

9:00	<b>【 Opening Address 】</b> Shuhei Takahashi Chair of the Symposium Committee Chair, Seiji Katakura (City of Mombetsu) Chair, Norimichi Morino (City of Mombetsu)
9:10	◆ Signing Ceremony of the Comprehensive Partnership between the Institute of Low Temperature Science, Hokkaido University and the City of Mombetsu Naoto Ebuchi Director, Institute of Low Temperature Science, Hokkaido University Yoshikazu Miyakawa Mayor, City of Mombetsu 「Memorial Lectures」 I Naoto Ebuchi (Hokkaido Univ.) II Katsushi Iwamoto (City of Mombetsu)
9:50	Break
	<b>【 A : Keynote Address 】</b> Chair, Koh Izumiyama (Hokkaido Univ.) and Shuhei Takahashi (Sea Ice Museum)
(10:00)	<b>A-1</b> Situation in the Arctic region and Japan's Arctic policy Keiji Ide (Japanese Ambassador for Arctic Affairs)
10:00	<b>A-2</b> Future development strategy for the NSR Bjørn Gunnarsson (Nord Univ., Norway)
10:30	<b>A-3</b> Temperature impacts on Polar cod ( <i>Boreogadus saida</i> ) during the first year of life ◇ Benjamin J. Laurel (AFSC, NOAA, USA) and Louise A. Copeman (Oregon State Univ. USA)
11:00	<b>A-4</b> Avalanche danger on the marine terraces of the Okhotsk Sea on Sakhalin Island ◇ Nikolay Kazakov and Yuriy Gensiorovskiy (Far East Geological Inst., Russia)
12:00	Lunch
	<b>【 M1 : Public Program : Introduction of the Northern Sea Route and its Prospects 】</b> <i>(in Japanese language only)</i> Chair: Shin Ohnuki (Japan Assoc. Mar. Safety)
14:00	Introduction, Shin Ohnuki (Japan Assoc. Mar. Safety)
14:05	<b>M1-1</b> Review and outlook for the Arctic shipping 2017 Hiroyuki Goda (Tokai Univ.)
14:25	<b>M1-2</b> Contribution of Hokkaido to the plant-module transportation through the Arctic Ocean Kota Ueki (JGC Corp.)
14:45	<b>M1-3</b> LNG Transportation from Arctic Sea ~ YAMAL LNG Project ~ Shiro Izumi (Mitsui O.S.K. Lines, Ltd.)
15:05	<b>M1-4</b> Trivia of Arctic Navigation Shin Ohnuki (Japan Assoc. Mar. Safety)
15:25	Break
15:45	<b>M1-5</b> Training for ships operating in polar waters ◇ Yoshifumi Ichikawa and Tomoyasu Izaki (Japan Agency Mar. Edu. & Training for Seafarers)
16:05	<b>M1-6</b> Sea ice analysis and forecast for Arctic navigation Genki Sagawa (Weathernews Inc.)
16:25	<b>M1-7</b> About business of the "Ice Information center, JAPAN" Akira Furuta (Japan Coast Guard)
16:45	Review, Shin Ohnuki (Japan Assoc. Mar. Safety)
18:30	White Concert 『Okhotsk Sea Ice Museum』



Canceled  
Time reprogrammed


10:00	<p><b>【M2 : Workshop, Oil Pollution】</b> <span style="float: right;"><i>(in Japanese language only)</i></span>  『The Beautiful Sea in Eternity』</p>
12:00	Lunch
14:00	<p><b>【B : Workshop, Application of the Knowledge of Arctic Sciences to Navigation over the Ice-Covered Ocean】</b> <span style="float: right;">Chair, Jun Inoue (NIPR)</span>  Introduction, Jun Inoue (NIPR)  『Predictability Studies of Sea Ice』</p>
14:05	<p><b>B-1</b> Medium-range predictability of summertime sea ice thickness distribution in the East Siberian Sea on TOPAZ4 data assimilation system  ◇Takuya Nakanowatari, Jun Inoue (NIPR), Kazutoshi Sato (Antarctic Climate &amp; Ecosystems Coop. Res. Centre, Australia), Laurent Bertino, Jiping Xie (Nansen Environ. &amp; Remote Sensing Center, Norway), Mio Matsueda, Akio Yamagami (Univ. Tsukuba), Hironori Yabuki, Takeshi Sugimura (NIPR) and Natsuhiko Otsuka (Hokkaido Univ.)</p>
14:25	<p><b>B-2</b> Sensitivity analysis of sea ice using a global ocean–sea ice adjoint model  ◇Takahiro Toyoda, Nariaki Hirose, L. Shogo Urakawa, Norihisa Usui, Yosuke Fujii, Hideyuki Nakano Kei Sakamoto, Hiroyuki Tsujino, Goro Yamanaka and Yukitomo Tsutsumi (Japan Meteorological Agency)</p>
14:45	<p><b>B-3</b> Predictability of Arctic sea ice in climate model MIROC: toward skillful seasonal forecast  ◇Jun Ono, Hiroaki Tatebe and Yoshiki Komuro (JAMSTEC)</p>
15:05	Break
15:20	<p>『Predictability Studies of Weather and Waves』 <span style="float: right;">Chair, Kazuaki Nishii (Mie Univ.)</span>  <b>B-4</b> Effects of different dynamical cores on atmospheric model simulations of the Arctic climate  ◇Sang-Yoon Jun (Korea Polar Res. Inst., Korea), Suk-Jin Choi (Korea Inst. Atmos. Prediction Syst., Korea) and Baek-Min Kim (Korea Polar Res Inst., Korea)</p>
15:40	<p><b>B-5</b> Arctic summer storm track in CMIP3/5 climate models  ◇Kazuaki Nishii (Mie Univ.), Hisashi Nakamura (Univ. Tokyo) and Yvan J. Orsolini (Norwegian Inst. Air Res., Norway)</p>
16:00	<p><b>B-6</b> How well do operational forecasting systems predict summertime Arctic Cyclones?  ☆A◇Akio Yamagami (Univ. Tsukuba) and Mio Matsueda (Univ. Tsukuba/ Univ. Oxford, UK)</p>
16:20	<p><b>B-7</b> Wave forecast for the Arctic Ocean  ☆A◇Takehiko Nose, Takuji Waseda (Univ. Tokyo), Adrean Webb (Kyoto Univ.), Jun Inoue (NIPR) and Kazutoshi Sato (Univ. Tasmania, Australia)</p>
16:40	<p><b>B-8</b> Comparison of the Arctic tropospheric structures from the ERA-Interim reanalysis with in situ observations  ◇Jun Inoue (NIPR), Kazutoshi Sato (Antarctic Climate &amp; Ecosystems Coop. Res. Centre, Australia) and Kazuhiro Oshima (JAMSTEC)</p>
17:00	Break
17:15	<p>『Development of Sea-ice Thickness Algorithm from Satellites』 <span style="float: right;">Chair, Takahiro Toyoda (Japan Meteorological Agency)</span>  <b>B-9</b> An algorithm for estimating sea-ice type from AMSR-E data in the Beaufort Sea  Yasuhiro Tanaka, ◇Kazutaka Tateyama and Seita Hoshino (Kitami Inst. Tech.)</p>
17:35	<p><b>B-10</b> Validation and evaluation of sea-ice thickness derived from satellite altimeter SIRAL in the Arctic  ☆A◇Seita Hoshino and Kazutaka Tateyama (Kitami Inst. Tech.)</p>
17:55	<p><b>B-11</b> Development of a new algorithm to estimate Arctic sea-ice thickness based on Advanced Microwave Scanning Radiometer 2 data  ◇Kazutaka Tateyama (Kitami Inst. Tech.), Jun Inoue (NIPR), Seita Hoshino, Shota Sasaki and Yasuhiro Tanaka (Kitami Inst. Tech.)</p> <p>Discussion</p>
18:30	White Concert 『Okhotsk Sea Ice Museum』



