

**POLISH ACADEMY OF SCIENCES
Polish National Committee on SCAR**

POLISH ANTARCTIC RESEARCH

**REPORT TO SCAR
2002–2003**

**Record of Activities: January 2002 to December 2003
Polish Antarctic Bibliography 2002–2003
Centres of Polish Antarctic Research**

WARSZAWA 2004

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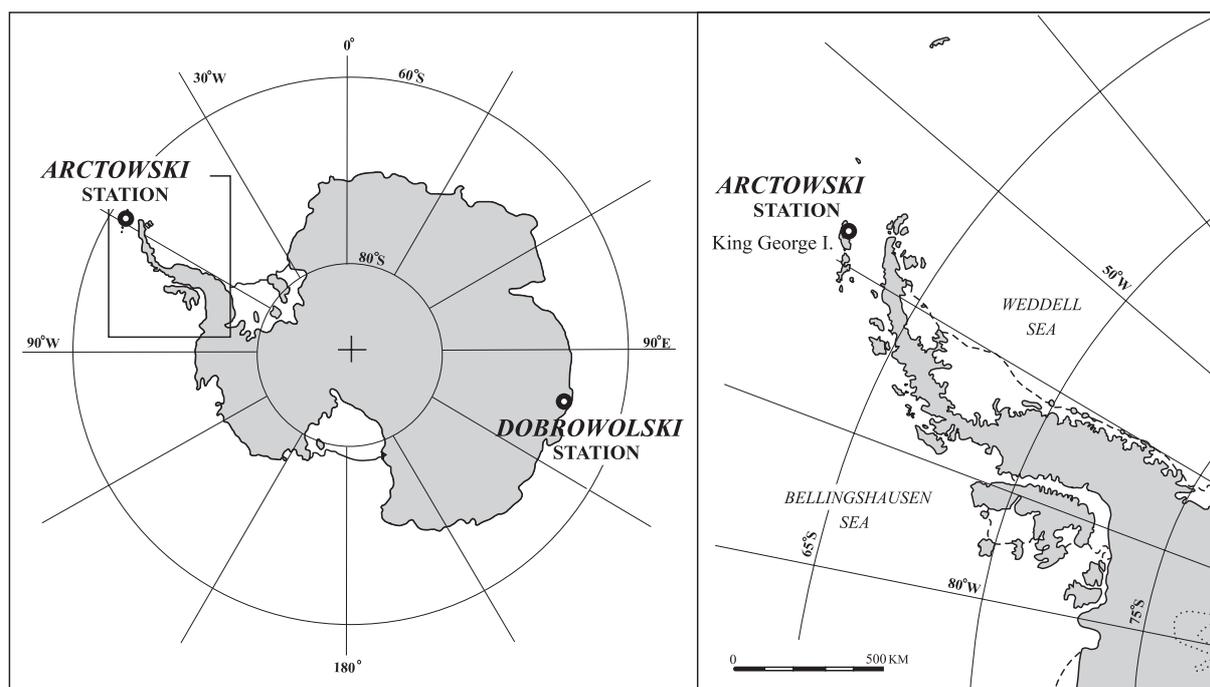
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POLISH ANTARCTIC STATIONS

Name	Location	Latitude	Longitude	Altitude	Operating
<i>Henryk Arctowski</i>	King George Island, South Shetland Islands	62°09' S	58°28' W	3 m	permanently
Programmes being carried out at the Arctowski Station: marine biology, limnology, theriology, ornithology, plant ecology, geology, paleontology					
<i>Antoni B. Dobrowolski</i>	Bunger Hills	66°17' S	100°45' E	35 m	temporarily closed



Index map of Polish Antarctic Stations

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INTRODUCTION

This report has been prepared by the Polish National Committee on SCAR for the Scientific Committee on Antarctic Research of the International Council of Science (ICSU).

The present report includes:

1. Record of scientific activities: January 2002 to December 2003
2. Bibliography of the Polish Antarctic research 2002–2003
3. List of centres of the Polish Antarctic research

EXPEDITIONS

XXVII Expedition to the *Arctowski* Station, 2002–2003

Leader – Dr Wojciech Majewski

Departed from Gdynia on October 1st 2002. Expedition returned home in November 2003. It included 12 members of wintering group (physician from Ukraine), plus 6 members of the summer party.

Programme:

1. Tertiary geology and paleontology of King George Island
2. Quaternary climatic history of Penguin Island and Admiralty Bay
3. Isotope geochemistry of the Admiralty Bay
4. Benthic foraminiferal ecology, Admiralty Bay
5. Behavioral ecology of pinnipeds, Admiralty Bay
6. Greenhouse experiments on plant physiology

XXVIII Expedition to the *Arctowski* Station, 2003–2004

Leader – Wiesław Kołodziejwski

Departed from Gdynia on October 8th 2003. Expedition is expected to return home in December 2004. It includes 13 members of wintering group, plus 9 members of the summer party.

Programme:

1. Interactions in the near-shore zone of the Admiralty Bay
2. Monitoring of selected plants and animals and trophic relations in near-shore zone and pelagic ecosystems
3. Colonization in the near-shore zone of Admiralty Bay
4. Trophochemoreception in invertebrates and fishes
5. Monitoring of physicochemical conditions

PROJECTS

Marine Biology

Location	Project	Principal investigators	Centres
Admiralty Bay, King George Island	Interactions in the near shore zone	S. Rakusa-Suszczewski M. Juchnowicz-Bierbasz I. Zwolska A. Nędzarek A. Tatur	1 1 1 1 1, 2
Admiralty Bay, King George Island	Monitoring of selected groups of plants and animals	E. Kopczyńska R. Ligowski M. Zdanowski K. Chwedorzewska M. Golachowski	1 1, 8, 16 1 1 1
Admiralty Bay, King George Island	Trophic relations in the near shore zone and pelagic ecosystem	E. Kopczyńska R. Ligowski M. Zdanowski K. Chwedorzewska M. Golachowski	1 1, 8, 16 1 1 1
Antarctica	Trophochemoreception in Antarctic invertebrates and fishes	A. Kidawa T. Janecki M. Markowski	1 1 1
Admiralty Bay, King George Island	Zooplankton community – genetic differentiation of Pseudocalanidae family Zooplankton community – seasonal differentiation of krill population	M. I. Żmijewska L. Bielecka E. Guzera	12 12 12
Antarctica	Morphology, taxonomy, biocenology and biogeography of marine organisms, with special attention to the recent and extinct Antarctic communities	K. Jażdżewski A. Gaździcki R. Ligowski J. Siciński W. Kittel P. Presler M. Błażewicz-Paszkowycz A. Konopacka	8 5, 8 1, 8, 16 8 8 8 8 8
Antarctica, Admiralty Bay, King George Island	Structure and ecological role of plankton and benthos in the Antarctic near shore zone	K. Jażdżewski A. Gaździcki R. Ligowski J. Siciński W. Kittel P. Presler M. Błażewicz-Paszkowycz A. Konopacka C. De Broyer	8 5, 8 1, 8, 16 8 8 8 8 8 Belgium
Argentine Islands, King George Island; Bransfield Strait; Weddell Sea	Helminth fauna of the Antarctic and sub-Antarctic vertebrates	K. Zdzitowiecki, A. Rocka, Z. Laskowski	9 9 9
Admiralty Bay, King George Island	Beta-galactosidases from extremophiles and their application in food modification	M. Turkiewicz H. Kalinowska M. Pazgier	31 31 31

Admiralty Bay, King George Island	Novel-psychrozyme – extracellular subtolase of the marine Antarctic yeast	M. Turkiewicz H. Kalinowska M. Pazgier	31 31 31
Admiralty Bay, King George Island	Biosynthesis of polyunsaturated fatty acids omega-3 with the usage of enzymes of Antarctic microorganisms	M. Turkiewicz H. Kalinowska M. Pazgier	31 31 31
Antarctica	Evolution and phylogenetics of notothenioid fishes	A. Stankowicz P. Węgleński	23 23
Antarctica	Biodiversity of Antarctic microflora	P. Borsuk P. Węgleński M. Zdanowski	23 23 1
Antarctica	Selection of bacterial and fungal strains from the Antarctic extreme environments for biotechnological applications	P. Węgleński M. Zdanowski	23 1

