

9:00	<p>【Opening Address】 Shuhei Takahashi (Chair of the Symposium Committee)</p> <p>【A : Keynote Address】 Chair, Shuhei Takahashi (Okhotsk Sea Ice Museum)</p> <p>A-1 Present and future of Arctic marine ecosystem under a changing climate ◇Sei-Ichi Saitoh (Hokkaido Univ.)</p>
9:50	Break
10:00	<p>【B:Environment in Polar Region】 Chair, Takuya Nakanowatari (Hokkaido Natl. Fish. Res. Inst.)</p> <p>B-1 Super-high resolution sea surface temperature derived from Landsat-8: Thermal frontal structures on the Pacific shelf off the southeastern coast of Hokkaido ◇Hiroshi Kuroda and Yuko Toya (Hokkaido Natl. Fish. Res. Inst.)</p> <p>B-2 Surface water pathways and land-ocean freshwater linkages associated with the meridional overturn that ventilates the intermediate layer of the Sea of Okhotsk and North Pacific Ocean ◇Humio Mitsudera (Hokkaido Univ.), Toru Miyama (JAMSTEC), Takayuki Shiraiwa (Hokkaido Univ.), Yoshihiro Tachibana, Kensuke Komatsu (Mie Univ.) and Hatsumi Nishikawa (Hokkaido Univ.)</p> <p>B-3 Formation mechanisms of localized sea ice bands ◇☆A Jumpei Yamamoto and Koji Shimada (Tokyo Univ. Mar. Sci. Tech.)</p> <p>B-4 Improvement of estimation algorithm for thickness of first-year ice in the Arctic using AMSR-E/AMSR2 ◇Kazutaka Tateyama (Kitami Inst. Tech.), Koh izumiyama (Hokkaido Univ.), Yurika Watanabe and Kazutoshi Sato (Kitami Inst. Tech.)</p> <p>B-5 Hardware-software complex for estimation of surface wave characteristics in the coastal zone Andrey Kurkin, ◇☆A Vitaly Kuzin, Maksim Smirnov, Pavel Pronin and Andrey Zaitsev (Nizhny Novgorod State Tech. Univ. n.a. R.E. Alekseev, Russia)</p>
12:00	Lunch
13:30	<p>【C : Climate and Environmental Changes in Polar Region】 Chair, Hajime Yamaguchi (Univ. Tokyo)</p> <p>C-1 Arctic meteorological and geographical observations on Dutch whaling vessels in 1758, 1759 and 1760 **S ◇Gaston R. Demarée (Royal Meteorological Inst. Belgium, Belgium), Yoshio Tagami (Univ. Toyama), Pascal Mailier (Royal Meteorological Inst. Belgium, Belgium), Astrid E. J. Ogilvie (Stefansson Arctic Inst./Univ. Colorado, USA) and Takehiko Mikami (Tokyo Metropolitan Univ.)</p> <p>C-2 Can we restore the earth's energy balance? “Global warming” and history of oceanography ◇Takao Nakajin (Tokai Univ.)</p> <p>C-3 Discussion on gashydrates distribution and origin in the Sea of Okhotsk region ◇Renat Shakirov, Anatoly Obzhirov (V.I.II'ichev Pacific Oceanological Inst., Russia) and Maria V. Shakirova (Pacific Geographical Inst., Russia)</p> <p>C-4 External factors on sea ice changes during the early 20th century in MRI-ESM2.0 ◇☆A Takuro Aizawa (Meteorological Res. Inst./Univ. Tokyo), Masayoshi Ishii, Seiji Yukimoto, Naga Oshima (Meteorological Res. Inst.) and Hiroyasu Hasumi (Univ. Tokyo)</p> <p>C-5 Early meteorological observations in Greenland and Labrador in the 18th century: A contribution of the Moravian Brethren ◇Gaston R. Demarée (Royal Meteorological Inst. Belgium, Belgium), Astrid E. J. Ogilvie, (Stefansson Arctic Inst., Iceland/Univ. Colorado, USA) and Pascal Mailier (Royal Meteorological Inst. Belgium, Belgium)</p>
15:10	Break

