

9:00	【Opening Address】 Shuheï Takahashi (Chair, Symposium Committee)	Chair, Seiji Katakura (City of Mombetsu)
9:10	【K:Keynote Address】 K-1 Recent oceanographic expeditions in the eastern Arctic Ocean: One more step toward an understanding of polar climate Andrey Pnyushkov (Univ. Alaska Fairbanks, USA)	Chair, Shuheï Takahashi (Okhotsk Sea Ice Museum)
9:50	K-2 Future prospects for the comprehensive partnership between Faculty of Fisheries Sciences, Hokkaido University and the Mombetsu City Yasuzumi Fujimori, ◇Hiroki Yasuma, Atsushi Yamaguchi and Shinji Adachi (Hokkaido Univ.)	
10:30	Break	
10:40	【K:Special Lectures】 K-3 Evolution of the Arctic Ocean and what diversified siliceous microplankton can tell us about: the middle Eocene example to learn more in the future Kozo Takahashi (Hokusei Gakuen Univ.)	Chair, Satoru Taguchi (NIPR)
11:20	K-4 Truth of El Niño – La Niña Cycle – The Global Thermostat – Takao Nakajin (Former. Tokai Univ.)	
12:00	Lunch	
13:30 15:00	【M:Public Program: Symposium on Life and Culture of the People Related to Sea Ice】 <i>(in Japanese language only)</i> M-1 Genetic diversity of the brown bear and the migration history to Hokkaido Ryuichi Masuda (Hokkaido Univ.)	
15:00	Break	
15:10	【A:Snow, Ice and Human Life】 A-1 Assessment of the performance of highway snowbreak woods using a wind tunnel experiment and model trees ◇Masaru Koda (Civil Eng. Res. Inst. Cold Region), Takashi Yamazaki (Sapporo Develop. Constr. Dept.), Noriyuki Sumita and Hiroshi Ota (Civil Eng. Res. Inst. Cold Region)	Chair, Shuheï Takahashi (Okhotsk Sea Ice Museum)
15:30	A-2 Thermoelectric generator as survival equipment in cold area's disaster ◇Fauzanil Azmy Iska, Akari Shimizu, Kento Niimoto, Kei Horio and Kazutaka Yokota (Utsunomiya Univ.)	
15:50	A-3 Visibility measurement experiment under the blowing snow visually reproduced by virtual reality technology - Introducing observation results of blowing snow - ◇Yukio Sugawara, Takanori Matsushima, Yuko Togashi, Takao Kameda (Kitami Inst. Tech.) and Shuheï Takahashi (Okhotsk Sea Ice Museum)	
16:10	A-4 A study on temperature time course simulation in the snowy mountain -Beneficial local community support application during disaster - ◇Shouya Morota, Masahiro Nagafuji, Shingo Ugajin, Nia Natasha Tipol, Atsushi Shirayori, Kei Horio and Kazutaka Yokota (Utsunomiya Univ.)	
16:30	Break	
16:40	A-5 Physical activities of handicapped people in heavy snowfall regions ◇Tutomu Suda (Snow and Ice Network), Hisayoshi Ogata, Ikuyo Fujimaru (Chubu Univ.), Masao Mizuno, Kumiko Kasashi (Hokkaido Univ.), Hideyuki Ogasawara (Council for Support of Handicapped People) and Sachiko Asanome (Non-professional Organization Te-to-Te)	Chair, Yukio Sugawara (Kitami Inst. Tech.)
17:00	A-6 State of pedestrian slip-and-fall accidents in winter in Sapporo ◇Yasuhiro Kaneda, Yasuhiro Nagata (Hokkaido Develop. Eng. Center) and Shin-ei Takano (Hokkaido Univ.)	
17:20	A-7 Study of wind speed changes with differences in wind direction through the living snow fence ☆A ◇Toshimitsu Sakurai, Yasuhiko Ito (Civil Eng. Res. Inst. Cold Region), Takashi Watanabe (Civil Eng. Res. Inst. Cold Region/Hakodate Develop. Constr. Dept.) and Masaru Matsuzawa (Civil Eng. Res. Inst. Cold Region)	
18:30	White Concert < Okhotsk Sea Ice Museum>	