Terrestrial Biology

Location	Project	Principal investigators	Centres
Admiralty Bay, King George Island	Processes of plant colonization and succession on recent moraines and ice-free areas	M. Olech P. Loro R. Lasecki	6 19 19
Admiralty Bay, King George Island	Studies on structure of <i>Deschampsia antarctica</i> population	A. Barcikowski P. Loro	10 19
Admiralty Bay, King George Island	Influence of physical factors on seeds dispersion and the soil seed banks in different habitats	P. Loro Cz. Hołdyński	19 19
Admiralty Bay, King George Island	The flora of mosses of the stream banks	Cz. Hołdyński W. Pisarek	19 19
Admiralty Bay, King George Island	Anatomy and embryology studies on <i>Deschampsia antarctica</i> and <i>Colobanthus quitensis</i>	I. Giełwanowska	19
Admiralty Bay, King George Island	Influence of nitrogen compounds in the air on activity of nitroreductase	M. Krywult J. Smykla A. Wincenciak	7 7 10
Admiralty Bay, King George Island	Changes of NDVI index in correlation to phenology and biomass of vegetation	A. Wincenciak	10
Admiralty Bay, King George Island	Chlorophyll contents and carbohydrates in the tissue in the main primary producers of terrestrial ecosystem	P. Loro I. Giełwanowska	19 19
King George Island	Taxonomy, morphology (ultrastructure) and ecology of soil algae	B. Kawecka A. Massalski M. Olech T. Noga L. Kostikov	22 16 6 6 Ukraine
Antarctica	Taxonomy, biology (freezing protection mechanism) and ecology of lichens	M. Olech H. Harańczyk P. Gaca	6 25 25

Antarctica Sub-Antarctica	Taxonomy of the mosses of Antarctic	R. Ochyra H. Bednarek-Ochyra R.I. Lewis Smith	7 7 UK
Prince Edward Islands	The moss flora of the Prince Edward Islands	R. Ochyra V. R. Smith	7 South Africa
South Georgia	The moss flora of South Georgia	R. Ochyra H. Bednarek-Ochyra R.I. Lewis Smith	7 7 UK

Climatology

Location	Project	Principal investigators	Centres
King George Island	Temperature as an environmental factor in <i>Arctowski</i> Station area. Multiannual, annual and daily temperature changes in soil	I. Zwolska S. Rakusa-Suszczewski	30 1
South Shetlands and west coast of Antarctic Peninsula	The influence of largescale changes in hydrological elements of changeability of climatic conditions	A. Styszyńska A. Marsz G. Kruszewski S. Zblewski	26 26

Geodesy and Geographic Information

Location	Project	Principal investigators	Centres
Antarctica	Atmospheric Impact on GPS Observations in Antarctica	J. Cisak W. Baran P. Wielgosz A. Krankowski J. Kryński R. Dietrich I. Shagimuratov Y. Zanimonskiy	17 26 26 26 17 Germany Russia Ukraine
King George Island	King George Island GIS (KGIS)	J. Cisak R. Pudełko E. Dongchen S. Vogt	17 27 China Germany

Geology

Location	Project	Principal investigators	Centres
King George Island	Tertiary glaciations	K. Birkenmajer A. Gaździcki K. P. Krajewski A. Przybycin A. Solecki A. Tatur	4 5 1, 27 29 28 1, 2

King George Island	Quaternary paleoclimatic reconstructions based on marine- and lake-sediment cores	A. Tatur A. Przybycin	1, 2 29
King George Island	Sedimentary petrology of Tertiary deposits	K. P. Krajewski	1, 27
King George Island, Haswell Island	Ornithogenic soils	A. Tatur A. Przybycin C.E.R. Schaefer	1, 2 29 Brazil
King George Island (Admiralty Bay)	Natural radionuclides in environment	A. Solecki	28
Seymour Island	The Weddell Formation: post-Late Pliocene glacial deposits	A. Gaździcki A. Tatur R.A. del Valle	5 1, 2 Argentina

Paleobiology

Location	Project	Principal investigators	Centres
King George Island	Quaternary foraminifera	W. Majewski	5
King George Island	Quaternary ostracods	W. Majewski E. Olempska	5 5
King George Island	Stromatolites from the Polonez Cove Fm. (Oligocene)	A. Gaździcki	5
King George Island	Palynomorphs from Tertiary sequences	A. Gaździcki L. Cao Y. Shen	5 China China
King George Island	Foraminifera from Tertiary glaciomarine strata	A. Gaździcki	5
King George Island	Brachiopods from Oligocene–Miocene strata	M.A. Bitner A. Gaździcki M.R.A. Thomson A. Troedson	5 5 UK Australia
King George Island	Early Cambrian fossils from glacial erratics	R. Wrona	5
Seymour Island	Eocene penguins of Seymour Island: systematics, evolution and paleoecology	P. Jadwiszczak	20
Seymour Island	<i>Tibiotarsus</i> of the Late Eocene bird	Ł. Fostowicz-Frelik A. Gaździcki	5 5
West Antarctica	Cenozoic bryozoan taxonomy, ecology, and biogeography	U. Hara A. Gaździcki J.A. Crame	21 5 UK
Kerguelen Plateau	Middle Miocene surface-water paleoceanography at ODP Site 747	W. Majewski S. Bochaty J. Zachos	5 USA USA

Solid Earth Geophysics

Location	Project	Principal investigators	Centres
West Antarctica	Tectonophysical models of the lithosphere in the transition zone from Pacific Ocean to the Antarctic Peninsula	M. Grad A. Guterch T. Janik	18 3 3
Antarctic Peninsula, South Shetland Islands, West Antarctica	3-Dimensional seismic modeling of the crustal structure between the South Pacific and the Antarctic Peninsula	P. Środa	3
Hero Fracture Zone, West Antarctica	Seismic modeling of the Hero Fracture Zone, West Antarctica	T. Janik	3
West Antarctica	Polish Geodynamical Expeditions to West Antarctica 1979–1991: summary of seismic results	A. Guterch M. Grad T. Janik P. Środa	3 18 3 3

Miscellanea

Location	Project	Principal investigators	Centres
Admiralty Bay, King George Island	Impact of human activity on the Antarctic near-shore ecosystem	M. I. Żmijewska	12
King George Island	Management of the protected areas	S. Rakusa-Suszczewski	1
West Antarctica	Impact of human activity on the Antarctic environment	M. Olech P. Osyczka W. Mietelski E. Dutkiewicz	6 6 24 24

BIBLIOGRAPHY 2002–2003

Biology and Oceanography

- Barcikowski A., Czaplewska J., Loro P., Łyszkiewicz A., Smykla J. and Wojciechowska A. 2003. Ecological variability of *Deschampsia antarctica* in the area of Admiralty Bay (King George Island, Maritime Antarctic). In: L. Frey (ed.) *Problems of grass biology*. Institute of Botany, Polish Academy of Sciences, Kraków; 383–396.
- Barcikowski A., Loro P., Łyszkiewicz A. and Wojciechowska A. 2002. Zmienność ekologiczna *Deschampsia antarctica* w rejonie Zatoki Admiralicji (Szetlandy Południowe), Antarktyka. *V Ogólnopolskie Spotkanie Naukowe, Taksonomia, Kariologia i Rozmieszczenie Traw w Polsce*, Kraków, 14–15 listopada 2002, Abstracts: 19.
- Barcikowski A., Loro P., Łyszkiewicz A. and Wojciechowska A. 2003. Variability of coverage, response pattern to habitat and biomass of *Deschampsia antarctica* Desv. in the area of Admiralty Bay (King George Island, Maritime Antarctic). *XXIX International Polar Symposium*, Kraków, 19–21 September 2003, Abstracts: 19–23.
- Białkowska A., Makowski K. and Turkiewicz M. 2003. An antarctic β -galactosidase – its properties and application. *VIII Sesja Sekcji Młodej Kadry Naukowej Polskiego Towarzystwa Technologów Żywności*, Guzowy Piec k/Olsztyna, 28–29 maja 2000, Abstracts: 33–34.

