

## CONTENTS

|                                                                                                                                              |                                                                                           |    |
|----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|----|
| Preface                                                                                                                                      | ..... Natsuo Sato and Yoshiyuki Fujii .....                                               | i  |
| Japanese research plan in IPY2007-2008                                                                                                       | .....Yoshiyuki Fujii .....                                                                | 1  |
| Chinese scientific contributions to IPY 2007-2008                                                                                            | .....Zhaoqian Dong .....                                                                  | 2  |
| Korean contribution to the International Polar Year (IPY, 2007-2008)                                                                         | .....Yeadong Kim .....                                                                    | 3  |
| Studies on seismotectonics and geodynamical processes in Antarctica and IPY scientific programmes during IPY                                 | ..... V. P. Dimri .....                                                                   | 4  |
| Sustaining Malaysia's interest in Antarctica: From diplomacy to science                                                                      | .....Azizan Abu Samah and Nasaruddin Abdul Rahman .....                                   | 5  |
| Geological evolution of Sør Rondane Mountains, East Antarctica: viewed from Asian Collision Zone                                             | .....Yasuhito Osanai, Kazuyuki Shiraishi, Masaaki Owada and Tsuyoshi Toyoshima .....      | 6  |
| Broadband seismology in Antarctica: Recent progress and plans for the International Polar Year                                               | .....Douglas A. Wiens .....                                                               | 7  |
| Space-borne SAR observations of the Antarctic ice sheet in IPY 2007-2008                                                                     | .....Makoto Omura, Kazuo Shibuya and Koichiro Doi.....                                    | 8  |
| Polish activity at Svalbard in the 4 <sup>th</sup> International Polar Year – an invitation to Asian partners for a common research          | .....Piotr Głowacki .....                                                                 | 9  |
| Microbiological and ecological responses to global environmental changes in Polar Regions (MEAGE): An inter-continental initiative from Asia | .....Satoshi Imura, Annick Wilmotte and Takeshi Naganuma.....                             | 10 |
| Extremophiles from Antarctica                                                                                                                | ..... Tadayuki Imanaka, Yuuki Miyoshi, Yuka Kondo, Tamotsu Kanai and Haruyuki Atomi ..... | 11 |
| Diversity of polar marine bacteria and terrestrial lichens                                                                                   | .....Hong-Kum Lee, Yoo Kyung Lee and Soon-Gyu Hong.....                                   | 12 |
| Biological and functional diversity of microbial communities in ecologically distinct                                                        |                                                                                           |    |

|                                                                                                                                                                                           |                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| polar environments                                                                                                                                                                        | .....Irene K.P. Tan.....13                                                                                                                                                                                    |
| Comparison of air-sea fluxes of CO <sub>2</sub> in the Southern Ocean and the Western Arctic Ocean (CFCSOA)                                                                               | .....Liqi Chen, Zhongyong Gao, Rik Wanninkhof,<br>Wei-Jun Cai and Yuanhui Zhang .....14                                                                                                                       |
| Oceanographic study in the Indian sector of the Antarctic Ocean by RTV <i>Umitaka Maru</i>                                                                                                | .....Takashi Ishimaru.....15                                                                                                                                                                                  |
| The census of Antarctic marine life and the Australian – French – Japanese CEAMARC (Collaborative East Antarctic Marine Census) contribution                                              | .....Graham Hosie, Michael Stoddart, Victoria Wadley, Philippe Koubbi,<br>Catherine Ozouf-Costaz, Takashi Ishimaru and Mitsuo Fukuchi.....16                                                                  |
| Coordinated Enhanced Observing Period (CEOP) in the International Polar Year                                                                                                              | .....Toshio Koike and Tetsuo Ohata.....17                                                                                                                                                                     |
| International Arctic Systems for Observing the Atmosphere (IASOA) for IPY 2007 and comparison to the ancestor program of coordinated meteorological measurements in IPY 1882              | .....Taneil Uttal, James Drummond, Kevin R. Wood,<br>James E. Overland and John Burkhart.....18                                                                                                               |
| Observational studies of the Antarctic ozone hole formation and dissipation during IPY 2007-2008                                                                                          | ..... Kaoru Sato, Hideaki Nakajima and Kosuke Saeki .....19                                                                                                                                                   |
| IHY Asia/Pacific regional planning                                                                                                                                                        | .....Kiyohumi Yumoto and STPP Sub-Committee .....20                                                                                                                                                           |
| Publication of Polar Science and the Asian collaboration in IPY 2007-2008                                                                                                                 | .....Kazuo Shibuya .....21                                                                                                                                                                                    |
| China plan on upper atmospheric physics during IPY 2007-2008                                                                                                                              | .....Liu Yong-Hua, Yang Hui-Gen, Zhang Bei-Chen,<br>Hu Hong-Qiao and Liu Rui-Yuan .....22                                                                                                                     |