	<p>【WII : Workshop, Oil Pollution】 <i>(in Japanese language only)</i></p> <p>Learn from the Instruction of the Past Oil Pollution Disasters Chair, Masato Ito (OEPN)</p> <p>Introduction, Satoshi Ono (OEPN)</p>
10:00	<p>WII-1 About new information of Sakhalin II Project Larisa Yamomoto (Sakhalin Energy, Russia)</p>
10:05	<p>WII-2 Seabirds in the Okhotsk Sea - 20years after Nakhodka 's 11 years after Shiretoko, can we save them ? Kazuhiro Ohdate (Mombetsu-kaihatsu Clab)</p>
10:25	<p>WII-3 Verification of Nakhodka accident Kuniaki Sasaki (Yudaku Consultants)</p>
10:45	<p>WII-4 Emergency response in ice-bound water -Know the ice, confront the ice- Shin Ohnuki (Japan Assoc. Mar. Safety)</p>
11:10	<p>WII-5 Looking back on the 20 years since the Nakhodka heavy oil accident Shintaro Goto (Rissho Univ.)</p>
11:35	Discussion
12:00	Lunch
	<p>【M:Public Program : Introduction of the Northern Sea Route and its Prospects】 <i>(in Japanese language only)</i></p> <p style="text-align: right;">Chair, Shin Ohnuki (Japan Assoc. Mar. Safety)</p>
13:30	Introduction, Shin Ohnuki (Japan Assoc. Mar. Safety)
13:35	<p>M-2 State-of-the-Art and issues to be solved for the Arctic sea routes Hajime Yamaguchi (Tokyo Univ.)</p>
13:55	<p>M-3 Safe navigation techniques of the northern sea route -Know the ice, confront the ice- Shin Ohnuki (Japan Assoc. Mar. Safety)</p>
14:35	<p>M-4 The Arctic shipping in 2016, from the view of the commercial shipping company Hiroyuki Goda (Nippon Yusen Kabushiki-Kaisha Ltd.)</p>
14:55	Break
	Chair, Hajime Yamaguchi (Tokyo Univ.)
15:30	<p>M-5 International regulation of ships/seafarers operating in polar waters Tomoyasu Izaki (Japan Agency of Mar. Educ. and Training for Seafarers)</p>
16:00	<p>M-6 Meteorological observations for skillful weather forecasts over the northern sea route and beyond Jun Inoue (NIPR)</p>
16:30	<p>M-7 Feasibility of the northern sea route ◇Natsuhiko Otsuka (Hokkaido Univ.) and Koh Izumiyama (Natl. Inst. Mar.)</p>
17:00	Review, Hajime Yamaguchi (Tokyo Univ.)
18:30	White Concert < Okhotsk Sea Ice Museum>

9:00	
12:00	Lunch
	【B: Sea Ice and Icebreaker Technology】 Chair, Kuk-jin Kang (Korea Res. Inst. Ships Ocean Engineering, Korea)
13:00	B-1 A proposal of icebreaking research vessel Kenjiro Miki, Eiji Sakai and ◇Hiromitsu Kitagawa (Ocean Policy Res. Inst.)
13:20	B-2 Progress report on the development of voyage environmental information system (VEIS) for the northern sea route ◇Chan-Su Yang, Kyeong Ok Kim, Sun-Hwa Kim, Hak-Soo Im, Cheol-Ho Kim, Min-Woo Kim and Dan-Bee Hong (Korea Inst. Ocean Sci. Tech., Korea)
13:40	B-3 Development of optical flow computation method for ice movement in the Arctic Ocean ◇Kenta Hasegawa, Takatoshi Matsuzawa, Koh Izumiyama (Natl. Inst. Mar.), Takayuki Asanuma, Joji Yamamoto (JOGMEC) and Shotaro Uto (Natl. Inst. Mar.)
14:00	B-4 Navigation through NSR by using existing ships under polar code ◇Yeonhwa Jo, Moosung Son and Hongku Lee (Korean Register, Korea)
14:20	Break
	Chair, Takatoshi Matsuzawa (Natl. Mar. Res. Inst.)
14:30	B-5 A study on the characteristics of eco-friendly model ice using propylene glycol Jung-seok Ha, Kuk-jin Kang, ◇Jong-gil Yum, Cheol-hee Kim, Seong-rak Cho, Seong-yeop Jeong and Chang-yong Lee (Korea Res. Inst. Ships Ocean Eng., Korea)
14:50	B-6 Activities related with the development of Arctic station-keeping methodology in KRISO ◇Young-Shik Kim, Hyung-Do Song, Young-Wuk Won and Kuk-Jin Kang (Korea Res. Inst. Ships Ocean Eng., Korea)
15:10	B-7 Process of ice drift in river channel induced by tsunami run-up ☆A ◇Takaaki Abe (Civil Eng. Res. Inst. Cold Region) and Yasuhiro Yoshikawa (Kitami Inst. Tech.)
15:30	Break
	【C: Polar Oceanography and Meteorology】 Chair, Yasushi Fukamachi (Hokkaido Univ.)
15:50	C-1 Hydrometeorological aspects of the oil and gas exploration activities in the eastern Arctic Anatoly Polomoshnov (LCC “Rosneft-Shelf-Arctic”, Russia)
16:10	C-2 Variability of water mass distribution on the northern Chukchi regions in the Arctic ◇Kyoung-Ho Cho (Korea Polar Res. Inst., Korea), Koji Shimada (Tokyo Univ. Mar. Sci. Tech.), Young-Seok Choi (Korea Polar Res. Inst., Korea), Eri Yoshizawa (Tokyo Univ. Mar. Sci. Tech.), Jinyoung Jung, Jisoo Park and Sung-Ho Kang (Korea Polar Res. Inst., Korea)
16:30	C-3 Mesoscale eddies over the continental slope of the Arctic Ocean ◇Andrey Pnyushkov, Igor Polyakov (Univ. Alaska Fairbanks, USA), Laurie Padman (Earth & Space Res., USA) and An T Nguyen (Univ. Texas at Austin, USA)
16:50	Break
17:00	C-4 Quantification of the turbulent mixing and associated diapycnal heat transfer within surface mixed layer in the Pacific-side Arctic Ocean ☆A ◇Hiroki Takeda (Tokyo Gakugei Univ./JAMSTEC), Yusuke Kawaguchi (JAMSTEC), Jun Inoue (NIPR/JAMSTEC), Shigeto Nishino (JAMSTEC), Michael Steele (Univ. Washington, USA), Katsuhisa Maeno (Nippon Mar. Enterprises Ltd./JAMSTEC), Kristina Colburn (Univ. Washington, USA) and Naoki Sato (Tokyo Gakugei Univ./JAMSTEC)
17:20	C-5 Near-inertial internal waves and related mixing in the Arctic anticyclonic eddies ☆A ◇Eun Yae Son (Inha Univ., Korea), Yusuke Kawaguchi (JAMSTEC), Jae-Hun Park and Ho Kyung Ha (Inha Univ., Korea)
18:30	White Concert < Okhotsk Sea Ice Museum >

