



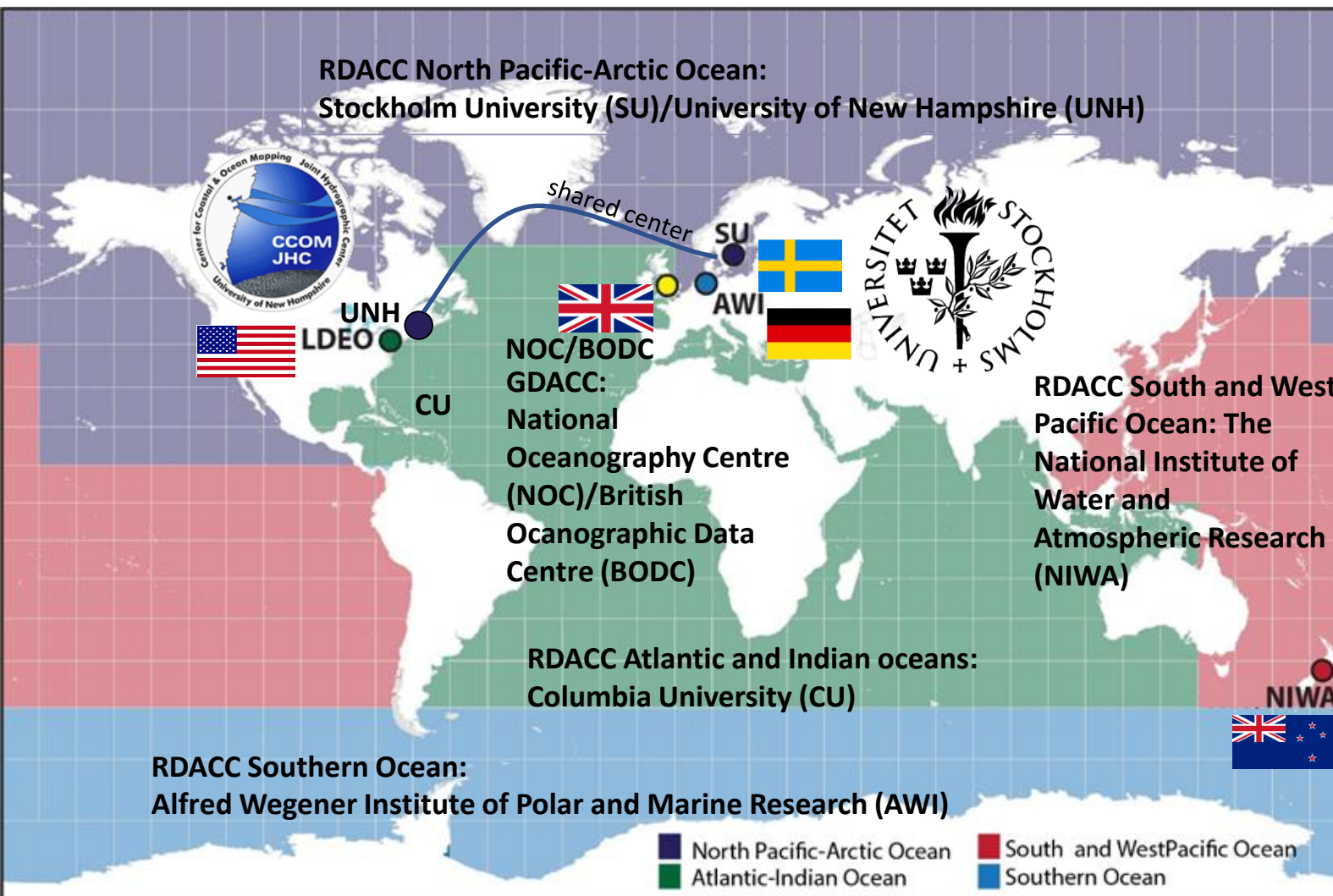
Arctic and North Pacific Regional Center

Overview

Regional Mapping Committee

New Data Sources

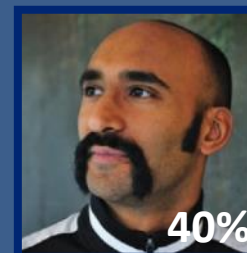
1. Overview



Martin Jakobsson
Vice-chair GGC



Larry Mayer



Rezwann Mohammad



Caroline Bringsparr



Tomer Ketter



Björn Eriksson

Paul Johnson



1. Overview

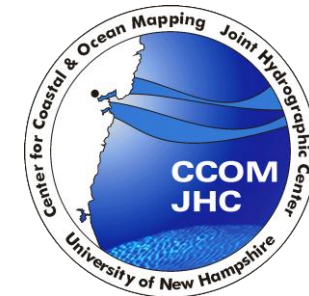


Stockholm, Sweden



Stockholm
University

Durham, New Hampshire



University of
New Hampshire

Nippon Foundation – GEBCO – Seabed 2030

First Arctic, Antarctic & North Pacific Mapping Meeting
October 8–10 | Stockholm 2018



Arctic- North Pacific RMC



First Arctic, Antarctic & North Pacific Mapping Meeting, October 8-10, Stockholm

Current grid: Version 3.0, released Spring 2012

Resolution: 500 x 500 m, Polar Stereographic Projection

Release article: GRL, 2012

Mapping Statistics: 11 % mapped with multibeam at the 500 x 500 m resolution

Current map: Based on version 3.0, completed 2015

Editorial Board Version 3.0

Bernard Coakely (USA) University of Alaska Fairbanks

Julian A. Dowdeswell (UK) Scot Polar Research Institute, University of Cambridge

Steve Forbes (Canada) Canadian Hydrographic Service

Boris Fridman (Russian Federation) Moscow Aerogeodetic Company

Hanne Hodnesdal (Norway) Norwegian Mapping Authority, Hydrographic Service

[Chairman] Martin Jakobsson (Sweden) Stockholm University

Larry Mayer (USA) Center for Coastal and Ocean Mapping/Joint Hydrographic Center, University of New Hampshire

