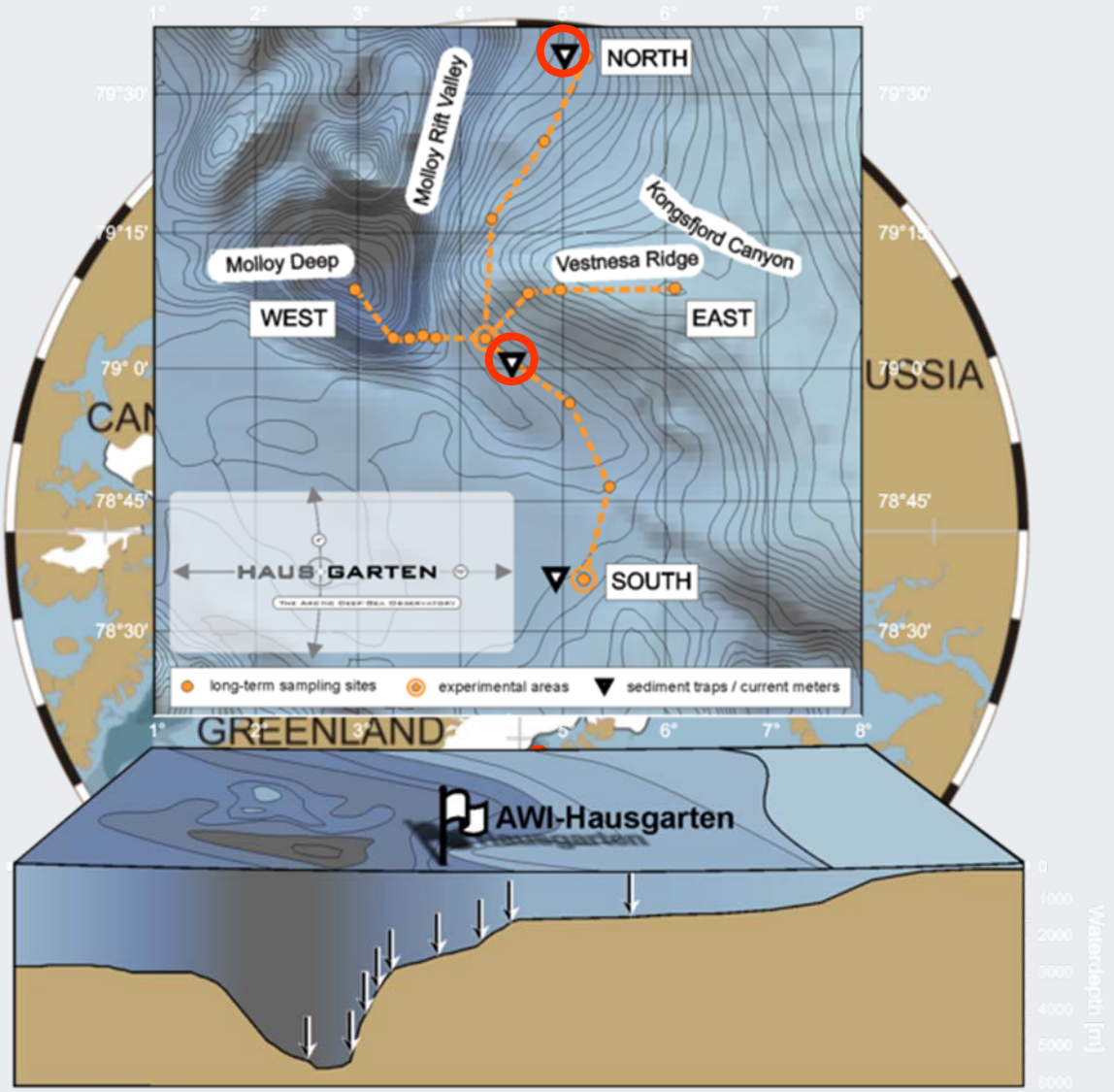
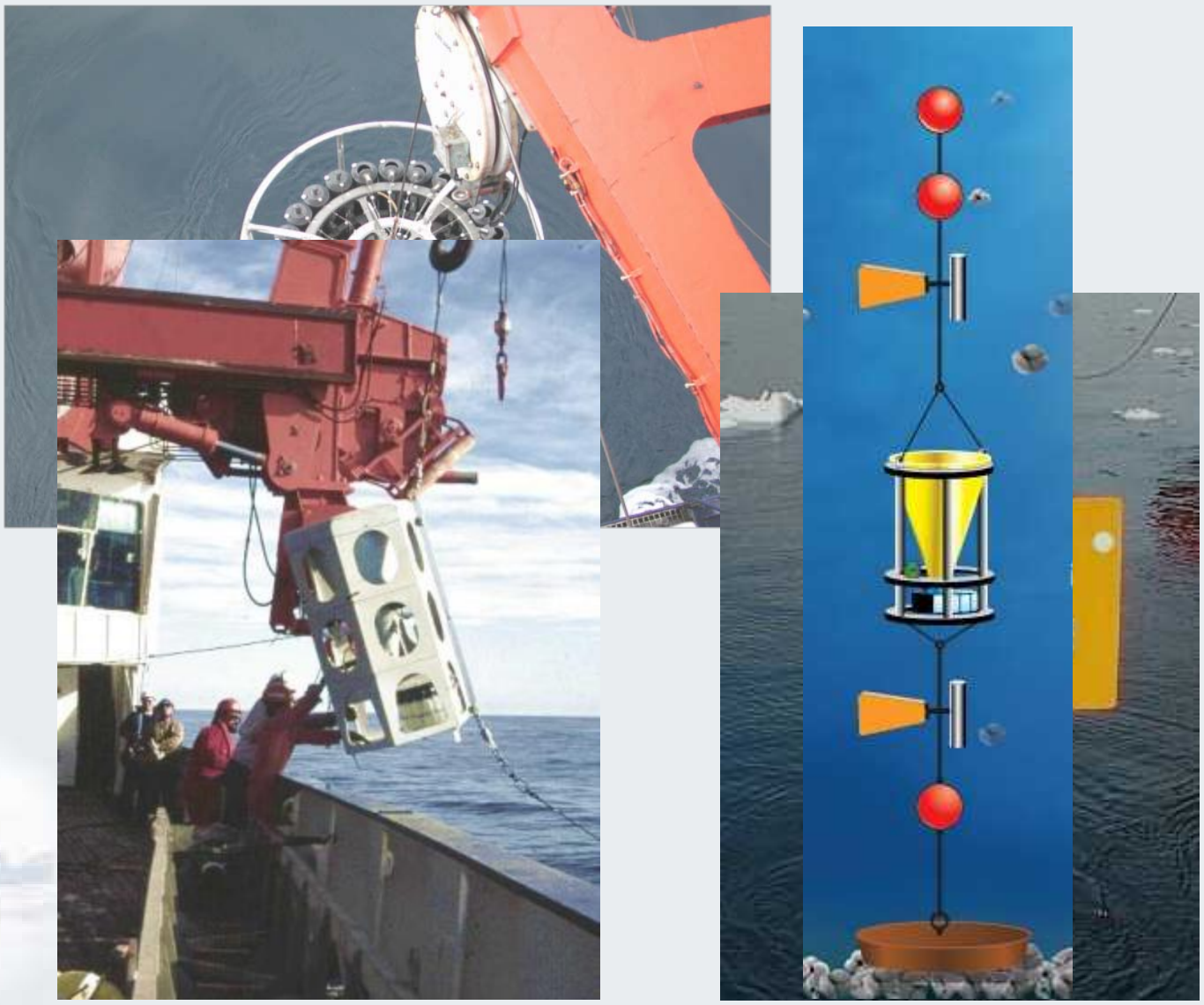
AWI-HAUSGARTEN in Fram Strait (1999- on going)

