

PROCEEDINGS OF THE INTERNATIONAL SOPOT YOUTH CONFERENCE 2023



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Proceedings of the International Sopot Youth Conference 2023: Where the World is Heading

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PATRONAGE



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FOREWORD

Nowadays, science is revolutionized and has to address global societal challenges, such as health and environmental protection. Providing global society with appropriate information and tools is a must for all researchers independent of their discipline.

We now realize that environmental changes drive social transformations while these drive environmental changes in return. Societies are and will always be impacted by environmental processes such as e.g. climate change.

Therefore, citizens must be provided with reliable sources of information that can empower them to add to their scientific knowledge, engage others, influence policy making and strengthen their community capacity to address environmental challenges.

With the International Sopot Youth Conference, we provide a platform for interdisciplinary and multidisciplinary discussions and exchange of information across all scientific disciplines. We are confident that this annual opportunity is a step forward to create a generation of researchers, who think and work in terms of sustainable science.



Tymon Zielinski

Chairman of the Sopot Science Association

AGENDA

16 JUNE 2023

- 9:00** **Conference start**
- 9:00 – 9:10** Welcome by *Jan Marcin Weslawski*, IO PAN Director
and *Tymon Zielinski*, IO PAN/Sopot Science Association Chair
- 9:10 – 9:30** Climate Change and Aerosol Science: from knowledge to engineering applications
Luca Ferrero, Universita degli Studi di Milano-Bicocca
- 9:30 – 10:45** **Session 1**
Session Chair: Paulina Pakszys, SSA/IOPAN
- 9:30 – 9:45** **Marta Majerska et al., Institute of Geophysics PAN**
Water temperature variability in 2005-2022 in Fuglebekken (Svalbard)
- 9:45 – 10:00** **Mathilde Lartigaud, University of Toulon**
Risk of a change in ocean circulation
- 10:00 – 10:15** **Nicole Hanselmann et al., Institute of Geophysics PAN**
Evaluation of evaporation in the Hornsund area (SW Spitsbergen) in the period 2019 to 2022
- 10:15 – 10:30** **Zuzanna Kociecka, University of Gdansk**
Evolution of renewable energy technology based on the IPCC Reports
- 10:30 – 10:45** **Marta Gorska, University of Wroclaw**
Microplastics and human health
- 10:45 – 10:50** **Break**

10:50 – 12:05 **Session 2**

Session Chair: Grazyna Niedoszytko, NMFRI-Gdynia Aquarium

10:50 – 11:05 **Julia Perlikowska, Dominik Olczyk, Ateneum-University in Gdansk**

Did the economic reforms introduced by Shaukat Mirziyoyev liberate the people from cotton slavery?

11:05 – 11:20 **Jaroslav Borucki, Ateneum-University in Gdansk**

Immigration and refugees

11:20 – 11:35 **Jan Krzywdzinski, University of Wroclaw**

Brutalisation of the language of public discourse in Poland—causes and consequences

11:35 – 11:50 **N. Niranjini, Educational and Research Institute, Chennai**

Metaverse marketing - fad or forever

11:50 – 12:05 **Zuzanna Rzysko, University of Warsaw**

Sustainability board game: how to introduce sustainability literacy to society?

12:05 – 13:20 **Session 3**

Session Chair: Aleksandra Koroza, IO PAN

12:05 – 12:20 **Agata Bigaj et al., Institute of Oceanology PAN**

Influence of specific environmental conditions on the benthic size structure in the Vistula River estuary

12:20 – 12:35 **Zuzanna Mil, University of Gdansk**

Impact of Underwater Sound on Cetacean Populations: Phocoena Phocoena (Harbour Porpoise) Example

12:35 – 12:50 Emilia Zygarlowska et al., Utrecht University

Fate of buoyant and nonbuoyant micro particles in the nearshore coastal zone, a 3D exploratory model

12:50 – 13:05 Karolina Maciejewska, University of Gdansk

Ceramic vessels as the trap of the past environment: archaeobotanical study of plant remains from the Lusatian Urnfield Culture sites in Grodno and Polanowo

13:05 – 13:20 Pavani Vithana Madugeta Vidanamesthriye et al., Institute of Oceanology PAN

Variability of sound speed conditions in Hornsund Fjord, Svalbard from 2001 to 2019

13:20 – 13:30 Break

13:30 – 14:45 Session 4

Session Chair: Dorota Majewicz, SSA/Samarkand International University of Technology, Uzbekistan

13:30 – 13:45 Klaudia Bochniarz, Aleksandra Wybranska, University of Gdansk

Comparing the effects of lavender and rosemary essential oils on brainwaves and cognitive function: a case study

13:45– 14:00 Alphonse Bamby Abhishek et al., Institute of Geophysics PAN

Applying UAV-Based Remote Sensing Observation Products in High Arctic Catchments in SW Spitsbergen

14:00 – 14:15 Dagmara Pokojewska, Piotr Belczacki, Ateneum-University in Gdansk/Special School and Educational Center in Starogard Gdanski

On two wheels through Kociewie - a sports and regional education project

14:15 – 14:30 Dominika Kolenda, University of Oxford

The Blue- An interdisciplinary gaze towards the relationship of the sea, melancholy, and women

14:30 – 14:45 Szymon Szalapata, Ateneum-University in Gdansk

Between Body Shaming and Body Positivity

14:45 – 16:00 Session 5

Session Chair: Natalia Szymanska, IO PAN

14:45 – 15:00 Wirginia Hepert et al., University of Gdansk

Decadal variability of air quality over the Tricity agglomeration based on ARMAG data - are cities destined to be continuously polluted?