	[W: Workshop, North Pacific Subarctic Gyre] Chair, Humio Mitsudera (Hokkaido Univ.)
13:00	Introduction, Humio Mitsudera (Hokkaido Univ.)
13:10	W-1 Interdecadal decrease of the Oyashio on the slope off the southeastern coast of Hokkaido and its impact on fishing ground formation of Pacific Saury ◇Hiroshi Kuroda (Hokkaido Natl. Fish. Res. Inst./Natl. Res. Inst. Fish. Sci.), Katsumi Yokouchi, Shigeo Kakehi, Takeshi Okunishi, Daisuke Hasegawa (Tohoku Natl. Fish. Res. Inst.), Daisuke Takahashi (Hokkaido Natl. Fish. Res. Inst.) and Hitoshi Kaneko (Tohoku Natl. Fish. Res. Inst.)
13:30	W-2 Dynamics of the mean flow in the Oyashio region: Effects of bottom topography on a subpolar gyre ◇Hajime Nishigaki (Oita Univ.), Humio Mitsudera (Hokkaido Univ.), Toru Miyama and Yasumasa Miyazawa (JAMSTEC)
13:50	W-3 Effects of sedimentary supply on iron circulation in the North Pacific based on a high-resolution model ◇Tomohiro Nakamura, Humio Mitsudera, Hiroshi Yoshinari (Hokkaido Univ.), Takuya Nakanowatari (NIPR), Hatsumi Nishikawa (Hokkaido Univ.) and Keisuke Uchimoto (Res. Inst. Innovative Tech. Earth)
14:10	W-4 The effect of salinity and heat balance trend of the Pacific on equatorial thermocline ☆A ◇Yuhei Mitsukawa and Humio Mitsudera (Hokkaido Univ.)
14:30	W-5 Regional characteristics of heavy precipitation day in the eastern part of Hokkaido - Characteristics of heavy precipitation day - ☆A ◇Yusuke Takahashi (Hokkaido Univ.) and Hisashi Kato (Nihon Univ.)
14:50	Break
	Chair, Hajime Nishigaki (Oita Univ.)
15:00	W-6 Classification of interaction between a vortex and internal waves, and estimates of interaction-induced mixing in the North Pacific Ocean ☆A ◇Kaoru Ito and Tomohiro Nakamura (Hokkaido Univ.)
15:20	W-7 Dynamics of a quasi-stationary jet along the subarctic front in the North Pacific Ocean (the Isoguchi Jet) - Ideal two-layer model - ◇Toru Miyama (JAMSTEC), Humio Mitsudera (Hokkaido Univ.), Hajime Nishigaki (Oita Univ.) and Ryo Furue (JAMSTEC)
15:40	W-8 Vertical structure and temporal variation of Isoguchi Jet ☆A ◇Taku Wagawa (Japan Sea Natl. Fish. Res. Inst.), Shin-ichi Ito (Univ. Tokyo), Shigeo Kakehi (Tohoku Natl. Fish. Res. Inst.), Yugo Shimizu (Natl. Res. Inst. Fish. Sci.), Kazuyuki Uehara (Tokai Univ.), Tsurane Kuragano (Meteorological Res. Inst.) and Toshiya Nakano (Japan Meteorological Agency)
16:00	W-9 Structure of the transition domain observed with drifting buoys ☆A ◇Hatsumi Nishikawa, Humio Mitsudera (Hokkaido Univ.), Takeshi Okunishi (Tohoku Natl. Fish. Res. Inst.), Shin-ichi Ito (Univ. Tokyo), Taku Wagawa (Japan Sea Natl. Fish. Res. Inst.), Daisuke Hasegawa (Tohoku Natl. Fish. Res. Inst.), Toru Miyama (JAMSTEC) and Hitoshi Kaneko (Tohoku Natl. Fish. Res. Inst.)
16:20	W-10 Seasonal variability of the Bering Slope Current and the generated eddies in this vicinity ☆A ◇Yoichi Hirano and Humio Mitsudera (Hokkaido Univ.)
16:40	Break
	Chair, Toru Miyama (JAMSTEC)
16:50	W-11 Analysis of the North Pacific meridional overturning circulation using ocean data assimilation techniques ◇Yosuke Fujii, Norihisa Usui, Nariaki Hirose (Meteorological Res. Inst.), Humio Mitsudera, Tomohiro Nakamura (Hokkaido Univ.), Hajime Nishigaki (Oita Univ.), Toru Miyama (JAMSTEC), Shin'ichi Ito (Univ. Tokyo) and Taku Wagawa (Japan Sea Natl. Fish. Res. Inst.)
17:10	W-12 Decadal variations in quasi-steady jet strength in the subarctic North Pacific ◇Takuya Nakanowatari (NIPR), Humio Mitsudera (Hokkaido Univ.), Bunmei Taguchi (Univ. Tokyo) and Shoshiro Minobe (Hokkaido Univ.)
17:30	W-13 Decadal variability of upper ocean heat content associated with western boundary current variability in the North Pacific ◇Bunmei Taguchi (Univ. Tokyo/JAMSTEC), Niklas Schnieder (Univ. Hawai'i Mānoa, USA), Masami Nonaka and Hideharu Sasaki (JAMSTEC)
17:50	W-14 North Pacific overturn that connects the surface circulation with the intermediate-layer circulation and the Isoguchi Jets ◇Humio Mitsudera (Hokkaido Univ.), Toru Miyama (JAMSTEC), Hajime Nishigaki (Oita Univ.), Takuya Nakanowatari (NIPR), Hatsumi Nishikawa, Tomohiro Nakamura (Hokkaido Univ.), Taku Wagawa (Japan Sea Natl. Fish. Res. Inst.), Ryo Furue (JAMSTEC), Yosuke Fujii (Meteorological Res. Inst.) and Shin-ichi Ito (Univ. Tokyo)
18:30	White Concert < Okhotsk Sea Ice Museum >