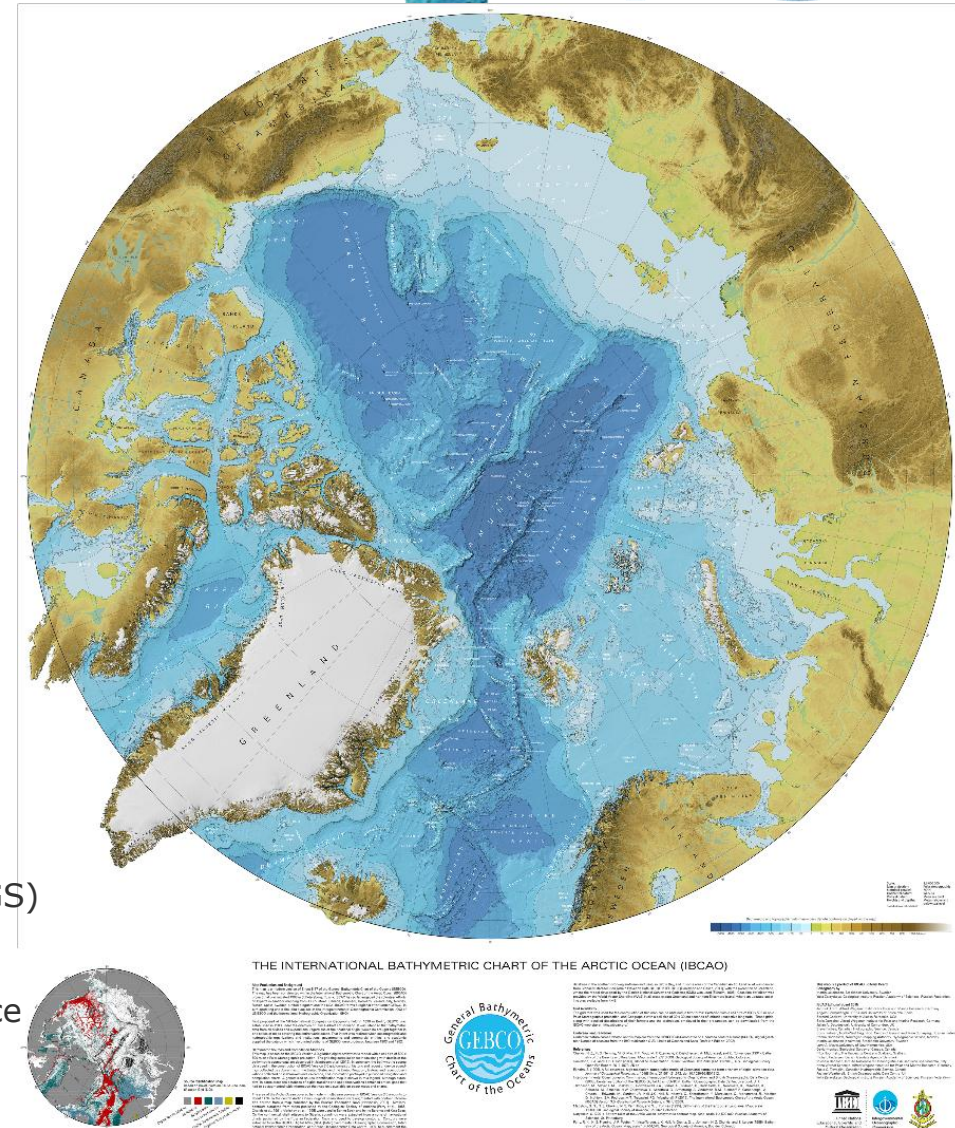
Riko Noormets (Norway/Svalbard) UNIS, University Center of Svalbard

Richard Petersen (Denmark) Danish Geodata Agency

Michele Rebesco (Italy) Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS)

Hans-Werner Schenke (Germany) Alfred Wegener Institute for Polar and Marine Research (AWI)

Yulia Zarayskaya (Russian Federation) Geological Institute of Russian Academy of Science



Arctic- North Pacific RMC

Established in Stockholm, 8-10 Oct, 2018



Bernard Coakely (USA), University of Alaska Fairbanks

Julian A. Dowdeswell (UK), Scott Polar Research Institute, University of Cambridge

Maurizio Demarte (Italy), Italian Hydrographic Institute

Boris Dorschel (Germany), Alfred Wegener Institute for Polar and Marine Research

Hanne Hodnesdal (Norway) Norwegian Mapping Authority, Hydrographic Service

Roberta Ivaldi (Italy), Italian Hydrographic Institute

Martin Jakobsson (co-chair) (Sweden) Stockholm University

Larry Mayer (co-chair) (USA) Center for Coastal and Ocean Mapping/Joint Hydrographic Center, University of New Hampshire

Riko Noormets (Norway/Svalbard/Estonia) UNIS, University Center of Svalbard

Michele Rebesco (Italy), Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS)

Mark Zimmermann NOAA Fisheries (North Pacific)

Joanna Gerlings (Denmark), Danish Geodata Agency

Yulia Zarayskaya (Russian Federation), Geological Institute of Russian Academy of Science

To be confirmed:

