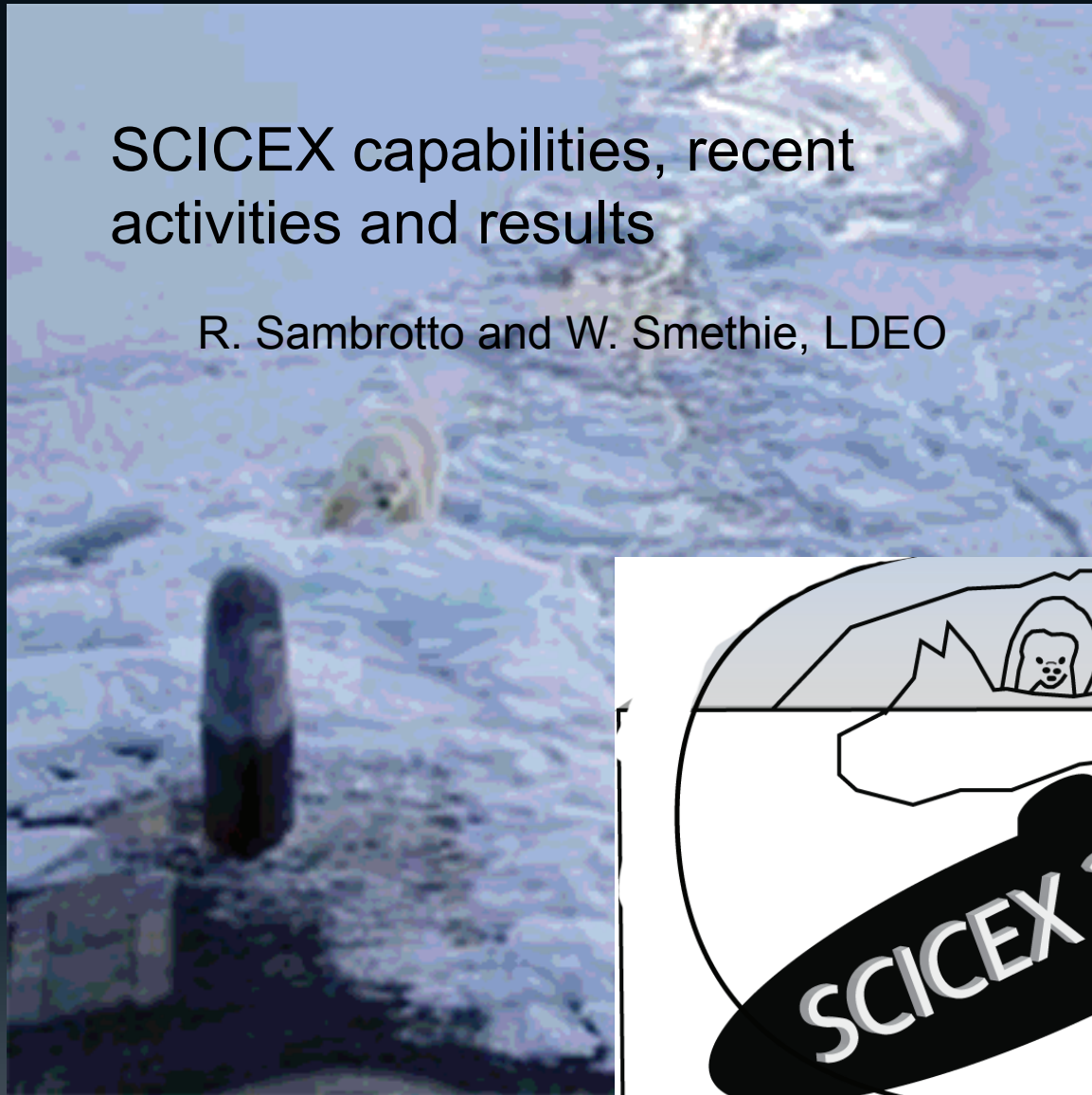


SCICEX capabilities, recent activities and results

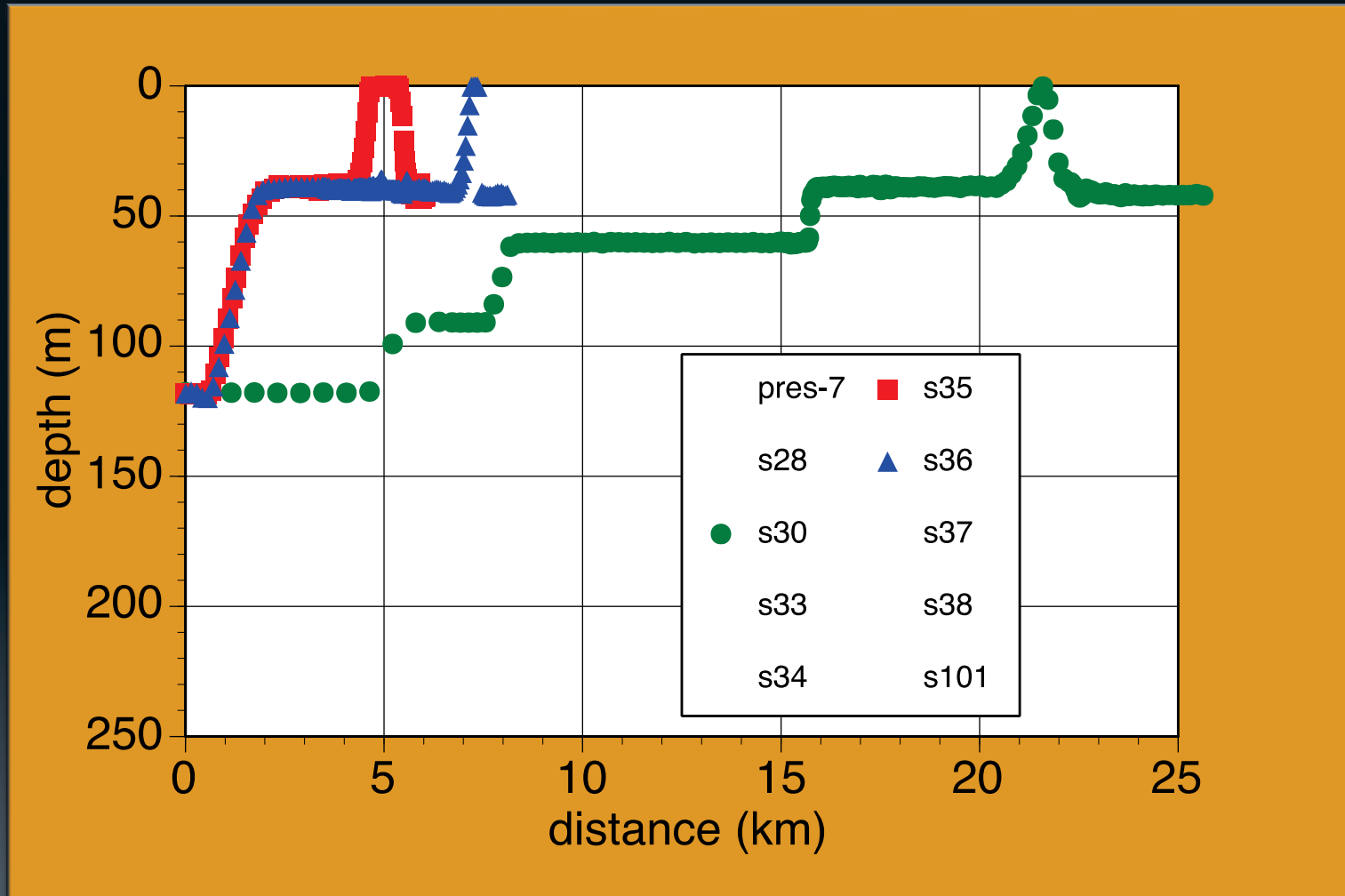
R. Sambrotto and W. Smethie, LDEO

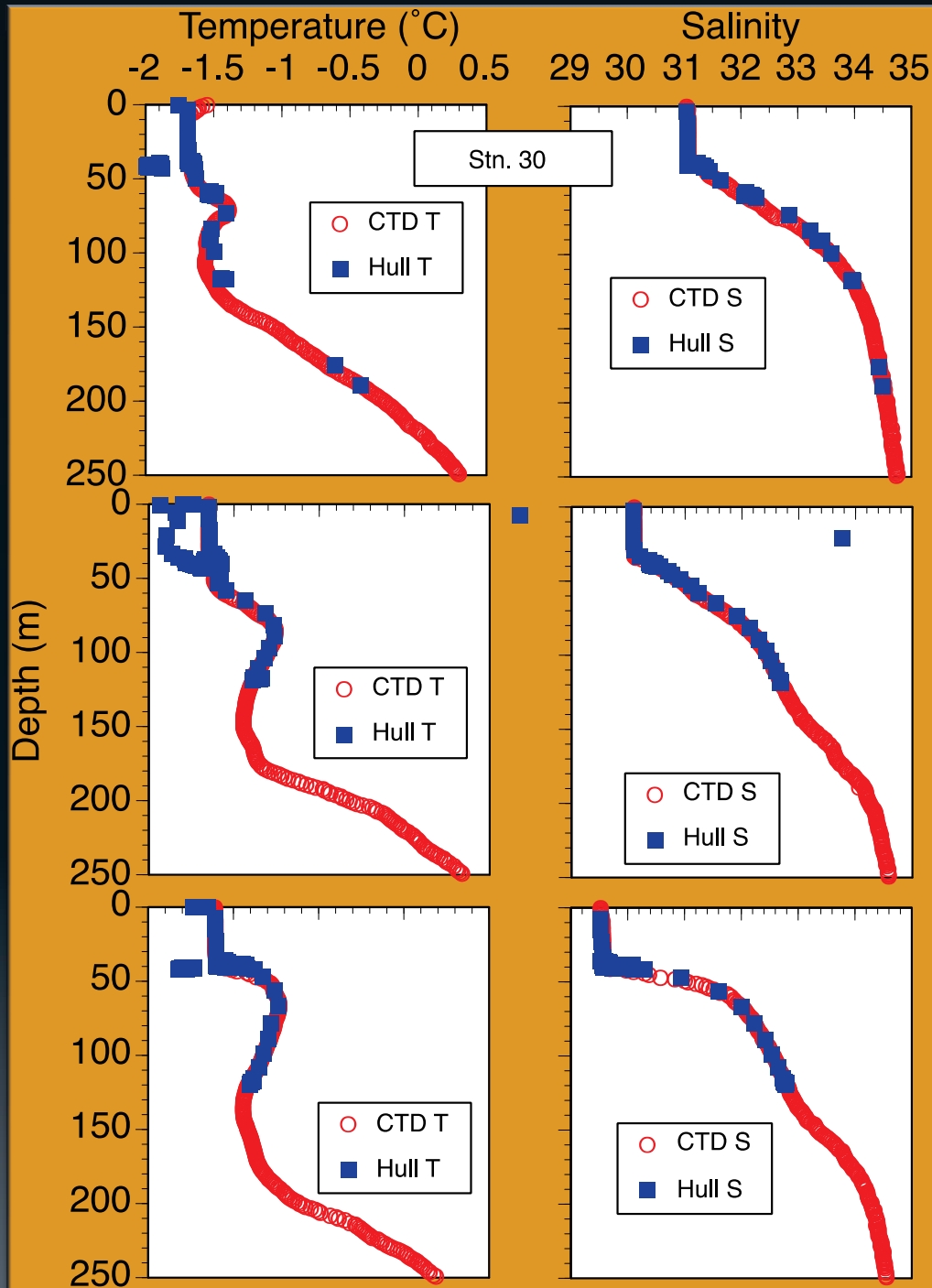


Sampling details worked out beforehand with ASL for round-trip safety & data integrity

- **HAZMAT**
- **Protocols**
- **Station & sample plan based on time to draw sample and time to process**
- **Frequency**
- **Log sheet**
- **Storage & shipping requirements**

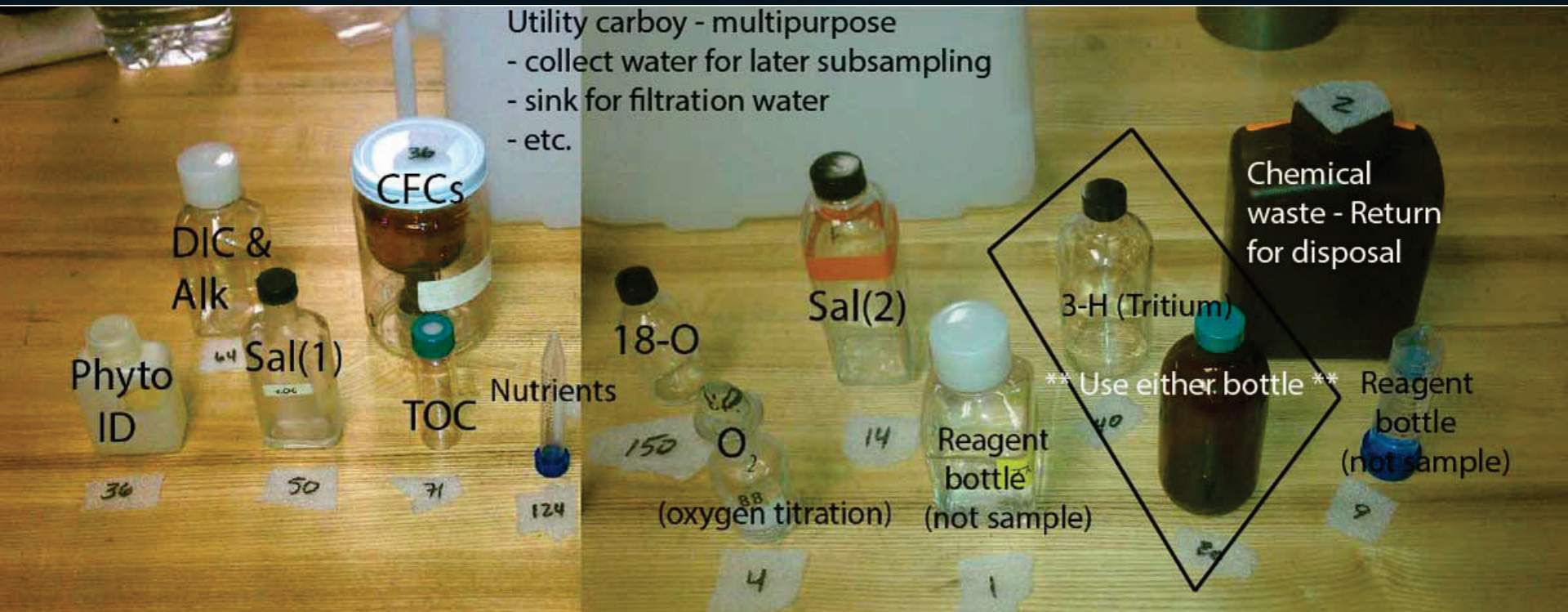
Horizontal & vertical distance during 3 stair-step stations





Hull &
surface
CTD data
match well

Training at ASL 18 Jan 2104



Final SCICEX 2014 sample plan

I. All sample opportunities (20 underways + 7 x 6 for stair-step = 62):

Nutrients, Salinity, O-18, TOC (DOC), POC/ Chl, Tritium

II. All underways and 2 from each stair-step profile (20 + 7 x 2 = 34):

Phytoplankton, Metagenomics

III. Stair-step profiles only (7 x 6 = 42):

dissolved oxygen, CFC/SF6 - 6 stations (6 depths per station) per sub, He-3

Summary of SCICEX 2014 SAM Samples

	Hampton (2000 series)	New Mexico (1000 series)	Total	Sample Status
<i>Riders:</i>	Reece/ King	B. Hopper/ K. Serles		
<i>Shipped from:</i>	Bremerton, WA	New London, CT		
Phyto. ID	31	46	77	walk-in 13
DIC	51	60	111	walk-in 13
PCN	48	57	105	-70°C
DOC	50	60	110	-70°C
Geonome	16	22	38	-70°C
Nutrients	101	120	221	-20°C
Salinity		55		walk-in 13
O ₂ - Winkler				From ASL
³ H		60		walk-in Comer
He/ tritium		23		walk-in Comer
SF6 & CFCs		34		walk-in Comer
δ ¹⁸ O		44		walk-in Comer

