R/V Cape Hatteras Cruise: KZ1204, Line W Cruise #2

Summary

Depart Woods Hole 4 September 2004, return Woods Hole 12 September 2004

Number of CTD/LADCP/ROSETTE stations: 24

Spray Glider Deployment: 11 September, site of station 22

Overall, all of our goals for the cruise were achieved.

Cruise Narrative

The cruise occupied a line of 24 hydrographic stations between the continental shelf south of Cape Cod and Bermuda. A Seabird 911 CTD system equipped with dual T/C sensors and a dissolved oxygen sensor was used throughout. A rosette sampler equipped with 20 four liter bottles was used for salinity and oxygen check samples and for CFC samples. On stations 10-17, in the deep overflow water, one liter samples were collected for analysis ashore of Iodine-129. The LADCP consisted of a pair of upward/downward looking, 300 kHz ADCP transducers from RDI, with internal data storage. Between casts, data were downloaded from the instruments. Underway data were collected with a Seabird SBE21/SBE3 ThermoSalinograph and shipboard ADCP data with an RDI 150 kHz Ocean Surveyor system. The Spray Glider was deployed near the shallow end of the section on the continental slope at a water depth of approximately 1100m. This unit is a SIO/WHOI design and will occupy the upper ocean section along our hydrographic line all the way to Bermuda, where it will be recovered in mid-October. This piggy-back project on our cruise is led by B. Owens (WHOI) and R. Davis & J. Sherman (SIO).

Problems encountered

A test station was occupied on the way to our starting point near Bermuda, at the site of station 20. One of the two LADCP transducers (upward-facing “slave”) did not function and was subsequently changed out with a backup head, which was used without problems for the rest of the cruise. No LADCP data were collected at station 2, presumably due to “operator error”. All other stations appear good. Because we had sufficient time [there being no time lost due to weather], we were able to re-occupy station 20 on the return leg. So there should be no data loss because of reduced LADCP coverage on the test station.

Iodine sampling caused reduced salinity samples in the deep water, because of not enough water in the sample bottles. We have to work out a better water budget or get bigger bottles for future cruises.

Because of heavy water sampling and operator sickness, we had to reduce salinity/oxygen water sampling on station 17. The R/V Cape Hatteras marine tech stepped in to run salts [using the

shipboard Portasal] and we eventually recovered from our sample bottle shortage with regular sampling on subsequent stations.

Scientific Personnel

NAME	INST/Responsibility	EMAIL
Terrence Joyce	WHOI - Chief Scientist	tjoyce@whoi.edu
William Smethie	LDEO - CFC	bsmeth@ldeo.columbia.edu
Melinda Hall	WHOI - watchstander	mhall@whoi.edu
Jane Dunworth-Baker	WHOI - data/watch	jdunworth@whoi.edu
Eben Franks	WHOI - watchstander	efranks@whoi.edu
Eugene Gorman	LDEO - CFC	egorman@ldeo.columbia
Brian Guest	WHOI - Ladcp/watch/glider	bguest@whoi.edu
Beatriz Pena-Molino	WHOI/MIT - watchstander	penabea@mit.edu
Janet Reimer	LDEO - CFC	gueenanglefish@yahoo.com
David Wellwood	WHOI - hydrography	dwellwood@whoi.edu
Eugene Lindon	Observer	eogen@aol.com

