

Date 1 DEC 66 Ship USS Greenville Hall (YAG-40) Cruise No. _____

Organization POBSP Recorder _____

Sunrise: Time _____ Position: Lat. _____, Long. _____

Sunset: Time 1810 Position: Lat. 20-51N, Long. 158-41W

Miles travelled from 0000 hours to sunrise = _____

Miles travelled from sunrise to sunset = 52.5

Miles travelled from sunset to 2400 hours = 57.0

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE	
1.	1605	VISUAL	20-57N	158-25W	11.6
2.	2000	LORAN	20-46N	158-57W	
3.					
4.					
5.					

Hourly Positions:

Time Latitude Longitude Wind Dir. Wind Sp. Wave Dir. Wave Hgt.

0100						
0200						
0300						
0400						
0500						
0600						
0700						
0800						
0900						
1000						
1100						
1200	21-16	157-56				
1300	18	158-02				
1400	06	18				
1500	10	17				
1600	20-57N	158-24W				
1700	34	12				
1800	37	10				
1900	41	09				
2000	20-46N	158-52W				
2100	43	159-02				
2200	38	12				
2300	36	12				
2400	20-32	159-27				

} 7.3
} 11.6 knots
} 20.85

Date 02 DEC 66 Ship (YAG 40) Cruise No. _____

Organization POBSP Recorder _____

Sunrise: Time 0700 Position: Lat. 20-06.5N, Long. 160-51W

Sunset: Time 1807 Position: Lat. 19-43.5N, Long. 162-02W

Miles travelled from 0000 hours to sunrise = 73.0

Miles travelled from sunrise to sunset = 71.0

Miles travelled from sunset to 2400 hours = 60

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.	0624	CELESTIAL	20-08.5N	160-45W
2.	1140	LORAN	19-52.5N	161-25W
3.	1605	LORAN	19-43.5N	161-53W
4.	1825	LORAN	19-42N	162-07W
5.	1930	LORAN	19-38.5N	162-18W

Hourly Positions:

Exp. (07)

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
	20-32	159-37				
0100	-28	49				
0200	-25	59				
0300	-21	10				
0400	-18	20				
0500	-14	31				
0600	-10	41				
0700	-07	52				
0800	20-03	161-01				10.8
0900	19-53	11				10.8 (10)
1000	19-58	14				0 (10) 7.5
1100	19-55	21				0 (10) 5.5
1200	19-51	28				2.1
1300	19-47	35				10.8
1400	19-43	42				10.8
1500	19-39	49				0
1600	19-44	53				8.5
1700	19-42	58				6.4 (10)
1800	19-41	03				0 (10)
1900	19-39	11				9.2
2000	19-37	162-22				11.2
2100	19-34	31				7.5
2200	19-31	40				9.5
2300	19-27	49				9.8
2400	19-25	57				9.0

11.1 knots

Date 03 DEC 1966 Ship (YAG 40) Cruise No. _____

Organization POBS P Recorder _____

Sunrise: Time 0714 Position: Lat. 18-53N, Long. 164-16.5W

Sunset: Time 1823 Position: Lat. 18-11, Long. 165-44

Miles travelled from 0000 hours to sunrise = 77.0

Miles travelled from sunrise to sunset = 96.0

Miles travelled from sunset to 2400 hours = 50.5

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.	0646	CELESTIAL	18-55N	164-12W
2.	1127	LORAN	18-42N	164-54W
3.	1509	LORAN	18-27N	165-18W
4.	1805	LORAN	18-12N	165-42W
5.	1935	LORAN	18-06N	165-54W

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100	19	163-07				
0200	15	17				
0300	11	28				
0400	07	39				
0500	03	50				
0600	58	01				
0700	54	12				
0800	18-50	164-24				
0900	48	-33				
1000	45	-42				
1100	43	-51				
1200	18-40	164-57				
1300	18-35	165-07				
1400	18-30	165-15				
1500	26	22				
1600	21	29				
1700	17	36				
1800	12	43				
1900	08	50				
2000	18-04	165-58				
2100	09	165-00				
2200	13	14				
2300	18	22				
2400	18-22	165-01				

11.6

9.1

9.4

8.4

7.4

Date 04 DEC 1966 Ship (YAG-40) Cruise No. _____

Organization POBSP Recorder _____

Sunrise: Time 0659 Position: Lat. 18-51.5N, Long. 167-40.5W

Sunset: Time 1836 Position: Lat. 19-55N, Long. 168-50W

Miles travelled from 0000 hours to sunrise = 107.5

Miles travelled from sunrise to sunset = 96.5

Miles travelled from sunset to 2400 hours = 51.0

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.	0743	LORAN	18-55N	167-40W
2.	1127	LORAN	19-18N	168-08W
3.	1842	LORAN	19-57N	168-52W
4.	2142	LORAN	19-49N	169-19W
5.				

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100	26	39				
0200	18-30	167-42				
0300	54	57				
0400	18-37	167-56				
0500	41	14				
0600	18-46	167-22				
0700	51	33				
0800	18-56	167-43				
0900	19-02	50				
1000	19-09	58				
1100	-16	168-55				
1200	19-22	168-12				
1300	28	18				
1400	34	24				
1500	45	30				
1600	17-46	169-37				
1700	19-52	168-43				
1800	19-55	168-47				
1900	19-58	168-52				
2000	55	169-02				
2100	51	17				
2200	48	21				
2300	44	31				
2400	19-47	169-47				

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10 knots
9.9
8.1
20/10
25/7
10 (6)

Date 05 DEC 1966 Ship (T-40) Cruise No. _____

Organization POB Recorder _____

Sunrise: Time 0742 Position: Lat. 19-13.5N Long. 171-00W

Sunset: Time 1848 Position: Lat. 18-24N, Long. 171-22W

Miles travelled from 0000 hours to sunrise = 82.0

Miles travelled from sunrise to sunset = 107.0

Miles travelled from sunset to 2400 hours = 40.0

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.	0712	CELESTIAL	19-12.5N	171-04W
2.	1140	LORAN	18-56N	171-38W
3.	1900	LORAN	18-22N	171-20W
4.	2338	LORAN	17-57N	170-52W
5.				

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100	19-57	171-50				
0200	19-54	171-00				
0300	19-50	171-12				
0400	19-47	171-20				
0500	19-43	171-31				
0600	19-39	171-42				
0700	19-36	171-53				
0800	19-32	171-04				
0900	19-27	171-13				
1000	19-23	171-22				
1100	18-58	171-32				
1200	18-54	171-42				
1300	18-51	171-52				
1400	18-46	172-02				
1500	18-45	171-52				
1600	18-42	171-42				
1700	18-38	171-40				
1800	18-37	171-30				
1900	18-22	171-20				
2000	18-17	171-12				
2100	18-12	171-05				
2200	18-02	170-58				
2300	17-51	170-50				
2400	17-57	170-52				

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171 39

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Date 06 DEC 1966 Ship (2040) Cruise No. _____

Organization POBSP Recorder _____

Sunrise: Time 0736 Position: Lat. 18-21N, Long. 169-33W

Sunset: Time 1841 Position: Lat. 17-30N, Long. 168-11W

Miles travelled from 0000 hours to sunrise = 81.5

Miles travelled from sunrise to sunset = 108.0

Miles travelled from sunset to 2400 hours = 54.5

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.	0707	CELESTIAL	18-21N	169-42.5W
2.	1137	LORAN	18-14N	168-56W
3.	1908	CELESTIAL	17-26N	168-10W
4.				
5.				

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100	18-02	170-45				5.7
0200	18	170-44				7.8
0300	18	170-43				6.3
0400	18	170-42				7.8
0500	18	170-41				11.2
0600	18	169-53				11
0700	18	169-43				11
0800	18-21	169-33				11
0900	18-22	169-23				10.3
1000	18-23	169-13				10.8
1100	18-17	169-04				11.1
1200	18-12	168-57				10.5
1300	18-07	168-49				9.5
1400	18-01	168-38				9.5
1500	17-57	168-28				9.5
1600	17-47	168-18				9.5
1700	17-41	168-10				9.5
1800	17-33	168-02				9.5
1900	17-25	167-54				9.5
2000	17-17	167-46				9.5
2100	17-06	167-35				9.5
2200	16-58	167-24				9.5
2300	16-48	167-14				9.5
2400	16-39	167-04				9.5

Date 07 DEC 1966 Ship (YAG 40) Cruise No. _____

Organization POBSP Recorder _____

Sunrise: Time 0728 Position: Lat. 15-18 N, Long. 168-36 W

Sunset: Time 1905 Position: Lat. 13-38 N, Long. 169-54 W

Miles travelled from 0000 hours to sunrise = 85.5

Miles travelled from sunrise to sunset = 123.0

Miles travelled from sunset to 2400 hours = 58.0

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.	0711	CELESTIAL	15-21 N	168-35 W
2.	1307	R. CELESTIAL	14-25 N	169-12 W
3.	2000	D.R.	13-28 N	170-03 W
4.				
5.				

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100	15-27	168-07				
0200	15-28	168-16				
0300	15-28	168-21				
0400	15-27	168-26				
0500	15-27	168-31				
0600	15-27	168-35				
0700	15-26	168-40				
0800	15-16	168-45				
0900	15-05	168-47				
1000	14-25	168-54				
1100	14-15	169-02				
1200	14-24	169-03				
1300	14-28	169-08				
1400	14-22	169-15				
1500	14-16	169-21				
1600	14-10	169-26				
1700	14-03	169-32				
1800	13-56	169-38				
1900	13-44	169-41				
2000	13-42	169-58				
2100	13-35	170-05				
2200	13-28	170-12				
2300	13-21	170-19				
2400	13-16	170-26				

Phyol. 4e ca. 12 35 ; (70+118) (^{ca.} 0200)

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Date 08 DEC 1966 Ship (14540) Cruise No. _____

Organization POBSP Recorder _____

Sunrise: Time 0735 Position: Lat. 13-03 N, Long. 171-13 W

Sunset: Time 1852 Position: Lat. 14-10 N, Long. 170-17 W

Miles travelled from 0000 hours to sunrise = 53.0

Miles travelled from sunrise to sunset = 90.0

Miles travelled from sunset to 2400 hours = 46.0

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.	0712	CELESTIAL	12-58N	171-09W
2.	1314	R. CELESTIAL	13-32N	170-45W
3.	1923	CELESTIAL	14-15N	170-14W
4.				
5.				

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
	13-16	171-24				
0100						
0200						
0300						
0400						
0500	12-45	171-00				
0600	13	171 07				
0700	14					
0800	15-00	171-13				
0900	11	07				
1000	16	03				
1100	20	57				
1200	13-25	170-52				
1300	22	47				
1400	27	42				
1500	35	36				
1600	42	31				
1700	49	26				
1800	5-05	21				
1900	12	16				
2000	19	11				
2100	26	06				
2200	33	01				
2300	40	55				
2400	14-47	169-50				

100
100

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Date 09 DEC 1966 Ship (YAG) Cruise No. _____

Organization _____ Recorder _____

Sunrise: Time 0736 Position: Lat. 15-36N, Long. 169-58W

Sunset: Time 1912 Position: Lat. 14-25N, Long. 171-30W

Miles travelled from 0000 hours to sunrise = 66.0

Miles travelled from sunrise to sunset = 117.0

Miles travelled from sunset to 2400 hours = 50.0

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.	0800	D.R.	15-38N	170-01W
2.	1314	R. CELESTIAL	15-06N	170-40W
3.	1934	CELESTIAL	14-22N	171-32W
4.	0736	D.R.	15-36N	169-58W
5.				

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
	14-17	169-50				
0100	53	43				
0200	4	35				
0300	15-15	1				
0400	1	36				
0500		33				
0600		35				
0700		37				
0800	15-38	170-01				
0900	32	09				
1000	25	16				
1100	20	22				
1200	15-14	30				
1300	08	36				
1400	01	45				
1500	14-54	54				
1600	47	171 02				
1700	40	10				
1800	33	19				
1900	26	28				
2000	14-19	171-28				
2100	14 10	42				
2200	14 03	50				
2300	13 56	58				
2400	13-49	172-06				

Date 10 DEC 1966 Ship (18-05) Cruise No. _____

Organization _____ Recorder _____

Sunrise: Time 0745 Position: Lat. 13-50N, Long. 173-10W

Sunset: Time 1858 Position: Lat. 14-54N, Long. 172-09W

Miles travelled from 0000 hours to sunrise = 92.5

Miles travelled from sunrise to sunset = 88.0

Miles travelled from sunset to 2400 hours = 41.0

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.	<u>0718</u>	<u>DR</u> <u>CELESTIAL</u>	<u>13-46N</u>	<u>173-07W</u>
2.	<u>1323</u>	<u>R. CELESTIAL</u>	<u>14-27N</u>	<u>172-37W</u>
3.	<u>2000</u>	<u>D.R.</u>	<u>15-00N</u>	<u>172-02W</u>
4.				
5.				

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100	<u>13-49</u>	<u>172-06</u>				
0200						
0300						
0400	<u>13-23</u>	<u>172-36</u>				
0500						
0600						
0700						
0800	<u>13-23</u>	<u>173-08</u>				
0900						
1000	<u>14</u>	<u>22-26</u>				
1100						
1200	<u>14-19</u>	<u>172-44</u>				
1300						
1400						
1500						
1600						
1700						
1800						
1900						
2000	<u>15-00</u>	<u>172-02</u>				
2100						
2200						
2300						
2400	<u>15-23</u>	<u>171-38</u>				

Date 11 DEC 1966 Ship (YAG 40) Cruise No. _____

Organization _____ Recorder _____

Sunrise: Time 0741 Position: Lat. 16-09N, Long. 170-51W

Sunset: Time 1900 Position: Lat. 16-13N, Long. 171-57W

Miles travelled from 0000 hours to sunrise = 66.0

Miles travelled from sunrise to sunset = 122.0

Miles travelled from sunset to 2400 hours = 51.5

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.	<u>0720</u>	<u>CELESTIAL</u>	<u>16-07N</u>	<u>170-53W</u>
	<u>0718</u>	<u>D.R.</u>	<u>16-19</u>	<u>170-41 (BAH)</u>
2.	<u>1220</u>	<u>R. CELESTIAL</u>	<u>16-55N</u>	<u>171-04W</u>
3.	<u>1926</u>	<u>CELESTIAL</u>	<u>16-10N</u>	<u>172-00W</u>
4.	<u>2218</u>	<u>D.R.</u>	<u>15-41</u>	<u>172-32 (BAH)</u>
5.	<u>2400</u>	<u>D.R.</u>		

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100	<u>27</u>	<u>22</u>				
0200	<u>33</u>	<u>26</u>				
0300	<u>41</u>	<u>30</u>				
0400	<u>47</u>	<u>34</u>				
0500	<u>53</u>	<u>38</u>				
0600	<u>59</u>	<u>42</u>				
0700	<u>05</u>	<u>46</u>				
0800	<u>11</u>	<u>50</u>				
0900	<u>17</u>	<u>54</u>				
1000	<u>23</u>	<u>58</u>				
1100	<u>29</u>	<u>02</u>				
1200	<u>16-53</u>	<u>171 01</u>				
1300		<u>09</u>				
1400		<u>17</u>				
1500		<u>25</u>				
1600		<u>33</u>				
1700		<u>41</u>				
1800		<u>49</u>				
1900		<u>57</u>				
2000	<u>16-09</u>	<u>172-05</u>				
2100		<u>13</u>				
2200		<u>21</u>				
2300	<u>15-45</u>	<u>172-29</u>				
2400	<u>1541</u>	<u>172-32</u>				

Date 12 DEC 1966 Ship (YAC-40) Cruise No. _____

Organization _____ Recorder _____

Sunrise: Time 0750 Position: Lat. 15-04N, Long. 173-19W

Sunset: Time 1907 Position: Lat. 15-00N, Long. 174-11W

Miles travelled from 0000 hours to sunrise = 54.5

Miles travelled from sunrise to sunset = 81.0

Miles travelled from sunset to 2400 hours = 37.5

TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1. 0723	CELESTIAL	15-04N	173-18W
2. 1200	R. CELESTIAL	14-45N	173-43W
3. 1940	CELESTIAL	15-05N	174-17W
4. 0310	D.R.	15-27	172-09
5. 1340	D.R.	14-31	173-53
1715	D.R.	15-04	174-12

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100	15-11	172-32				
0200	15-28	172-30				
0300	15-35	172-40				
0400	15-29	172-47				
0500	15-27	172-45				
0600	15-21	172-56				
0700	15-14	173-08				
0800	15-03	173-20				
0900	15-00	173-25				
1000	15-00	173-30				
1100	15-00	173-35				
1200	14-45	173-43				
1300	14-40	173-50				
1400	14-31	173-55				
1500	14-25	174-00				
1600	14-20	174-05				
1700	15-01	174-10				
1800	15-05	174-12				
1900	15-06	174-13				
2000	15-07	174-12				
2100	15-07	174-12				
2200	15-07	174-12				
2300	15-07	174-12				
2400	15-07	174-12				

71-14
6-48

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9/6 55

Date 13 DEC 1966 Ship (YAG 40) Cruise No. _____

Organization _____ Recorder _____

Sunrise: Time 0749 Position: Lat. 16-13.5N Long. 173-05W

Sunset: Time 1854 Position: Lat. 16-52N, Long. 171-40.5W

Miles travelled from 0000 hours to sunrise = 56.5

Miles travelled from sunrise to sunset = 93.0

Miles travelled from sunset to 2400 hours = 40.5

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.	0723	CELESTIAL	16-16N	173-03W
2.	1300	P. CELESTIAL	16-40N	172-48W
3.	1927	CELESTIAL	16-53N	171-36.5W
4.				
5.				

Hourly Positions:

Time Latitude Longitude Wind Dir. Wind Sp. Wave Dir. Wave Hgt.

0100	32	41				
0200	43	35				
0300	49	29				
0400	55	23				
0500	01	17				
0600	07	11				
0700	13	05				
0800	16-19	172-57				
0900	20	51				
1000	26	45				
1100	32	39				
1200	38-45	172-33				
1300	44	28				
1400	47	20				
1500	50	12				
1600	53	04				
1700	56	00				
1800	59	00				
1900	52	00				
2000	16-55	171-32				
2100						
2200						
2300						
2400	17-10	171-00				

17-27
16-53
172-36

Date 14 DEC 1966 Ship (184) Cruise No.

Organization Recorder

Sunrise: Time 0741 Position: Lat. 17-37N, Long. 169-58W

Sunset: Time 1840 Position: Lat. 17-58N, Long. 168-25W

Miles travelled from 0000 hours to sunrise = 67.0

Miles travelled from sunrise to sunset = 92.5

Miles travelled from sunset to 2400 hours = 45.0

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.	<u>0719</u>	<u>CELESTIAL</u>	<u>17-37N</u>	<u>170-00W</u>
2.	<u>1058</u>	<u>CEL & LORAN</u>	<u>17-41N</u>	<u>169-31W</u>
3.	<u>1809</u>	<u>CEL & LORAN</u>	<u>17-57N</u>	<u>168-27W</u>
4.				
5.				

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100		<u>170-00</u>				
0200						
0300						
0400						
0500						
0600						
0700	<u>17-37</u>	<u>170-00</u>				
0800	<u>17-39</u>	<u>169-54</u>				
0900	<u>40</u>	<u>50</u>				
1000	<u>41</u>	<u>31</u>				
1100	<u>42</u>	<u>20</u>				
1200	<u>17-43</u>	<u>169-23</u>				
1300	<u>46</u>	<u>18-13</u>				
1400	<u>48</u>	<u>04</u>				
1500	<u>49</u>	<u>55</u>				
1600	<u>49</u>	<u>46</u>				
1700	<u>49</u>	<u>37</u>				
1800	<u>57</u>	<u>28</u>				
1900	<u>59</u>	<u>19</u>				
2000	<u>18-02</u>	<u>168-10</u>				
2100						
2200						
2300						
2400	<u>18-08</u>	<u>167-57</u>				

Date 15 DEC 1966 Ship (Y01-10) Cruise No. _____

Organization _____ Recorder _____

Sunrise: Time 0732 Position: Lat. 18-25N, Long. 166-37W

Sunset: Time 1824 Position: Lat. 18-53N, Long. 164-58W

Miles travelled from 0000 hours to sunrise = 62.0

Miles travelled from sunrise to sunset = 99.0

Miles travelled from sunset to 2400 hours = 54.0

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.	<u>0711</u>	<u>CELESTIAL</u>	<u>18-26N</u>	<u>166-34W</u>
2.	<u>1140</u>	<u>LORAN</u>	<u>18-36N</u>	<u>166-02W</u>
3.	<u>1858</u>	<u>CELESTIAL</u>	<u>18-54N</u>	<u>164-56W</u>
4.				
5.				

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100		<u>71</u>				
0200		<u>72</u>				
0300		<u>75</u>				
0400		<u>77</u>				
0500		<u>79</u>				
0600		<u>81</u>				
0700		<u>82</u>				
0800	<u>18-25</u>	<u>166-34</u>				
0900	<u>24</u>	<u>25</u>				
1000	<u>32</u>	<u>16</u>				
1100	<u>35</u>	<u>17</u>				
1200	<u>18-37</u>	<u>165-58</u>				
1300	<u>41</u>	<u>49</u>				
1400	<u>41</u>	<u>40</u>				
1500	<u>43</u>	<u>31</u>				
1600	<u>45</u>	<u>22</u>				
1700		<u>17</u>				
1800		<u>165-04</u>				
1900		<u>164-55</u>				
2000	<u>18-56</u>	<u>164-40</u>				
2100						
2200						
2300						
2400	<u>19-01</u>	<u>164-13</u>				

Date 16 DEC 1966 Ship (YAG-40) Cruise No. _____

Organization _____ Recorder _____

Sunrise: Time 0719 Position: Lat. 19-29.5N, Long. 163-11W

Sunset: Time 1811 Position: Lat. 19-52N, Long. 162-02W

Miles travelled from 0000 hours to sunrise = 54.5

Miles travelled from sunrise to sunset = 69.0

Miles travelled from sunset to 2400 hours = 33.0

	TIME OF FIX	TYPE OF FIX	LATITUDE	LONGITUDE
1.	<u>0659</u>	<u>CELESTIAL</u>	<u>19-29N</u>	<u>163-13W</u>
2.	<u>1153</u>	<u>LORAN</u>	<u>19-35N</u>	<u>162-40.5W</u>
3.	<u>1843</u>	<u>CELESTIAL</u>	<u>19-53N</u>	<u>161-59W</u>
4.				
5.				

