smith	W.I.G. Mair, M.A. Desa, A.A. Thomson	K. McCarthy	Denholm (I.O.M.) Ltd
Al Shamiah	23.10.78	T. Williams	P. Walley		United Arab Shipping Co. (S.A.G.)
Alcides	11.2.91	P. Callaghan	D.A. Hinks, P. Williams	M.R.W. Sheehy	Mobil Shipping Co. Ltd
Aldington	4.1.91	D. Patrickson	A.S. Reed, C.V. Adams, S.C. Dixon		Stephenson Clarke Shipping Ltd
Alert	15.5.90	R. Walter	I. Smalshaw	D. Vowles	BT (Marine) Ltd
Alex	25.1.89	A. Mendonca	J.S. Rathaur, V. Vij	J.R. Jesia	Barber Ship Management U.K. Ltd
Alliance	9.10.91	L. Holtschmidt	G.V. Simpson, N. Campbell, S. Hamer	S. Flanagan	Denholm Ship Management Ltd
Almeda Star	31.5.91	G.J. Rawding	L. Lough, F. Manuel	R.Q. Baltazar	Concordia Marine Co. Ltd
Ambra Baleen	25.2.91	E. Radovan	D. Russinwick, C. Lyndon, T.F. Fernandes	P. Lazarus	Wallem Ship Management (H.K.) Ltd
Ambra Blue	2.7.91	B.F. Satur	C. Subramanian, M. Ponachevhy, T. Shorokov	F. Leitao	Ambra Management A/S
Ambra Grey	*	N.A. Porter	C. Devisfruto, R. Neven, D.S. Hall, M. Mosot	V. Koothur	A/S Ambro
Ambra Hunter	15.1.91	J.R. Lobo	S. Mathews, M.N. Anwar	R.M. Guloy	Wallem Ship Management (H.K.) Ltd
Ambra Siresa	*				Wallem Ship Management Ltd
Andes	9.12.91	R.A. Whistler	P.M. Newman, J.N. Balkwill, F. O'Driscoll	K. Gartton	Furness Withy (Shipping) Ltd
Anro Adelaide	12.11.91	Liang Kok Beng	Win Miav, N. Choong, J.C.V. Rodriguez	M. Hassan	Neptune Orient Lines Ltd
Antwerpen	3.2.91	C. Darche	A. Dubetz, J. Walgraeve, K. Kisimba	P. Neven	Johnson Stevens Agencies Ltd
Appleby	2.3.92	T. Armstrong	C.D. Jovan	M. Erceg	Ropner Shipping Services Ltd
Arctic Corsair	12.12.89	P. Wheelodon		A. Spencer	Boyd Line Ltd
Arctic Ranger	5.1.90	A.W. Walker	A.L. Jennings	J.D. Lester	Boyd Line Ltd
Arctic Universal	19.11.91	I.G. Kemp	Alan Creal Rudge, John M. Collis, E.P. Binarao	S.N. Gurusinghe	Matheson Shipping Services Ltd
Argentina Star	10.12.91	R. K. Bilton	R. Morrison, D. Galloway, R.A.G. Hobbs	I. Brooks	Blue Star Ship Management Ltd

<i>Arna</i>	13.12.91	C.B. Kulkarni	B. Anantharaman, P.L. Cumantatunga	P. V. Mansabdar	Barber Ship Management (U.K.) Ltd
<i>Astrid</i>	14.1.91	D.R. Norman	A. Brown, C.M. Toner	D. Beech	The Astrid Trust
<i>Atlantic Conveyor</i>	19.11.91	J.K. Brocklehurst	G. Laversuch, N.R. Broomhall, S.A. Crow	B.B. Oscar	Cunard Company Ltd
<i>Atlantic Universal</i>	2.3.92	T.M. Abbott	P.G. Rafferty, M.R. Yakoob, R.O. Capinpuyan	R. Evans	Matheson Shipping Services Ltd
<i>Auckland Star</i>	17.2.92	J.F. Rowe	D. Johnston, J. Ewart, C. Hall	J. Gellatly	Blue Star Ship Management Ltd
<i>Author</i>	8.11.91	G.S. Laird	M. Bull, A.C. Dunning, A. Thomson	K. H. Sellar	Denholm (I.O.M.) Ltd
<i>Avelona Star</i>	*	B.A.G. Boyer	A.G. Cruz, S.R. Dionicio, P.W. Hickery	D.A. Richards	Star Reefers
<i>Aya II</i>	9.9.91	F. Wilkinson	M. Hasiak, J. Harris, N.K. Price	S.P. Taylor	Cardiff Ship Management Ltd
<i>BP Admiral</i>	14.1.92	K.E. Peacock	C.R. Shoolbraid, T. Robinson, S.M. Humayun	B. Brycki	BP Shipping Ltd
<i>BP Adventure</i>	9.12.91	J.M. Ronald	M.A. Watson, R. Latko, C. Wladyslaw	J. Sech	BP Shipping Ltd
<i>BP Advocate</i>	2.10.91	J.L. Atkins	S. Petrey, A. Sadowski	M.D. Smith	BP Shipping Ltd
<i>BP Architect</i>	3.10.91	P.A. Darlow	T. Ashby, V. Williams, J. Lewandowski	J. Kubiszyn	BP Shipping Ltd
<i>BP Argosy</i>	11.2.92	J.E. Perry	R.D.J. MacLean, G. Ryszard	S.V. Ranadive	Bulk Tanker Management Ltd
<i>BP Humbar</i>	19.11.91	H.G. Gray	K.B. Sinha, C.S. Santillan	J. D'Sa	Bulk Tanker Management Ltd
<i>BT Nautilus</i>	14.11.91	P.C. Garnham	N.H. Paddle, S.T. Cardozo, A.K. Bhorla	J.M. D'Sa	Bulk Tanker Management Ltd
<i>BT Navarin</i>	6.4.90	P.C. Garnham	S.J. Allen, T.A. Kumar, D. Nayar	M. Malakar	Wallem Ship Management (I.O.M.) Ltd
<i>BT Navigator</i>	2.5.91	R.B. Jones	G.B. Singh, E.T. Zubiri, N.S. Antido	D.J. Minihane	Bulk Tanker Management Ltd
<i>BT Neptune</i>	11.2.92	M.S. Allen	R. Cordon, G.W. Bell, B.T. Sheridan	U.K. Nyunt	Bulk Tanker Management Ltd
<i>BT Nestor</i>	9.10.89	O.B. Ali	I.C. Oke, U. Htun, S.T. Htoo	N. Marwood	V. Ships (U.K.) Ltd
<i>BT Nimrod</i>	*	P. Anthony	J.D.R. Ghest, S. Williamson, A.W. Robertson	R.P.R. Siblet	Mann Motorships Ltd
<i>Bahia Express</i>	11.1.92	J.M. Gower	A. Henwood, A.M. Smith, W.D. Langton	G.S. Thomson	Andrew Weir Shipping plc
<i>Baltic Breeze</i>	22.1.91	P. Hyde	A.J. Whitehead, I.J. Minns, S.J. Alletson	W. Fernando	P&O European Ferries Ltd
<i>Baltic Eagle</i>	14.11.91	D.R. Cripps	D.W. Torr, R. Barker, J. Gunson	T.H. Phillips	Andrew Weir Shipping plc
<i>Baltic Ferry</i>	26.2.91	I. Ligertwood	C. Molina, K.A. Molloy, A.C. Del Pillar	P. Body	Matheson Shipping Services Ltd
<i>Baltic Progress</i>	13.11.91	R. Phillips	A.T. Allan, S. Ohene	J.S. Hallam	Jeppesen Heaton Ltd
<i>Baltic Tern</i>	12.3.92	F. Anderson	R.W. Lawrie, A. Murray	R.A.M. Lynn	Benmarine Ltd
<i>Baltic Universal</i>	2.3.92	D.D. Sutherland	D. Bathgate, G.W. Maitland	A. Campbell	Benmarine Ltd
<i>Barbara-E</i>	26.10.90	J.I. Brown	John K. Law, Neil Walker	M.E.P. Gloisten	Boston Putford Ltd
<i>Barra Head</i>	28.11.91	F.J. Powderill	B.V. Grint, H. Blake	R.I. Gow	C.I. Shipping Ltd
<i>Benalder</i>	24.2.92	G.R. Plummer	W.M. Laverick, H.A. Davis, M.M. Hasan	J. Kubiszyn	British Antarctic Survey
<i>Benary</i>	15.1.92	M.J. Cole	J.R. Harper, G.P. Chapman, S.I. Wallace	J.D. Fryer	Rowbotham Tankships Ltd
<i>Benavon</i>	5.6.91	F. Craske	M.J. McGhee, P.S. Wright, M.D. Kerr	D. Worthy	BP Shipping Ltd
<i>Blue Flame I</i>	15.1.92	S. Duncan	T. Robinson, A. Fitch, D. O'Neil	D. Bone	BP Shipping Ltd
<i>Bora Universal</i>	18.4.91	R.G. Smith	J. Tawakley, P.K. Sinha, K.B. Sinha	J. Minogue	BP Shipping Ltd
<i>Bransfield</i>	6.1.87	M. Pocklington	B. Pereira, A.J. Glass, G. Agard	D.A. Simcox	BP Shipping Ltd
<i>Bridgeman</i>	1.10.91	R.A. Jarrett	T. Radford, J.H. Donne, M. Collins	D.P. Riddle	BP Shipping Ltd
<i>British Forth</i>	23.10.90	M. Pocklington	R.D. Mead, N.G. Hawkes, J.P. Parsons	K. Kiethy	BP Shipping Ltd
<i>British Ranger</i>	14.1.92	R.H. Friar	Q.N. Cox, D.J. Clark, P. Ledoux	J.D. Fryer	BP Shipping Ltd
<i>British Reliance</i>	11.2.92	M.T. Gordon	G.M. Hallett, C. Winterbottom, H. Andreassen	E.W. Egalla	Furness Withy (Shipping) Ltd
<i>British Renown</i>	19.9.91	K.G.E. Lawrence	P.R. Anderson, A.A. Facey, A.L.C. Smith		
<i>British Resolution</i>	11.12.91	P.F. Robinson	Q.N. Cox, L.N. Paul, C.B. Feierabend		
<i>British Resource</i>	9.12.92	P.J. Creber	S.W. Burton, B.J. McMahon, G. Chamberland		
<i>British Spirit</i>	7.10.91		M.P. Brooks, R.M. Zapanta, R.H. Briones		
<i>British Steel</i>	4.2.92				
	9.12.91				