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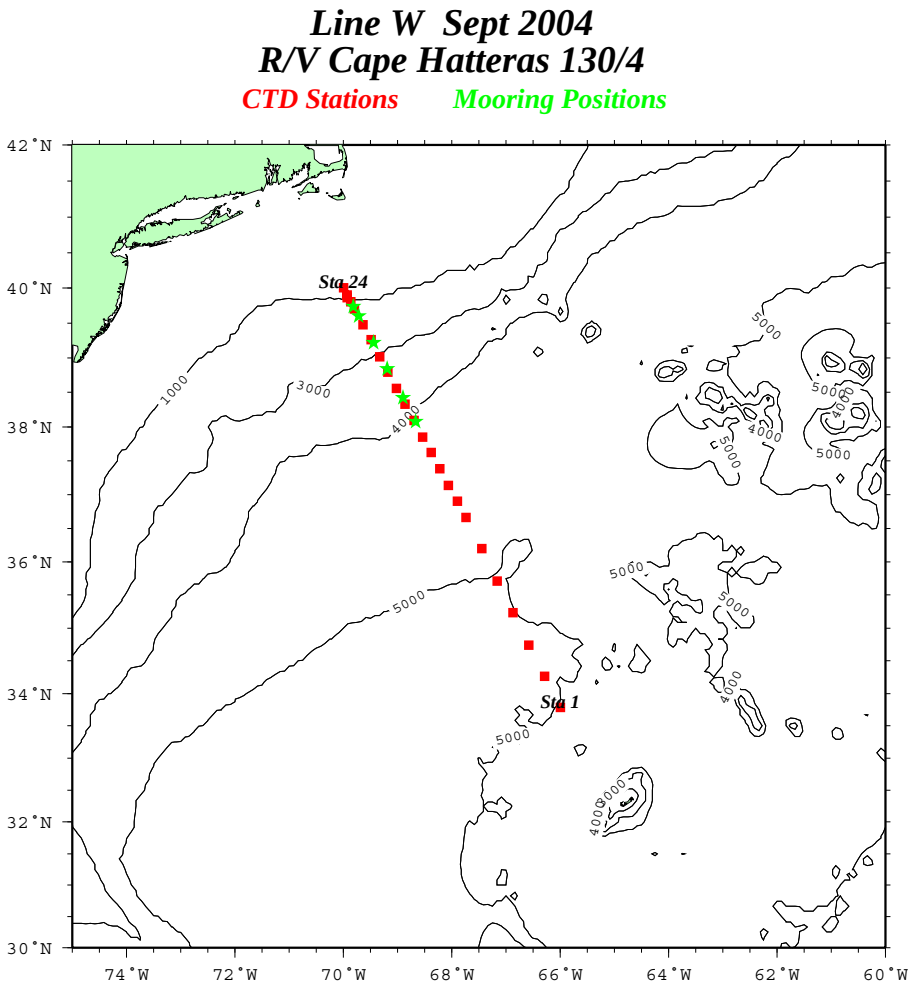

Location of stations occupied on the R/V Cape Hatteras Cruise. Bathymetric contours are plotted every 1000m. Location of existing moorings along line W are shown as star symbols. Our cruise track took us directly through a Warm-Core Ring, centered approximately at station 18.

