

Monday 19 Feb. 2024**Arts & Culture Center, 1F Hall**

9:00	【Opening Session】 Chair, Seiji Katakura (City of Mombetsu) Opening Address: Shuhei Takahashi (Chair of the Symposium Committee)	
9:10	【A : Keynote Speech】 Chair, Shuhei Takahashi (Okhotsk Sea Ice Museum) A-1 Climate-driven shifts of marine biodiversity in the Arctic waters ○Irene D. Alabia, Jorge Garcia Molinos, Takafumi Hirata (Hokkaido Univ.), Franz J. Mueter (Univ. Alaska Fairbanks, USA) and Carmen L. David (Wageningen Univ. Res., Netherlands)	
9:50	A-2 Development of Russia's Northern Sea Route in the context of climate change and international tension Arild Moe (Fridtjof Nansen Inst., Norway)	
10:30	Break	
10:40	【B : Meteorology and Climate】 Chair, Kazutoshi Sato (NIPR/SOKENDAI) B-1 Intra-seasonal and interannual variations in snowfall and rainfall during winter in Rikubetsu, inland Hokkaido, Japan ○Naohiko Hirasawa (NIPR/SOKENDAI) and Hiroyuki Konishi (Osaka Kyoiku Univ.)	
11:00	B-2 Development of a monitoring system for forecasting the occurrence of superior mirage ○Kazutaka Tateyama, Tomoko Sato, Minoru Hasegawa and Kento Imaizumi (Kitami Inst. Tech.)	
11:20	B-3 ENSO: Research history of "equilibrium of imbalances" Solving the "temperature-pressure" relationship on the Earth's surface ○Takao Nakajin (Tokai Univ.)	
11:40	Lunch	
13:30	【C : Workshop, Sustainable Arctic Sea Routes in a Rapidly Changing Environment】 Introduction: Akihisa Konno (Kogakuin Univ.) Chair, Akihisa Konno (Kogakuin Univ.)	
13:35	C-1 Maritime route choice in computational general equilibrium model -Application in the case of Arctic shipping- ○Trang Tran and Ryuichi Shibasaki (Univ. Tokyo)	
13:50	C-2 Model-based evaluation of future utilization of Northern Sea Route for technology roadmapping ○★A Kazunari Morikami, Ryota Wada, Ryuichi Shibasaki (Univ. Tokyo) and Natsuhiko Otsuka (Hokkaido Univ.)	
14:05	C-3 Impact analysis of Arctic shipping routes by the multi-commodity global logistics intermodal network simulation model ○★A Koki Kawachi, Ryuichi Shibasaki, Naoki Kosuge (Univ. Tokyo) and Chathumi Ayanthi Kavirathna (Univ. Kelania, Sri Lanka)	
14:20	C-4 Investigation of beset incidents in the Northern Sea Route by risk index and sea ice convergence ○Natsuhiko Otsuka and Shotaro Uto (Hokkaido Univ.)	
14:35	C-5 Mid-term Arctic sea ice forecast in 2023 ○Motomu Oyama, Hajime Yamaguchi (NIPR) and Noriaki Kimura (Univ. Tokyo)	
14:50	Break	
15:05	C-6 Preliminary assessment of Arctic oil spill response viability using high-resolution metocean data ○Takatoshi Matsuzawa (Natl. Mar. Res. Inst.), Akihisa Konno (Kogakuin Univ.) and Motomu Oyama (NIPR)	
15:20	C-7 Experimental study on the flexural strength of saline ice ○Junji Sawamura (Osaka Univ.), Toshihiro Ozeki (Hokkaido Univ. Educ. Sapporo) and Shinji Kioka (Civil Eng. Res. Inst. Cold Region)	
15:35	C-8 A method for detecting deformed ice using image recognition techniques for Sentinel-1 SAR images ○Kentaro Ono and Akihisa Konno (Kogakuin Univ.)	
15:50	C-9 Exploration of methods for utilizing sea ice motion information to estimate sea ice conditions in coastal areas ○★A Akuto Kaneko and Akihisa Konno (Kogakuin Univ.)	
16:05	Break	

	【C : Workshop, Sustainable Arctic Sea Routes in a Rapidly Changing Environment】 Chair, Takatoshi Matsuzawa (Natl. Mar. Res. Inst.)
16:20	C-10 Evaluation of fluid forces on an ice piece downstream of packed ice floes: Numerical analysis with OpenFOAM and comparison to basin experiments ○Shun Nemoto, Akihisa Konno (Kogakuin Univ.), Daisuke Kitazawa and Jinxin Zhou (Univ. Tokyo)
16:35	C-11 Flow analysis with solid collision around ships and ice pieces using the incompressible smoothed particle hydrodynamics ○Kaisei Koshiishi and Akihisa Konno (Kogakuin Univ.)
16:50	C-12 Estimation of water spray particle size distribution at the ship bow for ship hull icing assessment ○Kentaro Suizu and Akihisa Konno (Kogakuin Univ.)
17:05	C-13 Laboratory experiments on spray icing with urea-doped water using flat and cylindrical specimens ○Toshihiro Ozeki (Hokkaido Univ. Educ. Sapporo), Takatoshi Matsuzawa (Natl. Mar. Res. Inst.), Shingo Nomura (Hokkaido Univ. Educ. Sapporo), Satoru Adachi (Snow Ice Res. Ctr.), Taiki Tokudome and Akihisa Konno (Kogakuin Univ.)