- Bielecka L., Żmijewska M.I. and Guzera E. 2003. Taxa composition, abundance and distribution of Chaetognatha in Croker Passage (Antarctic Peninsula) in two austral seasons (summer and winter). *XXIX International Polar Symposium*, Kraków, 19–21 September 2003, Abstracts: 25–26.
- Błachowiak-Samołyk K. and Osowiecki A. 2002. Distribution and population structure of pelagic Ostracoda near the sea-ice edge in the Scotia Sea and off the King George Island (December 1988 – January 1989). *Polish Polar Research* 23: 135–152.
- Błażewicz-Paszkowycz M. 2003. Tanaidacea (Malacostraca) dwóch fiordów polarnych: Zatoki Admiralicji (Antarktyka) i Kongsfjorden (Arktyka) – za i przeciw intensywnej sedymentacji. *XXIX International Polar Symposium*, Kraków, 19–21 September 2003, Abstracts: 27–28.
- Błażewicz-Paszkowycz M. and Larsen K. 2003. Apseudomorpha i Neotanaidomorpha (Crustacea, Tanaidacea) abysalu antarktycznego. *Genus, International Journal of Invertebrate Taxonomy, (Supplement), I Kongres Taksonomii Polskiej*, Wrocław, 18–21 września 2003, Abstracts: 81–82.
- Błażewicz-Paszkowycz M. and Ligowski R. 2002. Diatoms as food source indicator for some Antarctic Cumacea and Tanaidacea (Crustacea). *Antarctic Science* 14 (1): 11–15.
- Błażewicz-Paszkowycz M. and Ligowski R. 2002. Okrzemki jako wskaźniki źródeł pokarmu antarktycznych Cumacea i Tanaidacea (Crustacea). *XXVIII Międzynarodowe Sympozjum Polarne*, Poznań 15–16 marca 2002, Abstracts: 14.
- Błażewicz-Paszkowycz M. and Ligowski R. 2003. Treść pokarmowa skorupiaków antarktycznych (Cumacea i Tanaidacea: Crustacea) występujących w różnych siedliskach dna morskiego. *XIX Zjazd Hydrobiologów Polskich*, Warszawa 2003, Abstracts: 10.
- Błażewicz-Paszkowycz M. and Pawlikowska M. 2002. Struktura populacji dwóch antarktycznych skorupiaków: *Eudorella splendida* (Cumacea) i *Nototanais antarcticus* (Tanaidacea). *XXVIII Międzynarodowe Sympozjum Polarne*, Poznań 15–16 marca 2002, Abstracts: 13.
- De Broyer C., Jazdzewski K. and Dauby P. 2003. Biodiversity patterns in the Southern Ocean: lesson from Crustacea. In: A.H.L. Huiskes, W.W.C. Gieskes, J. Rozema, R.M.L. Schorno, S.M. van der Vies and W.J. Wolff (eds) *Antarctic Biology in a Global Context. Proceedings of the VIIIth International Biology Symposium*, 27 August – 1 September 2001, Vrije Universiteit, Amsterdam. The Netherlands, Backhuys Publishers, Leiden, 2003: 201–214.
- De Broyer C., Meerhaeghe A., Duchesne P.A., Grabowski M., Jazdzewski K., Dauby P. 2002. Biodiversity data of the Southern Ocean the “Amphipoda” project. *The Colour of Ocean Data*, Brussels, Belgium, 25–27 November 2002, Book of Abstracts VLIZ Spec. Publ. 11: 53.
- Dehairs F., Elskens M., Savoye N., Cardinal D., Baeyens W., Kopczyńska E., Buesseler K. and Trull T. 2003. Mineralization in the mesopelagic waters of the Southern Ocean: What can we learn from particulate Ba and diatoms? *American Geophysical Union Conference*, Nice, France, April 2003, *Geophysical Research Abstracts*: 5.
- Dehairs F., Lancelot C., André L., Frankignoulle M., Deleersnijder E., Becquvort S., Cardinal D., Cattaldo T., Delille B., Elskens M., Fagel N., Goosse H., Hannon E., Navez J., Probst G., Schoemann V., Kopczyńska E. and Kostianoy A. 2003. An integrated approach to assess carbon dynamics in the Southern Ocean. In: *Marine biota and global change* Vol. I, Belgian Scientific Research Programme on the Antarctic, Phase 4 (1997–2001), Scientific results: 1–160.
- Delimat A. and Rakusa-Suszczewski S. 2003. Greenhouse cultivation of vegetables in Antarctic mineral soil enriched by penguin guano. *XXIX International Polar Symposium*, Kraków, 19–21 September 2003, Abstracts: 35–38.
- Fiala M., Delille B., Dubreuil C., Kopczyńska E., Leblanc K., Morvan J., Queguiner B., Blain S., Cailliau C., Conan P., Corvaisier R., Denis M., Frankignoulle M., Oriol L. and Roy S. 2003. Mesoscale surface distribution of biogeochemical characteristics in the Crozet Basin frontal zones (South Indian Ocean). *Marine Ecology Progress Series* 249: 1–14.
- Gaca P., Mietelski J.W. and Olech M. 2003. Radioactive contamination of lichens and mosses collected in Antarctica. *XXIX International Polar Symposium*, Kraków, 19–21 September 2003, Abstracts: 39–45.
- Gębczyński A.K. 2003. The food demand in the nest of Wilson’s storm petrel. *Polish Polar Research* 24: 127–131.
- Gielwanowska I. 2003. Ultrastructural investigations of *Deschamsia antarctica* mesophyll. *XXIX International Polar Symposium*, Kraków, 19–21 September 2003, Abstracts: 47–49.
- Gromek E. and Turkiewicz M. 2003. Alkalostabilna proteinaza bakterii antarktycznych. *II Kongres Biotechnologii*, Łódź, 23–27 czerwca 2003, Abstracts: 202.
- Harańczyk H., Grandjean J. and Olech M. 2003. Freezing of water bound in lichen thallus as observed by ¹H-NMR. I. Freezing of loosely bound water in *Cladonia mitis* at different hydration levels. *Colloids and Surfaces B: Biointerfaces* 28: 239–249.