Monday 17 Feb. 2020

Mombetsu Arts & Culture Center

Place: 1F Main Hall

	<p>【D : Arctic Sea Routes】 Chair, Noriaki Kimura (Univ. Tokyo)</p>
15:20	<p>D-1 Summary of joint study on vessel movement monitoring in NSR by satellite AIS ◇Akira Moriki (Hokkaido Univ.), Shuji Shimizu (JAXA), Motohisa Abe (Natl. Inst. Land & Infrastructure Mgt.), Ryohei Shirakuma (Hokkaido Regional Develop. Bureau) and Kengo Tazawa (Aomori Pref. Govt.)</p>
15:40	<p>D-2 Summary of the Northern Sea Route trial shipping of containers ◇Natsuhiko Otsuka (Hokkaido Univ.), Hideo Sasaki, Tomomi Kakizaki (Tomakomai Port Authority), Eisaku Nakamura (Hokkaido Res. Inst. Twenty-First Cent. Co., Ltd.) and Akira Moriki (Hokkaido Univ.)</p>
16:00	<p>D-3 Characteristics of ship speed along the Northern Sea Route ◇☆A Xiaoyang Li and Natsuhiko Otsuka (Hokkaido Univ.)</p>
16:20	<p>Break</p>
	<p>Chair, Natsuhiko Otsuka (Hokkaido Univ.)</p>
16:30	<p>D-4 Information retrieval for the NSR navigation using the LASSO regression ◇Tomoko Koyama, Jun Inoue (NIPR) and Takuya Nakanowatari (Hokkaido Natl. Fish. Res. Inst.)</p>
16:50	<p>D-5 Comments on the Polar Code ◇Hiromitsu Kitagawa and Eiji Sakai (Ocean Policy Res. Inst.)</p>
17:10	<p>D-6 Calculation of penetration distance during ship ramming in multi-year ice ◇Junji Sawamura (Osaka Univ.), Hajime Yamaguchi (Univ. Tokyo), Shuki Ushio (NIPR) and Yutaka Yamauchi (Japan Marine United Corp.)</p>
18:30	<p>White Concert 『Okhotsk Sea Ice Museum』</p>

☆A The Aota Masaaki Award Candidate

Monday 17 Feb. 2020 Mombetsu Arts & Culture Center Place: 3F Special Conference Room

10:00 12:20	<p>【M1 : Public Program, Forum of oil Pollution Measures and Environmental Protection】</p> <p>What We Need to Protect Nature <i>(in Japanese language only)</i></p> <p>Chair, Go Saito (OEPN), Timekeeper, Tomoya Ishii Introduction, Masato Ito (OEPN)</p> <p>M1-1 About new information of Sakhalin II Project Natalia Gonchar and Ekaterina Meger (Sakhalin Energy, Russia)</p> <p>M1-2 Lessons from the oil spill major accident occurred in the past -Recalling Nakhodka oil spill accident- Kazuhiro Shimada (Japan Coast Guard)</p> <p>M1-3 Disaster dispatch of the Self-Defense Force Yuichi Nakayama (Japan Self-Defense Forces)</p> <p>M1-4 Major oil spill incidents 2019 in Japan & fishermen' concern for Sakhalin Kuniaki Sasaki (Yudaku Consultants /Maritime Disaster Prevention Center)</p> <p>M1-5 Aim for Lake Komuke to be registered under the Ramsar Convention !! Hirokazu Odate (Mombetsu-Kaihatsu club)</p> <p>Discussion</p>
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Monday 17 Feb. 2020 Mombetsu Municipal Museum Place: Museum Lecture Room

13:30	[M2 : Public Program, Our Home Okhotsk Sea] Chair, Shunji Sakashita (City of Mombetsu) Introduction, Etsuya Kawashiro (City of Mombetsu) (in Japanese language only)
13:35	M2-1 Activities of the Youth Club of Mombetsu Fisheries Cooperative ◇Yuta Ozaki (Youth Club Mombetsu Fish. Coop.)
14:05	M2-2 Scallop fishery of Mombetsu ◇Yutaka Hata (Abashiri-Seibu Fish. Tech. Guidance Office)
14:50	Break
15:00	M2-3 Predation risk managements of sea stars for the mariculture systems of Japanese scallop ◇Koji Miyoshi (Abashiri Fish. Res. Inst.)
15:45	M2-4 Challenge for seawater farming of two hybrid sturgeon in Hokkaido ◇Seiji Katakura (City of Mombetsu/Hokkaido Univ.)
16:40	Discussion Chair, Yoshitaka Sasaki (Abashiri Fish. Res. Inst.)
18:30	White Concert 『Okhotsk Sea Ice Museum』

