# Citizen Science at the North Pole

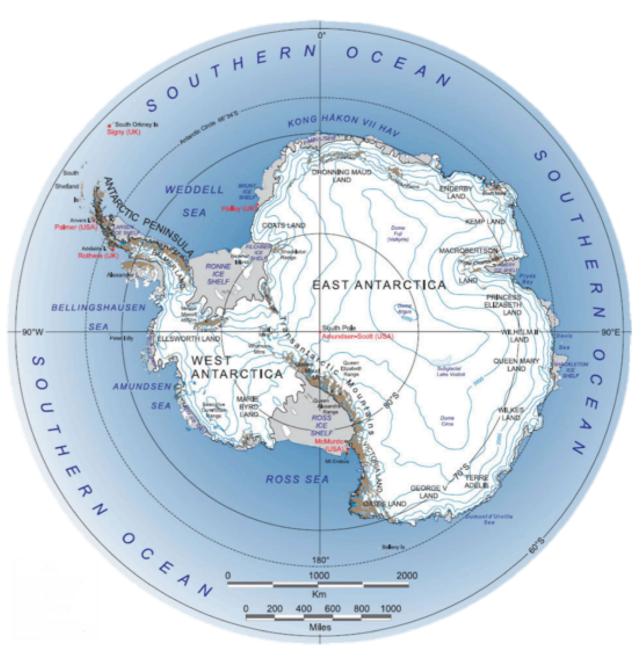


### **Alex Cowan & Lauren Farmer**



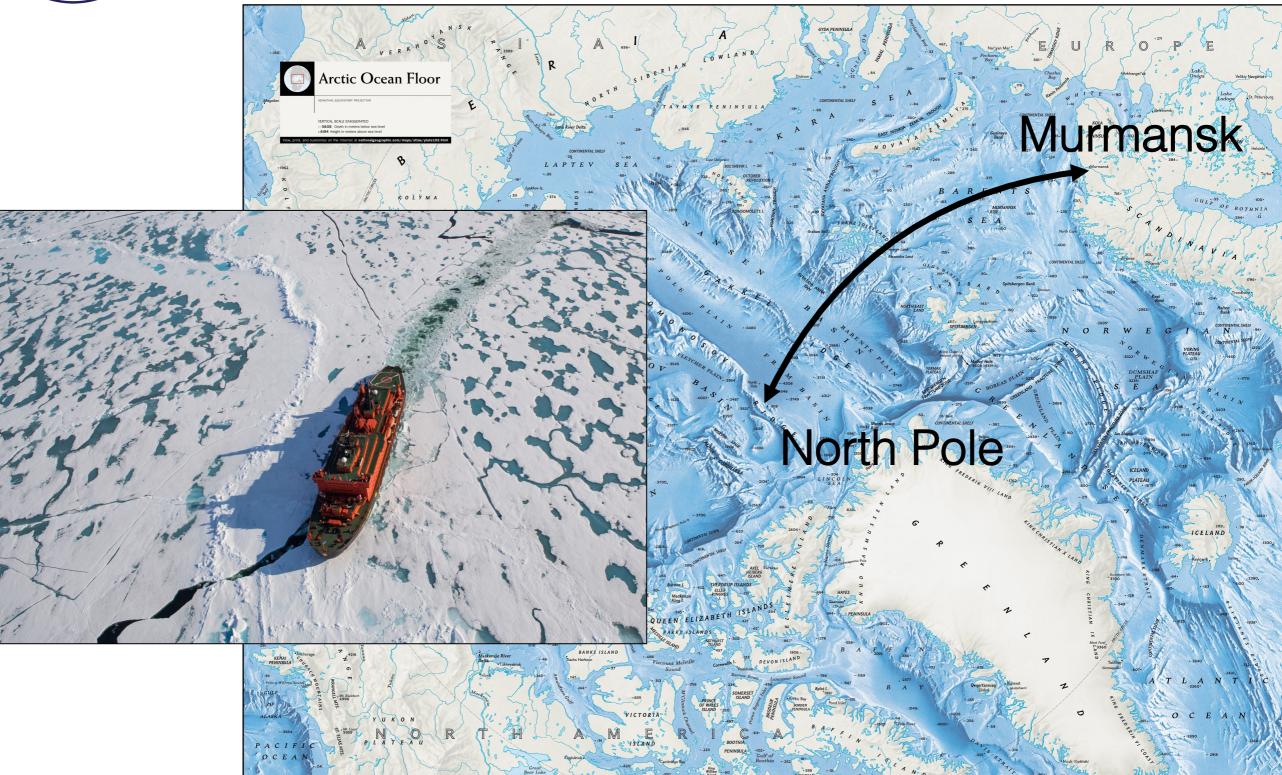
### Polar Tourism





### Project Background





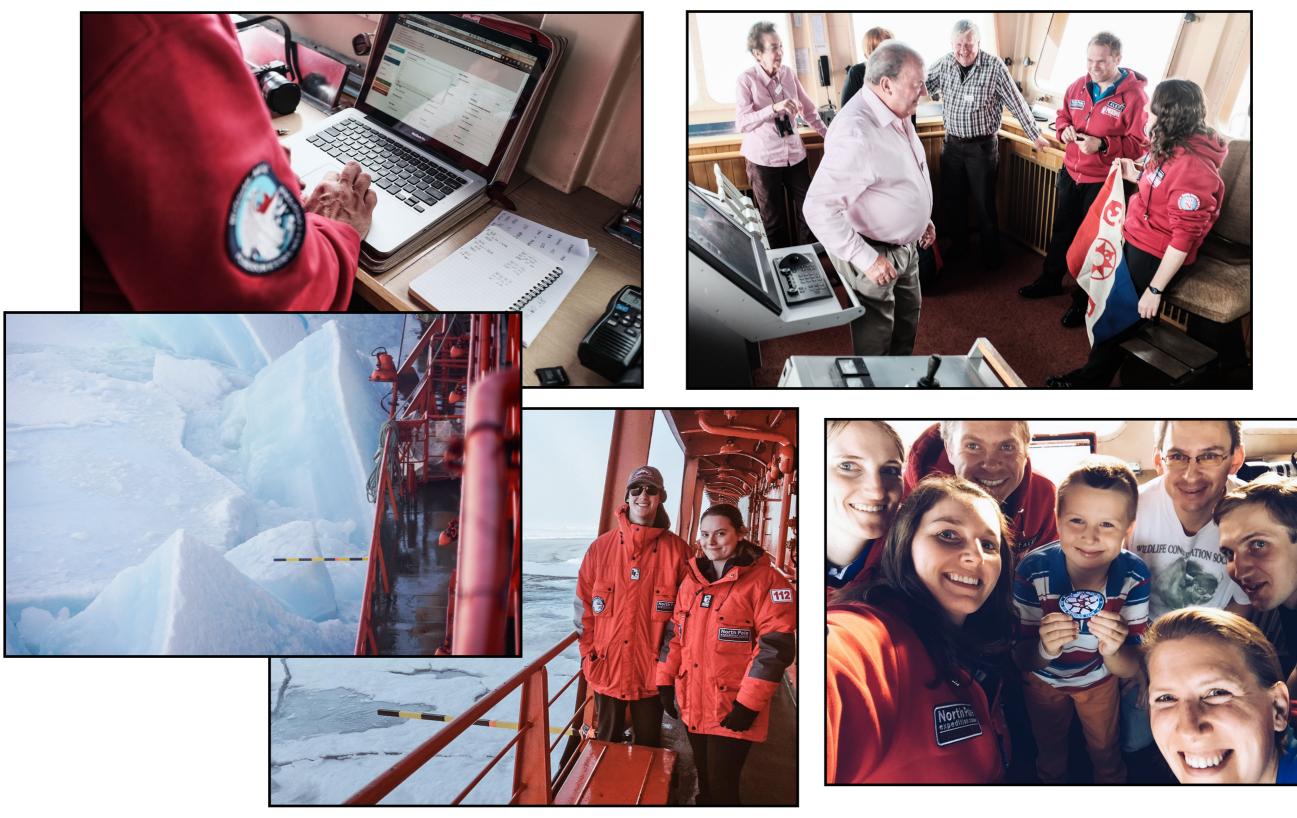


### Project Background





## Icebreaking Observations



### ASSIST



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						Ісе Туре		Ісе Туре		Ісе Туре	
					Save	85 :: Multiyear	•	70 :: First year 70-120cm	-	12 :: Grease	•
					Save and Exit	50 :: Young Grey-White Ice		Thickness (cm)		Thickness (cm)	
					Exit without Saving	60 :: First year < 70cm	10 00011	120			
						70 :: First year 70-120cm					
						75 :: Second year		Floe Size		Floe Size	
						80 :: First year > 120cm 85 :: Multiyear		700 :: Large floes 500-20	00m 👻	No Observation	•
						90 :: Brash					