15:00 – 15:15 Andrea Doldi et al., Universita degli Studi di Milano-Bicocca

Evaluating the performance of low-cost Alphasense OPC-N3 in an indoor environment

15:15 – 15:30 Irene Gini et al., Universita degli Studi di Milano-Bicocca

Evaluating the thermodynamic properties of atmospheric aerosol deposited on high voltage insulators in function of its chemical composition

15:30 – 15:45 Amadeo Cefali et al., Universita degli Studi di Milano-Bicocca

Validation of methods for determination of formaldehyde in stationary source emissions using a test bench 'LOOP'

15:45 – 16:00 Jakub Stankiewicz et al., University of Gdansk

Burial customs inferred from pollen and plant macroremains: archaeobotanical results from the 17th-19th c. crypt burials of the von Glasenapp family in Białowas

16:30 – 17:15 Women and Girls in Science Panel

Session Chair: Tymon Zielinski

17:15 – 17:30 Poster session summary (Posters will be available on Padlet from 13 June)

Session Chair: Szymon Smolinski, SSA/NMFRI

17:30 – 17:45 Announcements of the winners

17:45 Closing of the conference

ORAL PRESENTATION ABSTRACTS

Water temperature variability in 2005-2022 in Fuglebekken (Svalbard)

Marta Majerska, Marzena Osuch, Tomasz Wawrzyniak

Polish Academy of Sciences , Institute of Geophysics, Ksiecicia Janusza 64, 01-452 Warsaw, Poland

The study comprises the estimation of changes in the water thermal regime in the non-glaciated Fuglebekken catchment in SW Spitsbergen (Svalbard). The present thermal regime differs significantly from that observed in the past. The research focuses on the applicability of the Stochastic Transfer Function based Multiple Input Single Output (MISO) model calibrated using the ground temperature at 20 cm and total radiation records. The other approach includes supervised machine learning method - Gaussian Process Regression model. Validation of simulations was based on archival water temperature observations from 2012-2022. According to the water temperature simulations in period 2005-2022, statistically significant changes in the thermal regime were detected, including the rise of approximately 1 °C in June, mid-July and September. Peaks of water temperature tend to be present between the end of July and the beginning of August, reaching even 12 °C. Estimated thermal shifts correspond to a significant increase in air and ground temperature and earlier disappearance of snow. Observed trends are considered to continue and to be enhanced in the future.

Risk of a change in ocean circulation

Mathilde Lartigaud

University of Toulon

As we look towards the future, the world faces a multitude of challenges like climate change. One of the less known but significant threats to our planet is the risk of a change in ocean circulation, specifically the Atlantic Meridional Overturning Circulation (AMOC), which transports warm water and nutrients from the equator towards the Arctic and cold water from the Arctic towards the subtropical regions of the North Atlantic. It transports heat, affects climate and weather. However, studies suggest that ocean circulation could be disrupted due to climate change, resulting in potentially serious consequences. Arctic ice melting alters the salinity of the North Atlantic Ocean, disrupting the Gulf Stream which is a part of ocean circulation that carries warm water to Europe. This leads to a significant cooling, which would have consequences on weather, droughts in certain regions, and increase in precipitation in other regions, leading to distorted food production. The effects of changes in ocean circulation are not limited to coastal regions or oceans but effect the whole planet. A disruption in ocean circulation could also affect the availability of nutrients for marine ecosystems, which may affect marine species and coastal communities that depend on them. My objectives are primarily to explain what AMOC is and to demonstrate the complexity of predicting its evolution. I will also discuss the melting of Greenland and the impacts it will have on ocean circulation.

Evaluation of evaporation in the Hornsund area (SW Spitsbergen) in the period 2019 to 2022

Nicole Hanselmann, Marzena Osuch, Tomasz Wawrzyniak, Abhishek Bamby Alphonse

Polish Academy of Sciences , Institute of Geophysics, Ksiecica Janusza 64, 01-452 Warsaw, Poland

Evaporation is an important component of the hydrological cycle but remains understudied in High Arctic Svalbard. This study investigates land evaporation at SW Spitsbergen in High Arctic using in-situ pan evaporation measurements and calculated potential evaporation. The study area is located in the vicinity of the Polish Polar Station Hornsund in Svalbard, where long time series of meteorological measurements and multiple hydrological studies have been conducted. To better understand the evaporation in the study area, one pan evaporimeter was installed in the summer seasons of 2019-2022 at the meteorological site of the Polish Polar Station, and four additional devices were placed in Fuglebekken and Ariebekken catchments in the Summer of 2022. According to literature from the early 2000s, annual evaporation of ca. 80mm/year for glacier-free areas in Svalbard was estimated. Analysis of recent in-situ measurements indicates higher annual evaporation rates. The use of multiple potential evaporation formulas based on different approaches revealed that the choice of the calculation method could have a large influence on the derived estimates. Calibration of such formulas to High Arctic conditions helps improve the estimates of potential evaporation applied in hydrological models. The study was carried out with the SONATA BIS project financed by the Polish National Science Centre (grant no. 2020/38/E/ST10/00139).

Evolution of renewable energy technology based on the IPCC Reports

Zuzanna Kociecka

University of Gdansk, Faculty of Geography and Oceanography, Jana Bazynskiego 4, 80-309 Gdansk, Poland

Renewable energy evolution has been accelerating in recent years based on the reports from the Intergovernmental Panel on Climate Change (IPCC). The IPCC has been instrumental in advocating for the widespread adoption of renewable energy sources as a means of mitigating climate change and preserving the planet's dwindling resources. The IPCC reports have highlighted the potential for renewable energy to be a game-changer in the energy sector and have called for concrete actions to be taken to reduce greenhouse gas emissions. IPCC has recommended the adoption of various forms of renewable energy, including solar, wind, hydropower, and geothermal power, which have a much lower carbon footprint than traditional forms of energy such as coal and oil. Moreover, it has been pointed out that renewable energy technology has advanced significantly in recent years, making it a more viable option than ever before. The presentation will focus on the evolution of the term „renewable energy”, highlighting the challenges and constraints overcome since AR1 and presenting a scenario of trends that are likely to continue in the years to come. Going “green” and complying with the Paris Agreement will require governments and organizations to collaborate and invest in renewable energy to curb climate change, and the IPCC will continue to provide guidance in this regard.