Selected and Supplementary Ships (contd)

NAME OF VESSEL	LAST RETURN RECEIVED	MASTER	OBSERVING OFFICERS	SENIOR RADIO OFFICER	OWNER/MANAGER
<i>British Success</i>	13.11.91	A. Stobbs	P. Grant, D.J. Williams, A.P. Martin	R. Maule	BP Shipping Ltd
<i>British Tamar</i>	19.11.91	R.A. Jarrett	J. Whitehead, M. McDiarmid, D.J. Clark	D. Worthy	BP Shipping Ltd
<i>British Tay</i>	8.10.91	N.J. Greig	G.L. Afunya, C.D. Donoso, L.A. Douglas	P. Gould	BP Shipping Ltd
<i>British Trent</i>	9.12.91	S.R. Montague	F.X. Fitzmaurice, W. Kulawczyk, A. Chylak	W. Bielecki	BP Shipping Ltd
<i>British Wye</i>	14.1.92	D.R. Lewis	H.N. Snaith, E. Byan, J. Dawid	A. Atkinson	BP Shipping Ltd
<i>Broompark</i>	8.2.89	S.H. Barker	M.J. Murzello, G.P. D'Souza, P.F. Arsiwala	R. Monteiro	Denholm Ship Management Ltd
<i>Brucella</i>	31.7.91	R. Hadgraft	J.W. Dunne, E. Fuller	R. Dolby	J. Marr Ltd
<i>Brussel</i>	27.11.91	P. Woinin	P. Corveleyn, C. Postelmans, Y. Schnabel	N. Gunawardena	Johnsons Stevens Agencies Ltd
<i>Buffalo</i>	4.2.92	N.C.E. Spencer	C.S. Coffard, M.E. Ingham, R.D. Henderson	P.J. Johnson	POETS Fleet Management Ltd
<i>CAM Defender</i>	23.3.90	M. Lightfoot	M. Lightfoot		CAM Shipping Ltd
<i>CAM Retriever</i>	27.11.90	G.E. Drewery	A. Edwards, R. Shirley		CAM Shipping Ltd
<i>CAM Supporter</i>	13.6.91	D. Auckland	S.C. Upcraft, R. Monkman, P. Bartlett		CAM Shipping Ltd
<i>CMB Ehoyn</i>	*	I.G. Juvalle	R. Jamdar, K. D'Essa, S. Vellangi	V.D. Vats	CanPac Maritime Ltd
<i>CMB Mallet</i>	13.1.92	Kersi N. Deboo	Sunil Dnowan, S. Balram, S. Sarkar	Lalta Prasad Yadav	CMB (U.K.) Ltd
<i>CMB Memling</i>	2.3.92	H. Demeure	J. Bernard, H. Yves, J. Serge	D.M. Visart	Antwerp Technical Services N.V.
<i>CMB Tabora</i>	*				CMB (U.K.) Ltd
<i>CS Sovereign</i>	*				British Telecom (Marine) Ltd
<i>Cable Protector</i>	20.9.89	W. Marr	B.K. Goodsir, M. Barrass, P.D. Hey		Cable & Wireless plc
<i>Cable Venture</i>	6.4.90	E.J. Turner	M. Barrass, M. Jubb	S.O.J. Broady	Cable & Wireless plc
<i>Cableman</i>	10.10.89	R.D. Andrews	H. Williams, R.D.M. Low, D.J. Podger	M. Joniec	Rowbotham Tankships Ltd
<i>Canberra</i>	31.5.91	I. Gibb	S. Holford, S.N. Plummer		P&O Lines Ltd
<i>Canmar Ambassador</i> ..	14.1.92	J. Simcox	J.S. Parker	S. Joshi	Barber Ship Management (U.K.) Ltd
<i>Canmar Europe</i>	17.2.92	W. Marien	J. Regniers, D. Denutte, P.H. Metcenier	Y. Rahbarshamir	OOCL Ltd
<i>Canmar Triumph</i>	9.9.91	R.C. Jackson	M.B. Paroga, S. Bharti, B.J. Silva	A. Gaffoor	Agentur Fur Seefracht
<i>Canmar Venture</i>	2.7.91	P. Moore	M.J. Stopford, N.V. Ranadive, A.S.D. Weerasinha	R.G. Fernandes	Barber Ship Management (U.K.) Ltd
<i>Canmar Victory</i>	24.5.91	F.K. Gordon	M.A.J. Ranatunga, G. amin, K.D. Nalini	V. Manohar	Barber Ship Manangement (U.K.) Ltd
<i>Canterbury Star</i>	7.8.91	W. Jones	D.A. Johnston, I.H. Roberts, D.P. Andrew	T.V. Sutton	Blue Star Ship Management Ltd
<i>Cardigan Bay</i>	11.2.92	A.J. Leslie	R.A. Kenchington, N.D. Gregory, J.C. Geddes	N.C. French	P&O Containers Ltd
<i>Carina</i>	*				Wallem ShipManagement (I.O.M.) Ltd
<i>Carriagena</i>	19.5.89	D.S. Ritchie	Z.A. Usero, P.I. Ramos, C.S. Reyes	G.H. Adran	Dole Fresh Fruit Co.
<i>Cavendish</i>	6.9.91	A.B. Banton	T. Ruth, J.L. McCorquodale, A.D. Dawson	A. Gite	Furness Withy (Shipping) Ltd
<i>Celtic Challenger</i>	9.12.91	H.J. Norton	B.W. Bedworth, A.P. MacLean, Haider Ajam		C.M. Willie & Co. (Shipping) Ltd
<i>Celtic Warrior</i>	*				C.M. Willie & Co. (Shipping) Ltd
<i>Challenger</i>	2.3.92	P.H.P. Maw	P.A. Evans, S.S. Sykes, J. Sanderson	J.G.L. Baker	Natural Environment Research Council
<i>Charles Darwin</i>	11.11.91	M.A. Harding	A.R. Louch, P.T. Oldfield, R.A. Warner		Natural Environment Research Council
<i>Cheryk-C</i>	3.5.91	S. Smith			Carisbrooke Shipping plc
<i>Cheshire</i>	11.11.91	P. Dony	R. Lieven Bauters, K. Van Den Berghe	M. Boilgard	Bibby Line Ltd
<i>Chiquita Baru</i>	11.2.92	R.N. Cumbers	C.G. Lontoc, C.L. Lista, T.S. Estabaya	R.P. Tipo	E & F Ship Management Ltd
<i>Chiquita Bocas</i>	26.9.91	W.J. Harwood	G.M. Gray, D.P. Dosqueblos		E & F Ship Management Ltd

Selected and Supplementary Ships (contd)