Mon 17 to Tue 18 Feb. 2020 Mombetsu Arts & Culture Center Place: 3F Lobby

12:00	[P : Poster Session]
13:30	P-1 The status and trends of Southern Ocean zooplankton based on the SCAR Southern Ocean continuous plankton recorder (SO-CPR) survey ◇Kunio T. Takahashi (NIPR/SOKENDAI) and SCAR SO-CPR Survey Team (SOKENDAI)
	P-2 Phytoplankton database of the southwestern Okhotsk Sea, constructed by the long-term monitoring by Fisheries Research and Education Agency ◇Yukiko Taniuchi (Hokkaido Natl. Fish. Res. Inst.), Tsuyoshi Watanabe, Kazuaki Tadokoro (Tohoku Natl. Fish. Res. Inst.) and Hiromi Kasai (Hokkaido Natl. Fish. Res. Inst.)
	P-3 Regional comparison of seasonal changes on population structure for large copepod <i>Calanus hyperboreus</i> in the Arctic Ocean ◇Koki Tokuhiko, Yoshiyuki Abe (Hokkaido Univ.), Jonaotaro Onodera (JAMSTEC), Makoto Sampei (Hokkaido Univ.), Amane Fujiwara, Naomi Harada (JAMSTEC), Kohei Matsuno (Hokkaido Univ.), Eva-Maria Nöthig (AWI, Germany) and Atsushi Yamaguchi (Hokkaido Univ.)
	P-4 Lack of juvenile Kichiji rockfish in the southwestern Okhotsk Sea ◇Tomonori Hamatsu (Hokkaido Natl. Fish. Res. Inst.)
	P-5 Whale beaching in Mombetsu ◇Masaya Yamada (City of Mombetsu/Hokkaido Industrial Archaeology Society)
	P-6 The change of volumetric and morphometric characteristics of the anthropogenic snow patches during winter season ◇Alexandra Muzychenko, Valentina Lobkina and Leonid Muzychenko (Far East Geological Inst., Russia)
	P-7 Infrared thermal evaluation of the anthropogenic snow patch in the process of its melting ◇Valentina Lobkina, Alexandra Muzychenko and M. Mikhalev (Far East Geological Inst., Russia)
	P-8 Evaluation of MIMO and beamforming communication tests in Lake Saroma in winter ◇Shingo Yoshizawa (Kitami Inst. Tech.)
	P-9 Formation process of thermal ice ridge ◇Akio Toukairin (Res. Inst. Snow Ice Lake Ice)
	P-10 Interannual variation of sea ice around the port of Mombetsu ◇Katsushi Murai (Okhotsk Garinko Tower), Katsushi Iwamoto (City of Mombetsu/Hokkaido Univ.), Takuma Sasaki and Yuta Urabe (Okhotsk Garinko Tower)
	P-11 Recent change of sea ice along the Okhotsk coast of Hokkaido ◇Shuhei Takahashi, Takashi Kuwahara and Hiromu Ishihara (Okhotsk Sea Ice Museum)
	P-12 Change of people's consciousness to sea ice through the Symposium at Mombetsu -from the education course of U-Arctic in Greenland, 2019 - ◇Shuhei Takahashi (Okhotsk Sea Ice Museum)
	P-13 A guideline for harmonizing ocean surface microplastic monitoring methods ◇Yutaka Michida (Univ. Tokyo) and Takashi Owada (IDEA Consultants Inc.)