- Harańczyk H., Grandjean J., Olech M. and Michalik M. 2003. Freezing of water bound in lichen thallus as observed by $^1\text{H-NMR}$. II. Freezing protection mechanisms in a cosmopolitan lichen *Cladonia mitis* and in Antarctic lichen species at different hydration levels. *Colloids and Surfaces B: Biointerfaces* 28: 251–260.
- Harańczyk H., Ligęzowska A. and Olech M. 2003. Desiccation resistance of the lichen *Turgidosculum complicatulum* and its photobiont *Prasiola crispa* by proton magnetic relaxation, sorption kinetics and sorption isotherm. *XXIX International Polar Symposium*, Kraków, 19–21 September 2003, Abstracts: 51–56.
- Hołdyński Cz., Loro P.M. and Pisarek W. 2003. Wind dispersal of *Deschampsia antarctica* diaspores at the vicinity of the Arctowski Polar Station. *XXIX International Polar Symposium*, Kraków, 19–21 September 2003, Abstracts: 57–60.
- Jackowski E. 2002. Distribution and size of Antarctic krill (*Euphausia superba* Dana) in Polish commercial catches taken in the Atlantic sector of the Southern Ocean from 1997 to 1999. *CCAMLR Science* 9: 83–105.
- Janecki T. and Rakusa-Suszczewski S. 2003. The effect of glutamic acid (glu) and kynurenic acid (kyna) on the metabolism of Antarctic *Abyssorhynchus plebs* Amphipods. *Journal of Crustacean Biology* 24 (1): 81–83.
- Janecki T. and Rakusa-Suszczewski S. 2003. Antarctic starfish *Odontaster validus* (Koehler 1911) reactions to glutamic acid (GLU) and kynurenic acid (KYN). *XXVI Symposium on Polar Biology*, National Institute of Polar Research, Tokyo 2003, Abstracts: 43.
- Jażdźewski K., De Broyer C., Węśławski J.M., Waegle J.W., Błażewicz-Paszkowycz M. and Legeżyńska Z. 2002. Różnorodność skorupiaków-pancerzowców (Crustacea, Malacostraca) południowych i północnych rejonów polarnych. *XXVIII Międzynarodowe Sympozjum Polarne*, Poznań 15–16 marca 2002, Abstracts: 44–45.
- Jażdźewski K., De Broyer C., Presler P., Siciński J., Ligowski R. and Błażewicz-Paszkowycz M. 2003. Species richness of an Antarctic fjord exemplified by the Admiralty Bay benthos. *XXIX International Polar Symposium*, Kraków, 19–21 September 2003, Abstracts: 61–65.
- Juchnowicz-Bierbasz M. and Rakusa-Suszczewski S. 2002. Nutrients and cations content in soil solutions from the present and abandoned penguin rookeries (Antarctica, King George Island). *Polish Journal of Ecology* 50: 79–91.
- Kałużewska M., Szymajda W. and Turkiewicz M. 2003. Antygenowe podobieństwo mezo- i psychrofilnej β -galaktozydazy. *II Kongres Biotechnologii*, Łódź, 23–27 czerwca 2003, Abstracts: 191.
- Kamler E. 2002. Inter-individual and seasonal variability of biological indices in two notothenioid fishes from Admiralty Bay (Antarctica). *Polish Polar Research* 23: 265–278.
- Kamler E. 2002. Ochrona i eksploatacja zasobów żywych Antarktyki. *Sprawy Nauki, Biuletyn Komitetu Badań Naukowych* 12 (85): 13–14.
- Kamler E. 2003. Antarctic fishes: The chemical composition of muscle, liver and food of two notothenioids. *Archives of Polish Fisheries* 11: 197–206.
- Kawecka B. and Olech M. 2003. Diatom diversity of streams in Finnish Lapland and the West Antarctic. *17th International Diatom Symposium*, International Society for Diatom Research, Ottawa, Canada, 25–31 August 2002, Book of Abstracts: 66.
- Kawecka B. and Olech M. 2003. Long-term observations of diatom communities structure of vanishing and ornithologists creeks (King George Island, South Shetland Islands, Maritime Antarctica). *XXIX International Polar Symposium*, Kraków, 19–21 September 2003, Abstracts: 67–69.
- Kidawa A. 2002. *Behawioralne i metaboliczne reakcje antarktycznej rozgwiazdy Odontaster validus (Koehler 1911) wywołane recepcją sygnałów trofochemicznych*. Zakład Biologii Antarktyki PAN, Warszawa; 160 pp.
- Kopczyńska E. and Fiala M. 2003. Surface phytoplankton composition and carbon biomass distribution in the Crozet Basin during austral summer of 1999: variability across frontal zones. *Polar Biology* 27: 17–28.
- Kopczyńska E. and Dehairs F. 2002. Zmienność fitoplanktonu i mikrozooplanktonu w strefach subantarktycznej i antarktycznej na południe od Australii. *XXVIII Międzynarodowe Sympozjum Polarne*, Poznań 15–16 marca 2002, Abstracts: 49–51.
- Kostikov I., Massalski A. and Olech M. 2003. Taxonomical and ecological studies on the pioneer soil algae from deglaciated areas of Maritime Antarctica. *XXIX International Polar Symposium*, Kraków, 19–21 September 2003, Abstracts: 71–73.
- Krywult M., Smykla J. and Wincenciak A. 2003. Influence of ornithogenic fertilization on nitrogen metabolism of the antarctic vegetation. *XXIX International Polar Symposium*, Kraków, 19–21 September 2003, Abstracts: 79–84.
- Krywult M., Smykla J. and Wincenciak A. 2003. Wpływ ornitogenego gradientu związków azotu na rozmieszczenie i metabolizm roślin w Antarktyce. *Toruńskie Seminarium Ekologiczne „Ewolucja układu ekologicznego”*, Instytut Ekologii i Ochrony Środowiska UMK, Toruń 27–29.06.2003, Abstracts: 1.

- Larsen K. and Błażewicz-Paszkowycz M. 2003. A new species of *Neotanais* Beddard (Crustacea: Tanaidacea) from the Subantarctic, off the Falkland Islands. *Zootaxa* 339: 1–11.
- Maciejewska K. 2003. Study on plankton food and feeding as an example of the Polish-Russian cooperation in sea research. In: V. Stryuk (ed.) *History of oceanography, VII International Congress on the history of oceanography*. Kaliningrad University Press: 77–81.
- Nędzarek A. 2003. Releasing of biogenic compounds from penguin guano – preliminary data. *XXIX International Polar Symposium*, Kraków, 19–21 September 2003, Abstracts: 85–88.
- Ochyra R. 2002. *Ptychomnion ringianum* Broth. & Kaal., synonymous with *P. densifolium* (Brid.) A. Jaeger. *Journal of Bryology* 24: 87–88.
- Ochyra R. 2003. Antipodal mosses: VIII. *Valdonia* gen. nov. (Seligeriaceae) from the Kerguelen Province in the Subantarctic. *Cryptogamie, Bryologie* 24: 87–102.
- Ochyra R. 2003. *Schistidium lewis-smithii* (Bryopsida, Grimmiaceae), a new species from the maritime Antarctic. *Nova Hedwigia* 77: 363–372.
- Ochyra R., Bednarek-Ochyra H. and Lewis Smith R.I. 2002. New and rare moss species from subantarctic South Georgia. *Nova Hedwigia* 74: 121–147.
- Ochyra R., Bednarek-Ochyra H. and Lewis Smith, R.I. 2003. *Schistidium deceptionense*, another new endemic moss species from the Antarctic. *The Bryologist* 106: 569–574.
- Ochyra R., Bednarek-Ochyra H. and Lewis Smith R.I. 2003. *Andreaea mutabilis* Hook. f. & Wilson. South Georgia. In: T.L. Blockeel (ed.) *New national and regional bryophyte records 7. Journal of Bryology* 25: 141.
- Ochyra R. and Poulsen R. 2003. Four new moss records from Îles Kerguelen. *Journal of Bryology* 25: 136–138.
- Ochyra R. and Smith V.R. 2003. *Anisothecium cardotii* (R. Br. bis) Ochyra. Marion Island. In: T.L. Blockeel (ed.) *New national and regional bryophyte records, 8. Journal of Bryology* 25: 217.
- Ochyra R. and Smith V.R. 2003. *Entosthodon productus* Mitt. (Funariaceae) on Marion Island – the first record in the Subantarctic. *Cryptogamie, Bryologie* 24: 173–180.
- Ochyra R. and Smith, V.R. 2003. *Syntrichia anderssonii* (Lingstr.) R.H. Zander. Marion Island. In: T.L. Blockeel (ed.) *New national and regional bryophyte records, 8. Journal of Bryology* 25: 219.
- Ochyra R., Smith V.R. and Gremmen N.J.M. 2003. *Thuidium delicatulum* (Hedw.) Schimp. (Thuidiaceae) – another bipolar moss disjunct from Subantarctic Marion Island. *Cryptogamie, Bryologie* 24: 253–263.
- Ochyra R. and Zander R.H. 2002. The genera *Didymodon* and *Bryoerythrophyllum* (Pottiaceae) in Antarctica. *Journal of Bryology* 24: 33–44.
- Olech M. 2002. Plant communities on King George Island. In: L. Beyer and M. Bölter (eds) *Geocology of Antarctic Ice-Free Coastal Landscapes. Ecological Studies* 154: 215–231.
- Olech M. 2003. Expansion of alien vascular plant *Poa annua* L. in the vicinity of the Henryk Arctowski station – a consequence of climate change. *XXIX International Polar Symposium*, Kraków, 19–21 September 2003, Abstracts: 89–90.
- Osyczka P., Dutkiewicz E.M. and Olech M. 2003. PIXE analysis of trace elements in Antarctic lichens *Usnea antarctica*, *Usnea aurantiaco-atra* and mosses *Sanionia uncinata*. *XXIX International Polar Symposium*, Kraków, 19–21 September 2003, Abstracts: 97–101.
- Pazgier M., Turkiewicz M., Kalinowska H. and Bielecki S. 2003. The unique cold-adapted extracellular subtilase from psychrophilic yeast *Leucosporidium antarcticum*. *Journal of Molecular Catalysis B: Enzymatic* 21: 39–42.
- Piotrowicz-Cieślak A.I., Giełwanowska I., Loro P., Bochenek A. and Górecki R.J. 2003. Occurrence of cyclitols, galactosyl cyclitols and soluble sugars in *Deschampsia antarctica* and *Colobanthus quitensis*. 2003. *XXVI Symposium on Polar Biology*, NIPR, Tokyo, December 4 and 5, 2003, Abstracts: 66.
- Pisarek W., Hołdyński Cz. and Loro P.M. 2003. Vegetation diversity in the moss creek valley (The King George Island, South Shetland Islands, Antarctic). *XXIX International Polar Symposium*, Kraków, 19–21 September 2003, Abstracts: 103–108.
- Rakusa-Suszczewski S. 2002. King George Island, South Shetland Islands, Maritime Antarctic, Ecological Studies In: L. Beyer and M. Bölter (eds) *Geocology of Antarctic ice-free coastal landscapes. Ecological Studies* 154: 23–39.
- Rakusa-Suszczewski S. 2003. Functioning of the geocosystem of the west side of Admiralty Bay (King George Island, Antarctic): outline of research at Arctowski Station. *Ocean and Polar Research* 25: 653–662.
- Rakusa-Suszczewski S. and Nędzarek A. 2002. Whale bones and macroalgae as source of nutrients and cations in the nearshore geocosystem of Admiralty Bay (King George Island, Antarctica). *Polish Journal of Ecology* 50: 389–396.
- Rocka A. 2003. Cestodes of the Antarctic fishes. *Polish Polar Research* 24: 261–276.
- Ruhl H.A., Hastings P.A., Zarubick L.A., Jensen R.M. and Zdzitowiecki K. 2003. Fish populations of Port Foster, Deception Island, Antarctica and vicinity. *Deep-Sea Research II* 50: 1843–1858.