NAME OF VESSEL	LAST RETURN RECEIVED	MASTER	OBSERVING OFFICERS	SENIOR RADIO OFFICER	OWNER/MANAGER
<i>Esso Demetia</i>	25.10.89	S. Clements	R.G. Allan, I.G. Swales	N. Banda	Esso Petroleum Co. Ltd
<i>Esso Fife</i>	26.9.91	F. Cook	A.G. Pompa, G. Dunkley, A. Hodgson	I. Wilson	Esso Petroleum Co. Ltd
<i>Esso Tyne</i>	31.7.90	K.J. Lightbody	T. Lester, N. Fineman, J. Holmes	M. Adams	Esso Petroleum Co. Ltd
<i>Euplecta</i>	13.4.88	J. Brown	I. Shields, C.S. Bull, N.G. Mushet	A. Haq	Shell Ship Management Ltd
<i>Europa Point</i>	6.12.88	I.C. Dorse	A.A. Shah, M. Gulzar, M. Zakir		Acomarit (U.K.) Ltd
<i>European Trader</i>	*				P&O European Ferries
<i>Eye of the Wind</i>	12.11.91	A.R. Timbs	A. Quidato, R.A. Maiquez, F. Pua	R.S. Cenaz	Adventure Under Sail
<i>Falcon Arrow</i>	9.12.91	C.C. Osborne	J. Davies, F.F. Khun, M.D. Samant	J. Lishman	Jardine Ship Management Ltd
<i>Falklands Desire</i>	15.1.92	P. Taylor	J.G. Wood, J. Laird		J. Marr Ltd
<i>Falklands Protector</i>	28.1.91	A.A. Jagger	A.G. Hay, F.F. Kuhn	P.J. Appleyard	J. Marr Ltd
<i>Farnella</i>	13.11.91	J.B. Nichols	D.C. Thomson, I. Thomas, F.N. Cambra	E.B. Stephenson	J. Marr Ltd
<i>Flinders Bay</i>	4.2.92	D.K. MacCorquodale	M.A. Mackenzie, Q.R. Armstrong, P.F. Murphy	J. Ramsay	P&O Containers Ltd
<i>Fortibank</i>	31.5.91	P. Simpson	P. Dennis, T. Coates, J.E. Fearnside		Andrew Weir Shipping plc
<i>Francis Drake</i>	26.4.90	G. Fairhurst	N.P. Shrewsbury, J.A. Cook, N.K. Anders		Ocean Youth Club
<i>Freenes</i>	27.11.90	D. Johnstone	D. Lacquiao, E. Aquino, P. Ilao	R.R. Hughes	Jebsens Management A/C
<i>Fullnes</i>	3.10.89	B.C. Dalanun	B. Majumber, S.B. Ajit, S.A. Basit	A. Urbizondo	Jebsens Management A/C
<i>Ga Chau</i>	9.10.91	K.B. Singh	J. Hanley, I. Newsome, S.K. Jones	N.N. Barik	Denholm Ship Management (U.K.) Ltd
<i>Gardline Locater</i>	5.1.90	H.F. Monckton	J.C. Patterson, R.P. Coghlan, S.M. Richman		Gardline Shipping Ltd
<i>Gas Enterprise</i>	8.11.91	N.E. Hannam	J.B. Harbord, K. Cox, M.H.F. Kenny	A.D. Moore	BP Shipping Ltd
<i>Geestbay</i>	18.9.91	C.J. Flanagan	D. Roberts, N.K. Anders, C. Ward	P.A. Lindley-Curtis	Geest Line Ltd
<i>Geestcape</i>	13.11.91	A.J. Gladman	M.I. McGregor, R.M. Eaton, C. Pickin	P. Prophet	Geest Line Ltd
<i>Geesthaven</i>	10.1.92	M. Tomlinson	W.A. Boddington, J.D. Williams, K. Cox	G. Shaw	Geest Line Ltd
<i>Geestport</i>	17.2.92	M.J. Davis	R. Borkowski, S.J. Windle, R. Ross	D.H. Logie	Haverton Shipping Ltd
<i>Gold Varda</i>	30.10.85	R.M. Mitchell	C.S. Swarnakar, S.R. Sukhrani, R. Kapuria	P. Srikanth	Ugland Bros. Ltd
<i>Golden Fleece</i>	21.3.88	A. Mair	F.J. Nichol, C.M. Bragg, M. Arden	T.S. Ilkov	Graig Shipping plc
<i>Graiglas</i>	10.1.92	C.M. Berkley	F.J. Nichol, I.A. Pakula, B. Bergeron	J.A. Laplana	Graig Shipping plc
<i>Graigwerdd</i>	12.11.91	E.M. Holmyard			
<i>Greater Manchester</i>					
<i>Challenge</i>	18.5.90	L. Parker	M. Gotz, K. Ballard, B. Clark		Ocean Youth Club
<i>Greenpeace</i>	15.9.88	R.A. Graham	N.A.I. Modak, R. Chittaranjan	P.S. Shankaran	Greenpeace Marine Division
<i>Gulf Speed</i>	26.9.91	A. Kumar	M.A. Modak, R.E. D'Sa	D.J. Fonseca	Cunard Ellerman Shipping Services Dept
<i>Gulf Spirit</i>	10.12.91	N. Passey	M.R. Estrado, J.S. Pepino, G.P. Dalida	D.J. Duggan	OOCL Ltd
<i>Gull Arrow</i>	26.9.91	R.I. Bennett	V. Mitchell, R. Harris		Matheson Shipping Services Ltd
<i>H.V. Fox</i>	*	E. Chapman	P.B. Solomon, A.P. Henry, K.M. Duncan	P. Pouchet	J. Marr Ltd
<i>Harold La Borde</i>	7.8.91	P.J. Duff	B.O. Borras, A.W. Simonds, R.M. Harnett		Bibby Line Ltd
<i>Harrier</i>	11.2.92	S. Woodward	R.G. Valentine, A.B. Escaner	C.R. Kettlewell	Mobil Shipping Co. Ltd
<i>Havdrott</i>	10.1.92	K.W. Newman	I.F. Finlayson I.O. Tagab	W.G. Puaso	A/S Havtor Management
<i>Havjarl</i>	22.8.91	K.W. Newman	N. Nifiton, B.C. Pritchard, S.A. Vertudazo	K.S. O'Sullivan	A/S Havtor Management
<i>Havkong</i>	11.11.91	N.F. Samuel		R.P. Vellijo	A/S Havtor Management

<i>Hebridean Isles</i>	15.1.92	J. MacArthur	R. Bell, K. Elder, A. Sinclair	B. Holdsworth	Caledonian MacBrayne Ltd
<i>Hekabe</i>	6.8.91	N. Mushin	T.N. Ferguson, A. Brown, K.P. Ratcliffe	R. Villarin	Rederiet H.R. Myhre A/S
<i>Helen</i>	11.1.91	T. de Oliveira Pinto	T. Moons, P. Corveleyn, B. Basyn	B. McGeehan	Sea Lanes N.V.
<i>Helikon</i>	6.12.91	P. Beresford	T. Ferguson, A. Brown, M.A. Pagente	B. Nalan	Rederiet H.R. Myhre A/S
<i>Hemera</i>	11.12.91	G. Pearson	T. Goldsforth, A. Martinez, F. Dureza	E. Yaoyao	Rederiet H.R. Myhre A/S
<i>Hemina</i>	15.1.92	P. Vennell	J.D. Martin, H. Mullins, B.J. Leils	E. Magumcia	Rederiet H.R. Myhre A/S
<i>Hermod</i>	22.11.90	P.R. Dew	S. White, M.A. Youel, R. Lavilla	F. Beronio	Rederiet H.R. Myhre A/S
<i>Hesiod</i>	17.8.90	G.W. McInnes	T.N. Ferguson, J.D.C. Martin, E.E. Enguerra	P. Gacayan	Rederiet H.R. Myhre A/S
<i>Highland Reel</i>	8.4.87	C. Green	D. McIntyre, G. Collier, D.J. Cowie	D. Gavin	Ugland Marine Ltd
<i>Hijaz</i>	*				United Arab Shipping Co.
<i>Hoegh Duke</i>	19.10.90	C.V. Farrant	N.J. Elks, R.S. Coelho, J. Haider	C.L. D'Souza	Leif Hoegh (U.K.) Ltd
<i>Hook Head</i>	9.8.91	D.C. Selley	W. Runchie, I. MacDonald	R.A.S. Macneikan	Chelston Ship Management Ltd
<i>Hudson River</i>	*	F.R.F. Martin	O. Domingo, G. Williams, F. Tilano	M. De La Torre	Enron Arbross Ship Management Co.
<i>Humanist</i>	15.3.90	M.J. Feltham	N.R. Francis, S. Sekandar, M.A. Kadir	D. Sherwood	Ocean Tramping Ltd
<i>Ibn Abdoun</i>	15.12.87	A. Gupta	H.S. Sant, P. Verma, N. Jarrar	S.K. Datta	United Arab Shipping Co. (S.A.G.)
<i>Ibn Rushd</i>	8.4.87	P.W. Roberts			United Arab Shipping Co.
<i>Iolair</i>	17.2.92	F. Whamond	M. Jubb, B. Watson, J.G. Wood	R. Lodge	BP (Pet. Dev.) U.K. Ltd
<i>Iris</i>	8.1.91	G.W.T. Holmes	A.W. Reader, M.R. Swaffield, R. Turner	J. Vaughan	BT (Marine) Ltd
<i>Ironbridge</i>	12.9.91	B. Walmsley	M. Bartle, W. Corteza, N. Tornea	K. Neir	Furness Withy (Shipping) Ltd
<i>Isle of Arran</i>	24.2.92	J. Peacock	R. Foran, C. Bain, R. McLaughlin		Caledonian MacBrayne Ltd
<i>Isle of Mull</i>	24.2.92	J. Campbell	I.F. Scarr, A. Colqhoun		Caledonian MacBrayne Ltd
<i>Isocardia</i>	15.8.90	J.G. Ruffell	S. Galloway, P.C. McManaway, R.S. Payne	D.H. Parkes	Shell Ship Management Ltd
<i>Isomeria</i>	29.7.91	J. Sharp	S.S. Zadzuk, D. Butters, S.M.F. Masud	R. Gaul	Shell Ship Management Ltd
<i>Ivybank</i>	12.11.91	W.H. Martin	L. Rigby, A. Haynes, D. Quimet	T.P. Williams	Andrew Weir Shipping plc
<i>Jahre President</i>	*				Wallem ShipManagement Ltd
<i>Jahre Spirit</i>	15.1.92	D.V. Dutt	S.R. Das, N.S. Amaria	B. Sharifabadi	Wallem ShipManagement (I.O.M.) Ltd
<i>James Clark Ross</i>	*				Natural Environment Research Council
<i>Jarikaba</i>	11.2.92	R.B. Hughes	C. Bryson, B.A. Ryan, M. Rattue	P.L. Michael	Wallem ShipManagement (I.O.M.) Ltd
<i>Jevington</i>	17.12.87	L.G. Reiton	G.F. Lack, T.S. Moseley		Stephenson Clarke Shipping Ltd
<i>Jostelle</i>	11.2.92	I. Beetham	M.D. O'Dell, J.M. Towler, M. Gledhill	R.J. Spencer	Souter Shipping Ltd
<i>Kathe Sif</i>	*				Jeppesen Heaton Ltd
<i>Kelvin Challenge</i>	9.8.91	J.W. Willcock	G. Frias, C.B. Estavillo, A. Larin	M.D. Emiliano	Acomarit (U.K.) Ltd
<i>Keta Lagoon</i>	11.1.91	P.Y. Hevi	R. Anyadi, B. Aembi, K. Wutch	A. Kasraku	Black Star Line Ltd
<i>Kiwi Arrow</i>	14.1.92	A. Woodhouse	N.B. Peter, R.T. Wiliyams	J. Byron	Jardine Ship Management Ltd
<i>Kommandar Sub Sea</i>	12.6.90	I.E. Grant			Hays Ship Ltd
<i>Kowloon Bay</i>	11.2.92	I.W. Collister	Alex J. Ball, S.J. McNeil, E.P. Mullan	J. Bridge	P&O Containers Ltd
<i>Kukawa</i>	11.11.91	A.F. Drury	E. Williams, K. Torto-Rockson, E.S. Boye	P. Mutia	Acomarit (U.K.) Ltd
<i>Kumasi</i>	12.9.91	G.K. Thomson	P.K. Hine	E. Gravador	Acomarit (U.K.) Ltd
<i>Lackenby</i>	13.1.92	K. Mulburn	J.L. Wilson, A.G. French, S. Woodhouse	V. Devil	Ropner Shipping Services Ltd
<i>Lady of Mann</i>	24.5.90	— Bridson	O.K. Buckle, P. White		Isle of Man Steam Packet Ltd
<i>Lakenes</i>	20.2.89	T.A. Smith	W.D. Russell	P.F.J. Kelly	Jebsen Management A/C
<i>Lampas</i>	12.11.91	T. Gordon	J.J. Hudson, J.M. Bastone, A.A. Naveed	Thomas A. Verling	Shell Ship Management Ltd
<i>Lanka Amila</i>	17.2.92	D.P. Marfil	F.B. Blanco, J. Dioquino	S. Miguel	Cory Bros Shipping Ltd
<i>Lanka Asitha</i>	5.12.91	B.R. Ismael	E.V. Near, Cirilo M. Castil	E. Bobita	Cory Bros Shipping Ltd
<i>Lantau Trader</i>	12.11.91	H.R. Mogul	M.S. Babu, E.M. Pereira, J.B. Pinto	K. Desai	T & J Harrison Ltd
<i>Latia</i>	*				Shell Ship Management Ltd
<i>Lavender</i>	19.2.92	G.R. Hicks	R. Tewari, H.B. Almonte, C. Hindley	B.H. Shah	Beta Maritime Services Ltd