	<p>【 E : Workshop, Frontiers of Observation and Modeling Researches on the Atmosphere, Sea Ice and Ocean in the Arctic Ocean 】</p> <p>『Observation and Analysis』 Chair, Takahiro Toyoda (Meteorological Res. Inst.)</p>
9:00	<p>E-1 Application of weather and sea ice information during R/V MIRAI Arctic cruises in 2018 & 2019 ◇Souichiro Sueyoshi, Shinya Okumura, Takao Oshima (Nippon Marine Enterprises Ltd.), Jun Inoue, Takeshi Terui and Takeshi Sugimura (NIPR)</p>
9:20	<p>E-2 Observation and modeling of marginal ice zone waves in the refreezing Beaufort Sea ◇Takehiko Nose, Tsubasa Kodaira, Takuji Waseda (Univ. Tokyo), Kazutoshi Sato (Kitami Inst. Tech.), Jun Inoue (NIPR), Joey Voermans and Alexander Babanin (Univ. Melbourne, Australia)</p> <p>Oral Presentation E-3; Go to Session H</p>
9:40	<p>E-4 Analysis of the trajectory and history of drifting sea ice in the Arctic and Antarctic ◇Noriaki Kimura and Hiroyasu Hasumi (Univ. Tokyo)</p>
10:00	Break
	<p>『Modeling and Prediction』 Chair, Takehiko Nose (Univ. Tokyo)</p>
10:10	<p>E-5 Ocean circulation and sea ice variability in the southern part of the Okhotsk Sea in a high-resolution ocean-ice assimilation model ◇Nori-hisa Usui, Nariaki Hirose, Kei Sakamoto, Nadao Kohno and Goro Yamanaka (Meteorological Res. Inst.)</p>
10:30	<p>E-6 Optimization of dynamic parameters of sea ice models based on satellite-derived sea ice velocity field ◇Takahiro Toyoda (Meteorological Res. Inst.), Noriaki Kimura (Univ. Tokyo), Shogo Urakawa, Hiroyuki Tsujino, Hideyuki Nakano, Kei Sakamoto and Goro Yamanaka (Meteorological Res. Inst.)</p>
10:50	<p>E-7 Changes in the Arctic ice and ocean states under the current and future climate ◇Jun Ono, Yoshiki Komuro and Hiroaki Tatebe (JAMSTEC)</p> <p style="text-align: right;">Chair, Jun Ono (JAMSTEC)</p>
11:10	<p>E-8 Predictability of weekly mean atmospheric variability over the Northern Hemisphere on S2S timescales ◇Akio Yamagami and Mio Matsueda (Univ. Tsukuba)</p>
11:30	<p>E-9 Ensemble forecast experiments of summertime sea ice in the Arctic Ocean using the TOPAZ4 ice-ocean data assimilation system ◇Takuya Nakanowatari (Hokkaido Natl. Fish. Res. Inst.), Jiping Xie, Laurent Bertino (Nansen Environ. Remote Sensing Center, Norway), Mio Matsueda, Akio Yamagami (Univ. Tsukuba) and Jun Inoue (NIPR)</p>
11:50	<p>E-10 Medium range sea ice prediction for Japanese research vessel MIRAI's expedition cruise in 2019 ◇Liyanarachchi Waruna Arampath De Silva (Univ. Tokyo), Takeshi Terui (NIPR), Hajime Yamaguchi (Univ. Tokyo) and Jun Inoue (NIPR)</p>
12:10	Lunch
13:30 15:30	<p>【 M3 : Public Program, Okhotsk Marine Environment Conservation Seminar ~Marine Waste Reduction Campaign in Mombetsu~ 】 <i>(in Japanese language only)</i></p> <p>M3-1 -Things to know about marine waste- What we going to do for the sea of Okhotsk ◇Azusa Kojima (JEAN)</p> <p>-Signing Ceremony- Agreement for Disposal of Large-scale Disaster Waste Yoshikazu Miyakawa (Mayor, City of Mombetsu) Yoshitaka Ito (Okhotsk Branch of Hokkaido Industrial Waste Mgt. & Recycling Assoc.)</p>
15:30	Break

Tuesday 18 Feb. 2020

Mombetsu Arts & Culture Center

Place: 1F Main Hall

	<p>【M4 : Public Program, How Do We Act at Heavy Snowstorm in Okhotsk Area?】 <i>(in Japanese language only)</i> Chair, Katsumi Kawamonzen (Abashiri Develop. Constr. Dept.)</p>
16:00	Introduction, Shuhei Takahashi (Okhotsk Sea Ice Museum /Chair of the Symposium Committee)
16:05	M4-1 Heavy snowstorms in the Okhotsk area and information for severe weather preparedness ◇Yoshinori Kubota (Abashiri Local Meteorological Office)
16:25	M4-2 Support activity for snowstorm disaster prevention by Abashiri Development and Construction Department ◇Takashi Shouji (Abashiri Develop. Constr. Dept.)
16:45	Break
16:55	Panel Discussion Coordinator, Masahiro Nemoto (Japan Red Cross Hokkaido College of Nursing) 「How do we act at Heavy Snowstorm」 Panellists : Makoto Ishikawa (City of Mombetsu) Machiko Kamada (Junior Chamber Mombetsu) Noriko Shimamiya (Mombetsu Scholl of Nursing) Kazuhiro Taniuchi (Abashiri Local Meteorological Office) Katsumi Kawamonzen (Abashiri Develop. Constr. Dept.) Review, Masahiro Nemoto (Japan Red Cross Hokkaido College of Nursing)
17:55	Closing Remarks, Kazuhiro Takahashi (Abashiri Develop. Constr. Dept.)
19:00	Dinner Party for Friendship between Scientists & Volunteers 『Mombetsu Central Hotel』