Paola Travaglini (Canada), Canadian Hydrographic Service

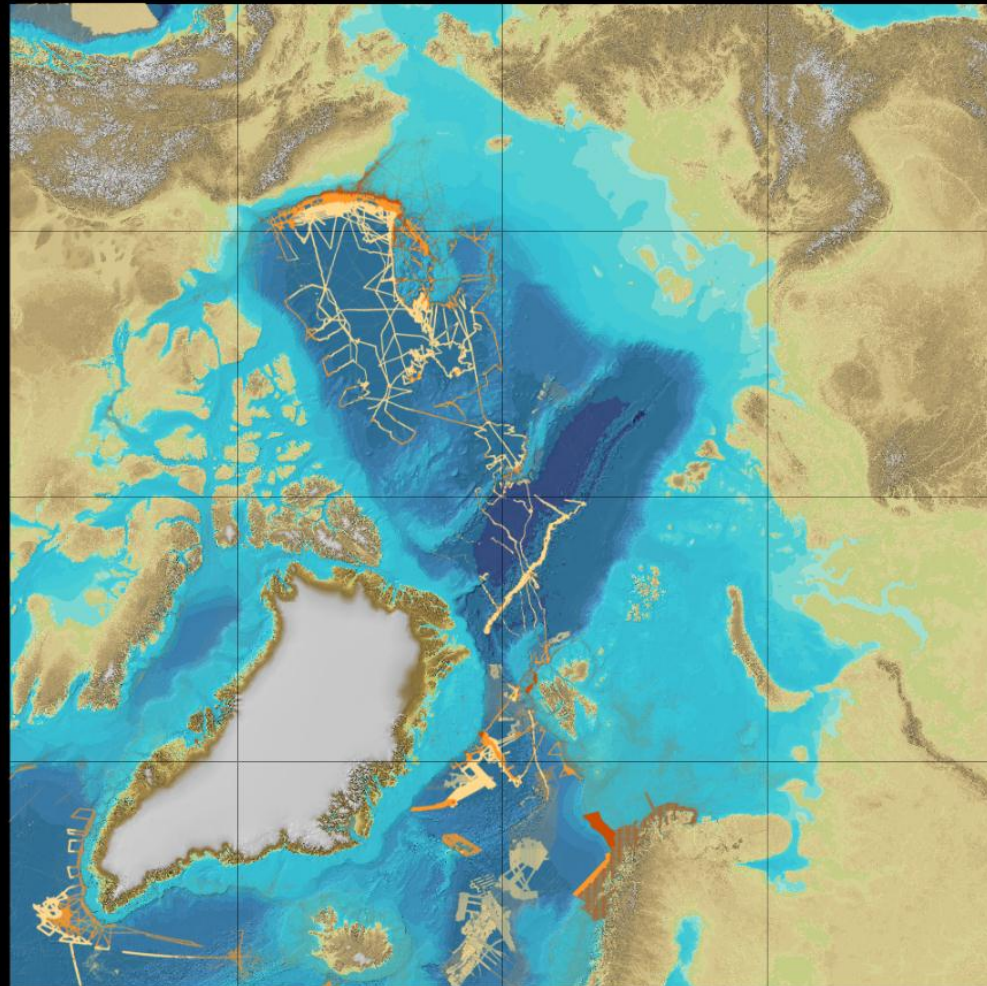
The break-out group decided that representatives from countries bordering the Arctic and North Pacific oceans that are not represented by the members above should be sought for. In addition, the break-out decided that it would be beneficial to have NCEI (National Centers for Environmental Information) represented at all RMC meetings since they are the IHO-DCDB (Data Center for Digital Bathymetry).