9:00	
12:00	Lunch
13:00   14:00	<p><b>【 P : Poster Session 】</b></p> <p><b>P-1</b> Impacts on farmed Atlantic salmon escape into Pacific and Pacific salmon invasion in Atlantic Ikutaro Shimizu (Hokkaido Natl. Fish. Res. Inst.)</p> <p><b>P-2</b> Relationship between the breeding migration of snow crab and bottom temperature in the southwestern Okhotsk Sea ◇Tomonori Hamatsu, Mitsuhiro Ishino (Hokkaido Natl. Fish. Res. Inst.) and Seiji Katakura (City of Mombetsu)</p> <p><b>P-3</b> Shell density measurements of thecosomatous pteropods in the Arctic Ocean ◇Erina Shima (Ishinomaki Senshu Univ.), Katsunori Kimoto (JAMSTEC) and Hiroshi Sasaki (Ishinomaki Senshu Univ.)</p> <p><b>P-4</b> Avalanches of plains Darya Bobrova (Far East Geological Inst., Russia)</p> <p><b>P-5</b> Methods of evaluation the snowiness winters on the example of the control area (South Sakhalin) Alexandra Muzychenko and ◇Valentina Lobkina (Far East Geological Inst., Russia)</p> <p><b>P-6</b> Changes of sea-ice nomenclature from WMO 1970 to WMO 2014 –What is the English name of “Ryuhyo” (in Japanese)? – ◇Shuhei Takahashi (Sea Ice Museum) and Takenobu Toyota (Hokkaido Univ.)</p> <p><b>P-7</b> Experimental evaluation of mobile underwater acoustic communication in Mombetsu Port ◇Shingo Yoshizawa (Kitami Inst. Tech.), Takashi Saito, Yusaku Mabuchi (Mitsubishi Electric TOKKI Sys. Corp.), Tomoya Tsukui and Shinichi Sawada (IHI Corp.)</p> <p><b>P-8</b> Geochemical characteristics of patterns of dissolved rare earth elements in rivers in the east coast of Shiretoko Peninsula, Japan ◇Shunsuke Hiroki, Katsuaki Komai and Kei Matsumoto (Kitami Inst. Tech.)</p> <p><b>P-9</b> Influence of snowmelt on longshore distribution of tidal flats soil salinity in a lagoon of the Sea of Okhotsk ◇Tatsuya Sato and Katsuaki Komai (Kitami Inst. Tech.)</p> <p><b>P-10</b> Characteristics of organic matter in stream water supplied to the coast of cold region in Japan ◇Hajime Kasama and Katsuaki Komai (Kitami Inst. Tech.)</p> <p><b>P-11</b> Transformation of internal breathers over sloped bottom in a rotating ocean Ekaterina Rouvinskaya, Andrey Kurkin, Oxana Kurkina, Ayrat Giniyatullin and ◇Vitaly Kuzin (Nizhny Novgorod State Tech. Univ. n.a. R.E. Alekseev, Russia)</p> <p><b>P-12</b> Some aspects of the dynamics of long internal waves in the Sea of Okhotsk in the context of their impact on offshore platforms Ekaterina Rouvinskaya, Andrey Kurkin, Oxana Kurkina (Nizhny Novgorod State Tech. Univ. n.a. R.E. Alekseev, Russia), Andrey Zaytsev (Special Res. Bu. Automation Mar. Res., Russia) and ◇Vitaly Kuzin (Nizhny Novgorod State Tech. Univ. n.a. R.E. Alekseev, Russia)</p> <p><b>P-13</b> Freak waves observations in the southern coastal zone of Sakhalin Island Andrey Zaytsev (Special Res. Bu. Automation Mar. Res., Russia), ◇Vitaly Kuzin (Nizhny Novgorod State Tech. Univ. n.a. R.E. Alekseev, Russia), Efim Pelinovsky (Inst. Applied Physics, RAS, Russia) and Andrey Kurkin (Nizhny Novgorod State Tech. Univ. n.a. R.E. Alekseev, Russia)</p> <p><b>P-14</b> Features of the dynamics of long waves of different polarity along the flat slope: laboratory experiments and numerical experiments Artem Rodin, Andrey Kurkin, ◇Vitaly Kuzin, Nikita Likhodeev and Andrey Zemlyanikin (Nizhny Novgorod State Tech. Univ. n.a. R.E. Alekseev, Russia)</p> <p><b>P-15</b> Local performing arts Fisherman's work dance song “Mombetsu Okiage Ondo” Masaya Yamada (Hokkaido Industrial Archaeology Society/Hokkaido Cultural Property Protection Assoc./City of Mombetsu)</p>
18:30	White Concert 『Okhotsk Sea Ice Museum』