Microplastics and human health

Marta Gorska

University of Wroclaw, Uniwersytecki 1, 50-137 Wroclaw, Poland

Overproduction of plastic waste has been a worldwide problem for a while now, but just recently microplastic has become a challenge scientists face. Microplastics can be found everywhere, including in the clothes we wear and the food we consume. It is important to acknowledge the presence of plastic particles in water and how this affects not only sea life but also humans. Recent studies have risen awareness on the potential accumulation of microplastics in edible parts of fish. This presentation will focus on the possible consequences of microplastic pollution on human health but also briefly explain the process of microplastic accumulation in the marine environment.

Did the economic reforms introduced by Shaukat Mirziyoyev liberate the people from cotton slavery?

Julia Perlikowska, Dominik Olczyk

Ateneum-University in Gdansk, 3 Maja 25A, 80-802 Gdansk, Poland

According to the 2016 Global Slavery Index data, 45.8 million people worldwide participate in some form of modern slavery, and half of this number live in 5 countries, including Uzbekistan. Every autumn, the government exposes its citizens to forced labor, perversely called "volunteer". It is backbreaking work that deprives education, earnings, and sometimes even life. The situation of the Uzbeks resonated loudly among human rights defenders, who accused the clothing giants of buying Uzbek cotton. This was the case until Islam Karimov's death, after which Shavkat Mirziyoyev took office as president of Uzbekistan, reconstructing the government and introducing economic reforms. In 2017, regulations were introduced prohibiting child labor and the possibility of punishing those who violate this provision. In the same year, the president ostentatiously ordered the abandonment of cotton cultivation and its replacement with animal husbandry, which farmers had already done arbitrarily a few years earlier. On February 3, 2020, during a meeting with Uzbek scholars, for the first time in over 100 years, Uzbekistan's supreme political leader criticized the cultivation of cotton. In early 2020, Agriculture Minister Jamshid Hojayev announced that in 2020 Uzbekistan had ended the state purchase of raw cotton from farmers, and the hokims were relieved of their duties to oversee the cotton campaign. How related to the truth are the reforms introduced on such a grand scale?

Immigration and Refugees

Jaroslav Borucki

Ateneum-University in Gdansk, 3 Maja 25A 80-802 Gdansk, Poland

Everyday thousands of immigrants and refugees are flowing to Europe in hope to find better life than in their countries destroyed by wars, conflicts, genocides, famine and more and more by climate changes. They risk their lives during long escape as the victims of gangs, violence, scams, frauds, dangers and persecutions. Some of them during this quest for better life find a lot of sufferings and even death but part of them reaches to Europe or other dreamed country but their trauma doesn't finish here. They are recognized as illegal immigrants, so they risk to be forced to return to their country of origin to the places without hope. In Europe many of them discover that they don't have here any rights because they are illegal. So they are forced to hide in underground life. Used by gangs, drug dealers, pimps and all kinds of illegal activities. Fear and terror accompany them every day. Wealthy societies like to talk about justice, freedom and peace, but in the face of migrants and refugees who need immediate help they are very troubled and prefer to close their borders and impose very strict law. In this presentation I would like to ask ourselves what should we do for them? I would especially like to draw attention to the problem of the impossibility to be employed or find a job in the country in which their stay is not legalized.

Brutalisation of the language of public discourse in Poland – causes and consequences

Jan Krzywdzinski

University of Wrocław, Institute of Polish Philology, Nankiera 15b, 50-140 Wrocław, Poland

Brutalisation is related to breaking communication taboos, thereby intensifying emotionality in communication. Breaking tabooed topics translates into shortening the social distance and pushing the boundaries of sensitivity of communication participants. In Poland, breaking successive taboo boundaries can be observed over the past several years. The first manifestation of the brutalisation of the language of public debate was when “Super Express” published a photo of Waldemar Milewicz’s body in 2004, which was met with strong criticism. As the years passed, brutality and vulgarity started to appear more and more in the press, media, but also on the internet and in public spaces. Nowadays, brutality (including vulgarity) acts as a strategy that in some contexts is a persuasive communication strategy, but it can also express the polarisation of different environments and the lack of agreement space. Describing these strategies is the aim of the presentation.

Metaverse marketing - fad or forever

N. Niranjini¹, J. Sridevi²

¹ Research Scholar, Department of Commerce Dr. MGR Educational and Research Institute (Deemed to be University), Chennai. Assistant Professor, Department of Financial Planning, Dr. MGR Educational and Research Institute (Deemed to be University), Chennai, Tamil Nadu, India. 9566235765

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The marketers and product owners see a wide-open universe of opportunity before them - the Metaverse. This universe of the internet creates and gives the user the freedom to create more opportunities to market their products. Top brands like Nike, Samsung, Hyundai, Coca-Cola, Louis Vuitton, Gucci, Adidas, and more have already taken the giant leap of faith into metaverse marketing. Like the transformation from traditional retail to e-commerce, the metaverse is seen as a revolutionary opportunity and transformation for many industries. This study aims to bring out the opportunities and challenges to market in the metaverse through gamification to the Generation Z and determine if metaverse marketing is a permanent change in how marketers do their business. The methodology followed for this study is an empirical method. The critical analysis of various literatures pertaining to the study was undertaken and data from the sample audience was collected through questionnaire. From the hypothesis testing, it is found out that there is a strong positive relationship between frequency of playing online games and brand engagement through online games. Gen Z's prefer physical over virtual luxury products on account of factors such as pride, status and sense of achievement. It has the potential to take branding to a whole new level.