Tuesday 18 Feb. 2020

Mombetsu Arts & Culture Center

Place: 3F Special Conference Room

	<p>【F : Snow, Ice and Human Life】 Chair, Kanichiro Matsumura (Tokyo Univ. Agriculture)</p>
9:30	F-1 Basic analysis of snow hauling operations in Sapporo, Japan ◇Naoto Takahashi and Ayano Yoshida (Sapporo City Univ.)
9:50	F-2 The MONODUKURI PBL in cold area - Basis research on preservation of body temperature - ◇☆A Muhammad Haziq Aiman, Asahi Sawasato, Yuri Abe, Kazutaka Yokota and Kei Horio (Utsunomiya Univ.)
10:10	F-3 The MONODUKURI PBL in cold area - Basis research for quick drying - ◇☆A Aina Shaza Binti Rahop, Saki Iwadate, Atsushi Sato, Adzim Abdul, Kazutaka Yokota and Kei Horio (Utsunomiya Univ.)
10:30	F-4 Climate conditions reconstructed by meteorological observations of two French warships at the end of **S the Tokugawa period around Hokkaido ◇Yoshio Tagami (Univ. Toyama), Gaston R. Demarée (Royal Meteorological Inst. Belgium, Belgium) and Patrick Beillevaire (French Natl. Center Sci. Res., France)
10:50	Break
	<p>【G : Cold Region Engineering】 Chair, Junji Sawamura (Osaka Univ.)</p>
11:10	G-1 Ice tank test of moored conical structure model in managed ice ◇☆A Kenta Hasegawa, Shotaro Uto, Haruhito Shimoda, Daisuke Wako and Takatoshi Matsuzawa (Natl. Mar. Res. Inst.)
11:30	G-2 A study on the Arctic mooring experimental method with a non-linear mooring stiffness generator system of a turret moored Arctic FPSO ◇☆A Hyungdo Song, Young-Shik Kim, Cheolhee Kim and Kuk-Jin Kang (Korea Res. Inst. Ships Ocean Eng., Korea)
12:00	Lunch