| Polar-equatorial geospace ionospheric, magnetic storms and water vapour characterization for the advancement of space weather prediction – A Malaysian participation in ICESTAR programme | .....Norbahiah Misran, Baharuddin Yatim, Mohd.Alauddin Mohd.Ali,<br>Sumazly Sulaiman, Mardina Abdullah,<br>Wayan Suparta, Mohamad Awad Hussein Momani,<br>Alina Marie Hasbi and Farah Hani Abdul Rahim.....23 |

|                                                                                                                                                                                                                                                                        |    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| ICESTAR program in Japan during IPY 2007-2008                                                                                                                                                                                                                          |    |
| .....Akira Kadokura, Natsuo Sato, Takehiko Aso, Hisao Yamagishi,<br>Hiroshi Miyaoka, Makoto Taguchi, Masaki Tsutsumi, Yasunobu Ogawa,<br>Akira-S. Yukimatu, Masaki Okada, Yoshihiro Tomikawa, Satoko Takasaki,<br>Yusuke Ebihara, Keisuke Hosokawa and Kaoru Sato..... | 24 |
| Pilot radar system for the program of the Antarctic Syowa MST/IS radar (PANSY)                                                                                                                                                                                         |    |
| .....Masaki Tsutsumi, Kaoru Sato, Toru Sato, Akinori Saito,<br>Yoshihiro Tomikawa, Koji Nishimura, Takehiko Aso,<br>Takashi Yamanouchi and Masaki Ejiri .....                                                                                                          | 25 |
| Japanese contribution to the magnetometer network observation in Antarctica during<br>IPY period                                                                                                                                                                       |    |
| .....Hisao Yamagishi and Akira Kadokura .....                                                                                                                                                                                                                          | 26 |
| Investigation of radiation climate factors and meteorological regime of West Arctic on<br>base of measurement data on Svalbard (Barentsburg, Ny-Ålesund), Frants Josef<br>Land (Heiss island) and Novaya Zemlia (Mal'ye Karmaklyu)                                     |    |
| .....Ivanov B.V., Svyaschennikov P.N., Aleksandrov E.I., Priamikov S.M.,<br>Semenov A.V., Davidov A.A. and Jon-Borre Orbaek.....                                                                                                                                       | 27 |
| Air temperature change in permafrost regions: East Siberia—Mongolia—China                                                                                                                                                                                              |    |
| .....Maria Gavrilova.....                                                                                                                                                                                                                                              | 28 |
| Intercontinental Atmospheric Transport of Anthropogenic Pollutants to the Arctic<br>(INCATPA), Canada                                                                                                                                                                  |    |
| .....Hayley Hung, Yi-Fan Li, Alexandra Steffen, Jianmin Ma,<br>Ashu Dastoor, Tom Harner and Ed Sverko.....                                                                                                                                                             | 29 |
| SOLAR Project: Stratospheric ozone monitoring at Argentina subpolar region                                                                                                                                                                                             |    |
| .....E. Quel, E. Wolfram, J. Salvador, L. Otero, J. Pallotta, R. D'Elia,<br>S. Godin-Beckmann, A. Pazmiño, H. Nakane, M. Ono,<br>A. Mizuno and T. Nagahama .....                                                                                                       | 30 |
| Climate change research by pre-college students in the International Polar Year                                                                                                                                                                                        |    |
| .....Elena B. Sparrow, Jessica H. Robin, Leslie S. Gordon,<br>Kim Morris, Martin O. Jeffries, Elissa R. Levine,<br>Martha R. Kopplin, Rebecca Boger and David L. Verbyla .....                                                                                         | 31 |
| International Antarctic Institute project in Hokkaido University                                                                                                                                                                                                       |    |
| .....Takeo Hondoh, Shin Sugiyama, Shigeru Aoki, Masanobu Yamamoto,<br>Tetsuo Sueyoshi, Sohey Nishashi and Hiromi Kimura .....                                                                                                                                          | 32 |
| Marine geological observation during the R/V Hakuho-Maru KH07-4 cruise off<br>Lutzow-Holm Bay, Antarctic Ocean and paleoceanographic implications                                                                                                                      |    |

|                                                                                                                                                   |                                                                                                                                                                                              |    |
|---------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
|                                                                                                                                                   | .....Minoru Ikehara.....                                                                                                                                                                     | 33 |
| IPY collaborative research cruises in Arctic Sea and Bering Sea                                                                                   |                                                                                                                                                                                              |    |
|                                                                                                                                                   | .....Sei-ichi Saitoh, Yasunori Sakurai, Kenshi Kuma,<br>Toru Hirawake and Terry Whitledge.....                                                                                               | 34 |
| Marine scientific expeditions during IPY: Opportunities for upgrading bathymetric<br>maps of the Arctic and Southern Oceans                       |                                                                                                                                                                                              |    |
|                                                                                                                                                   | .....Ron Macnab, Martin Jakobsson, Norbert Ott,<br>Hans Werner Schenke and Dmitri Travin.....                                                                                                | 35 |