4. BedMachine v3, improves bathymetry around Greenland (Morlighem et al, GRL, 2017)

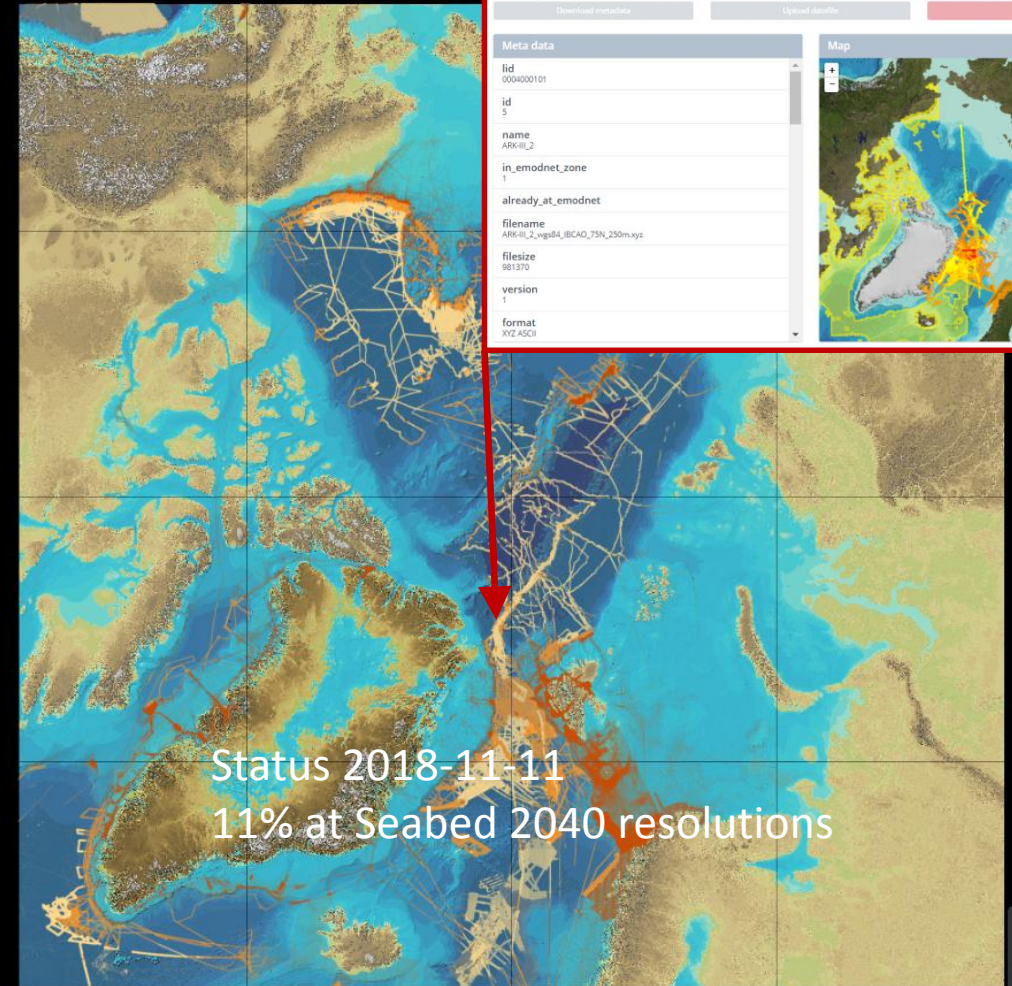
Bathymetric data and region	Contact
Multibeam bathymetry collected by RV Polarstern and RV Maria S. Merian, 53 cruises until 2015 (data received)	Boris Dorschel, AWI
CHS Louis St Laurent cruises in the Arctic Ocean, UNCLOS 2014-2016 (data received)	Chris Hemmingway, Paola Travaglini, CHS
MAREANO updated compilation, NHS, 3D seismic, Barents Sea, Norwegian Sea etc. (data partly received)	Hanne Hodnesdal, MAREANO
Barents Sea, RV G.O.Sars	Haflidi Haflidason, University of Bergen
NASA Ocean Melting Greenland project, several cruises into Greenland fjords (data received)	Ian Fenty, NASA
NE Greenland compilation (data received)	Jan Erik Arndt, AWI
BedMacine Version 3, Greenland (gridded compilation, data received)	Mathieu Morligheim, Univ. of California, Irvine
USS Hawkbill, SCICEX 1998 and 1999 full data (raw data received for new processing)	Margo Edwards, SOEST/National Snow and Ice Data Center
Arctic hunter (TelePost Greenland A/S) and fishing vessels (GNIR) (data partly received)	Karl Zinglensen, Greenland Institute of Natural Resources
RV Heincke, bathymetry from two cruises	MARUM
SSO Actic, SW Greenland	Kristian Kjellerup Kjeldsen, University of Copenhagen
Viking survey S. Greenland, RV Poseidon, GEUS/GEOMAR	Karl Zinglensen Greenland Institute of Natural Resources / Antoon Kuijpers, GEUS
USCG Healy cruises after 2011, CCOM/JHC (data received)	Larry Mayer, CCOM/JHC
CHS, Canadian Arctic Archipelago, Erebus Search	Laura Colombe
ITS Alliance, Barents Sea, Svalbard	Marizio Delmarte, IHI
NOAA, digitized smooth sheets, survey, Gulf of Alaska, Berings Sea (data received)	Mark Zimmermann, National Fishery Service, NOAA
Helmer Hanssen mapping, UiT, Barents Sea, Svalbard	Mattias Forwick, UiT
Italian/Spanish/Norwegian cruises, Barents Sea	Miguel Rebesco and Andrea Caborlotto, OGS Jose Luis Casamor, University of Barselona, Karin Andreassen, UiT
Sabvabaa hovercraft, central Arctic Ocean 2014-2015 (data received)	Yngve Kristoffersen, Bergen University/Nansen Center
Icebreaker Oden Expeditions, 2012, 2014, 2015, 2016 (data received)	Martin Jakobsson, Stockholm University
VEGA 2015, with RV Explorer of Sweden (data received)	Martin Jakobsson, Stockholm University
Multiple ships, North Pacific, Arctic, North Atlantic	Paola Travaglini, CHS
CCGS Amundsen, Arctic cruises (data in part received)	Patric Lajuenesse, Univ. of Laval
UNIS/NHS data from Svalbard region (data partly received)	Riko Noormets
Maria S. Merian cruises, GEOMAR	Wilhelm Weinrebe, GEOMAR
IBRV Araon cruises in the Arctic Ocean, 2011-2014, 2016 (data partly received)	Young Keun Jin
Akademik Nikolaj Strakhov cruise no 25-28, Barents Sea	Yulia Zaraskaya, Geological Institute of the Russian Academy of Sciences
Olex crowd source additions from 2012-2018	Ole Benjamin, Olex
US Nuclear submarine cruises 2011-2012 (data received)	Larry Mayer, CCOM/JHC
White Sea DTM	Yulia Zaraskaya/Sergej Nikiforov, Geological Institute of the Russian Academy of Sciences
Potential bathymetric data sources to be followed up	
Alaska cable route	David Millar/Manfred Stender, Fugro
ARDEM bathymetric sources	Seth Danielson, University of Alaska Fairbanks
PGC, Beaufort Sea 3D seismic	David Mosher, CCOM (Affiliated)
Hydrocarbon surveys in Greenland waters	Thomas Varming/Karl Zinglensen
Iceland waters	Harald Brekka will find contact
Laptev Sea/East Siberian Sea compilations	Evgeny Gusev, The All-Russia Scientific Research Institute for Geology and Mineral Resources of the Ocean
Russian UNCLOS, Akademic Fedorov	
Shell, Chukchi Sea	Bernhard Coakley, University of Alaska Fairbanks

Following the meeting China announced that they will contribute with their icebreaker data

New work tools are being developed



v3.0



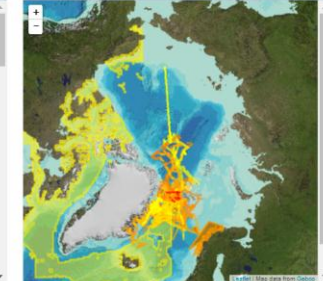
List of bathymetry datasets

Name	Cruise	Date	Collector
AGAVE07_YERMAK	AGAVE07	2007-07-01-2007-08-10	Stockholm University, Geological Sciences
AMORE_north	AMORE 2001/ARK-XVII/2	2001-07-31-2001-10-07	Alfred-Wegener-Institute for Polar- and Marine Research
AMORE_south	AMORE 2001/ARK-XVII/2	2001-07-31-2001-10-07	Alfred-Wegener-Institute for Polar- and Marine Research
ARK-II_4	ARK-II/4	1984-08-09-1984-08-27	Alfred-Wegener-Institute for Polar- and Marine Research
ARK-III_2	ARK-III/2	1984-06-12-1984-07-19	Alfred-Wegener-Institute for Polar- and Marine Research
ARK-III_3	ARK-III/3	1984-07-19-1984-08-08	Alfred-Wegener-Institute for Polar- and Marine Research
ARK-IV_1	ARK-IV/1	1987-05-14-1987-06-06	Alfred-Wegener-Institute for Polar- and Marine Research
ARK-IV_3	ARK-IV/3	1987-07-04-1987-09-03	Alfred-Wegener-Institute for Polar- and Marine Research
ARK-VII_1	ARK-VII/1	1990-06-07-1990-07-10	Alfred-Wegener-Institute for Polar- and Marine Research
ARK-VII_3	ARK-VII/3	1990-08-16-	Alfred-Wegener-Institute for Polar- and Marine Research