Sustainability board game: how to introduce sustainability literacy to society?

Zuzanna Rzysko

University of Warsaw, University of Gdansk

The project presents an educational board-game aiming at teaching the target audience of youths and families the principles of sustainability. It was developed in the minds of students participating in successive workshops and seminars on sustainability, as a response to the injustices of the current system governing the world and consequently preventing advancements of various 'green' transformations. Highlighting the need for empathy, sensibility and cooperation on all levels and recognising these values as crucial to the cause of sustainability, the project focuses on sustainability literacy. Students from different backgrounds joined together to create a concept of (and potentially actually manufacture) a board-game aiming at advocating for a more communal approach to the sustainable transformations of our society, recognising the lack of complex understanding of challenges and issues troubling our societies. With the help of a presentation and visual diagrams, we plan to convey our idea and principles behind it, elaborating on the academic, activist, social, cultural, and generational concepts and trends contained in the abstract during the Conference.

Influence of specific environmental conditions on the benthic size structure in the Vistula River estuary

Agata Bigaj^{1,2}, Mikolaj Mazurkiewicz¹, Maria Wlodarska-Kowalczuk¹

¹ Polish Academy of Sciences, Institute of Oceanology, Powstancow Warszawy 55, 81-712 Sopot, Poland

² University of Gdansk, Jana Bazynskiego 8, 80-309 Gdansk, Polska

River deltas and estuaries are a very specific and challenging environment for marine invertebrates. Among many factors influencing benthic fauna dynamic mixing of sediments and water, salinity fluctuations or intense input of terrigenous matter should be mentioned. Although all of them may have a significant impact not only on benthic macrofauna abundance and composition, but also on size structure, there is still little research concerning the last of the recalled. The size structure plays a key role in shaping the energy flow and the carbon circulation in the ecosystem. In following research, traditional methods were alternated in order to improve the pace of laboratory work. Instead of weighting each organism, conversion factors were used. They allow one to assess many parameters of particular organism (such as dry mass, wet mass, biovolume) based on just one measure (usually length or width). The obtained values are divided into exponentially appointed size classes. The research is focused on the estuary area the Vistula river. Samples were taken during cruises in four seasons, from stations located in different distances from the river mouth. The main goal is to verify the hypothesis saying that the size structure of benthic communities is determined (in the seasonal and spatial aspect as well) mainly by the influence of the river. Assessments like this may provide substantial data to assess the role of benthic fauna in nutrient cycling and trophic interactions.

Impact of Underwater Sound on Cetacean Populations: Phocoena Phocoena (Harbour Porpoise) Example

Zuzanna Mil

University of Gdansk, Jana Bazynskiego 8, 80-309 Gdansk, Poland

This presentation explores the impact of underwater sound from human activities on cetacean populations, focusing on *Phocoena phocoena* (harbour porpoise). Harbour porpoises heavily rely on echolocation for communication and foraging, making them vulnerable to anthropogenic underwater noise. Sources of underwater noise, like shipping and use of sonars, overlap with harbour porpoises' communication and hearing ranges, potentially disrupting their vital functions. Studies indicate behavioral changes, reduced foraging success, and hearing damage due to noise exposure. Harbour porpoises serve as sentinel species, reflecting wider implications for cetacean populations. Conservation strategies include noise mitigation, marine protected areas, and guidelines to protect habitats. In conclusion, understanding the impact of underwater sound on harbour porpoises helps us comprehend its effects on other cetaceans. Effective conservation measures are crucial for safeguarding these marine mammals and their habitats.

Fate of buoyant and nonbuoyant micro particles in the nearshore coastal zone, a 3D exploratory model

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Here, the motion of particles in the nearshore zone of single-barred beaches is investigated. The exchange of particles such as plastics in the coastal areas are relevant to study in the context of waste management and maintaining clean beaches. The drivers of particle motion include rip currents, the Stokes drift, wave rollers, undertow, and turbulence. Focus of the study is on whether, and under what conditions do the particles beach, get trapped close to the shore, or escape into the open ocean. To track the particles both on the surface of the water and within the water column of the coastal zone, a 3D wave-averaged model was developed. The Lagrangian velocity field used for the computations was derived from a nonlinear morphodynamic nearshore model. Simulations with varying wave conditions were performed to quantify the importance of the drivers for the motion of floating and sinking plastics. The probability distribution of the particles fate and the associated time scales were computed. The importance of different drivers depends on the initial environmental conditions. For floating plastics, weak rip circulation favours onshore movement of the particles due to combined effects of the Stokes drift and wave rollers. If the particles sink, the undertow moves them away from the coastline where they can get trapped in the rip cells. The turbulence affects the trajectories of the particles widening the probability distribution of their final position.

Ceramic vessels as the trap of the past environment: archaeobotanical study of plant remains from the Lusatian Urnfield Culture sites in Grodno and Polanowo

Karolina Maciejewska

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In archaeological sites there are various traces that give us the opportunity to discover the past of ancient societies. Among them there are plant remains. They can be found in many objects and one of them are ceramic vessels. Using such findings remains, it is possible to learn about the past environment and the way how people used it. An example of such research is the analysis of archaeobotanical materials from the sites of the Lusatian culture in Grodno and Polanowo. During the excavations, whole ceramic vessels were found. Inside these objects, fossilized seeds and fruits have been preserved in perfect condition. Their identification revealed that they were not only cultivated plants, but also included in natural and semi-natural communities, including meadows and pastures. Research financed by the research subsidy of the Department of Plant Ecology, University of Gdańsk (DS-531-D040-D581-23).