	【D : Workshop, Feasibility and Perspective of the Arctic Shipping, Today and Future (Organized by HAI-FES Project)】 Chair, Yuji Kodama (Hokkaido Univ.)
10:40	D-1 Current status of the Northern Sea Route by satellite AIS observation ○Kjell Stokvik (Nord Univ., Norway)
10:55	D-2 Possible environmental risk due to the navigation along the Northern Sea Route ○Natsuhiko Otsuka (Hokkaido Univ.)
11:10	D-3 Feasibility and perspective of the Arctic shipping, today and future -Navigability perspective- ○Shotaro Uto (Hokkaido Univ.)
11:25	D-4 Feasibility of the Arctic shipping from the economic and maritime logistics perspective ○Ryuichi Shibasaki (Univ. Tokyo)
11:40	D-5 Arctic geopolitics and its developments: The impacts of the Ukrainian War ○Fujio Ohnishi (Hokkaido Univ.)
11:55	D-6 How Japan's scientific community has been tackling with the rapid change of the Arctic? -Perspective from the ArCS II project- ○Hiroyuki Enomoto (NIPR)
12:10	Discussion
12:30	Lunch
	【E : Snow, Ice and Human Life】 Chair, Kei Horio (Utsunomiya Univ.)
13:30	E-1 Frederick William Beechey's Narrative of the Voyage of the <i>Blossom</i> to the Pacific and the Arctic ○Gaston Demarée (Royal Meteorological Inst. Belgium, Belgium) and Yoshio Tagami (Univ. Toyama)
13:50	E-2 Improving winter life in Hokkaido: Proposals by Nitobe College Graduate Program students and collaboration with the regional and municipal governments ○Marina Lomaeva, Artem Suslov (Hokkaido Univ.), Tatsuo Nakajima (Hokkaido Govt.), Juha Saunavaara and Atsushi Miura (Hokkaido Univ.)
14:10	E-3 Impact of climate change on environment and society in northwest Greenland: Incorporate indigenous perspectives to better understand the changing climate ○★A Monica Ogawa, Ryo Kusaka, Yuta Sakuragi, Shin Sugiyama (Hokkaido Univ.) and Yoko Mitani (Kyoto Univ.)
14:30	E-4 Arctic convoys and Polar Seas in Soviet and British military naval fiction ○★A Artem Suslov (Hokkaido Univ.)
14:50	E-5 Snow Power generation in cold region -The potential of Stirling Engines for cold climate disasters- ○★A Rikuto Kano, Kouki Toyama and Muhammad Najib Bin Roslan (Utsunomiya Univ.)
15:10	Break

Monday 19 Feb. 2024**Mombetsu Arts & Culture Center, 3F Meeting Room**

	【E : Snow, Ice and Human Life】	Chair, Marina Lomaeva (Hokkaido Univ.)
15:20	E-6 The efficiency of exothermic reaction of aluminium and quicklime (calcium oxide) -Monozukuri PBL for cold region disaster preparedness- ○★A Kosuke Kushibiki, Naoto Asakura and Dalilati Afifah Binti Che Azhar (Utsunomiya Univ.)	
15:40	E-7 The intersection of aesthetic practice and scientific practice: Possibilities explored through the artwork 'Drifting Scenery' with the theme of drift ice ○★A Hyunjung Park (Hokkaido Univ.)	
16:00	E-8 Characteristics and effects of wet snow in severe winter season in Hokkaido, Japan ○★A Hina Ishii and Tatsuo Shirakawa (Kitami Inst. Tech.)	
16:20	E-9 Mechanism of utilizing snow and ice of Torne River in ICEHOTEL creation in the Arctic ○Takafumi Fukuyama (Hokkaido Univ.)	
16:40	E-10 Learning the Arctic through the board game: An educational tool for experiencing the changing Arctic ○Hajime Kimura (JAMSTEC)	
17:00	Arctic Board Game	

