MEMBER COUNTRY: POLAND						
National Report to SCAR for year 2022						
Activity	**Contact Name**	**Address**	**Telephone**	**Fax**	**Email**	**web site**
National SCAR Committee						
President	Piotr Głowacki	Institute of Geophysics, Polish Academy of Sciences, Księcia Janusza 64, 01-452 Warszawa, Poland	(48 22) 691 56 87	(48 22) 691 59 15	glowacki@igf.edu.pl	www.kbp.pan.pl
SCAR Delegates						
Delegate	Wojciech Majewski	Institute of Paleobiology, Polish Academy of Sciences, Twarda 51/55, 00-818 Warszawa, Poland	(48 22) 697 88 53	(48 22) 620 62 25	wmaj@twarda.pan.pl	www.paleo.pan.pl
Alternate Delegate	Robert Bialik	Institute of Biochemistry and Biophysics, Polish Academy of Sciences, Department of Antarctic Biology, Pawinskiego 5a, 02-106 Warszawa, Poland	(48 22) 659 57 93	(48 22) 592 21 90	rbialik@ibb.waw.pl	www.arctowski.aq
Standing Scientific Groups						
Life Sciences						
	Robert Bialik	Institute of Biochemistry and Biophysics, Polish Academy of Sciences, Department of Antarctic Biology, Pawinskiego 5a, 02-106 Warszawa, Poland	(48 22) 659 57 93	(48 22) 592 21 90	rbialik@ibb.waw.pl	www.arctowski.aq
	Katarzyna Chwedorzewska	Warsaw University of Life Sciences, Faculty of Agriculture and Biology, Nowoursynowska 166, 02-787 Warszawa, Poland	(48) 785 600 553		kchwedorzewska@go2.pl	

	Piotr Kukliński	Institute of Oceanology, Polish Academy of Sciences, Powstańców Warszawy 55, 81-967 Sopot, Poland	(48 58) 731 17 96	(48 58) 551 21 30	kuki@iopan.pl	www.iopan.gda.pl
	Maria Olech	Jagiellonian University, Department of Polar Studies and Documentation, Institute of Botany, Kopernika 27, 31-501 Kraków, Poland	(48 12) 421 02 77 ext. 26	(48 12) 423 09 49	olech@ib.uj.edu.pl	www.ib.uj.edu.pl
Geosciences						
	Monika A. Kusiak	Institute of Geophysics, Polish Academy of Sciences, Księcia Janusza 64, 01-452 Warszawa, Poland	(48 22) 691 57 49	(48 22) 691 59 15	monika.kusiak@igf.edu.pl	www.igf.edu.pl
	Marek Lewandowski	Institute of Geophysics, Polish Academy of Sciences, Księcia Janusza 64, 01-452 Warszawa, Poland	(48 22) 691 57 64	(48 22) 691 59 15	lemar@igf.edu.pl	www.igf.edu.pl
	Wojciech Majewski	Institute of Paleobiology, Polish Academy of Sciences, Twarda 51/55, 00-818 Warszawa, Poland	(48 22) 697 88 53	(48 22) 620 62 25	wmaj@twarda.pan.pl	www.paleo.pan.pl
Physical Sciences						
	Adam Nawrot	Institute of Geophysics, Polish Academy of Sciences, Księcia Janusza 64, 01-452 Warszawa, Poland	(48 22) 691 58 43	(48 22) 691 59 15	anawrot@igf.edu.pl	www.igf.edu.pl
	Michał Pętlicki	Insitute of Geography and Spatial Magagement - Jagiellonian University in Krakow, Gronostajowa 7, 30-387 Kraków, Poland	(48 12) 664 52 82	(48 12) 664 53 85	michal.petlicki@uj.edu.pl	https://geo.uj.edu.pl/