Hourly Positions:

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100	<u>19-08</u>	<u>163-13</u>				
0200	<u>15</u>	<u>13</u>				
0300	<u>15</u>	<u>13</u>				
0400	<u>12</u>	<u>13</u>				
0500	<u>14</u>	<u>13</u>				
0600	<u>17</u>	<u>13</u>				
0700	<u>16</u>	<u>13</u>				
0800	<u>17-32</u>	<u>163-05</u>				
0900	<u>17</u>	<u>13</u>				
1000	<u>17</u>	<u>13</u>				
1100	<u>15</u>	<u>13</u>				
1200	<u>17-26</u>	<u>162-31</u>				
1300	<u>17</u>	<u>13</u>				
1400	<u>18</u>	<u>13</u>				
1500	<u>18</u>	<u>13</u>				
1600	<u>18</u>	<u>13</u>				
1700	<u>18</u>	<u>13</u>				
1800	<u>18</u>	<u>13</u>				
1900	<u>18</u>	<u>13</u>				
2000	<u>17-54</u>	<u>161-48</u>				
2100	<u>159</u>	<u>38</u>				
2200	<u>20-02</u>	<u>28</u>				
2300	<u>06</u>	<u>18</u>				
2400	<u>20-07</u>	<u>161-09</u>				

Date 17 DEC 1966 Ship (YAG 40) Cruise No. _____

Organization _____ Recorder _____

Sunrise: Time 0709 Position: Lat. 20-17.5N, Long. 160-21W

Sunset: Time 1820 Position: Lat. 20 40, Long. 159-21

Miles travelled from 0000 hours to sunrise = 66.0

Miles travelled from sunrise to sunset = _____

Miles travelled from sunset to 2400 hours = _____

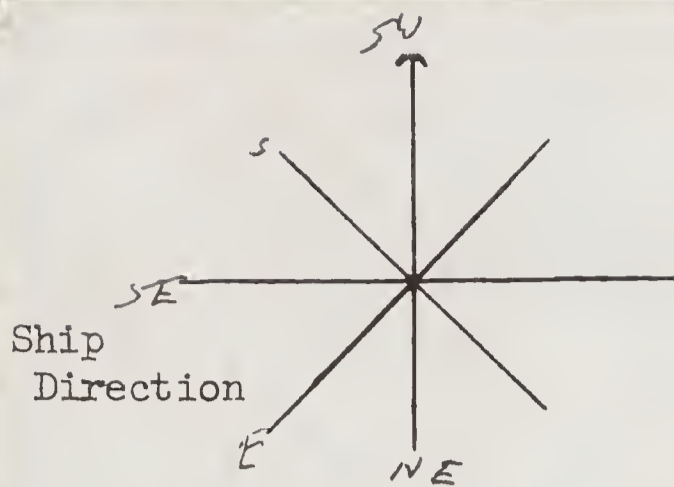
TIME OF FIX TYPE OF FIX LATITUDE LONGITUDE

1. 0641 CELESTIAL 20-17N 160-24W
2. 0030 DRS
- 3.
- 4.
- 5.

Hourly Positions:

Time Latitude Longitude Wind Dir. Wind Sp. Wave Dir. Wave Hgt.

Time	Latitude	Longitude	Wind Dir.	Wind Sp.	Wave Dir.	Wave Hgt.
0100	20-10	161-05				
0200	20-12	160-57				
0300	20-14	160-51				
0400	20-15	160-43				
0500	20-16	160-36				
0600	20-18	160-28				
0700	20-19	160-21				
* 0800	20-20	160-13				
0900	20-21	159-08				
1000	20-22	159-03				
1100	20-23	159-58				
* 1200	20° 25'	159° 56'				
1300	20° 27'	159 50				
1400	20° 28'	159 44				
1500	20° 29'	159 27				
1600	20° 30'	159 20				
1700	20° 31'	159 24				
1800	20° 32'	159 18				
1900	20° 33'	159 12				
* 2000	20° 49.5'	159° 05.5W				
2100						
2200						
2300						
2400						



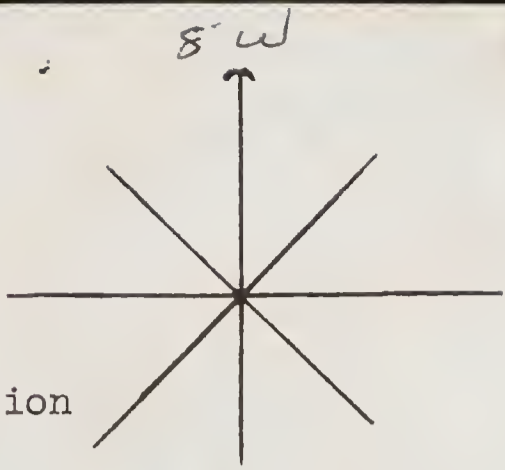
OBSERVERS:

Bulmer
Lewis
Smith

SMITHSONIAN INSTITUTION
 DIVISION OF BIRDS
 AT SEA DAILY LOG - E

Date 1 Dec. 66
 Pg.# 1

TIME	SPECIES	#	DIR.	SPECIMEN or BAND NO.	REMARKS
1325					begin observ.
1325	Pom. Jaeger	4	⊙		following ship Imm
1340	BFA	1	⊙		following ship Imm
1355	RFB	2	N		1 Ad, 1 Ad
1359	Pom. Jaeger	2	⊙		Ad light phase
1435	" "	1	NE		Imm
1439	RFB	1	S		
1455	BFA	1	ce		following ship (Now 2 following ships)
1456	Pom Jaeger	1	ce		Ad light
1510	" "				Total of 5 follow ship 4 Imm 1 Ad light
1515	RFB	1	ce		
	wedge-tail	1	ce		Imm
1520	BFA	1	ce		Imm Gray on back, still had down on head
SF 1528	Sooty Tern	17	ce		following ship (Now 3)
1540					millling overhead high Ad
1600	wedge-tail	2	ce		Jaegers calling as they landed in small group group on water. Not feeding
1602	Pom. Jaeger	2	⊙		Ad light following ship Immature - gray backed
1615	Com. Noddy	1			sitting on floating debris
1618	wedgetail	1	⊙		Imm. light
1626	" "	2	⊙		Ads - light
1629	" "	2	⊙		Ads - "
1634	B.B	1	NE		Ad
1646	wedgetail	1	⊙		Imm - gray
1700					1 Blackfooted Alb circling ship
1710	Sooty T.	1	NW		
1710	CNT	1	N		
1717	wedgetail	2	⊙		1 Imm, 1 Ad.
1720	Pom. Jaeger	1	N		dark
1730	wedgetail	2	⊙		Imm
1731	Pom Jaeger	2	⊙		1 light/dark
1734	Pterodroma	1	⊙		
FF 1745	Sooty Tern	50±5	⊙		1 Imm
	Noddy sp.	30±10			
	Shear/Pet	15±5			
	wedgetail	2			Imm
1801	wedgetail	2	ce		"
1810	Sunset				close observations



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

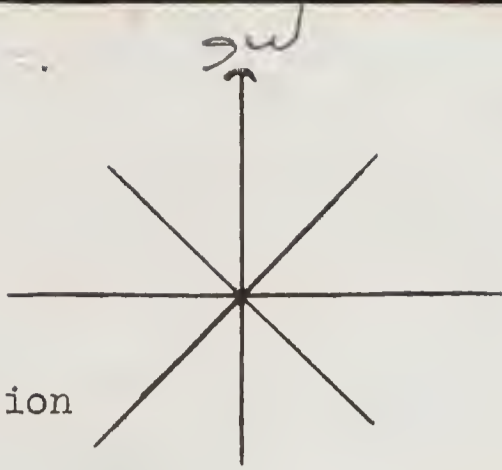
SR-0800 BAH
06-10 Bulmer
10-12 Bulmer & Lewis

Date 2 Dec. '66
Pg.# 1

SPECIMEN
or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0700 0652					Sunrise
0652	Bird	1	-		
0658	P. externa	1	ce		
0700	RFB	1	ce		imm. sitting on radar mast, No band
0707	JFP	1	ce		
0710	"	2	ce		
0712	Kermadec Pet.	1	ce		dark
0722	WRSP	1	ce		
0732	Sooty Tern	2	S		adult. Traveling south
0741	P. externa	1	ce		
0748	P. hypoleuca	1	ce		
FF 0806	Sooty Tern	19			Ad
	shear-Pet	40.55	Q		
FF 0824	shear-Pet	10	Q		way out
0836	WRSP	1	Q		
0910	Bulmer BLP	1	NE		Wilson's Type
0915		1			Ship maneuvering during drills
TF 0930	JFP	4	e		light grey Head, neck + upper back, dark on wings
	Bulmer BLP	2	Q		light underwing
	Murphy's Pet	1	Q		Solid dark brown, complete brown underwing; slightly smaller than JFP, about Kermadec size long wings, typical Pterodroma shape + flight. flew side by side with JFP
1016	P. ext. JFP	2			
1030					Ships maneuvering for drills completed, resume base course.
1032	Phoenix Is.	1	ce		
1042	Sooty Tern	2	NE		close - Molt in primaries
1105	WIP Petrel	1	ce		Ad No Streamer
1110	Phoenix Is	1	ce		sitting on H ₂ O
	Sooty Tern	1	SE		Ad
1120	RFB	1	ce		imm
1025	Kermadec Pet	1			sitting on H ₂ O
1127	JFP	1	ce		
1136	shear/pet	1			all dark.
1145	Kermadec Pet.	1	ce		molting heavily.

103



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

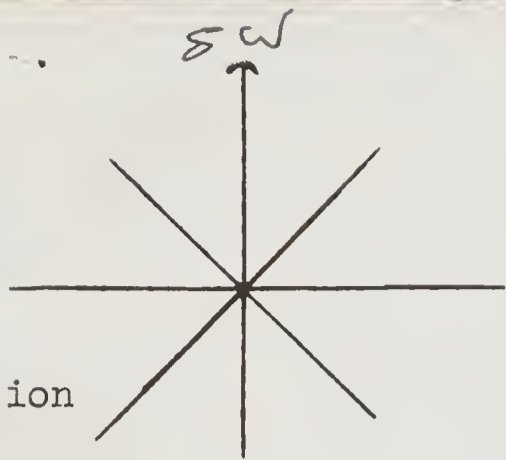
OBSERVERS:

Date 2 Dec
Pg.# 2

SPECIMEN
or

	TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
SF	1147	Sooty Tern	30±5			No imm seen, at least 20 adults
		JFP	2			
	1150	P. externa	1	∞		
	1158	Kermadec	1	N		light phase - white head, primary molt
	1208	RFB	1	∞		subadult
	1210	P. externa	1			sitting on water
	1228	JFP	1	∞		
	1247	WTTB	1	∞		circling ship
	1248	RFB	1	∞		Imm
FF	1256	Sooty Tern	7±2	∞		AD's } flying together all brown; smaller than externa; probably same type called Murphy's earlier
	1258	Parkrumped	1	∞		
	1258	Pterodroma	1	∞		
	1310	B.W.P.	1	SW		
	1314	Pterodroma	1	∞		light underbody, dark underwings; brown on top
FF	1323	Sooty Tern	15±5	∞		probably Kermadec - too far to tell for sure feeding - small fish breaking surface
		Shear/Pet	15±5			
	1335	Tahitian Pt	1	NE		heading for above flock
	1341	sm. Pterodroma	1	SW		
FF	1350	Sooty Tern	35	∞		1 Imm; no streamers of 15 observed close
		JFP	3			
		Wedgetail	7			
		BWP	5			
		Jaeger sp.	1			
	1407	RFB				Quite sure same as roosting on ship this AM. Also seen at 1120 and 1248
C	1420	BWP	1	∞		coll. B.A.H.
	1430	Jaeger sp	1	∞		
	1432	White necked P.	1	∞		
	1520					resume base course after bird pickup
FF	1530	Wedgetail	12	∞		6 imm, 6 ad
		BWP	2	∞		
		P. extern.	1	∞		
		Sooty T.	7			took off when ship approached.
	1547	Sooty Tern slenderb.	1	S		
	1550	Shear/Pet	1	∞		
	1555	Kermadec	1			sitting together on H ₂ O
		WRSP	1			

752



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

1400-1600 BAH

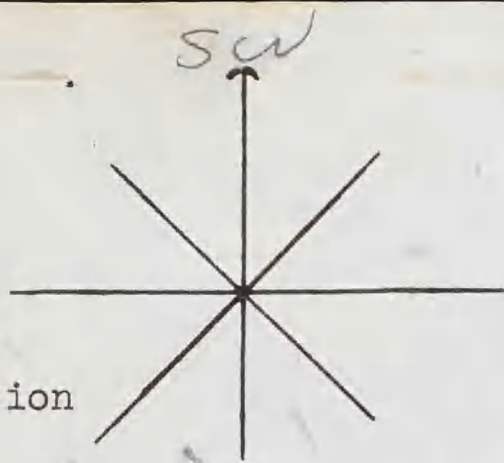
Date 2 Dec. '66
Pg.# 3

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

1600	BWP	2	sw	
1606	"	1	sw	
1614	Wedgetail	1	S	light phase
1620	"	1	SE	" "
1630	Pip/Tak. Pet	1	W	appeared small, probably <u>P. alba</u>
1647	Wedgetail	1	Q	light W. Bulmer coll.
1715	RFB	3	sw	
1725	Sooty Tern	1	ce	Ad
1845				resume base course
1900	G. Frigate	1	Q	Ad ♀
1807				Sunset

12



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

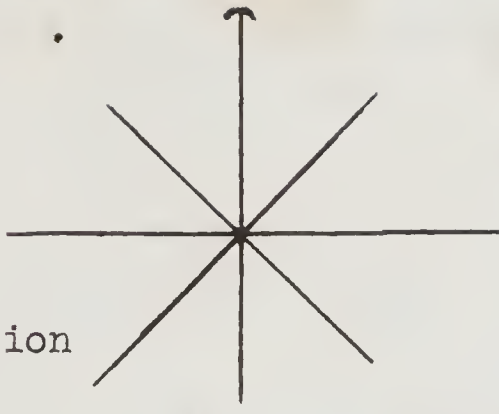
Lewis

Date 3 December 64
Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0713					Sunrise begin observations
0718	JFP	1	all		
0724	Sooty Shear	1	SE		
0730	BWP	1	SW		close white underwing large body
0733	Sooty Tern	1	all		Follows ship from stern - very close
0740	Shear/Pet	1	all		
0743	JFP	1	all		
0753	BWP	1	all		
SF 0758	JFP	4	all		
	BWP	1	all		
0810	RFB	1	all		Imm
OS SF 0815	RFB	3	all		(SA Orange streamer) 2 Imm
	JFP	3			
	wedge-tail	1			light
	BWP	1			
FF 0828	Sooty Tern	14	all		3 Imm, 11 Ad; No streamer all well obs.
0835	Shear/Pet	3	all		
0842	JFP	1	SW		
FF 0920	Sooty Tern	17	all		4 Imm Rest Ad no streamers seen
	BWP	4			
	JFP	6			
	wedgetail	3			light
	Fairy Tern	1			
0938	Shear/Pet	1	all		
0950	wedgetail	1	all		light
0955	P. externa	1	all		
1007	JFP	1	all		
1015	shear/pet	2	all		
1015	JFP	1	all		
FF 1016	JFP	2			
OS	wedge-tail	11			Dark 9 light → Orange streamer on 1 Ad
OS	Sooty Tern	23			23 Ad 2 Imm No streamers on 12 Ad
	BWP	1			



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

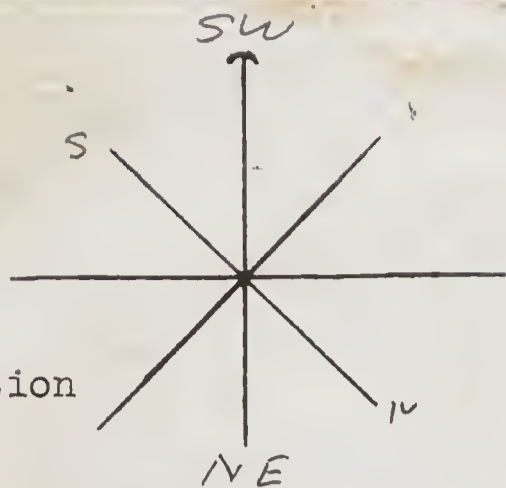
OBSERVERS:

Harrington

Date 3 Dec 66
Pg.# 2

SPECIMEN
or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
1041	RFB	1	ce		5A sitting on H ₂ O
SF {	1052 Sooty T.	8			7 ad, 1 imm; no streamers
	Wedgetail	7			4 imm, all light, no streamers
	JFP	5	ce		
	Fairy T.	1			
1100	P. externa	1	ce		
1110	"	1	ce		
1110	BFB	1			imm diving in area where many flying fish. No streamer.
1119	P. externa	3	ce		} sitting on H ₂ O
	Wedgetail	1			
1124	BWP	1	ce		imm.
1127	JFP	3	ce		sitting on H ₂ O
1129	wedgetail	2	"		" " " Dark phase
1131	BWP	1	ce		
1133	Sooty/Sib	1	ce		
1140	W/N Petrel	1	ce		
1141	BWP	1	ce		
1143	Shear/Pet	1	ce		
1144	JFP	1	ce		
1147	wedgetail	1	ce		Light Ad
1157	JFP	1	ce		
1206	RFB	2	ce		5 Ad
1224	Pt. externa	1	ce		
1233	Pip/Tah Pet	1	ce		
1245	BWP	1	ce		
FF	1251 RFB	1	ce		
	G. Frigate	1	ce		5 Ad NOT Banded
	Pt. externa	1	ce		
	BWP	2053	ce		White-necked + JFP
	Wedgetail	6			
	Pip/Tah P.	5	ce		4 dark, 1 light
	Pom Jaeger	1	ce		
	Sooty Tern	1	ce		Ad dark phase
	1304 RTTB	10	ce		Ad
	1323 BWP	1	ce		
1348 Kermadec	1	ce			
1355 JFP	1	ce			
1410 "	1	ce			
SF 1440 "	1	ce			
		5	ce		



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

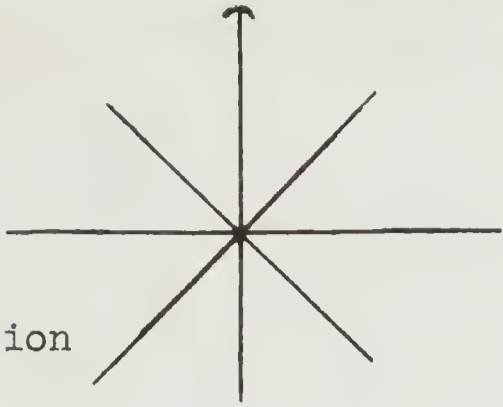
OBSERVERS:

Date 3 Dec 66
Pg.# 3

SPECIMEN
or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
1446	JFP	1	ce		
1500	"	1	ce		
1506	wedge-tail	1	ce		light Imm
1533	P. externa	1	N		
1536	JFP	1	ce		
1539	P. externa	1	ce		distant
1540	JFP	2	ce		alternately sitting + flying
1553	RFB	1	ce		SA
1554	G. Frigate	1	ce		Roller slipping up high Ad F
1607	Wedgetail	1	ce		
1610	JFP	1	ce		light Imm
1615	BWP	1	ce		
1616	"	1	ce		
1622	shear/Pet	1	ce		light underbody
1628	" "	1	WE		
1629	P. externa	1	ce		
1640	BWP	1	ce		
1646	Shear/Pet	1	ce		
1647	Frigate sp	1	ce		
	J.F.P	2	ce		
	Sm. Pterodroma	1	ce		
1704	JFP	1	ce		
1706	RFB	1	ce		Imm
1715	JFP	1	ce		
1725	BWP	1	ce		
1739	P. externa	1	ce		
1742	RFB	1	ce		Imm + previous Imm following ship
1802	JFP	1	ce		
1811	RFB	2	ce		Imm + previous two Imm following ship
1823					Sunset close observations

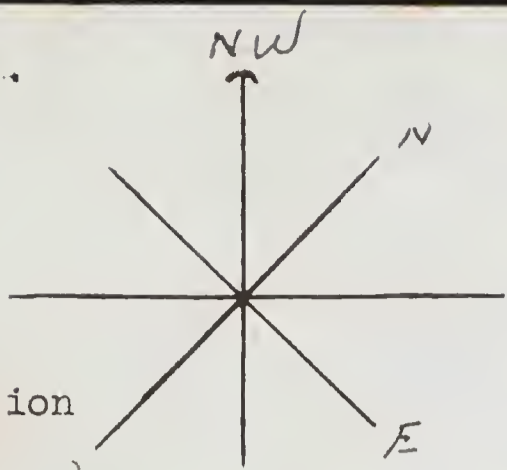
OBSERVERS:

Ship
Direction
 SMITHSONIAN INSTITUTION
 DIVISION OF BIRDS
 AT SEA DAILY LOG - E
SPECIMEN
or

Nocturnal

Date
Pg.#
~~2-4~~ Dec
 1

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0800					- begin
0820					heavy rain squall
201 C 0845	Bird	1			white below
0845	Wedgetail	1	☉		imm, coll.
0852	wedgetail	1	☉		light
0930	sooty T.	1			single note call
1020	Bird	1	☉		course change
2304	Sooty tern	1 2	Ad		calling - Ad
	Sooty tern	1			imm
2030	WRSP	1	☉		
2425	Shear-Pet	1	☉		
2430					Rain
0130					end Rain
0225	wedgetail	1	☉		light
0235	Shear/Pet	2	☉		
0247	BlwP	1	☉		
	wedgetail	1	☉		light } - in Rain
0310	Shear/Pet	1	☉		partly
0315	Shear/Pet	1	☉		light underneath
0340	"	1	☉		"
0347	wedgetail	1	☉		light
0400	Bird	1	☉		up high dark underneath
0411	Shear/Pet	2	☉		light underneath
0420	"	2	☉		" " "
0450	wedgetail	1	☉		light
0500					close observations



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:


SA-1800 Smith

Date 4 Dec, 1966
Pg.# 1

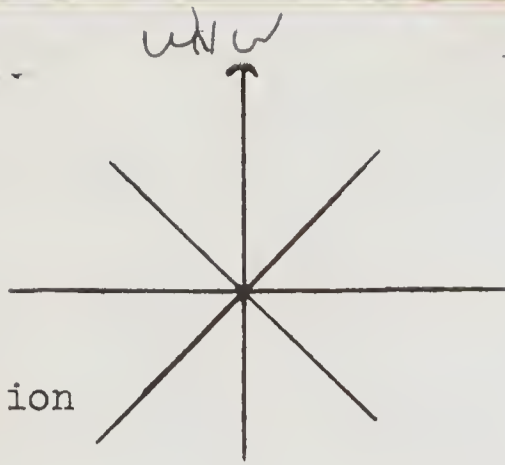
Ship
Direction

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0715					Sunrise begin observations
0731	WRSP	1	∞		
0737	AFB	1	∞		circling ship (Imm) no band
0739	Wedgetail	1	∞		Imm light
0750	BWP P. externa	2 1	∞ ∞		alternately flying & sitting on water
0752	WRSP	1	∞		
0801	BWP	2	∞		
0805	WRSP	1	∞		
0821	RFB	1	∞		imm.
0847	Shear-Pet.	1	∞		
0850	Wedgetail	1	∞		light
0856	Shear/pet	1	∞		light below.
0905	Shear Pet	15±5			
0907	WRSP	1	∞		
0923	JFP	1	∞		
0930	"	1	∞		
1012	"	1	∞		
1015	JFP	24	∞		} sitting then circling
	W.P.P	6	∞		
	Wedgetail	1	∞		
1025	Sooty Tern	1	∞		imm flew over ship + called
1045	WRSP	1	∞		
1050	WTTB	1	∞		
1055	JFP	3	∞		
1110	shear-pet	1	∞		
1110	WRSP	1	∞		
1111	JFP	1	∞		
1140	Sooty Shear	1	S		
1142					whale spout  710' small baleen whale about 25'-35'
1150	JFP	1	∞		
1203	WRSP	1	∞		
1216	Shear/Pet	10±2	∞		} Following ship heavy Hutton Puff + wings
1217	JFP	1	∞		
1303	JFP	1	∞		
1333	Bird	1	∞		
1420	WRSP	1	∞		
1432	Sooty Shear.	1	SW		
1450	Whitetailed Pet	1	∞		
1516	WRSP	2	∞		
1530	AFB Shear/Pet	1 1	∞ ∞		Imm

96



Ship
Direction

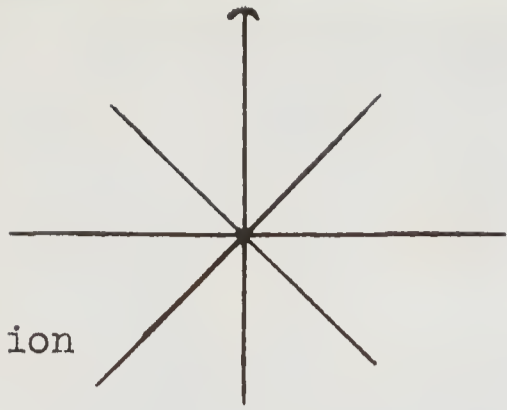
SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Date 4 Dec. '66
Pg.# 2

SPECIMEN
or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
1604	RFB	1			ad. light sitting on log
1608	G. Frig.	1	☉		I.
1610	WRSP	1	—		
1655	Wedgetail	1	☉		Imm light.
1655	Shear/pet	1	—		
1658	JFP	1	☉		
1720	BB	1	☉ ☉		Ad ♀ / No streamer Follow ship
C 1732	P. externa	1	☉		w. Bulwer, NOT retrieved
1822					ship now underway again.
1841					SUNSET OBSERVED, close observations.