- Since 1999
- 16 stations; 1000 - 5500 m
- continuous / repeated measurements and sampling
- photo / video observations
- in-situ experimental work

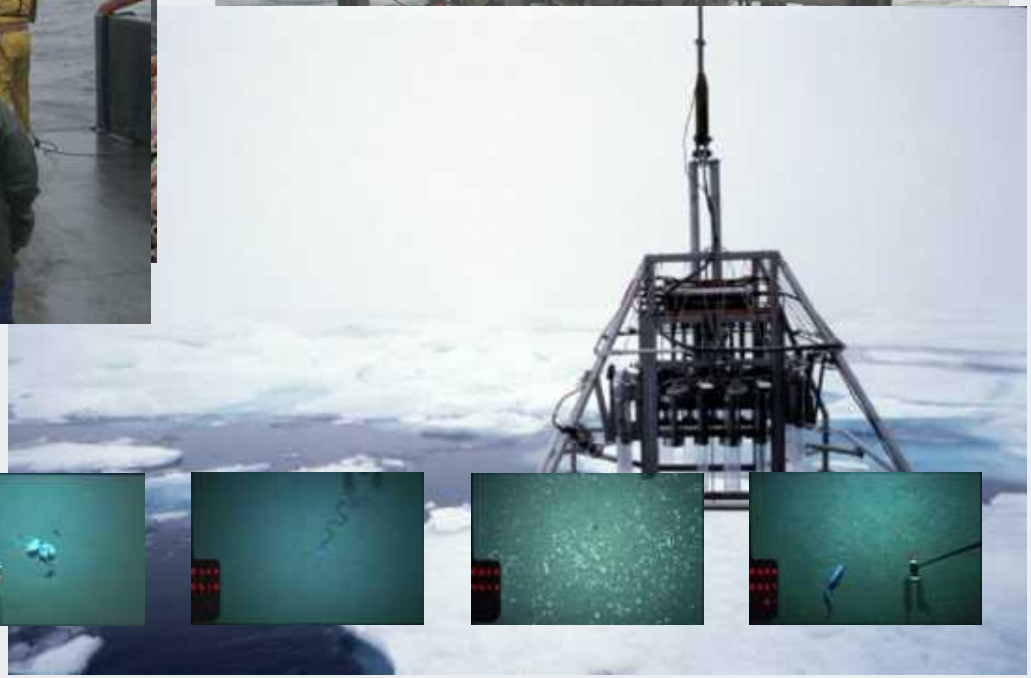


contributions to international programmes:

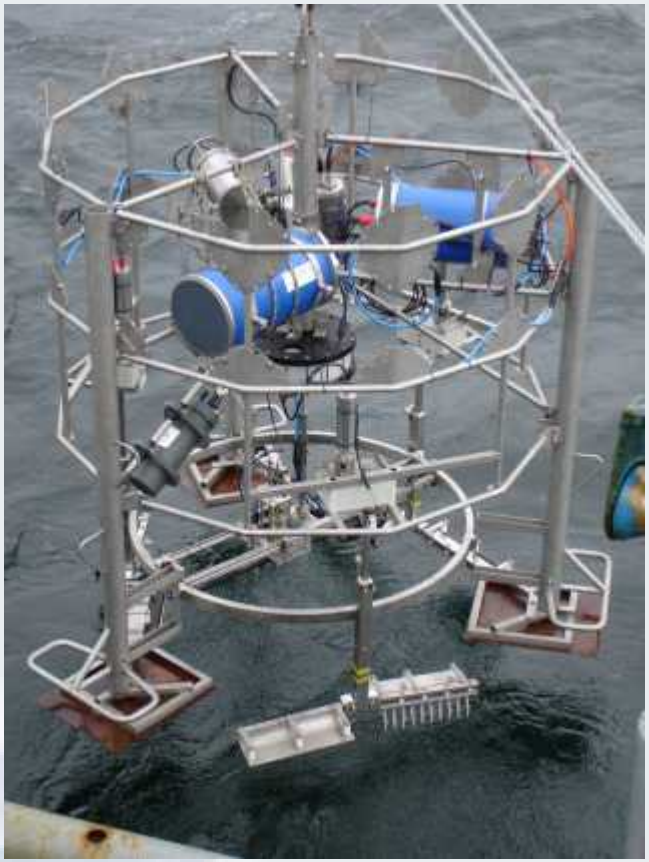
HAUSGARTEN - PELAGIC



HAUSGARTEN - BENTHIC

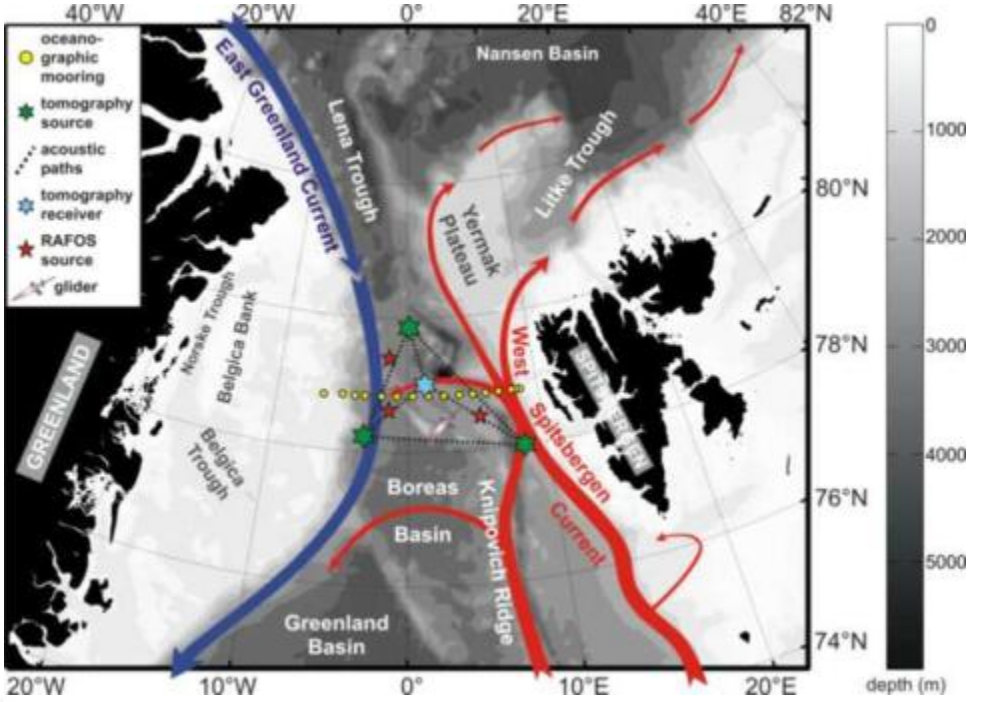


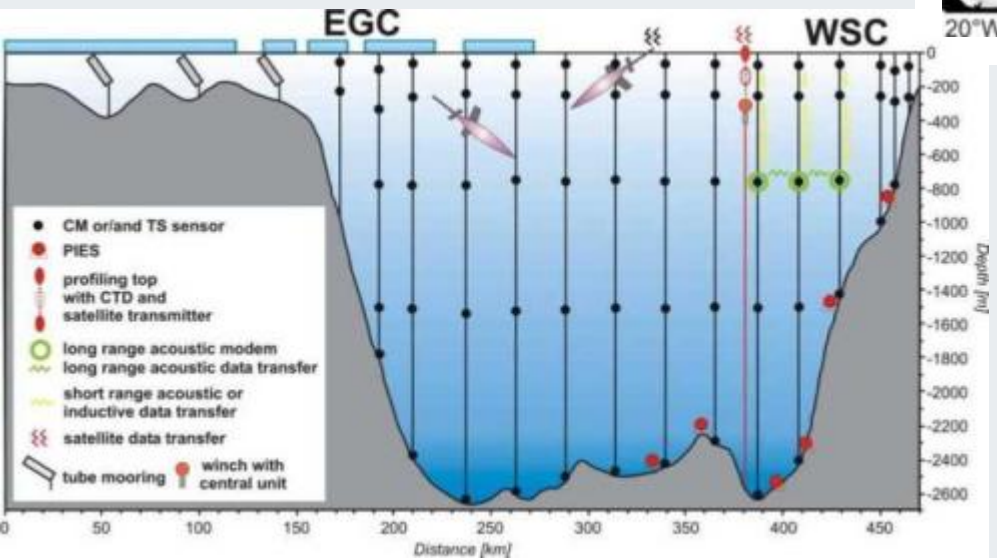
HAUSGARTEN - LANDERS



Fram Strait Observatory moored array and gliders

- 16 deep oceanographic moorings between the Spitsbergen and Greenland shelves maintained since 1997 by AWI and NPI
- 4 acoustic tomographic moorings (3 sound sources and 1 receiver array) operated by NERSC
- RAFOS sound sources for acoustic positioning and navigation (AWI)
- Annually repeated standard CTD section along the mooring line at 78°50'N (AWI, NPI)
- Gliders profiling in the upper 1000 m layer (in open water, under-ice gliders in testing phase) operated by AWI, in collaboration with APL-UW