☆A The Aota Masaaki Award Candidate **S Special Lecture

	<p>[H : Workshop, Activities Industry-Government-Academia Collaborative Research on the Arctic Region Supported by J-ARC Net] Chair, Masato Tanaka (Hokkaido Univ.)</p>
13:30	<p>H-1 Activities to promote industry-government-academia collaborative research on the Arctic region supported by Japan Arctic Research Network Center (J-ARC Net) ◇Masato Tanaka, Shingo Tanaka, Natsuhiko Otsuka and Yasushi Fukamachi (Hokkaido Univ.)</p>
13:55	<p>H-2 Arctic technology research forum to consolidate opinions from industry ◇Satoru Fukuba (Japan Mar. United Corp.), Hajime Yamaguchi (Univ. Tokyo), Hiroshi Yoshinaga (Mitsubishi Shipbuilding Co., Ltd.), Yoshihiko Kurokawa (INPEX CORPORATION), Takao Kashiwagi (Mitsui O.S.K. Lines), Hajime Yoshida (Zeni Lite Buoy., Ltd.), Hironori Yabuki, Yuji Kodama (NIPR), Kay I. Ohshima, Yasushi Fukamachi (Hokkaido Univ.) and Takashi Kikuchi (JAMSTEC)</p>
14:15	<p>H-3 Future Arctic utilization interpretive structural modelling (ISM) approach ◇Natsuhiko Otsuka (Hokkaido Univ.), Eisaku Nakamura (Hokkaido Res. Inst. Twenty-First Cent. Co., Ltd.), Akira Moriki and Juha Saunavaara (Hokkaido Univ.)</p>
14:35	<p>H-4 LNG Transportation from the Arctic Ocean ◇Shiro Izumi and Takao Kashiwagi (Mitsui O.S.K. Lines)</p>
14:55	Break
15:10	<p>H-5 Status report: WGICA (ICES/PICES/PAME working group for Integrated Ecosystem Assessment of the Central Arctic Ocean) ◇Sei-Ichi Saitoh (Hokkaido Univ.), Hein Rune Skjoldal (Inst. Mar. Res., Norway), John Bengtson (Natl. Oceanic Atmos. Admin., USA), Fujio Ohnishi and Natsuhiko Otsuka (Hokkaido Univ.)</p>
15:30	<p>H-6 Monitoring of permafrost land deformation and adaptation to related subsidence - 2017-2019 case studies in the Sakha Republic, Russia - ◇Go Iwahana (Hokkaido Univ./ Univ. Alaska, USA), Takahiro Abe (JAXA), Kazuki Yanagiya (Hokkaido Univ.), Masato Furuya, Petr Danilov (North-Eastern Federal Univ., Russia), Takumi Kawamura (Iwata Chizaki Inc.), Petr Efremov (Yakutsk Permafrost Inst., Russia), Alexey Desyatkin (Yakutsk Permafrost Inst., Russia/Inst. Biological Problems Cryolithozone, Russia), Syunji Kanie (Hokkaido Univ.), Yoshihiro Iijima (Mie Univ.), Yuri Zhegusov (Inst. Humanities Indigenous People North, Russia), Anastasia Tseeva (Yakut State Design Res. Inst. Constr., Russia), Takeo Tadono (JAXA) and Aleksandr Fedorov (Yakutsk Permafrost Inst., Russia)</p>
15:50	<p>H-7 ISO 19906 and frozen-spoil/permafrost engineering ◇Naoki Nakazawa (Syst. Eng. Assoc., Inc.), Satoshi Akagawa (Cryosphere Eng. Lab.), Takahiro Takeuchi (Hachinohe Inst. Tech.), Akira Kurokawa (Eng. Adv. Assoc. Japan), Shinji Kioka (Civil Eng. Res. Inst. Cold Region), Yuuko Matsuo (Natl. Inst. Tech., Tomakomai coll.), Shunji Kanie (Hokkaido Univ.), Teru Yoshida (Kajima Corp.), Hisao Izuta, Hiroshi Ogura (Seiken Co., Ltd.), Tetsuya Tokoro (Hokkai-Gakuen Univ.), Toshio Sone (Hokkaido Univ.) and Hironori Yabuki (NIPR)</p>
16:20	<p>H-8 Fundamental analysis of significant issues regarding development of “Arctic Tourism” ◇Takafumi Fukuyama, Hirofumi Ueda, Noriaki Nishiyama, Masato Tanaka, Fujio Onishi, Yuha Saunavaara, Yuko Shirai, Taro Mori, Tomoe Kato (Hokkaido Univ.), Shuhei Takahashi (Okhotsk Sea Ice Museum) and Shuwa Honda (Open Univ.)</p>
16:40	<p>H-9 Japanese Arctic cruise tourism industry and sustainable Arctic marine tourism survey ◇Masato Tanaka, Yuha Saunavaara (Hokkaido Univ.), Brooks Kaiser, Chris Horbel (Univ. South Denmark, Denmark), Fujio Onishi and Natsuhiko Otsuka (Hokkaido Univ.)</p>
17:00	<p>H-10 Initiatives for sustainable development of Arctic cruise and future challenges ◇Hirohito Ito (Central Consultant Inc.), Naohiko Yamaguchi (Mitsui O.S.K. Passenger Line Ltd.), Yusuke Itokawa (Silversea Cruises), Stefan Kirchner (Univ. Lapland, Finland), Masato Tanaka, Juha Saunavaara, Natsuhiko Otsuka, Fujio Onishi (Hokkaido Univ.) and Hironori Yabuki (NIPR)</p>
17:20	<p>E-3 Storm-mediated ocean-atmosphere heat exchange over the Arctic Ocean: A case study of a Barents Sea cyclone observed in January 2011 ◇Atsuyoshi Manda (Mie Univ.), Taku Mitsui (SOKENDAI), Jun Inoue (SOKENDAI/NIPR), Masatake E. Hori (NIPR/JAMSTEC), Kazuaki Kawamoto (Nagasaki Univ.) and Kensuke K. Komatsu (Mie Univ.)</p>
19:00	Dinner Party for Friendship between Scientists & Volunteers 『Mombetsu Central Hotel』