Monday 19 Feb.**Mombetsu Municipal Museum**

	【F : Sea Ice Measurement and Observation】	Chair, Kazutaka Tateyama (Kitami Inst. Tech.)
13:30	F-1 New method for estimating sea ice age ○Noriaki Kimura and Hiroyasu Hasumi (Univ. Tokyo)	
13:50	F-2 Sea ice conditions in the Sea of Okhotsk in the 2022/2023 winter season ○Naoto Hori, Hideki Kaneko, Keiji Hamada and Yuji Akasaka (Japan Meteorological Agcy.)	
14:10	F-3 On the applicability of the LiDAR video fusion sensor to sea ice observation ○Shotaro Uto, Koh Izumiyama (Hokkaido Univ.), Hroki Okada, Yoshiteru Takayama, Susumu Kashiwase and Masanori Annoura (KYOCERA Corp.)	
14:30	Break	
14:40	F-4 The possibilities of UAVs with multispectral camera and autonomous driving Rover ○Kanichiro Matsumura (Tokyo Univ. Agric.) and Vitaly Kuzin (Nizhny Novgorod State Tech. Univ. n.a. R. E. Alekseev, Russia)	
15:00	F-5 On methods for solving inverse problems in spectroellipsometry and spectrophotometry ○Ferdinant Mkrtchyan (Kotelnikov Inst. Radioengineering Electronics, Russia)	
15:20	Break	
	【G : Oceanography】	Chair, Shotaro Uto (Hokkaido Univ.)
15:30	G-1 On the distribution of pollutants in the Arctic Basin ○Ferdinant Mkrtchyan (Kotelnikov Inst. Radioengineering Electronics, Russia)	
15:50	G-2 Features of hydrological conditions of the Sea of Okhotsk in the spring and fall periods of 2023 ○Egor Yurevich Malygin (Russian Federal Res. Inst. Fish, Oceanography, Russia)	
16:10	G-3 Microplastics baseline study in the Sea of Okhotsk ○Alexandra Ershova, Valeriia Proschakova and Ekaterina Golubeva (Russian State Hydrometeorological Univ., Russia)	
16:30	G-4 Tidal oscillation expands the wintertime mixed layer region over the Bering Sea ○Hung-Wei Shu (JAMSTEC), Humio Mitsudera, Tomohiro Nakamura (Hokkaido Univ.), Hiroaki Tatebe, Satoshi Osafune (JAMSTEC), Shinichiro Kida (Kyushu Univ.), Tomonori Azumaya (Japan Fish. Res. Educ. Agcy.) and Shinya Kouketsu (JAMSTEC)	
16:50	G-5 Features of tidal exchange in the Kuril Straits based on modeling data ○Vsevolod Ilyich Ilin and Victor Semyonovich Arkhipkin (Moscow State Univ., Russia)	
17:10	G-6 Features of ice conditions in the Bering Sea as extension of the NSR in 2004 -2022 ○Evgeniya Pavlova (Arctic Antarctic Res. Ins., Russia), Tatiana Alekseeva (Arctic Antarctic Res. Inst., Russia/Space Res. Inst., Russia) and Alexander Yulin (Arctic Antarctic Res. Inst., Russia)	

*Underlined title-numbers show Online Presentations

○★A The Aota Masaaki Award Candida

	[H : Workshop, Sea Ice and Waves: from the MIZ to the Fast Ice]	
9:00	Introduction: Takuji Waseda (Tokyo Univ.)	Chair, Tsubasa Kodaira (Tokyo Univ.)
9:05	H-1 Direct observation of submesoscale and mesoscale eddies by ocean surface drifters near the sea ice edge in the Canada Basin, Arctic Ocean ○Tsubasa Kodaira (Tokyo Univ.), Takuji Waseda (Tokyo Univ./JAMSTEC), Tomotaka Katsuno (Tokyo Univ.), Masafumi Kimizuka (Tokyo Metropolitan Coll. Indus. Tech.), Yasushi Fujiwara (Kobe Univ.), Takehiko Nose, Yusuke Kawaguchi (Tokyo Univ.) and Amane Fujiwara (JAMSTEC)	
9:25	H-2 Observation and model estimation of ocean wind wave development under the off-ice wind conditions in the Arctic Ocean ○★A Tomotaka Katsuno, Takehiko Nose, Tsubasa Kodaira (Univ. Tokyo) and Takuji Waseda (Univ. Tokyo/JAMSTEC)	
9:45	H-3 Spatial patterns and origins of sediment-laden ice in the Arctic: A remote sensing approach ○Amane Fujiwara (JAMSTEC), Noriaki Kimura (Univ. Tokyo), Hisatomo Waga (NIPR/Univ. Alaska Fairbanks, USA) and Satoshi Kimura (JAMSTEC)	
10:05	H-4 Sea-ice deformation in submesoscale and below in melting season ○Satoshi Kimura (JAMSTEC), Jinro Ukita (Univ. Tokyo), Amane Fujiwara and Takashi Kikuchi (JAMSTEC)	
10:25	H-5 Sea-ice deformations derived from Sentinel-1 & RADARSAT Satellite Mission SAR imagery ○Mathieu Plante, Jean-François Lemieux (Environ. Changement Climatique Canada, Canada), L. Bruno Tremblay, Amélie Bouchat, Damien Ringeisen (McGill Univ., Canada), Philippe Blain (Service Météorologique Canadien, Canada), Stephen Howell, Mike Brady, Alexander Komarov (Environ. Climate Change Canada, Canada), Béatrice Duval, Lekima Yakuden and Frédérique Labelle (McGill Univ., Canada)	
10:45	Break	
		Chair, Takuji Waseda (Univ. Tokyo)
10:55	H-6 Deformation of fast-ice prior to the 2023 ice breakup event in the Lützw-Holm Bay ○Takuji Waseda (Univ. Tokyo), Kazutaka Tateyama (Kitami Inst. Tech.), Ryosuke Uchiyama, Takehiko Nose, Tsubasa Kodaira, Tomotaka Katsuno (Univ. Tokyo), Takeshi Tamura (NIPR), Takenobu Toyota (Hokkaido Univ.), J. Rebault (Met., Norway, Norway), M. Hoppmann (Alfred-Wegener-Inst., Norway) and Daisuke Shimizu (NIPR)	
11:15	H-7 Fluctuations in distribution, type and thickness of sea ice off the Lützw-Holm Bay, East Antarctica ○Kazutaka Tateyama (Kitami Inst. Tech.), Takuji Waseda, Ryosuke Uchiyama (Univ. Tokyo) and Yuji Yoshida (Kitami Inst. Tech.)	
11:35	H-8 Attenuation of nonlinear water waves in the marginal ice zone Alberto Alberello, ○Emilian Parau, Ben Humphries (Univ. East Anglia, UK) and Amin Chabchoub (Kyoto Univ./Univ. Sydney, Australia)	
11:55	H-9 Unstable wave dynamics in sea ice Alberto Alberello, Emilian Parau (Univ. East Anglia, UK) and ○Amin Chabchoub (Kyoto Univ./Univ. Sydney, Australia)	
12:15	H-10 Research on spectral downshifting of waves propagating under sea ice ○★A Koya Sato (Univ. Tokyo), Takuji Waseda (Univ. Tokyo/JAMSTEC), Tsubasa Kodaira (Univ. Tokyo), Yasushi Fujiwara (Kobe Univ.), Takehiko Nose and Tomotaka Katsuno (Univ. Tokyo)	
12:35	Lunch [Poster Session, Coretime : 12:30-13:00, Mombetsu Arts & Culture Center 3F Lobby]	