### Arctic Research Consortium of the United States (ARCUS)' Sea Ice Prediction Network's *August Report*



## Immediate Results

### Ship Observations of Conditions from IceWatch

Ice Watch has received observational reports of ice conditions from several cruises, some of which are summarized below and in Table 3. Data and maps of the cruise data can be accessed at: http://icewatch.gina.alaska.edu. We are expecting reports from the Polarstern and more Lance/N-ICE supply cruises at a later date. August through October we will be receiving further observations from the *R/V Healy* GEOTRACES campaign and the *CCGS Louis S. St. Laurent* JOIS cruise.

#### K/V Svalbard

Observations were recorded during supply cruises to support the R/V Lance during the N-ICE campaign, a drifting station set north of Svalbard. Only observations from the first cruise have been provided to date, however later cruise data will be provided once observers have processed it and completed quality control.

#### R/V Sikuliaq

Alice Orlich provided observations from the Sikuliaq ice trials cruise in the Bering Sea. Please note, only preliminary data has been provided and the full data set is not available online.

#### 50 Let Pobedy

This is the first year we have received observations recorded by tourists. Tour leaders have been trained in observations and are in contact with sea ice experts, however it should be noted this is their first experience recording these observations. Two cruises, out of four planned for this summer, have reported conditions along a repeating cruise track.

- Roughly equal areas of first year and multi-year ice were encountered, within the central Arctic pack between Franz Josef Land and the North Pole.
- Preliminary reports from leg 3 are rotten ice, extensive towards ice edge at Franz Josef Land, and melt ponds freezing over.

Table 3. Summary of ice thickness, z, observed from ship's bridge during each cruise. The thickness of one or two types of ice, first-year (FY) and multi-year (MY) are given.										
Ship	Dates	Region	Mean z (cm)	Median z (cm)	Туре	Mean z (cm)	Median z (cm)	Туре		
R/V Sikuliaq	2015/3/26-2015/4/2	Bering Sea	30	25	FY					
K/V Svalbard	2015/01/12- 2015/01/17	N. Svalbard	90	90	FY					
50 Let Pobedy	2015/07/13- 2015/07/26	To North Pole	163	160	MY	86	80	FY		
50 Let Pobedy	2015/07/23- 2015/07/26	To North Pole	172	160	MY	91	100	FY		