| Circumarctic Probability Survey of Coastal Marine Resources (CAPS): A project for the<br>International Polar Year 2007/2008                       |                                                                                                                                                                                              |    |
|                                                                                                                                                   | .....John J. Kelly and Douglas H. Dasher.....                                                                                                                                                | 36 |
| IPY EOI No.96: Response of polar, tropical and temperate microalgae to global warming<br>and increased UV radiation                               |                                                                                                                                                                                              |    |
|                                                                                                                                                   | .....Phang Siew-Moi and Chu Wan-Loy .....                                                                                                                                                    | 37 |
| Response and adaptive strategies of Antarctic, tropical and temperate microalgae to<br>ultraviolet radiation stress                               |                                                                                                                                                                                              |    |
|                                                                                                                                                   | .....Chu Wan-Loy, Wong Chiew-Yen,<br>Harvey Marchant and Phang Siew-Moi.....                                                                                                                 | 38 |
| Polar biology and ecology investigation program of IPY, China                                                                                     |                                                                                                                                                                                              |    |
|                                                                                                                                                   | .....Wei Luo, Jianfeng He, Huirong Li, Minghong Cai, and Bo Chen.....                                                                                                                        | 39 |
| Psychrophilic enzymes from the Antarctic isolates                                                                                                 |                                                                                                                                                                                              |    |
|                                                                                                                                                   | .....Rashidah A.R., Sabrina S., Ainihayati A.R.,<br>Shanmugapriya P., Nazalan N. and Razip S.....                                                                                            | 40 |
| TUNDRACYCLE – Responses of ecosystem and carbon cycle on a High Arctic Glacier<br>Foreland in a changing climate –                                |                                                                                                                                                                                              |    |
|                                                                                                                                                   | ..... Hiroshi Kanda, Masaki Uchida, Takayuki Nakatsubo,<br>Hiroyuki Muraoka, Shinpei Yoshitake, Hibiki Noda,<br>Masao Uchida, Toshiyuki Ohtsuka, and Hiroshi Koizumi.....                    | 41 |
| Automatic Monitoring of Penguin PoPulation (AMPPoP): Circumpolar monitoring of the<br>biology of key-species in relation to environmental changes |                                                                                                                                                                                              |    |
|                                                                                                                                                   | .....Yan Ropert-Coudert, David Ainley, Grant Ballard, Akiko Kato,<br>Phil Lyver, Silvia Olmastroni, Colin Southwell, Akinori Takahashi,<br>Phil Trathan, Peter Wilson, and Yvon Le Maho..... | 42 |
| New wave of Asian relationship in Antarctic medical research and medicine                                                                         |                                                                                                                                                                                              |    |
|                                                                                                                                                   | .....Giichiro Ohno, Ichio Obinata, Nobuhito Shimoeda, Shinji Otani,<br>Takahiro Miyata, Hisako Fujiwara, Haruo Mikami, Hideki Ohno,                                                          |    |

|                                                                                                                                                                                                                                                                                                                    |    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| Kentaro Watanabe, Mitsuo Fukuichi, and Taketoshi Morimoto.....                                                                                                                                                                                                                                                     | 43 |
| The Commander Islands as a significant indicator of the Bering Sea ecosystem condition                                                                                                                                                                                                                             |    |
| ..... Vladimir F. Sevostianov .....                                                                                                                                                                                                                                                                                | 44 |
| A science plan for IPY: The Arctic hydrological cycle monitoring, modeling and assessment program                                                                                                                                                                                                                  |    |
| .....Tetsuo Ohata and Kazuyoshi Suzuki.....                                                                                                                                                                                                                                                                        | 45 |
| The Japanese Swedish Antarctic Expedition 2007/08                                                                                                                                                                                                                                                                  |    |
| .....Shuji Fujita, Per Holmlund, Kumiko Azuma, Masanori Chiba, Hiroyuki Enomoto, Yoshiyuki Fujii, Koji Fujita, Kotaro Fukui, Margaretta Hanson, Keiichiro Hara, Ulf Hedman, Yoshinori Iizuka, Satoshi Imura, Kenji Ishizawa, Hideaki Motoyama, Fumio Nakazawa, Johan Ström, Shin Sugiyama and Sylviane Surdyk..... | 46 |