	<p>【D: Sea Ice Physics and Meteorology in Cold Region】 Chair, Hatsumi Nishikawa (Hokkaido Univ.)</p>
9:00	<p>D-1 Multi-scale structure between cut off upper low and tornados ★A ◇Satoru Kasuga, Meiji Honda, Jinro Ukita (Niigata Univ.) and Katsushi Iwamoto (City of Mombetsu)</p>
9:20	<p>D-2 The relationship between extratropical cyclones advecting off the southern coast of Hokkaido in winter and jet stream ◇Mitsuharu Nishimura and Fumi Sezaki (Japan Meteorological Agency)</p>
9:40	<p>D-3 Variability of sea-ice thickness in the northeastern coastal Chukchi Sea revealed by a moored ice-profiling sonar ◇Yasushi Fukamachi (Hokkaido Univ.), Daisuke Simizu (Hokkaido Univ./NIPR), Kay I. Ohshima (Hokkaido Univ.), Hajo Eicken, Andrew R. Mahoney (Univ. Alaska Fairbanks, USA), Katsushi Iwamoto (NIPR/Niigata Univ./City of Mombetsu), Erika Moriya (Hokkaido Univ./Hydro Systems Develop., Inc.) and Sohey Nihashi (Natl. College Tech., Tomakomai)</p>
10:00	Break
	<p>Chair, Tomohiro Nakamura (Hokkaido Univ.)</p>
10:20	<p>D-4 Inter-annual changes in responses of winter sea-ice motions to winds in the Arctic Ocean between 2003 and 2012 ◇Eri Yoshizawa (Korea Polar Res. Inst., Korea) and Koji Shimada (Tokyo Univ. Mar. Sci. Tech.)</p>
10:40	<p>D-5 Geometric relation between the anisotropy of growth rates in ice crystals and brine content within the surface layer of sea ice ★A ◇Yoshihiko Machimura, Yoshiki Kawano (Natl. Inst. Tech., Asahikawa) and Tetsuya Ohashi (Kitami Inst. Tech.)</p>
11:00	<p>D-6 Underwater frazil ice formation in the Sakhalin polynya ★A ◇Masato Ito, Kay I. Ohshima, Yasushi Fukamachi and Kunio Shirasawa (Hokkaido Univ.)</p>
11:20	<p>D-7 The measurement of ice thickness using an electromagnetic induction device onboard a sled in Saroma-ko Lagoon ★A ◇Momoi Kita, Kazutaka Tateyama, Seita Hoshino (Kitami Inst. Tech.) and Kazuki Nakamura (Nihon Univ.)</p>
12:00	Lunch
	<p>◆ 13:00~14:00 Poster Session, Place: 3F Lobby</p>
14:00	<p>【M: Public Program: How do we Act at Heavy Snowstorm in Okhotsk Area?】 <i>(in Japanese language only)</i> Chair, Akiyoshi Araya (Abashiri Develop. and Const. Dept.) Introduction, Abashiri Road Disaster Prevention Association</p>
14:10	<p>M-8 Future availability of living snow fences in Hokkaido Toshimitsu Sakurai (Civil Eng. Res. Inst. Cold Region)</p> <p>M-9 Learn from the snowstorm accidents happened in Hokkaido in March 2013 Yasuhiro Kaneda (Hokkaido Develop. Eng. Center)</p> <p>M-10 Mechanism and influence of snowstorm -How to utilize weather information for disaster prevention Hideo Yamashita (Abashiri Meteorological Office)</p>
15:20	Break
15:30	Forum, Discussion
19:00	Dinner Party for Friendship between Scientists & Volunteers <Mombetsu Central Hotel>