Selected and Supplementary Ships (contd)

NAME OF VESSEL	LAST RETURN RECEIVED	MASTER	OBSERVING OFFICERS	SENIOR RADIO OFFICER	OWNER/MANAGER
<i>Leicesterbrook</i>	7.11.89	T. K. Dawson	W. J. Trafford, P. Bayliss, C. J. Blane	P. M. Denehy	F. T. Everard & Sons Ltd
<i>Leonia</i>	13.1.92	T. J. Lant	C. Bull, A. Roderick, H. Mahmood	R. H. Smith	Shell Ship Management Ltd
<i>Lerma</i>	5.9.91	L. Staines	M. Cox, M. A. A. Munoz, R. O. Guzman		Cardiff Ship Management Ltd
<i>Leslie Gaulf</i>	14.3.90	J. D. Burr	I. D. Spence, C. S. Tinlay, M. A. Magee		Seacot Ship Trading Ltd
<i>Lima</i>	11.2.92	P. T. I. Pinches	G. P. Donnelly, K. Wyper, P. M. Bond	M. Baker	Shell Ship Management Ltd
<i>Lincoln Universal</i>	5.7.91	D. Neaves	K. A. Molloy, A. N. Mudilage, R. L. de la Cruz	B. V. Garcia	Matheson Shipping Services Ltd
<i>Lincolnshire</i>	9.12.91	C. O. Thomas	A. J. Malpass, C. A. Jackson, J. R. Parsons	C. Wade	Bibby Line Ltd
<i>Liverpool Bay</i>	3.2.92	K. Bryne	P. M. Reid, M. Rossiter, E. Esinduy	J. Tomlinson	P&O Containers Ltd
<i>Liverpool Star</i>	3.2.92	G. M. Railson	R. A. H. Bloss, D. R. J. Nixon, M. Fowler		Denholm (I.O.M.) Ltd
<i>London Express</i>	3.2.92	J. Bertin	C. D. Bailey, T. C. Swatton, J. C. Johnson	P. Vuyisteke	Hapag-Lloyd (U.K.) Agencies Ltd
<i>London Spirit</i>	14.1.92	D. S. Wyllie	R. E. Mayman, J. M. Clark, P. Albury	D. Lawrence	London & Overseas Freighters plc
<i>London Victory</i>	13.11.91	E. G. Humby	C. Hall, D. Neale, J. Green	C. Stuart	London & Overseas Freighters plc
<i>Lord Nelson</i>	5.1.91	H. Munro	R. Sneedon, M. Scott, C. MacCurdy, J. Robertson		Jubilee Sailing Trust Ltd
<i>Lord of the Isles</i>	*	K. Gunn			Caledonian MacBrayne Ltd
<i>Lough Foyle</i>	*	A. Niblock	M. R. Pickles, S. R. Wahley, M. B. Bulteel, E. J. Tyler	D. Kelly	Heyn Engineering & Shipping Services
<i>Lowland Lancer</i>	22.8.90	R. C. Osola			Lowline Ltd
<i>Loyalty</i>	*				Wallem Ship Management Ltd
<i>Lumiere</i>	3.12.91	G. J. Ward	C. N. Hallam, I. G. Travis, B. A. Hutton	N. Mathews	P&O Ship Management Ltd
<i>Luminence</i>	24.2.87	B. D. Fern	H. J. Everington, H. J. Pugh		Crescent Shipping Co. Ltd
<i>Macle</i>	14.1.92	B. K. Jha	M. B. Alam, P. Talukdar, G. T. M. Costa	C. Singh	Barber Ship Management (U.K.) Ltd
<i>Maersk Cadet</i>	2.10.91	N. Vause	M. S. Brocklesby, C. Fleming, P. A. Cunningham	D. J. Minihane	Britiship (I.O.M.) Ltd
<i>Maersk Captain</i>	27.11.91	S. Foster	R. Orange, C. A. P. Saldanha, J. A. Whelan	K. Glenn	Britiship (I.O.M.) Ltd
<i>Maersk Commander</i>	20.9.91	R. M. Banton	I. A. Goveas, C. J. Deasy, P. M. White	C. Taylor	Britiship (I.O.M.) Ltd
<i>Maersk Gannet</i>	24.2.92	C. P. Howard	D. A. Yorke, T. Sinclair	K. J. Forbes	Britiship (I.O.M.) Ltd
<i>Maersk Harrier</i>	7.3.90	G. Daykin	A. Mathieson, L. E. A. Martin, A. Howard	G. Smith	Britiship (I.O.M.) Ltd
<i>Maersk Jupiter</i>	3.7.91	N. A. J. Lowe	W. Elliott, J. Holloway, D. M. Tee	J. Sheehan	Britiship (I.O.M.) Ltd
<i>Mairangi Bay</i>	11.2.92	B. Graham	A. M. Tweedie, M. P. Green, L. G. MacKenzie	B. G. Wilkinson	P&O Containers Ltd
<i>Mark-C</i>	15.7.88	S. Smith	M. Hawkes	F. L. Villanueva	Carisbrooke Shipping Ltd
<i>Martha 2</i>	11.2.92	F. Nelissen	P. Van Deuren, A. Dela Rosa, R. Bande Leon		ABC Container Line Ltd
<i>Matco Avon</i>	14.1.92	D. Platt	W. Russell, P. Williams, R. Hood		Mobil Shipping Co. Ltd
<i>Matco Clyde</i>	22.7.91	D. Edwards	P. R. Stephenson, A. Stratton, D. McMillan		Mobil Shipping Co. Ltd
<i>Matco Thames</i>	9.12.91	J. H. Birchenough	K. C. Trotter, J. S. Chapman		Mobil Shipping Co. Ltd
<i>Mediterranean</i>					
<i>Shearwater</i>	13.3.90	G. Bates	R. G. Flynn, G. P. Farrell, P. Hilbert	C. P. Brockbank	James Fisher & Sons plc
<i>Meltem</i>	27.11.91	B. R. Richmond	P. Kenyon, M. S. Islam, M. Z. Islam	P. Miller	C. I. Shipping Ltd
<i>Merchant Pioneer</i>	30.10.90	D. Petty	N. F. H. Printer, V. Pandey, M. A. Paala	L. Joseph	V. Ships (U.K.) Ltd
<i>Merchant Premier</i>	4.7.90	J. R. Taylor	R. Kumar, A. Chatterjee, B. Kumar	F. A. Noronha	V. Ships (U.K.) Ltd
<i>Merchant Prince</i>	22.4.91	J. R. Taylor	J. P. Singh, A. K. Bhardwaj	C. Milind	V. Ships (U.K.) Ltd
<i>Merchant Princess</i>	12.9.91	J. R. Taylor	M. Krishnamurti, R. P. Juarez, A. B. Dunam-Ag	L. Joseph	V. Ships (U.K.) Ltd