9:00	
12:00	Lunch
	<p><b>【C : Snow, Ice and Human Life】</b>  Chair, Nikolay A. Kazakov (Far East Geological Inst., Russia)  Shuhei Takahashi (Sea Ice Museum)</p>
14:00	<p><b>C-1</b> Optical properties of aerosol observed at Abashiri  ☆A◇Yuko Ashida (Abashiri Local Meteorological Office) and Kazuma Aoki (Toyama Univ.)</p>
14:20	<p><b>C-2</b> The structure of the snow pack on the east coast of Sakhalin Island  ◇Nikolay A. Kazakov and Yulia A. Stepnova (Far East Geological Inst., Russia)</p>
14:40	<p><b>C-3</b> The impact of the anthropogenic snow patches on human life  ☆A◇Valentina A. Lobkina (Far East Geological Inst., Russia)</p>
15:00	Break
15:10	<p><b>C-4</b> ICT-Assisted drill in crisis management in the event of an avalanche: avalanche response drill conducted in February 2017 with public-private collaboration  Kazuya Banzai (Niigata Pref. Disaster Prevention Bu.), ☆A◇Ami Yoshida (Niigata Pref. Regional Promotion Bu.), Makoto Machida and Takashi Machida (Machida Constr. Co. Ltd)</p>
15:30	<p><b>C-5</b> The snow hazard on the Sakhalin Island  ☆A◇Ekaterina N. Kazakova and Valentina A. Lobkina (Far East Geological Inst., Russia)</p>
15:50	<p><b>C-6</b> A study on footpaths as an open space using regional resources for tourism in Hokkaido  ◇Hiroshi Ota, Satoshi Kasama, Yasuaki Matsuda and Keisuke Iwata (Civil Eng. Res. Inst. Cold Region)</p>
16:10	Break
	<p><b>【P : Poster Session 「Exhibition」】</b></p> <p><b>P-16</b> Possible influence of the Okhotsk Sea water warming on the distribution of <i>Lycodes soldatovi</i> (Perciformes: Zoarcidae)  Oleg Z. Badaev and Alexander L. Figurkin (TINRO Center, Russia)</p> <p><b>P-17</b> Evolution of the Japan Sea water structure at the oceanographic section in 2017  Boris S. Dyakov (TINRO Center, Russia)</p> <p><b>P-18</b> Simulation model of pollutant spreading in the Arctic basin ecosystem  Vladimir F. Krapivin and Vladimir Yu. Soldatov (Kotelnikov's Inst. Radioeng. Electronics, Russia)</p> <p><b>P-19</b> Methodology for processing of vectored ice charts for receiving statistical ice information along standard ship routes  Victor Tretyakov (Arctic Antarctic Res. Inst./Petersburg State Univ., Russia) and Sergey Frolov (Arctic Antarctic Res. Inst., Russia)</p> <p><b>P-20</b> Species composition of ichthyoplankton in the waters of northern Kuril Islands in May, 2016  Olga N. Mukhametova and Ilyas N. Mukhametov (SakhNIRO, Russia)</p> <p><b>P-21</b> High abundance of pteropods <i>Limacina</i> spp. in the seasonal ice zone of the Antarctic Ocean, summer 2000  Kunio T. Takahashi (NIPR/SOKENDAI), Haruko Umeda (Kaizansenri Inc.) and Tsuneo Odate (NIPR/SOKENDAI)</p> <p><b>P-22</b> On the long-term fluctuation of temperature, water temperature and sea ice in Mombetsu sea area of the Sea of Okhotsk  Katsushi Murai, Keijiro Sudo and Mizuho Takuma (Okhotsk Garinko &amp; Tower Co., LTD)</p>
18:30	White Concert 『Okhotsk Sea Ice Museum』