CLASS TEMPALT STATUS SUMMARY

	LA Class	LA Class	SeaWolf Class	SeaWolf Class	VA Class	OH Class
TEMPALT	SSN 688	SSN 688I	SSN 21	SSN 23	SSN 774	SSBN/GN 726
Torpedo Skid Plate	NAVSEA Approved Design		TA 2005027(A) 05 Oct 2006		TA 07 – 0017(B) 04 Oct 2007	
Torpedo Skid Plate Lockers	TA 2007045 17 Jul 2007		TA 2007038 13 Jul 2007			
Submarine Remote Video System (SRVS)	TA 2002030 (A) 05 Jun 2003	TA 2007003 24 Aug 2007	TA 2006037 (A) 31 May 2007	TA 2005025	TA 10 – 0012 12 Jan 2011	TA 222-02 22 Aug 2003
A&I – SRVS Sail-cap Restoration	A&I N3455 19 Sep 2007		A&I N3453 02 Aug 2007			
EdgeTech 2400 Side Scan Sonar (SIDE SCAN)	TA 2006075 21 Nov 2006	TA 2006095 12 Mar 2007				
EdgeTech 4200 Side Scan Sonar (SIDE SCAN)			TA 2006038 (A) 05 Jun 2007			
EdgeTech 2200 Side Scan Sonar (SIDE SCAN)					TA 10 – 0010 12 Jan 2011	
Klein Side Scan Sonar				TA 2001003		
SeaBird Instrumentation (SEABIRD)	TA 2006073 14 Nov 2006	TA 2006072 14 Nov 2006	TA 2006033 (A) 01 Jun 2007		TA 10 – 0011 12 Jan 2011	
BELL BGM Series Gravimeter (GRAVIMETER)	TA 2002052 12 Sep 2002					
RACS Tracking Interface (RACS)		TA 2002055 23 Aug 2002	TA 2002047 09 Aug 2002			
WQC-2 Interface (WQCI) (SSN 725)	TA 2008062 17 Dec 2008					
Underwater Telephone Tracking Interface (UTTI)		TA 2008066 20 Jan 2009				
Submarine Synchronous Transmitter (SST)	TA 2008060 09 Dec 2008		TA 2010030 14 Jan 2011		TA 10 – 0009 07 Jan 2011	
Precision Bubble	TA 2008044 26 Aug 2008		TA 2008045 28 Aug 2008		TA 08 – 0006 21 Aug 2008	

TEMPALTS under NAVSEA review

TEMPALTS approved by NAVSEA

***ISSUES IDENTIFIED**

20 Jan 2011

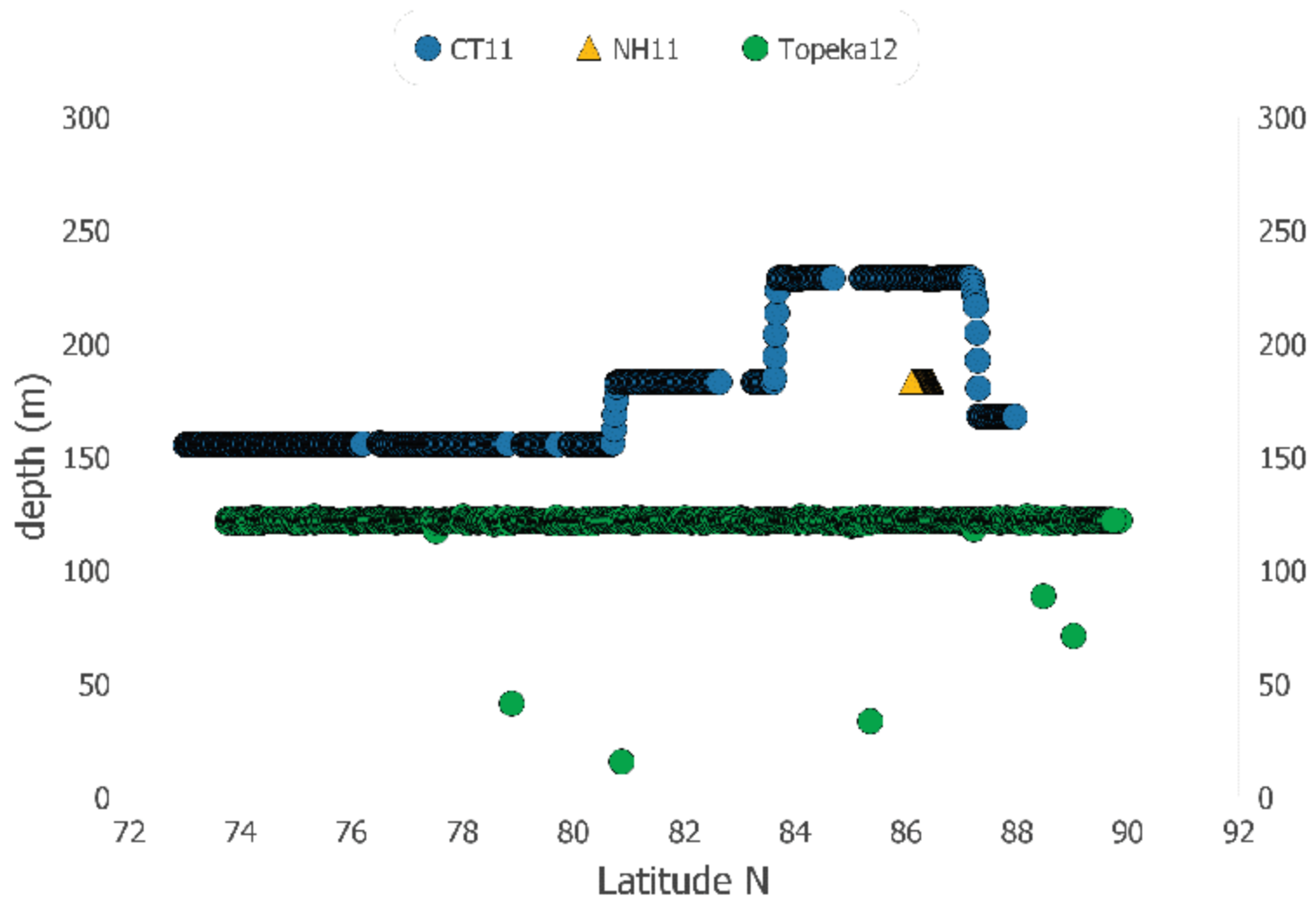
As per Stu Goemmer, Ocean Data Acquisition Program, Johns Hopkins APL