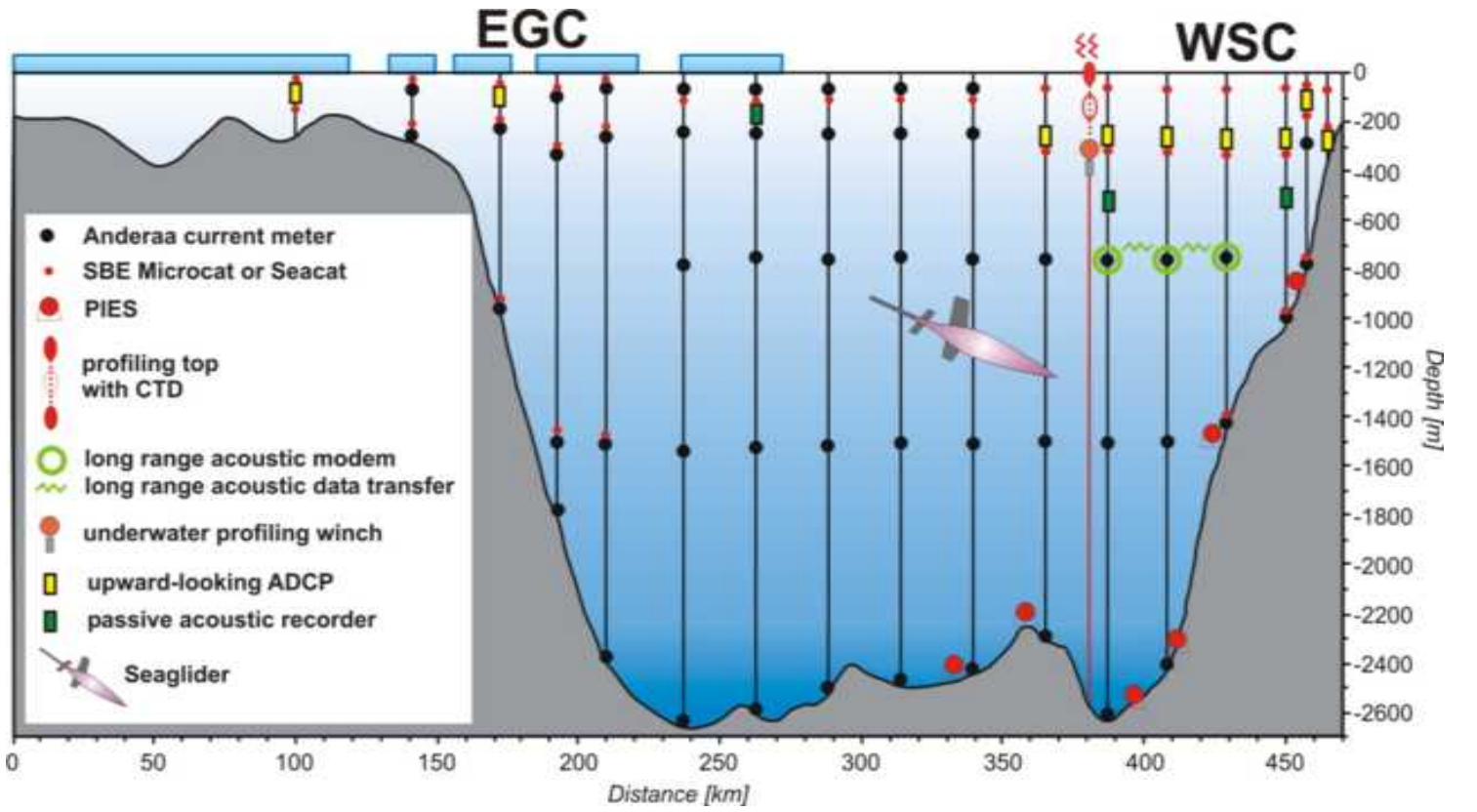




Main aims:

Monitoring volume, heat and salt (freshwater) exchanges between the North Atlantic and the Arctic Ocean

Moored array in Fram Strait (1997- on going)



Fram Strait moored array

as deployed in 2011 to be exchanged in 2012
(with 7 ADCPs covering the upper layer)