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

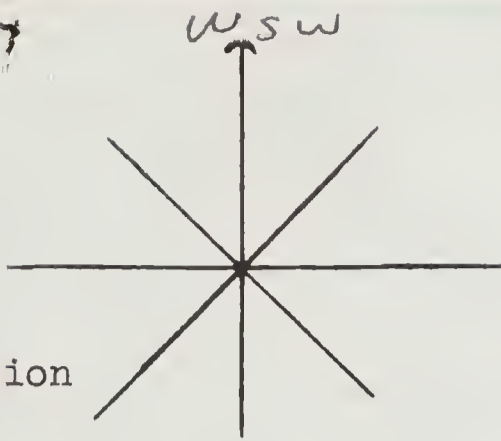
OBSERVERS:

SPECIMEN
or

Nocturnal

Date 4-5 Dec
Pg.# 1

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
2000					begin observa
2005	Sooty Tern	1			
2258	" "	1			Ad
2320	Shear/Pet	1			Ad call in
0010	" "	1	ce		
0144	" "	1	ce		small - Probably BWP
0317	" "	1	ce		
0500					close observations



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

SR

Date 5 Dec. 1964
Pg.# 1

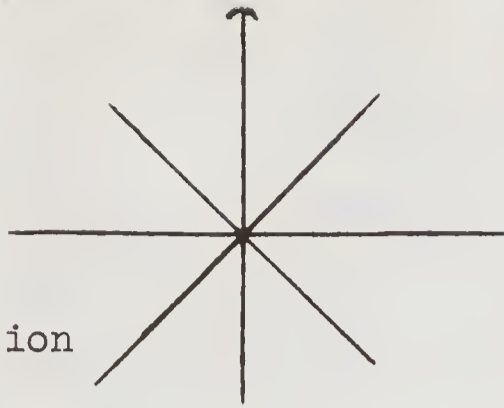
SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0742					SUNRISE
0755	Wedgetail	1	SE		light
0822	BWP	1	SW		
0822	WRSP	1	SW		
0827	P. externa	1	SW		
0840	Fugate sp.	1	SW		
0958	Kermadec Pet	1	SW		light
FF 1128	JFP	26	SW		
	BWP	1	SW		
1150	G. Frig	1	SW		ad ♂
1150	JFP	1	SE		
1238	Kermadec	1	SW		light phase
1258	WRSP	1	SW		
1304	"	1	SW		
1307	BWP	1	SW		
1322	Kermadec	1	SW		light sitting on water then flew
1342	JFP	1	SW		
1393					Hammerhead Shark 8-10 ft
1354	JFP	1	SW		
1400					change ship's course
1410	Shear/pet	2	SW		
1420	Wedgetail	1			imm, light
1423	P. externa	2	SW		no ages determined
FF 1510	Sooty T	35 ^{±2}	SW		nest light
	Wedgetail	17 ^{±3}			dark 80% imm. light wedgetail coll B. Harrington
	P. ext.	9 ^{±2}			"
1644	WRSP	1	SW		
1651	Pt. externa	1	SW		
1658	Kermadec Pet	1	EPE		light
1700	JFP	1	SW		
1707	Wedgetail	1	SW		light
1730	JFP	1	SW		
1735	Pt. externa	1	SW		light
1745	Kermadec	1	SW		
1828	WTTB	2	SW		
1833	Wedgetail	1	SW		light
1845	Bird	1	SW		

~~427~~
120

OBSERVERS:



Ship
Direction

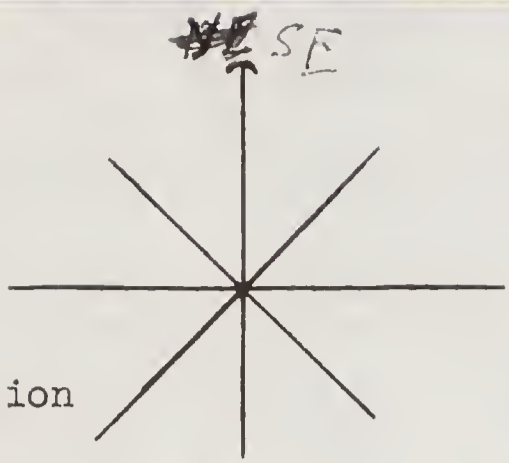
SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

Date 5-6 Dec 66
Pg.# 1

SPECIMEN
or

Nocturnal

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
2000					open observation
2020	Bird	1	ce		
2045	Sooty Tern	1	ce		
2125	"	1	a		Callus Ad
2130	"	1	e		Calling Ad
2145	Shear/Pet	1	ce		
2242	sooty Tern	1	ce		Ad
2250	" "	2	ce		Callus
2259	Bird	1	ce		
2306	sooty Tern	1			Approach from south Ad calling
2310					Begin drifting
2400					startup
0015	sooty tern	1	o		Ad
0107	WRSP	1	o		
0400	Bird	1	ce		
0407	Shear/pet	1	o		
0500					0440 course change close



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:
Bulmer
1200-1400 Harrington

Ship
Direction

Date 6 Dec 1966
Pg.# 1

SPECIMEN
or

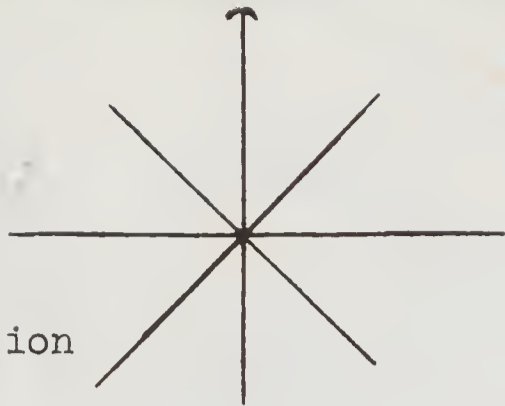
TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0735					— sunrise
0752	Wedgetail	1	Q		light
0806	JFP	1	Q		
0812	RFB	1	NE		Ad, light phase
0814	RFB	1	NE		S. Ad
0815	shear-Pet	1	Q		
0950					change course to SE
1048	WASP	1	Q		
1052	Kermadec	2	Q		light - sitting on water then flew
1115	JFP	1	Q		
	Kermadec	1	Q		light
1146	JFP	1	Q		
1230	RTTB	1	SW		ad
1310	WTTB	1	Q		ad
1310	Wedgetail	1			imm light
1319	BWP	1	SW		
1344	RFB	1	Q		imm, no streamer
1347	JFP	1	E		
1352	Bonin I.P.	1	S		No doubt as to identification: darker head than back, dark areas on side breast, hash marks in wing. No Question.
1402	Bonin I.P.	2	Q		close, No doubt.
1450					change course to 145
1500	JFP	1	E		
1507	JFP	1	E		
1520	BIP	1	SE		
1647	Pt. hypoleuca	1	SE		
1630	RFB	1	Q		Following ship SA
1633	P. hypoleuca	1	NW		
1700	BWP	1	Q		close, light head & tail, No head. marks on wings
1705					drifting - engine's stopped.
1735					under way
1841					Sunset Close observation

OBSERVERS:

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

Ship
Direction



SPECIMEN *Nocturnal*
or

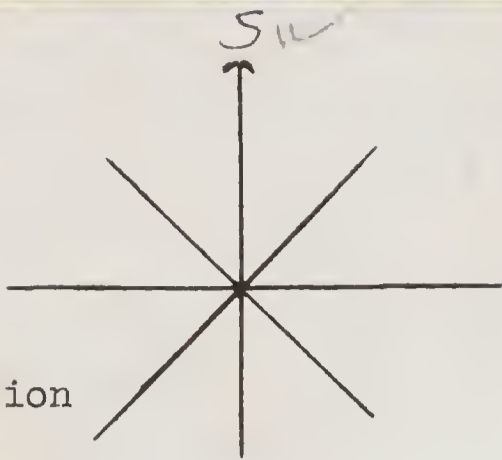
Date *Dec 6-7*
Pg.# *1*

TIME SPECIES # DIR. BAND NO. REMARKS

2000 _____
2044 Shear/Pet 1 ~~SW~~ Begin Observations

2230 Flying Fish 1 SW

2345 _____
0500 _____
exciting night here,
close observations



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Lewis
8-10 Smith
11-12 Harrington
12-14 Bulmer
14-16 Lewis
16-55 Smith
Date 7 December '66
Pg. # 1

SPECIMEN

or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0728					Sunrise begin observations
0830	Wedgetail	2	∅		light
0832	Fairy Tern	1	N		
0854	Kermadec	2	∅		light
0918	JFP	1	∅		
0927	JFP	1	∅		
0946	Wedgetail	1	∅		light, Ad
0954	P. externa	1	∅		
1015	JFP	1	∅		
1030	"	1	∅		
1045	"	1	∅		
1110	wedgetail	1	∅		
1115	Birds	2	SW		light
1116	WTTB	1			ad. sitting on H ₂ O
1122	Great Frig.	2	∅		ad ♂, ad ♀, No streamers.
1133	JFP	1	W		
1150	Wedgetail	1	W		imm no streamer
1215	G. Frigate	2	∅		Ad ♀ (both)
1322	Wedgetail	2	SE		dark
1335	WTTB	1	∅		
1445	P. externa	1	SW		
1520	RFB	1	∅		
1558	JFP	1	∅		following ship, Imm, chasing flying fish
1624	JFP	1	∅		Not Bud ad
1850					Sunset - close observations

1905
7:30
7:50
11:50
11:50
11:50
11:50

	<u>Total</u>	
W.T.S.	- 7	
J.F.P.	- 8	
P. externa	- 2	
Kermadec	- 2	
WTTB	- 2	
RFB	- 1	
G-F.	- 4	3AD ♀ 1AD ♂
Fairy Tern	- 1	
Bird sp	- 2	

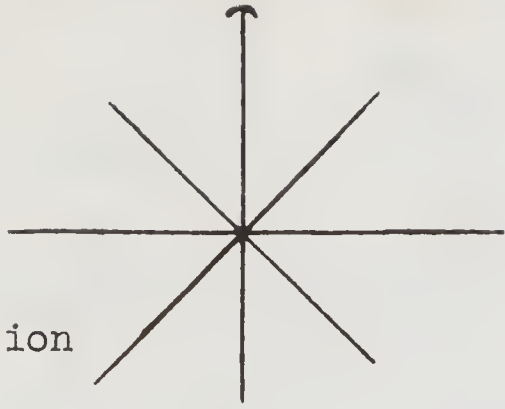
Total 29 birds

Total Flocks - 0

Miles -

Bird/Lin M -

123



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

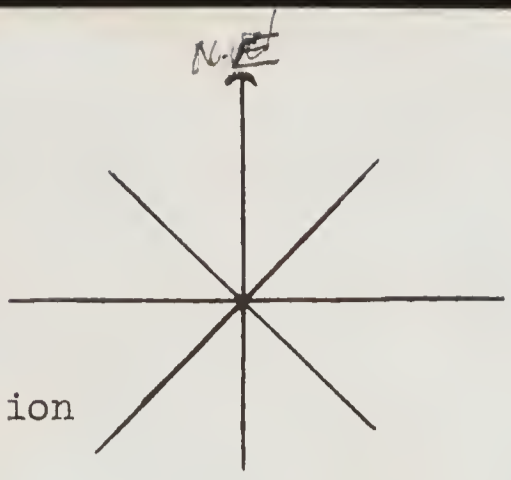
SPECIMEN
or

NOCT Grid

Date
Pg.#

7-8 Dec
1

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
<i>2000</i>					<i>open down. C/C to 320° or NW close observation</i>
<i>0500</i>					
<i>0515</i>					



SMITHSONIAN INSTITUTION
 DIVISION OF BIRDS
 AT SEA DAILY LOG - E

OBSERVERS:

Ship
 Direction

SPECIMEN Grid
 or

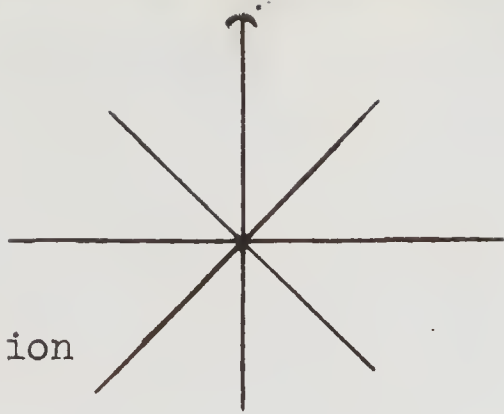
Date 8 Dec 1966
 Pg.# 1

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0735					Sunrise - Begin Observations
0750	JFP	1	N		
0800					change course to NE
0801	Shear/Pet	1	ee		
	Shear/Pet	3	ee		
0820	Wedgetail	1	ee		light
	JFP	1	ee		
0830	JFP	2	W		
0855	JFP	1	ee		
0856	WRSP	1	NE		
0945	Shear/Pet	1	ee		
1107	JFP	1	NE		
FF 1205	Sooty Tern	15	ee		(Lots of Flying Fish Present Large (100+) groups take off from water nearby of them 200 feet or more from the ship)
	Fairy Tern	1	ee		
	Shear/Pet	35	ee		
1346	Fairy Tern	1	ee		Feeding over Flying Fish
1412	G. Frigate	1	SE		ADOT
1600	Shear/Pet	1	ee		
1705	G. Fairy	1	ee		imm chasing flying fish.
1727	Shear/Pet	1	ee		
1733	JFP	1	W		

W.T.S. - 1
JFP - 10
Shear/Pet - 38
WRSP - 1
G.F. - 2 1 Ad ♂ 1 imm
Sooty Tern - 15 all in Flock
Fairy Tern 2

Total 69
Total Flock - 1
Total Mile -
Birds/LinM -

OBSERVERS:



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

Nocturnal Grid

Date 8-9 Dec 66
Pg.# 1

SPECIMEN
OR

TIME SPECIES # DIR. BAND NO. REMARKS

2000
2035
0325

shear-Pet

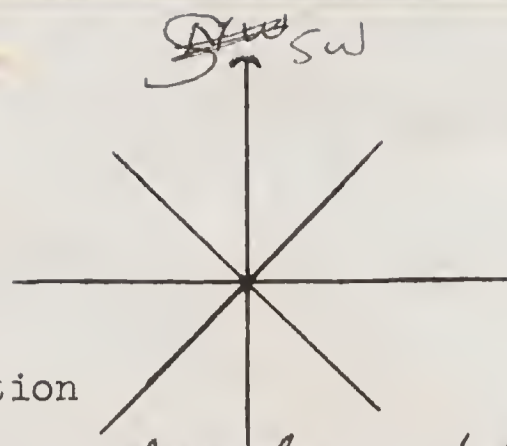
1

@

begin observ.

change course to 315°

end 0500



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

SR - Harrington

Ship
Direction

ca. 0325 changed course to NW SPECIMEN or Diurnal Grid

Date 9 Dec '66

Pg. # 1

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0736					Sunrise, begin observ.
0737	Sooty Tern	1	⊙		imm.
0759	WRSP	1			
0800					change course to SW
0815	BWP	1	NW		
0816	WRSP	1	⊙		
0907	BWP	1	⊙		
0932	JFP	1	SW		
0958	WRSP	1	⊙		
1015		2			cetacians Mammals ca 35 ft did not blow gray brown on Back white below dorsal fin set not quite 2/3 of way back on body about 2 ft high sized. differences indicate probably Mother with young Xiphias probably to follow
1033	JFP	1	SE		
1055	Pterodroma sp	1	N		
1057	JFP	1	⊙		
1130	JFP	1	⊙		
1133	Xmas Is Shear	1	NW		
1215	RFB	1	⊙		Subadult Imm
1221	JFP	1	⊙		
1240	JFP	1	⊙		
1330	RFB	1	⊙		Imm } feeding over tuna
	JFP	1	⊙		
	WRSP	1	⊙		
1455	JFP	1	⊙		
1643	Bird	1	?		
1743	JFP	1	⊙		
1750	JFP	1	⊙		
1810					change course to SE. ? w/ow Tubes
1821	BWP	1	⊙		

	Total	
X.I.S -	1	
BWP -	3	
JFP -	10	
Pter. sp. -	1	
WRSP -	4	
RFB -	①	Imm
Sooty Tern -	1	
Bird sp. -	1	

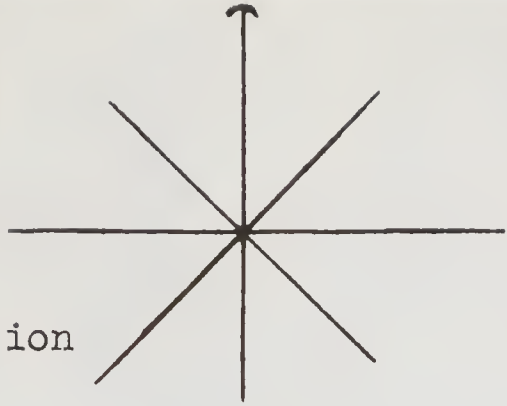
two whales

Total | ~~22~~ 23

Total Flock - 0

Total Mile -

Birds/k in Mile -



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

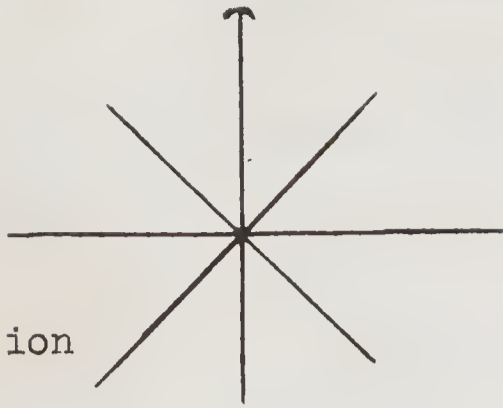
SPECIMEN
or

Nocturnal

Date
Pg.#

9¹⁰ December 66
1

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
2000					Begin Observations
2100	RTTB	1	ce		SA called
2253	Sooty Tern	1	ce		
2349	" "	1	ce		Ad
					Ad
0240	Sooty T.	1			ad (single note call) first heard to SW of ship.
0330	JFP	1	ce		
0345					course change to NW
0445	Bird				
0500					close.



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:
Bulmer

Rectangular Grid

Date *10 Dec 56*
Pg.# *1*

SPECIMEN
or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0745					<i>Sunrise, course change to NE</i>
0840	WRSP	-1	W		
SF 1030	JFP	-3	W		
	Shear/Pet	-4	W		
1116	JFD	-1	W		
1137	wedgetail	-1	ce		<i>immature light.</i>
1632	RFB	-1	ce		<i>Imm</i>
1654	G. Frigate	-1	ce		<i>Ad at</i>
1655	Shear/Pet	-1	ce		
1750	WRSP	-1	ce		
1858					<i>ceased close observations</i>

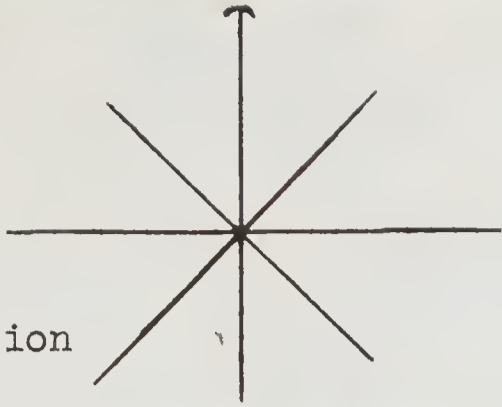
Wedgetail - 1
JFP - 4
Shear/Pet - 5
WRSP - 2
RFB - 1 Imm
G.F - 1 Ad ♂

Total 19

Total Flock - 1

Total Mile -

Birds / Lin M. -



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

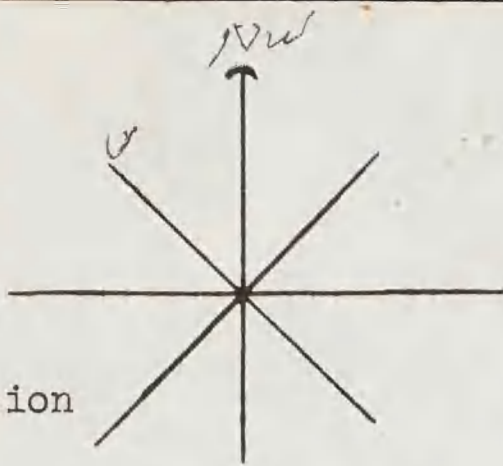
SPECIMEN *Nocturnal Grid*
or

Date *10/1/00*
Pg.# *1*

TIME SPECIES # DIR. BAND NO. REMARKS

<i>2000</i>					<i>Begin Observations</i>
<i>2204</i>	<i>Soot Tern</i>	<i>1</i>	<i>⊙</i>		<i>AD.</i>

end 0500



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Date 19 Dec 66
Pg.# 1

SPECIMEN or Pinned

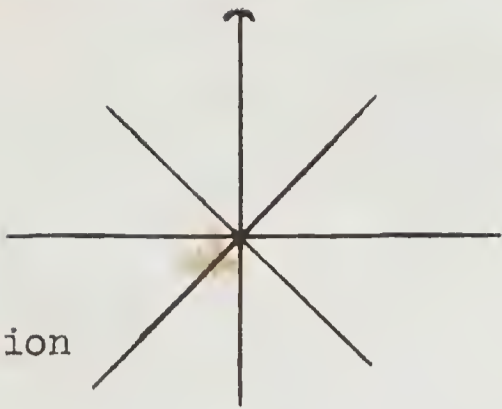
TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0741					Sunrise Baym
0819	wedge-tail	1	SW		Imm light
0823	RFB	1	SE		SA
0840	"	1	SE		
0844	"	1	E		Imm following ship
0910					Ad No stream
0943	RTTB	1	Q		Change course to 315° (NW)
1005	RFB	1	Q		imm, no band.
1128	BWP	2	S		
1216	Pterodroma sp.	1	N		
1225	G. Frigate	1	Q		Ad ♀
1255	WRSP	1	Q		
1256	Bird sp.	1	Q		Trace of single sooty tern circling high on the horizon
1315	JFP	2	Q		
1455	CNT	2	N		
FF 1645	Sooty Tern	57			11 Imm rest Ad
	JFP	15			Feeding over fish
	BWP	2			
	Wedgetail	3			
	Kermadec	1			
	G. Frigate	1			
	RFB	2			Imm
	CNT	1			
1701	RFB	2	Q		Imm
1735	Wedgetail	1	Q		light
1741	JFP	1	SW		
1825	BFB	1	Q		Imm Imm
1832	RFB	4	Q		3 Imm, 1 orange streamer on subadult
	BFB	1	Q		Subadult Imm
1900					Sunset

Same bird!

