

**Program of the 19th Symposium on Polar Biology  
held at the National Institute of Polar Research,  
Tokyo, December 5–6, 1996**

—Contributed Papers—

**Biological processes in the Southern Ocean**

- O 1. Effects of ultraviolet radiation on marine ecosystems. EL-SAYED, S., Z., DIJKEN, G. and GONZALEZ-RODAS, G.
- O 2. Considerations for ocean color models of pigments, primary production and carbon flux for polar regions. MITCHELL, B. G.
- O 3. Seasonal variation in the particle size spectrum and microbial planktonic biomass in Antarctic coastal waters. MARCHANT, H. J.
- O 4. Differences in diet between daytime and overnight foraging chinstrap penguins at Seal Islands. ICHII, T., BENGSTON, J. L., HAYASHI, T., MIURA, A., TAKAO, Y., BOVENG, P. and JANSEN, J. K.
- O 5. Vertical Flux under sea ice in 1995 season in Saroma-ko Lagoon, Hokkaido, Japan. TAGUCHI, S., SAITO, H., HATTORI, H. and SHIRASAWA, K.
- O 6. Is global change acting on temporal changes in ice algal biomass and its flux pattern in a low latitude marginal ice-covered sea? KUDOH, S., FUKUCHI, M. and MICHEL, C.
- O 7. Oceanic structure of the Antarctic Divergence and its role in the Southern Ocean. WAKATSUCHI, M., TAIRA, K. and HASUMOTO, H.
- O 8. Mooring measurement off Wilkes Land. FUKAMACHI, Y., WAKATSUCHI, M., TAIRA, K., KITAGAWA, S., TAKAHASHI, A., OIKAWA, K., YORITAKA, H., USHIO, S., FURUKAWA, A., FUKUCHI, M. and YAMANOUCHI, T.
- O 9. Distributions of CFCs and methane in the Southern Ocean. WATANABE, S., TSURUSHIMA, N. and TSUNOGAI, S.
- O11. Distribution of iron in the Australian sector of the Antarctic Ocean. SOHRIN, Y. and IWAMOTO, S.
- O12. Distribution of macrozooplankton around the Antarctic divergence off Wilkes Land in 1996 austral summer. CHIBA, S., TAMAGUCHI, Y. and ISHIMARU, T.

**Lakes in Polar Region**

- O13. Fresh water lakes of barren rocky areas near Syowa Station in Antarctica. SAITO, S., BANDO, T., IMURA, S., HINO, S., KANDA, K. and OHYAMA, Y.
- O14. Trophic status of lakes in Thala Hills—Records from the years 1967 and 1988. KAUP, E
- O15. Vegetation at the bottom of lakes in the vicinity of Syowa Station, Antarctica. IMURA, S., KANDA, H., BANDO, T. and SAITO, S.

**Poster Session I. Marine Biology**

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- P 1. An analysis of the biological-chemical processes in the Antarctic Ocean using the satellite data KIMURA, N. and OKADA, Y.
- P 2. In-water algorithms for estimation of Chlorophyll *a* concentration in the Southern Ocean. HIRAWAKE, T., YAMAGUCHI, Y., ISHIMARU, T. and SATOH, H.
- P 3. Application of regional bio-optical model for czcs derived phytoplankton pigment distribution studies in Antarctic peninsular waters during austral summer. MAHAPATRA, K., MATSUMURA, S., KAWAGUCHI, S. and SENGA, Y
- P 4. Observation of oceanographic structures in the Drake Passage in 1994/95 austral summer. NAGANOBU, M., HOSONUMA, K., ICHII, T., KAWAGUCHI, S. and OGISHIMA, T.