Line_W R/V Cape Hatteras Sept 2004

SHIP/CRS EXPOCODE	WOCE SECT	STNNBR	CAST	CAST TYPE	DATE	UTC TIME	EVENT CODE	POSITION LATITUDE	POSITION LONGITUDE	NAV	COR DEPTH	HT ABOVE BOTTOM	WIRE OUT	MAX PRESS	NO. OF BOTTLES	PARAMETERS	COMMENTS
31KZ1204	LineW	1	1	ROS	090604	2059	BE	33 46.86 N	65 59.89 W	GPS	5053						
31KZ1204	LineW	1	1	ROS	090604	2225	BO	33 47.37 N	65 59.62 W	GPS		10.5	5213	5199	20	1,2,7,8	
31KZ1204	LineW	1	1	ROS	090704	0017	EN	33 47.42 N	65 59.14 W	GPS							
31KZ1204	LineW	2	1	ROS	090704	0340	BE	34 15.53 N	66 17.49 W	GPS	5157						
31KZ1204	LineW	2	1	ROS	090704	0522	BO	34 15.61 N	66 17.15 W	GPS		7.7	5215	5302	20	1,2,7,8	
31KZ1204	LineW	2	1	ROS	090704	0709	EN	34 15.53 N	66 16.66 W	GPS							
31KZ1204	LineW	3	1	ROS	090704	1048	BE	34 44.49 N	66 34.56 W	GPS	5162						
31KZ1204	LineW	3	1	ROS	090704	1224	BO	34 44.45 N	66 34.69 W	GPS		9.3	5200	5263	20	1,2,7,8	
31KZ1204	LineW	3	1	ROS	090704	1414	EN	34 44.92 N	66 34.97 W	GPS							
31KZ1204	LineW	4	1	ROS	090704	1734	BE	35 13.87 N	66 51.95 W	GPS	5038						
31KZ1204	LineW	4	1	ROS	090704	1912	BO	35 13.85 N	66 50.36 W	GPS		13.7	5199	5162	20	1,2,7,8	
31KZ1204	LineW	4	1	ROS	090704	2106	EN	35 13.94 N	66 48.63 W	GPS							
31KZ1204	LineW	5	1	ROS	090704	0048	BE	35 42.55 N	67 09.46 W	GPS	5046						
31KZ1204	LineW	5	1	ROS	090704	0223	BO	35 41.68 N	67 08.49 W	GPS		11.2	5176	5175	20	1,2,7,8	
31KZ1204	LineW	5	1	ROS	090704	0403	EN	35 40.79 N	67 07.43 W	GPS							
31KZ1204	LineW	6	1	ROS	090804	0807	BE	36 11.83 N	67 26.97 W	GPS	5046						
31KZ1204	LineW	6	1	ROS	090804	0928	BO	36 10.84 N	67 27.88 W	GPS		9.7	5056	5042	20	1,2,7,8	
31KZ1204	LineW	6	1	ROS	090804	1106	EN	36 09.76 N	67 28.64 W	GPS							
31KZ1204	LineW	7	1	ROS	090804	1434	BE	36 39.59 N	67 44.34 W	GPS	4913						
31KZ1204	LineW	7	1	ROS	090804	1607	BO	36 39.59 N	67 44.25 W	GPS		8	5056	5044	20	1,2,7,8	
31KZ1204	LineW	7	1	ROS	090804	1802	EN	36 39.18 N	67 43.61 W	GPS							
31KZ1204	LineW	8	1	ROS	090804	2007	BE	36 53.90 N	67 53.53 W	GPS	4893						
31KZ1204	LineW	8	1	ROS	090804	2134	BO	36 53.68 N	67 53.83 W	GPS		14	4998	5011	20	1,2,7,8	
31KZ1204	LineW	8	1	ROS	090804	2314	EN	36 53.39 N	67 52.19 W	GPS							
31KZ1204	LineW	9	1	ROS	090904	0110	BE	37 08.49 N	68 03.44 W	GPS	4859						
31KZ1204	LineW	9	1	ROS	090904	0239	BO	37 09.05 N	68 02.59 W	GPS		9.1	4941	4985	20	1,2,7,8	
31KZ1204	LineW	9	1	ROS	090904	0414	EN	37 09.39 N	68 01.93 W	GPS							
31KZ1204	LineW	10	1	ROS	090904	0605	BE	37 22.83 N	68 12.95 W	GPS	4709						
31KZ1204	LineW	10	1	ROS	090904	0730	BO	37 22.52 N	68 12.07 W	GPS		10	4820	4818	20	1,2,7,8	
31KZ1204	LineW	10	1	ROS	090904	0912	EN	37 22.36 N	68 10.32 W	GPS							
31KZ1204	LineW	11	1	ROS	090904	1108	BE	37 37.25 N	68 22.83 W	GPS	4557						
31KZ1204	LineW	11	1	ROS	090904	1236	BO	37 37.70 N	68 22.16 W	GPS		9.8	4821	4664	20	1,2,7,8	
31KZ1204	LineW	11	1	ROS	090904	1408	EN	37 38.39 N	68 21.73 W	GPS							
31KZ1204	LineW	12	1	ROS	090904	1541	BE	37 51.07 N	68 32.54 W	GPS	4343						
31KZ1204	LineW	12	1	ROS	090904	1702	BO	37 51.64 N	68 30.50 W	GPS		14	4473	4428	20	1,2,7,8	
31KZ1204	LineW	12	1	ROS	090904	1843	EN	37 52.01 N	68 28.25 W	GPS							
32KZ1204	LineW	13	1	ROS	090904	2044	BE	38 06.61 N	68 42.24 W	GPS	4038						
32KZ1204	LineW	13	1	ROS	090904	2156	BO	38 07.68 N	68 39.60 W	GPS		99	4750	4108	20	1,2,7,8,27	
32KZ1204	LineW	13	1	ROS	090904	2330	EN	38 08.60 N	68 36.91 W	GPS							
32KZ1204	LineW	14	1	ROS	091004	0134	BE	38 19.34 N	68 52.15 W	GPS	3818						Iodine (I-129) sampled
32KZ1204	LineW	14	1	ROS	091004	0244	BO	38 19.73 N	68 50.86 W	GPS		6.1	3912	3865	20	1,2,7,8	
32KZ1204	LineW	14	1	ROS	091004	0359	EN	38 19.93 N	68 49.34 W	GPS							
32KZ1204	LineW	15	1	ROS	091004	0554	BE	38 33.43 N	69 01.34 W	GPS	3459						Iodine (I-129) ,no PDR
32KZ1204	LineW	15	1	ROS	091004	0651	BO	38 32.99 N	69 01.09 W	GPS		9	3515	3504	20	1,2,7,8	
32KZ1204	LineW	15	1	ROS	091004	0758	EN	38 32.68 N	69 49.34 W	GPS							