Future TEMPALTS List

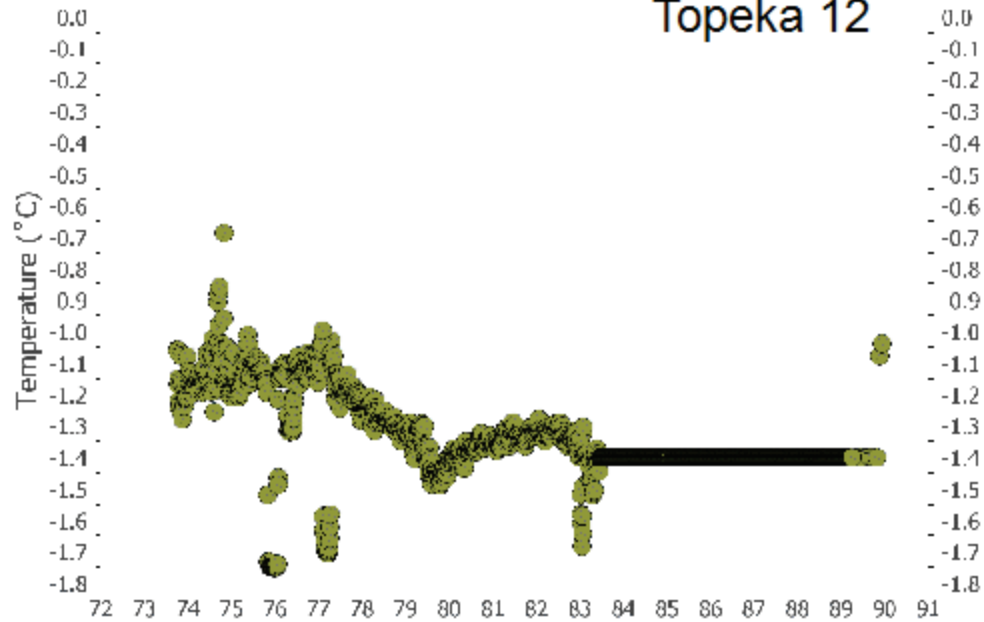
- Sea Bird Electronics - SBE 19plus.
- Additional sensors for SBE 19 (fluorometer, O₂, pH, CDOM, Beam-C).
- Flash freezer for biological samples
- Portable, -80°C freezer
- Portable, standard fridges and freezers (-20 to 50 °F)