Wedgetail	- 7	1 Imm
JFP	- 18	
Kermadec	- 1	
BWP	- 4	
Pterodroma	- 1	
W.R.S.P.	- 1	
R.T.T.B	- 1	
RFB	- 12	10 Imm (1 orange st.); 1 SA, 1 AD
BFB	- 1	Imm
G. Frigate	- 2	1 Ad ♀
Sooty Tern	- 57	11 Imm; 46 AD
C.N.T	- 3	
Bird sp.	- 1	

Total Bird - 110
 Total Flocks - 1
 Total Miles -
 Birds / Lin Mile -



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

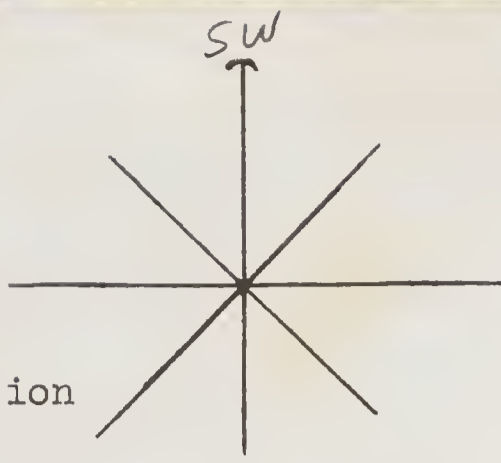
OBSERVERS:

SPECIMEN or NOCTURNAL GRID

Date 11-12 Dec '66
Pg. # 1

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
2000 2000					open observations
2205	Bird	—			
2030	Sooty T.	1			ad. wide awake call
2250	Sooty T				Flew from bow — stern.
2250	"				" " west.
2310	Shear/pet	1			circling ship, ad. w single note call.
2315					start drifting
2330	Sooty T.				first heard to SW, single
2350	" "				note call. from SW
0010	" "				Ad " "
0015					Ad " "
0020	" "				underway
0030	" "				Ad
0045	" "				"
0050					Ad Drifting
0110	Sooty Tern				coll w. Bulmer + F Smith
0120	" "				Ad
0140					underway
0145	Sooty Tern				Ad
0155	" "				"
0240	" "				"
0247	Shear/pet				small
0255	" "				large (w. tail like)
0300	Bird				Shew into Palishead + diverged into 420
0310					drifting
0410					under way
0415	Sooty Tern				Ad
0420	" "				Imm calling
0510	" "				Ad calling
0830					close observations



SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Ship
Direction

Date 12 Dec '66
Pg.# 1

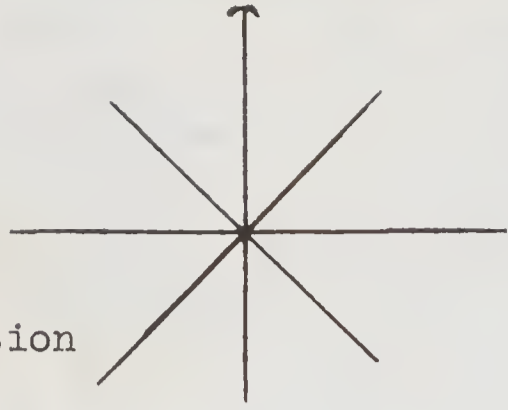
SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0800					Ship's speed ca. 3 knots SW.
0825	JFP	-1	S	}	one spotted circling in front of ship, other about a mile away, traveling rapidly and joined first, seen by watch.
	JFP	-1	000		
0930	Bird	-1			
0952	G. Frigate	(1)	00		
1035	JFP	-2	S		
1040	JFP	-2	00		sitting on H ₂ O
	Dark rump	(1)	00		Good look, sitting on H ₂ O with JFP's
1100	RTTB	(2)	00		
1120	RFB	-1			imm circling ship
1128	P. hypoleuca	(1)	N		
1150	WRSP	(1)	NW		
1159	JFP	(1)	NE		
1322	wedge-tail	(1)	00		light
1340					change course to 315°
1353	JFP	(1)	SW		
1400	JFP	-1	00		
1613	BFB	(1)	00		imm, no band
1645	Bird	-1			
1650					
C 1715	JFP	-1			Lewie
FF 1755	Wedge	(1)			imm light
C	JFP	(4055)			
	BWP	(1)			
	Kermadec	(1)			dark
	WNP	-1			
	Sooty T.	(1)			1 speckled subad
	RTTB	(1)			ad
1830					
1845	RFB	(1)	00		under way
1902	WRSP	(1)	a		imm
1910					Sunset

Wedgetail -	2	1 Imm both light
J.F.P. -	50 ± 5	40 in FI 1 coll. J. Lewis
W.N.P. -	1	
Darkrump -	1	
Kermadec -	1	Dark
B.W.P. -	1	coll Lewis
P hypoleuca -	1	
W.R.S.P. -	2	
R.T.B. -	3	1 Ad for sure
R.F.B. -	2	Imm
B.F.B. -	1	Imm no band
G. Frigate -	1	No sex or Age
Sooty Tern -	1	speckled sub Ad. with FF
Bird sp. -	2	

Total Bird - 69
 Total Flocks - 1
 Total Miles -
 Birds / Lin Mile -



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Palmer

SPECIMEN
or

Nocturnal Grid

Date *12-13 Dec 66*

Pg. # *1*

TIME SPECIES # DIR. BAND NO. REMARKS

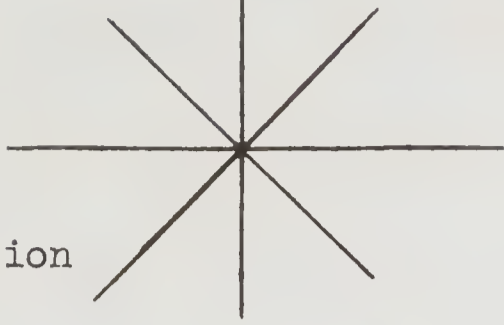
2030

begin observ.

0300

close observ.

NE (050)



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

0800- BAH

Date 13 Dec. '66
Pg.# 1

SPECIMEN or
Diurnal Grid

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0800					SUNRISE
0803	Wedgetail	1	☉		open observ.
0806	JFP	12	☉		imm light.
0823	Shear/pet	1	SE		both molting on back & upper tail coverts.
0858	Wedgetail	1	SE		ad. light.
0909	BWP	1	N		
0947	RFB	1	☉		S. Ad
0950	JFP	1	SE		
1101	RFB	1	☉		
1146	JFP	1	☉		Imm Following ship
1300					leave Grid Area point to fall down (Band Area departed 1800)

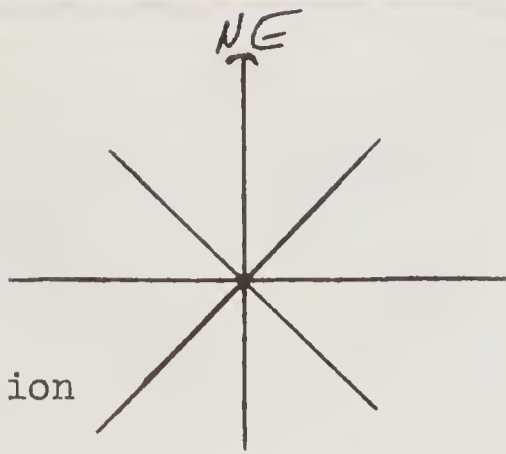
Wedgetail	-	2	1 AD light; 1 imm light
J.F.P.	-	4	
B.W.P.	-	1	
Shear/Pet	-	1	
R.F.B.	-	1	Sub Ad.
B.F.B.	-	1	Imm

Total Birds - 10

Total Flocks - 0

Total Miles -

Birds / Lin M. -



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

1200-1400 Smith
1400-1600 BAH

Date 13 Dec 1966
Pg.# 2

SPECIMEN Diurnal Non Grid
or

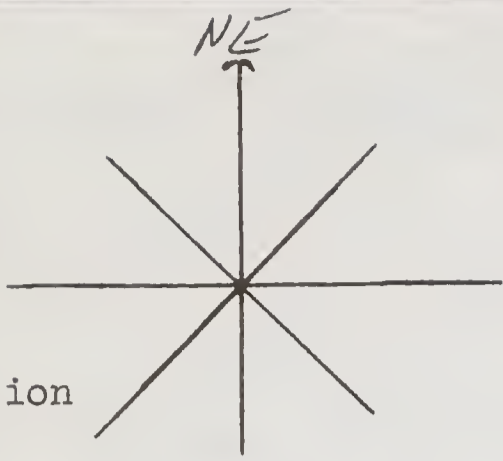
TIME SPECIES # DIR. BAND NO. REMARKS

1300					leave Grid Area
1416	RFB	1			imm.
1450	RTTB	1			ad sitting on H ₂ O.
1458	G. Frigate	1			ad ♂
1506	shear/pet	1	ae		
1535	BWP	1	ae		
1615	JFP	1	ae		
1635	JFP	1	ae		
	Wedgetail	1	ae		
1637	JFP	1	ae		
1639	JFP	1	ae		
1806	RFB	1	ae		Imm
1854					Sunset close observations

imm light
leave grid 1800

Smiles Van Grid

0719 - 1771
220
10.52



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

SR-1000 Smith

Date 14 Dec 1966
Pg.# 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0735					Sunrise Begin Observ.
0740	RFB	1	☉		Imm
0859	Shear/Pet	1	SW		
0920	RFB	3	NW		all light phase Ad's.
0930	RFB	1	NW		Sub Ad.
0935	JFP	1	NW		
1000	P. externa	1	☉		
1000	RFB	4	☉		feeding.
1004	"	2			adult light phase feeding.
1012	G. Frig	1	☉		ad's
1012	Wedgetail	2	☉		imm. light phase.
1013	RFB	1	NW		ad light.
1015	RTTB	1	☉		ad
1030	BWP	1	NW		
SF 1045	RFB	6	☉		4 ad, 2 Subad.
	BWP	1	☉		
1147	RFB	1	NW		ad light.
1230					
1318	Wedgetail	1	☉		Rain Squall
1331	JFP	1	☉		imm light phase
1422	WTTB	1	ae		Ad - following ship
1426	RFB	1	ce		Immature " "
1540	JFP	1	☉		
1552	BFB	1	ae		Ad
1616	Shear/Pet	1	☉		
1621	JFP	1	NW		
1627	Wedgetail	1	☉		
1636	G. Frigate	1	☉		Ad ♂
1817	RFB	1	☉		imm.
1840					Sunset

39

101 3, 2, 5, 1

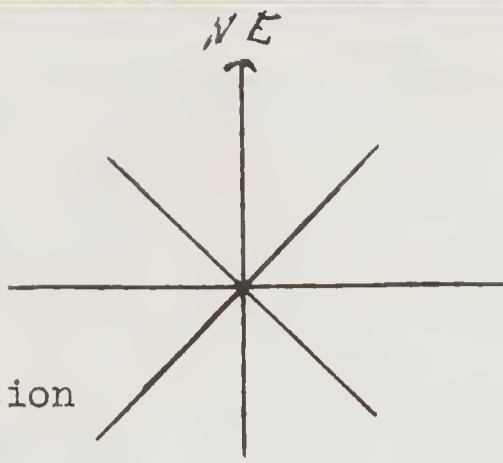
10

5 1, 2

⑤

I 1, 2

⑤



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

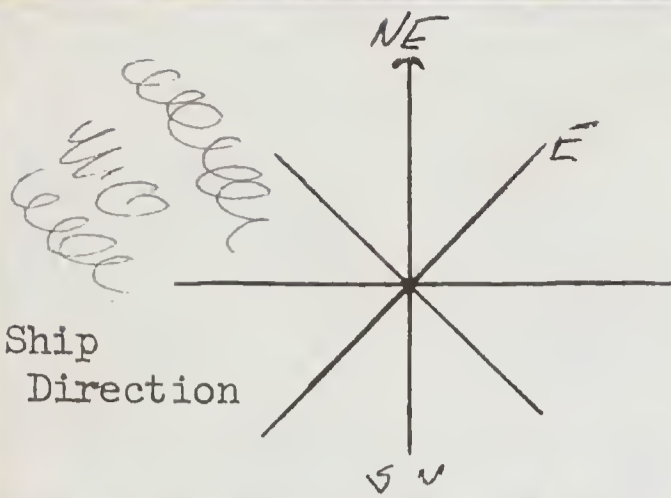
Bulmer
10-12 Lewis
12-14 Smith
14-16 BHH

Date 15 Dec 66
Pg. # 1

SPECIMEN
or

TIME SPECIES # DIR. BAND NO. REMARKS

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0732					<i>Suares</i>
0758	Wedgetail	1	⊙		Ad light phase not streamered
0846	RFB	2	NW		S. Ad
0859	RFB	1	⊙		S. Ad not banded
0950	G. Frigate	1	⊙		Ad ♀ feeding on flying fish
1140	RFB	1	⊙		imm following ship.
1230	RFB	1	⊙		Imm
1450	RFB	1	E		ad. light
1510					ship approaching an area of heavy rain squalls (ca. 1 mile off)
1515	P. externa	1	E		
1615	Wedgetail	1	⊙		Ad light phase
1645	Dark-rump Pet.	1	NW		good observ.
1652	JFP	2	⊙		
	Wedgetail	2	⊙		Ad light
1824					Sunset close observations



OBSERVERS:

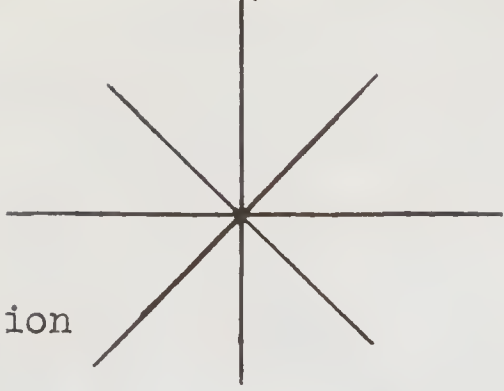
SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

Date 16 Dec 1966
Pg.# 1

SPECIMEN
or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0719					Sunrise Begin Observations
0730	wedgetail	2	∞		Ads, following ship
0856					
0905	Shear/Pet	1	∞		circling to wash decks
0920					back on course
0921					
0929	P. externa	1	SE		circling again for smoke bomb
0933	Kermadec	1	∞		light
F 1035	Wedgetails	5			following ship all imm.
1100	P. externa	1	∞		mott present on body.
1102	Kermadec	1	SE		dark
1110	Wedget.	1	∞		dark
1110	Fairy or Tropic	1	∞		
1125	wedge-tail	1	∞		light
1129	JFP	1	∞		
1133	Sooty tern	2	∞		chasing one another
1140	P. externa	1	∞		
1141	wedge-tail	3	∞		light Ad
1345	BFB	1	∞		imm
1400					
1425	BB	1	∞		circling for 5 smoke bombs
	BFB	1	∞		Ad
					Imm } together
1425					
1431	RFB	1	∞		circles again still screwing around
1443					SA
1500	BFB	1	∞		you we are on course again
1528	G. Frigate	1	∞		Imm possibly same as above
1553	"	1	∞		Ad ♀ chasing Fly in fish. - 1 Now chasing BFB Imm
SF 1715	G. Frig	1			ad ♂
	Kermadec Pet	1			light
	JFP	2			
	Sooty Tern	48			definitely no streamers, all adults (or sub A.)
	RFB	2			S & I.
1733	RFB	1	∞		light
1740	WRSP	2	NE		
1812					Sunset

ENE



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

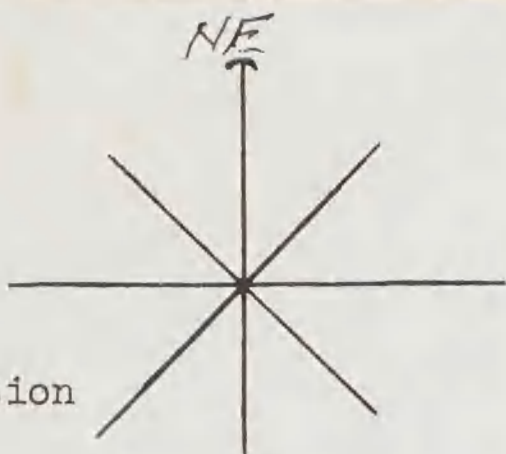
OBSERVERS:

YAG 40

Date 16-17 Dec. '66
Pg. #

SPECIMEN
or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
2000					open observations,
2015	Shear/Pet	2			
2020	"	1			
2030	"	1			
2200	Sooty T.	1			
2237	"	1			single note call.
0030					Outfit
0115					Underway
0200					Close observ.



Ship
Direction

SMITHSONIAN INSTITUTION
DIVISION OF BIRDS
AT SEA DAILY LOG - E

OBSERVERS:

Date 17 Dec 66
Pg.# 1

SPECIMEN
or

TIME	SPECIES	#	DIR.	BAND NO.	REMARKS
0704					Sunrise
0715	Fairy Tern	1	N		
0729	WTTB	1	ce		circling over ship Ad
0825	wedge-tail	1	ce		Imm light phase
0845					
0850	RFB	1	ce		Smoke overboard - screaming around
0930	RTTB	1	ce		attracted to smoke Ad - light again
0945					circles over ship Ad
0955	wedge-tail	1	ce		on course again
1005	G. Frigate	1	ce		light Ad
1026	Bird	1			Ad ♀
1035			NE		Fairy Tern Tropicbird
TF 1115	RFB	5	E		change course for maneuvering drills.
1120	RFB	2	E		Ad light
1124	Sooty T.	1			Ad " Traveling
1145	RTTB	1	SE		ad.
1245			ce		circling over ship, no streamer adult.
1307	WTTB	1	ce		on course again
1315			ce		
1330	Bird sp.	1	ce		white maneuvering again
SI 1345	Brown Booby	6	ce		Imm
1435	Sooty Tern	2	NW		Ad
1438	" "	2	NE		Ad
1534	B B	1	ce		Ad
1730					close observations.

PRELIMINARY REPORT

NORTHERN GRID SURVEY NO. 35
December 7-13, 1966

Prepared by
Brian Harrington

This report summarizes the results of a pelagic survey of the Smithsonian Northern Grid from 1200 hours 7 December through 1800 hours 13 December, 1966. P.O.B.S.P. personnel were Brian Harrington (Biologist in charge), Walter Bulmer, T. James Lewis, and Frank Smith. Good cooperation was received from Captain Kaiser, Mr. Sullivan (XO), the officers and crew of the U.S.S. GRANVILLE HALL (YAG 40) throughout the survey.

Heavily overcast weather during the first leg of the grid made navigation difficult and positions were estimated; they should not be considered accurate within ten miles. During the remainder of the grid cruise, positions are considered accurate only at the time of a fix; high winds and seas were constantly pushing the ship as much as ten to fifteen miles off-course. The grid cruise track is shown on map one.

The weather during the grid survey was generally very windy with speeds of up to 40 knots frequently recorded. The effect of this on birds is difficult to determine. It can, however, be stated that high winds probably affect observations and definitely affect collecting. Due to steady vibration when heading against the sea and wind, binocular observation is difficult and hence probably fewer birds are seen. Also the fact that birds are often behind waves affects sightings. Collecting is almost impossible when heading against the sea as a shooting station can not be maintained on the bow.

Considering the above remarks, it then follows that this survey should not be considered an accurate index of the status of the birds this month relative to other surveys. However it is also suggested that the conditions were much the same as in the December 1965 grid survey, and it seems reasonable to draw comparisons between the two. But there are little data to

suggest the probable status of birds in a "normal", i.e., non-stormy, December survey in the last two years.

This December the diurnal survey was conducted for 73.6 hours over a distance of 678 miles (nautical). An additional 52.8 hours of nocturnal observation were conducted, 2.8 of which were spent drifting on the night of 11-12 December.

Bird density varied considerably from one area of the grid to another. Hence, for purposes of discussion, it is divided into quadrants (see map one) as was done last month. With the exception of the south quadrant, the relative proportions of resident birds in different sections of the grid remained similar in November and December. The south quadrant did show a considerable population increase, but this may not have been a very accurate index of its status as very little survey was conducted in the area this month. The sighting of one flock heavily weights the December figures and the quadrant density may well have been lower than our observations indicate.

Perhaps the most noticeable change in avifauna since November is the complete end to the movement of transient migrants, i.e., Sooty and Slender-billed Shearwaters. Almost all the species observed were resident birds except the non-breeding Pterodroma from South America. Most of these petrels can probably be expected to remain in the central Pacific as the breeding population should have returned to southern waters by now.

Christmas Island Shearwater

A single bird was seen on the 9th travelling northwest.

Wedge-tailed Shearwater

The total count this December is identical to that last year, but the density is only about half as large.

Compared to last month (135 identified) the population is surprisingly low. Whether it was high winds, the exodus of food, or some other factor that was responsible for the reduction is not explained.

In comparing November's data, it seems possible that a post-breeding population from the Hawaiian Islands was present in the grid during November. Reasons for this hypothesis are based on very little data. First, it would seem quite probable that if the November Wedgetails were from Johnston, orange streamers would have been sighted. Secondly it is suggested that the Wedgetails were from a post-breeding population because of data collected this month. In November no immature Wedgetails were identified; but this month six of seven birds aged were identified as immatures. As adults leave the breeding islands before the young are able to fly, it would be expected that they would be present in the grid area before the immatures. Although the evidence is sparse, this possibility is suggested.

As would be expected, the grid population of Wedgetails was largest in the north and west quadrants. This follows the pattern of last month and last year.

Dark-rumped Petrel

One bird was seen on the 12th sitting on the water with two Juan Fernandez Petrels.

Pterodroma externa

As was the case last year, there was little significant change in the density in November and December. But there still remains a considerably higher number present than either November or December of 1965. This fact combined with the month-to-month variation would suggest that some ecological factor is important

in delineating the range of the non-breeding population.

One Juan Fernandez Petrel was collected in the grid this trip.

Pterodroma hypoleuca

None of this species were identified as the subspecies hypoleuca. As was the case last year, there was a marked decrease in the density from November to December. This was most likely due to movement towards the breeding grounds, but may have also been due to the high December winds in both years. (The sighting of three Bonin Island Petrels north of Johnston on 6 December suggests that this species may be susceptible to being pushed from their "normal" range by high winds.)

Unlike last month, the density distribution of P.hypoleuca in the grid was not similar to P. externa (see table 3). This change may also have been due to high December winds.

One Black-winged Petrel was collected in the grid.

Kermadec Petrel

Both sightings of this species were in the western portion of the grid, and both were in mixed feeding flocks.

White-rumped storm petrels.

Although all of the storm petrels were probably Leach's, none were positively identified. Distribution appeared fairly random throughout all but the northern quadrant, where they were fairly scarce.

White-tailed Tropicbird

One bird was seen sitting on the water in the east quadrant.

Red-tailed Tropicbird

The large decrease since last month is not unexpected in view of the total absence of Red-tails in December last year. However it is possible (although unlikely) that in both years this species may have been affected by the high winds.

This December survey suggested a total absence of Red-tails in the eastern half of the grid area, which follows the November density distribution.

Blue-faced Booby

The numbers of this species remain essentially unchanged from last month. Unlike last month however, all the sightings were confined to the western half of the grid. All were immatures.

Red-footed Booby

Following the pattern of November and December, 1965 there was an increase in numbers of this species in December this year. The ages of all the sightings included 16 immatures, 3 subadults (including one with an orange streamer), and only one adult. As mentioned in last month's report, there is good evidence that there is an age-oriented behavior greatly influencing pelagic movements of this species. This is strikingly illustrated when this month's grid age composition is compared to ages of birds in the non-grid section of this cruise north of Johnston. On 14 December at about 100 miles northeast of Johnston, 17 Red-foots were aged. Of these, 11 were adults, 3 were subadults, and three were immatures. This is a direct reversal of what was found south of the island in the grid area. It would seem possible that a young bird might learn the locations of good feeding areas by trial and error, and hence tend to wander much more than adults. This could explain their presence in the grid.

Great Frigatebird

The population densities in November and December of 1965 and 1966 were identical. In both years there was a considerable drop which would suggest some sort of seasonal movement, or more likely that the species is easily affected by high winds as postulated last year.

Unlike November, the distribution within the grid this month seemed to be random with virtually even densities over the entire grid. No directional trend was observed.

Sooty Tern

A total of 74 Sooties was identified during the diurnal survey this month; all but two were in two mixed feeding flocks. An additional 21 were heard or seen during nocturnal watches, with a majority (17) being noted on

the night of 11-12 December. Attempts to collect while drifting on this night were not very fruitful, as only one Sooty was shot. Efforts to catch up with Sooties during the day were almost comical as they would flee when the ship was within a mile. However, all was not lost as we did manage to get close enough to one flock on the 11th to be sure of the age composition. Of 57 Sooties noted, eleven were identified as immatures. On the 12th another mixed flock was seen, but with only one Sooty in it. This was a heavily speckled subadult bird, probably two or three years old. The bird collected on the night of 11-12 November was also a subadult, with very sparse breast-flecking, but with apparently juvenile feathers showing on the wing coverts, back, head, and rectrices. It is estimated to be a three or possibly four year old bird and would have appeared to have been an adult with binocular identification.

