

**Arctic Science Forum:
Science in Support of Hydrography in the Arctic
University of New Hampshire**

Chase Engineering Lab Room 130
24 Colovos Rd.
Durham, NH
Tuesday, January 28, 2014
(draft as of January 17, 2014)

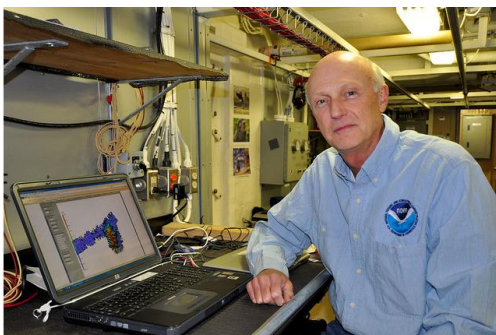
Item	Time	Presenter/Discussion	Presenter
	7:30	Depart Hotel	
	8:00	Arrive UNH	
1	8:00-8:30	Facility Tour (walk about)	
2	8:30-8:45	Registration, Orientation and Logistics	USA
3	8:45-9:00	Welcome and Overview: The UNH-NOAA Joint Hydrographic Center	Dr. Larry Mayer, UNH/JHC/CCOM ¹
4	9:00-9:30	Arctic research needs, and in particular the need for improved hydrography and coastal mapping (tentative title)	Honorable Fran Ulmer, Chair, US Arctic Research Commission
5	9:30-10:00	<i>“Arctic Sea Ice Research at CRREL: Understanding and Addressing the Impact of a Warming Climate”</i>	Dr. Zoe Courville, CRREL ² , U.S. Army Corps of Engineers
6	10:00-10:30	Opportunities for Public-Private Partnership in Understanding Environmental conditions (placeholder title)	Industry Representative (not confirmed)
7	10:30-10:45	Health Break	
8	10:45-11:15	Open Discussion	
9	11:15-11:45	<i>“Arctic Airborne Bathymetric LiDAR surveys”</i>	David Millar, FUGRO
10	11:45-1:00pm	Group Photo and Working Lunch	
11	1:00-1:30	<i>“Satellite Derived Bathymetry over the North Slope of Alaska using multispectral imagery”</i>	Dr. Chris Parrish, NOAA
12	1:30-2:00	<i>“An Overview of Tide and Sea Level Variations in the Arctic: Their Characteristics and Measurement”</i>	Stephen Gill, NOAA
13	2:00-2:30	<i>“Overview of an Arctic bathymetry compilation for US ECS studies”</i>	Ashton Flinders, CCOM/UNH
14	2:30-2:45	Health Break	
15	2:45-3:15	<i>“High Performance GPS Positioning using</i>	Dr. Neil D. Weston, NOAA

¹ University of New Hampshire, Joint Hydrographic Center, Center for Coastal Ocean Mapping.

² U.S. Army Cold Regions Research and Engineering Laboratory

		<i>CORS and OPUS</i>	
16	3:15-3:30	<i>"Shipping-related Activities and Initiatives of the Arctic Council's PAME Working Group"</i>	Pam Toschik, NOAA
17	3:30-4:00	Open Discussion	
18	4:00-4:15	Summary and Recap of the days points	Andy Armstrong, UNH/JHC/CCOM (NOAA)
19	4:15	Afternoon Closing Remarks	RDML Gerd F. Glang, US National Hydrographer
20	6:30	Informal Collaborative Hour <i>Three Chimneys Inn 17 Newmarket Rd Durham, NH 03824 Phone:(603) 868-7800</i>	

Speakers



Andy Armstrong
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Andy Armstrong is the Co-Director of the JHC and a retired officer of NOAA, assigned to the Center as a civilian NOAA employee. Capt. Armstrong specialized in hydrographic surveying and served on several NOAA hydrographic ships, including the NOAA Ship Whiting where he was Commanding Officer and Chief Hydrographer. Before coming to the JHC, he was the Chief of NOAA's Hydrographic Surveys Division, directing the agency's hydrographic survey activities. He has a B.S. in Geology from Tulane University and an M.S. in Technical Management from Johns Hopkins University. Capt. Armstrong oversees the hydrographic and ocean mapping education and training program at UNH and coordinates the Center's cooperative research with NOAA.