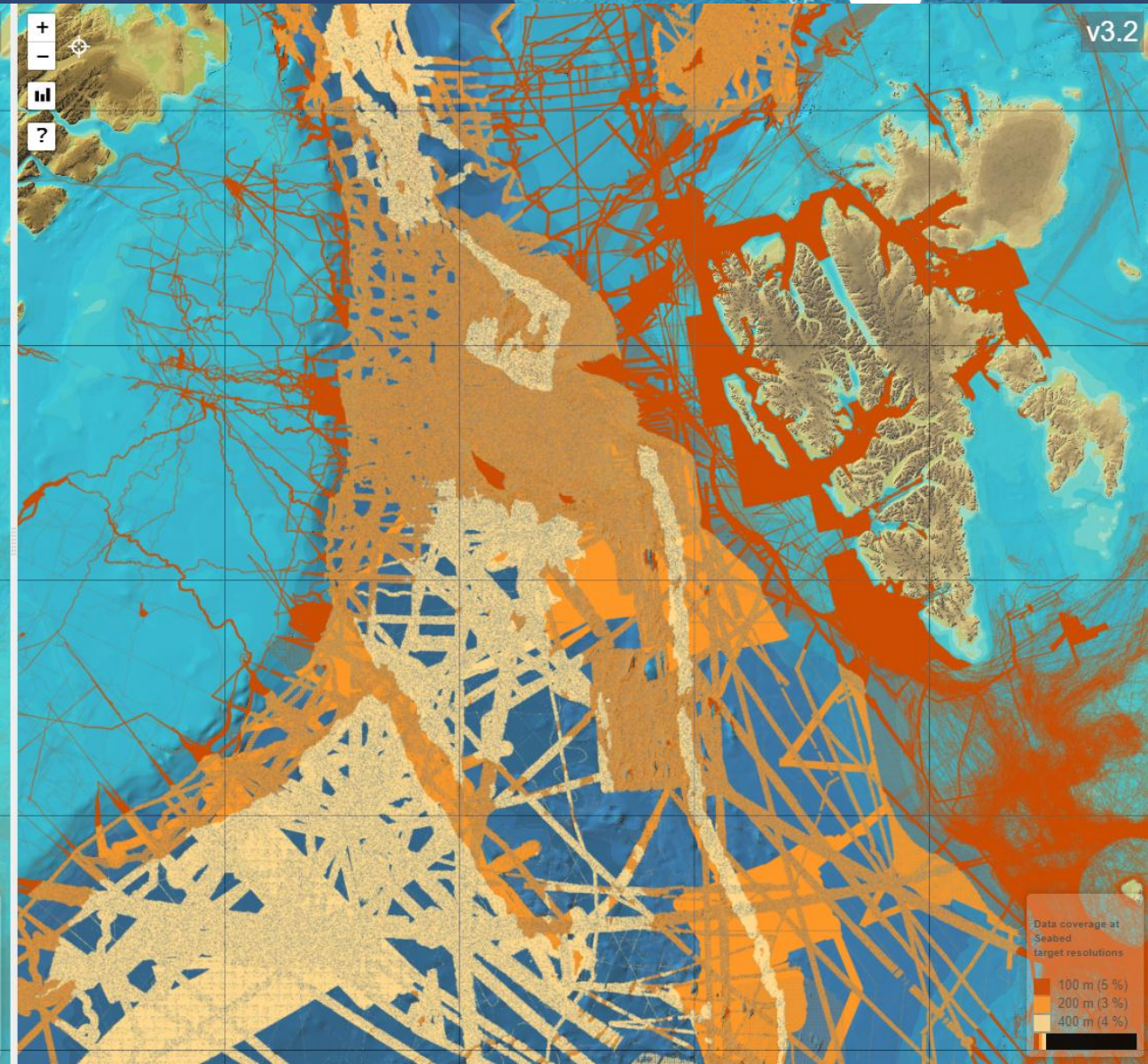
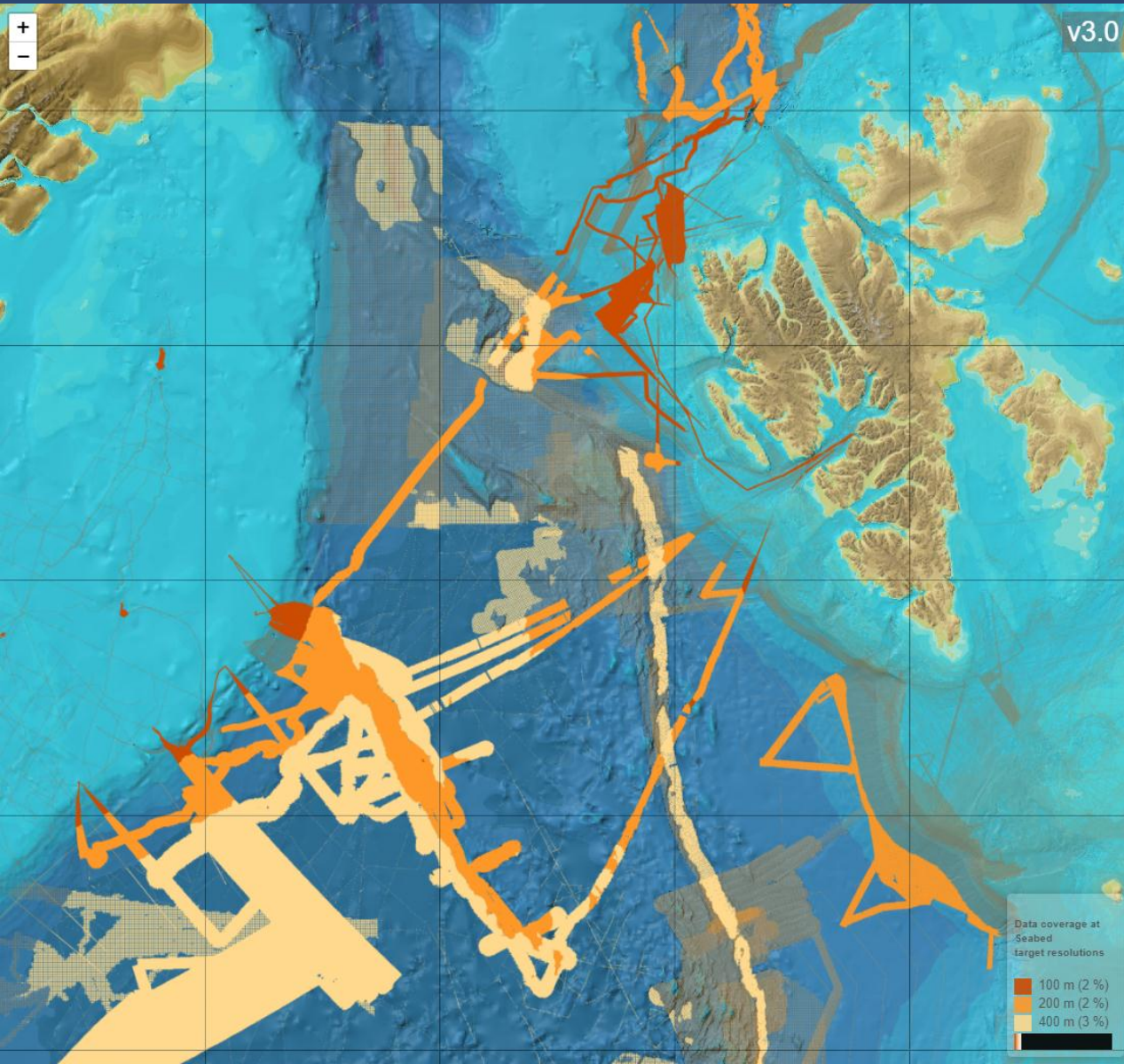
Meta data