32KZ1204	LineW	16	1	ROS	091004	0954	BE	38 47.39 N	69 10.98 W	GPS	3256							Iodine (I-129),no PDR
32KZ1204	LineW	16	1	ROS	091004	1054	BO	38 46.96 N	69 10.87 W	GPS		9.4	3281	3298	20	1,2,7,8		
32KZ1204	LineW	16	1	ROS	091004	1203	EN	38 46.45 N	69 10.99 W	GPS								
32KZ1204	LineW	17	1	ROS	091004	1402	BE	39 01.04 N	69 19.80 W	GPS	3064							I-129,few samp bottles-minimal sampling
32KZ1204	LineW	17	1	ROS	091004	1458	BO	39 00.46 N	69 20.19 W	GPS		10.2	3097	3093	20	1,2,7,8		
32KZ1204	LineW	17	1	ROS	091004	1602	EN	38 59.78 N	69 20.46 W	GPS								
32KZ1204	LineW	18	1	ROS	091004	1834	BE	39 15.41 N	69 29.67 W	GPS	2637							
32KZ1204	LineW	18	1	ROS	091004	1925	BO	39 15.19 N	69 30.37 W	GPS		11	2659	2665	20	1,2,7,8		
32KZ1204	LineW	18	1	ROS	091004	2027	EN	38 15.17 N	69 20.46 W	GPS								
32KZ1204	LineW	19	1	ROS	091004	2222	BE	39 28.41 N	69 38.58 W	GPS	2405							depth from ctd
32KZ1204	LineW	19	1	ROS	091004	2302	BO	39 28.31 N	69 39.05 W	GPS		11.5	2426	2425	20	1,2,7,8		
32KZ1204	LineW	19	1	ROS	091004	2356	EN	38 28.39 N	69 39.55 W	GPS								
32KZ1204	Linew	20	1	ROS	091104	0147	BE	39 42.03 N	69 48.01 W	GPS	2092							
32KZ1204	LineW	20	1	ROS	091104	0224	BO	39 42.11 N	69 48.09 W	GPS		9.1	2075	2425	19	1,2,7,8		
32KZ1204	LineW	20	1	ROS	091104	0310	EN	39 41.97 N	69 47.97 W	GPS								
32KZ1204	LineW	21	1	ROS	091104	0422	BE	39 48.09 N	69 51.47 W	GPS	1223							
32KZ1204	LineW	21	1	ROS	091104	0446	BO	39 48.32 N	69 51.39 W	GPS		7.1	1278	1272	13	1,2,7,8		
32KZ1204	LineW	21	1	ROS	091104	0515	EN	39 48.46 N	69 51.52 W	GPS								
32KZ1204	Linew	22	1	ROS	091104	0656	BE	39 51.87 N	69 55.72 W	GPS	1007							
32KZ1204	Linew	22	1	ROS	091104	0718	BO	39 52.15 N	69 55.84 W	GPS		6.2	1085		11	1,2,7,8		
32KZ1204	LineW	22	1	ROS	091104	0742	EN	39 52.43 N	69 55.90 W	GPS								
32KZ1204	LineW	23	1	ROS	091104	1420	BE	39 53.95 N	69 56.85 W	GPS	482							
32KZ1204	LineW	23	1	ROS	091104	1433	BO	39 54.04 N	69 56.93 W	GPS		8.6	488	487	7	1,2,7,8		
32KZ1204	LineW	23	1	ROS	091104	1445	EN	39 52.09 N	69 56.96 W	GPS								
32KZ1204	LineW	24	1	ROS	091104	1533	BE	39 59.98 N	69 59.99 W	GPS	162							
32KZ1204	LineW	24	1	ROS	091104	1538	BO	39 59.99 N	69 59.99 W	GPS		8.6	150	153	3	1,2,7,8		
32KZ1204	LineW	24	1	ROS	091104	1546	EN	40 00.04 N	70 00.01 W	GPS								