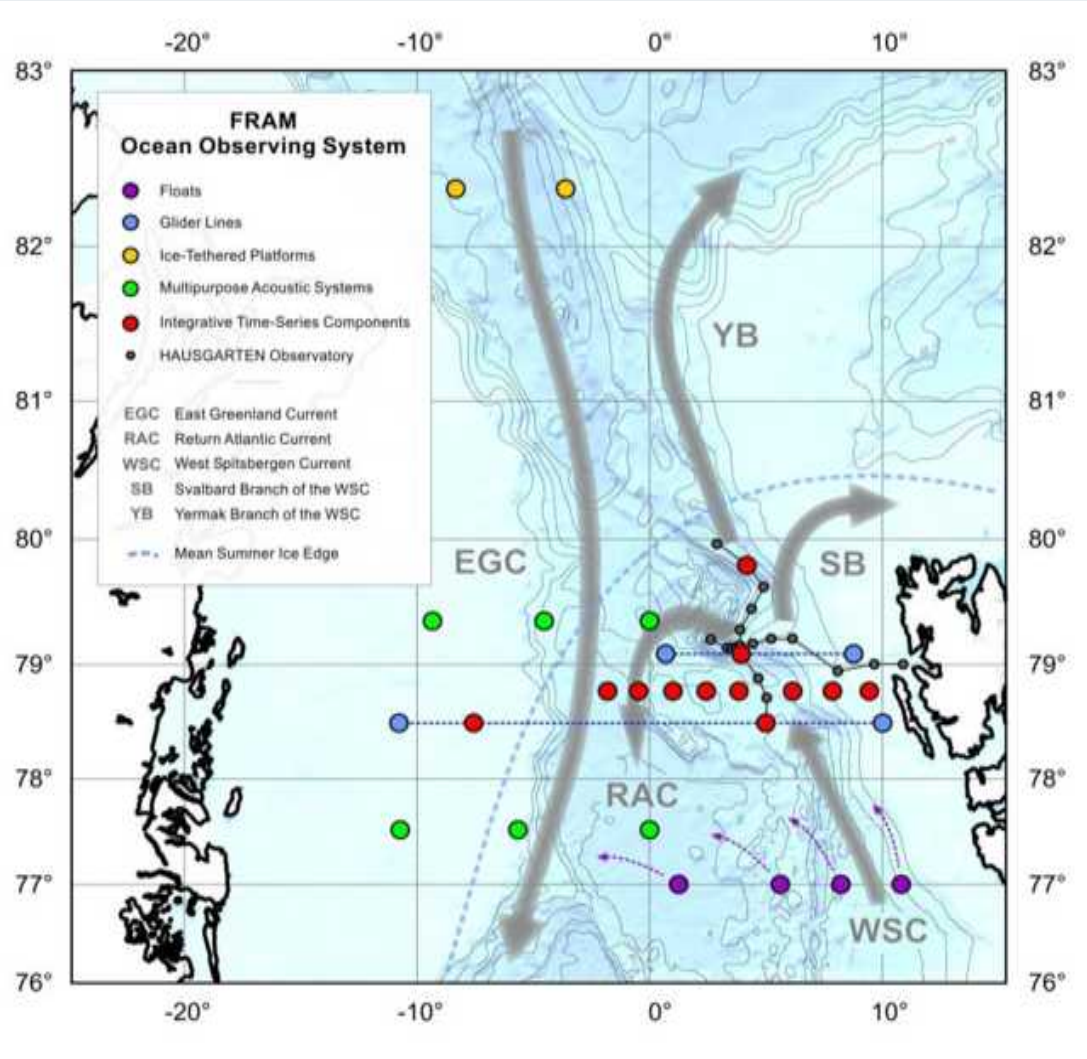
Standard parameters:
- currents temperature, salinity, pressure

Not regular measurents (selected years):
- passive acoustics, sound speed, light transmision, bottom pressure

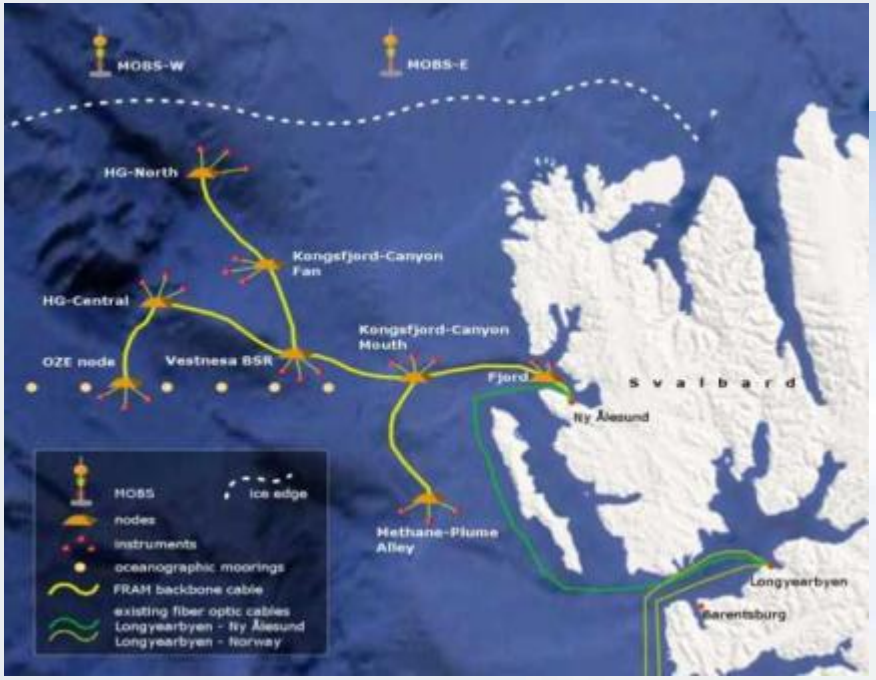
Seagliders missions in Fram Strait in 2008-on going
(operated by Optimare, equpped with RAFOS in colaboration with APL-UW)