	[I : Workshop, Recent Advances in the Antarctic and Arctic Climate Research]	
13:30	Introduction: Jun Inoue (NIPR/SOKENDAI)	Chair, Jun Inoue (NIPR/SOKENDAI)
13:35	I-1 Precipitation observation by X-band doppler radar at Syowa Station, Antarctica ○Katsushi Iwamoto (City of Mombetsu), Hiroyuki Konishi (Osaka Kyoiku Univ.), Naohiko Hirasawa (NIPR) and Yasushi Fujiyoshi (Hokkaido Univ.)	
13:50	I-2 Supercooled liquid water clouds in the mid-troposphere over the Southern Ocean ○Jun Inoue, Kazutoshi Sato (NIPR/SOKENDAI) and Shingo Shimizu (Natl. Res. Inst. Earth Sci. Disaster Resilience)	
14:05	I-3 Ice cloud formation related to oceanic supply of ice-nucleating particles: A case study in the Southern Ocean near an atmospheric river in late summer ○Kazutoshi Sato and Jun Inoue (NIPR/SOKENDAI)	
14:20	I-4 The climatological characteristics of atmospheric rivers observed in the 64th Japanese Antarctic Research Expedition ○★A Kazu Takahashi (SOKENDAI), Kazutoshi Sato, Naohiko Hirasawa and Jun Inoue (NIPR/SOKENDAI)	
14:35	I-5 Analysis of short-term sea ice fluctuations occurring at Lützow-Holm Bay in JARE 64 ○Yuji Yoshida and Kazutaka Tateyama (Kitami Inst. Tech.)	
14:50	Break	
	Chair, Koji Shimada (Tokyo Univ. Mar. Sci. Tech.)	
15:05	I-6 Introduction of R/V MIRAI polar research cruises and the evolution of its support information ○Souichiro Sueyoshi (Nippon Mar. Enterprises, Ltd.)	
15:20	I-7 Impact of wildfire over western Canada on Arctic ice cloud formation: A case study in the Arctic Ocean near an atmospheric river in early autumn ○Kazutoshi Sato and Jun Inoue (NIPR/SOKENDAI)	
15:35	I-8 Forecasts of an Arctic cyclone in September 2018 by multi-resolution coupled atmosphere–ocean predictions ○Akio Yamagami (Ctr. Environmental Sci, Saitama/Meteorological Res. Inst.), Takahiro Toyoda, Shogo Urakawa, Hideyuki Nakano, Eiki Shindo, Hiromasa Yoshimura, Yuma Kawakami, Kei Sakamoto (Meteorological Res. Inst.), Takuya Nakanowatari (Japan Fish. Res. Educ. Agcy.), Hung Wei Shu (JAMSTEC) and Goro Yamanaka (Meteorological Res. Inst.)	
15:50	I-9 Regime shift and variations of sea ice outflow velocities through the Fram Strait ○Koji Shimada, Wakana Sawada, Rin Harada, Kohei Hayakawa (Tokyo Univ. Mar. Sci. Tech.) and Eri Yoshizawa (JAXA)	
16:05	I-10 Impact of freshwater outflow from the Ob-Yenisei River on sea ice area in the Barents-Kara Sea ○★A Takumi Yano and Koji Shimada (Tokyo Univ. Mar. Sci. Tech.)	
16:20	Break	
	Chair, Eun Yae Son (Univ. Tokyo)	
16:35	I-11 Enhanced turbulent mixing associated with lee wave generation over rough topography in the Chukchi Borderland, Arctic Ocean ○★A Eun Yae Son and Yusuke Kawaguchi (Univ. Tokyo)	
16:50	I-12 A parameterization of the ice-ocean drag coefficient depending on the roughness of sea ice floes ○★A Rin Harada and Koji Shimada (Tokyo Univ. Mar. Sci. Tech.)	
17:05	I-13 Sensitivity experiments of sea ice thickness category parameterization in an OGCM ○Takahiro Toyoda, L. Shogo Urakawa, Kei Sakamoto, Yuma Kawakami, Kunihiro Aoki and Hideyuki Nakano (Meteorological Res. Inst.)	
17:20	I-14 Modeling on future changes in the Arctic Ocean interior associated with the sea-ice reduction in a low-resolution ice-ocean coupled model ○Jun Ono, Yoshiki Komuro (JAMSTEC) and Takao Kawasaki (Univ. Tokyo)	
17:35	Discussion	