Variability of Sound Speed Conditions in Hornsund Fjord, Svalbard from 2001 to 2019

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Climate warming is clearly noticeable in glacierized Arctic fjords due to the melting of glaciers and sea ice. Melting processes affect the spatial distribution of water temperature and salinity – two major parameters controlling sound speed conditions. The variability of sound speed profiles, in turn, affects underwater noise propagation and so the noise pollution in Arctic fjords. Therefore, sound speed conditions are of key importance for those marine animals that use sound for their communication, mating, feeding, navigation and in prey-predatory interaction. Here, we study the spatial variability of vertical sound speed profiles in Hornsund fjord, Svalbard over the last two decades. Archival data on temperature and salinity collected during the AREX research cruises of the Institute of Oceanology of Polish Academy of Sciences from 2001 to 2019 have been used. We demonstrate that the vertical sound speed profiles in different parts of Hornsund fjord exhibit large temporal variability. This observation suggests that the projected progress of climate warming will impact the noise pollution of Hornsund fjord.

Comparing the effects of lavender and rosemary essential oils on brainwaves and cognitive function: a case study

Klaudia T. Bochniarz, Aleksandra Wybranska

University of Gdansk

Like all natural medicine, aromatherapy is experiencing its renaissance. Both lavender (*Lavandula angustifolia*) and rosemary (*Rosmarinus officinalis*) have shown significant clinical effects on mood, learning, memory, pain, anxiety, and sleep (Ghasemzadeh-Rahbardar & Hosseinzadeh, 2020). This effect is obtained through the strong influence of the oils' active ingredients on the limbic system, especially on the amygdala and hippocampus (Ghavami et al., 2022). The aim of this study was to compare the effects of lavender and rosemary essential oils on brain waves and cognitive performance. This is a case study of a 31-year-old woman reporting difficulties with concentration. The study was carried out in the form of a series of meetings. During the following meetings, the participant undergoes a diagnosis based on Cz, C3, C4, Fz, and Pz points. Afterward, the participant performs cognitive tasks. Finally, the participant inhales an essential oil through a cotton pad for 30 minutes after which the brainwave records for each point are checked again, and the participant performs the cognitive tasks again. The results of this study will be available at the end of may 2023. Aromatherapy has big potential in treating symptoms of depression and anxiety and improving cognitive functioning. To fully utilize this potential, it is crucial to develop specific protocols for essential oil interventions and use oils with certificates indicating the content of individual active ingredients.

Applying UAV-Based Remote Sensing Observation Products in High Arctic Catchments in SW Spitsbergen

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In the age of remote sensing, Uncrewed Aerial Vehicles (UAVs) have led to a broad spectrum of applications in remote and rapidly changing regions like the Arctic, where detailed spatial studies are limited due to challenging conditions. This study evaluated a UAV-based DEM for two High Arctic catchments, Fuglebekken and Ariebekken, using a DJI Matrice 300 RTK drone equipped with a photogrammetric Zenmuse P1 camera. The DEM achieved centimeter-level accuracy through the Structure-from-Motion technique and very high-resolution overlapping images from the survey on July 2022. The final resolution was 0.06 m in Fuglebekken and 0.07 m in Ariebekken, with a horizontal and vertical RMSE of 0.09 m and 0.20 m, respectively. The drone-based DEM were compared and correlated with the aerial mission of the Svalbard Integrated Arctic Earth Observing System (SIOS) and the satellite-based ArcticDEM, allowing the detection of elevation changes and identification of landscape evolution. Additionally, the usage of DEM in providing detailed morphometric characteristics and hydrological parameters, such as the delineation of catchments and stream channels, was highlighted. The final products are available at the IG PAS Data Portal. The study was carried out with the SONATA BIS project financed by the Polish National Science Centre (grant no. 2020/38/E/ST10/00139).

"ON TWO WHEELS THROUGH KOCIEWIE" - a sports and regional education project

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Currently, in the age of technology, young people forget about the necessity of movement in everyday life, it is extremely important for children with disabilities. The presented project was carried out by a teacher - tutor in a boarding school in SOSW in Starogard Gdański, with pupils aged 12 to 18 years old. Each of them struggles with different disabilities. The project activities involved the promotion of an ecological means of transport and recreation, the promotion of cycling tourism, education on interesting places in the area, and the improvement of safe cycling techniques based on traffic regulations. By participating in various trips, the pupils learned the basic principles of proper nutrition and physical activity. They were aware of their place of residence, its history, traditions and nature. They worked in a group and communicated well. They developed their imagination through creative expression (art works, photos taken). Thanks to the participation in the project, the pupils improved their bicycle riding in traffic, they learned the basic rules of the road. They visited the main water reservoirs near Starogard Gdański and learned about the history of Kociewie. They developed their imagination by participating in art classes. They are aware of how to eat healthy and why movement is so important for a young person. They learned to work in a team. We all felt joy and satisfaction from the positive effects of our own actions.

The Blue- An interdisciplinary gaze towards the relationship of the sea, melancholy, and women

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The purpose of this project is to explore the dual nature of the three elements: women, sea, and melancholy. Women, as an idea, are symbolic of both life and death, embodying the cyclical nature of existence. The sea is similarly characterized by its life-giving and threatening properties, reflecting both the power and fragility of life. Melancholy, as an emotional state, occupies a liminal space between pleasure and displeasure, representing the ambiguity of human emotion. Through this, we can see how all of these seemingly unconnected concepts are actually representative of two striking opposites combined within one idea. This study aims to explore the connections between these elements and investigate the overarching metanarrative that binds them in art. Women and sea have been represented in art highlighting the interplay between life and death. Meanwhile, the link between women and melancholy can be traced to the origins of hysteria. Similarly, the concepts of sea and melancholy can be explored through the idea of the sublime in art, which invokes a sense of awe and fear. The study will showcase works by female artists such as T. Dean, V. Celmins and myself, which examines said themes through the use of a semiotic approach. By identifying the presence of this relationship in art it is possible to capture the fluidity and complexity as well as the subjective experience of those who engage with them - something highly individualized yet commonly understood and shared.