[W: Weather and Sea-Ice Forecasts for Navigation Supports over the Northern Sea Route]	
9:00	Introduction, Jun Inoue (NIPR) Chair, Jun Inoue (NIPR)
9:05	W-15 Sustainable Arctic observing network for predicting weather extremes in mid-latitude ◇Jun Inoue (NIPR/JAMSTEC), Kazutoshi Sato (NIPR) and Akira Yamazaki (JAMSTEC)
9:20	W-16 Climatology of polar lows over the Okhotsk Sea using a tracking algorithm ◇Wataru Yanase, Hiroshi Niino and Shun-ichi Watanabe (Univ. Tokyo)
9:40	W-17 Predictability of the Arctic cyclone in August 2012 in medium-range ensemble forecasts ★A ◇Akio Yamagami (Univ. Tsukuba) and Mio Matsueda (Univ. Tsukuba/ Univ. Oxford, UK)
10:00	Break
10:10	W-18 Impact of radiosonde observation by MR16-06 on weather forecast ★A ◇Kazutoshi Sato (NIPR), Jun Inoue (NIPR/SOKENDAI/JAMSTEC), Akira Yamazaki (JAMSTEC) and Akira Yamauchi (Nagasaki Univ.)
10:30	W-19 Arctic wave field reanalysis and observation in 2016 ◇Adrean Webb, Takuji Waseda (Univ. Tokyo), Kazutoshi Sato and Jun Inoue (NIPR)
10:50	W-20 Field investigation of impinging seawater spray on large vessels using sea spray meters - Case study of the R/V Mirai - ◇Toshihiro Ozeki (Hokkaido Univ. Educ.), Shin Toda and Hajime Yamaguchi (Univ. Tokyo)
11:10	Break
11:20	W-21 Towards improving sea ice thickness estimation algorithm using AMSR2 ◇Kazutaka Tateyama, Yasuhiro Tanaka, Seita Hoshino, Haruhiko Naka (Kitami Inst. Tech.) and Richard A. Krishfield (Woods Hole Oceanographic Inst., USA)
11:40	W-22 Seasonal Arctic sea ice predictability in climate model MIROC ◇Jun Ono, Hiroaki Tatebe and Yoshiki Komuro (JAMSTEC)
12:00	W-23 Data assimilation of sea ice concentration into a global ocean-sea ice model with correction for atmospheric forcing field ◇Takahiro Toyoda (Meteorological Res. Inst.)
12:20	Lunch ◆ 13:00~14:00 Poster Session, Place: 3F Lobby
14:00	W-24 Improving numerical sea ice predictions in the Arctic Ocean by data assimilation using satellite observations ◇Dulini Yasara Mudunkotuwa (Univ. Tokyo/Univ. Sri Jayawardenepura, Sri Lanka), Liyanarachchi Waruna Arampath De Silva and Hajime Yamaguchi (Univ. Tokyo) Chair, Hajime Yamaguchi (Univ. Tokyo)
14:20	W-25 The impact of data assimilation and atmospheric forcing data on predicting short-term sea ice distribution along the northern sea route ◇Liyanarachchi Waruna Arampath De Silva and Hajime Yamaguchi (Univ. Tokyo)
14:40	W-26 Evaluation of the summertime Arctic sea ice conditions in TOPAZ4 ◇Takuya Nakanowatari, Jun Inoue, Kazutoshi Sato, Hironori Yabuki, Takeshi Sugimura (NIPR) and Natsuhiko Otsuka (Hokkaido Univ.)
15:00	W-27 Development of Arctic route search system ◇Takeshi Sugimura, Takuya Nakanowatari, Jun Inoue (NIPR), Hajime Yamaguchi (Univ. Tokyo), Takeshi Terui and Hironori Yabuki (NIPR)
15:20	Break
15:40	W-28 On board test of the Arctic safe voyage planning system under development in KRISO ◇Kuk-Jin Kang, Seong-Yeop Jeong, Jong-Gil Yeom (Korea Res. Inst. Ships Ocean Eng., Korea), Seong-Woo Choi (Dong Kang M-Tech. Co., Ltd., Korea) and Seung-Kyun Yeo (Korea Advanced Inst. Sci. Tech., Korea) Chair, Natsuhiko Otsuka (Hokkaido Univ.)
16:00	W-29 Sea route selection using global dynamic window approach ◇Toshiyuki Takagi (Natl. Inst. Tech., Kushiro) and Kazutaka Tateyama (Kitami Inst. Tech.)
16:20	W-30 Analysis of ship speed reduction in navigation through the northern sea route ◇Takatoshi Matsuzawa, Daisuke Wako and Haruhito Shimoda (Natl. Mar. Res. Inst.)
16:40	W-31 Study on prediction of sailing speed through ice covered waters on the northern sea route ★A ◇Hiroshi Morishita, Kazutaka Tateyama (Kitami Inst. Tech.), Natsuhiko Otsuka (Hokkaido Univ.) and Hayato Okuda (Kitami Inst. Tech.)
17:00	W-32 Review and outlook of Arctic shipping 2016 Hiroyuki Goda (NYK Line)
17:20	Review, Jun Inoue (NIPR)
19:00	Dinner Party for Friendship between Scientists & Volunteers <Mombetsu Central Hotel>