<i>Merchant Principal</i>	20.6.91	R.C. Avenin	A. Karnik, A. Kumar, D. Sereno	D. Mirajkar	V. Ships (U.K.) Ltd
<i>Merchant Promise</i>	2.3.92	R.C. Avenin	M.A. D'Mello, N.K. Agrawal, M.C. Oro	J.I. D'Souza	V. Ships (U.K.) Ltd
<i>Methane Princess</i>	27.2.90	D.C.J. Still	D. Freeman, A. Pelson	W.N. Greene	Shell Ship Management Ltd
<i>Mistral</i>	5.6.91	P. Ward	M.A. Bahar	A.L. Taylor	C.I. Shipping Ltd
<i>Mobil Marketer</i>	20.9.91	M. Cadman	C.J. Savage, S.D. Sourbutts, N.P. Dunn	J. O'Sullivan	Mobil Shipping & Transportation Co. Ltd
<i>Mobil Petrel</i>	22.8.91	P.D. Kelly	R. Hood	A.G. Turner	Mobil Shipping Co. Ltd
<i>Mobil Swift</i>	*				BT (Marine) Ltd
<i>Monarch</i>	14.3.89	R.J. Walter	G. Digby, M. Hammond, M.R. Swaffield	K. Woodley	Andrew Weir Shipping plc
<i>Monaybank</i>	15.1.92	P. Simpson	M.A. MacKenzie, G.A. Armstrong, J.W. Scott	J.C. Yates	P&O Containers Ltd
<i>Moreton Bay</i>	11.2.92	C.D. Croall	C.J. Hughes, T. Olivers, J.V. Dilley	C.B. Hardie	Blue Star Ship Management Ltd
<i>Mulbera</i>	7.11.91	J.H. Mockett	N.A. Deles, Azmi Baki	M.M. D'Souza	Blue Star Ship Management (U.K.) Ltd
<i>Nani</i>	*				Blue Star Ship Management Ltd
<i>Napier Star</i>	27.11.91	W. Jones	A. Frost, R.E. Smith, S. Moore	M. Fraser	Carisbrooke Shipping Ltd
<i>Natacha-C</i>	*	S. Smith			
<i>National</i>	*				
<i>Generation</i>					James Fisher & Sons plc
<i>Nedlloyd Tasman</i>	14.1.92	T. Wright	T.K. Whittaker, A.N. Murray, J. Clark	B. Matten	P&O Containers Ltd
<i>New Generation</i>	13.1.92	M.A. Cully	G. Sumner, H. Cassidy, D.I. Bell	D. Ogden	James Fisher & Sons plc
<i>Nickerie</i>	11.11.91	H.K.R. Sukalakar	C. Bryson, L.J. Vaz	S.C. John	Wallem Ship Management (I.O.M.) Ltd
<i>Nike</i>	17.2.92	P. Sione	W.H.R. Perera, N. Kalanesan, R. Jeyanthan	U.N. Rao	Barber Ship Management (U.K.) Ltd
<i>Nivaga II</i>	1.6.7.88	B.A. Hall	H. Iele, O. Panapa, A. Tapeva		Government of Tuvalu
<i>Norna</i>	10.12.91	B.B. Cosgrove	M.P. Donnelly, D.S.J. Craig, T. Collins		Scottish Fisheries Protection Agency
<i>Norrissa</i>	17.2.92	D. Wharton	D.I. Pegg, R. Lean, M.P. Jones	M. Collingwood	Shell Ship Management Ltd
<i>Norsea</i>	*	P. Ramsey	M. Topping, K. Appleton, P. May, D. Collins		North Sea Ferries Ltd
<i>Northella</i>	*	P. Taylor	A. Somerton, E.W. Casson		J. Marr Ltd
<i>Northern Horizon</i>	*	F. Fenwick	P. Garner, A. Fuller	A.G. Fielding	J. Marr Ltd
<i>Northia</i>	26.9.91	H. Chiappara	L.M. Cooper, D.C. Rands, H.F. Elliott	O. Silva	Shell Ship Management Ltd
<i>Ocean Express</i>	2.3.92	D.A. Church	J.L. Sagarra, J. Rodrigues, D. Cucurullo		Worms Cargo Services
<i>Ocean Goose</i>	3.8.88	L. Gustafsson			Capt. D.A. Church
<i>Ocean Link</i>	9.12.91	P. Markopolus	G. Edlund, Y. Florin	K. Karpodinis	Armac Shipping Ltd
<i>Ocean Princess</i>	*	N. Brown	G. Zacharakis, V. Ploumaris, K. Plavolkos		Ocean Cruise Lines (U.K.) Ltd
<i>Ocean Surveyor</i>	*				Cable & Wireless (Marine) Ltd
<i>Oil Hustler</i>	*				Ocean Incheape Ltd
<i>Olive Bank</i>	*				Andrew Weir Shipping plc
<i>OOCL Assurance</i>	15.1.91	T.N. O'Driscoll	I.M. Wright, C. Jackson, M.A. O'Neill	Ping Kin Lo	Agentur Für Seefracht
<i>OOCL Bravery</i>	5.12.91	P.D. Conolly	Chun Waw Tak, Tan Kim Soon, S.H. Chua	S. Shankaran	OOCL Ltd
<i>OOCL Brilliance</i>	3.2.92	Alok Kumar	R. Chittaranjan	E.S. Fletcher	OOCL Ltd
<i>OOCL Challenge</i>	6.12.91	C.E.W. Sturcke	N.A. Edjah, A.M. Lee, J.L. Mitchell	Kwan Lok Yuen	OOCL Ltd
<i>OOCL Charger</i>	17.2.92	G.C. Claye	S. Lloyd, K.E. Lee		OOCL Ltd
<i>OOCL Dynasty</i>	22.11.90	P.E. Jackson	D. Slade, J.D. Elsdon, P.K. Thakur	A. Knight	Beta Maritime Services Ltd
<i>Orchid B</i>	14.3.89	L.E. Howell	G.R. Jackson, C.D. Levesley, G.T. Hill	R.B. Redhead	P&O Containers Ltd
<i>Oriental Bay</i>	2.3.92	D.F. Heaselden	J. Scarisbrick, F.X. Pereira	J.K. Bhadra	P&O Ship Management Ltd
<i>Ormond</i>	11.11.91	W.F. McCarthy	R.B. Gurney, J.G. Swindlehurst, D.R. Peel	B.C. Miller	P&O Containers Ltd
<i>Osaka Bay</i>	24.2.92	P.G.H. Stapleton	J.D. Gilbert, M.J. Kearney, K. MacDonald	D.A. Drummond	Andrew Weir Shipping plc
<i>Pacheco</i>	5.6.91	M. Stares	B.D. Miller, T. Bannister, D.L. McGill	S. Haslett	James Fisher & Sons plc
<i>Pacific Crane</i>	13.11.91	P.R. Shaw	J.A. Tollady, W. Marr		Cable & Wireless plc
<i>Pacific Guardian</i>	31.7.85				

Selected and Supplementary Ships (contd)

NAME OF VESSEL	LAST RETURN RECEIVED	MASTER	OBSERVING OFFICERS	SENIOR RADIO OFFICER	OWNER/MANAGER
<i>Pacific Horizon</i>	*	S. Morrell	G. Nowell, R. Boughen	T. McMahon	J. Marr Ltd
<i>Pacific Pintail</i>	4.2.92	D. Maier	G. Farrell, B. Elston, T.I. Dixon	G. Swainbank	James Fisher & Sons plc
<i>Pacific Sandpiper</i>	11.2.92	G. Dodsworth	J. Goddard, J.B. Appleby, D.R. Hedley	A.P. Austen	James Fisher & Sons plc
<i>Pacific Swan</i>	13.1.92	K.N. Young	A.J. Howlett, T.C. Riley, N.S. Patterson	A.R. Watt	James Fisher & Sons plc
<i>Pacific Teal</i>	14.8.91	G. Bates	A. Morley, P.A. Ellis, T.I. Dixon	N.M. Balachandran	Matheson Shipping Services Ltd
<i>Pacific Universal</i>	11.2.92	R.G. Ash	V. Swan, S.S. Fernando, E.A. Isla	W.H. Coventry	P&O Containers Ltd
<i>Paliser Bay</i>	24.2.92	B.V. Chipperfield	W.J. Stoker, M.P. Morrison, D.L. Dodsworth	K. Kyriakos	Sanders Stevens & Co. Ltd
<i>Paquita</i>	28.3.88	I. Lawson	P. Crowle	S.R. Cloutte	Wallem Ship Management (I.O.M.) Ltd
<i>Pegasus</i>	20.6.86	K. Anastasios	K. George	D.A.C. MacRae	P&O Containers Ltd
<i>Peninsular Bay</i>	15.1.92	K.J. Owen	R.J. McLary, N.E. Gardiner	E. Scott	Wallem Ship Management (I.O.M.) Ltd
<i>Perseus</i>	*	T.D. Faithful	P.M. Crowe, W. Mather, M.H. Jorgensen	L. Andersen	Coe-Metcalf Shipping Ltd
<i>Pholas</i>	9.9.91	N. Morrison	W. Tullock, A.B. Welch	P. Mathews	Northern Lighthouse Board
<i>Pole Star</i>	3.1.79	C.E. Walford	R.L. Hellier, J.W. Trickett, T. Seeman	N.D. Kulkarni	P&O Ferries Ltd
<i>Pride of Cherbourg</i>	27.9.90	C.E. Banks	D.C. Ray, J.M. Webster, D. George	D. Brooks	P&O European Ferries (Portsmouth) Ltd
<i>Pride of Hampshire</i>	11.2.92	D.J. Pearce	A.J. Gorringe, R.J. Ross, D.C. Ray	J.D. Crasto	P&O European Ferries Ltd
<i>Pride of Le Havre</i>	14.11.91	D.E. Beresford	M. Bray, J.W. Trickett, D.L. Pereira	A. Dunn	P&O European Ferries (Portsmouth) Ltd
<i>Pride of Winchester</i>	11.2.92	M. Paulein	I. Olsen, T. Nielsen, M. Kundun	—, Forondo	Cunard S.S. Co. Ltd
<i>Prince of Scandinavia</i>	*	H.J. Morrell	M. Pountain, R.C. Turner, M. Maines	H.G. Pask	Cunard Ellerman Shipping Services Dept
<i>Profiler</i>	5.1.89	D. Tracey	P.A. Neville, D.R. Hilton, W.M. Axon	Z. Pereza	Jebens Ship Management Ltd
<i>Providence Bay</i>	13.1.91	R. Forsyth	R.J. Smith, R. Krishnan, L.J. Rodrigues	—, Gandhi	Ropner Shipping Services Ltd
<i>Puerto Cortes</i>	9.10.90	I.G.R. Griffith	D.S. Holme, K.N. Metcalfe, D.W. Eccles	C. Godinho	Sembawang Shipping Co. (Pte) Ltd
<i>Puma</i>	18.7.90	N.J. Adams	V.V. Andhare, W. Howell, A. Moses	M.J. McKenny	Egon Oldendorff (H.K.) Ltd
<i>Pythley</i>	19.11.91	R.A. Woodall	G. Ellis, P.D. Thompson	P.K. Basu	P&O Containers Ltd
<i>Queen Elizabeth 2</i>	14.11.91	B.W. Nuttall	A.A. Ledesma	P.I. Pegg	Ocean Transportation S.A.
<i>Queensland Star</i>	12.11.91	A. Falconer	P.R. Hunt, D. Cowell, T. Nyunt	D. Steel	Gardline Shipping Ltd
<i>Rafnes</i>	23.7.91	K. Milburn	R. Dakic, C. Parton, H.G. Hanna	F.J. Forde	P&O Containers Ltd
<i>Ravenscraig</i>	13.1.92	M.S. Polson	A. Hamzah	D. MacNeil	Thorstone Ship Management Ltd
<i>Reefers Jambou</i>	12.9.91	K.D. Tamm	K. Dey, B. Soares, M. Teodoro	W.J. Smith	P&O Ship Management Ltd
<i>Regina Oldendorff</i>	11.7.91	A.J. Fee	C.K. Urwin, P.M. Beggs, A.B. Millar		
<i>Remuera Bay</i>	12.12.91	C.M. Satapathy	M.K. Patel, P.D. Nair, L.C. Rodrigues		
<i>Repulse Bay</i>	14.4.88	L.M. Wigmore	J.W. Renson, A.J. Rawlinson		
<i>Resolution Bay</i>	21.5.87	R.T. Wood	A.M. Leech, R.K. Harding, A.J. Bell		
<i>Retriever</i>	24.5.83	A. Venables	P.M. Swan, R.C. Phillips, J. Creagh		
<i>Risnes</i>	12.9.91	R.O.C. Smith	T. Nyunt		
<i>Rocknes</i>	18.5.88	A. Falconer	D. Cowell, C.S. Tinlay, J. Chapman		
<i>Royal Princess</i>	25.2.85	J.R. Young	N.P. Jenkins, J.A. Smith, J.A. Croft		
<i>SC Lancer</i>	13.2.90	R. Shaw			Benmarine Ltd