	<p>[I : Marine Biology and Fisheries in the Ice-Covered Waters]</p> <p style="text-align: right;">Chair, Mitsuo Fukuchi (NIPR)</p>
13:30	<p>I-1 Temporal change of oceanographic environments in coastal area around Mombetsu, northeastern Hokkaido, during sea-ice season in 2019 ◇Hiromi Kasai (Hokkaido Natl. Fish. Res. Inst.), Kohei Matsuno (Hokkaido Univ.), Katsunori Kimoto (JAMSTEC) and Seiji Katakura (City of Mombetsu)</p>
13:50	<p>I-2 Seasonal variability of the protist community at Mombetsu port in the southern Okhotsk Sea in 2016 and 2017 ◇☆A Takuma Matsumoto, Kohei Matsuno (Hokkaido Univ.), Seiji Katakura (City of Mombetsu), Hiromi Kasai (Hokkaido Natl. Fish. Res. Inst.) and Atsushi Yamaguchi (Hokkaido Univ.)</p>
14:10	<p>I-3 Detecting phytoplankton biodiversity and appearance patterns: toxic species ◇☆A Sirje Sildeve (Natl. Res. Inst. fish. Sci.), Noriko Nishi (AXIOHELIX Co. Ltd), Hiromi Kasai (Hokkaido Natl. Fish. Res. Inst.), Akihiro Shiimoto (Tokyo Univ. Agriculture), Seiji Katakura (City of Mombetsu) and Satoshi Nagai (Natl. Res. Inst. fish. Sci.)</p>
14:30	<p>I-4 Progress of eukaryote metabarcoding in Okhotsk Sea ◇Satoshi Nagai, Sirje Sildeve (Natl. Res. Inst. fish. Sci.), Noriko Nishi, Satoshi Tazawa (AXIOHELIX Co. Ltd), Hiromi Kasai (Hokkaido Natl. Fish. Res. Inst.), Akihiro Shiimoto (Tokyo Univ. Agriculture) and Seiji Katakura (City of Mombetsu)</p>
14:50	Break
	<p style="text-align: right;">Chair, Mitsuhiro Nagata (Hokkaido Aquaculture Promotion Corp.)</p>
15:00	<p>I-5 Ichthyoplankton communities of northeastern Sakhalin during spawning season of Alaska pollock <i>Theragra chalcogramma</i> (Pallas, 1811) ◇Olga Mukhametova and Ilias Mukhametov (SakhNIRO, Russia)</p>
15:20	<p>I-6 Biological characteristics of Pacific cod in the coastal waters of Okhotsk Sea off Hokkaido in recent years ◇Masayuki Chimura and Tomonori Hamatsu (Hokkaido Natl. Fish. Res. Inst.)</p>
15:40	<p>I-7 Spatiotemporal variation in body size of chum salmon in Hokkaido ◇☆A Fumi Yamaguchi, Taro Nakamura and Hirokazu Urabe (Salmon Freshwater Fish. Res. Inst.)</p>
16:00	Break
	<p style="text-align: right;">Chair, Kei Matsumoto (Kitami Inst. Tech./North One)</p>
16:10	<p>I-8 Impacts on ecosystem and human activities by farmed Atlantic salmon escape ◇Ikutaro Shimizu (Hokkaido Salmon Distribution Econ. Inst.)</p>
16:30	<p>I-9 Bird-borne cameras illustrate the feeding habits of forest raptor in winter ◇Kei Matsumoto (Kitami Inst. Tech./North One), Katsuaki Komai (Kitami Inst. Tech.) and Toshihiko Hatano (North One)</p>
16:50	<p>I-10 Porpoise strandings on Sakhalin Island - Localization and probable causes- ◇Olga Mukhametova (SakhNIRO, Russia), Artem Vlasov (Aleksandrovsk-Sakhalinskiy, Russia) and Ilias Mukhametov (SakhNIRO, Russia)</p>
19:00	Dinner Party for Friendship between Scientists & Volunteers 『Mombetsu Central Hotel』