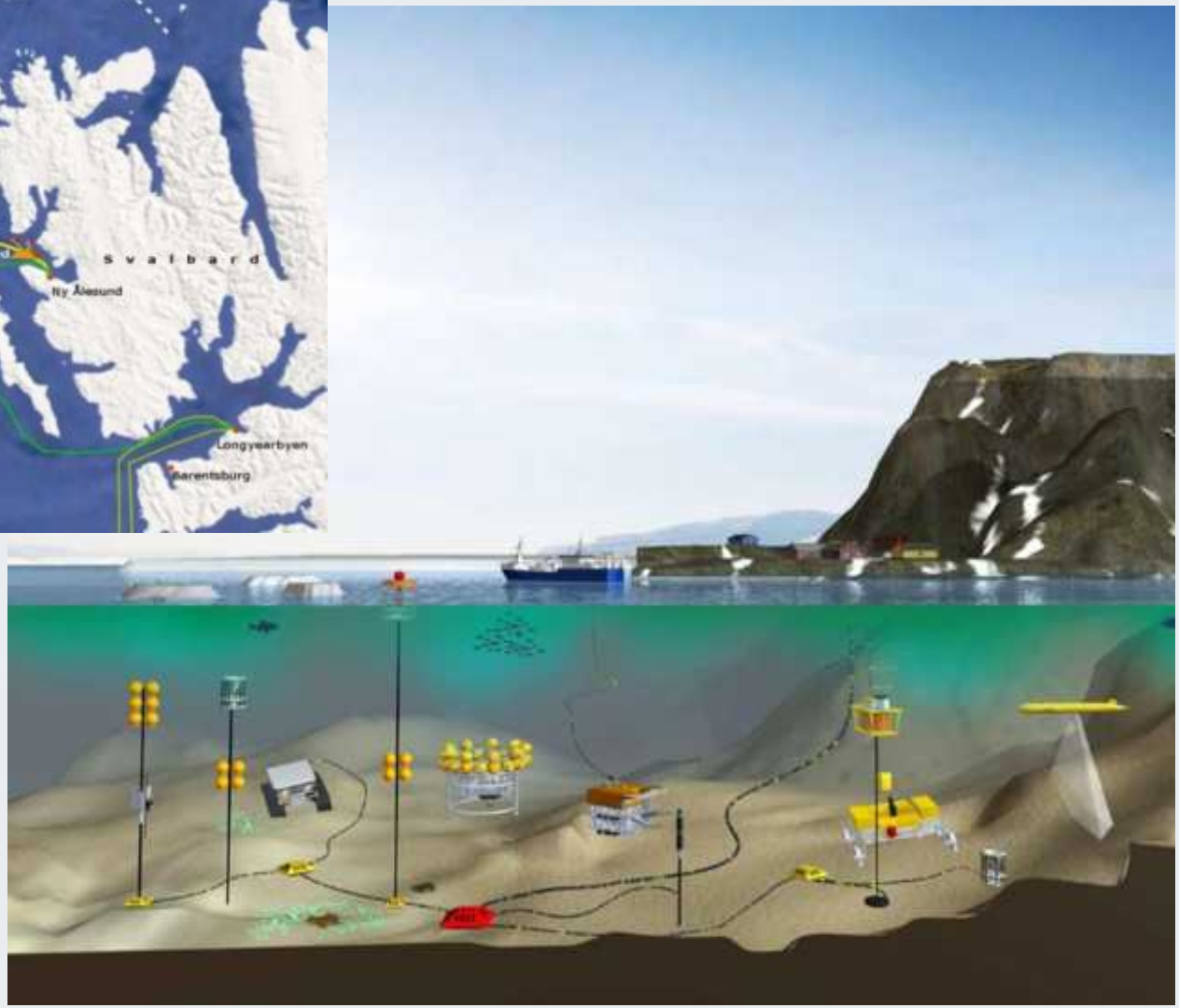
Summer 2008 mission: 67 days, 721 Nm, 394 dives, one RAFOS sound source
Summer 2009 mission: 76 days, 793 Nm, 400 dives, no RAFOS
Summer 2010 mission: 71 days, 539 Nm, 294 dives, 3 RAFOS and 1 tomo sources
Winter 2011 mission: 72 days, 837 Nm, 284 dives, 3 RAFOS and 3 tomo sources
Summer 2011 mission: 78 days, 846 Nm, 350 dives, 5 RAFOS and 3 tomo sources
Autumn 2011 mission: ongoing, 204 dives by Oct 20, 5 RAFOS and 3 tomo sources