| Glaciers in Central Asia                                                                                                                                                                                                                                                                                           |    |
| ..... Victor Novikov .....                                                                                                                                                                                                                                                                                         | 47 |
| Material concentration processes of the Polar Regions on Earth                                                                                                                                                                                                                                                     |    |
| ..... Yasunori Miura .....                                                                                                                                                                                                                                                                                         | 48 |
| Organic and isotopic studies on Antarctic carbonaceous meteorites                                                                                                                                                                                                                                                  |    |
| .....Hiroshi Naraoka, Hideyasu Kojima and Keizo Yanai.....                                                                                                                                                                                                                                                         | 49 |
| Shear wave anisotropy in upper mantle beneath East Antarctica from broadband seismic data; – contribution to Antarctic arrays deployments/ POLENET at IPY 2007-2008 –                                                                                                                                              |    |
| .....Yusuke Usui, Masaki Kanao and Atsuki Kubo .....                                                                                                                                                                                                                                                               | 50 |
| Antarctic arrays deployments in East Antarctica: Japanese contribution at IPY 2007-2008                                                                                                                                                                                                                            |    |
| ..... Masaki Kanao and Seiji Tsuboi .....                                                                                                                                                                                                                                                                          | 51 |
| International collaborative project: Hydroacoustic monitoring of tectonic and volcanic activity within the Bransfield Strait and Western Scotia Sea, Antarctica                                                                                                                                                    |    |
| .....R.P. Dziak, M. Park, H. Matsumoto, D.R. Bohnenstiehl and W.S. Lee.....                                                                                                                                                                                                                                        | 52 |
| Contributions of the FormoSat-3/COSMIC GPS-occultation mission to IPY                                                                                                                                                                                                                                              |    |
| .....Benjamin F. Chao, Yuei-An Liou, C.K. Shum, Kuo-Ying Wang and Yun-Hao Wu.....                                                                                                                                                                                                                                  | 53 |
| Geological types of methane emission on the Sakhalin Island and Sea of Okhotsk                                                                                                                                                                                                                                     |    |
| .....Renat Shakirov, Anatoly Obzhirov, Urumu Tsunogai and Nicole Biebow.....                                                                                                                                                                                                                                       | 54 |

|                                                                                                                                                                                                                                                                         |    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| Gravimetric tomography: Significant examples on a deep internal structure and geodynamics of the Antarctic and Arctic Polar regions                                                                                                                                     |    |
| .....R.Kh. Greku, T.R. Greku and A.A. Kulikov .....                                                                                                                                                                                                                     | 55 |
| International University Course on high Arctic landscape dynamics                                                                                                                                                                                                       |    |
| .....Norikazu Matsuoka and Hanne H. Christiansen.....                                                                                                                                                                                                                   | 56 |
| Distribution and monitoring of permafrost in Central and Eastern Asia                                                                                                                                                                                                   |    |
| ..... Sergei Marchenko, Mamoru Ishikawa, N. Sharkhuu, Huijun Jin, Xin Li, Zhao Lin, Hironori Yabuki and Jerry Brown.....                                                                                                                                                | 57 |
| Monitoring of the thermal regime of permafrost in Central Yakutia                                                                                                                                                                                                       |    |
| ..... Pavel Skryabin, Stepan Varlamov and Yuri Skachkov .....                                                                                                                                                                                                           | 58 |
| Viliuisk encephalomyelitis: an emerging infectious disease in Eastern Siberia                                                                                                                                                                                           |    |
| .....Fyodor A. Platonov, Vsevolod A. Vladimirtsev, Ekaterina L. Subbotina, Vladimir L. Osakovskiy, Eugeniy D. Savilov, Tatiana M. Sivtseva, Raisa S. Nikitina, Alison J.E. Green, Colin L. Masters, D.Carleton Gajdusek, Vadim G. Krivoschapkin and Lev G. Goldfarb.... | 59 |