- Salwicka K. and Rakusa-Suszczewski S. 2002. Long-term monitoring of Antarctic pinnipeds in Admiralty Bay (South Shetlands, Antarctica). *Acta Theriologica* 47: 443–457.
- Siciński J. and Gillet P. 2002. Biogeographical affinities of polychaetes from Iles Crozet. *Antarctic Science* 14 (4): 353–363.
- Sosiński J. and Kompowski A. 2002. On the biology of *Lepidonotothen macrophthalma* (Norman, 1937) from the Scotia Ridge, Southern Ocean. *Bulletin of the Sea Fisheries Institute* 2 (156): 69–78.
- Sosiński J. and Trella K. 2002. The sexual maturation of mackerel icefish (*Champscephalus gunnari* Lönnberg, 1905) from different regions of the Antarctic. *Bulletin of the Sea Fisheries Institute* 2 (156): 15–32.
- Stanković A., Borsuk P., Koper M. and Węgleński P. 2002. Studies on *Ephelota* sp., an epizoic suctorian found on Antarctic krill. *Polar Biology* 25: 627–632.
- Śliwa L. and Olech M. 2002. Notes on species of *Lecanora* (lichenized Ascomycotina) from the Antarctic. *Polish Polar Research* 23(2): 117–133.
- Tatur A. 2002. 10. Ornithogenic ecosystems in the Maritime Antarctic – formation, development and disintegration. In: L. Beyer and M. Bölter (eds) *Geocology of Antarctic ice-free coastal landscapes. Ecological Studies* 154, Springer Verlag, Berlin–Heidelberg: 161–184.
- Turkiewicz M. 2002. Ekstremozymy i ich biotechnologiczne znaczenie. XXXVIII Zjazd Polskiego Towarzystwa Biochemicznego, Wrocław, wrzesień 2002, Abstracts: 237–238.
- Turkiewicz M. and Białkowska A. 2003. β -galaktozydaza bakterii antarktycznych. II Kongres Biotechnologii, Łódź, 23–27 czerwca 2003, Abstracts: 183.
- Turkiewicz M., Białkowska A., Kalinowska H. and Bielecki S. 2003. Antarctic marine *Pseudoalteromonas* sp. 22b as a source of cold-adapted β -galactosidase. *International Symposium on Marine Biotechnology: Basic and Applications*, Matalascanas, Almonte Huelva, Spain, February 25 – March 1, Abstracts, *Biomolecular Engineering* 20: 47–48.
- Turkiewicz M. and Gromek E. 2002. Metaloproteinaza antarktycznych bakterii *Psychrobacter proteolyticus* sp. nov. XVIII Zjazd Polskiego Towarzystwa Biochemicznego, Wrocław 2002, Abstracts: 105.
- Turkiewicz M., Kalinowska H., Zielińska M., Kuras E., Kasieczka M., Kuc K., Wasiak M. and Majda T. 2003. Optymalizacja biosyntezy wielonienasyconych kwasów tłuszczowych przez wybrane drobnoustroje antarktyczne. II Kongres Biotechnologii, Łódź, 23–27 czerwca 2003, Abstracts.
- Turkiewicz M. and Kuc K. 2002. Wstępna charakterystyka biochemiczna i uzdolnienia enzymatyczne glebowych drobnoustrojowych antarktycznych. XXXVIII Zjazd Polskiego Towarzystwa Biochemicznego, Wrocław 2002, Abstracts: 415.
- Turkiewicz M., Kur J., Białkowska A., Cieśliński H., Kalinowska H. and Bielecki S. 2003. Antarctic marine bacterium *Pseudoalteromonas* sp. 22b as a source of cold-adapted β -galactosidase. *Biomolecular Engineering* 20: 317–324.
- Turkiewicz M. and Makowski K. 2003. Immobilizacja psychrofilnej β -galaktozydazy antarktycznych bakterii *Pseudoalteromonas* sp. 22b. II Kongres Biotechnologii, Łódź, 23–27 czerwca 2003, Abstracts: 201.
- Turkiewicz M. and Pazgier M. 2002. Psychrophilic extracellular subtilase of the yeast *Leucosporidium antarcticum*. Międzynarodowa Konferencja Naukowa “Wykorzystanie drożdży w przetwórstwie żywności – tradycja i przyszłość”, Wrocław, 6–7. 06. 2002, Abstracts: 16–17.
- Turkiewicz M., Pazgier M., Kalinowska H. and Bielecki S. 2003. A cold-adapted extracellular serine proteinase of the yeast *Leucosporidium antarcticum*. *Extremophiles* 7: 435–442.
- Wasik A. 2002. Dlaczego tintinnidy? *Polish Polar Studies* 2002: 39–46.
- Zdanowski M.K. 2002. Bacterial decomposition of penguin guano; preliminary data. *Polish Polar Studies* 2002: 47–50.
- Zdanowski M.K. 2002. Rola bakterii w rozkładzie guana pingwinów i kształtowaniu żyzności gleby w Antarktyce. In: J. Wyszowska and E. Jastrzębska (eds) *Rola drobnoustrojów w kształtowaniu środowiska*. Uniwersytet Warmińsko-Mazurski, Olsztyn 2002, Abstracts: 24–25.
- Zdanowski M.K. 2002. Rozkład bakteryjny guana pingwinów; wstępne dane. XXVIII Międzynarodowe Sympozjum Polarne, Poznań, 15–16 marca 2002, Abstracts: 111.
- Zdanowski M.K. 2002. Zmiany zachodzące w populacji bakterii, uczestniczących w rozkładzie materii pochodzenia morskiego (guano pingwinów) w lądowych warunkach morskiej Antarktyki. II Ogólnopolska Konferencja Hydromikrobiologiczna, Mikroorganizmy w funkcjonowaniu ekosystemów wodnych, Toruń–Ciechocinek, 20–22 maja 2002, Abstracts: 89–90.
- Zdanowski M.K. and Żmuda M.J. 2003. Bakteryjne przemiany w guanie pingwinów kształtujące żyzność gleby w Antarktyce. *Polska Akademia Nauk. Działalność Naukowa. Wybrane zagadnienia*. Zeszyt 15, Warszawa, maj 2003: 59–60.
- Zdzitowiecki K. 2002. Occurrence of Digenea in fishes of the family Nototheniidae in the Weddell Sea. *Acta Parasitologica* 47: 154–158.