9:00	
12:00	Lunch
13:00 14:00	<p>【P: Poster Session I】</p> <p>P-1 Influence of seasonal variation in brackish water environment on primary production in Lake Komuke at the coast of the Sea of Okhotsk ◇Tomohiko Takeuchi, Yusuke Tsukamoto, Katsuaki Komai (Kitami Inst. Tech.), Toshiro Yamada (Nishimuragumi Co. Ltd.) and Kei Matsumoto (Kitami Inst. Tech.)</p> <p>P-2 Surface zooplankton distribution patterns along a 110°E in the Southern Ocean: A comparison of intra-annual seasonal variability during the 2011/12 and 2014/15 seasons ◇Kunio T. Takahashi and Tsuneo Odate (NIPR/SOKENDAI)</p> <p>P-3 Zooplankton distribution with underway monitoring along 110°E in the Southern Ocean ◇Ryosuke Makabe (NIPR/SOKENDAI) and Hiroshi Sasaki (Ishinomaki Senshu Univ.)</p> <p>P-4 Observations on the internal structure of pteropod shells using a MXCT ◇Erina Shima (Ishinomaki Senshu Univ.), Katsunori Kimoto (JAMSTEC), Osamu Sasaki (Tohoku Univ.) and Hiroshi Sasaki (Ishinomaki Senshu Univ.)</p> <p>P-5 Study on fisheries biology of the pandalid shrimp <i>Pandalus latirostris</i> in Akkeshi Bay and Lake Akkeshi ~ Finding the migratory pattern of the shrimp ~ ◇Sayaka Ito, Toru Nakagawa (Hokkaido Natl. Fish. Res. Inst.), Norio Shirafuji (Tohoku Natl. Fish. Res. Inst.), Toshihiro Onitsuka, Hiroshi Kuroda (Hokkaido Natl. Fish. Res. Inst.), Akio Masadate (Kushiro Fish. Tech. Extension Office), Takashi Yokota and Daisuke Izumida (Hokkaido Natl. Fish. Res. Inst.)</p> <p>P-6 Kichiji rockfish observed by underwater robot on the deep-sea fishing ground in the southwestern Okhotsk Sea ◇Tomonori Hamatsu, Hiromi Kasai, (Hokkaido Natl. Fish. Res. Inst.), Tamaki Ura, Yuya Nishida, (Kyushu Inst. Tech), Akihiro Okamoto, Shogo Inaba (Natl. Mar. Res. Inst.), Akishi Hamada and Seiya Yoshida (Oki-Seatec Inc.)</p> <p>P-7 Comprehensive approach with value chain platform in changing climate - from case studies with sea ice ◇Takaaki Mori, Naoki Tojo and Kenji Minami (Hokkaido Univ.)</p> <p>P-8 Experiment report of underwater acoustic communication in Mombetsu port ◇Shingo Yoshizawa, Hiroshi Tanimoto (Kitami Inst. Tech.), Takashi Saito, Yusaku Mabuchi (Mitsubishi Electric TOKKI Systems), Tomoya Tsukui and Shinichi Sawada (IHI)</p> <p>P-9 Introduction of camera monitoring system for coastal environment changes due to global warming Taerim Kim (Kunsan Univ., Korea)</p>
	<p>【Introduction of Sea Ice Projects by JOGMEC】 Monday 20 to Wednesday 22</p> <p>Development of accurate ice observation technologies and ice database for oil and gas developments in Arctic region, 2nd report summary of the R&D results</p> <p>Exhibited by: National Maritime Research Institute, Kitami Institute of Technology, Nihon University, The University of Tokyo and JOGMEC</p>
19:00	Dinner Party for Friendship between Scientists & Volunteers <Mombetsu Central Hotel>