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id	5
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in_emodnet_zone	1
already_at_emodnet	
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filesize	981370
version	1
format	XYZ ASCII

Map



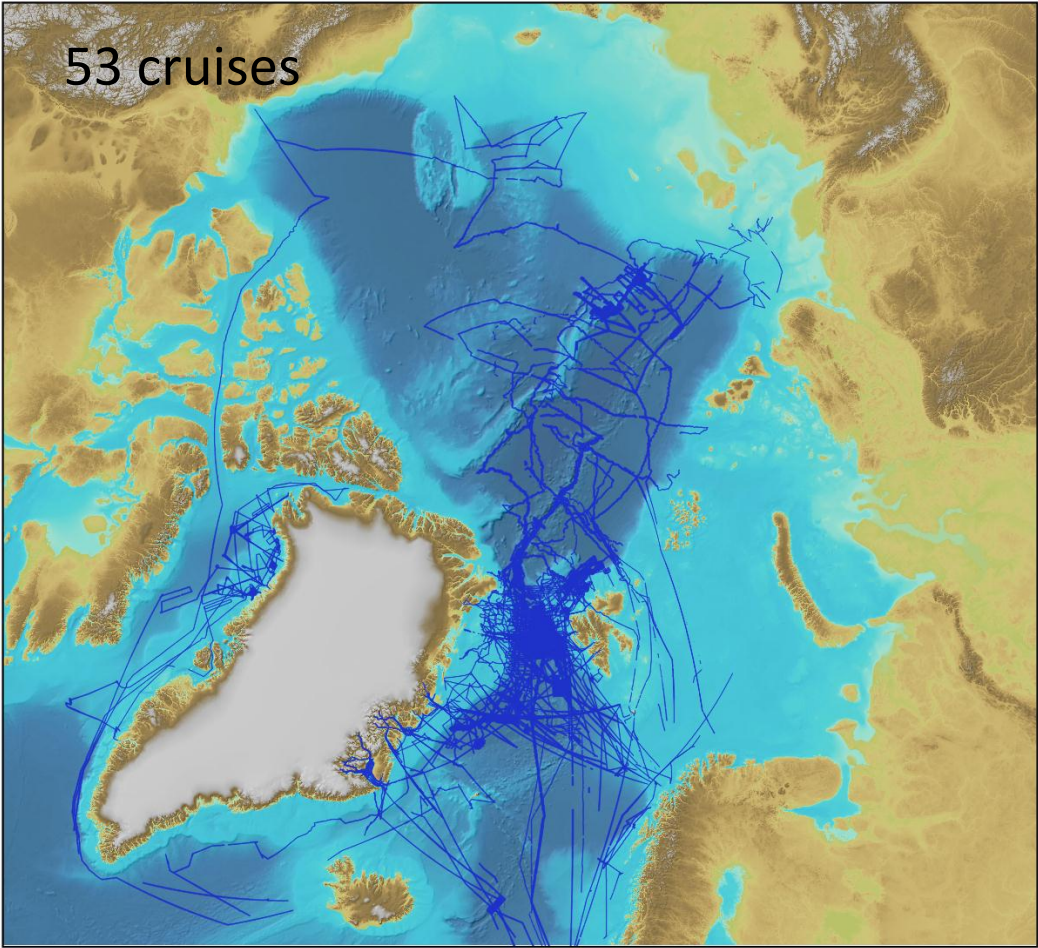
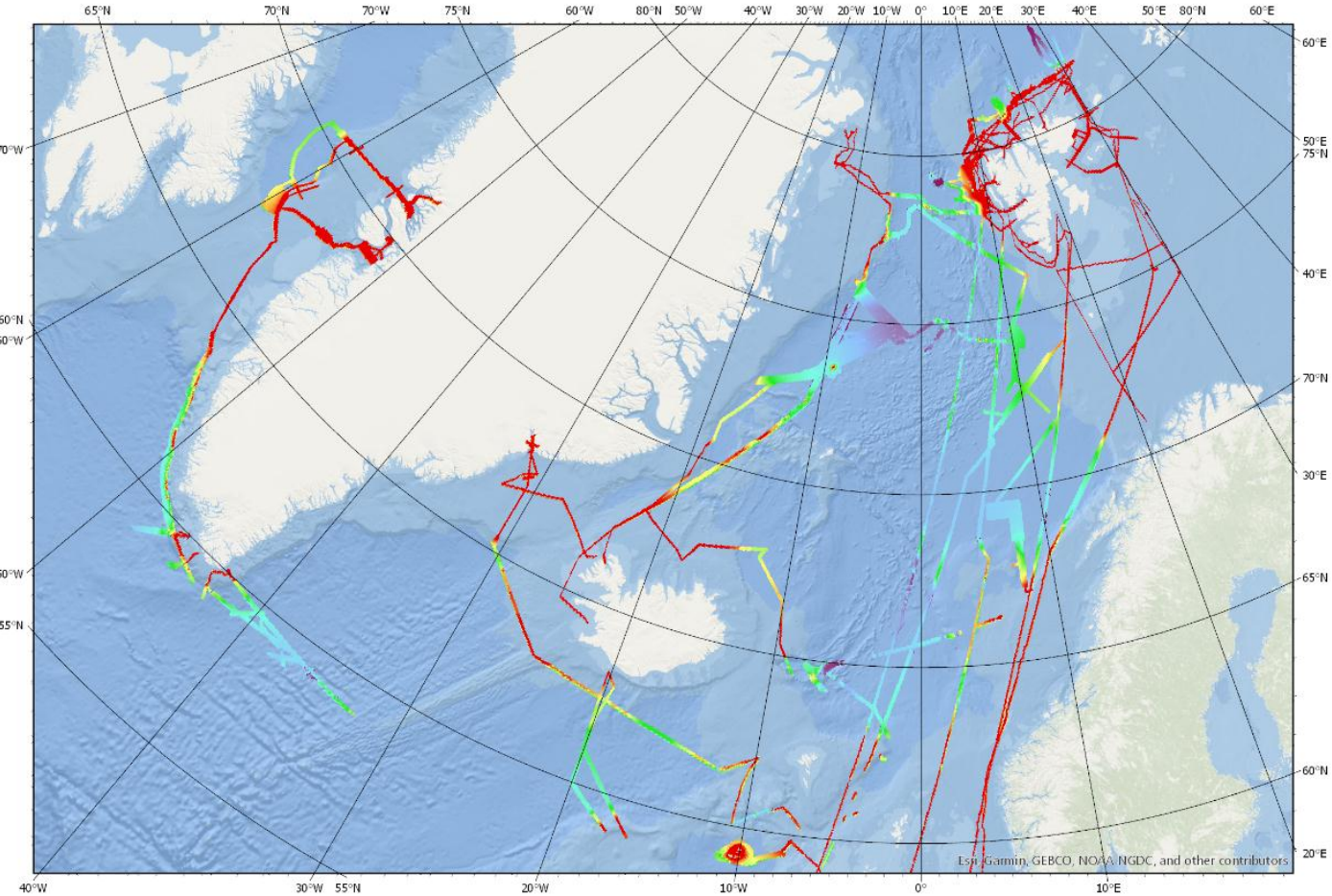
First Arctic, Antarctic & North Pacific Mapping Meeting, October 8-10, Stockholm