Stephen K. Gill
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Mr. Gill has been with NOAA's tides and water levels program in various capacities since 1975 and has experience in water level and current measurement, processing and analyses, tidal datums, and sea level variations. He has developed training programs and seminars in tides and tidal datums and for the application of observed sea level trends to climate change. His educational background includes a B.S. in Meteorology and Oceanography and an M.S. in Physical Oceanography from the New York University School of Engineering and Science. Mr. Gill has co-authored several reports and guidance documents related to sea level trends and climate change and has chaired or served on review teams for climate-change assessments such as the Climate Change Science Program (CCSP 2009), the IPCC AR5, and the National Climate Assessment (NCA).



Larry Mayer
CCOM Director and JHC Co-Director
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Larry Mayer has a broad-based background in marine geology and geophysics that is reflected in his association with both the Ocean Engineering and Earth Science Departments.

He graduated magna cum laude with an Honors degree in Geology from the University of Rhode Island in 1973 and received a Ph.D. from the Scripps Institution of Oceanography in Marine Geophysics in 1979. At Scripps his schizophrenic future was determined as he worked with the Marine Physical Laboratory's Deep-Tow Geophysical package, but applied this sophisticated acoustic sensor to problems of the history of ocean climate. After being selected as an astronaut candidate finalist for NASA's first

class of mission specialists, he went on to a Post-Doc at the School of Oceanography at the University of Rhode Island where he worked on problems of deep-sea sediment transport and paleoceanography of the equatorial Pacific.

In 1982, he became an Assistant Professor in the Dept. of Oceanography at Dalhousie University and, in 1991, moved to the University of New Brunswick to take up the NSERC Industrial Research Chair in Ocean Mapping.

In 2000, he became the founding director of the Center for Coastal and Ocean Mapping at the University of New Hampshire and the co-director of the NOAA/UNH Joint Hydrographic Center. Dr. Mayer has participated in more than 90 cruises (over 70 months at sea!) during the last 40 years and has been chief or co-chief scientist of numerous expeditions including two legs of the Ocean Drilling Program and seven cruises on the USCG Icebreaker Healy mapping unexplored regions of the Arctic seafloor in support of a potential U.S. submission for an extended continental shelf under the Law of the Sea Treaty.

Dr. Mayer has served on, or chaired, far too many international panels and committees and has the requisite large number of publications on a variety of topics in marine geology and geophysics. He is the recipient of the Keen Medal for Marine Geology, an Honorary Doctorate from the University of Stockholm, the University of New Hampshire's Excellence in Research Award and the University of Rhode Island's Graduate School of Oceanography's Distinguished Alumni Award. He served on the President's Panel for Ocean Exploration, and chaired a National Academy of Sciences committee on "National Needs for Coastal Mapping and Charting." He is currently co-chairing NOAA's Ocean Exploration Advisory Working Group and chairing the National Academy of Sciences committee on the "Impacts of Deepwater Horizon on the Ecosystem Services of the Gulf of Mexico.

His research deals with sonar imaging, remote characterization of the seafloor, advanced applications of 3-and 4-D visualization to ocean mapping problems and of late, applications of seafloor mapping to Law of the Sea issues.



Chris Parrish
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Chris Parrish has a Ph.D. in Civil and Environmental Engineering with an emphasis in Geospatial Information Engineering from the University of Wisconsin-Madison. His primary research interests are in remote sensing, in particular, full-waveform lidar, 3D object detection, sensor modeling and calibration, uncertainty analysis, and sensor fusion for coastal mapping applications. Chris will be serving as an

Affiliate Professor at CCOM-JHC beginning in Fall 2010, in addition to his current position as Lead Physical Scientist in the Remote Sensing Division of NOAA's National Geodetic Survey (NGS). Chris' responsibilities in NGS including leading research in remote sensing systems, platforms, and software in support of NOAA programs, as well as serving as NGS' Project Manager for Integrated Ocean and Coastal Mapping (IOCM). His current work focuses on new lidar waveform post-processing strategies, and shoreline uncertainty modeling.