	<p>【E: Marine Organisms and Fisheries in the Ice-Covered Waters】 Chair, Kunio T. Takahashi (NIPR/SOKENDAI)</p>
9:00	<p>E-1 Variation in water column structure and water mass distribution in the coastal water around Mombetsu during arrival and retreat of sea-ice: Results from oceanographic surveys by Garinko-II ◇Hiromi Kasai (Hokkaido Natl. Fish. Res. Inst.), Seiji Katakura (City of Mombetsu), Ryuichi Nagata, Katsushi Murai (Garinko and Okhotsk Tower), Soshi Hamaoka (City of Mombetsu), Kazumasa Hirakawa (Japan Fisheries Res. and Educ. Agency)</p>
9:20	<p>E-2 Impact of Coastal Oyashio water originating in the Okhotsk Sea on spring bloom over the Oyashio area in the North Pacific ◇Hiroshi Kuroda (Hokkaido Natl. Fish. Res. Inst./Natl. Res. Inst. Fish. Sci.), Yuko Toya (Hokkaido Natl. Fish. Res. Inst.), Jun Nishioka (Hokkaido Univ.), Akira Kuwata, Daisuke Hasegawa, Tsuyoshi Watanabe (Tohoku Natl. Fish. Res. Inst.) and Yukiko Taniuchi (Hokkaido Natl. Fish. Res. Inst.)</p>
9:40	<p>E-3 Seasonal change of phytoplankton species composition between spring and fall 2007 in the southern Okhotsk Sea ◇Yuichi Nosaka (Ishinomaki Senshu Univ.), Hiromi Kasai (Hokkaido Natl. Fish. Res. Inst.), Hiroshi Sasaki (Ishinomaki Senshu Univ.) and Hiroshi Hattori (Tokai Univ.)</p>
10:00	<p>E-4 Distribution of phytoplankton and Soya Warm Current in the southwestern Okhotsk Sea in early summer ◇Yukiko Taniuchi, Hiromi Kasai, Hiroshi Kuroda (Hokkaido Natl. Fish. Res. Inst.) Shigeo Takehi and Tsuyoshi Watanabe (Tohoku Natl. Fish. Res. Inst.)</p>
10:20	<p>Break</p>
	<p>Chair, Hiroshi Sasaki (Ishinomaki Senshu Univ.)</p>
10:30	<p>E-5 First appearance record of noxious red tide algae in the Okhotsk Sea ◇Satoshi Nagai (Natl. Res. Inst. Fish. Sci.), Shingo Urushizaki (AXIOHELIX Co. Ltd.), Motoshige Yasuike, Atushi Fujiwara, Hungyen Chen (Natl. Res. Inst. Fish. Sci.) and Seiji Katakura (City of Mombetsu)</p>
10:50	<p>E-6 Metagenetics of zooplankton community in the Okhotsk Sea ☆A ◇Junya Hirai (Univ. Tokyo), Seiji Katakura (City of Mombetsu), Hiromi Kasai (Hokkaido Natl. Fish. Res. Inst.), Masaki Iwabuchi (Econix Co., Ltd.) and Satoshi Nagai (Natl. Res. Inst. Fish. Sci.)</p>
11:10	<p>E-7 Seasonal and inter-annual changes in mesozooplankton community at Mombetsu Okhotsk Tower during 1997 to 2012 ☆A ◇Daichi Arima (Hokkaido Univ.), Soshi Hamaoka (Former. City of Mombetsu), Seiji Katakura (City of Mombetsu), Atsushi Yamaguchi and Ichiro Imai (Hokkaido Univ.)</p>
11:30	<p>E-8 Spatial distribution of calanoid copepod, <i>Neocalanus</i> spp. during spring in the Okhotsk Sea off Hokkaido ◇Hiroki Asami (Abashiri Fish. Res. Inst.) and Yoshinori Nishida (Hakodate Fish. Res. Inst.)</p>
12:00	<p>Lunch ◆ 13:00~14:00 Poster Session, Place: 3F Lobby</p>
	<p>Chair, Kei Matsumoto (Kitami Inst. Tech.)</p>
14:00	<p>E-9 Fish herding effect of LED light in different specification ◇Makoto Sakamoto, Naoto Matsubara (Hokkaido Univ.), Seiji Katakura (City of Mombetsu), Hiroki Yasuma, Susumu Shimizu and Yasuzumi Fujimori (Hokkaido Univ.)</p>
14:20	<p>E-10 Sound production by Steindachner (<i>Sebastes taczanowskii</i>); relationship between received sounds and fish density ☆A ◇Naoto Matsubara, Makoto Sakamoto (Hokkaido Univ.), Seiji Katakura (City of Mombetsu), Tomonari Akamatsu (Natl. Res. Inst. Fish. Sci.), Ryuzo Takahashi (Natl. Res. Inst. Fish. Eng.), Yasuzumi Fujimori, Nobuo Kimura, Kazuyoshi Maekawa and Hiroki Yasuma (Hokkaido Univ.)</p>
14:40	<p>E-11 Sperm entry into the micropyle of fish eggs ◇Hajime Matsubara (Tokyo Univ. Agriculture), Tatsuro Harumi (Asahikawa Medical Univ.), Arata Nagami (Tokyo Univ. Agriculture), Masakazu Kondo (Natl. Fish. Univ.), Megumu Takahashi, Kazuya Nishizawa, Yu Kuronuma, Keita Ishii, Shunsuke Tamura, Jin Tochimoto, Kazuna Yamazaki, Minami Watanabe, Akinobu Takamichi (Tokyo Univ. Agriculture), Masaki Ichimura (Shibetsu Salmon Museum) and Ryuzo Yanagimachi (Univ. Hawaii, USA)</p>
15:00	<p>E-12 Decline of salmon carcasses and its effects on nutrient input in riparian ecosystems Chair, Hajime Matsubara (Tokyo Univ. Agriculture) ◇Kei Matsumoto, Kenta Oda, Katsuaki Komai, Takao Kameda, Hiroshi Hayakawa (Kitami Inst. Tech.), Mitsuru Torao and Yousuke Koshino (Salmon and Freshwater Fish. Res. Inst.)</p>
15:20	<p>E-13 History of Salted salmon and Smoked salmon Ikutaro Shimizu (Hokkaido Natl. Fish. Res. Inst.)</p>
15:40	<p>Break</p>
	<p>【M: Public Program: Report of Sturgeon in Hokkaido】 (in Japanese language only) Chair, Seiji Katakura (City of Mombetsu)</p>
16:00	<p>M-11 Potential for sturgeon farming in Shibetsu town, Hokkaido Masaki Ichimura (Shibetsu Salmon Museum)</p>
16:40	<p>M-12 Rearing experiment of sturgeon in the Okhotsk coastal water of Mombetsu ◇Keijiro Sutou, Mizuho Takuma (Okhotsk Garinko & Tower Co., Ltd.), Seiji Katakura (City of Mombetsu), Shota Suzuki, Akifumi Furuichi (Bifuka Develop. Corp.) and Shinji Adachi (Hokkaido Univ.)</p>
17:10	<p>M-13 Expertise and perspective of Sturgeon farming in Bifuka Town, Hokkaido Shota Suzuki (Bifuka Develop. Corp.)</p>
19:00	<p>Dinner Party for Friendship between Scientists & Volunteers <Mombetsu Central Hotel></p>

	【 F : Sea Ice Observation 】	Chair, Kazutaka Tateyama (Kitami Inst. Tech.)
9:00	F-1 Monitoring small-scale sea ice motion with space-based and land-based radar ◇Andrew R. Mahoney, Dyre O. Dammann, Hajo Eicken, Mark A. Johnson, Joshua M. Jones and Franz J. Meyer (Univ. Alaska Fairbanks, USA)	
9:20	F-2 Satellite observation of the dynamic deformation of sea ice ◇Noriaki Kimura, Syungo Yaguchi, Hajime Yamaguchi and Hiroyasu Hasumi (Univ. Tokyo)	
9:40	F-3 Investigation of variability of sea-ice thickness in the Beaufort Sea by using in-situ data and satellite observations during 2012-2016 ◇Seita Hoshino, Kazutaka Tateyama (Kitami Inst. Tech.), Richard A. Krishfield (Woods Hole Oceanographic Inst., USA) and Bill Williams (Inst. Ocean Sci., Canada)	
10:00	Break	
10:10	F-4 Preparing an UAV for drift ice observation ◇Kanichiro Matsumura (Tokyo Univ. Agriculture)	
10:30	F-5 Sea ice field course at Saroma Lagoon and Okhotsk Sea by International Antarctic Institute ◇Shigeru Aoki, Yasushi Fukamachi, Takenobu Toyota, Toru Hirawake, Genta Mizuta Yoshimasa Matsumura and Kay I. Ohshima (Hokkaido Univ.)	
11:00 11:30	【 Closing Session 】 A Review of the Symposium: Prize-awarding Ceremony of the Aota Masaaki Award Closing Remarks: Shuhei Takahashi (Chair, Symposium Committee)	Chair, Seiji Katakura (City of Mombetsu)
12:00	Lunch	
13:30 16:00	【 M : Public Program : Symposium on the Forest-Ocean Linkage 】 <i>(in Japanese language only)</i> M-14 Forests, forestry and wood industry in Okhotsk region Morio Kudo (Okhotsk General Subprefectural Bureau) M-15 Promotion of MOCCA City - Aiming for self-sufficient city development Sokichi Sano (Sumitomo Forestry Co., Ltd.) M-16 New wooden building material, cross-laminated-timber (CLT) Masahiko Toda (Hokkaido Res. Organization Forest Products Res. Inst.)	