12:30	[P : Poster Session]
13:00	P-1 The cumulative amount of drift ice in Okhotsk Mombetsu and the secular change in ice formation in the port ○Katsushi Murai (Mombetsu Mar. School) P-2 Estimating sea ice thickness of drift ice and fast ice in coastal areas by means of UAV-SfM photogrammetry ○Yuki Ouchi, Kazutaka Tateyama and Tatsuya Watanabe (Kitami Inst. Tech.) P-3 Relationship between wind direction and differences in snow accumulation in heavy snowfall areas and non-heavy snowfall areas ○Ryo Yamamoto and Yoshihiro Tachibana (Mie Univ.) [Extra] Intra-seasonal and interannual variations of sea ice along the Okhotsk coast of Hokkaido from the viewpoint of atmospheric circulation Yuki Asazuma, Masaya Kuramochi and Hiroaki Ueda (Univ. Tsukuba)

	[J : Cold Region Engineering]	Chair, Keisuke Anzai (Japan Mar. United Corp.)
13:30	J-1 Simulation of ice sheet transport during tsunami event inside river channels using a particle method ○★A Takaaki Abe and Hiroya Ogushi (Civil Engineering Res. Inst. Cold Region)	
13:50	J-2 Numerical estimation of ship resistance in drift ice fields using Bullet physics engine ○Keisuke Anzai, Shigeya Mizuno and Yutaka Yamauchi (Japan Mar. United Corp.)	
14:10	J-3 How does a year-round gyre and the related middle layer upwelling form in the northwest Gulf of Alaska? ○Yuan Nan and Humio Mitsudera (Hokkaido Univ.)	
14:30	Break	

	[K : Marine Biology and Fisheries in the Ice-Covered Waters]	Chair, Junya Hirai (Univ. Tokyo)
9:00	K-1 Ten-year changes in the distribution of eelgrass beds in Lake Noto using a quantitative echo sounder ○★A Ito Keizo (Hokkaido Univ.), Shiori Sonoki (Kushiro Fish. Res. Inst.), Kenji Minami, Yanhui Zhu (Hokkaido Univ.), Susumu Chiba, Hiroyuki Matsumoto (Tokyo Univ. Agric.), and Kazushi Miyashita (Hokkaido Univ.)	
9:20	K-2 Local heatwaves affect behavior and physiology of <i>Pandalus latirostris</i> in subarctic seagrass beds -Local heatwaves affect <i>Pandalus latirostris</i> - ○★A Hiroyuki Matsumoto, Shun Ochiai, Noriko Azuma and Susumu Chiba (Tokyo Univ. Agric.)	
9:40	K-3 Seasonal changes in fish communities in the Okhotsk Sea coast of Hokkaido inferred from environmental DNA analysis ○★A Takuma Yonago, Tatsuya Kawakami (Hokkaido Univ.), Hitomi Yoshida (Okhotsk Garinko & Tower), Seiji Katakura (City of Mombetsu), Tomoyasu Yamazaki (Rankoshi Town), Takashi Kuwahara (Okhotsk Sea Ice Museum), Yoshizumi Nakagawa (Tokyo Univ. Agric.) and Akihide Kasai (Hokkaido Univ.)	
10:00	K-4 The artificial reef effect on fish at the Okhotsk Tower ○Yukinori Nakane (Central Res. Inst. Electric Power Indus.), Seiji Katakura, Katsushi Iwamoto (City of Mombetsu), Yuta Urabe (Okhotsk Garinko Tower) and Seiya Abe (Central Res. Inst. Electric Power Indus.)	
10:20	Break	
		Chair, Irene Alabia (Hokkaido Univ.)
10:30	K-5 Comparative analysis of age determination methods for giant grenadier (<i>coryphaenoides pectoralis</i>) based on different age-recording structures of scales and otoliths ○Andrey I. Alferov, Oleg Z. Badaev and Alina.O. Erulina (Russian Federal Res. Ins. Fish. Oceanography, Russia)	
10:50	K-6 Spatial distribution of seals during summer in Inglefield Bredning, northwestern Greenland ○★A Yuta Sakuragi, Monica Ogawa, Mayuko Otsuki, Jean-Baptiste Thiebot, Yefan Wang, Shin Sugiyama (Hokkaido Univ.) and Yoko Mitani (Kyoto Univ.)	
11:10	K-7 Marine mammal conservation and management in the North Pacific: The case of the northern fur seal, with a focus on Japan and Russia ○Marina Lomaeva (Hokkaido Univ.), Yoko Mitani (Kyoto Univ.), Juha Saunavaara (Hokkaido Univ.) and Tatsuo Nakajima (Hokkaido Government)	
11:30	K-8 Stable isotope ratios in minke whale baleen in the Sea of Okhotsk ○Yoko Mitani, Heping Li (Kyoto Univ.), Monica Ogawa, Shiho Furumaki, Yuta Sakuragi (Hokkaido Univ.), Takeharu Bando and Tsutomu Tamura (Inst. Cetacean Res.)	
11:50	Lunch	[Poster Session, Coretime : 12:30-13:00, Mombetsu Arts & Culture Center 3F Lobby]

