	A	B
1		**Meta Data Report**
2		
3	PI:	Feely, Sabine, Johnson, Wanninkhof, Baringer
4		
5	Person(s) filing report (if different than PI):	Roberta Hamme
6		
7	Operation description:	Discrete analysis of dissolved oxygen on CTD casts (hydrography) and ship's underway seawater line
8		
9	Sampling times and locations:	Sampled all CTD casts where Niskin bottles were tripped and two pumped casts. One deep cast to 4600m, three mid-depth casts to 1500m, other casts usually to 500m or 100m. See CTD cast logs and bottle files for specific times, locations, and flask numbers for each cast. See below and event log for times and locations when sampled
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11	Overall sampling strategy:	Normally collected one sample from each unique depth. If multiple Niskins were tripped at a given depth, hydrography sampled only one of these. Duplicate samples collected on two Niskins per cast, usually near the O2 minimum and just under the mixed layer. A mixture of triplicates and duplicates were collected from the
12		
13	Sample collection:	Roberta Hamme collected most of the oxygen samples. However, on casts where noble gas samples or a profile of O2/N2/Ar samples were collected, Sarah Purkey collected the discrete oxygen samples. No difference in precision was detected between the two samplers, as measured by the standard deviation of duplicate samples.
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15	Expected initial data products:	Preliminary O2 concentration and saturation data provided 1-2 days after each cast
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17	Expected distributed data products, and time-frame for distribution:	March 30, 2009.
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19	Analytical method	Winkler titration method using Langdon amperometric detection of the endpoint. Samples preserved with 1 mL each of MnCl2 and NaI-NaOH solutions. Shaken twice and stored in dark with tap water around caps to form seal. Precipitate dissolved with 1mL H2SO4 solution and titrated with thiosulfate solution. Endpoint is detected via electrode current that is related to concentration of I3-. Normally run within 24 hours, but some samples from underway system sat for 2-3 days. 3-5 KIO3 standards run at beginning of each day running samples. Blanks run in distilled water used for calculations. Seawater blanks required 2-2.5 uL more titrant than distilled water blanks.
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21	Instrument details	Langdon oyxgen titrator # AOML 2. Used Stepper motor / burette AOML #2 at beginning (uL/step = 0.2499, uL offset = +0.2), switched to stepper motor / burette #14 on April 2nd for analysis of Station 44 and later samples (uL/step = 0.2507, uL offset = -1.4). Electrode Accumet 13-620-123, SN6235027P. Software revision titrator: "O2itr 18 for Labview.tfb" revised as of 27Jan08. Software revision Labview: "Oxygen_V31_25.vi". Standard dispenser 1 giving 9.974 mL on 10 mL setting. KIO3 standard normality 0.01N.
22		
23	Calculations	Final dataset calculated using distilled water blanks in keeping with official WOCE methodology. High quality seawater blanks were determined on this cruise. Data is likely of higher accuracy when calculated with seawater blanks. To convert distilled blank numbers to seawater blank numbers, simply subtract 0.530 umol/kg (micromol/kg). Saturations calculated relative to Garcia and Gordon (1992,1993) with no correction for atmospheric pressure variations.
24		
25	Differences between preliminary and finalized datasets	Volume corrected on flask number 28. Potential temperature and salinity updated to finalized CTD bottle numbers, producing very small effect on reported concentrations and saturations. Data quality flags assigned. All issued datasets including preliminary ones were calculated with distilled water blanks.
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27		**Operation Log**
28		
29	Affected data	Comments
30		
31	Station 1, Cast 1	NaOH - Nal dispenser was sticky. Duplicates look good, so data is probably not compromised.
32	Stations 1-5 and part of 6	Electrode wires were dirty resulting in long titration times. Standard and duplicate replication were excellent, so data is probably not compromised.
33	Station 7, Cast 2, Niskin 4	Possible reagent dispensing problem on sample from this bottle. Value is in-line with density/O2 relationship of other samples.