IBCAO update – map of all RRS James Clark Ross (JCR) multibeam north of 59°N (October 2018)



All multibeam bathymetry until 2015



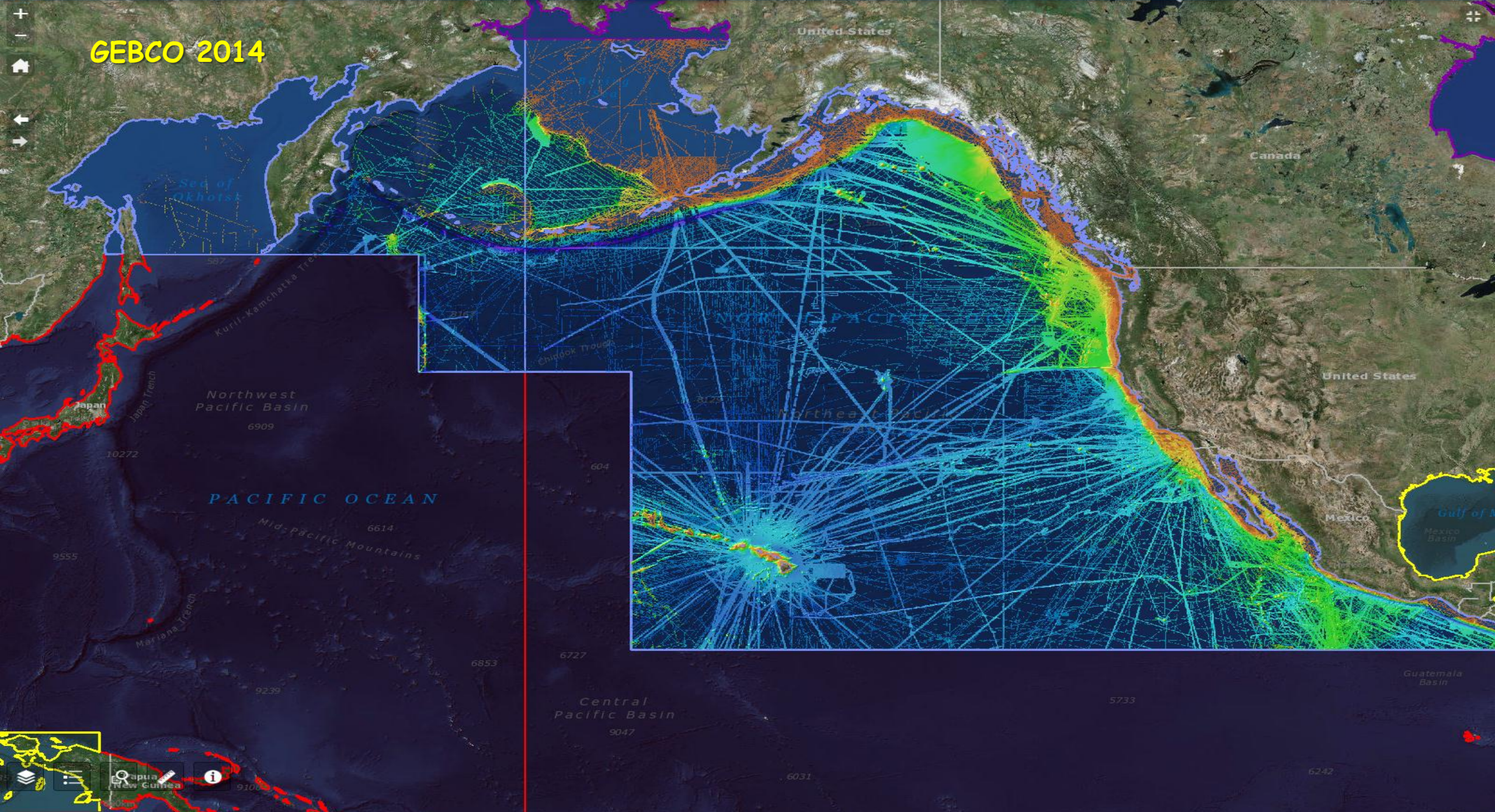
British Antarctic Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