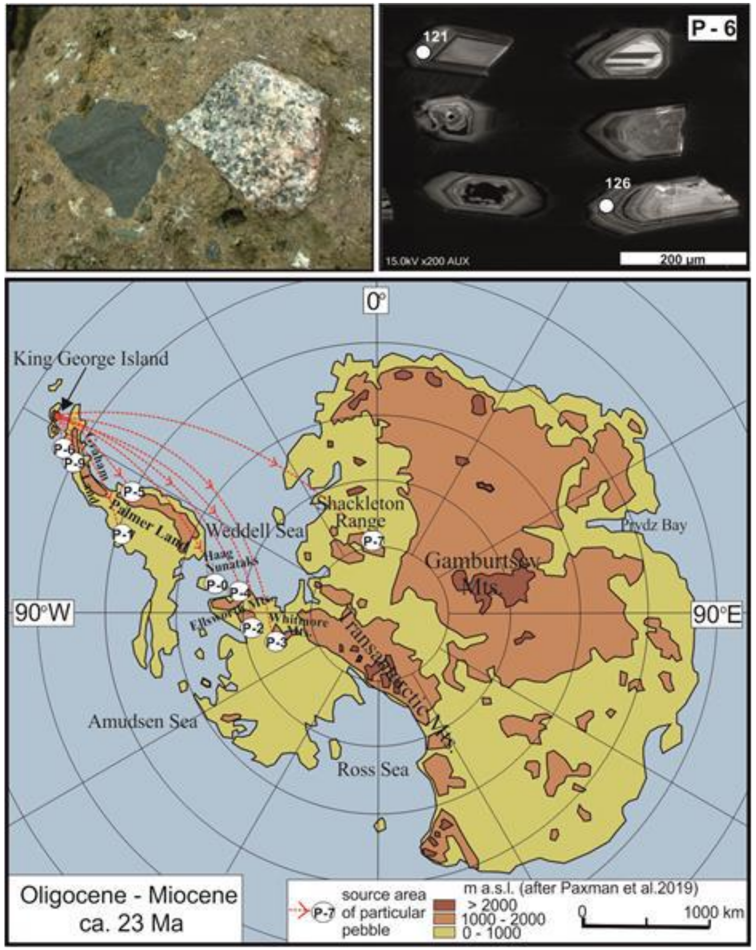
	Grzegorz Rachlewicz	Adam Mickiewicz University in Poznań, Institute of Geoecology and Geoinformation, Krygowskiego 10, 61-680 Poznań, Poland	(48 61) 829 61 83	(48 61) 829 62 71	grzera@amu.edu.pl	polar.amu.edu.pl
Scientific Research Programs						
Ant-ICON						
	Małgorzata Korczak-Abshire	Institute of Biochemistry and Biophysics, Polish Academy of Sciences, Department of Antarctic Biology, Pawinskiego 5a, 02-106 Warszawa, Poland	(48 22) 659 57 94	(48 22) 592 21 90	mka@ibb.waw.pl	www.arctowski.aq
	Adam Nawrot	Institute of Geophysics, Polish Academy of Sciences, Księcia Janusza 64, 01-452 Warszawa, Poland	(48 22) 691 58 43	(48 22) 691 59 15	anawrot@igf.edu.pl	www.igf.edu.pl
	Piotr Androsiuk	Faculty of Biology and Biotechnology, University of Warmia and Mazury, ul. Michała Oczapowskiego 1A, 10-719 Olsztyn, Poland	(48 89) 523 44 29		piotr.androsiuk@uwm.edu.pl	wbib.uwm.edu.pl
INSTANT						
	Grzegorz Rachlewicz	Adam Mickiewicz University in Poznań, Institute of Geoecology and Geoinformation, Krygowskiego 10, 61-680 Poznań, Poland	(48 61) 829 61 83	(48 61) 829 62 71	grzera@amu.edu.pl	polar.amu.edu.pl
	Wojciech Majewski	Institute of Paleobiology, Polish Academy of Sciences, Twarda 51/55, 00-818 Warszawa, Poland	(48 22) 697 88 53	(48 22) 620 62 25	wmaj@twarda.pan.pl	www.paleo.pan.pl
AntClimNow						