Data Collection Depths

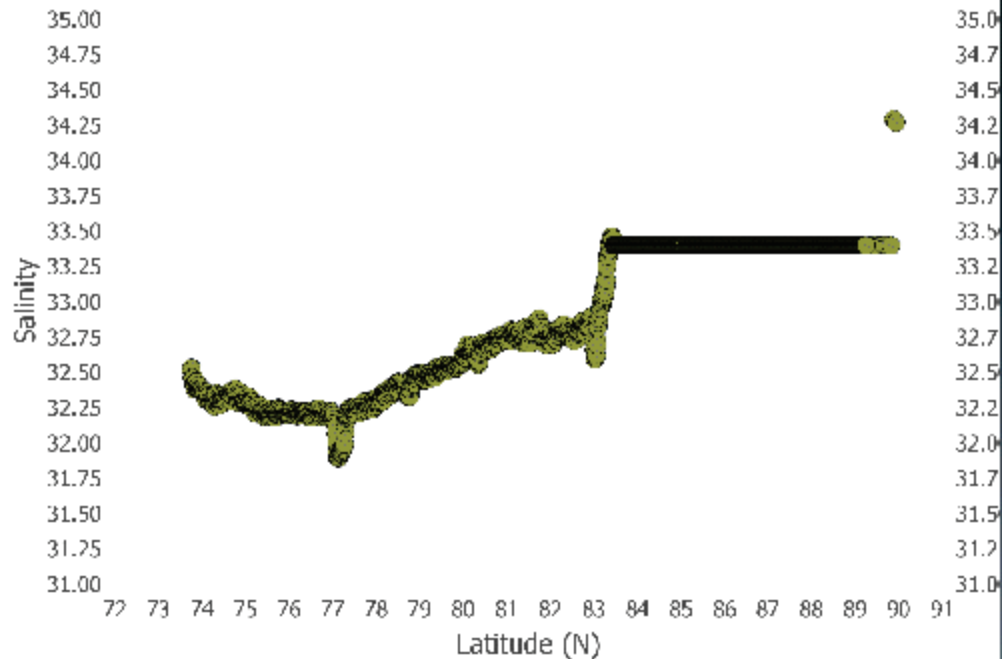


Temperature

Topeka 12



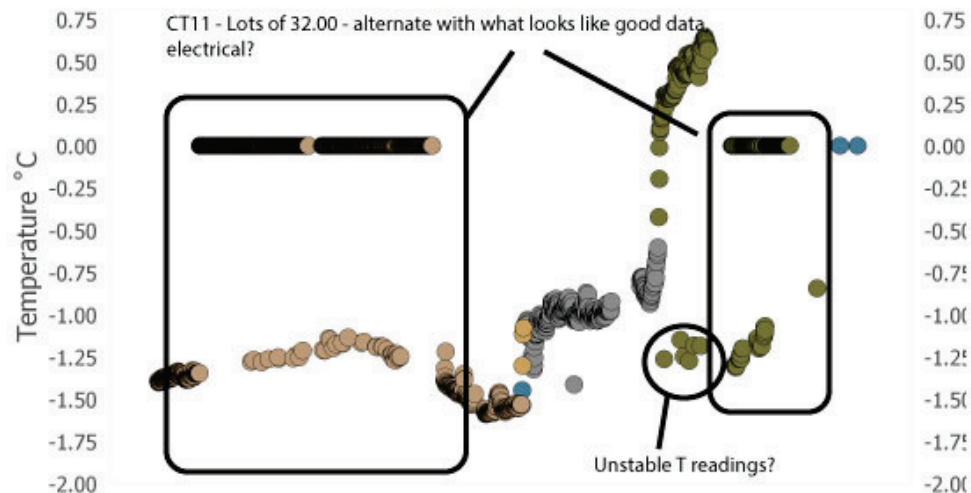
Salinity



temper_F100

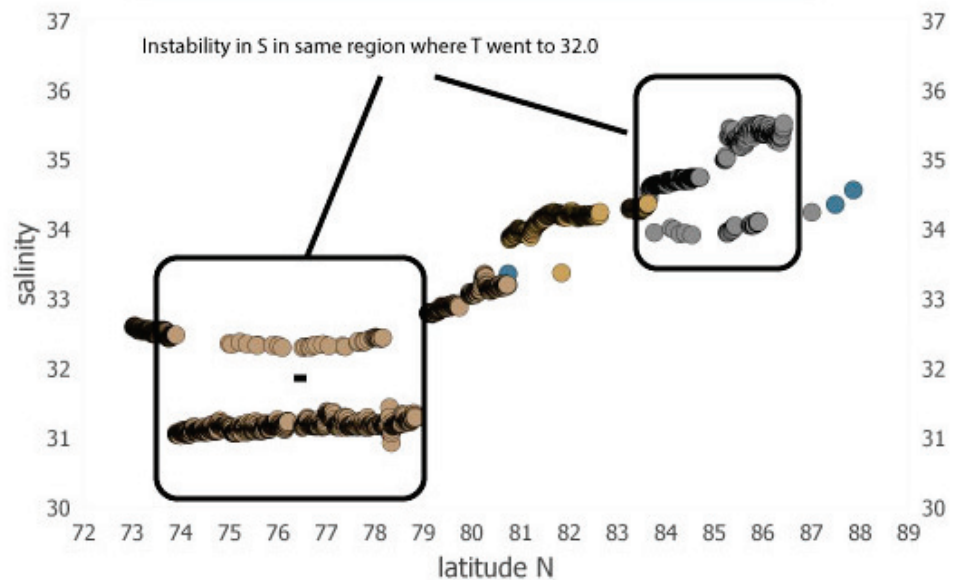
CT 11

● 120-130 ● 150-160 ● 160-170 ● 170-180 ● 180-190 ● 200-240



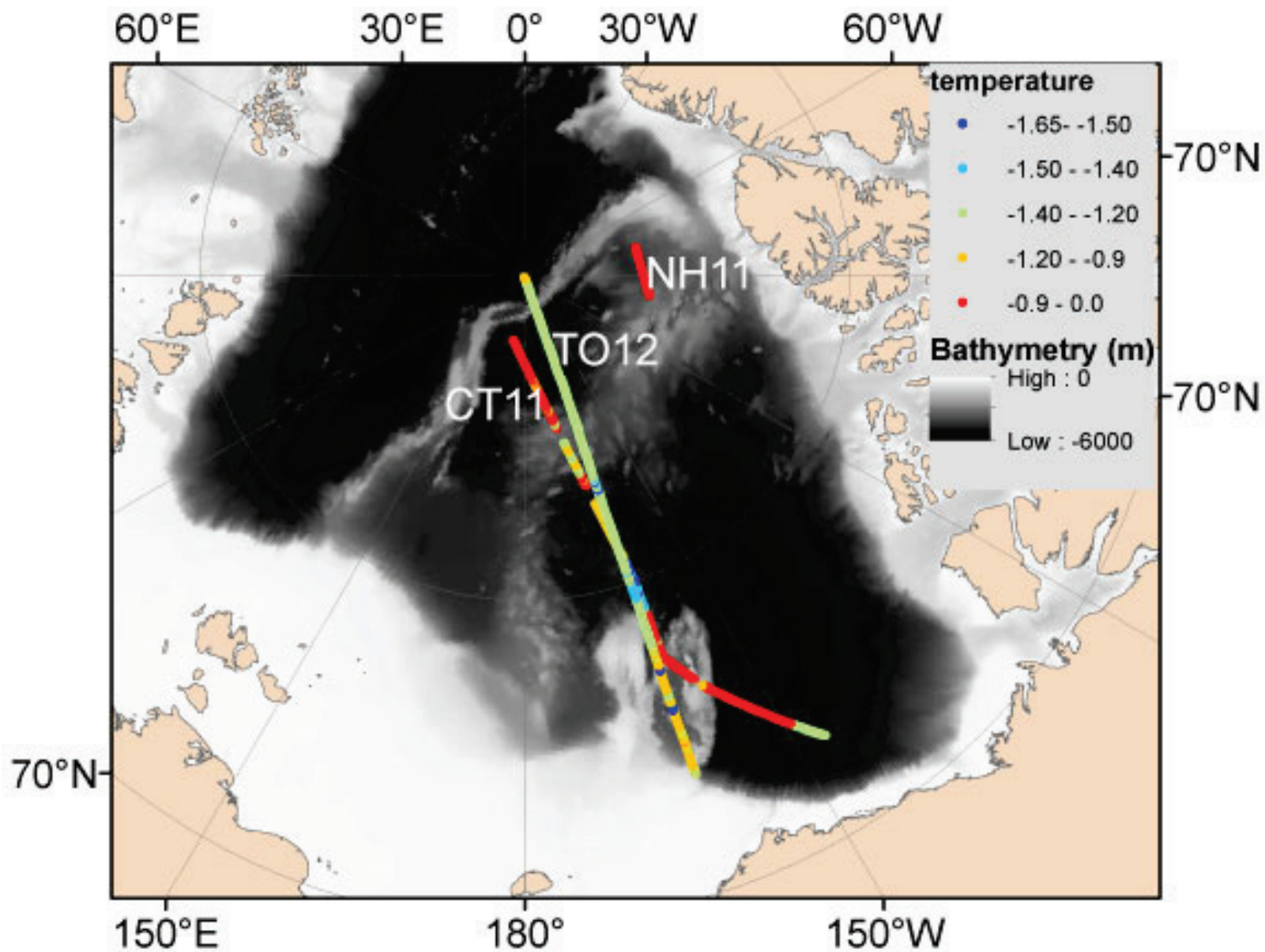
Salinity

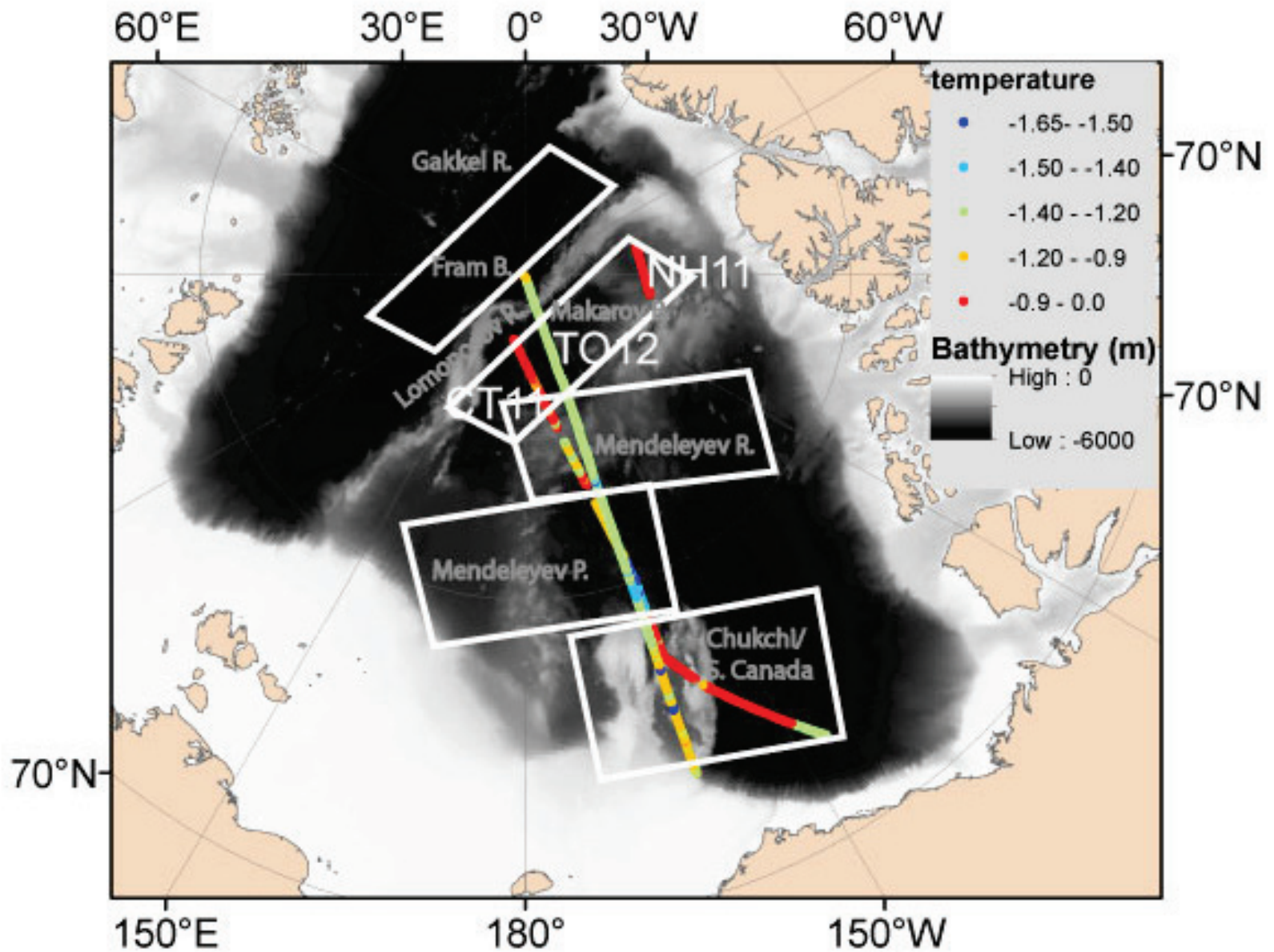
● 120-130 ● 150-160 ● 160-170 ● 180-190 ● 200-240