The status of the "winter" population of Sooties would now seem open to question. The above discussed flock (composed of about 20% immatures) would tend to refute the theory that immatures migrate to the Philippines; but actually it could just as well be argued that the above-mentioned immatures were strays which for some reason did not migrate. Or it could be theorized that the Philippine recoveries of POPSP-banded Sooties were strays in that area., etc.

The status of the adults here in the central Pacific from November through January is also confusing. It is possible that they may be mostly birds of non-breeding age; this suggestion is based on very slim evidence which indicates that it is mostly sub-adults which linger around a breeding colony after the nesting population leaves (see June through September Johnston Island biweekly reports and French Frigate Shoals August report.) However, it would be unfounded at present to propose that only subadults remain in the area as not enough specimens have been seen or collected at sea from November through January in the northern areas. A more efficient means of collecting would be necessary to supply the information needed.

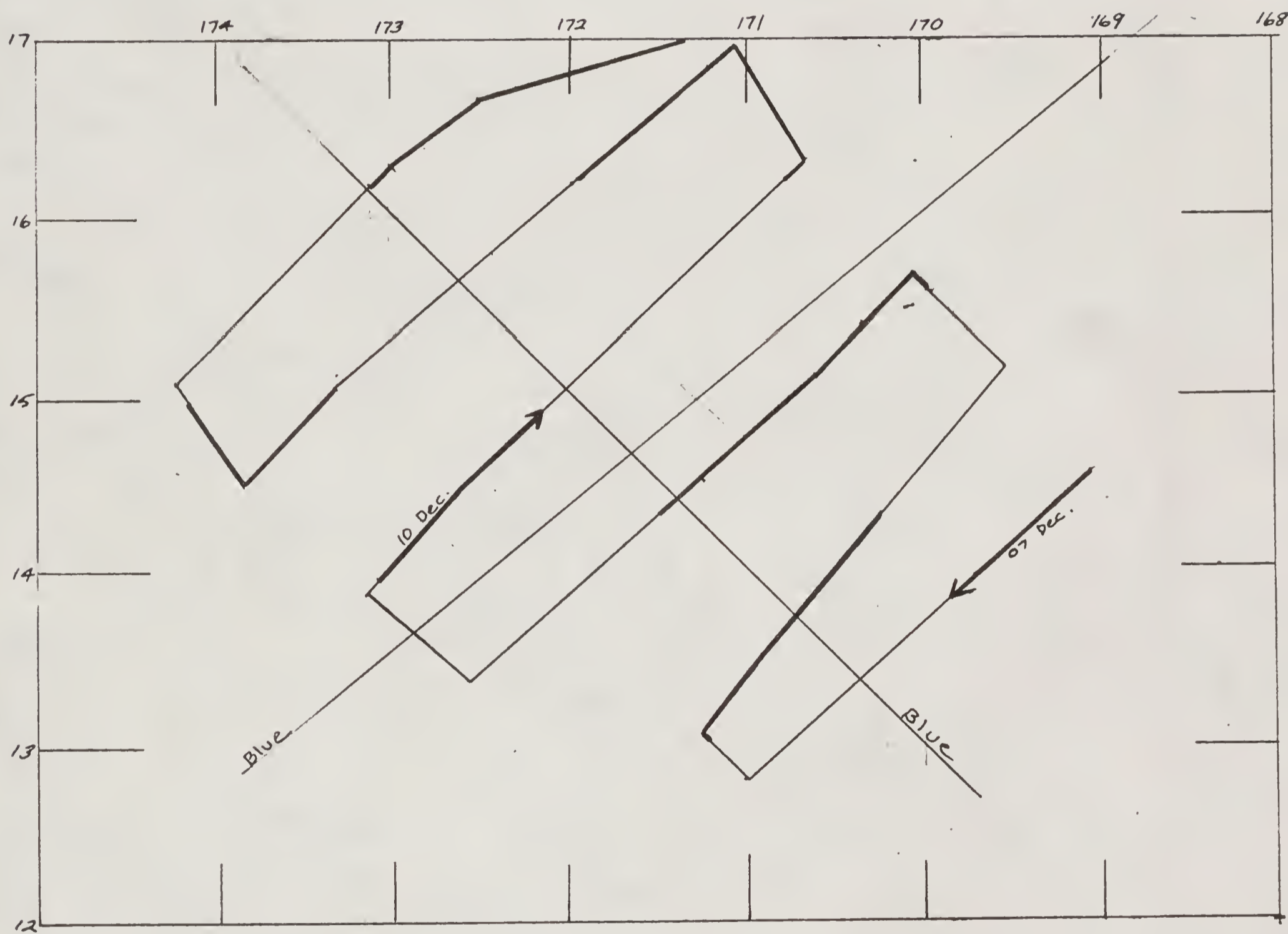
Common Noddy Tern

Three were seen on eleven December in the north quadrant of the grid.

Fairy Tern

Two were seen on eight December in the south Quadrant.

Map 1. Northern Grid Cruise Tracks, December 1966






Diurnal Observations 
Nocturnal Observations 
Quadrant divisions 

Table 1: Summary of Diurnal Bird Observations in Northern Grid,
December, 1966

<u>Date</u>	<u>Bird</u>	<u>No. Sightings</u>	<u>No. Species</u>	<u>No. Flocks</u>	<u>No. Miles</u>	<u>No. hour</u>	<u>No. birds/ lin. mile</u>
07	9	7	5	0	92	6.8	.098
08	69	15	6	1	90	11.4	.766
09	23	21	6	0	117	11.6	.197
10	14	8	5	1	88	11.3	.159
11	110	19	11	1	122	11.3	.902
12	69	19	11	1	81	11.2	.853
13	20	18	7	0	88	10.0	.243
					678	73.6	

Table 2: Diurnal Density of Species Groups in Northern Grid, December, 1966.

<u>Spec. Group</u>	<u>No. Birds</u>	<u>Birds/sq.mi.</u>	<u>Grid Population</u>	<u>%total Birds</u>
Shear.-Petrel	183	.136	6,800	8.2
Terns	79	.059	29500	25.2
Tropicbirds	6	.005	250	1.9
Boobies	23	.009	450	7.3
Frigatebirds	9	.003	150	2.9
Storm Petrels	10	.015	950	3.2
Miscellaneous	4	.003	450	1.3
Totals	314	.234	11700	100.
Total Birds in Flocks	190			60.5%

DIURNAL ABUNDANCE BY GRID QUADRANTS, Dec. 1, 1966

	Total observed in grid	% in flocks	birds/linear mile	EAST QUADRANT		SOUTH QUADRANT		WEST QUADRANT		NORTH QUADRANT	
				(count)	#/lin. mi						
Christmas Island Shearwater	1	0	.001	1	.004	-	-	-	-	-	-
Wedge-tailed Shearwater	16	38%	.024	2	.008	1	.019	3	.017	10	.048
Dawn-rumped Petrel	1	0	.001	-	-	-	-	1	.006	-	-
<i>Pterodroma externa</i>	104	57%	.153	14	.059	9	.173	55	.326	26	.124
<i>Pterodroma hypoleuca</i>	11	27%	.017	3	.013	-	-	2	.012	6	.029
Kermadec Petrel	2	100%	.003	-	-	-	-	1	.006	1	.005
White-rumped Storm Petrel	10	0	.015	4	.017	1	.019	4	.024	1	.005
White-tailed Tropicbird	1	0	.001	1	.004	-	-	0	-	-	-
Red-tailed Tropicbird	5	20%	.008	-	-	-	-	3	.0177	2	.010
Blue-faced Booby	3	0	.005	-	-	-	-	1	.006	2	.010
Red-footed Booby	20	10%	.033	3	.013	-	-	3	.0177	14	.067
Great Frigatebird	9	11%	.013	3	.013	1	.019	2	.012	3	.014
Sooty Tern	74	99%	.111	1	.004	15	.289	1	.006	57	.272
Common Noddy Tern	3	67%	.005	-	-	-	-	-	-	3	.014
Fairy Tern	2	50%	.003	-	-	2	.038	-	-	-	-
Bird sp.	4	0	.006	1	.004	-	-	2	.012	1	.005
Shearwater-Petrel	45	87%	.067	2	.008	36	.692	5	.029	2	.010
<i>Pterodroma</i> sp.	3	0	.005	1	.004	1	.019	-	-	1	.005
TOTALS	314	61%	.469	35	.148	66	1.270	83	.490	129	.615

Table 4: Summary of Nocturnal Observations in the Northern Grid,

December, 1966

<u>Date</u>	<u># hours</u>	<u>Shear/Petrels</u>	<u>Terns</u>	<u>Others</u>
7-8	9.3	0	0	0
8-9	9.0	1	0	0
9-10	9.0	1	3	2
10-11	9.0	0	1	0
11-12	9.5	2	17	2
12-13	<u>7.0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Totals	52.8	4	21	4

Species: Bird (3), Shear-Pet. (3), Juan Fernandez Petrel (1), Red-tailed Tropic.(1), Sooty Tern (21).

Tyle

PRELIMINARY REPORT
NON-GRID PELAGIC OBSERVATIONS

Northern Grid Cruise (*Survey No. 35*)

December 1-7; 13-17

1966

Prepared by
Walter Bulmer

PELAGIC SURVEY REPORT

This report covers 111 hours, and 916 miles of diurnal observation between Oahu and the Smithsonian Grid I, during the periods of December 1-7, and December 13-17. A total of 1,223 birds of 20 species were recorded and 4 specimens of 2 species were collected. A special track was followed around Johnston Island to determine bird population to the northeast of the atoll. Nocturnal observations were held in this area (see table 5) and bird density was very low. The Smithsonian observation party included Brian Harrington (BIC), Walter Bulmer, James Lewis, and Frank Smith..

The main concentration of birds was found from Oahu to about 300 miles S.W. of the island. In this area large feeding flocks of shearwater-petrels and terns were observed on the trip down but not on the return. This phenomenon agrees with last years finding and it is presumed that terns and shearwater-petrels move through this area possibly heading southeast.

In general bird populations were down from last month and were similar to those of last December.

ANNOTATED SPECIES LIST

BIRD

Black-footed Albatross
(Diomedea nigripes)

Three birds followed the ship as it left Oahu. No others were observed.

Wedge-tailed Shearwater
(Puffinus pacificus)

Wedge-tails were found in feeding flocks from December 1 to 5. After this time, most sightings were immature birds that showed up around sunrise. The flocks southwest of Oahu were probably immatures leaving their Hawaiian breeding grounds and moving casually southeasterly.

Sooty Shearwater
(Puffinus griseus)
Sooty-Slenderbill

Three birds identified as Sooty Shearwaters and two as Sooty Slender-bills were observed from December 2 to December 4. These birds may represent non-breeding individuals as the migration was over by the middle of November. All birds were heading south.

Juan Fernandez Petrel
(Pterodroma externa)
White-necked Petrel

A total of 205 petrels of this species were identified the first half of the trip. On the return route only 14 were seen. Large flocks were encountered from December 2-5. These flocks were composed of both sub-species with Juan's outnumbering White-necks about 20-1. Both sub-species were evidently preparing to migrate to their breeding grounds. The migration is probably nocturnal as some compact flocks were observed nesting in the day time, and no direction was noticed in any flock of Pterodroma externa.

Dark-rumped Petrel
(Pterodroma phaeopygia)

Only two of these birds were observed and both were about 200 miles south of Oahu. Between Hawaii and 5°N. seems to be the normal wintering area for this species.

Kermadec Petrel
(Pterodroma neglecta)

Kermadec's were fairly abundant this time and were observed with flocks of P. externa. All birds appeared in heavy molt. Several color phases were noted. These birds may migrate with P. externa back to the breeding grounds.

Phoenix Is.-Tahiti Petrel
(Pterodroma alba)

Six individuals of either or both of these species were observed on the 2nd and 3rd of December. These two species are truly the most difficult of any Pterodroma to separate in the field.

Murphy's Petrel
(Pterodroma ultima)

One individual identified as this species and a second logged as Pterodroma species may have been this rare Pterodroma. The difficulty involved with separating them from Pterodroma neglecta is acknowledged but the underwing pattern and the shape of the wing is different from that species. I believe that Murphy's is a rare but perhaps regular species in Hawaiian waters.

Black-winged Petrel
(Pterodroma hypoleuca nigripennis)

This sub-species was observed in numbers with Pterodroma externa on December 2 and 3. After that only scattered sightings of individuals were observed. Most birds were in fresh plumage and probably preparing to migrate south to breed. Of course like all Procellariidae some young, non-breeding birds remain on their wintering grounds all year round.

Bonin Island Petrel
(Pterodroma hypoleuca)

Four birds of the subspecies were observed on December 6 when a large storm from the north evidently carried them south of their normal range.

White-rumped Storm Petrel species

Storm petrels were observed casually with a high on the fourth of December which may have been due to seas and conditions of observation. The majority were probably Leach's but without collecting they could not be positively identified.

Red-tailed Tropicbird
(Phaethon rubricauda)

The reason for so few sightings of this common species appears to be the stormy conditions. Red-tails apparently avoid high winds and rough seas as much as possible. When leaving stormy areas, Red-tails were observed regularly. This phenomenon was noticed on last December's Northern Grid trip, also.

White-tailed Tropicbird
(Phaethon lepturus)

White-tails, unlike Red-tails, are often found in rough seas with high winds. In association with the storm sweeping down from the Hawaiian Islands, White-tails were more abundant than last month, and are probably from the main Hawaiian Islands.

Blue-faced Booby
(Sula dactylatra)

A total of 5 birds is similar to last month's and last ^{December's} observations on this species. Both adults and immatures were sighted.

Brown Booby
(Sula leucogaster)

The majority of Brown Boobies were observed close to Oahu on the 17th of December. Out of the 10 birds observed, only 2 were over 150 miles from land.

Red-footed Booby
(Sula sula)

Seventy-one Red-foots representing all age classes were observed.

A few birds were observed almost every day. A high of 21 birds, mostly adult light phase, were sighted on December 14 heading northwest from Johnston Island. These birds passed in small groups presumably heading for a feeding area.

One orange-streamered adult was observed on the 3rd of December.

Great Frigatebird
(Fregata minor)

A total of 14 frigates were observed. This total is similar to last year's observations. In view of the bad storm and the lack of birds, frigates should be low in numbers. Most frigates were sighted as lone birds feeding on flying fish.

Sooty Tern
(Sterna fuscata)

Sooty Terns were observed in feeding flocks from Oahu to about 600 miles southwest on December 1st, 2nd, and 3rd. The largest concentration on the 2nd of December was due to one flock of 115 birds. Roughly the same number of flocks containing Sooty Terns were observed on all three days. One orange-streamered adult was observed on the 3rd of December indicating that some Johnston and some Hawaiian Sooty Terns are probably feeding in the same areas and may integrate in non-breeding seasons. Immatures were present in small numbers with the adults in the feeding flocks. The adult birds were observed feeding these immatures on several occasions.

This concentration of adult Sooty Terns southwest of Oahu in late November and early December has been noticed both last year and this year. By late December the birds had left the area probably heading southeast. The storm may have forced them southeast but I believe that the birds are casually heading in this direction regardless of weather conditions.

Sooty Terns observed on other days appears to be mainly sub-adult birds traveling in pairs or alone.

Common Noddy Tern
(Anous stolidus)

Noddy Terns were observed on December 1, after leaving Oahu. This is similar to last month and last year's observations of this species.

Fairy Tern
(Gygis alba)

Only four Fairy Terns in non-grid areas this December, were observed. This corresponds with the numbers seen last year in the same area, although less Fairy Terns were noticed around Oahu this year.

Pomarine Jaeger
(Stercorarius pomarinus)

A total of 13 Jaegers of all ages and color-phases were observed from Pearl Harbor to about 30 miles southwest of Oahu.

TABLE #1. DAILY SUMMARY OF PELAGIC OBSERVATIONS

DATE	MILES	HOURS	BIRDS	BIRD/LIN. MILE	FLOCKS	SPECIES
December 1	52.5	4 hrs. 55 min.	154	2.97	2	8
December 2	71	11 hrs. 7 min.	377	5.31	8	15
December 3	96	11 hrs. 9 min.	250	2.60	8	13
December 4	96.5	11 hrs. 37 min.	104	1.07	2	10
December 5	107	11 hrs. 06 min.	120	1.12	2	8
December 6	108	11 hrs. 05 min.	27	.25	0	8
December 7	51	6 hrs. 50 min.	20	.176	0	5
TOTAL	582	67 hrs. 39 min.	1,052	.557	22	20
December 13	8	54 min.	1	.125	0	1
December 14	92.5	10 hrs. 59 min.	39	.421	1	8
December 15	99	10 hrs. 52 min.	15	.151	0	5
December 16	69	10 hrs. 52 min.	86	1.24	2	10
December 17	65	10 hrs. 21 min.	30	.444	2	8
TOTAL	333.5	43 hrs. 58 min.	171	2.09	5	14

TABLE #2. DIURNAL ABUNDANCE OF SPECIES GROUPS

Species Groups	Total No.		Percent Total	Total No.	
	Dec. 1-7			Dec. 13-17	% Total
Shearwater-Petrel	5298		50.3%	45	26.3%
Tern	4323		41%	56	32.7%
Tropicbird	8		.7%	6	3.5%
Booby	34		3.2	52	30.4%
Frigate	9		.8%	7	4.8%
Storm-Petrel	19		1.8%	2	1.2%
Jaeger	16		1.5%	0	0
Bird	5		.4%	3	1.8%
TOTAL	1052			171	

TABLE #3. (continued)

SPECIES COMPOSITION AND DENSITY FOR DECEMBER 13-17.

SPECIES	DECEMBER- 13		14		15		16		17		TOTAL
	No.	B/L	No.	B/L	No.	B/L	No.	B/L	No.	B/L	
Wedge-tail Shearwater			4	.042	4	.040	12	.173	2		22
Juan Fernandez Petrel			4	.042	2	.020	3	.043			9
Pterodroma externa ssp?			1	.010	1	.010	3	.043			5
Dark-rumped Petrel					1	.010					1
Kermadec Petrel							3	.043			3
Black-winged Petrel			2	.021							2
Shearwater-Petrel			2	.021			1	.014			3
White-rumped Storm Petrel sp?							2	.029			2
Red-tailed Tropicbird			1	.010					2		3
White-tailed Tropicbird			1	.010					2		3
Blue-faced Booby			1	.010			3	.043			4
Brown Booby							1	.014	7		8
Red-footed Booby	1	.100	21	.227	6	.060	4	.057	8		40
Great Frigate			2	.021	1	.010	3	.043	1		7
Sooty Tern							50	.739	5		55
Fairy Tern									1		1
Bird sp?							1	.014	2		3

TOTAL BIRDS SEEN

171

TABLE #4. SPECIMENS AND SERA COLLECTED: COLOR-MARKED BIRD SIGHTINGS

SPECIMENS	DATE	LOCALITY	COLLECTED	SERA	COLOR-MARKED
Wedgetail Shearwater	12-2	19°42'N 161°58'W	x	0	0
Wedgetail Shearwater	12-3	18°08'N 166°04'W	x	x	0
Wedgetail Shearwater	12-5	18°45'N 171°51'W	x	0	0
Black-winged Petrel	12-2	19°43'N 161°48'W	x	0	0
Red-footed Booby	12-3	18°49'N 164°27'W	0	0	Orange-streamer
Sooty Tern	12-3	18°44'N 164°44'W	0	0	Orange-streamer

TABLE #5. NOCTURNAL OBSERVATIONS
DECEMBER-

BIRD	3-4	4-5	5-6	6-7	TOTAL
Wedgetail Shearwater	6	-	-	-	6
Shearwater-Petrel	10	4	2	1	17
White-rumped Storm Petrel	1	-	1	-	2
Black-winged Petrel	1	-	-	-	1
Sooty Tern	4	2	8	-	14
Bird sp?	3	-	3	-	6
TOTAL	25	6	14	1	46

Observations were conducted each night from 2000 to 0500.

SHIP WEATHER OBSERVATION SHEET

USS GRANVILLE S HALL YAG 40 DATE (GMT) 2 DECEMBER 19 66
AT/PASSAGE FROM PEARL HARBOR TO SPECIAL OPERATING AREA

TABLE I

TIME (GMT)	WINDS IF ESTIMATED		VISIBILITY (Miles)	WEATHER (Symbols)	BAROMETER (Inches)	TEMPERATURE (Degrees and tenths)		CLOUDS			SEA WATER TEMP. (Degrees and tenths)	SEA WAVES			SWELL WAVES		
	Direction (True)	Force (Knots)				Dry Bulb	Wet Bulb	Amount (Tenths)	Height	Type		Direction (True)	Period (Seconds)	Height (Feet)	Direction (True)	Period (Seconds)	Height (Feet)
00	096	6	9	SCT	29.88	81	74	4	4000	AC	80	—	—	—	180	5	3
01	059	7	10	SCT	29.85	84	78	5	4000	AC	82	—	—	—	180	5	3
02	083	9	10	SCT	29.86	85	71	5	4000	AC	82	—	—	—	180	5	3
03	093	10	10	SCT	29.86	85	71	5	4000	AC	82	—	—	—	180	5	3
04	090	10	10	SCT	29.89	82	76	7	4000	AC	82	—	—	—	165	5	3
05	097	8.5	10	SCT	29.90	80	75	7	4000	AC	82	—	—	—	—	—	—
06	136	9.2	10	SCT	29.92	77	75	5	2500	SC	82	—	—	—	—	—	—
07	136	9.2	10	BKN	29.92	79	74	7	2500	SC	82	—	—	—	—	—	—
08	140	10.1	10	BKN	29.92	79	74	8	3000	SC	82	—	—	—	—	—	—
09	140	10.5	10	BKN	29.93	78	74	8	3000	AC	82	—	—	—	—	—	—
10	140	10.5	10	BKN	29.94	75	72	8	3000	AC	82	—	—	—	—	—	—
11	164	13	10	BKN	29.94	80	72	8	3000	AC	82	—	—	—	—	—	—
12	136	12.2	10	BKN	29.91	79	71	8	3000	AC	82	—	—	—	—	—	—
13	120	12.7	10	BKN	29.87	80	74	8	2500	AC	82	—	—	—	—	—	—
14	137	18.0	10	BKN	29.85	80	74	8	2500	AC	82	—	—	—	—	—	—
15	122	17.0	10	BKN	29.85	80	74	7	2500	AC	82	—	—	—	—	—	—
16	125	19	10	BKN	29.85	80	74	8	2500	AC	82	—	—	—	—	—	—
17	120	18	10	BKN	29.86	80	74	7	3000	AC	82	—	—	—	—	—	—
18	140	21.8	10	SCT	29.88	80	74	4	2500	AC	82	170	9	3	150	7	5
19	135	20	10	SCT	29.88	81	74	5	2000	AC	82	170	9	3	150	6	5
20	146	21.5	10	SCT	29.92	81	75	5	2000	AC	82	170	7	4	145	6	5
21	156	17.7	10	SCT	29.92	81	75	5	2000	AC	82	150	6	5	170	7	5
22	142	12.8	10	SCT	29.91	81.5	75	6	2000	AC	82	100	4	3	150	6	6
23	149	14	10	SCT	29.88	82	76	4	2000	AC	82	153	4	3	165	6	6