**B. Phytoplankton/Flux**

- P 6. Changes of primary production from early March to late May 1994 in Notoro-ko Lagoon, Japan. SATOH, H., KUSAKA, K. and NAKANE, T.
- P 7. Analysis of ice algal photosynthetic pigments. KASHINO, Y., FUJIMOTO, K., KOIKE, H., SATOH, K.

and KUDOH, S

- P 8 Short-term variability in downward particle flux at the ice-edge of the Antarctic Ocean in summer SASAKI, H., SUZUKI, H., SUZUKI, K., HANNA, N., KUDOH, S and FUKUCHI, M.
- P 9 Seasonal variations in size-fractionated sinking particles in a seasonally ice-covered ecosystem (Saroma-ko lagoon, Okhotsk Sea) MICHEL, C., FUKUCHI, M. and KUDOH, S.
- P10 Size-fractionated Chlorophyll *a* and primary production during spring 1995–96 in the Southern Ocean (Atlantic sector). TREMBLAY, J. E., LUCAS, M. I., BRACHER, A., KATTNER, G. and STRASS, V. H.
- P11 Effect of hydrostatic pressure on the growth of deep-sea bacterial communities. SAKIYAMA, T and OHWADA, K.
- P12 Genetic diversity of the family Vibrionaceae by restriction fragment length polymorphism analysis of 16S rRNA gene isolated from cold marine environments. URAKAWA, H., KITA-TSUKAMOTO, K and OHWADA, K.
- P13 Distribution of phytoplankton around the Antarctic Divergence in 1996 austral summer. HORIMOTO, N., ISHIMARU, T. and YAMAGUCHI, Y.
- P14. Effects of low temperature on the activity of Ribulose-1,5-Bisphosphate Carboxylase/Oxygenase of ice alga *Detonula confervacea* SUZUKI, Y. and TAKAHASHI, M.
- P17 The influence of ice structure on the algal assemblages off Zhongshoan Station, eastern Antarctica HE, J., CHEN, B. and WU, K.

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- P19 Diel changes in microzooplankton and ice algae in the seasonal sea ice at Saroma-ko lagoon. HATTORI, H., SETO, K., FURUTA, Y and SAITO, H
- P20 Factors influencing vertical distribution of copepods at ice-covered Saroma-ko lagoon with particular reference to ice-water interface SAITO, H. and HATTORI, H
- P21 The distribution and filtering rate of *Salpa thompsoni* off Wilkes Land SATO, R., ISHIMARU, T and YAMAGUCHI, Y.
- P22. Microzooplankton grazing in the surface water of Antarctic Ocean during a summer TSUDA, A. and KAWAGUCHI, S.
- P23 Vertical distribution and gonad maturity of *Metridia gerlachei* (Calanoida, Copepoda) in the Pridz Bay, Antarctica 1991. KOHMARU, K., TANIMURA, A., WATANABE, K., HOSIE, G. and KUBOTA, T.
- P24. On *Paralabidocera antarctica* (Calanoida, Copepoda) collected with a light-trap in 1984 by JARE-25. TANIMURA, A
- P25. Ciliates reproducing in the gut of Antarctic krill KOBAYASHI, M., TAGUCHI, S., SAIGUSA, J., TODA, T., KAWAGUCHI, S. and NAGANOBU, M
- P26. Feeding habits of Antarctic krill *Euphausia superba* in South Shetland waters and off Adelie Land NISHINO, Y. and KAWAMURA, A
- P27 Growth of Antarctic krill (*Euphausia superba* Dana) in the aquarium. HIRANO, Y., MATSUDA, T., WATANABE, K. and UCHIDA, I
- P28. Species, stage and size compositions of larval euphausiids in the southeast Bering Sea in summer 1993 and 1995. SEO, M., NISHIMURA, A and NISHIYAMA, T.
- P29. Preliminary results of a biological/oceanographic survey off the coast of East Antarctica (80–150°E) carried out in January–March 1996. NICOL, S., BINDORR, N., PAULY, T., THIELE, D., WOEHLER, E. and WRIGHT, S.
- P30 Antarctic marine copepods . underestimated and undervalued. BEAUMONT, K. L.

#### D. Fish/Benthos

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- P33. By-catch fishes collected during the exploratory long-line fishing carried out in the vicinity of the Kerguelen Islands. IWAMI, T., NUMANAMI, H. and SAWAI, M
- P34. Fluctuation of benthic amphipods in the coastal water near Syowa Station, Antarctica NUMANAMI,

H., TAKEUCHI, I. and HOSHIAI, T.