The future of both arrays…
FRAM – a cabled Ocean Observing System

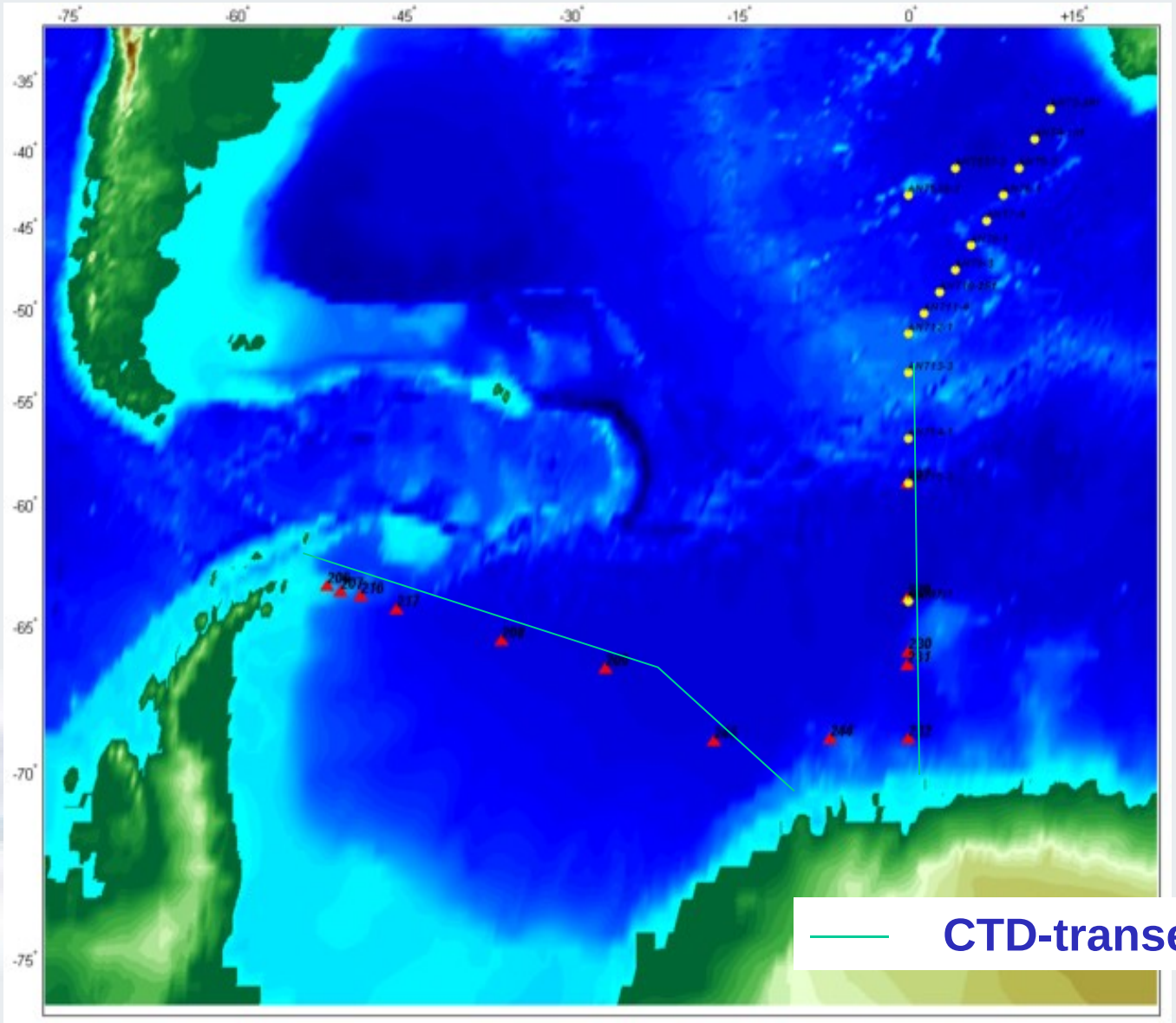


The future of both arrays…
FRAM – a cabled Ocean Observing System

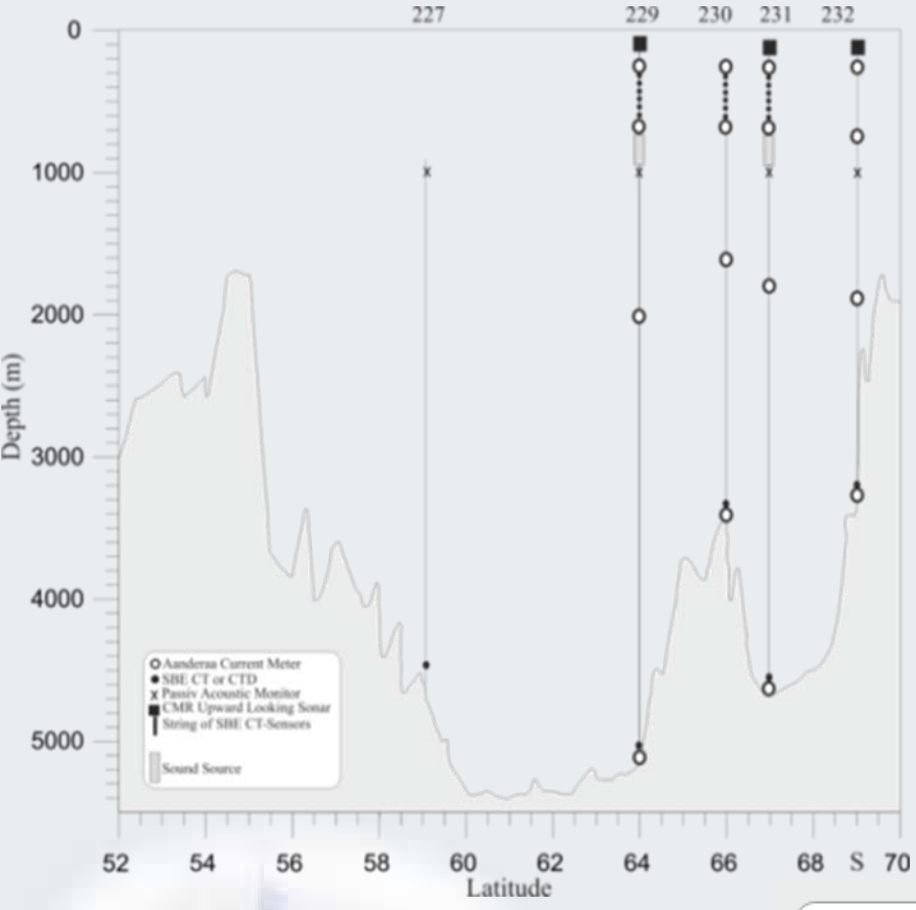


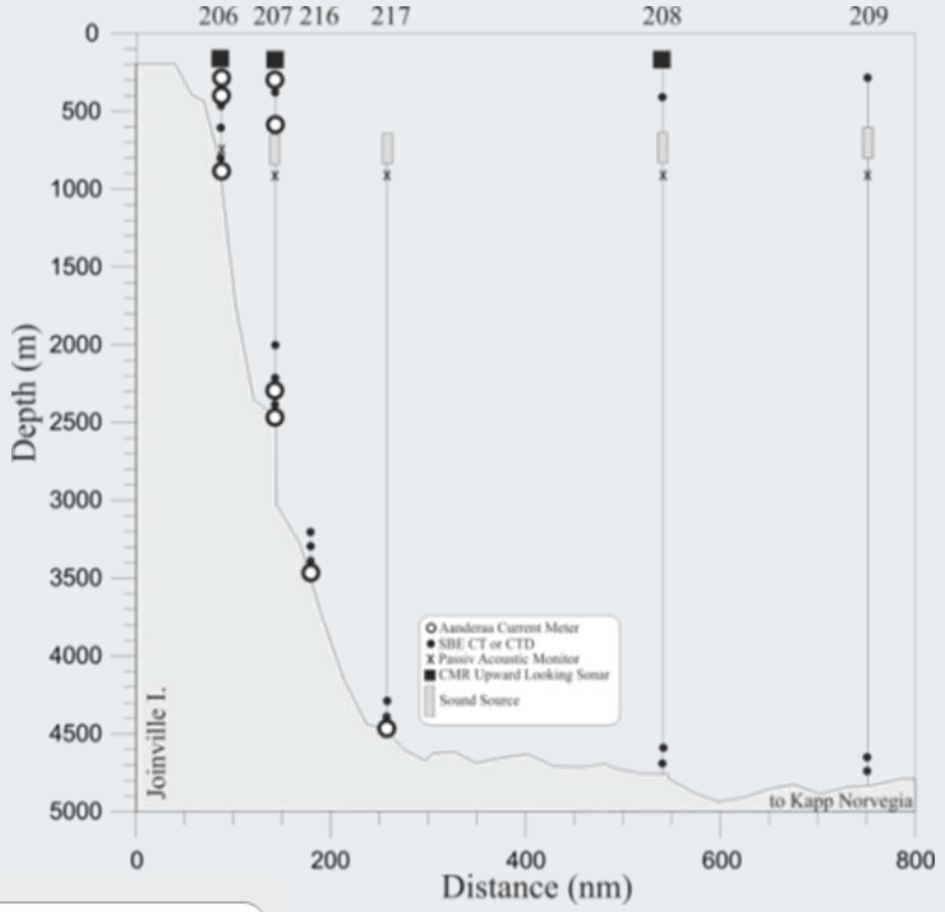


Moorings and PIES in the Weddell Sea



Moored Instruments





Weddell Sea/ Greenwich Meridian

- Aanderaa Current Meter
- SBE CT or CTD
- Passiv Acoustic Monitor
- CMR Upward Looking Sonar
- String of SBE CT-Sensors
- Sound Source

Weddell Sea proper

Mooring Periods

Period		1996-1997	1997-1998	1996-1998	1998-1999	1999-2000	2000-2001	1999-2001	2001-2002	2002-2004/5	2005-2006
Deployment		ANT-XIII/4	PolarQueen	ANT-XIII/4	ANT-XV/4	ANT-XIV/2	ANT-XVII/2	ANT-XVI/2	ANT-XVIII/3	ANT-XX/2	ANT-XXII/3
Recovery		PolarQueen	ANT-XV/4	ANT-XV/4	ANT-XVI/2	ANT-XVII/2	ANT-XVIII/3	ANT-XVIII/3	ANT-XX/2	ANT-XXII/3	ANT-XXIII/2
	Latitude										
AWI237	46.1°S					1					
AWI239	53.0°S						(1)		2	(3)	
AWI238	54.5°S					1	2		3	4	5
AWI241	55.5°S										1
AWI228	57.0°S			1	2	3	4		5	6	7
AWI227	59.0°S	3	4		5			6	7	8	9
AWI229	64.0°S			1	2			3	4	5	6
AWI230	66.0°S			1				2	3	4	5