- Zdzitowiecki K. 2002. Occurrence of Digenea in fishes of the family Channichthyidae in the Weddell Sea and other sub-continental areas of the Antarctica. *Acta Parasitologica* 47: 159–162.
- Zdzitowiecki K. 2002. Occurrence of Digenea in fishes of the family Artedidraconidae in the Weddell Sea and other areas of Antarctica. *Acta Parasitologica* 47: 306–309.
- Zdzitowiecki K. 2002. Occurrence of Digenea in fishes of the family Bathydraconidae in the Weddell Sea and other areas of Antarctica. *Acta Parasitologica* 47: 310–313.
- Zdzitowiecki K. 2003. Occurrence of Digenea in fishes other than Notothenioidei in the Weddell Sea and the whole Antarctica. *Acta Parasitologica* 48: 195–199.
- Zwoliński Z. 2002. Model krążenia materii mineralnej na obszarach wolnych od lodu, Wyspa Króla Jerzego, Antarktyka Zachodnia. *Polish Polar Studies* 2002: 371–395.
- Żmijewska I.M., Guzera E. and Nastasowska M. 2003. Long-term and seasonal variability of Copepoda from Ezcurra Fiord in Admiralty Bay. *XXIX International Polar Symposium*, Kraków, 19–21 September 2003, Abstracts: 131–133.

Climatology

- Kejna M. 2002. Przebieg dobowy temperatury powietrza na Antarktydzie. *Polish Polar Studies* 2002, Poznań: 161–172.
- Kejna M. and Láska K. 2002. Pokrywa śnieżna w rejonie Stacji H. Arctowskiego (Szetlandy Pd. Antarktyka) w latach 1978–1996. *Problemy Klimatologii Polarnej* 8: 79–94.
- Kejna M. 2002. Przebieg roczny temperatury powietrza na Antarktydzie. *Problemy Klimatologii Polarnej* 12: 5–19.
- Kejna M. 2003. Influence of volcanic eruptions to the air temperature in Antarctic. *XXIX International Polar Symposium*, Kraków, 19–21 September 2003: 199–206.
- Kejna M. 2003. The climate of the Polish Antarctic Station Arctowski. *Gidrometeorologija i ohorona navkolishnogo serodovishcha* 2: 151–157.
- Kejna M. 2003. Trends of air temperature of the Antarctic during the period 1958–2000. *Polish Polar Research* 24 (2): 99–126.
- Kejna M. 2003. Zmiany trendu temperatury powietrza na Antarktydzie w latach 1958–2000. *Problemy Klimatologii Polarnej* 13: 7–26.
- Kruszewski G. 2002. Złodzenie Zatoki Admiralicji w latach 1977–1999. Przebieg i uwarunkowania. *XXVIII Międzynarodowe Sympozjum Polarne*, Poznań 15–16 marca 2002: 52–53.
- Kruszewski G. 2002. *Złodzenie Zatoki Admiralicji – przebieg i uwarunkowania*. Wydawnictwo Uczelniane Akademii Morskiej, Gdynia; 122 pp.
- Styszyńska A. and Zblewski S. 2002. Przebieg wartości wskaźnika oceanizmu na Szetlandach Południowych według zweryfikowanych danych połączonego ciągu Deception-Bellingshausen (1944–2000). *Problemy Klimatologii Polarnej* 12: 21–32.
- Zblewski S. 2002. Próba określenia wpływu temperatury powietrza, usłonecznienia i pokrywy śnieżnej na kształtowanie temperatury powierzchniowej warstwy gruntu na Stacji Arctowskiego (na podstawie pomiarów z roku 1999). *Polish Polar Studies* 2002: 337–355.
- Zwolska I. and Rakusa-Suszczewski S. 2002. Temperature as an environmental factor in the Arctowski Station area (King George Island, South Shetlands Islands). *Geographia Polonica Special Issue, Global Change Polish Perspectives* 75: 51–65.

Geodesy and Geographic Information

- Baran L.W., Rotkiewicz M., Wielgosz P. and Shagimuratov I.I. 2002. Ionospheric effects during a geomagnetic storm. *Vistas for geodesy in the New Millennium. International Association of Geodesy Symposia, 125*, Springer-Verlag Berlin Heidelberg New York 2002: 291–296.
- Bosy L., Figurski M. and Wielgosz P. 2003. The strategy of GPS data processing in precise local networks during high solar activity. *GPS Solutions* 7 (2): 120–129.
- Cisak J., Kryński J. and Zanimonskiy Y.M. 2002. Variations of Ionosphere Versus Variations of Vector Components Determined from Data of IGS Antarctic GPS Stations – New Contribution to the GIANT Project *Atmospheric Impact on GPS Observations in Antarctica*. Paper presented at the AGS-02, Wellington, New Zealand.
- Cisak J., Kryński J., Zanimonskiy Y. and Wielgosz P. 2003. Study on the Influence of Ionosphere on GPS Positioning Results for Antarctic Stations. *Paper presented at the 7-th Bilateral Meeting Italy-Poland*, Bressa-

- none, Italy, 22–23 May 2003. *Proceedings of this Meeting: Reports on Geodesy, IG&GA WUT 2* (65): 213–220.
- Cisak J., Kryński J., Zanimonskiy Y. and Wielgosz P. 2004. Variations of GPS solutions for Antarctic stations. Ionospheric impact in new results of the project “Atmospheric impact on GPS observations in Antarctica”, “Suchasni dosiagnennia geodezychnoi nauky ta vyrobnyctva”. *Zbirnyk naukovykh prac Zahidnogo Geodezychnogo Tovarystva*. Liga-Pres, Lviv 2004: 86–91.
- Ephishov I.I., Shagimuratov I.I., Wielgosz P. and Cisak J. 2002. Phase Fluctuations of GPS Signals at High Latitude Ionosphere During the Storm, EMC2002, *Proceedings of XVI International Wrocław Symposium and Exhibition on Electromagnetic Compatibility*: 37–42.
- Frankowski A., Baran L.W., Shagimuratov I.I. and Cisak J. 2002. Influence of Ionosphere in Antarctic Region on GPS Positioning Precision. *Collection of Papers and Viewgraphs of IGS/IAACs Ionosphere Workshop*, ESOC Darmstadt, Germany, 17–18 January 2002.
- Frankowski A., Baran L.W., Shagimuratov I.I. and Cisak J. 2002. Influence of Ionosphere in Arctic and Antarctic Regions on GPS Positioning Precision. *Publication of the Scientific Committee on Antarctic Research*, Scott Polar Research Institute, Cambridge, UK, SCAR Report 21, January 2002: 49–53
- Frankowski A., Baran L.W. and Shagimuratov I.I. 2002. Influence of the northern ionosphere on positioning precision. *Physics and Chemistry of the Earth* 27 (5): 391–395.
- Kryński J. and Zanimonskiy Y. 2001. Contribution of Data from Polar Regions to the Investigation of Short Term Geodynamics. First Results and Perspectives, January 2002. *Publication of the Scientific Committee on Antarctic Research*, Scott Polar Research Institute, Cambridge, UK, SCAR Report 21: 56–60
- Manning J. and Cisak J. 2002. Overview of the SCAR/WG-GGI/GIANT activities within the project on the Atmospheric Impact on GPS Observations in Antarctica and possible fields of cooperation with IGS/Iono WG. *Proceedings of IGS/IAACs Ionosphere Workshop*, Darmstadt, 17–18 January 2002.
- Olijnyk A., Prokopov A., Zanimonskiy Y. and Cisak J. 2003. About an ionospheric component of precision GNSS-measurements' error. *Zbirnyk naukovykh prac Zahidnogo Geodezychnogo Tovarystva „Suchasni dosiagnennia geodezychnoi nauky ta vyrobnyctva”*, Liga-Pres, Lviv 2004: 110–116.
- Pudęłko R. 2003. Topographic map of the SSSI No. 8, King George Island, West Antarctica. *Polish Polar Research* 24 (1): 53–60.
- Shagimuratov I.I., Baran L.W., Tepenitsyna N.J. and Ephishov I.I. 2002. Variations of TEC during ionospheric storm in September 1999 Obtained from GPS Observations. *Proceedings of the XX Conference on Propagation of Radio Waves*, Niznij Novgorod, 2–4 July 2002, Niznij Novgorod: 123–124.
- Shagimuratov I.I., Baran L.W., Wielgosz P. and Yakimova G.A. 2002. The structure of mid- and high-latitude ionosphere during September 1999 storm event obtained from GPS observations. *Ann. Geophys.* 20: 1–6.