Wednesday 22 Feb. 2017

Mombetsu Arts & Culture Center

Place: 3F Sea Ice

	【M: Public Program: Our Home Okhotsk Sea】 <i>(in Japanese language only)</i> Chair, Masaki Fujiwara (City of Mombetsu)
9:00	M-17 Seafood cooking is fun! -The great gift from the Okhotsk Sea- Reiko Watanabe (Mombetsu Fish. Co-op. Association, Women's Group)
9:35	M-18 The Okhotsk Sea around Mombetsu and Scallop fishery Masahiro Nara (Abashiri-Seibu Fish. Tech. Guidance Office)
10:20	M-19 Anadromous fish in the Abashiri Lake -Life history strategies and population sizes in chum salmon and pond smelt- Mitsuhiro Nagata (Abashiri Fish. Res. Inst.)
12:00	Lunch
13:00 16:00	【Public Program : Symposium for Public Education】 <i>(in Japanese language only)</i> The Multipurpose Utilization and Possibility of the Dome Screen Projection Hall Chair, Takashi Kuwahara (Okhotsk Sea Ice Museum) 『Part 1 Presentations』 I Koichi Tago (Kushiro Children's Museum, Kodomo Yugakukan) II Katsuaki Hiyama (Sapporo Science Center) III Ken Tsukada (Hiratsuka City Museum) 『Part 2 Discussion』

Wednesday 22 Feb. 2017

Mombetsu Citizens' Public Hall

Place: 2F Hall

9:30 11:30	【Public Program: Symposium for Public Education】 <i>(in Japanese language only)</i> Presentations by Junior-High School Students
	Lunch
13:10 14:30	【Public Program: Symposium on Sea Ice for Children and Parents】 I . Alaskan nature and life Andy Mahoney (Univ. Alaska Fairbanks, USA) II . Wonder of sea ice in Okhotsk Sea Shuhei Takahashi (Okhotsk Sea Ice Museum) III . Quiz about sea ice and Alaska Shuhei Takahashi (Okhotsk Sea Ice Museum), Andy Mahoney and Ellie Mahoney (Univ. Alaska Fairbanks, USA)

13:00 17:50	<p>【Public Program: The Okhotsk Terroir Symposium 2017 in Mombetsu】</p> <p>Deep Argument and Dispatch of the Values of Okhotsk</p> <p>「6 Presentations and Panel Discussion」</p>
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【P: Poster Session II】

P-10 Monitoring snow and ice conditions in the Heilongjiang, the northernmost river of China

Xiao Deng (Taiyuan Univ. Tech., China/College of Physics and Optoelectronics, China), Bin Cheng (Finnish Meteorological Inst., Finland), Liqin Cui, Li Zhang (College of Physics & Optoelectronics, China), Jiechen Zhao (Natl. Mar. Environmental Forecasting Center, China), Lin Zhang (Taiyuan Univ. Tech., China/College of Mechanical Eng., China), Matti Leppäranta (Univ. Helsinki, Finland), Yansheng Hao, Jizhou Wei (College of Physics & Optoelectronics, China) and Jianmin Qin (Taiyuan Univ. Tech., China/College of Physics & Optoelectronics, China)

P-11 An automated algorithm for detection of snow and ice thickness on the basis of data from SIMBA sea ice mass balance buoy

Zeliang Liao (Natl. Mar. Environmental Forecasting Center, China), Bin Cheng (Finnish Meteorological Inst., Finland), Jiechen Zhao (Natl. Mar. Environmental Forecasting Center, China/Finnish Meteorological Inst., Finland), Timo Vihma (Finnish Meteorological Inst., Finland), Qinghua Yang and Lin Zhang (Natl. Mar. Environmental Forecasting Center, China)

P-12 Arctic Basin and carbon dioxide cycle

Vladimir Yu. Soldatov and Vladimir F. Krapivin (Kotelnikov's Inst. of Radioeng. and Electronics, Russia)

P-13 Simulation model of the Arctic Basin ecosystem

Vladimir F. Krapivin, Ferdenant A. Mkrtychyan and Vladimir Yu. Soldatov (Kotelnikov's Inst. of Radioeng. and Electronics, Russia)

P-14 Multi-functional information-modeling system (MFIMS) in the water quality monitoring

◇Ferdenant A. Mkrtychyan and Vladimir F. Krapivin (V.A. Kotelnikov's Inst. Radioeng. Electronics, Russia)

P-15 Zoarcidae in longline catch in the Sea of Okhotsk

Oleg Z. Badaev and Dmitriy G. Kravchenko (TINRO-Center, Russia)

P-16 Thermohaline water structure on the oceanographic sections in the northwestern Japan Sea in spring of 2016

Boris S. Dyakov (TINRO-Centre, Russia)