- P35. Calanoid copepods (Crustacea) with sensory setae on maxilla collected using baited traps from the Antarctic Sea, with reference to taxonomy, zoogeography and feeding ecology. OHTSUKA, S., TAKEUCHI, I. and TANIMURA, A.
- P36. Cholinergic cardiac responses of Antarctic fishes to subzero temperatures. BASTOS-RAMOS, W. P., GONCELVES, N. M. and BACILA, M.

#### E. Sea Birds/Marine Mammal

- P41. Body composition of breeding Leach's Storm-petrels. NIIZUMA, Y., TAKAHASHI, A., HAYAMA, S. and WATANUKI, Y.
- P42. Foraging behavior of male and female King Cormorants. KATO, A., KUROKI, M., WATANUKI, Y., SHAUGHNESSY, P. D. and NAITO, Y.
- P43. The daily and annual change of the chick growth and the food provisioning of Rhinoceros auklet (*Cerorhinca monocerata*). KUROKI, M., TAKAHASHI, A., KATO, A., TSUKAMOTO, K., NAITO, Y. and WATANUKI, Y.
- P44. Parental mass change and food provisioning of Adelie Penguins at colonies with different sea-ice conditions. WATANUKI, Y., MIYAMOTO, T., KATO, A., ROBERTSON, G. and NAITO, Y.
- P45. Aerial observations of emperor penguins (*Aptenodytes forsteri*) in the Riiser-Larsen Peninsula and the Umebosi Rock colonies, East Antarctica in 1994. WATANABE, K. and SATO, T.
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- P47. Activities of captive pygoscelid penguins in artificial lights. KURITA, M., KAWAKAMI, N., AKUNE, Y., KONDO, Y., WATANABE, K. and UCHIDA, I.
- P48. Growth of three king penguins *Aptenodytes patagonicus* in captivity. KAWAKAMI, N., KURITA, M., KONDO, Y., AKUNE, Y., WATANABE, K. and UCHIDA, I.
- P49. Oxygen consumption of harbor porpoises in captivity. OTANI, S., NAITO, Y. and KAWAMURA, A.
- P50. Feeding rate of Dall's porpoise in the waters adjacent to Hokkaido. OHIZUMI, H. and MIYAZAKI, N.
- P51. A biological study on the ringed seal, *Phoca hispida*, captured at Dixson in the Arctic. MIYAZAKI, N., KOYAMA, Y., SASAKI, H., BELIKOV, S. and BOLTUNOV, A.
- P52. Oceanographic analysis on the Southern Minke Whale distribution based on the Japanese scientific permit cruise in 1995/96. NAGANOBU, M., KANO, H., ITOH, K. and NISHIWAKI, S.
- P53. Carbohydrate metabolism in bird erythrocytes: levels of IP5 and 2,3-DPG in Antarctic birds and effect on chicken hexokinase activity. RODRIGUES, E., ROSA, R., OCAMPOS, D., ROSA, C. D. and BACILA, M.
- P54. Ureogenesis in Antarctic birds. RODRIGUES, E., ROSA, R. and BACILA, M.

#### Poster Session II. Terrestrial Biology

##### F. Terrestrial Community in Deglaciated Area

- P55. Relationship between plant community and topographic factor on the moraine at deglaciated Arctic terrain in Ny-Ålesund. MINAMI, Y., OKITSU, S. and KANDA, H.
- P56. Relation between vegetation development and composition of surface materials on moraine at deglaciated Arctic terrain in Ny-Ålesund, Spitsbergen. Okitsu, S., Minami, Y. and Kanda, H.
- P57. Plant colonization and vegetation development at the Arctic glacier edge area. KANDA, H. and MINAMI, Y.
- P58. The relationship between growth form and reproduction of *Saxifraga oppositifolia* L. in Ny-Ålesund, Svalbard. KUME, A., BEKKU, Y. and NAKATSUBO, T.
- P59. Reproductive characteristics of *Dryas octopetala* L. in Ny-Ålesund, Svalbard. WADA, N.
- P60. Root respiration on a deglaciated area in Ny-Ålesund, Svalbard. NAKATSUBO, T., BEKKU, Y., KUME, A. and KOIZUMI, H.
- P61. Temperature dependence of soil respiration on a deglaciated area in Ny-Ålesund, Svalbard. BEKKU, Y., NAKATSUBO, T., KUME, A. and KOIZUMI, H.
- P62. Macrohabitats of soil microarthropods in a polygon. YOSHIDA, S. and OHYAMA, Y.