TABLE II
SYNOPTIC OBSERVATIONS

FIRST GROUP OF MESSAGE	Day of Week (1-7) (GMT)	POSITION OF SHIP			TIME (GMT)	Total Cloud Amt. (Coded)	WIND			WEATHER		PRESSURE	AIR TEMP. (°C)	CLOUDS					Course of Ship (0-9)	Speed of Ship (0-9)	3-HOUR PRESSURE TENDENCY		SIGNIFICANT CLOUD			
		Occurrant (0-3) (5-8)	Latitude (Degrees and tenths)	Longitude (Degrees and tenths)			Direction (True) (00-36)	Speed (True) (Knots)	Visibility (90-99)	Present (00-99)	Post (0-9)			Borometer Corrected (Mb)	Amount of Low Cloud	Type of CL (0-9)	Height of Low Cloud	Type of CM (0-9)			Type of CH (0-9)	Characteristic (0-8)	Amount of Change (Mb and tenths)	Indicator	Amount (Eights)	Type
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
	Y	Q	L _s L _a L _o	L _o L _o L _o	GG	N	dd	ff	VV	ww	W	ppp	TT	N _h	CL	h	C _M	C _H	D _s	V _s	a	pp	8	N _s	C	h _s h _s
SHIP					00																					
SHIP					06																					
SHIP					12																					
SHIP					18																					

Indicator	AIR-SEA DIFF. (Coded)	DEW POINT (°C)	SEA WAVES				SWELL WAVES				ICE ACCRETION				SEA ICE					DO NOT TRANSMIT			
			Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Source	Thickness	Rate	Indicator	Kind	Effect	Bearing	Distance	Orientation	Dry Bulb (Degrees and tenths)	Wet Bulb (Degrees and tenths)	Sea Water Temp. (Degrees and tenths)
28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	A ₁	A ₂	A ₃
0	T _s T _s	T _d T _d	1	d _w d _w	P _w	H _w	1	d _w d _w	P _w	H _w	2	I _s	E _s E _s	R _s	ICE	C ₂	K	D _i	r	e	Celsius	Celsius	Celsius
0			1				1				2				ICE								
0			1				1				2				ICE								
0			1				1				2				ICE								
0			1				1				2				ICE								

DEPARTMENT OF THE NAVY
SHIP WEATHER OBSERVATION SHEET

USS GRANVILLE S. HALL YAG 40 DATE (GMT) 3 DECEMBER 19 65
AT/PASSAGE FROM SPECIAL OP AREA TO _____

TABLE I

TIME (GMT)	WINDS <input type="checkbox"/> IF ESTIMATED		VISI- BIL- ITY (Miles)	WEATHER (Symbols)	BAROMETER (Inches)	TEMPERATURE (Degrees and tenths)		CLOUDS			SEA WATER TEMP. (Degrees and tenths)	SEA WAVES			SWELL WAVES		
	Direction (True)	Force (Knots)				Dry Bulb	Wet Bulb	Amount (Tenths)	Height	Type		Direction (True)	Period (Seconds)	Height (Feet)	Direction (True)	Period (Seconds)	Height (Feet)
14 00	140	12	10	SCT	29.85	81	76	9	2000	CU	82	140	4	2	160	7	5
15 01	142	10	10	SCT	29.84	81	75	9	2000	CU	82	120	5	2	150	7	6
16 02	146	18	10	SCT	29.84	80	74	9	2000	CU	82	120	5	2	150	7	6
17 03	140	17	10	SCT	29.85	80	74	9	2000	CU	82	120	5	2	150	7	6
18 04	152	15.5	10	SCT	29.85	79	75	9	2000	CU	82	-	-	-	-	-	-
19 05	155	20	10	BKN	29.84	79	75	7	2000	CU	82	-	-	-	-	-	-
20 06	134	16	10	BKN	29.83	75	74	5	2500	CU	82	-	-	-	-	-	-
21 07	122	22.3	10	BKN	29.83	78	74	3	2500	CU	82	-	-	-	-	-	-
22 08	133	19.8	10	BKN	29.84	76	72	3	2500	CU	82	-	-	-	-	-	-
23 09	133	25	10	BKN	29.83	81	71	5	2500	CU	82	-	-	-	-	-	-
00 10	163	33	10	BKN	29.79	81	71	8	2500	CU	82	-	-	-	-	-	-
01 11	150	35	10	BKN	29.78	81	71	8	2500	CU	82	-	-	-	-	-	-
02 12	152	35	10	BKN	29.77	80	72	8	2500	CU	82	-	-	-	-	-	-
03 13	150	37	10	BKN	29.76	80	72	7	2500	CU	82	-	-	-	-	-	-
04 14	161	24.5	10	BKN	29.75	80	76	7	2000	CU	82	-	-	-	-	-	-
05 15	166	26	10	BKN	29.76	80	75	5	2000	CU	82	-	-	-	-	-	-
06 16	175	23	10	BKN	29.77	80	76	7	2000	CU	82	-	-	-	-	-	-
07 17	173	21	10	BKN	29.77	78	75	6	2000	CU	82	-	-	-	-	-	-
08 18	159	21	10	SCT	29.77	79	76	5	1700	CU	82	160	7	1	172	7	7
09 19	190	28	10	SCT	29.80	84	78	5	2400	CU	82	195	7	2	160	5	7
10 20	168	24	10	SCT	29.80	81	76	4	2000	CU	82	165	5	-	160	5	7
11 21	166	27	10	SCT	29.79	81	77	3	2000	CU	82	175	4	2	160	5	8
12 22	174	28	10	SCT	29.79	81	77	4	2000	CU	82	175	4	2	160	5	8
13 23	174	28	10	SCT	29.79	81	77	4	2000	CU	82	175	4	2	160	5	8

TABLE II
SYNOPTIC OBSERVATIONS

FIRST GROUP OF MESSAGE	Day of Week (1-7) (GMT)	POSITION OF SHIP			TIME (GMT)	Total Cloud Amt. (Coded)	WIND		Visi- bil- ity (90-99)	WEATHER		PRESSURE	AIR TEMP. (°C)	CLOUDS					3-HOUR PRESSURE TENDENCY	SIGNIFICANT CLOUD						
		Occur- rent (0-3) (5-8)	Latitude (Degrees and tenths)	Longitude (Degrees and tenths)			Direction (True) (00-36)	Speed (True) (Knots)		Present (00-99)	Post (0-9)			Barometer Corrected (Mb)	Amount of Low Cloud	Type of C _L (0-9)	Height of Low Cloud	Type of C _M (0-9)		Type of C _H (0-9)	Course of Ship (0-9)	Speed of Ship (0-9)	Characteristic (0-8)	Amount of Change (Mb and tenths)	Indicator	Amount (Eights)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
	Y	Q	L _s L _n L _o	L _o L _o L _o	GG	N	dd	ff	VV	ww	W	ppp	TT	N _h	C _L	h	C _M	C _H	D _s	V _s	a	pp	8	N _s	C	h _s h _s
SHIP					00																			8		
SHIP					06																			8		
SHIP					12																			8		
SHIP					18																			8		

Indicator	AIR- SEA DIFF. (Coded)	DEW POINT (°C)	SEA WAVES				SWELL WAVES				ICE ACCRETION			SEA ICE					DO NOT TRANSMIT				
			Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Source	Thickness	Rate	Indicator	Kind	Effect	Bearing	Distance	Orientation	Dry Bulb (Degrees and tenths)	Wet Bulb (Degrees and tenths)	Sea Water Temp. (Degrees and tenths)
28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	A ₁	A ₂	A ₃
0	T _s T _s	T _d T _d	1	d _w d _w	P _w	H _w	1	d _w d _w	P _w	H _w	2	I _s	E _s E _s	R _s	ICE	C ₂	K	D ₁	r	e	Celsius	Celsius	Celsius
0			1				1				2				ICE								
0			1				1				2				ICE								
0			1				1				2				ICE								
0			1				1				2				ICE								

REMARKS _____

EXAMINED _____

USN NAVIGATOR

SHIP WEATHER OBSERVATION SHEET

USS GRANVILLE S. HALL (YAG-40) DATE (GMT) 4 DECEMBER 19 66
AT/PASSAGE FROM LOCAL OPERATING AREA TO

TABLE I

TIME (GMT)	WINDS <input type="checkbox"/> IF ESTIMATED		VISI-BIL-ITY (Miles)	WEATHER (Symbols)	BAROMETER (Inches)	TEMPERATURE (Degrees and tenths)		CLOUDS			SEA WATER TEMP. (Degrees and tenths)	SEA WAVES			SWELL WAVES		
	Direction (True)	Force (Knots)				Dry Bulb	Wet Bulb	Amount (Tenths)	Height	Type		Direction (True)	Period (Seconds)	Height (Feet)	Direction (True)	Period (Seconds)	Height (Feet)
00	185	22	10	SCT	29.74	84	77	5	2000	CU	82	175	4	2	160	5	8
01	167	20	10	SCT	29.74	84	77	5	2000	CU	82	175	4	2	160	5	8
02	184	23	10	SCT	29.74	82	76	3	2000	CU	82	170	9	3	190	8	7
03	197	21.5	10	SCT	29.75	82	77	3	2000	CU	82	170	7	2	180	6	6
04	197	21.5	10	SCT	29.75	81	76	3	2000	CU	82	170	7	2	180	5	7
05	202	18	10	SCT	29.77	81	76	3	2000	CU	82	-	-	-	-	-	-
06	104	15	10	SCT	29.80	82	72	5	2000	CU	82	-	-	-	-	-	-
07	093	5.5	17	SCT	29.83	81	71	5	2000	CU	82	-	-	-	-	-	-
08	100	5.4	10	SCT	29.84	78	74	5	2000	CU	82	-	-	-	-	-	-
09	120	19.6	8	SCT	29.84	81	75	5	200	CU	82	-	-	-	-	-	-
10	339	14.5	6	SCT	29.81	81	75	5	200	CU	82	-	-	-	-	-	-
11	339	14.5	10	SCT	29.81	81	75	5	2000	CU	82	-	-	-	-	-	-
12	330	15	10	SCT	29.80	81	75	5	2000	CU	82	-	-	-	-	-	-
13	329	14	10	SCT	29.80	81	75	5	2000	CU	82	-	-	-	-	-	-
14	265	7.5	10	OVC	29.79	77	73	10	2000	CU	82	-	-	-	-	-	-
15	300	2.8	10	OVC	29.79	79	77	10	2000	CU	82	-	-	-	-	-	-
16	232	4	10	BKN	29.79	79	74	8	2000	CU	82	-	-	-	-	-	-
17	333	16.5	10	BKN	29.80	79	74	8	2000	CU	82	-	-	-	-	-	-
18	300	22	10	BKN	29.84	78	73	8	2500	CU	82	-	-	-	285	5	6
19	310	16	10	SCT	29.84	80	71	5	2000	CU	82	-	-	-	285	6	6
20	346	11	10	SCT	29.86	82	70	3	2000	CU	82	345	6	1	300	5	7
21	340	12	10	SCT	29.87	79	70	4	2000	CU	82	340	6	1	290	5	6
22	342	9	10	SCT	29.86	80	70	5	2000	CU	82	340	6	1	290	5	6
23	354	8	10	SCT	29.84	80	71	5	2000	CU	82	340	6	1	290	5	6

TABLE II
SYNOPTIC OBSERVATIONS

FIRST GROUP OF MESSAGE	Day of Week (1-7) (GMT)	POSITION OF SHIP			TIME (GMT)	Total Cloud Amt. (Coded)	WIND		Visi-bil-ity (90-99)	WEATHER		PRESSURE	AIR TEMP. (°C)	CLOUDS					Course of Ship (0-9)	Speed of Ship (0-9)	3-HOUR PRESSURE TENDENCY		SIGNIFICANT CLOUD			
		Occi-dent (0-3) (5-8)	Latitude (Degrees and tenths)	Longitude (Degrees and tenths)			Direction (True) (00-36)	Speed (True) (Knots)		Present (00-99)	Past (0-9)			Barometer Corrected (Mb)	Amount of Low Cloud (0-9)	Type of CL (0-9)	Height of Low Cloud (0-9)	Type of CM (0-9)			Type of CH (0-9)	Characteristic (0-8)	Amount of Change (Mb and tenths)	Indicator	Amount (Eights)	Type
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
	Y	Q	L ₁ L ₂ L ₃	L ₀ L ₁ L ₂	GG	N	dd	ff	VV	ww	W	ppp	TT	N _h	C _L	h	C _M	C _H	D _s	V _s	a	pp	8	N _s	C	h _s h _s
SHIP					00																		8			
SHIP					06																		8			
SHIP					12																		8			
SHIP					18																		8			

Indicator	AIR-SEA DIFF. (Coded)	DEW POINT (°C)	SEA WAVES				SWELL WAVES				ICE ACCRETION			SEA ICE					DO NOT TRANSMIT								
			Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Source	Thickness	Rate	Indicator	Kind	Effect	Bearing	Distance	Orientation	Dry Bulb (Degrees and tenths)	Wet Bulb (Degrees and tenths)	Sea Water Temp. (Degrees and tenths)				
28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48							
0	T _s T _s	T _d T _d	1	d _w d _w	P _w	H _w	1	d _w d _w	P _w	H _w	2	I _s	E _s E _s	R _s	ICE	C ₂	K	D ₁	r	e	A ₁	A ₂	A ₃	Celsius	Celsius	Celsius	
0			1				1				2				ICE												
0			1				1				2				ICE												
0			1				1				2				ICE												
0			1				1				2				ICE												

REMARKS

EXAMINED

USN, NAVIGATOR

SHIP WEATHER OBSERVATION SHEET

USS GRANVILLE S. HALL (YAG-40)

DATE (GMT) 5 DECEMBER

19 66

AT/PASSAGE FROM LOCAL OP AREA

TO

TABLE I

TIME (GMT)	WINDS <input type="checkbox"/> IF ESTIMATED		VISI-BIL-ITY (Miles)	WEATHER (Symbols)	BAROMETER (Inches)	TEMPERATURE (Degrees and tenths)		CLOUDS			SEA WATER TEMP. (Degrees and tenths)	SEA WAVES			SWELL WAVES		
	Direction (True)	Force (Knots)				Dry Bulb	Wet Bulb	Amount (Tenths)	Height	Type		Direction (True)	Period (Seconds)	Height (Feet)	Direction (True)	Period (Seconds)	Height (Feet)
00	338	6	10	SC	29.81	81	70	5	2000	CU	82	340	6	4	290	5	6
01	338	6	10	SC	29.80	81	70	5	2000	CU	82	340	6	1	290	5	6
02	358	9.7	10	SC	29.81	75	71	4	2000	CU	82	340	6	2	300	6	6
03	058	9.7	10	SC	29.85	79	71	4	2000	CU	82	000	5	2	300	6	5
04	023	12.5	10	SC	29.85	79	71	4	2000	CU	82	-	-	-	-	-	-
05	055	5.5	10	SC	29.89	80	74	4	200	CU	82	-	-	-	-	-	-
06	015	10	10	SC	29.91	80	74	3	2000	CU	82	-	-	-	-	-	-
07	023	6.5	10	SC	29.92	80	71	3	2000	CU	82	-	-	-	-	-	-
08	017	8	10	SC	29.94	80	71	3	2000	CU	82	-	-	-	-	-	-
09	015	11.5	10	SC	29.93	78	70	3	2000	CU	82	-	-	-	-	-	-
10	025	10.4	10	SC	29.94	78	69	3	2000	CU	82	-	-	-	-	-	-
11	016	8.4	10	SC	29.94	74	69	3	2000	CU	82	-	-	-	-	-	-
12	007	18.5	10	SC	29.93	74	69	3	2000	CU	82	-	-	-	-	-	-
13	000	7.5	10	SC	29.90	77	69	3	2000	CU	82	-	-	-	-	-	-
14	010	8	10	SC	29.90	77	68	4	2000	CU	82	-	-	-	-	-	-
15	022	15	10	SC	29.90	78	72	4	1500	CU	82	-	-	-	-	-	-
16	008	18	10	SC	29.91	76	69	4	2000	CU	82	-	-	-	-	-	-
17	030	14.5	10	SC	29.94	78	71	4	2000	CU	82	-	-	-	290	7.5	4
18	030	15	10	SC	29.94	79	72	4	2000	CU	82	-	-	-	290	7.5	4
19	035	16	10	SC	29.95	77	70	4	2000	CU	82	-	-	-	290	7.5	4
20	020	18	10	SC	29.97	77	70	4	2000	CU	82	-	-	-	290	7.5	4
21	035	14.7	10	SC	29.96	77	70	4	2000	CU	82	-	-	-	290	8	5
22	033	19	10	SC	29.94	77	70	4	2000	CU	82	015	7	2	010	7	5
23																	

TABLE II
SYNOPTIC OBSERVATIONS

FIRST GROUP OF MESSAGE	POSITION OF SHIP					Total Cloud Amt. (Coded)	WIND		Visi-bil-ity (90-99)	WEATHER		PRESSURE Barometer Corrected (Mb)	AIR TEMP. (°C)	CLOUDS					3-HOUR PRESSURE TENDENCY Amount of Change (Mb and tenths)	SIGNIFICANT CLOUD						
	Day of Week (1-7) (GMT)	Oc-tant (0-3) (5-8)	Latitude (Degrees and tenths)	Longitude (Degrees and tenths)	TIME (GMT)		Direction (True) (00-36)	Speed (True) (Knots)		Present (00-99)	Post (0-9)			Amount of Low Cloud	Type of CL (0-9)	Height of Low Cloud	Type of CM (0-9)	Type of CH (0-9)		Course of Ship (0-9)	Speed of Ship (0-9)	Characteristic (0-8)	Indicator	Amount (Eights)	Type	Height
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
	Y	Q	L _s L _n L _o	L _o L _o L _o	GG	N	dd	ff	VV	ww	W	ppp	TT	N _h	C _L	h	C _M	C _H	D _s	V _s	a	pp	8	N _s	C	h _s h _s
SHIP					00																		8			
SHIP					06																		8			
SHIP					12																		8			
SHIP					18																		8			

Indicator	AIR-SEA DIFF. (Coded)	DEW POINT (°C)	SEA WAVES				SWELL WAVES				ICE ACCRETION				SEA ICE					DO NOT TRANSMIT				
			Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Source	Thickness	Rate	Indicator	Kind	Effect	Bearing	Distance	Orientation	Dry Bulb (Degrees and tenths)	Wet Bulb (Degrees and tenths)	Sea Water Temp. (Degrees and tenths)	
0	T _s T _s	T _d T _d	1	d _w d _w	P _w	H _w	1	d _w d _w	P _w	H _w	2	I _s	E _s E _s	R _s	ICE	C ₂	K	D ₁	r	e	A ₁	A ₂	A ₃	
0			1				1					2			ICE						Celsius	Celsius	Celsius	
0			1				1					2			ICE									
0			1				1					2			ICE									
0			1				1					2			ICE									

SHIP WEATHER OBSERVATION SHEET

USS GRANVILLE S. HALL 49640 DATE (GMT) 7 DECEMBER 19 66
AT/PASSAGE FROM LOCAL OP AREA TO _____

TABLE I

TIME (GMT)	WINDS <input type="checkbox"/> IF ESTIMATED		VISIBILITY (Miles)	WEATHER (Symbols)	BAROMETER (Inches)	TEMPERATURE (Degrees and tenths)		CLOUDS			SEA WATER TEMP. (Degrees and tenths)	SEA WAVES			SWELL WAVES		
	Direction (True)	Force (Knots)				Dry Bulb	Wet Bulb	Amount (Tenths)	Height	Type		Direction (True)	Period (Seconds)	Height (Feet)	Direction (True)	Period (Seconds)	Height (Feet)
00	008	29.2	10	SCT	29.87	81	75	3	2000	CU	82	020	5	2	010	6	7
01	013	30.7	10	SCT	29.86	81	75	4	2000	CU	82	015	5	2	010	6	7
02	012	31.2	10	SCT	29.84	78	71	1	2000	CU	82	010	6	3.5	010	6	6
03	015	21.5	10	SCT	29.85	78	70	1	2000	CU	82	010	5	3.5	010	5	6
04	035	28.5	10	BKN	29.86	78	70	6	2000	CU	82	010	5	3.5	015	5	6
05	035	28.5	10	BKN	29.86	78	70	6	2000	CU	82	010	5	3.5	015	5	6
06	029	28.0	10	BKN	29.89	78	70	6	2000	CU	82	—	—	—	—	—	—
07	045	24.5	10	BKN	29.93	77	73	8	2000	CU	82	—	—	—	—	—	—
08	026	21.5	10	BKN	29.92	79	73	8	2000	CU	82	—	—	—	—	—	—
09	062	21.2	10	BKN	29.92	77	72	7	2000	CU	82	—	—	—	—	—	—
10	045	22	10	SCT	29.91	79	72	1	2000	CU	82	—	—	—	—	—	—
11	029	26	10	SCT	29.90	79	72	5	2000	CU	82	—	—	—	—	—	—
12	040	24	10	RN	29.89	79	72	3	1800	CU	82	—	—	—	—	—	—
13	037	25	10	SCT	29.87	79	72	3	2000	CU	82	—	—	—	—	—	—
14	032	20	10	SCT	29.86	79	72	3	2000	CU	82	—	—	—	—	—	—
15	043	22	10	SCT	29.86	79	72	4	2000	CU	82	—	—	—	—	—	—
16	048	25	10	SCT	29.87	79	72	5	2000	CU	82	—	—	—	—	—	—
17	048	27	10	SCT	29.87	79	72	5	2000	CU	82	—	—	—	—	—	—
18	044	24.5	10	SCT	29.89	78	72	3	2000	CU	82	015	6	2	030	6	8
19	046	27.6	10	SCT	29.90	78	72	3	2000	CU	82	015	5	1	030	6	8
20	055	30.0	10	SCT	29.93	79	73	4	2000	CU	82	010	5	1	010	6	8
21	049	31.0	10	SCT	29.82	79	72	4	2000	CU	84	010	5	2	030	6	8
22	045	26.0	10	SCT	29.84	82	72	4	2000	CU	82	010	5	2	030	5	6
23	045	32	10	SCT	29.86	84	72	4	2000	CU	82	030	5	3	050	6	8

TABLE II
SYNOPTIC OBSERVATIONS

FIRST GROUP OF MESSAGE	Day of Week (1-7) (GMT)	POSITION OF SHIP			TIME (GMT)	Total Cloud Amt. (Coded)	WIND		Visi-bility (90-99)	WEATHER		PRESSURE	AIR TEMP. (°C)	CLOUDS					Course of Ship (0-9)	Speed of Ship (0-9)	3-HOUR PRESSURE TENDENCY		SIGNIFICANT CLOUD			
		Oc-tant (0-3) (5-8)	Latitude (Degrees and tenths)	Longitude (Degrees and tenths)			Direction (True) (00-36)	Speed (True) (Knots)		Present (00-99)	Past (0-9)			Borometer Corrected (Mb)	Amount of Low Cloud	Type of CL (0-9)	Height of Low Cloud	Type of CM (0-9)			Type of CH (0-9)	Characteristic (0-8)	Amount of Change (Mb and tenths)	Indicator	Amount (Eights)	Type
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
	Y	Q	L ₃ L ₂ L ₁ L ₀	L ₀ L ₀ L ₀	GG	N	dd	ff	VV	ww	W	ppp	TT	N _h	C _L	h	C _M	C _H	D _s	V _s	a	pp	8	N _s	C	h _s h _s
SHIP					00																		8			
SHIP					06																		8			
SHIP					12																		8			
SHIP					18																		8			

Indicator	AIR-SEA DIFF. (Coded)	DEW POINT (°C)	SEA WAVES				SWELL WAVES				ICE ACCRETION			SEA ICE					DO NOT TRANSMIT				
			Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Source	Thickness	Rate	Indicator	Kind	Effect	Bearing	Distance	Orientation	Dry Bulb (Degrees and tenths)	Wet Bulb (Degrees and tenths)	Sea Water Temp. (Degrees and tenths)
28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	A ₁	A ₂	A ₃
0	T _s T _s	T _d T _d	1	d _w d _w	P _w	H _w	1	d _w d _w	P _w	H _w	2	I _s	E _s E _s	R _s	ICE	C ₂	K	D ₁	r	e	Celsius	Celsius	Celsius
0			1				1				2				ICE								
0			1				1				2				ICE								
0			1				1				2				ICE								
0			1				1				2				ICE								