Between Body Shaming and Body Positivity

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This presentation attempts to demonstrate the potential negative effects of the body positivity movement for people with eating disorders who may fail to take appropriate actions e.g., consulting medical specialists, and risk the deterioration of health or even life-threatening conditions. First, it defines both body shaming behaviours and the body positivity movement, which arose in opposition to the former phenomenon. Further, the presentation examines the possible consequences for the physical and mental health of people who might use the notion of the absolute acceptance of their bodies as a justification for not seeking support or assistance. Finally, it proposes that instead of body positivity, one should advocate for the well-being of the body and mind as eating disorders frequently constitute side effects of more complex mental health issues. Furthermore, it needs to be noted that the purpose of this presentation is not whatsoever the encouragement to return to shaming or ridiculing people because of the way they look. It is rather an invitation to suggest or offer help politely and respectfully to those who might be needing it.

Decadal variability of air quality over the Tricity agglomeration based on ARMAG data - are cities destined to be continuously polluted?

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This study delves into the results of the ARMAG Foundation's research on air pollution in three coastal cities of Poland, namely Gdańsk, Gdynia, and Sopot. The research primarily focuses on the variability of certain air pollutants (PM10, PM2.5 and SO₂) over the ten-year period and aims to establish a trend of air pollution in the coastal agglomeration. The selected timeframe of ten years (2011-2021) is deemed suitable for accurately determining the long-term trend. The data obtained included daily and hourly measurements of air pollutants and meteorological data, such as temperature, wind velocity and direction, and humidity. Using data from ARMAG, statistical analyses were conducted to determine long-term trends and seasonal variations in pollutant concentrations. Another crucial factor was the amount of year, diurnal and hour exceedances considering European Union Directives connected with WHO Recommendations and its variability. Establishing a long-term trend is important to determine if air quality is changing and if it is improving as a consequence of anti-emission activities, direct influence of the sea or if it is the opposite on account anthropogenic emissions. The study examined short episodes of high concentrations of air pollutants, with a focus on determining the impact of human activity on pollution emissions and the resulting deterioration of air and environmental quality.

Evaluating the performance of low-cost Alphasense OPC-N3 in an indoor environment

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Air pollution is associated with an increased health risk and estimated to cause millions of premature deaths worldwide every year. The chemical and optical analysers needed to monitor air pollution, while providing accurate measurements, require a considerable investment, constant calibration and maintenance and are thus restricted to a limited number of applications, resulting in an inadequate spatial and temporal coverage. The development of low-cost sensors can enable the acquisition of high-resolution air quality data and the creation of a larger network, thus helping the characterization of pollutant emissions and the assessment of real-time exposure. In this context, a measuring campaign was conducted at the National Research Council (CNR) site in Portici (Naples, Italy), a pilot facility of the BIOMAT project, aimed to assess the potential occupational exposure to harmful particulate matter (PM), during the production process of nano-enabled PUR foams. For this purpose, four low-cost optical particle counters (Alphasense, OPC-N3) were deployed alongside two reference instruments (OPC Grimm 1.107). The data obtained shows good agreement between the overall trends for the OPC-N3 and the reference instrument, while highlighting the inability of the low-cost sensors to correctly estimate the absolute value of PM₁₀ concentrations. This first campaign showed how the exposure of the facility workers was mainly attributable to the coarse fraction of particulate matter.

Evaluating the thermodynamic properties of atmospheric aerosol deposited on high voltage insulators in function of its chemical composition

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The reliability of any national transmission and distribution lines plays a relevant role in modern society. Atmospheric pollution is mainly responsible for reducing the performance of insulators and increasing the possibility of flashovers, resulting in power line failures. Water-soluble aerosol particles collected on insulators' surface can dissociate in ions forming a conductive layer which may leads to flashover accidents. In order to investigate the mechanisms that govern this phenomenon, the chemical composition of the aerosol deposits on insulator over the Italian territory was determined by means of ion chromatography analysis, by thermos-optical and X-Ray techniques. In addition, synthetic aerosol with the same chemical composition was generated in laboratory and deposited on glass specimens allowing to determine the deliquescence and crystallization relative humidity and the conductance in an Aerosol Exposure Chamber. The results revealed the presence of a hazardous inorganic ions layer which generates sharp phase transition of the deposit in function of the ambient relative humidity. The consequent conductance can generate flashover discharges.

Validation of methods for determination of formaldehyde in stationary source emissions using a test bench 'LOOP'

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Formaldehyde is a molecule hard to measure because of its photosensitive properties and its ability of reacting fast with different compounds. The CEN/TC 264 WG 40 has published CEN/TS 17638:21 normative, which states the reference manual method for the determination of formaldehyde in stationary source emissions. This work aims to evaluate the formaldehyde measuring methods by means of Proficiency Tests (PT), in order to assess sampling procedures and determine the related uncertainties. These tests were carried out in the facility LOOP (RSE S.p.A., Milan), which simulates pollutant emissions of an industrial combustion chimney; The sampling campaign consists in several sessions during which mixtures with different concentrations of formaldehyde and interferents for most measuring methods of formaldehyde were generated. During the PT the VDI 3862 – 2, EPA 323 and EPA 316 methods were evaluated. The obtained results of the several laboratories were analysed by the statistical values En-score. The laboratories that have employed the VDI 3862 – 2 method, obtained different results and this may depend on several reasons. EPA 323 method was correlated with the VDI 3862 – 2 method. The following steps will consist in quantifying the influence of interferents, the loss of sample caused by an inappropriate treatment in terms of: amount of reagent, stabilisation solution and acidification of the bubbling solution.