9:00	
12:00	Lunch
	<p><b>【 M3 : Public Program: Our Home Okhotsk Sea 】</b> <span style="float: right;"><i>(in Japanese language only)</i></span>  <span style="float: right;">Chair, Masaki Fujiwara (City of Mombetsu)</span></p>
14:00	Introduction, Kenichi Nara and Seiji Katakura (City of Mombetsu)
14:10	<b>M3-1</b> Influence of the global warming on Japanese chum salmon Masahide Kaeriyama (Hokkaido Univ.)
14:45	<b>M3-2</b> Efforts to support for Scallop fishery Masahiro Nara (Abashiri-Seibu Fish. Tech. Guidance Office)
15:20	Break
	Chair, Seiji Katakura (City of Mombetsu)
15:30	<b>M3-3</b> Sturgeon aquaculture in Bifuka Naonobu Tsutsumi (Bifuka Develop. Corp.)
16:05	<b>M3-4</b> Reminiscent pack ice fields off east coast off Sakhalin, the last seal hunting there, with some notes on the status of Cetacean stocks Hidehiro Kato (Tokyo Univ. Mar. Sci. Tech.)
16:40	Break
16:50	Discussion, Tsuneo Nishiyama (Tokai Univ.)
18:30	White Concert 『Okhotsk Sea Ice Museum』

	<p><b>【D : Workshop, Challenge Toward Sustainable Use of the Northern Sea Route】</b>                  Chair, Natsuhiko Otsuka (Hokkaido Univ.)</p>
9:00	Introduction, Natsuhiko Otsuka (Hokkaido Univ.)
9:05	<p><b>D-1</b> Northern Sea Route and international relations in the Arctic                  ◇Fujio Ohnishi (Hokkaido Univ.)</p>
9:25	<p><b>D-2</b> Analysis on the recent trend of NSR by satellite-based AIS: from users' point of view                  ◇Motohisa Abe (Hokkaido Univ.), Shuji Shimizu (JAXA), Ryohei Shirakuma (Hokkaido Regional Develop. Bu.), Kengo Tazawa (Aomori Pref. Govt.), Souichi Yamagata (Natl. Inst. Land &amp; Infrastructure Mgt.) and Hironao Takahashi (Waterfront Vitalization &amp; Environ. Res. Foundation)</p>
9:45	<p><b>D-3</b> The Northern Sea Route, recent activities and trend                  ◇Natsuhiko Otsuka, Xiaoyang Li and Koh Izumiyama (Hokkaido Univ.)</p>
10:05	<p><b>D-4</b> Characteristics of sea ice condition along the Northern Sea Route                  ◇Natsuhiko Otsuka, Xiaoyang Li and Koh Izumiyama (Hokkaido Univ.)</p>
10:25	Break
10:35	<p><b>D-5</b> Field investigation of impinging seawater spray on the R/V Mirai using spray particle counter type sea spray meter                  ◇Toshihiro Ozeki (Hokkaido Univ. Edu.), Shin Toda and Hajime Yamaguchi (The Univ. Tokyo)</p>
10:55	<p><b>D-6</b> Study on observation of ice condition and ship speed using satellite remote sensing in the Northern Sea Route                  ☆A◇Hayato Okuda, Kazutaka Tateyama (Kitami Inst. Tech.) and Natsuhiko Otsuka (Hokkaido Univ.)</p>
11:15	<p><b>D-7</b> Global dynamic window approach for ice sea navigation using vessel radar image                  ◇Toshiyuki Takagi (Natl. Inst. Tech., Kushiro College) and Kazutaka Tateyama (Kitami Inst. Tech.)</p>
11:35	<p><b>D-8</b> The oil and gas development in the Arctic region-its significance and future prospect                  Masumi Motomura (JOGMEC)</p>
11:55	<p><b>D-9</b> Current activities and perspectives of the Arctic tourism                  ◇Masato Tanaka (Hokkaido Univ.) and Taro Osabe (Hitachi Ltd.)</p>
12:15	Lunch
13:00	<p><b>【E : Workshop, Activities Industry-Government-Academia Collaborative Research on the Arctic Region Supported by J-ARC Net】</b>  See the next page</p>
15:50	Break
16:00   18:00	<p><b>【M4 : Public Program: How Do We Act at Heavy Snowstorm in Okhotsk Area?】</b>   See the next page</p>
19:00	Dinner Party for Friendship between Scientists & Volunteers 『Mombetsu Central Hotel』