SHIP WEATHER OBSERVATION SHEET

USS G.S. HALL (VAG-40) DATE (GMT) 8 DEC 19 66
AT/PASSAGE FROM SPECIAL OPS AREA TO _____

TABLE I

TIME (GMT)	WINDS <input type="checkbox"/> IF ESTIMATED		VISIBILITY (Miles)	WEATHER (Symbols)	BAROMETER (Inches)	TEMPERATURE (Degrees and tenths)		CLOUDS			SEA WATER TEMP. (Degrees and tenths)	SEA WAVES			SWELL WAVES			
	Direction (True)	Force (Knots)				Dry Bulb	Wet Bulb	Amount (Tenths)	Height	Type		Direction (True)	Period (Seconds)	Height (Feet)	Direction (True)	Period (Seconds)	Height (Feet)	
00																		
01																		
02	043	21	10	SCT	29.80	82	72	5	2000	CU	82	050	5	4	050	7	7	
03	040	20	10	SCT	29.80	82	72	5	2000	CU	82	050	5	4	050	7	7	
04	040	20	10	SCT	29.80	82	72	5	2000	CU	82	050	5	4	070	7	8	
05	045	22	10	BKN	29.85	80	73	9	2000	CU	82	050	5	4	070	7	9	
06	057	33.5	10	BKN	29.86	79	75	8	2000	CU	82	-	-	-	-	-	-	
07	054	26.0	10	BKN	29.87	80	75	8	2000	CU	82	-	-	-	-	-	-	
08	057	34.0	10	SCT	29.90	79	75	6	2000	CU	82	-	-	-	-	-	-	
09	053	29.5	10	SCT	29.89	79	74	5	2000	CU	82	-	-	-	-	-	-	
10	045	27	10	SCT	29.85	81	75	3	2000	CU	82	-	-	-	-	-	-	
11	045	28	10	SCT	29.85	81	75	3	2000	CU	82	-	-	-	-	-	-	
12	044	27	10	SCT	29.84	81	75	2	2000	CU	84	-	-	-	-	-	-	
13	045	27	10	SCT	29.82	81	75	2	2000	CU	84	-	-	-	-	-	-	
14	063	28	10	SCT	29.84	81	75	5	2000	CU	84	-	-	-	-	-	-	
15	060	29	10	SCT	29.84	81	75	5	2000	CU	84	-	-	-	-	-	-	
16	067	38	10	SCT	29.84	81	75	5	2000	CU	84	-	-	-	-	-	-	
17	065	37	10	SCT	29.84	81	75	5	2000	CU	84	-	-	-	-	-	-	
18	068	34.5	10	SCT	29.83	80	76	4	2000	CU	84	-	-	-	-	-	-	
19	101	26.0	10	SCT	29.85	80	77	4	2000	CU	84	050	5	2	040	6	12	
20	077	25.5	10	SCT	29.86	82	77	4	2000	CU	84	035	5	3	040	6	10	
21	082	22	10	SCT	29.88	82	77	4	2000	CU	84	035	5	3	040	6	10	
22	064	18.5	10	SCT	29.87	83	76	4	2000	CU	84	040	6	5	060	10	12	
23	082	23.4	10	SCT	29.87	82	73	4	2000	CU	84	035	6	5	045	7	13	

TABLE II
SYNOPTIC OBSERVATIONS

FIRST GROUP OF MESSAGE	Day of Week (1-7) (GMT)	POSITION OF SHIP			TIME (GMT)	Total Cloud Amt. (Coded)	WIND		Visi-bility (90-99)	WEATHER		PRESSURE	AIR TEMP. (°C)	CLOUDS					Course of Ship (0-9)	Speed of Ship (0-9)	3-HOUR PRESSURE TENDENCY		SIGNIFICANT CLOUD			
		Oc-tant (0-3) (5-8)	Latitude (Degrees and tenths)	Longitude (Degrees and tenths)			Direction (True) (00-36)	Speed (True) (Knots)		Present (00-99)	Post (0-9)			Barometer Corrected (Mb)	Amount of Low Cloud (0-9)	Type of CL (0-9)	Height of Low Cloud (0-9)	Type of CM (0-9)			Type of CH (0-9)	Characteristic (0-8)	Amount of Change (Mb and tenths)	Indicator	Amount (Eights)	Type
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
	Y	Q	L _s L _n L _o	L _o L _o L _o	GG	N	dd	ff	VV	ww	W	ppp	TT	N _h	C _L	h	C _M	C _H	D _s	V _s	a	pp	8	N _s	C	h _s h _s
SHIP					00																		8			
SHIP					06																		8			
SHIP					12																		8			
SHIP					18																		8			

Indicator	AIR-SEA DIFF. (Coded)	DEW POINT (°C)	SEA WAVES				SWELL WAVES				ICE ACCRETION			SEA ICE					DO NOT TRANSMIT				
			Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Source	Thickness	Rate	Indicator	Kind	Effect	Bearing	Distance	Orientation	Dry Bulb (Degrees and tenths)	Wet Bulb (Degrees and tenths)	Sea Water Temp. (Degrees and tenths)
28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	A ₁	A ₂	A ₃
0	T _s T _s	T _d T _d	1	d _w d _w	P _w	H _w	1	d _w d _w	P _w	H _w	2	I _s	E _s E _s	R _s	ICE	C ₂	K	D ₁	r	e	Celsius	Celsius	Celsius
0			1				1				2				ICE								
0			1				1				2				ICE								
0			1				1				2				ICE								
0			1				1				2				ICE								

SHIP WEATHER OBSERVATION SHEET

USS GRANVILLE SHALL (YAG 40) DATE (GMT) 9 DECEMBER 19 66
AT/PASSAGE FROM LOCAL OP AREA TO _____

TABLE I

TIME (GMT)	WINDS <input type="checkbox"/> IF ESTIMATED		VISI-BIL-ITY (Miles)	WEATHER (Symbols)	BAROMETER (Inches)	TEMPERATURE (Degrees and tenths)		CLOUDS			SEA WATER TEMP. (Degrees and tenths)	SEA WAVES			SWELL WAVES		
	Direction (True)	Force (Knots)				Dry Bulb	Wet Bulb	Amount (Tenths)	Height	Type		Direction (True)	Period (Seconds)	Height (Feet)	Direction (True)	Period (Seconds)	Height (Feet)
00	096	28	10	SCT	29.84	80	78	5	2000	CU	84	050	5	7	050	7	12
01	090	24.2	10	SCT	29.81	84	76	5	2000	CU	84	050	6	3	055	8	14
02	104	29.0	10	SCT	29.81	84	76	5	2000	CU	84	050	6	3	055	8	15
03	104	29	10	SCT	29.81	84	76	5	2000	CU	84	050	6	3	055	8	15
04	097	25.2	10	SCT	29.82	82	76	5	2000	CU	84	045	5	3	040	6	12
05	094	26	10	SCT	29.82	82	76	5	2000	CU	84	-	-	-	-	-	-
06	090	19	10	SCT	29.87	81	75	4	2100	CU	84	-	-	-	-	-	-
07	089	23	10	SCT	29.91	81	76	4	2000	CU	84	-	-	-	-	-	-
08	091	24	10	SCT	29.93	81	76	3	2000	CU	84	-	-	-	-	-	-
09	090	24	10	SCT	29.95	81	73	3	2000	CU	84	-	-	-	-	-	-
10	075	23	10	SCT	29.93	81	73	4	2000	CU	84	-	-	-	-	-	-
11	080	22	10	SCT	29.93	81	73	2	2000	CU	84	-	-	-	-	-	-
12	078	25	10	SCT	29.93	81	73	2	2000	CU	84	-	-	-	-	-	-
13	075	20	10	SCT	29.91	81	73	2	2000	CU	84	-	-	-	-	-	-
14	066	29	10	SCT	29.91	78	76	3	2000	CU	84	-	-	-	-	-	-
15	074	31.5	10	SCT	29.92	77	74	5	2000	CU	84	-	-	-	-	-	-
16	085	31.5	10	SCT	29.92	79	75	4	2000	CU	84	-	-	-	-	-	-
17	078	26.8	10	SCT	29.91	78	74	4	2000	CU	84	-	-	-	-	-	-
18	088	9.5	10	SCT	29.93	81	73	4	2000	CU	84	050	4	2	050	7	5
19	154	6.2	10	SCT	29.95	81	74	7	2000	CU	84	050	5	2	050	6	5
20	123	12.5	10	SCT	29.95	82	71	7	2000	CU	84	055	5	2	050	6	5
21	122	9.8	10	SCT	29.94	82	73	7	2000	CU	84	055	4	2	055	6	5
22	072	26	10	SCT	29.93	82	73	5	2000	CU	84	055	4	2	055	6	5
23	068	25	10	SCT	29.93	82	73	5	2000	CU	84	055	4	2	055	6	5

TABLE II
SYNOPTIC OBSERVATIONS

FIRST GROUP OF MESSAGE	POSITION OF SHIP					TIME (GMT)	WIND			VISI-BIL-ITY (90-99)	WEATHER		PRESSURE	AIR TEMP. (°C)	CLOUDS					3-HOUR PRESSURE TENDENCY	SIGNIFICANT CLOUD					
	Day of Week (1-7) (GMT)	Occo-ant (0-3) (5-8)	Latitude (Degrees and tenths)	Longitude (Degrees and tenths)	Total Cloud Amt. (Coded)		Direction (True) (00-36)	Speed (True) (Knots)	Present (00-99)		Past (0-9)	Borometer Corrected (Mb)			Amount of Low Cloud (0-9)	Type of CL (0-9)	Height of Low Cloud (0-9)	Type of CM (0-9)	Type of CH (0-9)		Course of Ship (0-9)	Speed of Ship (0-9)	Characteristic (0-8)	Amount of Change (Mb and tenths)	Indicator	Amount (Eights)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
	Y	Q	L _s L _n L _o	L _o L _o L _o	GG	N	dd	ff	VV	ww	W	PPP	TT	N _h	C _L	h	C _M	C _H	D _s	V _s	o	pp	8	N _s	C	h _s h _s
SHIP					00																		8			
SHIP					06																		8			
SHIP					12																		8			
SHIP					18																		8			

Indicator	AIR-SEA DIFF. (Coded)	DEW POINT (°C)	SEA WAVES				SWELL WAVES				ICE ACCRETION				SEA ICE					DO NOT TRANSMIT				
			Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Source	Thickness	Rate	Indicator	Kind	Effect	Bearing	Distance	Orientation	Dry Bulb (Degrees and tenths)	Wet Bulb (Degrees and tenths)	Sea Water Temp. (Degrees and tenths)	
28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	A ₁	A ₂	A ₃	
0	T _s T _s	T _d T _d	1	d _w d _w	P _w	H _w	1	d _w d _w	P _w	H _w	2	I _s	E _s E _s	R _s	ICE	C ₂	K	D ₁	r	e	Celsius	Celsius	Celsius	
0			1				1				2				ICE									
0			1				1				2				ICE									
0			1				1				2				ICE									
0			1				1				2				ICE									

SHIP WEATHER OBSERVATION SHEET

USS GRANVILLE S. HALL (YAG 40) DATE (GMT) 10 DECEMBER 19 66
AT/PASSAGE FROM LOCAL OP AREA TO _____

TABLE I

TIME (GMT)	WINDS <input type="checkbox"/> IF ESTIMATED		VISI-BIL-ITY (Miles)	WEATHER (Symbols)	BAROMETER (Inches)	TEMPERATURE (Degrees and tenths)		CLOUDS			SEA WATER TEMP. (Degrees and tenths)	SEA WAVES			SWELL WAVES		
	Direction (True)	Force (Knots)				Dry Bulb	Wet Bulb	Amount (Tenths)	Height	Type		Direction (True)	Period (Seconds)	Height (Feet)	Direction (True)	Period (Seconds)	Height (Feet)
00	068	25	10	SCT	29.86	83	73	4	2000	CU	84	080	5	2	080	7	6
01	068	25	10	SCT	29.85	83	73	4	2000	CU	85	080	5	2	080	7	6
02	059	29.5	10	SCT	29.83	83	73	4	2000	CU	85	075	6	1	080	6	5
03	059	24.5	10	SCT	29.85	82	74	4	2000	CU	85	075	6	1	070	6	5
04	072	24.5	10	BKN	29.85	83	75	6	2000	CU	85	070	5	2	080	5	1
05	073	26	10	BKN	29.87	83	75	7	2000	CU	85	-	-	-	-	-	-
06	080	24	10	BKN	29.87	79	74	7	2400	CU	85	-	-	-	-	-	-
07	081	24	10	BKN	29.90	80	74	7	2400	CU	84	-	-	-	-	-	-
08	077	24.5	10	BKN	29.92	81	74	8	2500	CU	84	-	-	-	-	-	-
09	079	24	10	BKN	29.92	80	74	7	2400	CU	84	-	-	-	-	-	-
10	074	26	10	BKN	29.90	82	76	6	2500	CU	84	-	-	-	-	-	-
11	080	24	10	SCT	29.90	82	76	5	2500	CU	84	-	-	-	-	-	-
12	088	24	10	SCT	29.89	82	76	4	2400	CU	84	-	-	-	-	-	-
13	088	24	10	SCT	29.85	82	76	3	2000	CU	84	-	-	-	-	-	-
14	093	26	10	SCT	29.83	81	75	3	2000	CU	84	-	-	-	-	-	-
15	094	26.5	10	SCT	29.83	81	76	3	2000	CU	84	-	-	-	-	-	-
16	089	31.2	10	SCT	29.83	81	76	3	2000	CU	84	-	-	-	-	-	-
17	076	24.2	10	SCT	29.80	81	76	3	2000	CU	84	-	-	-	-	-	-
18	098	30	10	SCT	29.85	81	76	3	2000	CU	82	080	5	3	080	8	5
19	093	24	10	SCT	29.89	83	79	3	2000	CU	82	080	5	2	080	7	4
20	097	22.2	10	SCT	29.89	83	80	3	2000	CU	84	085	5	2	080	7	4
21	098	17.2	10	SCT	29.91	84	80	3	2000	CU	84	080	5	2	080	7	4
22	084	21.5	10	SCT	29.87	84	79	3	2000	CU	84	080	5	2	080	7	4
23	081	20	10	SCT	29.86	84	78	3	2000	CU	84	080	5	2	080	7	4

TABLE II
SYNOPTIC OBSERVATIONS

FIRST GROUP OF MESSAGE	Day of Week (1-7) (GMT)	POSITION OF SHIP			TIME (GMT)	Total Cloud Amt. (Coded)	WIND			Visi-bil-ity (90-99)	WEATHER		PRESSURE	AIR TEMP. (°C)	CLOUDS					Course of Ship (0-9)	Speed of Ship (0-9)	3-HOUR PRESSURE TENDENCY		SIGNIFICANT CLOUD		
		Occi-dant (0-3) (5-8)	Latitude (Degrees and tenths)	Longitude (Degrees and tenths)			Direction (True) (00-36)	Speed (True) (Knots)	Present (00-99)		Past (0-9)	Barameter Corrected (Mb)			Amount of Low Cloud	Type of CL (0-9)	Height of Low Cloud	Type of C _M (0-9)	Type of C _H (0-9)			Characteristic (0-8)	Amount of Change (Mb and tenths)	Indicator	Amount (Eights)	Type
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
	Y	Q	L ₁ L ₂ L ₃	L ₀ L ₁ L ₂	GG	N	dd	ff	VV	ww	W	ppp	TT	N _h	C _L	h	C _M	C _H	D _s	V _s	a	pp	8	N _s	C	h _s h _s
SHIP					00																		8			
SHIP					06																		8			
SHIP					12																		8			
SHIP					18																		8			

Indicator	AIR-SEA DIFF. (Coded)	DEW POINT (°C)	SEA WAVES				SWELL WAVES				ICE ACCRETION			SEA ICE					DO NOT TRANSMIT					
			Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Source	Thickness	Rate	Indicator	Kind	Effect	Bearing	Distance	Orientation	Dry Bulb (Degrees and tenths)	Wet Bulb (Degrees and tenths)	Sea Water Temp. (Degrees and tenths)	
28	T _s T _s	T _d T _d	1	d _w d _w	P _w	H _w	1	d _w d _w	P _w	H _w	2	I _s	E _s E _s	R _s	ICE	C ₂	K	D _i	r	e	A ₁	A ₂	A ₃	
0			1				1					2				ICE					Celsius	Celsius	Celsius	
0			1				1					2				ICE								
0			1				1					2				ICE								
0			1				1					2				ICE								
0			1				1					2				ICE								

SHIP WEATHER OBSERVATION SHEET

USS GRANVILLE S. HALL (YAG-40)

DATE (GMT) 11 DECEMBER

19 66

AT PASSAGE FROM LOCAL OF AREA

TABLE I

TIME (GMT)	WINDS <input type="checkbox"/> IF ESTIMATED		VISI-BIL-ITY (Miles)	WEATHER (Symbols)	BAROMETER (Inches)	TEMPERATURE (Degrees and tenths)		CLOUDS			SEA WATER TEMP. (Degrees and tenths)	SEA WAVES			SWELL WAVES		
	Direction (True)	Force (Knots)				Dry Bulb	Wet Bulb	Amount (Tenths)	Height	Type		Direction (True)	Period (Seconds)	Height (Feet)	Direction (True)	Period (Seconds)	Height (Feet)
00	087	23	10	SCT	29.85	80	78	5	2000	CU	84	180	5	2	080	7	4
01	087	24	10	BKN	29.82	80	78	8	2000	CU	84	080	5	2	080	7	4
02	109	24.5	10	BKN	29.82	80	77	8	5000	CU	84	070	7	2	070	8	4
03	108	25	10	BKN	29.82	82	77	8	2000	CU	84	070	5	2	070	6	4
04	097	28	10	BKN	29.82	80	76	8	1200	AS/CU	84	050	5	2	068	4	6
05	090	28	10	BKN	29.82	81	77	8	1800	CU	84	050	4	2	070	5	6
06	096	28	10	BKN	29.82	81	77	8	1800	CU	84	050	4	2	070	5	6
07	104	30	10	BKN	29.88	81	77	8	2000	CU	84	050	4	2	070	5	6
08	105	31	10	BKN	29.88	81	77	8	2000	CU	84	050	4	2	070	5	6
09	100	31	10	BKN	29.89	81	77	8	2000	CU	84						
10	094	21.3	10	BKN	29.90	81	76	8	2000	CU	84						
11	108	19.5	10	BKN	29.92	80	76	7	2000	CU	84						
12	093	21	10	BKN	29.89	78	75	7	2000	CU	84						
13	101	24	10	BKN	29.90	78	75	7	2000	CU	84						
14	103	27	10	BKN	29.85	78	72	7	2000	CU	84						
15	088	25.2	10	BKN	29.85	76	74	5	2000	CU	84						
16	107	16	10	BKN	29.57	81	76	5	2000	CU	84						
17	087	27	10	BKN	29.59	81	75	5	2000	CU	84						
18	089	26	10	SCT	29.92	81	75	5	2000	CU	84	090	6	3	090	7.5	6
19	089	27	10	SCT	29.92	81	75	5	2000	CU	84	090	6	3	090	7.5	6
20	083	27	10	SCT	29.96	81	75	3	2000	CU	84	090	6	3	090	7.5	6
21	085	25	10	SCT	29.96	81	75	3	2000	CU	84	090	6	3	090	7.5	6
22	102	27	10	SCT	29.95	81	75	3	2000	CU	84	090	6	3	090	7.5	6
23	098	19.6	10	SCT	29.95	82	75	4	2000	CU	84	075	6	2	090	8	6

TABLE II
SYNOPTIC OBSERVATIONS

FIRST GROUP OF MESSAGE	POSITION OF SHIP					Total Cloud Amt. (Coded)	WIND			Weather Present (00-99)	Weather Past (0-9)	Pressure Barometer Corrected (Mb)	AIR TEMP. (°C)	CLOUDS					Course of Ship (0-9)	Speed of Ship (0-9)	3-HOUR PRESSURE TENDENCY		SIGNIFICANT CLOUD			
	Day of Week (1-7) (GMT)	Occur-ant (0-3) (5-8)	Latitude (Degrees and tenths)	Longitude (Degrees and tenths)	TIME (GMT)		Direction (True) (00-36)	Speed (True) (Knots)	Visi-bil-ity (90-99)					Amount of Low Cloud (0-9)	Type of CL (0-9)	Height of Low Cloud (0-9)	Type of CM (0-9)	Type of CH (0-9)			Characteristic (0-8)	Amount of Change (Mb and tenths)	Indicator	Amount (Eights)	Type	Height
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
	Y	Q	L ₁ L ₂ L ₃	L ₄ L ₅ L ₆	GG	N	dd	ff	VV	ww	W	ppp	TT	N _h	CL	h	C _M	C _H	D _s	V _s	a	pp	8	N _s	C	h _s h _s
SHIP					00																		8			
SHIP					06																		8			
SHIP					12																		8			
SHIP					18																		8			

Indicator	AIR-SEA DIFF. (Coded)	DEW POINT (°C)	SEA WAVES				SWELL WAVES				ICE ACCRETION			SEA ICE					DO NOT TRANSMIT				
			Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Source	Thickness	Rate	Indicator	Kind	Effect	Bearing	Distance	Orientation	Dry Bulb (Degrees and tenths)	Wet Bulb (Degrees and tenths)	Sea Water Temp. (Degrees and tenths)
28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	A ₁	A ₂	A ₃
0	T _s T _s	T _d T _d	1	d _w d _w	P _w	H _w	1	d _w d _w	P _w	H _w	2	I _s	E _s E _s	R _s	ICE	C ₂	K	D _i	r	e	Celsius	Celsius	Celsius
0			1				1				2				ICE								
0			1				1				2				ICE								
0			1				1				2				ICE								
0			1				1				2				ICE								

REMARKS

EXAMINED

USN, NAVIGATOR

SHIP WEATHER OBSERVATION SHEET

USS GRANVILLE S. HALL YAG-40

DATE (GMT) 12 DECEMBER 19 66

AT/PASSAGE FROM LOCAL OP AREA

TO

TABLE I

TIME (GMT)	WINDS <input type="checkbox"/> IF ESTIMATED		VISIBILITY (Miles)	WEATHER (Symbols)	BAROMETER (Inches)	TEMPERATURE (Degrees and tenths)		CLOUDS			SEA WATER TEMP. (Degrees and tenths)	SEA WAVES			SWELL WAVES		
	Direction (True)	Force (Knots)				Dry Bulb	Wet Bulb	Amount (Tenths)	Height	Type		Direction (True)	Period (Seconds)	Height (Feet)	Direction (True)	Period (Seconds)	Height (Feet)
00	095	20.5	10	SCT	29.91	81	76	4	2000	CU	84	075	6	2	070	8	6
01	092	27	10	SCT	29.97	84	75	3	2000	CU	84	075	6	2	070	8	6
02	092	28	10	SCT	29.86	79	74	6	2000	CU	84	070	5	1	120	7	6
03	077	22.5	10	SCT	29.85	81	74	5	2000	CU	84	075	4	2	110	7	6
04	082	19	10	SCT	29.89	82	74	4	2000	CU	84	090	5	1	115	6	4
05	077	21	10	SCT	29.87	82	72	2	2400	CU	84	-	-	-	090	6	5
06	108	21	10	SCT	29.90	82	72	2	2400	CU	84	-	-	-	090	6	5
07	110	20	10	SCT	29.95	82	72	2	2400	CU	84	-	-	-	-	-	-
08	076	20	10	SCT	29.98	82	72	2	2000	CU	84	-	-	-	-	-	-
09	075	20	10	SCT	29.98	82	72	2	2000	CU	84	-	-	-	-	-	-
10	041	20.5	10	SCT	29.99	82	72	2	2000	CU	84	-	-	-	-	-	-
11	100	20.8	10	SCT	29.98	81	72	2	2000	CU	84	-	-	-	-	-	-
12	074	15.5	10	SCT	29.95	80	70	2	2000	CU	84	-	-	-	-	-	-
13	082	15.3	10	SCT	29.95	80	71	2	2000	CU	84	-	-	-	-	-	-
14	100	17.3	10	SCT	29.92	80	71	2	2000	CU	84	-	-	-	-	-	-
15	030	21	10	SCT	29.92	79	79	2	2000	CU	84	-	-	-	-	-	-
16	337	17	10	SCT	29.91	76	77	2	2000	CU	84	-	-	-	-	-	-
17	337	15	10	SCT	29.91	82	81	2	2000	CU	84	-	-	-	-	-	-
18	090	20	10	SCT	29.94	82	81	3	2000	CU	84	-	-	-	-	-	-
19	092	19	10	SCT	29.95	82	81	3	2000	CU	84	-	-	-	070	5	6
20	085	21	10	SCT	29.95	83	81	3	2000	CU	84	-	-	-	090	5	6
21	090	23	10	SCT	29.96	83	79	5	2000	CU	84	-	-	-	070	5	6
22	075	21.5	10	SCT	29.96	83	79	3	2000	CU	84	075	6	3	090	5	5
23	072	21.0	10	SCT	29.94	82	74	3	2000	CU	84	075	6	3	095	6	5