AWI231	66.5°S			1	2			3	4	5	6
AWI232	69.0°S	1	2		3			4	5	6	7
AWI233	69.4°S	1	2		3			4	5	6	7

Period		2006-2008	2005-2008	2008-2010/11	2010/11-2013	2012/13-?
Deployment		ANT-XXIII/2	ANT-XXII/3	ANT-XXIV/3	ANT-XXVII/2	ANT-XXIX/2
Recovery		ANT-XXIV/3	ANT-XXIV/3	ANT-XXVII/2	ANT-XXIX/2	?
	Latitude					
AWI237	46.1°S					
AWI239	53.0°S					
AWI238	54.5°S		5			
AWI241	55.5°S		1			
AWI228	57.0°S		7			
AWI227	59.0°S		9	10	11	12
AWI229	64.0°S	7		8	9	10
AWI230	66.0°S		5	6	7	8
AWI231	66.5°S	7		8	9	10
AWI232	69.0°S	8		9	10	11
AWI233	69.4°S		7			

Weddell Sea/ Greenwich Meridian

Weddell Sea proper

Period		1989-1990	1990-1992	1993-1995	1996-1997	1998-1999	2005-2008	2008-2010	2010/11-13	2012/13-?
Deployment		ANT-VIII/2	ANT-IX/2	ANT-X/7	ANT-XIII/4	ANT-XV/4	ANT-XXII/3	ANT-XXIV/3	ANT-XXVII/2	ANT-XXIX/2
Recovery		ANT-IX/2	ANT-X/7	ANT-XIII/4	ANT-XV/4	Hesperides	ANT-XXIV/3	ANT-XXVII/2	ANT-XXIX/2	?
	Latitude									
AWI206	52° 06.69' W	1	2	3	4	5		6	7	8
AWI207	50° 54.30' W	1	2	3	4	(5)	6	7	8	9
AWI216	49° 08.80' W		1		2			3	4	5
AWI217	45° 51.00' W		1	2				3	4	5
AWI208	36° 29.40' W	1	2	3			4	5	6	7
AWI209	27° 07.20' W	1	2	3			4	5	6	7