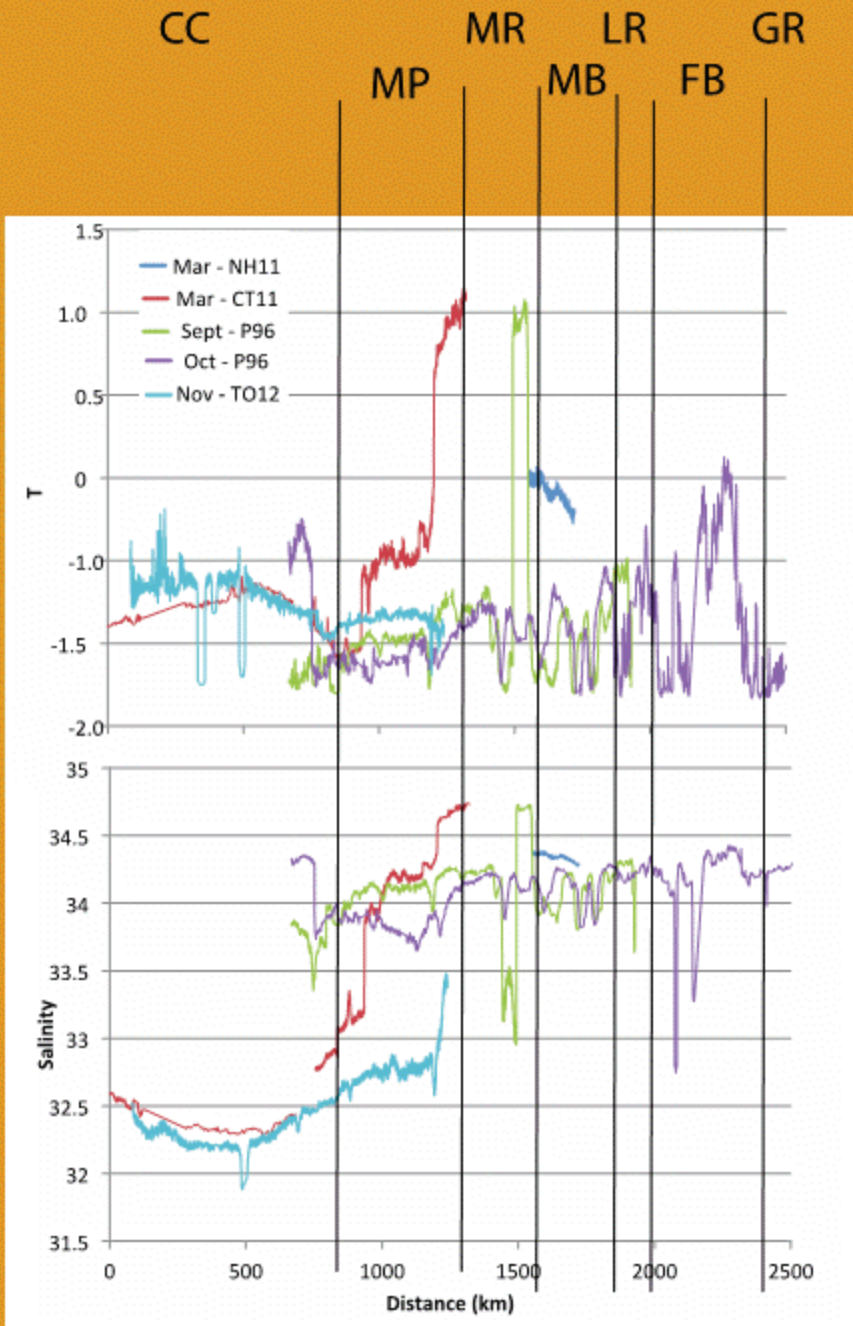


Processing of hydrographic transit data

- Integration of nav data with CTD output by time stamps
- Interpolation & averaging of raw CTD data to 0.1 & 1 km grid based on speed & heading (with NSIDC).
- Release to NSIDC page