9:00	<b>【D : Workshop, Challenge Toward Sustainable Use of the Northern Sea Route】</b>  See the previous page
12:15	Lunch
	<b>【E : Workshop, Activities Industry-Government-Academia Collaborative Research on the Arctic Region Supported by J-ARC Net】</b> Chair, Masato Tanaka (Hokkaido Univ.)
13:00	Introduction, Masato Tanaka (Hokkaido Univ.) 『Outline of Activities on J-ARC Net』
13:05	<b>E-1</b> Activities to promote industry-government-academia collaborative research on the Arctic region ◇Masato Tanaka and Sei-Ichi Saito (Hokkaido Univ.) 『Common Subjects in the Arctic Region』
13:25	<b>E-2</b> Future scenarios for Arctic 2050 ◇Taro Osabe (Hitachi Ltd.), Jun Fukuda (Esri Japan Corp.), Toshihiko Hara (Sapporo City Univ.) Fujio Ohnishi, Natsuhiko Otsuka, Sei-Ichi Saito, Atsuko Sugimoto, Minoru Takahashi, Masato Tanaka Shingo Tanaka (Hokkaido Univ.) and Hiroyuki Yasunaga (Hokkaido Res. Inst. Twenty-first Century Co., Ltd.)
13:45	<b>E-3</b> Arctic technology research forum to consolidate opinions from industry ◇Akira Kurokawa (Eng. Adv. Assoc. Japan), Hajime Yamaguchi (Univ. Tokyo), Hiroshi Yoshinaga (Mitsubishi Heavy Industries Ltd.), Kay I. Ohshima (Hokkaido Univ.), Hironori Yabuki Yuji Kodama (NIPR) and Takashi Kikuchi (JAMSTEC)
14:05	Break
	『Individual Subjects in the Arctic Region』
14:10	<b>E-4</b> Study on navigability of the Arctic Sea Route ◇Natsuhiko Otsuka (Hokkaido Univ.), Hajime Yamaguchi (Univ. Tokyo), Kazutaka Tateyama (Kitami Inst. Tech.) and Takao Kashiwagi (Mitsui O. S. K. Lines, Ltd.)
14:30	<b>E-5</b> Assessing and mediating damages on infrastructure and changes in ground surface due to permafrost thaw ◇Go Iwahana (Hokkaido Univ./Univ. Alaska, USA), Takahiro Abe (JAXA), Takumi Kawamura (IWATA CHIZAKI Inc.), Syunji Kanie (Hokkaido Univ.), Takeo Tadono (JAXA), Masato Furuya (Hokkaido Univ.), Yoshihiro Iijima (Mie Univ.), Aleksandr Fedorov (Yakutsk Permafrost Inst., Russia) Yuri Zhegusov (Inst. Humanities Indigenous People North, Russia) and Anastasia Tseeva (Yakut State Design Res. Inst. Const., Russia)
14:50	<b>E-6</b> Activity of sea ice engineering and permafrost engineering in Japan –Research history and future prospects– ◇Satoshi Akagawa (Cryosphere Eng. Lab.), Shunji Kanie (Hokkaido Univ.), Takahiro Takeuchi (Hachinohe Inst. Eng.), Toshio Sone (Hokkaido Univ.), Yuji Kodama (NIPR), Akira Kurokawa (Eng. Adv. Assoc. Japan), Naoki Nakazawa (Syst. Eng. Assoc., Inc.) and Takashi Terashima (Kumashiro Syst. Frontier Co., Ltd.)
15:10	<b>E-7</b> Research on oil spill response technology in cold water condition –State-of-the-art of the recent studies– ◇Naoki Nakazawa (Syst. Eng. Assoc., Inc.), Hajime Yamaguchi (Univ. Tokyo), Akira Kurokawa (Eng. Advancement Assoc. Japan), Jun Ono (JAMSTEC), Takashi Terashima (Kumashiro Syst. Frontier Co., Ltd.), Genki Sagawa (Weathernews Inc.), Shuho Yano (Japan Workvessel Assoc.) and Kay I. Ohshima (Hokkaido Univ.)
15:30	<b>E-8</b> A study on the influence of environmental changes in the Arctic region on Japanese fishery resources (The case of salmon) ◇Atsumi Kataishi (Chuo Univ.), Masahide Kaeriyama (Hokkaido Univ.), Takashi Terashima (Kumashiro Syst. Frontier Co., Ltd.) and Mitsuhiro Nagata (Hokkaido Aquaculture Promotion Corp.)
15:50	Break
	<b>【M4 : Public Program: How Do We Act at Heavy Snowstorm in Okhotsk Area?】</b> <i>(in Japanese language only)</i> Chair, Masaki Minakawa (Abashiri Develop. & Constr. Dept.)
16:00	Introduction, Kazuhiro Takahashi (Abashiri Develop. & Constr. Dept.)
16:05	<b>M4-1</b> Characteristics of snowstorms in the Okhotsk area –How to utilize weather information for disaster prevention– Masayuki Sato (Abashiri Local Meteorological Office)
16:25	<b>M4-2</b> Disaster support for snowstorms by Abashiri Development and Construction Department Akihito Kon (Abashiri Develop. & Constr. Dept.)
16:45	Panel Discussion
19:00	Dinner Party for Friendship between Scientists & Volunteers 『Mombetsu Central Hotel』


	<b>【F : Engineering-1】</b>	Chair, Takenobu Toyota (Hokkaido Univ.)
9:00	<b>F-1</b> Design parameters of sea ice thickness Anatoliy Polomoshnov (LLC “Rosneft-Shelf-Arctic”, Russia)	
9:20	<b>F-2</b> The measurement of ice thickness using an electro-magnetic induction device onboard a sled in Saroma-ko Lagoon and at Syowa Station, Antarctica ☆ <b>A</b> ◇Momoi Kita, Kazutaka Tateyama, Seita Hoshino (Kitami Inst. Tech.) and Kazuki Nakamura (Nihon Univ.)	
9:40	<b>F-3</b> Multi-robot system for monitoring ice and wave climate in coastal zone ☆ <b>A</b> ◇Vitaly Kuzin, Andrey Kurkin, Dmitry Tyugin (Nizhny Novgorod State Tech. Univ. n.a. R.E. Alekseev, Russia), Andrey Zaytsev (Far Eastern Branch of RAS, Russia), Denis Zeziulin, Pavel Beresnev and Vladimir Belyakov (Nizhny Novgorod State Tech. Univ. n.a. R.E. Alekseev, Russia)	
10:00	<b>F-4</b> LED ellipsometry and photometry in monitoring aquatic environment ◇Ferdenant Mkrtychyan and Vladimir Kovalev (Kotelnikov’s Inst. Radioeng. Electronics, Russia)	
10:20	Break	
	<b>【F : Engineering-2】</b>	Chair, Shotaro Uto (Natl. Mar. Res. Inst.)
10:30	<b>F-5</b> Development of safe voyage planning system for NSR and the 2nd validation test in East Siberian Sea ◇Kuk-Jin Kang, Seong-Yeob Jeong, Jin-Ho Jang (Korea Res. Inst. Ships & Ocean Eng., Korea) and Jeong-Joong Kim (Chung-Nam Natl. Univ., Korea)	
10:50	<b>F-6</b> Preliminary calculation of ship maneuvering control in pack ice ◇Junji Sawamura (Osaka Univ.) and Egil Pedersen (UiT Arctic Univ. Norway, Norway)	
11:10	<b>F-7</b> An introduction of the project on the development of hull form of year-round floating-type offshore structure in the Arctic Ocean with DP and mooring system ◇Young-Shik Kim, Hyung-Do Song, In-Bo Park, Tae-Hwan Joung and Kuk-Jin Kang (Korea Res. Inst. Ships & Ocean Eng., Korea)	
11:30	<b>F-8</b> The study on HAZID for the FPSO assisted by the DP and mooring system under the Arctic condition ◇Tae-Hwan Joung, Young-Shik Kim, Kuk-Jin Kang (Korea Res. Inst. Ships & Ocean Eng., Korea) Kwang-Hyo Jung and Min-Kyeong Lee and Sung-Boo Park (Pusan Natl. Univ. Korea)	
11:50	<b>F-9</b> A study of estimation method of ice resistance in ice ridge condition ◇Hyunsoo Kim (Inha Tech. College, Korea), Seong-yep Jeong (Korea Res. Inst. Ships & Ocean Eng., Korea), Dong-Wha Han and Jae-bin Lee (Inha Univ., Korea)	
12:10	Lunch	
13:10	<b>【F : Engineering-3】</b> <b>【G : Physical Oceanography, Engineering】</b>	 See the next page
19:00	Dinner Party for Friendship between Scientists & Volunteers 『Mombetsu Central Hotel』	