<i>Sagacity</i>	23.11.84	W.M. Shireff	H.R. Beisly, R. Volante	R.J. Nummey	F.T. Everard & Sons Ltd
<i>St Clair</i>	11.12.91	J.C. Cowie	H. Mouat, D.J. Wheeler, J. MacAulay	R.A. Wilson	P&O Scottish Ferries
<i>St Helena</i>	3.2.92	R.H. Wyatt	R.N. Hone, R.I.J. Young, J.F. Harrison	S.V. Deshpande	Curnow Shipping Ltd
<i>San Lorenzo</i>	24.2.92	H.A. Ross	Z.L. Hasan	J. Malaki	Barber Ship Management (U.K.) Ltd
<i>Santa Marta</i>	7.9.89	D.S. Ritchie	N. Pimentel, C.R. Tingy, C.B. Montenegro	A. Beskrovnyy	Denholm Ship Management Ltd
<i>Santos Express</i>	31.7.91	N. Shum	V. Lakhnash, A. Chepets, E. Chubakov	C. Crook	V. Ships (U.K.) Ltd
<i>Santos Star</i>	7.6.89	C. Bufton	S.W. Turner, J.S. Chapman	J. Mitten	Blue Star Ship Management Ltd
<i>Satlucket</i>	8.3.91	C. Thomas	K.M. Chester, A.A. Shaik, R.I. Guzman	D.W. Fletcher	Mobil Shipping Co. Ltd
<i>Scirocco Universal</i>	11.11.91	J.C. Smith	J.E. Bannister, W.H. Laws, D. Dixon	J. Steven	C.I. Shipping Ltd
<i>Scotia</i>	3.3.82	G.M. Coull	S. Ross, M. Ellis, D.P. Andrew	G. Randall	Scottish Fisheries Protection Agency
<i>Scottish Star</i>	11.2.92	P. Holtby	S.J.G. Rowe	S.J. Pegg	Blue Star Ship Management Ltd
<i>Sea Falcon</i>	*	I. Tomkins	K. Scott, J.A. Foster	C. Thompson	C.M.B. (U.K.) Ltd
<i>Sea Princess</i>	11.2.92	I.W. Crane	R. Crawford, A.F. Vincent, A.G. Maclean	G.L. Smeaton	P&O Lines Ltd
<i>Sea Searcher</i>	3.11.89	J. Gillies	D.J. MacLellan, F.W. Wilson, D.J. Massey	W. Carr	Gardline Shipping Ltd
<i>Seaboard Illustrous</i>	6.11.84	J.R. Brooks	J.C. Coull, J.A. MacKinnon, R.M. Maclean		Seaboard Offshore Ltd
<i>Seaboard Implacable</i>	24.4.87	P.J. Cooper	I. Galenby, M. Walsh		Seaboard Offshore Ltd
<i>Seaboard Invincible</i>	15.1.92	A. Morrice	R. Cox, G. MacLeod, R. Gibson		Sealion Ltd
<i>Sealion Columbia</i>	*	D. Tobin	G.C. Harwood, E.K. Andoh-Wilson, B. Lyall		BP Shipping (SWOPS)
<i>Sellelean</i>	2.3.92	T.L. Jeffrey			F.T. Everard & Sons Ltd
<i>Selectivity</i>	18.2.92	J. Dobeson			Brown & Root Ltd
<i>Semac I</i>	28.8.80				F.T. Everard & Sons Ltd
<i>Seniority</i>	*				Jardine Ship Management Ltd
<i>Shabonee</i>	*				Shell (U.K.) Ltd
<i>Shell Explorer</i>	22.1.91	P. Johnson	M.J.G. Garner, J. Ashby, M. Dale		Zapata International Services Ltd
<i>Shelland Service</i>	15.1.92	A.J. Clarke	D.E. Grief, G. Code		Cable & Wireless plc
<i>Sir Eric Sharp</i>	2.4.90	A.A. Porter	M.A. Farn, P.M. Swan, A. Rudge	D. Steel	Frigomaris Shipping (GMBH)
<i>Snow Crystal</i>	5.12.91	B. Yelland	D.F. Paca, F.N. Cabaylo	R. Banzon	Frigomaris Shipping (GMBH)
<i>Snow Drift</i>	11.9.91	G.W. Weaver	S.J. Hyams, E.S. Sabalbaro, D.C. Oracles	F.P. Enopio	Frigomaris Shipping (GMBH)
<i>Snow Flower</i>	11.11.91	M. Baker	G.A. Camano, E.L. Francia, G.A.W. Fink	G. Barbosa	F.T. Everard & Sons Ltd
<i>Sociality</i>	5.8.88	T.L. Hooper	A.W.R. Gibbons, B.A. McInally	B. Neary	Blue Star Ship Management Ltd
<i>Southland Star</i>	21.2.91	D. Craddock	A. Frost, K. Subramaniam, D. Tokalau		F.T. Everard & Sons Ltd
<i>Speciality</i>	13.6.89	R.G. Davis	M.W.J. Cossar, P.F. Bayliss		F.T. Everard & Sons Ltd
<i>Stability</i>	2.4.90	A.J.A. Richards	J. Cameron, C.P. Brabban	G.J. Simpson	Bibby Line Ltd
<i>Staffordshire</i>	28.11.91	R.A.F. Edwards	R. Hodgson, G.D. Dockerty, S.J. Palmer	J.M. Cardoz	Univan Ship Management Ltd
<i>Star Jasmine</i>	*	R.V. Crasto	A.K. Soe, K.S. Aulakh, M.A. Saedera		Texaco Overseas Tankships Ltd
<i>Star Pembroke</i>	*				Texaco Overseas Tankships Ltd
<i>Star Westminster</i>	13.11.91	R. Arkless	J.M. Reid	A. Critchley	Stena Sealink (U.K.) Ltd
<i>Star Windsor</i>	17.8.89	H.D. East	P.R. Hughes, G.R. Snow, E.C. Neal	N. Samuel	Stena Sealink (U.K.) Ltd
<i>Star Britannica</i>	*			R. Jenkins	Stena Sealink (U.K.) Ltd
<i>Stena Felicity</i>	18.9.91	C.C. Burge	P.A. Potter, R.A. Cotton, G.L. Crawford		Stena Offshore Ltd
<i>Stena Normandy</i>	11.2.92	R. Forsyth	A.J. Burt, M.G. Dexter, J.E. Birdsall		Stolt Nielsen (U.K.)
<i>Stena Seawell</i>	27.9.88	M.A. Whittle	S.G. Beadle, M.V. Dolan, A.F. Ure		Stolt Nielsen (U.K.)
<i>Stolt Birchwood</i>	7.8.88	C. Price	S.G. Beadle		Stolt Nielsen (U.K.)
<i>Stolt Cedarwood</i>	29.9.89	— Mannes	— Clemens, — Nieto, — Curano		Stolt Nielsen (U.K.)
<i>Stolt Falda</i>	*	E.R.T. Little	S. James, A. Fennymore, R.T. Watson	M.M. Fahy	Stolt Nielsen (U.K.)
<i>Stolt Oakwood</i>	26.6.89	G.P. Mandagie	C.P. Viegas, W.A. Santos, J.B. Rodrigues	B. Singh	Sea Containers Ship Management Ltd
<i>Strider Isis</i>	17.8.90				

Selected and Supplementary Ships (contd)