Interpolated
temperature and
salinity transits
by basin



Salinity at 120 m and PSD for 4 sections

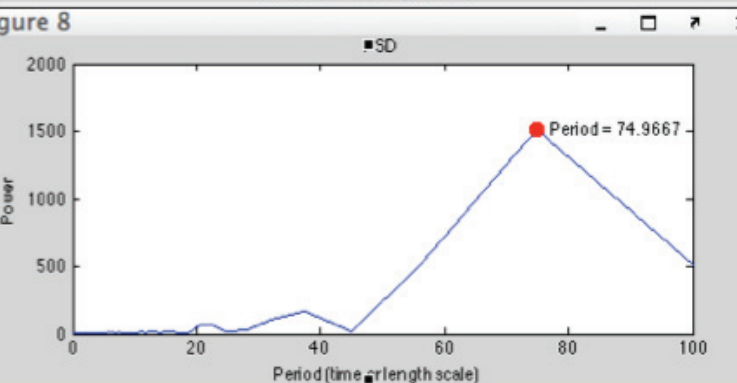
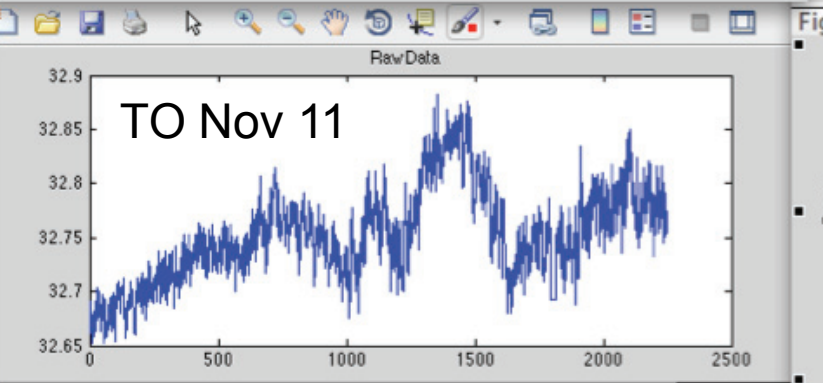
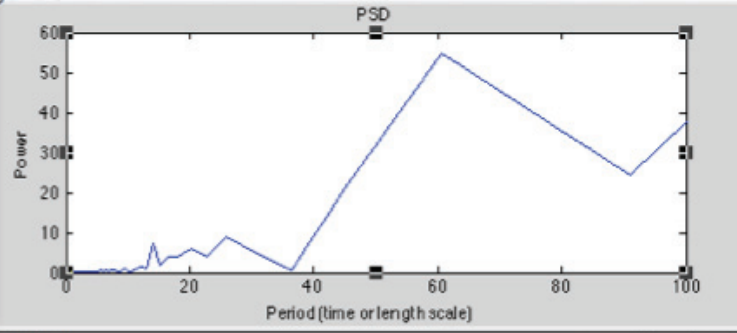
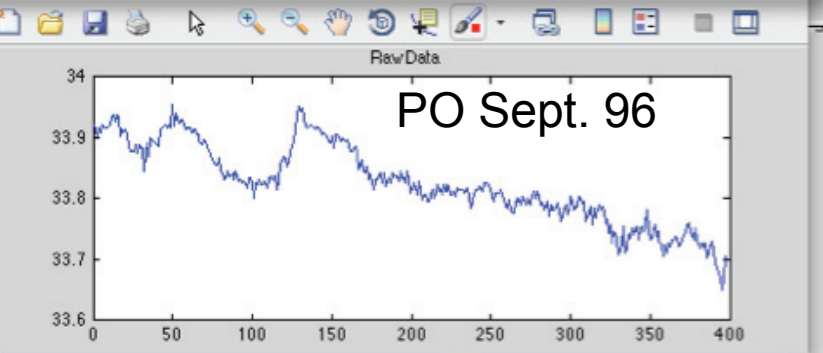
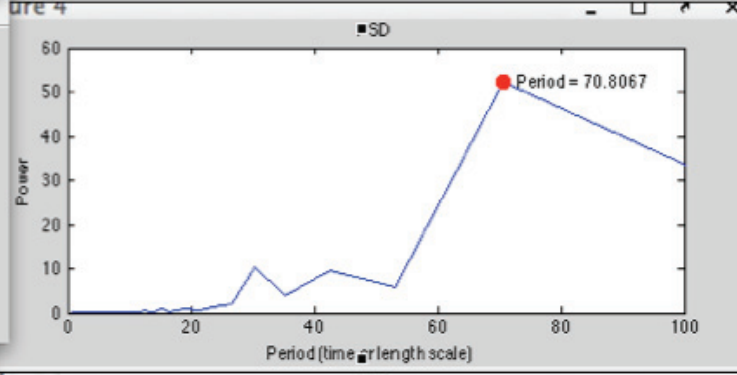
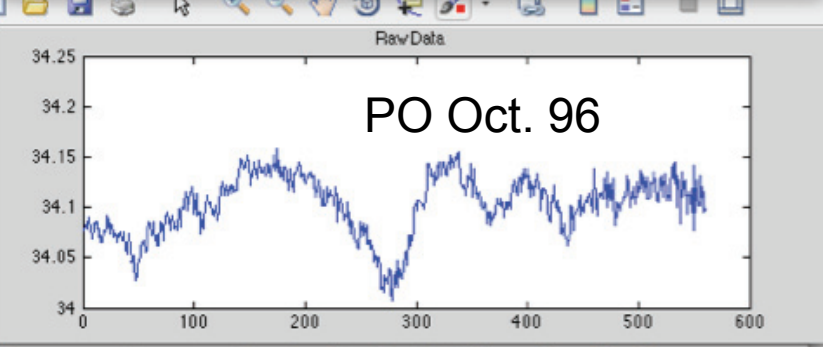
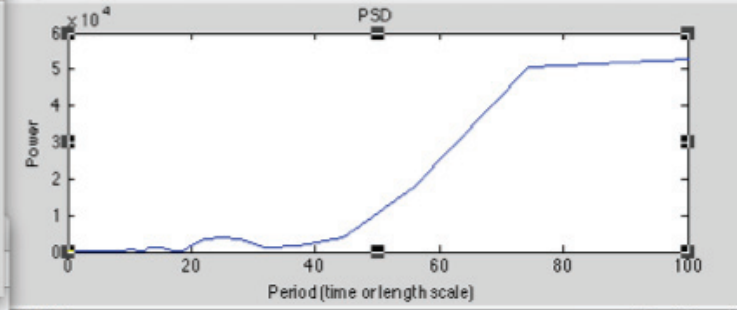
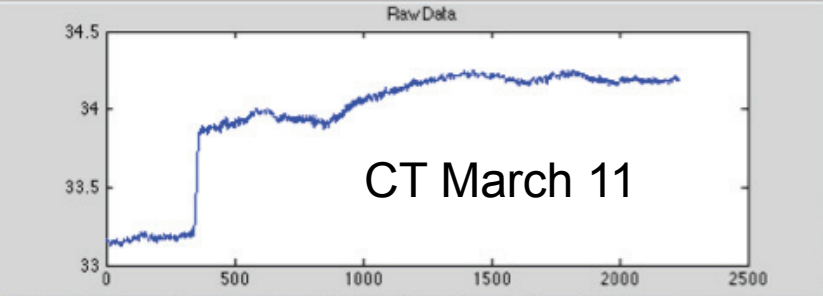
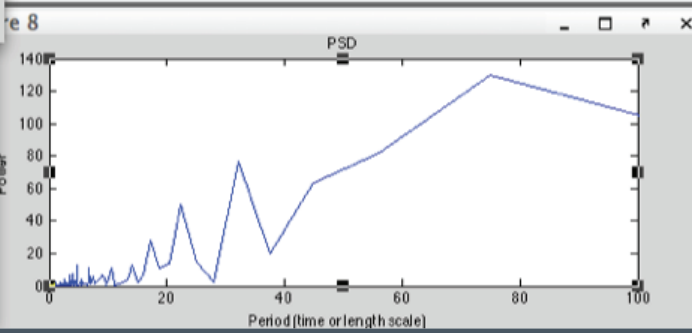
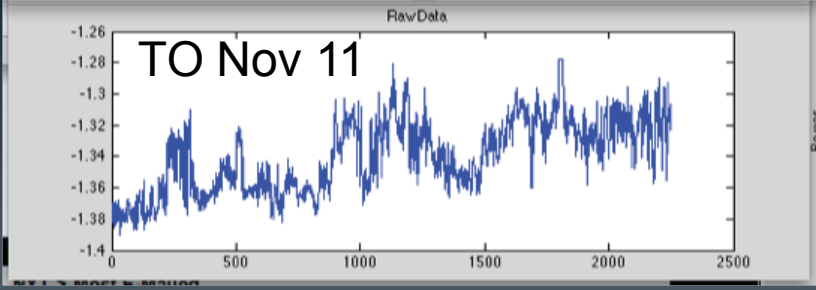
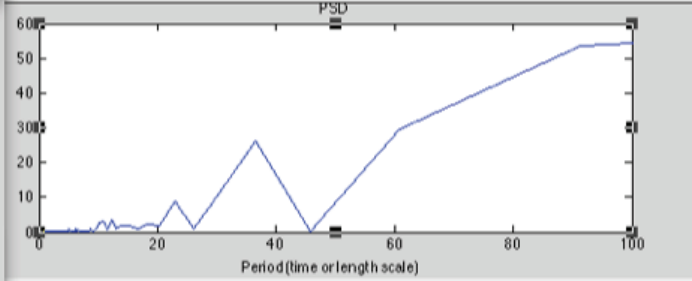
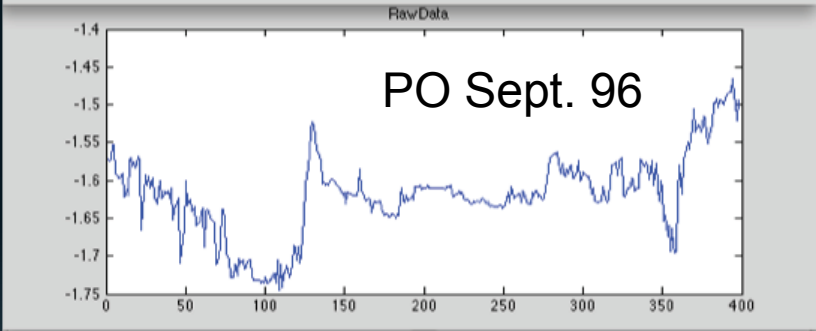
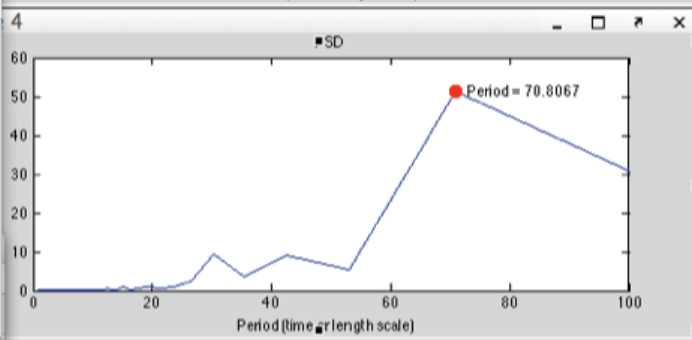
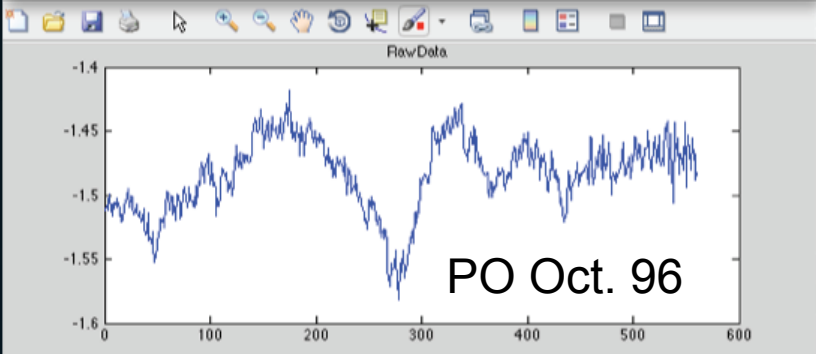
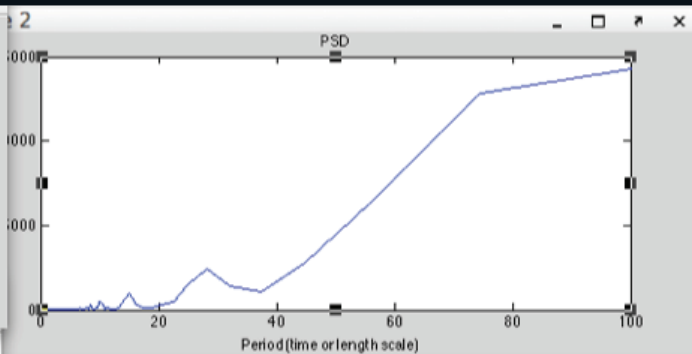
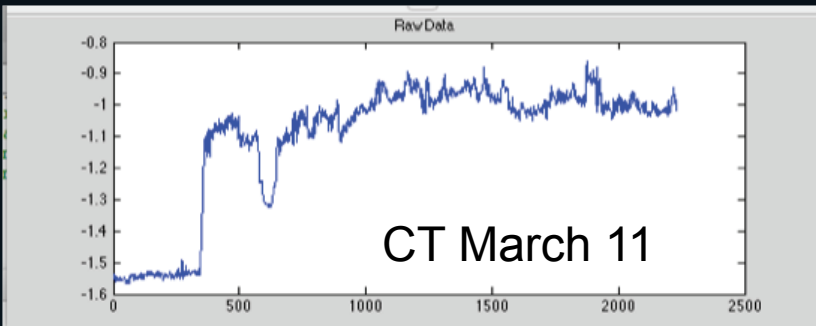