	【 L : Workshop, Appearances of Plankton in Cold Waters and their Ecology 】 Chair, Satoshi Nagai (Japan Fish. Res. Educ. Agcy.)
13:30	L-1 Exploring small eukaryotes by eDNA analysis in marine sediments in the Arctic region ○ Satoshi Nagai (Japan Fish. Res. Educ. Agcy.), Minoru Kobayashi, Masanori Arai and Masanobu Yamamoto (Hokkaido Univ.)
13:50	L-2 Differences in phytoplankton assemblages and their controlling factors in the southern Sea of Okhotsk between winter and spring ○ Yanxu Sun, Jun Nishioka, Takenobu Toyota and Koji Suzuki (Hokkaido Univ.)
14:10	L-3 Differentially expressed genes associated with food availability in <i>Neocalanus plumchrus</i> (Calanoida: Copepoda) ○ ★ A Takuya Ohnishi, Yukiko Taniuchi and Hiromi Kasai (Japan Fish. Res. Educ. Agcy.)
14:30	Break
14:40	L-4 The occurrence of <i>Gyrodinium</i> species (Dinophyceae) in the Indian sector of the Southern Ocean ○ ★ A Ryo Matsuda (Soka Univ.), Keigo D. Takahashi (Soka Univ./NIPR), Masayoshi Sano (NIPR), Ryosuke Makabe (NIPR/ SOKENDAI/ Tokyo Univ. Mar. Sci. Tech.), Shintaro Takao (Natl. Inst. Environmental Studies), Masato Moteki (NIPR/ Tokyo Univ. Mar. Sci. Tech.) and Norio Kurosawa (Soka Univ.)
15:00	L-5 Metabarcoding analysis of zooplankton communities during a period of sea ice in the Okhotsk Sea ○ Junya Hirai (Univ. Tokyo), Seiji Katakura (City of Mombetsu), Hiromi Kasai (Japan Fish. Res. Educ. Agcy.), Nakako Tamamushi (Univ. Tokyo) and Satoshi Nagai (Japan Fish. Res. Educ. Agcy.)
15:20	L-6 Biological response of scallop larvae to different <i>p</i> CO ₂ concentrations in seawater ○ Katsunori Kimoto, Masahide Wakita (JAMSTEC), Keisuke Shimizu (Waseda Univ.), Takashi Yusa (Aomori Pref. Indus. Tech. Res. Center), Masahiko Fujii (Univ. Tokyo) and Shinichi Takabatake (Wakkanai Fish. Res. Inst.)
15:40	Break
	【 M : Workshop, Recent Research Towards Sustainable Management of Pacific Salmon in the Coastal Area of the Sea of Okhotsk 】 Chair, Hayato Saneyoshi (Salmon Freshwater Fish Res. Inst.) [Keynote Speech]
15:50	M-1 Research and development of supporting system for sustainable use of salmon resource under changing climate using multiple satellite datasets ○ Sei-Ichi Saitoh (Hokkaido Univ./Digital Hokkaido/Green & Life Innovation, Inc.)
16:20	M-2 Recent status of chum salmon and pink salmon stocks in the Okhotsk area ○ Hayato Saneyoshi, Yosuke Koshino and Kyosuke Kuraya (Salmon Freshwater Fish. Res. Inst.)
16:40	Break
16:50	M-3 Characteristics of juvenile chum salmon off the coast of Hokkaido in the southern Sea of Okhotsk ○ Kiyoshi Kasugai, Yosuke Koshino, Kazutaka Shimoda (Salmon Freshwater Fish. Res. Inst.) and Ryotaro Ishida (Kushiro Fish. Res. Inst.)
17:10	M-4 Effects of dam and fishway constructions on stream-dwelling salmonids: A lesson from a tributary of the Tokoro River basin, Hokkaido, Japan ○ ★ A Sho Fukui, Yusuke Obata, Kaisei Iba and Kenta Shiraishi (Tokyo Univ. Agric.)
17:30	M-5 Spawning escapement of wild salmon in the Okhotsk coastal area ○ ★ A Yosuke Koshino (Salmon Freshwater Fish. Res. Inst.), Takashi Mori (Shari Town) and Yasuyuki Miyakoshi (Kitami Salmon Enhance Program Assoc.)