**G. Environmental Change**

- P63. Green house effect on alpine plants II—Temperature enhancement by Open-top-chamber treatment on Mt Kisokomagatake, Central Japanese Alps— IJIMA, Y. and KIMURA, K
- P64. Green house effect on alpine plants III—Effects of wind shield on the phenology of alpine plants—. FUKUYO, S and GENET
- P65 Growth responses of alpine plants to environmental manipulation by open-top chambers experiments in Tateyama Range, Toyama Prefecture. MIYAMOTO, M., WADA, N. and KOJIMA, S
- P66 Effect of open-top chamber for plants at alpine area of Mt. Fuji NAGAI, M , WATANABE, M. and MASUZAWA, T.
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- P68 The effect of UV on Antarctic algal lipids. SKERRATT, J., DAVIDSON, A., NICHOLS, P and McMEFKIN, T
- P69 Reconstruction of changes in paleoenvironments for Baikal sediment cores (BDP93/1 & 2) inferred from organic compounds. KOSAKU, S., MATSUMOTO, G. I., TAKAMATSU, N , MOTOHASHI, T., NISHI. M.. YOSHINO, Y, HINATA, R., TAKEMURA, T and AMBE, Y
- P70 Effects of natural UV radiation on Antarctic cyanobacterial mats QUESADA, A., GOFF, L., and KARENTZ, D.

**H. Terrestrial Ecosystem**

- P71. Production of sexual organs on *Bryum amblyodon* in Antarctica HIGUCHI, M , NAKATSUBO, T , IMURA, S. and KANDA, H.
- P72. The colonization process of the Antarctic vegetation studies by culture experiments AYUKAWA, E , IMURA, S., KANDA, H and HUKUSIMA, T
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- P74. Seasonal changes in Rubisco content of *Polygonum cuspidatum* growing in alpine zone of Mt. Fuji MATSUURA, T., ASANUMA, T., MASUZAWA, T. and ISHIKAWA, K
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**I. Bacteria and Algae**

- P78 Nitrate removal by Antarctic psychrophilic yeast cells under high salt conditions ISHIKAWA, S , NISHIKAWA, J , TSUJI, M , KOMIYAMA, Y , KATAYAMA-HIRAYAMA and K , HIRAYAMA, K.
- P79 Variation in freezing resistance between isolates of a psychrophilic fungus, *Typhula ishikariensis* from Norway HOSHINO, T , TRONSMO, A. M., MATSUMOTO, N., ARAKI, T , GODA, T.. OHGIYA, S and ISHIZAKI, K
- P80 Microbial biodiversity of Antarctica and temperature sensing in psychrotrophic bacteria. SHIVAJI, S
- P81. Biogeochemical features of sterols in cryptoendolithic microbial communities from the McMurdo Dry Valleys, Antarctica. SEKIYA, E., MATUMOTO, G. I., FRIEDMANN, E. I. and AMBE, Y.
- P82 Lipids of snow molds ISTOKOVICS, A , IZUMI, K., HOSHINO, T.. SAWADA, M . ISHIZAKI, K., MORITA, N. and OKUYAMA, H
- P83 Television image analysis of microbial communities in a Himalayan glacier for biological core analysis YOSHIMURA, Y., KAWASAKI, Y., TSUJI, T and KOHSHIMA, S.
- P84. Heat and freeze tolerances of Antarctic freshwater green algae. NAGASHIMA, H. and MOMOSE, H