Geology and Paleontology

- Barczuk A. and Tatur A. 2003. Biogenic phosphate and sulphate minerals in the soils of Antarctic Peninsula. *Mineralogical Society of Poland, Prace Specjalne PTM* 23: 41–44.
- Birkenmajer K. 2002. Retreat of Ecology Glacier, Admiralty Bay, King George Island (South Shetland Islands, West Antarctica), 1956–2001. *Bulletin of the Polish Academy of Sciences: Earth Sciences* 50 (1): 15–29.
- Birkenmajer K. 2002. Deglaciation at Admiralty Bay, King George Island (South Shetland Island, West Antarctica). *XXVth Antarctic Treaty Consultative Meeting (Warsaw 2002)*, XXV ATCM InfoPaper IP-002-PL: 1–3.
- Birkenmajer K. 2002. Admiralty Bay, King George Island (South Shetland Islands, West Antarctica). *Geological Map and Cross-sections, 1:50,000*. Polish Academy of Sciences: Institute of Geological Sciences (Cracow Research Centre) and Department of Antarctic Biology (Warsaw).
- Birkenmajer K., Gradziński R. and Porębski S.J. 2002. Sedimentary features of a Tertiary lahar on King George Island, South Shetland Islands, West Antarctica. *Bulletin of the Polish Academy of Sciences, Earth-Sciences* 50 (1): 81–97.
- Birkenmajer K. 2003. Admiralty Bay, King George Island (South Shetland Islands, West Antarctica): a geological monograph. *Studia Geologica Polonica* 120: 1–74 + geological colour map 1:50,000.
- Birkenmajer K. and Lorenc M.W. 2003. Geology and petrography of a large porphyritic andesite dyke at Paradise Harbour, Danco Coast, West Antarctica. *Bulletin of the Polish Academy of Sciences: Earth Sciences* 51 (2): 159–169.
- Bitner M.A. and Crame J.A. 2002. Brachiopods from the Lower Miocene of King George Island, West Antarctica. *Polish Polar Research* 23 (1): 75–84.

- Dobrzyń P. and Tatur A. 2003. Algal pigments in fast ice and under-ice water in an Arctic fjord (May 1997). *Sarsia* 88 (4): 291–296.
- Fostowicz-Frelik Ł. 2003. An enigmatic whale tooth from the Upper Eocene of Seymour Island, Antarctica. *Polish Polar Research* 24 (1): 13–28.
- Gaździcki A. 2002. Polskie badania paleontologiczne w Antarktyce. *XXVIII Międzynarodowe Sympozjum Polarne*, Poznań 15–16 marca 2002: 25–27.
- Gaździcki A. 2003. Stromatolites from the Oligocene of King George Island, West Antarctica. *9th International Symposium on Antarctic Earth Sciences*, September 8–12, 2003, Potsdam, Germany. *Terra Nostra* 2003/4: 114–115.
- Gaździcki A. 2003. Polish paleontological studies in Antarctica. *XXIX International Polar Symposium*, Kraków 19–21 September 2003: 159–161.
- Gaździcki A. 2003. Tertiary ecosystems of Antarctica. *XXIX International Polar Symposium*, Kraków 19–21 September 2003: 163–167.
- Gaździcki A. and Majewski W. 2003. Recent foraminifera from Goulden Cove of King George Island, Antarctica. *Polish Polar Research* 24 (1): 3–12.
- Hara U. 2002. A new macroporid bryozoan from Eocene of Seymour Island, Antarctic Peninsula. *Polish Polar Research* 23: 213–225.
- Hara U. 2002. Origin and biogeographical links of the Eocene bryozoans, Seymour Island, Antarctic Peninsula. *The XVIII Scientific Conference of Palaeontologists. Morphogenesis and ecological implications*, Poznań 26–28.09.2002. University of Poznań: 15–16.
- Hara U. 2002. Significance of the Early Tertiary bryozoan fauna of Seymour Island (Antarctic Peninsula) for evolutionary perspective and biogeographical connections”. *The 4th Larwood Symposium, Geological Institute and Geological Museum*, University of Copenhagen, December 9th – 10th 2002, Program with Abstracts: 5–7.
- Hara U. 2003. Migration routes and biogeographical connections of the Eocene bryozoan fauna from the La Meseta Formation. Antarctica. *Przegląd Geologiczny* 51: 251–253.
- Hara U. 2003. Bryozoan growth-forms – as palaeoenvironmental indicators of the La Meseta Formation (Eocene), Seymour Island, West Antarctica. *9th International Symposium on Antarctic Earth Sciences*, September 8–12, 2003, Potsdam, Germany. *Terra Nostra* 2003/4: 143–144.
- Jadwiszczak P. 2003. The early evolution of Antarctic penguins. In: A.H.L. Huiskes, W.W.C. Gieskes, J. Rozema, R.M.L. Schorno, S.M. van der Vies and W.J. Wolff (eds) *Antarctic Biology in a Global Context*. Backhuys Publishers, Leiden; 148–151.
- Jadwiszczak P. 2003. Eocene penguins of Seymour Island: systematics, evolution and paleoecology. *9th International Symposium on Antarctic Earth Sciences*, September 8–12, 2003, Potsdam, Germany. *Terra Nostra* 2003/4: 169.
- Kriwet J. and Gaździcki A. 2003. New Eocene Antarctic chimeroid fish (Holocephali, Chimaeriformes). *Polish Polar Research* 21 (1): 29–51.
- Majewski W. 2002. The Miocene oceanographic history of the southern Kerguelen Plateau: planktic foraminiferal data, ODP Site 744. In: J.A. Gamble, D.N.B. Skinner and S. Henrys (eds) *Antarctica at the close of a millennium*. *Royal Society of New Zealand Bulletin* 35: 281–286.
- Majewski W. 2002. Antarktyczny projekt badawczy Cape Roberts: zadania i rezultaty. *XXVIII Międzynarodowe Sympozjum Polarne*, Poznań 15–16 marca 2002: 58–59.
- Majewski W. 2002. Mid-Miocene invasion of ecological niches by planktonic foraminifera of the Kerguelen Plateau, Antarctica. *Marine Micropaleontology* 46: 59–81.
- Majewski W. 2002. Sygnały ocieplenia klimatu z osadów środkowomiocenijskich rejonu Grzbietu Kergueleńskiego (Południowy Ocean Lodowaty). *PAN Działalność Naukowa, Wybrane Zagadnienia* 14: 61–63.
- Majewski W. 2003. Water-depth distribution of Miocene planktonic foraminifera from ODP Site 744, Southern Indian Ocean. *Journal of Foraminiferal Research* 33 (2): 144–154.
- Myrcha A., Jadwiszczak P., Tambussi C.P., Noriega J.I., Gaździcki A., Tatur A. and del Valle R.A. 2002. Taxonomic revision of Eocene Antarctic penguins based on tarsometatarsal morphology. *Polish Polar Research* 23 (1): 5–46.
- Schaefer C.E.R., Simas F.N.B., Costa L.M., Albuquerque Filho M.R., Dias L.E., Michel R.M. and Tatur A. 2003. Nutrients bioavailability of ornithogenic cryosoils on volcanic rocks from Admiralty Bay, King George Island, Antarctica. *9th International Symposium on Antarctic Earth Sciences*, September 8–12, 2003, Potsdam, Germany. *Terra Nostra* 2003/4: 290–291.
- Solecki A.T. 2003. Radon and its daughters activities in environment of the King George Island (West Antarctica). *7th International Conference on Gas Geochemistry*, 22–26 September 2003, Freiberg. Extended Abstracts 55–56.