9:00	<b>【F : Engineering-1 &amp; 2】</b>  See the previous page
12:10	Lunch
13:10	<p><b>【F : Engineering-3】</b> Chair, Kuk-Jin Kang (Korea Res. Inst. Ships &amp; Ocean Eng., Korea)</p> <p><b>F-10</b> A non-contact deterioration investigation for underwater concrete using a parametric transducer          ◇Yuichi Kobayashi, Shigeo Sawaguchi (Civil Eng. Res. Inst. Cold Region) and Norihito Kishi (Hokkaido Regional Develop. Bu.)</p> <p><b>F-11</b> Effect of hama's stimulator of a model ship for the ice model basin on performance prediction          ◇Ryohei Fukasawa, Takatoshi Matsuzawa and Daisuke Wako (Natl. Mar. Res. Inst.)</p> <p><b>F-12</b> The technology of making ice pieces and a brash ice channel for model test          ☆A◇Keisuke Anzai, Yutaka Yamauchi and Shigeya Mizuno (Japan Mar. United Corp.)</p> <p><b>F-13</b> Non-smooth discrete element method simulation on single ice floe - structure Interaction and comparison with result of ice tank test          ☆A◇Kenta Hasegawa, Shotaro Uto, Haruhito Shimoda, Daisuke Wako and Takatoshi Matsuzawa (Natl. Mar. Res. Inst.)</p>
14:30	Break
14:40	<p><b>【G : Physical Oceanography, Engineering】</b> Chair, Jun Ono (JAMSTEC)</p> <p><b>G-1</b> Prediction of the fall sea-ice cover in the Arctic          ◇Noriaki Kimura and Hiroyasu Hasumi (Univ. Tokyo)</p> <p><b>G-2</b> Prediction of autumn Arctic sea ice distribution          ☆A◇Shiau Chou Jen, Hajime Yamaguchi and Noriaki Kimura (Univ. Tokyo)</p> <p><b>G-3</b> Short-term sea ice prediction for Arctic shipping          ◇Waruna Arampath De Silva and Hajime Yamaguchi (Univ. Tokyo)</p> <p><b>G-4</b> Estimation of flat and growing first-year ice draft using AMSR2          ◇Koji Shimada, Takeru Wada (Tokyo Univ. Mar. Sci. Tech.), Eri Yoshizawa, Kyoung-Ho Cho Hyoung-Sul La and Sung-Ho Kang (Korea Polar Res. Inst., Korea)</p> <p><b>G-5</b> Regional and time series analysis on the relationship between sea ice motion and geostrophic wind in the Arctic          ☆A◇Ken Maeda, Hajime Yamaguchi and Noriaki Kimura (Univ. Tokyo)</p> <p><b>G-6</b> Properties of deformed sea ice area in the southern Sea of Okhotsk derived from satellite SAR images          - Application of PALSAR to detecting deformed ice area -          ◇Takenobu Toyota (Hokkaido Univ.) and Junno Ishiyama (Toma Town Office)</p>
19:00	Dinner Party for Friendship between Scientists & Volunteers 『Mombetsu Central Hotel』

	<b>[H : Physical Oceanography, Meteorology]</b>	Chair, Toru Miyama (JAMSTEC)
9:00	<b>H-1</b> On the seasonal variations of the Bering Slope Current ◇Humio Mitsudera, Youichi Hirano and Hatsumi Nishikawa (Hokkaido Univ.)	
9:20	<b>H-2</b> Seasonal variability of hydrographic properties and of the circulation in the Kuril Basin ◇Vigan Mensah, Kay. I. Ohshima (Hokkaido Univ.), Takuya Nakanowatari (NIPR) and Stephen Riser (Univ. Washington, USA)	
9:40	<b>H-3</b> Dense shelf water circulation and spreading from the northern Okhotsk Sea shelves to the deep sea ◇Sergey Gladyshev (Shirshov Inst. Oceanology, Russia), A. L. Figurkin (TINRO Centre, Russia) Haruhiko Kashiwase and Kay. I. Ohshima (Hokkaido Univ.)	
10:00	<b>H-4</b> El Niño and North Pacific intermediate water -The Okhotsk Sea is a thermostat in the Pacific Ocean- Takao Nakajin (Tokai Univ.)	
10:20	Break	
		Chair, Koji Shimada (Tokyo Univ. Mar. Sci. Tech.)
10:30	<b>H-5</b> Seawater transport paths of the North Pacific 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.)	
10:50	<b>H-6</b> Hypothesis of dynamics of water exchange between the Sea of Okhotsk and the Pacific from a point of view of tidal effects ☆A◇Hung Wei Chou, Humio Mitsudera and Hatsumi Nishikawa (Hokkaido Univ.)	
11:10	<b>H-7</b> Impact of interannual variations of sea ice area in the Sea of Okhotsk on the atmosphere and ocean ☆A◇Yusuke Takahashi, Tomohiro Nakamura (Hokkaido Univ.) and Takuya Nakanowatari (NIPR)	
11:30	<b>H-8</b> Recent warming of Oyashio region Toru Miyama (JAMSTEC)	
12:00	Lunch	
19:00	Dinner Party for Friendship between Scientists & Volunteers 『Mombetsu Central Hotel』	