【N : Workshop, Sea Ice Variations and their Impacts on the Biogeochemical Cycles】	
9:00	Introduction: Jun Nishioka (Hokkaido Univ.) Chair, Jun Nishioka (Hokkaido Univ.)
9:05	N-1 Warm conveyor belt and warm currents causing the retreat of sea ice along the coast of the Sea of Okhotsk ○★A Youichi Kamae and Mone Yokota (Univ. Tsukuba)
9:25	N-2 Atmospheric phenomena reducing sea ice extent in the southern Sea of Okhotsk in March 1998 ○★A Mone Yokota and Youichi Kamae (Univ. Tsukuba)
9:45	N-3 Sea ice melting associated with vertical mixing driven by extratropical cyclones in the Sea of Okhotsk ○★A Yuka Sawa, Tatsuro Karaki, Hiroaki Ueda (Univ. Tsukuba), Ryu Saiki, Humio Mitsudera (Hokkaido Univ.) and Hiroshi Kuroda (Japan Fish. Res. Educ. Agcy.)
10:05	Break
11:00	【Prize-awarding Ceremony of the Aota Masaaki Award】 The place for the Award Ceremony is the hall on the first floor
12:00	Lunch
Chair, Jun Nishioka (Hokkaido Univ.)	
13:00	N-4 Numerical modeling study on sea ice iron flux in the Sea of Okhotsk ○Takuya Nakanowatari (Japan Fish. Res. Educ. Agcy.), Eiji Watanabe (JAMSTEC), Tomohiro Nakamura, Jun Nishioka and Humio Mitsudera (Hokkaido Univ.)
13:20	N-5 Outline of field observations during winter in seasonal sea ice area in Siorapaluk, Greenland ○Sumito Matoba, Yoshinori Iizuka, Yuzo Miyazaki (Hokkaido Univ.), Keiichiro Hara (Fukuoka Univ.), Takayuki Kuramoto (Tokai Univ.), Yutaka Kurosaki, Mai Matsumoto (Hokkaido Univ.), Tetsuhide Yamasaki (Avangnaq) and Teruo Aoki (NIPR)
13:40	N-6 Characteristics of water masses and nutrient properties in the southern Sea of Okhotsk ○Jun Nishioka, Takenobu Toyota, Youhei Yamashita, Koji Suzuki, Aiko Murayama, Kazuya Ono, Tomohiro Nakamura, Kay I. Ohshima and Humio Mitsudera (Hokkaido Univ.)
14:00	Break
Chair, Sumito Matoba (Hokkaido Univ.)	
14:10	N-7 Ocean monitoring and ship observations around Shiretoko: 2 ○Tomohiro Nakamura (Hokkaido Univ.), Takahiro Nobetsu (Shiretoko Nature Foundation), Hiroshi Shimada, Tadashi Misaka (Kushiro Fish. Res. Inst.), Jun Nishioka (Hokkaido Univ.), Yoko Mitani (Kyoto Univ.), Orio Yamamura and Humio Mitsudera (Hokkaido Univ.)
14:30	N-8 Long-term variability of water masses in the southern Okhotsk Sea using public and unpublished data ○Kaoru Ito, Tomohiro Nakamura (Hokkaido Univ.) and Tadashi Misaka (Kushiro Fish. Res. Inst.)
14:50	N-9 Difference of pre-conditioning between heavy-ice-year and light-ice year in the Okhotsk Sea ○Ryu Saiki, Humio Mitsudera (Hokkaido Univ.), Takuya Nakanowatari, Hiroshi Kuroda (Japan Fish. Res. Educ. Agcy.), Tomoshige Inoue, Hiroaki Ueda (Univ. Tsukuba) and Katsushi Iwamoto (City of Mombetsu)
15:10	N-10 Prediction of sea ice variations off Hokkaido in the southern Sea of Okhotsk ○Humio Mitsudera, Ryu Saiki (Hokkaido Univ.), Tomoshige Inoue, Hiroaki Ueda (Univ. Tsukuba), Takuya Nakanowatari and Hiroshi Kuroda (Japan Fish. Res. Educ. Agcy.)
15:30	Break
Chair, Tomohiro Nakamura (Hokkaido Univ.)	
15:40	N-11 Iron supply processes in the southern Sea of Okhotsk ○Momoka Imai, Aiko Murayama, Kazuya Ono, Youhei Yamashita, Koji Suzuki, Tomohiro Nakamura, Kay I. Ohshima, Humio Mitsudera and Jun Nishioka (Hokkaido Univ.)
16:00	N-12 Assessment of primary production processes in the southern Sea of Okhotsk: A combined analysis using modelling, satellite remote sensing, and in-situ observation data ○Yuki Tanoue (Hokkaido Univ.), Pat Wongpan, Peter Strutton (Univ. Tasmania, Australia), Yuri Fukai (Hokkaido Univ./JAMSTEC), Takenobu Toyota, Jun Nishioka and Koji Suzuki (Hokkaido Univ.)
16:20	N-13 Continuous measurement of atmospheric organic aerosols and relevant parameters at the Mombetsu Okhotsk Tower ○Yuzo Miyazaki, Eri Tachibana (Hokkaido Univ.), Hitomi Yoshida (Okhotsk Garinko Tower Co., Ltd.), Sumito Matoba (Hokkaido Univ.), Kazuma Aoki (Univ. Toyama), Katsushi Iwamoto and Seiji Katakura (City of Mombetsu)

Wednesday 21 Feb. 2024

Arts & Culture Center, 3F Special Conference Room

16:40 17:00	【Closing Session】 •A Review of the Symposium, •Closing Remarks, Shuhei Takahashi (Chair of the Symposium Committee)	Chair, Seiji Katakura (City of Mombetsu)
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Mon. 19 - Wed. 21 Feb.

Arts & Culture Center, 3F Lobby

9:00 17:00	【Demonstration : Envisioning Future Globe through Understanding the Arctic: The Challenge of the Arctic Trans-Disciplinary Community of Practice】 Let's think the future of the Arctic together <i>by Arctic Research Center, Hokkaido University</i>
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Public Program

Monday 19 Feb.