- Solecki A.T. 2003. Radon and thoron daughters activities in environment of the King George Island (West Antarctica). *7th International Conference on Gas Geochemistry*, 22–26 September 2003, Freiberg. Programme and Abstract Book.
- Tatur A., del Valle R., Barczuk A. and Martinez-Macchiavello J. 2003. A record of Holocene environmental changes in terrestrial sedimentary deposits on King George Island, Antarctica. In: K. Yeang, I.L. Jong and I.L. Jae (eds) *Recent approaches in Polar Earth Science KORDI. 10th Seoul International Symposium on Polar Sciences*, October 21–23, 2003, Incheon, Korea: 33–36.
- Wrona R. 2003. Early Cambrian molluscs from glacial erratics of King George Island, West Antarctica. *Polish Polar Research* 24 (3–4): 181–216.
- Wrona R. 2004. Cambrian microfossils from glacial erratics of King George Island, Antarctica. *Acta Palaeontologica Polonica* 49 (1): 13–56.

Solid Earth Geophysics

- Grad M., Guterch A., Janik T. and Środa P. 2002. Seismic characteristic of the crust in the transition zone from the Pacific Ocean to the northern Antarctic Peninsula, West Antarctica. In: J.A. Gamble, D.N.B. Skinner and S. Henrys (eds) *Antarctica at the close of a millennium. Royal Society of New Zealand Bulletin* 35: 493–498.
- Grad M., Guterch A., Janik T. and Środa P. 2002. 20 lat polskich badań sejsmicznych Antarktyki Zachodniej. *XXVII Międzynarodowe Sympozjum Polarne. Funkcjonowanie i monitoring geosystemów obszarów polarnych*, Poznań, 15–16 marca 2002: 35–38.
- Grad M., Guterch A., Janik T. and Środa P. 2003. Seismic crustal structure of the West Antarctica between the Elephant Island and Marguerite Bay. *XXIX International Polar Symposium. The Functioning of Polar Ecosystems as Viewed Against Global Environmental Changes*, Kraków, 19–21 September 2003: 181–183.
- Grad M., Guterch A., Janik T. and Środa P. 2003. Seismic crustal structure of the West Antarctica between the Elephant Island and Marguerite Bay. *9th International Symposium on Antarctic Earth Sciences. Antarctic Contributions to Global Earth Science*, Potsdam, Germany, September 8–12, 2003: 131.
- Guterch A., Grad M., Janik T. and Środa P. 2003. Deep crustal seismic models along Antarctic Peninsula, West Antarctica. *9th International Symposium on Antarctic Earth Sciences. Antarctic Contributions to Global Earth Science*, Potsdam, Germany, September 8–12, 2003: 139.
- Janik T. 2003. Seismic modeling of the Hero Fracture Zone, West Antarctica. *9th International Symposium on Antarctic Earth Sciences. Antarctic Contributions to Global Earth Science*, Potsdam, Germany, September 8–12, 2003: 170.
- Środa P. 2002. Three-dimensional seismic modeling of the crustal structure between the South Pacific and the Antarctic Peninsula. In: J.A. Gamble, D.N.B. Skinner and S. Henrys (eds) *Antarctica at the close of a millennium. Royal Society of New Zealand Bulletin* 35: 555–561.

Miscellanea

- Birkenmajer K., Gaździcki A., Głowacki P., Górski M., Grad M., Guterch A., Jania J., Jażdżewski K., Kwarecki K., Ligowski R., Machowski J., Pękała K., Rakusa-Suszczewski S., Siciński J., Węslawski M. and Zalewski M. 2002. *Arctic and Antarctic Research Programme of Poland 2002–2010*. Committee on Polar Research, Polish Academy of Sciences, Warsaw; 95 pp.
- Cisak J. 2002. Overview of the SCAR/WG-GGI/GIANT Activities as an Introduction to the Workshop. *Paper presented at the International workshop on "Atmospheric impact on GPS observations focused on polar regions"*, 15 May 2002, Warsaw, Poland.
- Cisak J. 2002. Atmospheric Impact on GPS Observations in Antarctica - Project of GEODESY/GIANT program of SCAR WGGGI Report 2000 – 2002, *Presentation on WGGGI meeting of XXVII SCAR*.
- Greenhouse cultivation of vegetables in Antarctic mineral soil enriched by penguin guano. *XXVI ATCM Information Paper* IP-083-PL, Agenda Item: VI CEP 4d Poland Original: English, Madrid, 9–20 de Junio 2003.
- Olech M. 2003. *XXIX Międzynarodowe Sympozjum Polarne, Kraków 2003. Biuletyn Polarny* 11: 45–46.
- Polish Antarctic Research. *Report to SCAR 1998–2001*. Polish Academy of Sciences, Polish National Committee on SCAR, Warszawa 2002: 1–24.
- Pudełko R. 2002. Map: Site of Special Scientific Interest No. 8 (SSSI-8) King George Island. Transverse Mercator Projection, WGS 84 Spheroid, Central Meridian 57°W, Reference Latitude 0°, 1:12,500.
- Pudełko R., Cisak J. and Sękowski M. 2003. New topographic map of the SSSI No. 8 – from survey to a final edition in digital form, 2nd International Antarctic GIS Workshop. *SCAR GI Technical Experts Meeting 2003*, Freiburg, Germany, April 7th –11th.

- Racki G. 2002. *Polish Polar Research* as a medium of international scientific communication 1996–2002. *Polish Polar Research* 23: 279–292.
- Report on the 26th expedition to H. Arctowski Station in 2001–2002. *XXVI ATCM Information Paper* IP-107-PL, Agenda Item: ATCM 15 Poland Original: English, Madrid, 9–20 de Junio 2003.
- Sarkowicz R. 2002. XXV Antarctic Treaty Consultative Meeting, Warsaw 2002. *Polish Polar Research* 24 (1): 89–91.

Book Reviews

- Feldmann R.M. 2002. Paleontological Results of the Polish Antarctic Expeditions. Part III by A. Gaździcki. *Polish Polar Research* 23 (1): 107–108.
- Ochyra R. 2002. Lichens of Antarctica and South Georgia. A guide to their identification and ecology by D.O. Øvstedal and R.I. Lewis Smith. *Polish Polar Research* 23 (1): 109–111.
- Ochyra R. 2002. The Antarctic mosses with special reference to the South Shetland Islands by J. Putzke and A.B. Pereira. *Polish Polar Research* 23 (3–4): 293–298.
- Studencka B. 2003. Late Cenozoic–Recent Pectinidae (Mollusca: Bivalvia) of the Southern Ocean and neighbouring regions by H.A. Jonkers. *Polish Polar Research* 24 (3–4): 277–278.

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