| Horse in the Arctic culture Sakha                                                                                                                                                                                                                                       |    |
| .....Ekaterina Nazarovna Romanova and Natalia Ksenofontovna Danilova.....                                                                                                                                                                                               | 60 |
| Bioprospecting and governance regimes in Polar Regions: A comparative analysis of existing law and policy regimes and options for the future                                                                                                                            |    |
| ..... David Leary.....                                                                                                                                                                                                                                                  | 61 |
| Indigenous peoples of the Yakutia: quest of the strategy of the survival in the condition of futuroshock                                                                                                                                                                |    |
| .....Ignatyeva Vanda.....                                                                                                                                                                                                                                               | 62 |
| Legal base of the political system safety in the Sakha Republic (Yakutia) in conditions of globalization                                                                                                                                                                |    |
| .....Egorov Petr.....                                                                                                                                                                                                                                                   | 63 |
| Formation and development of the local self-government in the Sakha Republic (Yakutia) in context of modernization of political system of Russia                                                                                                                        |    |
| .....Fedotova Natalia Dmitrievna.....                                                                                                                                                                                                                                   | 64 |
| Political system of the Sakha Republic (Yakutia): Problems of safety and perspectives of modernization                                                                                                                                                                  |    |
| .....Maklashova Elena Gavrilovna.....                                                                                                                                                                                                                                   | 65 |
| Social role of migration in Yakutia                                                                                                                                                                                                                                     |    |
| .....Vinokurova Dekabrina Mikhailovna.....                                                                                                                                                                                                                              | 66 |
| International cooperation in the Arctic in the 1980s-1990s                                                                                                                                                                                                              |    |
| .....Danara Antonovna Shirina.....                                                                                                                                                                                                                                      | 67 |

|                                                                                                                                                                                           |                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Human dimension of the Eastern part of the Russian Arctic: Search for a new model of development                                                                                          | .....Sardana Ilyinichna Boyakova.....68                                                                                                                                         |
| New burst for the Pacific                                                                                                                                                                 | .....Terentiy Ermolaev.....69                                                                                                                                                   |
| Possible impacts of changing snow regimes on growth and distribution of conifer species in high elevation ecosystems                                                                      | .....Akira S. Mori, Eri Mizumachi and Douglas G. Sprugel.....70                                                                                                                 |
| Current-year shoots and branches structural variations within the crown of <i>Abies mariesii</i> growing in a forest-meadow ecotone developed on Tateyama Mountain Range in central Japan | .....Eri Mizumachi and Akira S. Mori.....71                                                                                                                                     |
| Dynamics of tree fine roots in a forest-meadow ecotone developed on Tateyama Mountain Range in central Japan                                                                              | .....Yusuke Doi, Akira S. Mori and Hiroshi Takeda.....72                                                                                                                        |
| A new project proposal “AFoPS Cooperative Research Network for Polar Climate Change Study”                                                                                                | ..... Takashi Yamanouchi .....73                                                                                                                                                |
| ANtarctic geological DRILLing (ANDRILL) Program                                                                                                                                           | .....Frank R. Rack, David Harwood, Richard Levy,<br>and Members of the ANDRILL Science Committee (ASC)<br>and McMurdo-ANDRILL Science Implementation Committee (M-ASIC) .....74 |
| Airborne atmospheric observations in the Antarctic under NIPR-AWI cooperation (ANTSYO- II /AGAMES)                                                                                        | .....Makoto Wada, Takashi Yamanouchi and Andreas Herber.....75                                                                                                                  |
| The polar aerosol optical depth measurement network project (POLAR-AOD-IPY)                                                                                                               | .....Vito Vitale, Claudio Tomasi, Takashi Yamanouchi,<br>Andreas Herber and Robert S. Stone.....76                                                                              |