Burial customs inferred from pollen and plant macroremains: archaeobotanical results from the 17th-19th c. crypt burials of the von Glasenapp family in Białowas

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Plants have played a meaningful role in human life for ages. They are a valuable resource of food, medicines, and textiles. Plants also are the important part of the funeral practices. The archaeological investigations in the 17th-19th c. crypt of von Glasenapp family in Białowas, uncovered 10 coffins with well preserved plant remains. Pollen, diaspores, wood and mosses analysis described more than 40 plant species. Hop (*Humulus lupulus*) was found to be the most distinct element of the burials. Hop cones were used as a form of pillow. This species produces substances that inhibit body decomposition and have insect-repellent properties, making its presence in the coffin of practical importance. The second characteristic element preserved in the coffins was hay, which include plants with a similar phytosociological affiliation. The botanical composition of the samples did not include any plants with colorful or lavish flowers, which is consistent with the Protestant tradition. To interpret all results from the crypt of the Glasenapp family, the participation of representatives from various fields of science is needed. The interdisciplinary team consisting of archaeologists, archaeobotanists, antropologists as well as microbiologist will work on the complete picture of the funerary culture of affluent Protestant burials. This work has been supported by the University of Gdańsk – research task no. 530-DO40-D581-23 and the Nicolaus Copernicus University (IMSert Programme).

POSTER PRESENTATION ABSTRACTS

The truth of animal testing. Don't let humane washing to wash your brain

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Animal testing remains a huge problem in today's world. It concerns the process of experimentation on living animals in order to assess the safety and effectiveness of medicines, cosmetics or cleaning products. Living creatures are exposed to a variety of harmful conditions, including eye irritants, chemical skin contact, toxic chemical injections, the development of neurotoxicity, pyrogenicity, food restriction, and more. In the United States, tens of millions of animals are used in scientific research each year. This number is simply an estimate as laboratories are not obligated by law to reveal information about the most popular research animals, including rats, mice, birds, and fish. What's more, animal testing fails to achieve the intended results. Only 8% of drugs tested on animals are deemed safe and effective for use in humans, while 92% are not. This supports the claim that animal testing does not yield enough valuable information to support its widespread brutality and raises concerns about its morality. Huge concerns using humane washing and greenwashing circumvent the laws regarding animal testing and the conditions in which they are kept and bred. By commissioning subsidiaries to test individual product ingredients, whereby the "complex" product itself is not tested, and also by the powerful marketing work to whitewash the parent company, for example by buying up small eco-companies and promoting them under the slogan of the whole group.

“The freedom of one ends where the freedom of the other begins” - Oliver Wendell Holmes Jr.

Agnieszka Jezierska-Maciaszek

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“The freedom of one ends where the freedom of the other begins” – Oliver Wendell Holmes Jr. I wish to discuss women’s rights gaining process including three stages: – The situation before the changes were introduced - what regulations and laws women were abode by) - The changes – what laws were introduced in order to equalize both genders – Present times complexity – general critic of understanding what feminisms stands for and what are the potential misuses of the idea I focus on the current interpretation of what feminism is believed to be, as well as on the range of its perception, highlighting the acts of its exploitation. I provide up to date examples displaying the unpredicted aspects of once gained liberty – of morally doubtful individuals whose role is to prey upon the suffragettes’ heritage and use it for their Machiavelli purposes

Computer-assisted translations – how much easier our lives are with new technologies

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In today's world, with the development of technology, translation is becoming easier and more accessible than ever before. New technologies supporting translations, such as machine translation tools, grammar checkers, and translation project management software, enable more efficient work for translators and improve the quality of translations. Machine translation, thanks to machine learning and artificial intelligence, is becoming increasingly advanced and precise, allowing translators to use these tools to translate more documents in less time. At the same time, some challenges are associated with these new technologies, such as privacy protection and translation quality, which require further research and technological development.

Principles of Mindfulness

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What is mindfulness? Why talk about it in the context of education? Mindfulness, attentiveness, sati... the terms for being here and now are many. Man has always practiced calmness, serenity, tranquillity of body and mind... All religions use this aspect of life, but, after all, and philosophers of various cultures and art for centuries have reached for this good and beautiful practice of immersion in oneself and the world. Mindfulness is harmony between what we think and what we feel. Mindfulness is the ability to help ourselves. Mindfulness is knowing yourself well. Mindfulness is seeking balance, harmony, relaxation, peace, focus is to let thoughts and emotions come and go, without us getting too involved. Why do children need mindfulness? to remember and learn new things more easily; to be calm; to concentrate more easily; to be able to cope with stress; to worry less; to sleep better; to know yourself better; to feel rested and happy. And what does science say about this? There is a place in our brain called the amygdala. It is the area that flares up when we are under the influence of strong emotions, such as stress. It then blocks the activity of the prefrontal cortex, which is responsible for, among other things, the brain's working memory, decision-making or planning. It gives us one signal: run away! The amygdala is a remnant from our ancestors, who had to react quickly under severe stress when, for example, they came face to face with a predator. And we now need it in many situations, but it also gets in the way in many, so we need to learn to live with it. When we know how to control it, it quiets down and lets the prefrontal cortex work. Our modern children, overstimulated, living under the influence of strong emotions, badly need mindfulness training. They increasingly have a problem with waiting, with doing nothing, with patience, with silence... they are waiting for instant gratification, they want things to keep happening. That doesn't mean their brain needs it, but they live in that kind of world and we won't change that. What we do have influence over is how they will deal with it. We can teach them how to build protection for the chaos coming from the world. Mindfulness training will be very good for this.