Arts & Culture Center, 3F Special Conference Room

10:00	【Public Program, Forum on Disasters, Oil Pollution Countermeasures, and Environmental Protection】 I. The activities of the Self-Defense Forces II. The mystery of the mirage III. What is happening in the sea now	Shin Taniguchi (Japan Self-Defense Forces) Hiromu Ishihara (Okhotsk Sea Ice Museum) Kuniaki Sasaki (Yudaku-Consultant)
12:00	Lunch	
	【Public Program, Our Home Okhotsk Sea】 Chair, Nobuyuki Kano (City of Mombetsu)	<i>(in Japanese language only)</i>
13:30	Introduction, Hiroaki Takahashi (City of Mombetsu)	
13:35	I . Activities of the Youth Club of Mombetsu Fisheries Cooperative Yuta Ozaki (Youth Club Mombetsu Fish. Coop.)	
14:05	II. The utilization of yellowtail <i>Seriola quinqueradiata</i> caught in Hokkaido, Japan Yumi Hamakawa (Abashiri Fish. Res. Inst., Hokkaido Res. Org.)	
14:50	Break	
15:00	III. Current situation of kelp fishery in Hokkaido and potential for land-based cultivation of unutilized seaweeds collected along the coast of Hokkaido Takashi Maeda (Wakkanai Fish. Res. Inst., Hokkaido Res. Org.)	
15:45	IV. Recent status of chum salmon and pink salmon stocks in the Okhotsk area Hayato Saneyoshi (Salmon Freshwater Fish. Res. Inst., Hokkaido Res. Org.)	
16:30	Closing Remarks, Nobuyuki Kano (City of Mombetsu)	

Tuesday 20 Feb.

Mombetsu Arts & Culture Center 1 F Hall

	【Public Program, Consideration of Winter Weather Disasters in the Okhotsk Region】 Chair, Hidehiko Ninomiya (Abashiri Develop. Constr. Dept., Hokkaido Develop. Bu.)	<i>(in Japanese language only)</i>
16:00	Introduction, Shuhei Takahashi (Okhotsk Sea Ice Museum /Chair of the Symposium Committee)	
16:05	I . Characteristics of Heavy Snowstorms in Okhotsk Area ~Effective use of Disaster Prevention Information~ Yuya Matsushita (Abashiri Local Meteorological Office, Japan Meteorological Agcy.)	
16:25	II . Response to natural disaster by Hokkaido Regional Development Bureau Hisayoshi Oba (Abashiri Develop. Constr. Dept, Hokkaido Develop. Bu.)	
16:40	Break	

Tuesday 20 Feb. 2024

Mombetsu Arts & Culture Center 1 F Hall

	【Public Program, Consideration of Winter Weather Disasters in the Okhotsk Region】 <i>(in Japanese language only)</i>
16:50	Panel Discussion Coordinator, Masahiro Nemoto (Japan Red Cross Hokkaido College of Nursing) 「Learn about Self-help and Mutual Help」 [Panelists] Kimihiro Ito (Abashiri Local Meteorological Office, Japan Meteorological Agcy.) Daisuke Kubo (Mombetsu Shokotsu Junior High School, City of Mombetsu) Tomohiro Iwaya (Mombetsu City Social Welfare Council) Ryo Hamada (Hokkaido Okhotsk General Promotion Bu.) Makoto Ishikawa (City of Mombetsu) Review, Masahiro Nemoto (Japan Red Cross Hokkaido College of Nursing)
17:55	Closing Remarks, Hideyuki Fukuhara (Abashiri Develop. Constr. Dept., Hokkaido Develop. Bu.)

Wednesday 21 Feb.

Mombetsu Arts & Culture Center 1 F Hall

11:00	【Prize-awarding Ceremony of the Aota Masaaki Award】
12:00	Lunch
	【Public Program, Symposium on the Forest-Ocean Linkage】 <i>(in Japanese language only)</i>
14:00	Introduction, Masatoshi Nakamura (City of Mombetsu)
14:05	I . Thoughts of a graduate of Hokkaido College of Northern Forestry ~ What newly recruited employees want from Hokkaido's forestry industry ~ Shouji Ogasawara (Hokkaido Okhotsk General Subpref. Bu.)
15:00	Break
14:45	II . Foresters in Central European countries nurturing rich forests - 7 ideas to make forestry an attractive career Mikihiro Nakamura (Gifu Pref. Kamo Region Agric. Forestry Office)

Wednesday 21 Feb.

Mombetsu Municipal Museum

	【Public Program, The Okhotsk Terroir Symposium 2024 in Mombetsu】 <i>(in Japanese language only)</i>
13:30	Introduction, Hiroshi Daikoku (Okhotsk Terroir)
13:40	Part 1 Keynote Speech What Okhotsk culture has left behind
14:20	Part 2 Lecture Experience of sustainable life by recycling things around us in the Okhotsk
15:10	Break
15:20 17:10	Part 3 Free Discussion The future and possibilities of Okhotsk Tourism as seen from Okhotsk culture Japan's new legacy project: Okhotsk Ruins Road Project

Wednesday 21 Feb.

Mombetsu Citizens' Public Hall, 1F Main Hall

13:10 14:30	【Symposium on Sea Ice for Children】 <i>(in Japanese language only)</i>
	I . Drift ice in the Sea of Okhotsk and the global environment Shuhei Takahashi (Okhotsk Sea Ice Museum) II . The land of snow and ice: Winter life in the heart of Eurasia Marina Lomaeva (Univ. Hokkaido)

Sat. 10 Feb. - Thu. 29 Feb.

Okhotsk Sea Ice Museum

	【Sponsorship Event, Drift-ice Textile Exhibition】
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