Dr. Neil D. Weston
Deputy Director
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Neil Weston was selected as the Deputy Director of the National Geodetic Survey last October. Prior to that, Neil has held a number of leadership positions during his 20 year tenure with NGS, most recently as Chief of the Spatial Reference System Division. His experience ranges from outreach and education as acting Chief of the State Advisor Branch, to research and development as CORS team lead for GPS surveying and mapping developments. Neil began his career with NOAA as a Commissioned Officer and has a great appreciation for the ocean as well. Neil earned his doctorate in Engineering and Applied Physics and has a passion for biking and the outdoors.



Hon. Fran Ulmer
US Arctic Research Commission
420 L Street, #315
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Term: Expires 02/26/15
Representation: Academic/Research
Focus: Oil Spill Research, Interagency Collaboration, State of Alaska
Governance
See more at: <http://www.arctic.gov/ulmer.html#sthash.18z1aUZy.dpuf>

Fran Ulmer is chair of the U.S. Arctic Research Commission, where she has served since being appointed by President Obama in March 2011. In June 2010, President Obama appointed her to the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling. From 2007 to 2011, Ms. Ulmer was chancellor of Alaska's largest public university, the University of Alaska Anchorage (UAA). Before that, she was a Distinguished Visiting Professor of Public Policy and Director of the Institute of Social and Economic Research at UAA. She is a member of the Global Board of the Nature Conservancy and on the Board of the National Parks Conservation Association.

Ms. Ulmer served as an elected official for 18 years as the mayor of Juneau, a state representative, and as Lieutenant Governor of Alaska. She previously worked as legal counsel to the Alaska Legislature, legislative assistant to Governor Jay Hammond, and Director of Policy Development for the state. In addition, she was the first Chair of the Alaska Coastal Policy Council and served for more than 10 years on the North Pacific Anadromous Fish Commission. She has served on numerous local, state, and federal advisory committees and boards. Ulmer earned a J.D. cum laude from the University of Wisconsin Law School, and has been a Fellow at the Institute of Politics at the Kennedy School of Government.

- See more at: <http://www.arctic.gov/ulmer.html#sthash.18zlaUZy.dpuf>



Dr. Zoe Courville
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Dr. Courville is a research engineer at the Cold Regions Research and Engineering Laboratory (CRREL) in Hanover, NH. Her main research focuses on ice and snow properties in polar regions, and she also assists with engineering efforts in CRREL's Ice Engineering Facility (IEF).



David Millar
President and Managing Director
Fugro Pelagos, Inc.

David Millar is the President and Managing Director of Fugro Pelagos, Inc., which is a coastal and ocean mapping company, located in San Diego, California. He has worked there for over 22 years and has held the Chief Executive position for the past 4-1/2 years.

David has a Bachelor of Science Degree in Math & Physics from Mount Allison University and a Bachelor of Science Degree in Geomatics Engineering from the University, both located in New Brunswick, Canada.

He has 25 years of marine geophysical and hydrographic survey experience and started his career in the field as a hydrographic surveyor. Since then he has held a wide variety of management positions in the areas of operations, software development and business development.



Ashton Flinders
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My research at the University of Hawaii focused on a gravity survey of the islands of Kauai and Niihau (Hawaiian Island Chain) that I conducted between May – September of 2008. I also partook in a one-month research cruise in September of 2007 to study the variation in the gravitational field around the two islands. I integrated these new surveys with a past land survey of Niihau, and four additional marine cruises. My research revealed two positive residual gravity anomalies, one over Kauai's Lihue Basin, the other offshore between Kauai and Niihau. These highs indicate a local zone of high-density crust that I attribute to olivine cumulates in a solidified magma reservoir. Offsets between both islands residual gravity highs and their previous presumed geologic centers—indicate that the islands were much larger and more asymmetric than previously thought. Furthermore, I performed geophysical inversions on the residual gravity data to estimate the volumes of the magma chambers beneath each island. I combined my gravity work with previous geochemistry and geological mapping done on the islands in order to explain the islands early evolutionary history.