	<b>【I : Marine Organisms and Fisheries in the Ice-Covered Waters】</b>	
	Chair, Hiroshi Sasaki (Ishinomaki Senshu Univ.)	
9:00	<b>I-1</b> Interannual variation in oceanographic environments around Mombetsu during sea-ice season - Comparison of results from monitoring in the Okhotsk Tower and the Garinko-II survey- ◇Hiromi Kasai (Hokkaido Natl. Fish. Res. Inst.), Seiji Katakura (City of Mombetsu), Ryuichi Nagata Katsushi Murai (Garinko & Okhotsk Tower), Soshi Hamaoka (City of Mombetsu)	
9:20	<b>I-2</b> Seasonal variability of zooplankton size spectra at Mombetsu harbor in the southern Okhotsk Sea during 2011: an analysis using an optical plankton counter ☆A◇Hikaru Hikichi, Daichi Arima, Yoshiyuki Abe, Kohei Matsuno (Hokkaido Univ.) Soshi Hamaoka, Seiji Katakura (City of Mombetsu), Hiromi Kasai (Hokkaido Natl. Fish. Res. Inst.) and Atsushi Yamaguchi (Hokkaido Univ.)	
9:40	<b>I-3</b> Morphometric study on feeding appendages of pelagic <i>calanoid copepods</i> : relationship with feeding modes, habitat depths and stable isotopes ☆A◇Sota Komeda, Hiroaki Tamura, Yoshiyuki Abe (Hokkaido Univ.), Maki Noguchi Aita (JAMSTEC), Fujio Hyodo (Okayama Univ.), Susumu Ohtsuka (Hiroshima Univ.) Russell R. Hopcroft (Univ. Alaska, USA) and Atsushi Yamaguchi (Hokkaido Univ.)	
10:00	Break	
	Chair, Satoru Taguchi (Natl. Inst. Polar Res.)	
10:10	<b>I-4</b> Seasonal changes in population structure of four dominant copepods collected by a sediment trap moored in the western Arctic Ocean Koki Tokuhiro, Yoshiyuki Abe, Kohei Matsuno (Hokkaido Univ.), Jonaotaro Onodera, Amane Fujiwara, Naomi Harada (JAMSTEC), Toru Hirawake and ◇Atsushi Yamaguchi (Hokkaido Univ.)	
10:30	<b>I-5</b> High resolution morphometry of shelled pteropods by the X-ray microtomography: a new perspective of ocean acidification study ◇Katsunori Kimoto (JAMSTEC), Keisuke Shimizu (Univ. Exeter, UK), Erina Shima Hiroshi Sasaki (Ishinomaki Senshu Univ.) and Osamu Sasaki (Tohoku Univ. Museum)	
10:50	<b>I-6</b> Methane-induced ocean acidification and planktic foraminifera calcification in the Northern Barents Sea ☆A◇Siri Ofstad, Katarzyna Zamelczyk (Arctic Univ. Norway, Norway), Melissa Chierici (Inst. Mar. Res., Norway), Agneta Fransson (Norwegian Polar Inst., Norway), Pavel Serov and Tine L. Rasmussen (Arctic Univ. Norway, Norway)	
12:00	Lunch	
13:00	<b>【I : Marine Organisms and Fisheries in the Ice-Covered Waters】</b>	👉 See the next page
19:00	Dinner Party for Friendship between Scientists & Volunteers 『Mombetsu Central Hotel』	