Wednesday 19 Feb. 2020

Mombetsu Arts & Culture Center

Place: 1F Main Hall

	【S : Special Session, Initiatives in Industry-Academia-Government Arctic Research for Contribution to Society and Industry】 <i>(in Japanese language only)</i> Chair, Masato Tanaka (Hokkaido Univ.)
9:00	S-1 Arctic researches for sustainable industrial use through industry-academia-government collaboration ◇Masato Tanaka (Hokkaido Univ.)
9:15	S-2 Arctic Sea Routes and sea ice forecast ◇Hajime Yamaguchi (Univ. Tokyo)
10:15	S-3 Plan of new icebreaker in Japan ◇Eisuke Akane (JAMSTEC)
10:50	Break
11:00 11:30	【Closing Session】 Chair, Seiji Katakura (City of Mombetsu) •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 16:00	【M5 : Public Program, Symposium on the Forest-Ocean Linkage】 <i>(in Japanese language only)</i>

Wednesday 19 Feb. 2020

Mombetsu Municipal Museum

Place: Museum Lecture Room

13:30 17:30	【M6 : Public Program, The Okhotsk Terroir Symposium 2020 in Mombetsu】 <i>(in Japanese language only)</i>
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Wednesday 19 Feb. 2020

Mombetsu Citizens' Public Hall

Place: Main Hall

9:30 11:00	【Symposium for Public Education】 <i>(in Japanese language only)</i> Chair, Takashi Kuwahara (Okhotsk Sea Ice Museum) Presentations by Junior-High School Students I . Presentation of the General Learning Mombetsu Junior High School II . Presentation of the Learning of Welfare and Healthcare Mombetsu Shokotsu Junior High School Review, Yasuyuki Horikago (City of Mombetsu)
12:00	Lunch
13:10 14:30	【Symposium on Sea Ice for Children】 <i>(in Japanese language only)</i> Chair, Takashi Suzue (City of Mombetsu) Introduction, Yasuyuki Horikago (City of Mombetsu) I . Does the drift ice decrease in the Sea of Okhotsk? Shuhei Takahashi (Okhotsk Sea Ice Museum) II . Beautiful country: Belgium Gaston Demarée (Royal Meteorological Inst. Belgium) III . Quiz about drift ice and Belgium Shuhei Takahashi (Okhotsk Sea Ice Museum) and Gaston Demarée (Royal Meteorological Inst. Belgium)

【P : Poster Session 「Exhibition」】

- P-14** Composition of trawl catches in the Northern Kuril Islands zone
Oleg Z. Badaev (TINRO-Centre, Russia)
- P-15** Dynamics of stocks and catch of some aquatic biological resources in the Primorye subzone of the Sea of Japan
Vladimir Z. Boldyrev and Oleg Z. Badaev (TINRO-Centre, Russia)
- P-16** Global model of climate-biosphere-society system
Vladimir Yu. Soldatov (Kotelnikov Inst. Radioeng. & Electronics, Russia)
- P-17** Enhanced tidal currents over the Bering Sea northern shelf
Konstantin Rogachev and Natalia Shlyk (V.I.II'ichev Pacific Oceanological Inst., Russia)
- P-18** Monitoring of ice cover in the Golden Horn Bay (Peter the Great Gulf, Sea of Japan)
Svetlana Kislova and Alexander Petrov (Far-Eastern Regional Hydrometeor. Res. Inst., Russia)
- P-19** The Arctic basin pollution: A big data approach
Vladimir F. Krapivin, Ferdenant A. Mkrtchyan (Kotelnikov Inst. Radioeng. Electronics, Russia) and Costas A. Varotsos (Natl. Kapodistrian Univ., Greece)
- P-20** GIS and GIMS technologies in remote aquatic monitoring
Ferdenant Mkrtchyan and Vladimir Krapivin (Kotelnikov Inst. Radioeng. Electronics, Russia)
- P-21** Greenhouse gases distribution in the near water atmosphere in the eastern Arctic Seas
(83 cruise, rv "Akademik m.a. Lavrentyev")
Mariya A. Bovsun (V.I.II'ichev Pacific Oceanological Inst., Russia/Far Eastern Federal Univ., Russia),
Renat B. Shakirov, Andrey V. Yatsuk (V.I.II'ichev Pacific Oceanological Inst., Russia) and
Olga V. Nesterova (Far Eastern Federal Univ., Russia)