NAME OF VESSEL	LAST RETURN RECEIVED	MASTER	OBSERVING OFFICERS	SENIOR RADIO OFFICER	OWNER/MANAGER
<i>Strider Juno</i>	9.9.91	G.P. Mandagic	G. Mascarenhas, V. Pereira, G. Das Gupta	B.E. Policarpio	Sea Containers Ship Management Ltd
<i>Suliven</i>	6.12.91	D. Finlayson	W.A. Skivington, S. Hamill, J. Morrison	F.D. Farthing	Caledonian MacBrayne Ltd
<i>Sulisker</i>	17.2.92	D. Temple	S. Horsbrough, V.S. Chrappah, J. Ebdy	H. Pereira	Fisheries Cruiser Store
<i>Sun Suma</i>	19.2.92	P. Shankaran			United Ship Management Ltd
<i>Sunny Clipper</i>	*				M/S Grand Seatrade Shipping Agencies Ltd
<i>Swan Bay</i>	24.2.92	Bo Poxell	E. Skott, E. Hager, S. Eliason	P. Cueto	Swan Shipping A/S
<i>Swan River</i>	14.2.91	U. Agner	P. Weiland, J. Aquilar, T. Hubernadas	E. Napa	Swan Shipping A/S
<i>Swift Trader</i>	14.12.88	W.C. Service	D.T. Pingel, R.J. Taylor		International Chartering plc
<i>Table Bay</i>	18.2.92	K.H. Davie	M.D. Moore, S.R. Paine	P. Murphy	P&O Containers Ltd
<i>Tamathai</i>	1.5.91	J.W.C. Petrie	K.K. Chandani, A.P. Minocherhomji, I. Mazedul	G.A. Coutts	Seacot Ship Trading Ltd
<i>Tankerman</i>	16.7.90	R.G. Burnet	C.R. Ford, J. Whitford, H.J. Pearce	S. Kodikara	Rowbotham Tankships Ltd
<i>Tasman Universal</i>	13.11.91	J.B. Woomble	D.D. McFarlane, E.R. Perera, D.G.J.N. Dasanayake		Matheson Shipping Services Ltd
<i>Taunton</i>	*	A. Smart	M.W. Bingham	I.J. Cameron	P&O Ship Management Ltd
<i>Telnes</i>	5.2.92				Chelston Ship Management Ltd
<i>Thoraaas</i>	*				Wallem Ship Management Ltd
<i>Toisa Conqueror</i>	*	T.R. Blackman	M. Fleming, W. Jones		Sealion Shipping Ltd
<i>Toisa Lynx</i>	23.7.91				Sealion Shipping Ltd
<i>Toisa Puffin</i>	*				Sealion Shipping Ltd
<i>Toisa Puma</i>	24.2.92	C.R. Ungood-Thomas	A.J. Rawlinson, F. Brearley, K. Jarvis		Sealion Shipping Ltd
<i>Toisa Sentinel</i>	11.2.92	W.S. Spence	F. Ahmed, P. Nicholas, J.S. Martinez	M.D. Pike	Sealion Shipping Ltd
<i>Toisa Widgon</i>	*				Sealion Shipping Ltd
<i>Tokyo Bay</i>	11.2.92	M.J. Godbehear	I. Norris, K. Campbell, C. Henderson	R.E. Goring	P&O Containers Ltd
<i>Tor Bay</i>	11.11.91	M. Watts	S. Barracough, D.J. Vickery, A. Montgomery	G. Suillion	P&O Containers Ltd
<i>Tribulus</i>	14.8.91	D.J. Conway	W.M.M. Mages, S. Magsood, A.E. Darlington	P. Sharp	Shell Ship Management Ltd
<i>Tricula</i>	15.4.91	C.G. Pogue	A. Murphy, J.W. Dickie, G. Harrison	T.D. Walton	Shell Ship Management Ltd
<i>Trinidad and Tobago</i> ..	19.11.91	H.M. Thompson	C.J. O'Brien, P. Collings, S.M. Teyes	A. Stuart	Bibby Line Ltd
<i>Ulan</i>	19.9.90	P. Manilal	V.K. Sood, K.P. Mendonsa, D.P.H.C. Dias	A. Nicholas	Barber Ship Management (U.K.) Ltd
<i>Ullswater</i>	3.2.92	B.J. Kirtley	J.B. Parsons, R. Kumar	S. Chanda	P&O Ship Management Ltd
<i>Valdivia</i>	24.2.92	R.L. Prestly	G.C. Hamilton, O. Daniloff, D. Lucas	B. Neary	Harrisons (Clyde) Ltd
<i>Vigilant</i>	14.11.91	D.L. Rattray	J.P. Laycock, A. MacCallum, R.J. Sheldon		Scottish Fisheries Protection Agency
<i>Ville de Canopus</i>	11.12.91	J. Le Chat			Antwerp Technical Services
<i>Ville de Sirius</i>	5.2.92	J. Bernimolin	P. Malfait, D. Laurent, P.K. Kanza	P. Van Damme	Antwerp Technical Services
<i>Vine</i>	28.2.92	G. Nicholls	N. Brahnar, H. Narvekar, N.B. Solanki	D.T. Pestonji	P&O Ship Management Ltd
<i>Washington</i>	12.10.89	W.G. McNaughton	P.I.E. Quance, M.S. Ahmad	A. Lloyd	Stephenson Clarke Shipping Ltd
<i>Wellington Star</i>	11.2.92	P.W. Hutchinson	P. Sellers, O. Tati, R. Moore	E. Cass	Blue Star Ship Management Ltd
<i>West Moor</i>	14.1.92	J.M. Campbell	N.C. Horner, I.J. Murillo		Jeppesen Heaton Ltd
<i>Western Bridge</i>	9.1.92	S. Honey	L.P. Bridges, R. Malnar	S.M. Jones	Ropner Shipping Services Ltd
<i>Westra</i>	12.9.91	A. Brown	C. Bathgate, J.P. Laycock, J. Ebdy		Scottish Fisheries Protection Agency

<i>Wheelsman</i>	17.11.86	P.J. Jameson	J. Whitford	A.F. Clifford	Rowbotham Tankships Ltd
<i>Wiltshire</i>	27.11.91	L.H. Marsh	G.W. Williams, I.D. Handford, S.J. Palmer	B.J. Foley	Bibby Line Ltd
<i>World Spear</i>	12.9.91	D.N. White	G. Vijayan, S.M. Ali, Y.S. Basson	D.S. Wala-walker	Marine Nav. Co. Ltd
<i>Zenatia</i>	3.4.89	F. Hugo	R.J. Payne, A.D. Watson, R.D.S. Arthur	A.R. Tomkins	Shell Ship Management Ltd
<i>Zeland</i>	13.12.91	M.A. Hill	C.J. Davies, K. Govindarajan, A.R. Dingankar	B. Ravindran	P&O Ship Management Ltd
<i>Zidona</i>	8.11.91	J. Brown	P.J. Curtis, D. Copeland, I.C. Brown	M.A. Kadir	Shell Ship Management Ltd

‘Marid’ Ships

The following is a list of ships recruited for the observing and reporting of sea temperatures from the coastal waters of Great Britain.
Masters are requested to point out any errors or omissions from the lists.

NAME OF VESSEL	MASTER	OWNERS/ MANAGER
Arco Thames	J. Owens	A.R.C. (Marine) Ltd
Ashington	W. Venning	Stephenson Clarke Shipping Ltd
Authenticity	J. McKay	F.T. Everard & Sons Ltd
B. P. Joustier	R. Wait	BP Oil Ltd
B. P. Warrior	F. Watts	BP Oil Ltd
Beckenham	A. Rees	Crescent Shipping Ltd
Briarthorn	S.W. Wright	Coe-Metcalf Shipping Ltd
Bude	R. Hart	Crescent Shipping Ltd
City of Bristol	R. Hemmings	United Marine Dredgers Ltd
Eastgate	C.M. Tate	Rowbotham Tankships Ltd
Emerald	B.L. Reed	Stephenson Clarke Shipping Ltd
Esso Avon	A.I.D. Preece	Esso Petroleum Co. Ltd
Esso Clyde	C.C. Jorgensen	Esso Petroleum Co. Ltd
Esso Fawley	T.J. Lowe	Esso Petroleum Co. Ltd
Esso Mersey	D. Bryan	Esso Petroleum Co. Ltd
Esso Milford Haven	D.W. Ling	Esso Petroleum Co. Ltd
Esso Tenby	N. Powell	Esso Petroleum Co. Ltd
Frederick-M	K. Pigin	Coe-Metcalf Shipping Ltd
Gladonia	E.W. Evans	Runwave Ltd
Guidesman	J.A. Souter	Rowbotham Tankships Ltd
Harting	J.M. McCuaig	Stephenson Clarke Shipping Ltd
Helmsman	J. Marsden	Rowbotham Tankships Ltd
Irishgate	T. Firth	Rowbotham Tankships Ltd
Jubilence	K.D. Kordt	Crescent Shipping Ltd
Malling	C. Tomey	Stephenson Clarke Shipping Ltd
Militence	A. Affleck	Crescent Shipping Ltd
Norman Commodore	P.G. Fry	Commodore Shipping Ltd
Northgate	B. Wilson	Rowbotham Tankships Ltd
Oilman	B. Hall	Rowbotham Tankships Ltd
Orionman	F.C. Craske	Rowbotham Tankships Ltd
Pamela Everard	G. Lewis	F.T. Everard & Sons Ltd
River Trader	A.J. Richards	F.T. Everard & Sons Ltd
Rora Head	J.A. Pretswell	Jebsens Ship Management Ltd
Shell Craftsman	G. Wright	Shell (U.K.) Ltd
Stena Hibernia	J.F. Sinnott	Sealink Stena Line
Stolt Hacienda	J. Frisby	Stolt Neilsen
Stolt Predera	R.R. Black	Stolt Neilsen
Storrington	W. McNaughton	Stephenson Clarke Shipping Ltd
Tillerman	I. Storie	Rowbotham Tankships Ltd
Vibrence	J.G. Setterfield	Crescent Shipping Ltd
Waverley	S. Michel	Waverley Excursions Ltd
Welsh Piper	D.W. Brown	British Dredging Aggregates Ltd
Westgate	B. Oad	Rowbotham Tankships Ltd