9:00	<p><b>【I : Marine Organisms and Fisheries in the Ice-Covered Waters】</b>   See the previous page</p>
12:00	Lunch
13:00	<p><b>【I : Marine Organisms and Fisheries in the Ice-Covered Waters】</b>  Chair, Hiroki Asami (Abashiri Fish. Res. Inst.)</p> <p><b>I-7</b> Migration and homing behavior of chum salmon tagged in the Okhotsk Sea, eastern Hokkaido  ☆A◇Hayato Saneyoshi, Yousuke Koshino (Salmon &amp; Freshwater Fish. Res. Inst.)  Hokuto Shirakawa, Naru Koshida (Hokkaido Univ.), Yasuyuki Miyakoshi (Salmon &amp; Freshwater Fish. Res. Inst.) and Kazushi Miyashita (Hokkaido Univ.)</p> <p><b>I-8</b> The return rate for otolith-marked pink salmon in the Nemuro Strait region, eastern Hokkaido, Japan  Mitsuru Torao (Salmon Freshwater Fish. Res. Inst.)</p> <p><b>I-9</b> Impact of the global warming on migration route of Japanese chum salmon  Masahide Kaeriyama (Hokkaido Univ.)</p> <p><b>I-10</b> Temperature-dependent growth potential impacts recruitment signals in coastal age-0 cod surveys from the Atlantic and Pacific  ◇Benjamin J. Laurel (AFSC, NOAA, USA), David Cote, Robert S. Gregory (St. John's, Newfoundland &amp; Labrador, Canada), Lauren Rogers (Univ. Oslo, Norway/AFSC, NOAA, USA), Halvor Knutsen and Esben Moland Olsen (Univ. Oslo, Norway/Univ. Agder, Norway/Inst. Mar. Res., Norway)</p>
14:20	Break
14:30	<p>Chair, Atsushi Yamaguchi (Hokkaido Univ.)</p> <p><b>I-11</b> Lipid storage and fatty acid biomarkers in juvenile Arctic cod (<i>Boreogadus saida</i>) and saffron cod (<i>Eleginus gracilis</i>) from the Beaufort and Chukchi Seas  ◇Louise Copeman (Oregon State Univ., USA) and Ron Heintz (AFSC, NOAA, USA)</p> <p><b>I-12</b> Effectiveness of mesh bags containing gravel as a method for culturing asari clam <i>Ruditapes philippinarum</i> in Lake Notoro, northern Japan  ◇Yasufumi Hada (Abashiri Fish. Res. Inst.), Kaiti Suezawa (Nishiabashiri Fish. Cooperat. Assoc.)  Satoshi Yamauchi (Abashiri-Toubu Fish. Tech. Guidance Office) and Takumi Iida (Abashiri City)</p> <p><b>I-13</b> A great journey of periwinkle: genetic evidence of trans-Pacific colonization of <i>Littorina sitkana</i> after the last glacial maximum  ◇Noriko Azuma (Mokoto, Abashiri), Nadezhda I. Zaslavskaya (Far Eastern Branch, RAS, Russia)  Tomoyasu Yamazaki (Shellfish Museum of Rankoshi), Takahiro Nobetsu (Shiretoko Nature Foundation) and Susumu Chiba (Tokyo Univ. Agriculture)</p>
15:30	Break
15:40	<p>Chair, Hidehiro Kato (Tokyo Univ. Mar. Sci.)</p> <p><b>I-14</b> Traveling route of a black-eared kite in relation to salmon abundance in south Okhotsk area  ◇Kei Matsumoto, Takao Kameda and Katsuaki Komai (Kitami Inst. Tech.)</p> <p><b>I-15</b> Outline of the first expedition of whale scientific permit survey off coasts of the Okhotsk Sea under the NEWREP-NP program  ◇Hideyoshi Yoshida, Hikari Maeda (Natl. Res. Inst. Far Seas Fish.), Gen Nakamura (Tokyo Univ. Mar. Sci.), Tsutomu Tamura (Inst. Cetacean Res.) and Hidehiro Kato (Tokyo Univ. Mar. Sci.)</p> <p><b>I-16</b> About biocomplexity model of marine ecosystems  ◇Ferdinand Mkrtchyan, Vladimir Krapivin (Kotelnikov's Inst. Radioeng. Electronics, Russia) and Sergey Shapovalov (Shirshov Inst. Oceanology, Russia)</p>
19:00	Dinner Party for Friendship between Scientists & Volunteers 『Mombetsu Central Hotel』

Wednesday 21 Feb. 2018

Mombetsu Arts & Culture Center

Place: 1F Main Hall

	<b>【 M5 : Public Program : The Utilization of the Northern Sea Route 】</b> <i>(in Japanese language only)</i> Chair, Youichi Atsumi (Mombetsu Port Office)
9:00	Introduction, Youichi Atsumi (Mombetsu Port Office)
09:10	<b>M5-1</b> Strategy for the utilization of the Northern Sea Route Noriaki Kawai (Cold Region Port & Harbor Eng. Res. Center)
09:55	<b>M5-2</b> Characteristics of shipping cost via the Northern Sea Route Natsuhiko Otsuka (Hokkaido Univ.)
10:40	Discussion
11:00	<b>【 Closing Session 】</b> Chair, Seiji Katakura (City of Mombetsu)
11:30	A Review of the Symposium: Prize-awarding Ceremony of the Aota Masaaki Award Closing Remarks: Shuhei Takahashi (Chair of the Symposium Committee)
12:00	Lunch
13:30	<b>【 M6 : Public Program : Symposium on the Forest-Ocean Linkage 】</b> <i>(in Japanese language only)</i>
16:00	Toward Industrial Growing of Forestry 「Part 1 : A Role of Forest」 「Part 2 : Let Forestry to be Growing Industry」

Wednesday 21 Feb. 2018

Mombetsu Arts & Culture Center

Place: 3F Special Conference Room

13:30	<b>【 M7 : Public Program : The Okhotsk Terroir Symposium 2018 in Mombetsu 】</b> <i>(in Japanese language only)</i>
17:30	Proposal to Okhotsk Tourism ~ Relay the Richness of Okhotsk to the Future 「Part 1 : Report, Practice, and Proposal」 Assets and Value of the Okhotsk Area, and the Tourism Coming from its Notice and Sharing 「Part 2 : Panel Discussion」 Toward the Construction and Dispatch of New Okhotsk Tourism

Wednesday 21 Feb. 2018

Mombetsu Citizens' Public Hall

Place: Main Hall

9:30	<b>【 Public Program : Symposium for Public Education 】</b> <i>(in Japanese language only)</i>
11:00	Presentations by Junior-High School Students
12:00	Lunch
13:10	<b>【 Public Program : Symposium on Sea Ice for Children and Parents 】</b>
14:30	I Wonder of sea ice in Okhotsk Sea Shuhei Takahashi (Okhotsk Sea Ice Museum) II Family life and nature in your sister city of Newport, Oregon, USA Louise Copeman (Oregon State Univ., USA)