PROSOPE

H. CLAUSTRE : head of mission and project leader

IRON : C. RIDAME, C. GUIEU

Iron Analysis | **Read DATA Set**

IRON ANALYSIS

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Total dissolved iron (<0.4μm) was analyzed along the vertical profiles at stations UPW, MIO and DYF on filtered samples collected (1) by pumping (depth 0-200m) and (2) by Niskin bottles (depth>200m). Samples were also collected by pumping (5m and 10m) during the short stations along the transect. Special care was observed during the sampling to avoid any contamination (filtration on-line inside a clean container of the pumped samples; use of a kevlar cable for the pumping system etc.). Only few samples were obviously contaminated.

The filtered samples were acidified on board and iron was measured in the laboratory. The method is based on column extraction and chemiluminescence detection in a closed flowthrough system : Fe(III) in the acidified sample solution is selectively collected on 8-hydroxy-quinolinol immobilized chelating resin and then eluted with hydrochloric acid. The resulting eluent is mixed with luminol solution, aqueous ammonia, and hydrogen peroxide solution successively, and then the mixture is introduced into the chemiluminescence cell. The iron concentration is proportional to the chemiluminescence intensity. (the method is fully described in Obata et al. 1993).

Reference.

Obata H., Karatani H. and Nakayama E., 1993, Automated determination of iron in seawater by chelating resin concentration and chemiluminescence detection, Analytical Chemistry, 65, 11: 1524-1528.

DATA SET

These data are validated. However, the data mentioned (*) are suspected to be issued from a contaminated sample.

CTD_pressure : from CTD_Bottle_Table updated october 2000

STATION UPW	**N° bottle CTD**	**ctd-press(dba)**	**depth dba**	**conc. Fe nM**
pumping			5	1,79
CTD 011	20	4.739	5	1,68
CTD 011	18	11.251	11	0,93
CTD 011	16	20.682	20	0,99
CTD 011	14	29.526	29	0,75
CTD 011	12	38.585	38	0,82
CTD 011	10	49.269	49	0,96
CTD 011	8	59.277	59	1,29
CTD 011	6	80.723	80	1,92
CTD 011	4	100.680	100	1,25

STATION MIO	N° bottle CTD	ctd-press(dba)	depth dba	conc. Fe nM
pumping			5	1,46
pumping			10	1,99
pumping			24,1	0,59
pumping			50	0,61
pumping			75	0,42
pumping			101,6	0,26
pumping			123,6	0,28
pumping			144,6	0,36
pumping			175	13.5*
pumping			188,4	1,08
CTD 062	20	199.077	200	0,78
CTD 062	16	449.979	450	0,59
CTD 062	10	999.615	1000	0,13
CTD 062	2	1999.895	2000	0,33

STATION DYFAMED	N° bottle CTD	ctd-press(dba)	depth dba	conc. Fe nM
pumping			5	1,42
pumping			9	1,23
pumping			20	3,10
pumping			40	0,45
pumping			72,6	0,47
pumping			98,6	0,39
pumping			123,6	0,60

pumping			150	0,62
pumping			173	0,51
pumping			193	0,57
CTD 108	20	199.725	200	3.5*
CTD 108	16	450.228	450	1,08
CTD 108	10	998.556	1000	1,06
CTD 108	4	2000.415	2000	0,52
SHORT STATIONS 2			depth dba	conc. Fe nM
pumping			4,8	1,35
pumping			4,8	0,99
pumping			10,1	0,69
pumping			10,1	0,71
SHORT STATIONS 3			depth dba	conc. Fe nM
pumping			5	1,02
pumping			5	1,16
pumping			10,1	0,94
pumping			10,1	0,91
SHORT STATIONS 4			depth dba	conc. Fe nM
pumping			5	1,80
pumping			5	1,77
pumping			10	2,08
pumping			10	1,78
SHORT STATIONS 5			depth dba	conc. Fe nM
pumping			5	2,40
pumping			5	2,78
pumping			10,1	2,10
pumping			10,1	1,90
SHORT STATIONS 6			depth dba	conc. Fe nM
pumping			5	1,67
pumping			5	1,41
pumping			10	2,09
pumping			10	1,90
SHORT STATIONS 7			depth dba	conc. Fe nM
pumping			5,3	1,83
pumping			5,3	1,7
pumping			10,7	2,75
pumping			10,7	2,69
SHORT STATIONS 8			depth dba	conc. Fe nM
pumping			10	2,48
pumping			10	2,6

pumping	5	1,41
pumping	5	1,78
SHORT STATIONS 9	depth dba	conc. Fe nM
pumping	5	1,43
pumping	5	1,56
pumping	10	3,01
pumping	10	2,6