Light-tower

NAME	MASTER
Royal Sovereign	V. Pearce, B. Harris

Oil Rigs and Platforms

NAME OF RIG OR PLATFORM	OWNERS/ OPERATORS
<i>AH001</i>	Amerada Hess Ltd
<i>Benreoch</i>	Atlantic Drilling Co. Ltd
<i>Benvrackie</i>	Atlantic Drilling Co. Ltd
<i>Beryl B</i>	Mobil North Sea Ltd
<i>Buchan A</i>	BP Petroleum Development Ltd
<i>Clyde A</i>	BP Petroleum Development Ltd
<i>Dan Baroness</i>	Lauritzen Offshore
<i>Dan Countess</i>	Midland & Scottish Resources
<i>Deep Sea Pioneer</i>	Hamilton Brothers Oil & Gas Ltd
<i>Dunlin A</i>	Shell Exploration & Production Ltd
<i>Emerald Producer</i>	Midland & Scottish Resources
<i>F.G. McClintock</i>	Reading & Bates Ltd
<i>Glomar Arctic 3</i>	Global Marine Drilling Co. Ltd
<i>Heather A</i>	Unocal (U.K.) Ltd
<i>Henry Goodrich</i>	Sonat Offshore Ltd
<i>John Shaw</i>	Sonat Offshore Ltd
<i>Leman Bank 49/27</i>	Amoco (U.K.) Exploration Co. Ltd
<i>Montrose A</i>	Amoco (U.K.) Exploration Ltd
<i>Morecambe Bay</i>	Gas Council (Exploration) Ltd
<i>Ocean Alliance</i>	Ben-Odeco Ltd
<i>Ocean Benloyal</i>	Atlantic Drilling Co. Ltd
<i>Santa Fe 135</i>	Santa Fe (U.K.) Ltd
<i>Santa Fe 140</i>	Santa Fe (U.K.) Ltd
<i>Sea Explorer</i>	Global Marine Drilling Co. Ltd
<i>Sedco 706</i>	Sedco-Forex
<i>Sedneth 701</i>	Sedco-Forex
<i>Sonat Arcade Frontier</i>	Sonat Offshore Ltd
<i>Sonat DF 96</i>	Sonat Offshore Ltd
<i>Sonat DF 97</i>	Sonat Offshore Ltd
<i>Sonat Rather</i>	Sonat Offshore Ltd
<i>Tartan A</i>	Texaco North Sea (U.K.) Co. Ltd
<i>Thistle A</i>	BP Petroleum Development Ltd
<i>Viking B</i>	Conoco (U.K.) Ltd
<i>Western Pacesetter IV</i>	Western Oceanic (U.K.) Ltd

INDIA (Information dated 1.1.92)

NAMES OF VESSELS

Selected Ships:

Akbar
Andamans
Arunachal Pradesh
B.R. Ambedkar
Bharatendu
Bhavbhuti
Harshavardhan
Jala Jyoti
Jala Yamini
Lokmanya Tilak
Ratna Nandini
Sagar Kanya
Sagar Sampada
Samudra Manthan
State of Andhra Pradesh
State of Nagaland
Vishnu Sagar

Supplementary Ships:

A.B. Tarapore
APJ Anand
APJ Angad
APJ Anjali
APJ Priti
APJ Shahin
APJ Sushma
Aditya Usha
Alaknanda
Annapurna
Lt Arun Khetrapal PVC
Aurobindo
Bhagat Singh
Bharat Seema
Chandidas
Chennai Muyarchi
Chennai Ookkam
Chennai Perumai
Chennai Polivu
Chennai Valarchi
Chennai Veeram
Chhatrapati Shivaji
Continental Rose
Dadabhai Naoroji
Dakshineshwar
Diglipur
Dweep Setu
FONJ Shekhan PVC
Ganga Sagar
Guru Bachhan Singh Salaria
Hardwar
Harkishan
Har Govind
Har Rai
Havildar Abdul Hamid

Supplementary Ships (contd)

Homi Bhabha
Indian Endurance
Indian Explorer
Indian Goodwill
Indian Progress
Indian Prosperity
Indian Reliance
Indian Resolve
Indian Resource
Indian Renown
Indian Valour
INS Deepak
INS Godavari
INS Gomati
INS Kirpan
INS Ranvir
INS Trishul
INS Vikrant
INS Vindygiri
Jag Dhir
Jag Jeevan
Jag Manek
Jag Pari
Jag Prabhat
Jag Prakash
Jag Preeti
Jag Skakti
Jag Shanti
Jag Vijay
Jag Vivek
Jagat Samrat
Jagat Swamini/ Priyamvada
Jagat Vijeta
Jala Bala
Jala Gauri
Jala Godavari
Jala Mohan
Jala Mokambi
Jala Mudra
Jala Murugan
Jala Tapi
Jala Vallabh
Jala Vijaya
Jameela
Jay Laxmi
Jay Narayan Vyas
Kabirdas
Kalidas
Kanchan Junga
Kanpur
Kolandia
Lance Naik Albert Ekka
Lok Maheshwari
Lok Prakash

Supplementary Ships (contd)

Lok Pratima
Lok Preeti
Lok Rajeshwari
Lok Vikas
Lok Vinay
Lok Vivek
MMP Wealth
Maharshi Dayanand
Maharshi Karve
Major Dhansingh Thapa PVC
Mandakini
Maratha Elegance
Maratha Melody
Maratha Prudence
Meghrab
Mizoram
Motilal Nehru
Murshidabad
Naik Jadunath Singh PVC
Nand Hari
Nand Kala
Nand Kavita
Nand Kishore
Nand Nidhi
Nand Rati
Nand Srishti
Nanga Parbat
Netaji Subhash Bose
Nirvan Vishnu
Nitya Amar
Onge
Patliputra
Prabhu Das
Prabhu Daya
Prabhu Gopal
Prabhu Puni
Prabhu Satram
Rafi Ahmed Kidwai
Rama Raghoba Rane
Ramdas
Ratna Vandana
Ravidas
Sagar Deep
Sagar Samrat
Sai Nanak
Samarat Ashok
Sarojini Naidu
Satya Murti
Skandy Surveyor
State of Gujarat
State of Haryana
State of Manipur
State of Orissa
Subhedar Joginder Singh

India (contd)

NAMES OF VESSELS		
Supplementary Ships (contd)	Supplementary Ships (contd)	Supplementary Ships (contd)
<i>Tulsidas</i>	<i>Vishva Madhuri</i>	<i>Vishva Shobha</i>
<i>Uttar Kashi</i>	<i>Vishva Mamta</i>	<i>Vishva Siddhi</i>
<i>Varanasi</i>	<i>Vishva Mohini</i>	<i>Vishva Tarang</i>
<i>Varuna Adhar</i>	<i>Vishva Nandini</i>	<i>Vishva Umang</i>
<i>Vishva Abha</i>	<i>Vishva Pallav</i>	<i>Vishva Vikram</i>
<i>Vishva Ajay</i>	<i>Vishva Pankaj</i>	<i>Vishva Yash</i>
<i>Vishva Ambar</i>	<i>Vishva Parag</i>	<i>Vishwesharayya</i>
<i>Vishva Asha</i>	<i>Vishva Parijat</i>	<i>Vivekananda</i>
<i>Vishva Bandhan</i>	<i>Vishva Parimal</i>	<i>Yerawa</i>
<i>Vishva Karuna</i>	<i>Vishva Shakti</i>	<i>Zakir Hussain</i>
<i>Vishva Kaumudi</i>		

Auxiliary Ships:

India also has a fleet of 35 Auxiliary Ships currently reporting.

NEW ZEALAND (Information dated 1.2.92)

NAMES OF VESSELS		
Selected Ships:	Selected Ships (contd)	Selected Ships (contd)
<i>America Star</i>	<i>Kotuku</i>	<i>Tarahiko</i>
<i>Amokura</i>	<i>Kuaka</i>	<i>Tasman Enterprise</i>
<i>Auckland Express</i>	<i>Mandama</i>	<i>Tasman Venture</i>
<i>California Star</i>	<i>Melbourne Star</i>	<i>Tui Cakau III</i>
<i>Canterbury Express</i>	<i>New Zealand Pacific</i>	<i>Union Auckland</i>
<i>Capitaine Tasman</i>	<i>Northern Transporter</i>	<i>Union Rotoiti</i>
<i>Chitral</i>	<i>Pacific Ariki</i>	<i>Union Rotoma</i>
<i>Cotswold Prince</i>	<i>Rapuhia</i>	<i>Union Rotorua</i>
<i>Forum New Zealand II</i>	<i>Søren Larsen</i>	<i>World Spring</i>
<i>Forum Papua New Guinea</i>	<i>Spirit of Competition</i>	
<i>Forum Samoa</i>	<i>Spirit of Freedom</i>	Supplementary Ships:
<i>Golden Bay</i>	<i>Swan Tide</i>	<i>Arahanga</i>
<i>Gondwana</i>	<i>Sydney Star</i>	<i>Arahura</i>
<i>Hunte</i>	<i>Taiko</i>	<i>Aratika</i>
<i>Kaharoa</i>	<i>Tangaroa</i>	

Auxiliary Ships:

New Zealand has a fleet of 13 Auxiliary Ships currently reporting.



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