

## **CARBON UNDERWAY MEASUREMENTS: INDIAN, ARCTIC, and GLOBAL/Irregular lines**

International Ocean Carbon Coordination Project ([www.ioccp.org](http://www.ioccp.org))

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Track/Ship name	Dates of operation	Area	Brief description (ship track)	Frequency	PI	Nation
<b>Indian Ocean</b>						
Marion Dufresne / OISO	1998-	S Indian/ Southern Ocean	Reunion - Crozet - Kerguelen - Amsterdam Is	2/year	N. Metzl	France
<b>Arctic Ocean</b>						
Amundsen	2004-	Arctic	ArcticNet Domain (Arctic coastal waters)	1/year	T. Papakyriakou	Canada
St Laurent / Laurier	2005-	Atlantic & Pacific	Newfoundland-Canada basin	?	C. S. Wong	Canada
Nuka Arctica	2005-2009	N Atlantic -Arctic	Aalborg Denmark - Nuuk, West Greenland	Monthly	A. Olsen T. Johannessen	Norway
<b>Global</b>						
Pacific Celebes	May 2007-	global	Singapore-TAO array-Panama Canal- Houston- Halifax-Suez-Jeddah-Mumbai-Singapore	Twice per year	D. Hydes	UK
Xue Long (Snow Dragon)	2007-	Arctic/ Antarctic (Pacific)	Shanghai- PR China- Antarctic and Arctic oceans	Annual	R. Wanninkhof W.-J. Cai L. Chen (3rd inst PRC) Joint project w PRC	USA
Polarstern	2007-	both polar oceans and Atlantic transects to/from Antarctic	autonomous pCO <sub>2</sub> system (General Oceanics) should already have been completed and delivered. For installation and continuous operation at Polarstern.	Annual	M. Hoppema collaborative effort with Royal NIOZ	Germany/ Netherlands

Irregular						
Turmoil	2007	Global		Random	T. Takahashi	USA
RRS Discovery	2005 2006-2009	Global	One AMT route in 2005. Variable (pCO <sub>2</sub> collected on all research cruises)	Variable	Nick Hardman-Mountford	UK
RRS James Cook	2007-2009	Global	Variable (pCO <sub>2</sub> to be collected on all research cruises)	Variable	N. Hardman-Mountford	UK
R/V Langseth	2007	Global		Random	T. Takahashi	USA