EXPERT GROUPS						
ANTOS	Adam Nawrot	Institute of Geophysics, Polish Academy of Sciences, Księcia Janusza 64, 01-452 Warszawa, Poland	(48 22) 691 58 43	(48 22) 691 59 15	anawrot@igf.edu.pl	www.igf.edu.pl
Birds and Marine Mammals (EG-BAMM)	Robert Bialik	Institute of Biochemistry and Biophysics, Polish Academy of Sciences, Department of Antarctic Biology, Pawinskiego 5a, 02-106 Warszawa, Poland	(48 22) 659 57 93	(48 22) 592 21 90	rbialik@ibb.waw.pl	www.arctowski.aq
Geological heritage and Geoconservation	Robert Bialik	Institute of Biochemistry and Biophysics, Polish Academy of Sciences, Department of Antarctic Biology, Pawinskiego 5a, 02-106 Warszawa, Poland	(48 22) 659 57 93	(48 22) 592 21 90	rbialik@ibb.waw.pl	www.ibb.waw.pl
Remote Sensing Group	Małgorzata Korczak-Abshire	Institute of Biochemistry and Biophysics, Polish Academy of Sciences, Department of Antarctic Biology, Pawinskiego 5a, 02-106 Warszawa, Poland	(48 22) 659 57 94	(48 22) 592 21 90	mka@ibb.waw.pl	www.arctowski.aq
SOOS	Piotr Kukliński	Institute of Oceanology, Polish Academy of Sciences, Powstańców Warszawy 55, 81-967 Sopot, Poland	(48 58) 731 17 96	(48 58) 551 21 30	kuki@iopan.pl	www.iopan.gda.pl
SCADM						
	Katarzyna Chwedorzewska	Warsaw University of Life Sciences, Faculty of Agriculture and Biology, Nowoursynowska 166, 02-787 Warszawa, Poland	(48) 785 600 553		kchwedorzewska@go2.pl	
NATIONAL ANTARCTIC DATA CENTRE						
Institute of Biochemistry and Biophysics, Polish Academy of Sciences, Department of Antarctic Biology, Pawinskiego 5a, 02-106 Warszawa, Poland			(48 22) 846 33 83	(48 42) 846 19 12	secretariate@ibb.waw.pl	www. ibb.waw.pl

Department of Polar Studies and Documentation, Institute of Botany, Jagiellonian University, Kopernika 27, 31-501 Kraków, Poland			(48 12) 421 02 77 ext. 26	(48 12) 423 09 49	olech@ib.uj.edu.pl	www.ib.uj.edu.pl
SCAR-MarBIN (RAMS editors)						
	Jacek Siciński	University of Łódź, Department of Invertebrate Zoology & Hydrobiology, Banacha 12/16, 90-237 Łódź, Poland	(48 42) 635 42 92	(48 42) 635 44 40	jacek.sicinski@biol.uni.lodz.pl	www.invertebrates.uni.lodz.pl/en/
	Magdalena Błażewicz	University of Łódź, Department of Invertebrate Zoology & Hydrobiology, Banacha 12/16, 90-237 Łódź, Poland	(48 42) 635 42 97	(48 42) 635 44 40	magdalena.blazewicz@biol.uni.lodz.pl	www.invertebrates.uni.lodz.pl/en/
	Katarzyna Błachowiak-Samołyk	Institute of Oceanology, Polish Academy of Sciences, Powstańców Warszawy 55, 81-967 Sopot, Poland	(48 58) 731 17 77	(48 58) 551 21 30	kasiab@iopan.gda.pl	www.iopan.gda.pl
	Piotr Kukliński	Institute of Oceanology, Polish Academy of Sciences, Powstańców Warszawy 55, 81-967 Sopot, Poland	(48 58) 731 17 96	(48 58) 551 21 30	kuki@iopan.pl	www.iopan.gda.pl
	Anna Rocka	Institute of Parasitology, Polish Academy of Sciences, Twarda 51/55, 00-818 Warszawa, Poland	(48 22) 751 17 14	(48 22) 620 62 27	abroccy@poczta.onet.pl	www.ipar.pan.pl
A BRIEF SUMMARY OF SCIENTIFIC HIGHLIGHTS:						
See the following pages						

Nawrocki J., Pańczyk M., Wójcik K. & Tatur A. 2021. U-Pb isotopic ages and provenance of some far travelled exotic pebbles from glaciogenic sediments of the Polonez Cove Formation (Oligocene, King George Island). *Journal of the Geological Scoicety* 178: jgs2020-113.