34	Station 1, Cast 1, Niskin 5.	Flask #28 appears had the wrong volume recorded. Preliminary data contained a preliminary correction for this. Final data uses the correct volume.
35	Station 2, Cast 1, Niskin 7	Flask #28. See above.
36	Station 5, Cast 2, Niskin 7	Flask #28. See above.
37	Station 7, Cast 2, Niskin 7	Flask #28. See above.
38	Station 9, Cast 1, Niskin 7	Flask #28. See above.
39	Station 18, Cast 1, Niskin 20	Cap on flask was not pushed in tightly. Value is likely too high.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
40	Station 31, Cast 1, Niskin 10	Got a bubble in the sample when putting the cap into the bottle. Dumped sample overboard and took another. Value is in-line with density/O2 relationship of other samples.												
41	Station 32, Cast 2 and Station 33, Cast 1	Samples collected from submersible pump system rather than Niskin Rosette.												
42	Station 38, Cast 1, Niskin 5	Possible reagent dispensing problem on sample from this bottle. Value is in-line with density/O2 relationship of other samples.												
43	Station 40, Cast 1, Niskin 22	Sample sat acidified for a few minutes before titration. Value may be too low.												
44	Station 47, Cast 1, Niskin 5	Niskin appears to have tripped at a shallower depth, probably 175m												
45														
46		**Underway sampling events**												
47	**Date (GMT)**	**Time (GMT)**	**Event #**	**Lat**	**Lon**	**Sampling location**	**comments**							
48	3-Mar-08	0:46	630044	-50.869	-55.769	Main Lab	first sampling, problems with reagent dispensers							
49	3-Mar-08	13:33	631331	-50.843	-51.579	Main Lab								
50	3-Mar-08	18:23	631821	-50.798	-50.003	Main Lab								
51	4-Mar-08	1:22	640120	-50.694	-47.702	Main Lab	moving through a front							
52	4-Mar-08	12:39	641237	-50.428	-44.089	Main Lab								
53	4-Mar-08	17:33	641731	-50.291	-42.532	Main Lab								
54	4-Mar-08	23:31	642329	-50.167	-40.597	Main Lab								
55	5-Mar-08	15:35	651533	-51.491	-38.000	Main Lab								
56	5-Mar-08	23:47	652345	-50.960	-37.026	Main Lab	moving through a front							
57	6-Mar-08	23:46	662344	-50.750	-37.586	Main Lab								
58	7-Mar-08	19:08	671906	-50.435	-38.667	Main Lab								
59	9-Mar-08	1:42	690140	-50.660	-38.638	Main Lab								
60	9-Mar-08	13:49	691347	-50.656	-38.582	Main Lab								
61	10-Mar-08	5:06	700504	-50.713	-38.585	Main Lab								
62	11-Mar-08	3:30	710328	-50.755	-38.476	Main Lab								
63	14-Mar-08	2:00	740158	-50.862	-38.240	Main Lab								
64	16-Mar-08	23:47	762345	-53.753	-36.622	Main Lab								
65	17-Mar-08	21:46	772144	-51.700	-37.518	Main Lab								
66	18-Mar-08	7:37	780735	-51.040	-37.699	Main Lab								
67	18-Mar-08	17:44	781742	-50.511	-36.117	Main Lab								
68	19-Mar-08	3:46	790344	-50.388	-37.933	Main Lab								
69	19-Mar-08	15:43	791541	-50.600	-38.026	Main Lab	small bubbles in underway system							
70	19-Mar-08	21:43	792141	-50.719	-39.000	Main Lab								
71	20-Mar-08	3:44	800342	-50.900	-39.064	Main Lab								