POLAR SCIENCE
FOR PLANET EARTH

GEBCO2014+GMRT+NCEI+CCOM and NAUTILUS

STATUS OF THE NORTH PACIFIC

PAUL JOHNSON
TOMER KETTER
LARRY MAYER



158	Survey ID	Platform Name	Survey Y	Source	NCEI ID	Chief	Instr	File Cou	Track Length	Total Ti	Bathym	Amplit	Sidesc	Date entered	Download URL	Start Date	End Date	OBJECTID	Survey ID	INGEBCO
159	PPTU11WT	Thomas Washington	1986	Univers	1.5E+07	Lonsd	SeaF	13	11543	552	5E+06	0	0		https://www.n	22-Jul-86	19-Aug-86	381870	PPTU11WT	N
160	KIWI12RR	Roger Revelle	1998	Univers	NEW985	Luyen	SeaF	467	8165	462	3E+07	3E+07	3E+08	12-Jun-09	https://www.n	8-May-98	28-May-98	381595	KIWI12RR	N
161	Tran2new	Ocean Alert	1998	Monter	1.2E+07	Clagu	Simr	5	487	20	4E+06	4E+06	3E+07		https://www.n	15-May-98	16-May-98	126571	Tran2new	N
162	HNRO18RR	Roger Revelle	2000	Univers	NEW1325	Popp,	SeaF	454	9916	452	3E+07	3E+07	3E+08	27-Dec-10	https://www.n	24-May-00	27-Jun-00	675441	HNRO18RR	N
163	COOK23MV	Melville	2002	Univers	NEW940	Meas	SeaF	24	9264	458	2E+07	0	0	27-May-09	https://www.n	30-Apr-02	5-Jun-02	381532	COOK23MV	N
164	EW0205	Maurice Ewing	2002	Marine	NEW672	Floer	Atla	3927	6050	649	9E+07	9E+07	1E+09		https://www.n	11-May-02	9-Jun-02	359156	EW0205	N
165	EW0206	Maurice Ewing	2002	Marine	NEW668	Stalin,	Atla	1841	5599	295	1E+07	1E+07	2E+08		https://www.n	13-Jun-02	1-Jul-02	325348	EW0206	N
166	HLY0202	Healy	2002	Rolling	NEW863	Keigw	SeaF	775	7040	755	9E+07	9E+07	2E+09	29-Apr-09	https://www.n	15-Jun-02	6-Jul-02	381357	HLY0202	N
167	HLY0203	Healy	2002	Rolling	NEW864	(16-Jul-02	25-Aug-02	381358	HLY0203	N
168	KM0309	Kilo Moana	2003	Rolling	NEW2056	F										17-Apr-03	17-May-03	676264	KM0309	N
169	KM0310	Kilo Moana	2003	Rolling	NEW2057	F										21-May-03	9-Jun-03	676265	KM0310	N
170	CNTL12RR	Roger Revelle	2003	Univers	CNTL12RF	F										23-Jun-03	8-Jul-03	193097	CNTL12RR	N
171	KM0312	Kilo Moana	2003	Rolling	NEW2059	F										8-Aug-03	6-Sep-03	676267	KM0312	N
172	KOK0319	Ka'imikai-O-Kanaloa	2003	Nationa	8170001	Baco-	Seaf	618	3157	359	1E+07	0	0		https://www.n	27-Sep-03	4-Nov-03	676733	KOK0319	N
173	HLY04TH	Healy	2004	Rolling	NEW878	None	SeaF	203	582	49	8E+06	8E+06	2E+08	29-Apr-09	https://www.n	5-Nov-04	7-Nov-04	381372	HLY04TH	N
174	HLY0503	Healy	2005	Rolling	NEW891	Darby	SeaF	1335	10970	1316	1E+08	1E+08	2E+09	30-Apr-09	https://www.n	3-Aug-05	28-Sep-05	381387	HLY0503	N
175	AMAT04RR	Roger Revelle	2006	Rolling	NEW1970	Alford	Kong	513	5491	497	2E+07	2E+07	1E+08	20-Mar-13	https://www.n	17-Apr-06	22-May-06	676290	AMAT04RR	N
176	AMAT09RR	Roger Revelle	2006	Rolling	NEW1993	None	Kong	185	3784	171	6E+06	6E+06	3E+07	27-Mar-13	https://www.n	4-Jul-06	12-Jul-06	676572	AMAT09RR	N
177	KNOX01RR	Roger Revelle	2006	Rolling	NEW1974	None	Kong	334	7374	330	1E+07	1E+07	6E+07	20-Mar-13	https://www.n	30-Nov-06	15-Dec-06	676157	KNOX01RR	N
178	HLY0701	Healy	2007	Rolling	NEW907	Samb	SeaF	763	8836	760	1E+08	1E+08	3E+09	30-Apr-09	https://www.n	9-Apr-07	11-May-07	381403	HLY0701	N
179	AT15-20	Atlantis	2007	Rolling	NEW1689	Rathb	SeaF	2	121	5	809052	8E+05	2E+07	27-Jun-12	https://www.n	21-Jul-07	28-Jul-07	675860	AT15-20	N
180	HLY07TI	Healy	2007	Rolling	NEW906	None	SeaF	89	1722	86	1E+07	1E+07	3E+08	30-Apr-09	https://www.n	25-Sep-07	29-Sep-07	381402	HLY07TI	N
181	KM0802	Kilo Moana	2008	Rolling	NEW1437	Grab	Simr	6	95	5	283062	3E+05	2E+06	9-Feb-11	https://www.n	21-Feb-08	25-Feb-08	675583	KM0802	N
182	HLY08TH	Healy	2008	Rolling	NEW913	None	SeaF	95	2161	94	2E+07	2E+07	4E+08	30-Apr-09	https://www.n	2-Aug-08	6-Aug-08	381409	HLY08TH	N

Main challenges



- 1. Process incoming bathymetry- from raw data to poorly processed data**
- 2. Map the gaps**
- 3. Metadata and grid compilation harmonization**