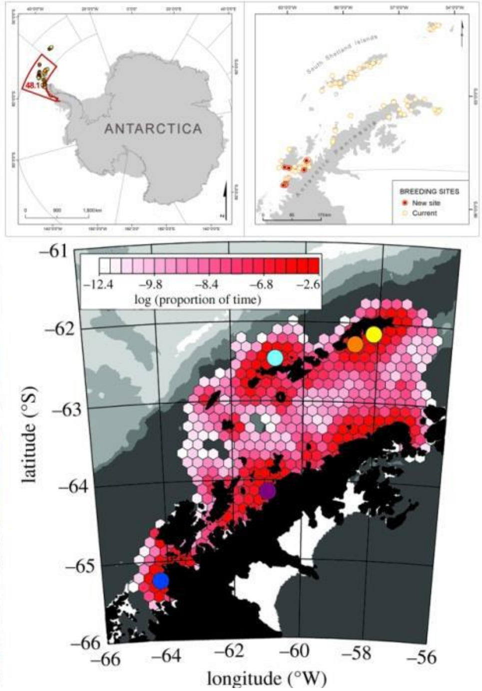
Glacial tills can contain a set of far travelled exotic pebbles that may provide a unique information on the extensions and nuclei of glaciations. On the other hand, the provenance studies of exotic pebbles can enable insight into geological structures now covered by the ice. The record of the early/middle Oligocene Polonez Glaciation is very well documented on southern King George Island. The U-Pb ages of zircon grains from exotic pebbles of the Polonez Cove Formation were analyzed to establish the source areas for these erratics, in particular whether they were derived from the nearby Antarctic Peninsula or from more distant areas like the Ellsworth or Transantarctic mountains. The isotope data indicated that pebbles of crystalline rocks were derived from the Antarctic Peninsula as well as from the Antarctic mainland. These data analytically support the earlier thesis that the Oligocene ice-sheet covered a substantial part of Antarctica and its nucleus was located in its central, continental part.



Exotic pebbles of crystalline rocks (upper left picture) are frequently present in Oligocene glacimarine rocks of the Polonez Cove Formation, King George Island. They yielded zircon grains (upper right picture) that were used for U-Pb dating. The isotope ages allowed to establish the source areas for these erratics in the Antarctic Peninsula and the Antarctic mainland. These areas are shown by red arrows on the map.

Korczak-Abshire M., Hinke J.T., Milinevsky G., Juáres M.A. & Watters G.M. 2021. Coastal regions of the northern Antarctic Peninsula are key for gentoo populations. *Biology Letters* 17: 20200708.

Southern Ocean ecosystems are rapidly changing due to climate variability. An apparent beneficiary of such change in the western Antarctic Peninsula (WAP) is the gentoo penguin *Pygoscelis papua*, which has increased its population size and expanded its range southward in the last 20 years. To better understand how this species has responded to large-scale changes, we tracked individuals during the non-breeding winter period from five colonies across the latitudinal range of breeding sites in the WAP, including from a recently established colony. Results highlight latitudinal gradients in movement; strong associations with shallow, coastal habitats along the entire Antarctic Peninsula, and movements that are independent of, yet constrained by, the sea ice. It is clear that coastal habitats essential to gentoo penguins during the breeding season are similarly critical during winter. Larger movements of birds from northern colonies in the WAP further suggest that leap-frog migration may influence colonization events by facilitating nest-area prospecting and use of new haul-out sites. This study is crucial for the ecosystem-based management and for ongoing work on the design of marine protected areas (MPAs). Winter habitats used by gentoo penguins outline high priority areas for improving the management of the spatio-temporally concentrated krill (*Euphausia superba*) fishery that operates in this region during winter.



The presented study was a part of the project *Tracking the overwinter habitat use of krill dependent predators from Subarea 48.1*, which was examining the at-sea distribution of three *Pygoscelis* penguins species from multiple breeding colonies in the South Shetland Islands and along the western Antarctic Peninsula. 130 Argos satellite tags were attached to adults and recently fledged penguin chicks to track the dispersal from their colonies during winter. The project enabled scientists to identify important winter habitats for the penguins and to quantify the overlap between these penguins, which feed on Antarctic krill, and the krill fishery in the Antarctic Peninsula during the winter. The CCAMLR Ecosystem Monitoring Program (CEMP) Fund was used to support collaboration between Poland, Argentina, Ukraine, and the USA.

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<u>*Marine ecosystems*</u>

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