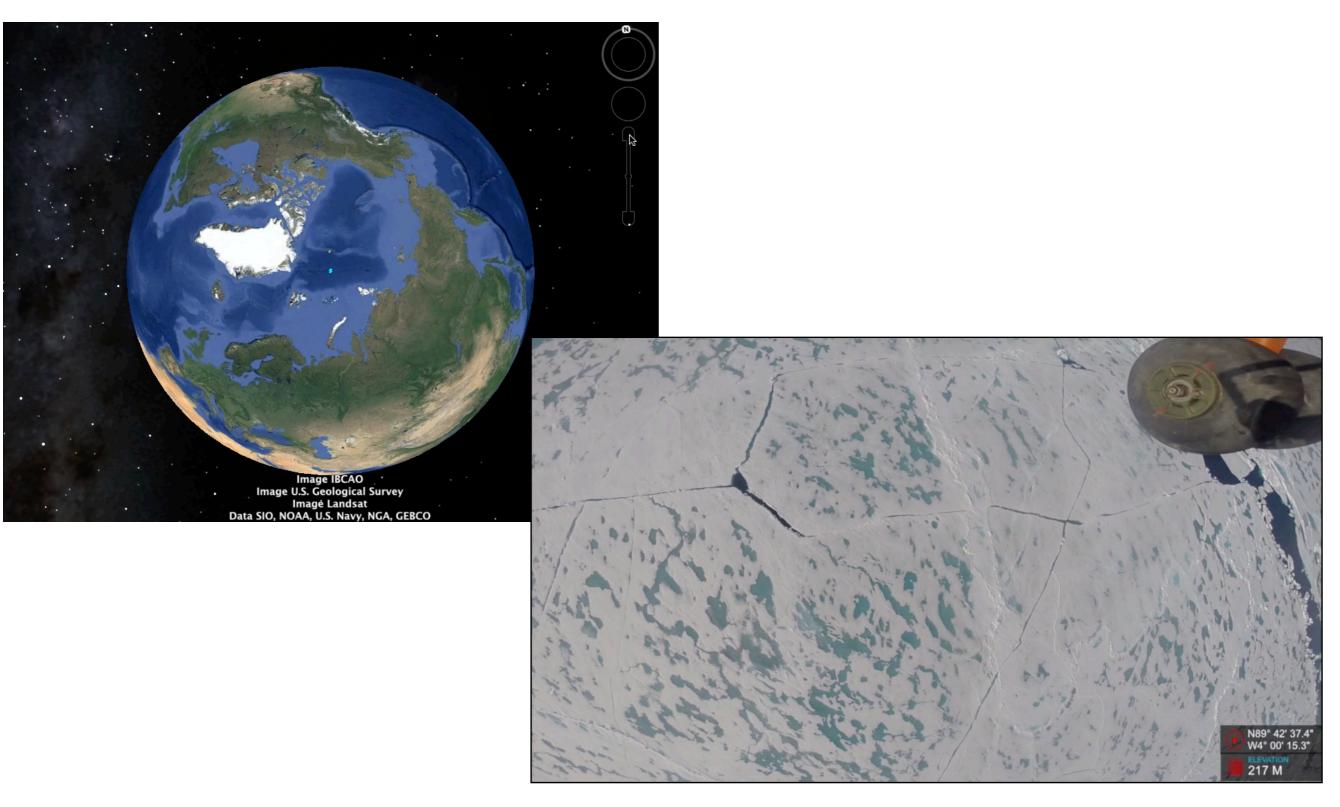
### Helicopter Operations







### Helicopter Operations





### North Pole Measurements





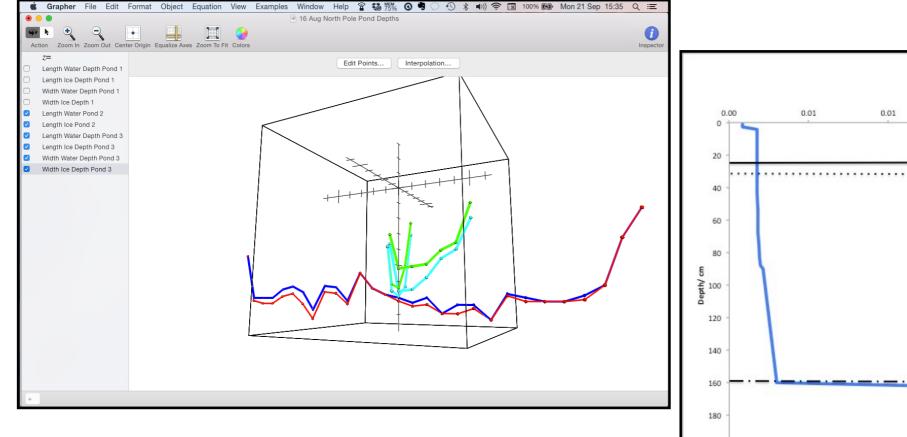


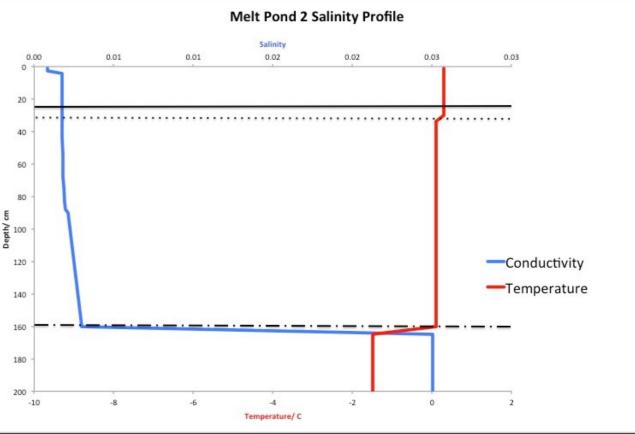


### Team Debrief





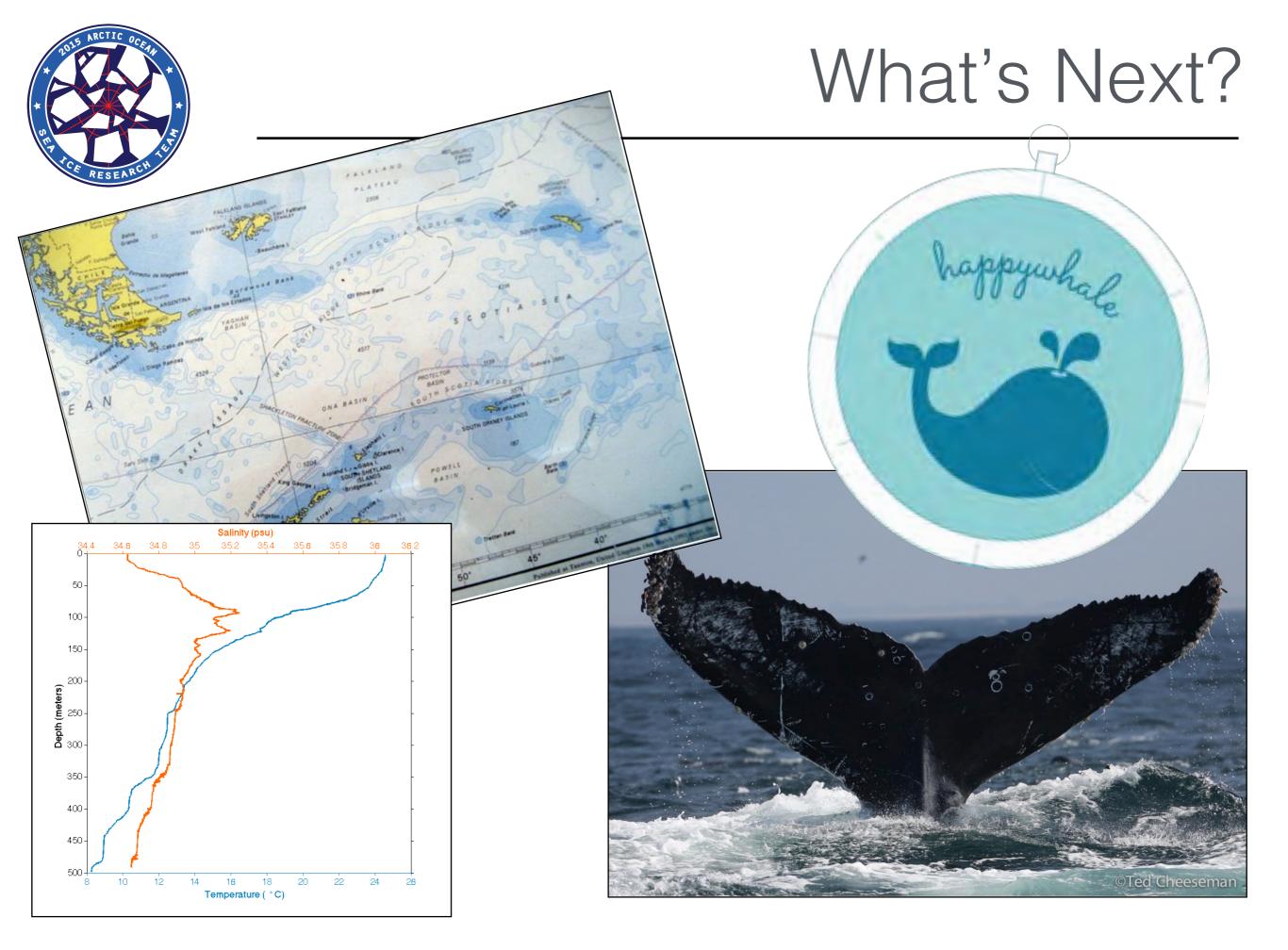






### **Guest Reaction**





## Partnering with Tour Operators





## Partnering with Tour Operators





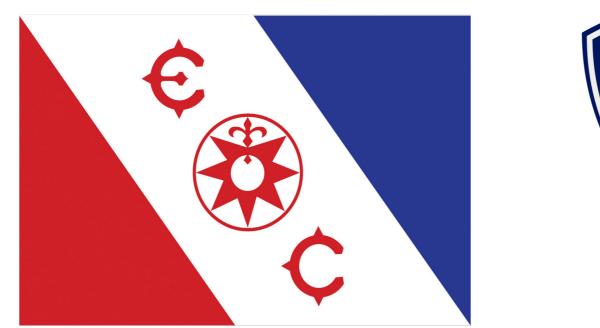


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### Thank You











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### International Arctic Research Center

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