TABLE II
SYNOPTIC OBSERVATIONS

FIRST GROUP OF MESSAGE	Day of Week (1-7) (GMT)	POSITION OF SHIP			TIME (GMT)	Total Cloud Amt. (Coded)	WIND		Visi-bility (90-99)	WEATHER		PRESSURE	AIR TEMP. (°C)	CLOUDS					Course of Ship (0-9)	Speed of Ship (0-9)	3-HOUR PRESSURE TENDENCY		SIGNIFICANT CLOUD			
		Occur-ant (0-3) (5-8)	Latitude (Degrees and tenths)	Longitude (Degrees and tenths)			Direction (True) (00-36)	Speed (True) (Knots)		Present (00-99)	Past (0-9)			Barometer Corrected (Mb)	Amount of Low Cloud	Type of CL (0-9)	Height of Low Cloud	Type of CM (0-9)			Type of CH (0-9)	Characteristic (0-8)	Amount of Change (Mb and tenths)	Indicator	Amount (Eights)	Type
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
	Y	Q	L _s L _r L _o	L _o L _o L _o	GG	N	dd	ff	VV	ww	W	ppp	TT	N _h	C _L	h	C _M	C _H	D _s	V _s	a	pp	8	N _s	C	h _s h _s
SHIP					00																					
SHIP					06																					
SHIP					12																					
SHIP					18																					

Indicator	AIR-SEA DIFF. (Coded)	DEW POINT (°C)	SEA WAVES				SWELL WAVES				ICE ACCRETION				SEA ICE					DO NOT TRANSMIT				
			Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Source	Thickness	Rate	Indicator	Kind	Effect	Bearing	Distance	Orientation	Dry Bulb (Degrees and tenths)	Wet Bulb (Degrees and tenths)	Sea Water Temp. (Degrees and tenths)	
28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	A ₁	A ₂	A ₃	
0	T _s T _s	T _d T _d	1	d _w d _w	P _w	H _w	1	d _w d _w	P _w	H _w	2	I _s	E _s E _s	R _s	ICE	C ₂	K	D _i	r	e	Celsius	Celsius	Celsius	
0			1				1				2				ICE									
0			1				1				2				ICE									
0			1				1				2				ICE									
0			1				1				2				ICE									

REMARKS

EXAMINED

USN, NAVIGATOR

SHIP WEATHER OBSERVATION SHEET

USS GRADWILL S HALL YAG-10 DATE (GMT) 13 DECEMBER 19 66

AT/PASSAGE FROM LOCAL OP AREA TO _____

TABLE I

TIME (GMT)	WINDS <input type="checkbox"/> IF ESTIMATED		VISIBILITY (Miles)	WEATHER (Symbols)	BAROMETER (Inches)	TEMPERATURE (Degrees and tenths)		CLOUDS			SEA WATER TEMP. (Degrees and tenths)	SEA WAVES			SWELL WAVES		
	Direction (True)	Force (Knots)				Dry Bulb	Wet Bulb	Amount (Tenths)	Height	Type		Direction (True)	Period (Seconds)	Height (Feet)	Direction (True)	Period (Seconds)	Height (Feet)
00	083	14.7	10	SCT	29.89	82	76	3	2000	CU	84	060	6	3	050	6	5
01	109	17.6	10	SCT	29.87	82	75	2	2000	CU	84	055	6	3	070	6	5
02	093	31	10	SCT	29.87	82	75	3	2000	CU	84	055	6	3	085	6	5
03	085	29	10	SCT	29.89	82	75	3	2000	CU	84	055	6	3	085	6	5
04	083	28	10	SCT	29.90	82	75	3	2000	CU	84	055	5	2	085	6	6
05	075	28	10	SCT	29.92	81	74	4	2000	CU	84	070	5	2	060	6	6
06	097	28.5	10	SCT	29.92	80	72	2	2000	CU	84	—	—	—	—	—	—
07	095	30.0	10	SCT	29.92	80	73	2	2000	CU	84	—	—	—	—	—	—
08	089	29.5	10	SCT	29.95	80	73	2	2000	CU	84	—	—	—	—	—	—
09	095	28.5	10	SCT	29.96	79	73	2	2000	CU	84	—	—	—	—	—	—
10	100	27.5	10	SCT	29.95	81	72	2	2000	CU	84	—	—	—	—	—	—
11	090	27	10	SCT	29.95	81	73	2	2000	CU	84	—	—	—	—	—	—
12	107	28	10	SCT	29.96	82	71	2	2000	CU	84	—	—	—	—	—	—
13	085	29.5	10	SCT	29.95	76	71	2	2000	CU	84	—	—	—	—	—	—
14	098	26	10	SCT	29.95	76	71	3	2000	CU	84	—	—	—	—	—	—
15	071	26	10	SCT	29.95	76	71	3	2000	CU	84	—	—	—	—	—	—
16	070	31	10	SCT	29.93	76	71	3	2000	CU	84	—	—	—	—	—	—
17	070	31	10	SCT	29.95	76	71	3	2000	CU	84	—	—	—	—	—	—
18	075	30.7	10	SCT	29.97	80	73	3	2000	CU	84	075	5	3	080	6	7
19	086	23	10	SCT	29.98	81	71	3	2000	CU	84	065	5	4	070	6	8
20	080	27	10	SCT	30.01	80	73	5	2000	CU	84	065	5	3	050	6	8
21	074	30	10	SCT	30.01	78	72	4	2000	CU	84	065	5	3	060	6	10
22	089	26	10	SCT	30.00	83	71	4	2000	CU	84	085	6	2	070	5	9
23	089	26	10	SCT	29.97	82	72	3	2000	CU	84	090	5	3	070	5	10

TABLE II
SYNOPTIC OBSERVATIONS

FIRST GROUP OF MESSAGE	Day of Week (1-7) (GMT)	POSITION OF SHIP				TIME (GMT)	Total Cloud Amt. (Coded)	WIND			WEATHER		PRESSURE	AIR TEMP. (°C)	CLOUDS					Course of Ship (0-9)	Speed of Ship (0-9)	3-HOUR PRESSURE TENDENCY		SIGNIFICANT CLOUD			
		Occurr (0-3) (5-8)	Latitude (Degrees and tenths)	Longitude (Degrees and tenths)	TIME (GMT)			Direction (True) (00-36)	Speed (True) (Knots)	Visi-bility (90-99)	Present (00-99)	Past (0-9)			Borometer Corrected (Mb)	Amount of Low Cloud	Type of CL (0-9)	Height of Low Cloud	Type of CM (0-9)			Type of CH (0-9)	Characteristic (0-8)	Amount of Change (Mb and tenths)	Indicator	Amount (Eights)	Type
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
	Y	Q	L ₃ L ₂ L ₁ L ₀	L ₀ L ₀ L ₀	GG	N	dd	ff	VV	ww	W	ppp	TT	N _h	C _L	h	C _M	C _H	D _s	V _s	a	pp	8	N _s	C	h _s h _s	
SHIP					00																		8				
SHIP					06																		8				
SHIP					12																		8				
SHIP					18																		8				

Indicator	AIR-SEA DIFF. (Coded)	DEW POINT (°C)	SEA WAVES				SWELL WAVES				ICE ACCRETION				SEA ICE					DO NOT TRANSMIT						
			Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Source	Thickness	Rate	Indicator	Kind	Effect	Bearing	Distance	Orientation	Dry Bulb (Degrees and tenths)	Wet Bulb (Degrees and tenths)	Sea Water Temp. (Degrees and tenths)			
28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48						
0	T _s T _s	T _d T _d	1	d _w d _w	P _w	H _w	1	d _w d _w	P _w	H _w	2	I _s	E _s E _s	R _s	ICE	C ₂	K	D _i	r	e	Celsius	Celsius	Celsius			
0			1				1				2				ICE											
0			1				1				2				ICE											
0			1				1				2				ICE											
0			1				1				2				ICE											

DEPARTMENT OF THE NAVY
SHIP WEATHER OBSERVATION SHEET

USS GRANVILLE S. HALL (YAG 40) DATE (GMT) 15 DECEMBER 19 66

AT/PASSAGE FROM _____ TO _____

TABLE I

TIME (GMT)	WINDS <input type="checkbox"/> IF ESTIMATED		VISIBILITY (Miles)	WEATHER (Symbols)	BAROMETER (Inches)	TEMPERATURE (Degrees and tenths)		CLOUDS			SEA WATER TEMP. (Degrees and tenths)	SEA WAVES			SWELL WAVES		
	Direction (True)	Force (Knots)				Dry Bulb	Wet Bulb	Amount (Tenths)	Height	Type		Direction (True)	Period (Seconds)	Height (Feet)	Direction (True)	Period (Seconds)	Height (Feet)
00	112	24	10	BKN	29.93	81	74	9	1900	CU	84	070	6	1	085	5	6
01	105	27	10	ST	29.92	80	73	6	1900	CU	84	070	7	1	095	7	7
02	106	21	10	ST	29.89	86	77	5	2000	CU	84	090	7	1	095	7	7
03	106	21	10	ST	29.92	86	77	5	2000	CU	84	090	7	1	095	7	7
04	105	24	10	ST	29.92	79	74	4	2000	CU	84	090	6	3	080	6	5
05	089	29.2	10	ST	29.93	80	74	4	2100	CU	84	-	-	-	-	-	-
06	090	23.5	10	ST	29.91	76	73	4	2000	CU	84	-	-	-	-	-	-
07	082	26.3	10	ST	29.95	76	72	4	2000	CU	84	-	-	-	-	-	-
08	096	25	10	ST	29.95	81	72	4	2000	CU	84	-	-	-	-	-	-
09	059	23.5	10	ST	29.95	82	72	4	2000	CU	84	-	-	-	-	-	-
10	087	23.5	10	ST	29.99	82	72	4	2000	CU	84	-	-	-	-	-	-
11	097	23	10	ST	29.97	82	72	4	2000	CU	84	-	-	-	-	-	-
12	097	23	10	ST	29.96	82	72	3	2000	CU	84	-	-	-	-	-	-
13	104	23	10	ST	29.95	82	71	3	2000	CU	84	-	-	-	-	-	-
14	097	24.4	10	ST	29.95	80	72	2	2000	CU	84	-	-	-	-	-	-
15	106	21.4	10	ST	29.95	76	72	4	2000	CU	84	-	-	-	-	-	-
16	105	24.9	10	ST	29.96	74	72	4	2000	CU	84	-	-	-	-	-	-
17	107	24.0	10	ST	29.96	79	72	4	2000	CU	84	-	-	-	-	-	-
18	100	23.5	10	ST	29.98	80	73	5	2000	CU	84	095	095	1	100	6	7
19	100	23	10	ST	30.00	82	71	6	2000	CU	84	075	075	1	070	7	7
20	096	23.5	10	ST	30.02	84	74	6	2000	CU	84	077	077	1	088	7	6
21	095	23	10	ST	30.00	84	74	6	2000	CU	84	075	075	1	074	6	6
22	096	26	10	ST	29.99	84	74	6	2000	CU	82	095	095	1	099	6	6
23	095	25	10	ST	29.99	84	74	6	2000	CU	82	095	095	1	099	6	6

TABLE II
SYNOPTIC OBSERVATIONS

FIRST GROUP OF MESSAGE	Day of Week (1-7) (GMT)	POSITION OF SHIP			TIME (GMT)	Total Cloud Amt. (Coded)	WIND		Visi- bility (90-99)	WEATHER		PRESSURE	AIR TEMP. (°C)	CLOUDS					Course of Ship (0-9)	Speed of Ship (0-9)	3-HOUR PRESSURE TENDENCY		SIGNIFICANT CLOUD			
		Occur- ant (0-3) (5-8)	Latitude (Degrees and tenths)	Longitude (Degrees and tenths)			Direction (True) (00-36)	Speed (True) (Knots)		Present (00-99)	Past (0-9)			Borometer Corrected (Mb)	Amount of Low Cloud	Type of CL (0-9)	Height of Low Cloud	Type of CM (0-9)			Type of CH (0-9)	Characteristic (0-8)	Amount of Change (Mb and tenths)	Indicator	Amount (Eights)	Type
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
	Y	Q	L _s L _n L _o	L _o L _o L _o	GG	N	dd	ff	VV	ww	W	ppp	TT	N _h	C _L	h	C _M	C _H	D _s	V _s	a	pp	8	N _s	C	h _s h _s
SHIP					00																		8			
SHIP					06																		8			
SHIP					12																		8			
SHIP					18																		8			

Indicator	AIR-SEA DIFF. (Coded)	DEW POINT (°C)	SEA WAVES				SWELL WAVES				ICE ACCRETION			SEA ICE					DO NOT TRANSMIT							
			Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Source	Thickness	Rate	Indicator	Kind	Effect	Bearing	Distance	Orientation	Dry Bulb (Degrees and tenths)	Wet Bulb (Degrees and tenths)	Sea Water Temp. (Degrees and tenths)			
28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48						
0	T _s T _s	T _d T _d	1	d _w d _w	P _w	H _w	1	d _w d _w	P _w	H _w	2	I _s	E _s E _s	R _s	ICE	C ₂	K	D ₁	r	e	A ₁	A ₂	A ₃	Celsius	Celsius	Celsius
0			1				1				2				ICE											
0			1				1				2				ICE											
0			1				1				2				ICE											
0			1				1				2				ICE											

SHIP WEATHER OBSERVATION SHEET

USS GRANVILLE S. HALL (YAG-40) DATE (GMT) 16 DECEMBER 19 66
AT/PASSAGE FROM LOCAL OP AREA TO _____

TABLE I

TIME (GMT)	WINDS <input type="checkbox"/> IF ESTIMATED		VISI- BIL- ITY (Miles)	WEATHER (Symbols)	BAROMETER (Inches)	TEMPERATURE (Degrees and tenths)		CLOUDS			SEA WATER TEMP. (Degrees and tenths)	SEA WAVES			SWELL WAVES		
	Direction (True)	Force (Knots)				Dry Bulb	Wet Bulb	Amount (Tenths)	Height	Type		Direction (True)	Period (Seconds)	Height (Feet)	Direction (True)	Period (Seconds)	Height (Feet)
00	095	25	10	SCT	29.94	81	72	5	2000	CU	84	090	8	1	099	6	6
01	095	25	10	SCT	29.94	81	72	5	2000	CU	84	090	8	2	099	6	6
02	113	18.5	10	SCT	29.95	78	72	4	2000	CU	84	090	6	2	095	7	6
03	096	26.0	10	SCT	29.93	79	73	3	2000	CU	84	085	7	2	090	7	6
04	090	24.2	10	SCT	29.95	79	73	3	2000	CU	84	085	6	2	083	7	6
05	083	20.5	10	SCT	29.94	78	72	3	2000	CU	84	-	-	-	-	-	-
06	093	27.5	10	SJ	29.99	80	70	3	2000	CU	84	-	-	-	-	-	-
07	010	21	10	SJ	30.01	78	70	3	2000	CU	84	-	-	-	-	-	-
08	096	27	10	SCT	30.03	77	70	3	2000	CU	84	-	-	-	-	-	-
09	096	27	10	SJ	30.04	80	70	3	2000	CU	84	-	-	-	-	-	-
10	092	25	10	SCT	30.03	80	70	3	2000	CU	84	-	-	-	-	-	-
11	092	25	10	SCT	30.03	80	70	3	2000	CU	82	-	-	-	-	-	-
12	092	25	10	SCT	30.04	80	70	3	2000	CU	82	-	-	-	-	-	-
13	092	25	10	SCT	30.02	80	70	3	2000	CU	82	-	-	-	-	-	-
14	103	22.2	10	SCT	30.00	78	71	3	2000	CU	82	-	-	-	-	-	-
15	101	21.4	10	SCT	30.00	78	70	3	2000	CU	82	-	-	-	-	-	-
16	093	22.5	10	SCT	30.00	78	70	3	2000	CU	82	-	-	-	-	-	-
17	086	20.5	10	SCT	30.02	78	70	3	2000	CU	82	-	-	-	-	-	-
18	092	21	10	SCT	30.01	78	69	5	2300	ACU	84	095	8	1	090	6	5
19	093	20	10	SCT	30.04	79	74	4	2000	CU	84	090	8	1	075	6	6
20	096	20	10	SCT	30.06	79	71	6	2000	CU	84	090	7	1	070	6	7
21	075	22	10	SCT	30.05	79	71	5	2000	CU	84	083	7	2	075	6	7
22	093	22	10	SCT	30.03	79	71	5	2000	CU	84	083	7	2	075	6	7
23	093	22	10	SCT	30.04	79	71	5	2000	CU	84	083	7	2	075	6	7

TABLE II
SYNOPTIC OBSERVATIONS

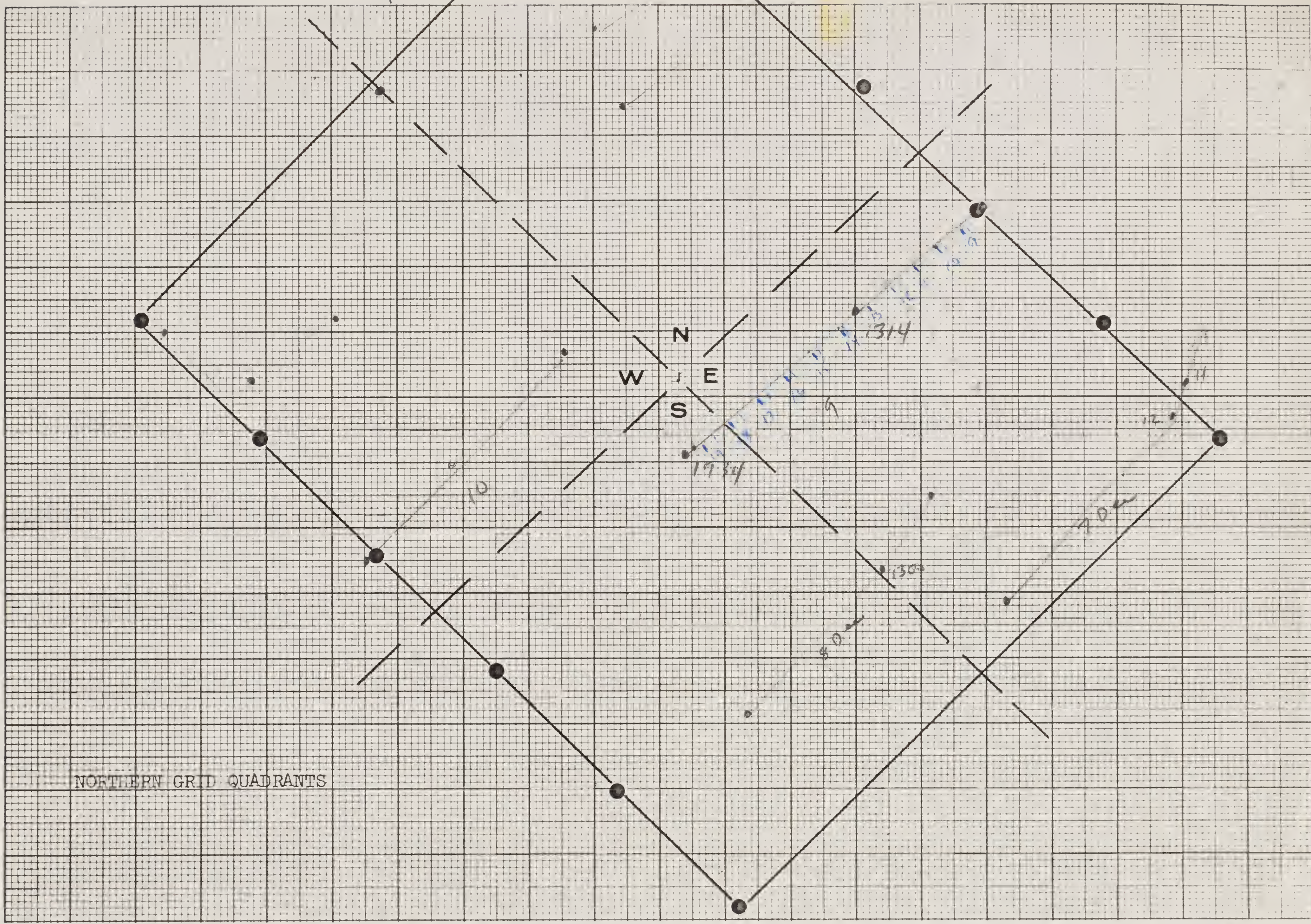
FIRST GROUP OF MESSAGE	POSITION OF SHIP					TIME (GMT)	Total Cloud Amt. (Coded)	WIND		Visi- bil- ity (90-99)	WEATHER		PRESSURE Barometer Corrected (Mb)	AIR TEMP. (°C)	CLOUDS					3-HOUR PRESSURE TENDENCY	SIGNIFICANT CLOUD					
	Day of Week (1-7) (GMT)	Oc- tant (0-3) (5-8)	Latitude (Degrees and tenths)	Longitude (Degrees and tenths)	TIME (GMT)			Direction (True) (00-36)	Speed (True) (Knots)		Present (00-99)	Post (0-9)			Amount of Low Cloud (0-9)	Type of CL (0-9)	Height of Low Cloud (0-9)	Type of C _M (0-9)	Type of C _H (0-9)		Course of Ship (0-9)	Speed of Ship (0-9)	Characteristic (0-8)	Amount of Change (Mb and tenths)	Indicator	Amount (Eights)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
	Y	Q	L ₁ L ₂ L ₃	L ₀ L ₁ L ₂	GG	N	dd	ff	VV	ww	W	ppp	TT	N _h	C _L	h	C _M	C _H	D _s	V _s	a	pp	8	N _s	C	h _s h _s
SHIP					00																					
SHIP					06																					
SHIP					12																					
SHIP					18																					

Indicator	AIR- SEA DIFF. (Coded)	DEW POINT (°C)	SEA WAVES			SWELL WAVES			ICE ACCRETION			SEA ICE					DO NOT TRANSMIT						
			Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Direction (Coded)	Period (Coded)	Height (Coded)	Indicator	Source	Thickness	Rate	Indicator	Kind	Effect	Bearing	Distance	Orientation	Dry Bulb (Degrees and tenths)	Wet Bulb (Degrees and tenths)	Sea Water Temp. (Degrees and tenths)
28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	A ₁	A ₂	A ₃
0	T _s T _s	T _d T _d	1	d _w d _w	P _w	H _w	1	d _w d _w	P _w	H _w	2	I _s	E _s E _s	R _s	ICE	C ₂	K	D _i	r	e	Celsius	Celsius	Celsius
0			1				1				2				ICE								
0			1				1				2				ICE								
0			1				1				2				ICE								
0			1				1				2				ICE								

REMARKS _____

EXAMINED _____

USN, NAVIGATOR



NORTHERN GRID QUADRANTS

174 173 172 171 170 169

16
15
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12

BEE 20x20 TO INCH