Figure 8

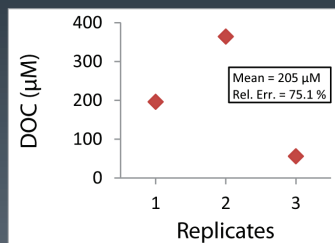
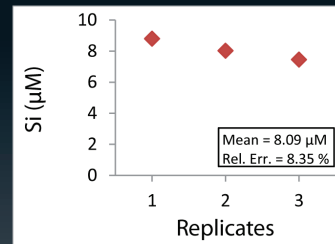
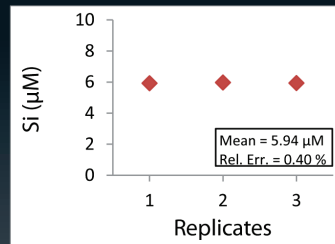
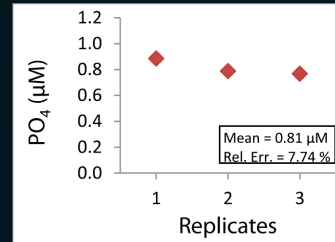
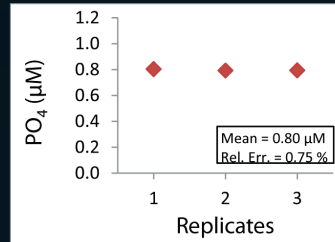
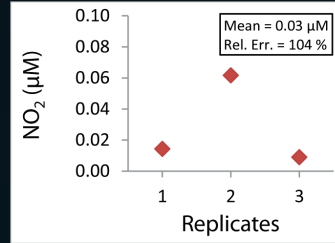
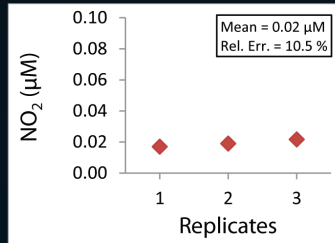
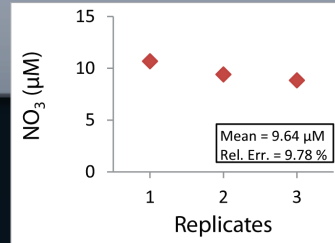
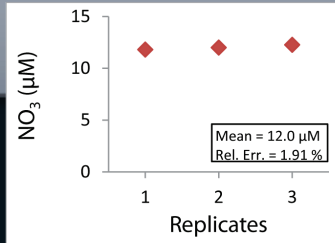


Temperature
at 120 m
and PSD for
4 sections



CT (219 m)

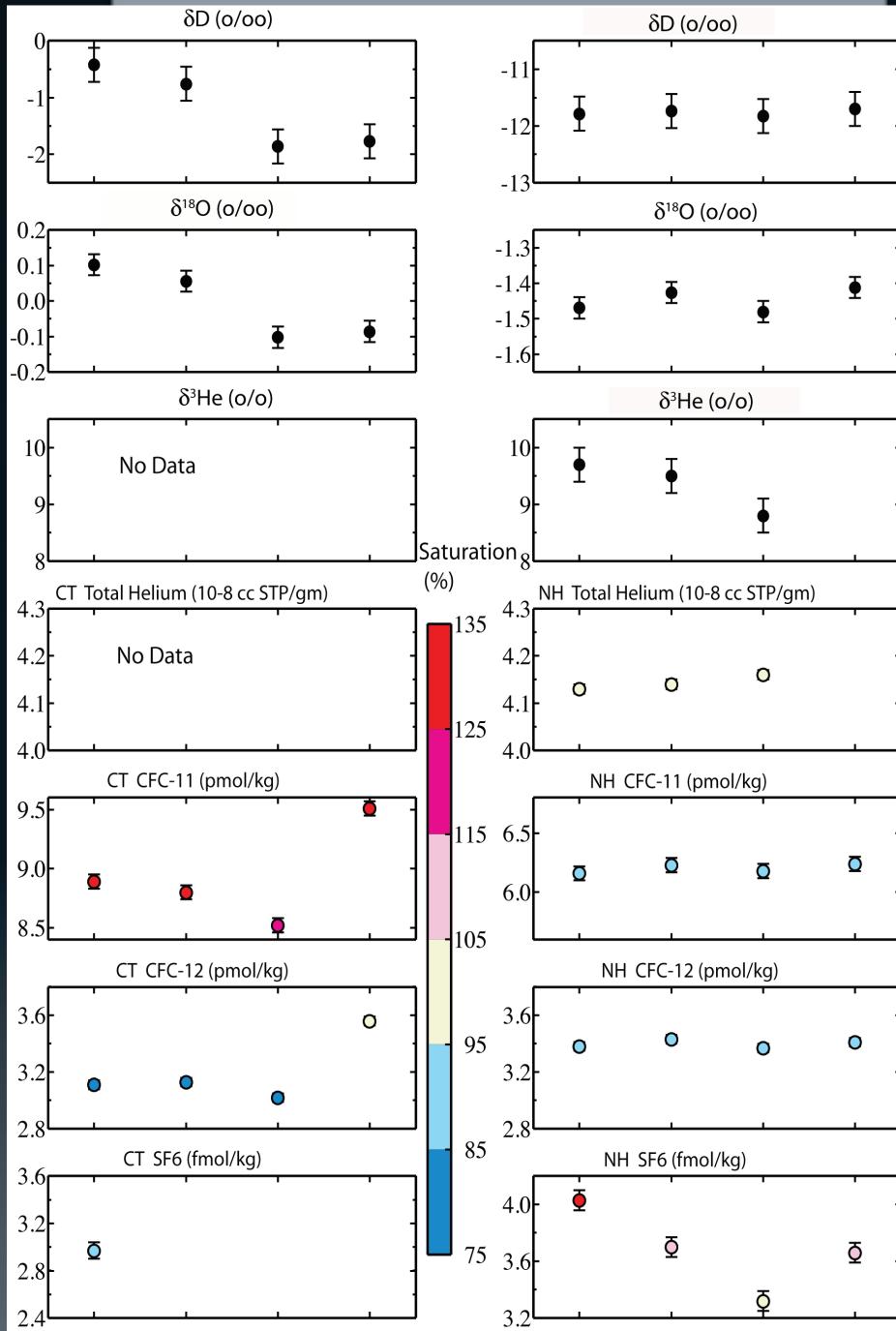
NH (180 m)



Nutrient & DOC data

CT (84 m)

NH (180 m)



Geochemical tracer data