72	20-Mar-08	16:13	801611	-50.944	-37.791	Hydro Lab								
73	21-Mar-08	1:43	810141	-51.152	-38.417	Main Lab								
74	22-Mar-08	3:31	820329	-51.140	-38.375	Main Lab								
75	22-Mar-08	16:18	821616	-51.192	-38.304	Wet Lab								
76	22-Mar-08	21:58	822156	-51.190	-38.297	Main Lab								
77	23-Mar-08	3:37	830335	-51.191	-38.265	Main Lab								
78	23-Mar-08	21:43	832141	-51.240	-38.054	Main Lab								
79	24-Mar-08	3:40	840338	-51.222	-38.019	Main Lab								
80	24-Mar-08	21:40	842138	-51.258	-37.956	Main Lab								
81	25-Mar-08	3:53	850351	-51.260	-37.868	Main Lab								
82	25-Mar-08	15:43	851541	-51.296	-37.689	Hydro Lab								
83	26-Mar-08	2:30	860228	-51.327	-37.563	Main Lab								
84	26-Mar-08	14:02	861400	-51.300	-37.503	Wet Lab								
85	26-Mar-08	20:05	862003	-51.293	-37.430	Main Lab								
86	27-Mar-08	2:04	870202	-51.293	-37.428	Main Lab								
87	27-Mar-08	21:47	872145	-51.229	-37.392	Main Lab								
88	28-Mar-08	1:35	880133	-51.319	-37.315	Main Lab								
89	28-Mar-08	15:34	881532	-51.320	-37.300	Main Lab								
90	28-Mar-08	21:55	882153	-51.316	-37.309	Main Lab								
91	29-Mar-08	3:06	890304	-51.296	-37.269	Main Lab								
92	30-Mar-08	3:07	900305	-51.312	-37.298	Main Lab								
93	30-Mar-08	13:51	901349	-51.308	-37.325	Main Lab								
94	31-Mar-08	1:37	910135	-51.303	-37.350	Main Lab								
95	1-Apr-08	1:43	920141	-51.281	-37.364	Main Lab								
96	1-Apr-08	19:48	921946	-51.375	-37.450	Main Lab								
97	2-Apr-08	2:01	930159	-51.340	-37.463	Main Lab								
98	2-Apr-08	13:49	931347	-51.366	-37.474	Hydro Lab								
99	3-Apr-08	1:21	940119	-51.384	-37.483	Main Lab								
100	4-Apr-08	2:37	950235	-51.437	-37.476	Main Lab								
101	5-Apr-08	1:13	960111	-51.465	-37.407	Main Lab								
102	5-Apr-08	20:43	962041	-48.923	-41.482	Main Lab								
103	6-Apr-08	4:03	970401	-47.875	-42.912	Main Lab								
104	6-Apr-08	13:37	971335	-46.410	-44.772	Main Lab								
105	6-Apr-08	19:45	971943	-45.538	-45.836	Main Lab	First sample sat acidified for a few minutes before titration. Value likely too low. Only reporting second sample.							
106	7-Apr-08	1:11	980109	-45.119	-46.315	Main Lab								
107	7-Apr-08	13:42	981340	-44.727	-46.913	Main Lab								
108	7-Apr-08	23:19	982317	-44.418	-47.428	Main Lab								
109	8-Apr-08	4:34	990432	-43.965	-48.020	Main Lab								
110	8-Apr-08	15:52	991550	-43.024	-48.860	Main Lab								
111	8-Apr-08	21:30	992128	-42.953	-49.094	Main Lab								
112	9-Apr-08	3:17	1000315	-42.873	-49.387	Main Lab								
113	9-Apr-08	13:36	1001334	-42.525	-50.303	Main Lab								
114	9-Apr-08	13:36	1001334	-42.525	-50.303	Main Lab								
115	9-Apr-08	19:42	1001940	-41.843	-51.013	Main Lab								
116	10-Apr-08	1:30	1010128	-41.086	-51.663	Main Lab								
117	10-Apr-08	13:34	1011332	-39.190	-53.149	Main Lab								
118	10-Apr-08	19:49	1011947	-38.204	-53.906	Main Lab								
119	11-Apr-08	1:42	1020140	-37.178	-54.683	Main Lab								
120	11-Apr-08	10:40	1021038	-35.556	-55.500	Main Lab								