Creative writing as a tool in teaching English as a foreign language

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Many English teachers struggle with finding interesting and creative techniques of imparting grammatical and lexical knowledge in a classroom setting. Curricula often require them to apply old-fashioned practices which consist of rote learning and stilted exchanges. These practices often present students with knowledge which is, in fact, helpful with passing standardised tests, however, such approach might also lead to discouragement and lack of motivation in students. Among many skills which a language teacher should impart, writing remains one of the most difficult ones to relay in an interesting and refreshing manner. Students are often forced to write repetitive and derivative essays without having a chance at expressing themselves and exploring their target language from a more attractive, personal perspective. Creative writing is one of the techniques that can turn writing (and learning in general) into a fascinating journey of self-discovery and linguistic exploration. In my poster I am going to explore many benefits of creative writing as a teaching technique.

Human-AI collaboration: exploring new ways that artists and AI systems can work together to create art, such as using AI to generate initial designs that are then refined by human artists

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Human-AI collaboration in art is a fascinating field that seeks to combine the creative intuition and expertise of human artists with the computational power and algorithmic sophistication of AI systems. One way that artists and AI can work together is by using AI to generate initial designs or sketches, which are then refined and elaborated upon by human artists. This approach offers many possibilities for creating new forms of art that would be difficult or impossible to achieve through traditional means. The process of Human-AI collaboration typically begins with a human artist providing a set of parameters or constraints to an AI system. Based on these parameters, the AI generates a series of designs using generative algorithms, which are then presented to the human artist for review. The human artist then selects one or more designs that they feel have the most potential, and begins refining and elaborating upon them using their own creative expertise. Throughout this process, the AI system continues to provide feedback and suggestions based on the changes made by the human artist. The use of AI technology can help to inspire new ideas and generate novel designs, while the human artist brings their own subjective and aesthetic sensibilities to the process. The result is a truly collaborative and innovative work of art that pushes the boundaries of what is possible.

Distribution of heavy metals adsorbed on suspension in Brepollen, Hornsund

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Heavy metals are one of the major environmental problems in the Arctic, primarily introduced from anthropogenic sources such as energy, metallurgical or mining industries. Svalbard is warming almost four times faster than the rest of our planet, leading to increased melting of glaciers and permafrost, which in turn causes an increase in the supply of meltwater to the marine ecosystem. As a result, fjords may currently receive more pollution than ever before. In 2022 (June-September), seawater and suspended particulate matter (SPM) samples were collected near the Hornbreen and Storbreen glaciers in Hornsund - Brepollen at 4 stations localized 300m, 500m, 1000m, 5000m from the glacier front at 3 depths (1m, 15m, 50m). Additionally, in July and August, meltwater samples were collected using a remotely operated vehicle. The samples were filtered and frozen, then transported to the IOPAN laboratory and mineralized. Concentrations of Pb, Cd, Cu and Zn were measured by ICP-MS. Concentrations of individual metals in SPM near the Storbreen glacier were of the following: Pb: 1.0-24.8 mg/kg; Cd: 0.1-0.4 mg/kg; Cu: 0.1-155.5 mg/kg and Zn: 4.2-271.9 mg/kg. Near the Hornbreen glacier, the concentrations were as follows. Pb: 0.1-53.4 mg/kg; Cd: <LOD-7.6 mg/kg; Cu: 4.4-153.9 mg/kg and Zn: 5.2-229.3 mg/kg;. Heavy metal concentrations varied spatially and temporally. The study was carried out as part of the NCN RELOAD project nr 2020/39/B/ST10/01504.

The courage of empathy and kindness

Daria Klos

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There is evidence that the lack of empathy in society can lead to serious consequences. There are solutions and benefits of implement them in our life. Our selfish attitude and thinking of "now" and "me" is harmful for future generations. Humankind survived all those centuries because of its ability to work together. We should continue and improve our way of thinking. Human kind should stop being egocentric to save our heritage and save the Planet.

World during conflicts

Dominik Godlewski, Mateusz Bychowski, Karol Walczak, Karolina Guzinska

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In our poster we want to showcase influence of world conflicts on various aspects of life of inhabitants, and its influence on world. Basing on wars in Yemen, Syria, Ukraine, Israel/Palestine and Sudan by providing statistics and information we are going to outline these conflicts, rights of every side, short and long term effects on people and countries. With pre- and post-war situation we want to showcase how big influence can war have on certain aspects of life. How media and various tools can be weaponised during these conflicts or as a casus belli. We want to present you geopolitical structure of our world, how every country is linked, and also how alliances create. In the end we want to underline its effects on our, and whole world future, and where this world is heading.

Mercury deposited in surface sediments versus mercury accumulated on the surface of the diatom valves of the Outer Puck Bay (southern Baltic Sea)

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The goal of the study was to preliminarily determine the importance of selected diatom species in the accumulation of Hg in the sediments of the Outer Puck Bay (OPB81, OPB19). The diatomological analysis was prepared following the standard procedure (Batterbee 1986). The total mercury were analyzed by thermodesorption method using a DMA-80 analyser (Beldowska et al. 2018). EDAX was carried out on samples placed a copper grid with carbon film, by a Hitachi STEM S5500 with an EDX detector. In the sediment collected from location OPB81, dominated by planktic species, the Hgtot concentration was 269 ng g⁻¹. In contrast, in the sediment collected from location OPB19, dominated by benthic taxa, the Hgtot concentration was significantly lower (19.22 ng g⁻¹). At location OPB81, the Hg content of benthic valves (*Fragilaria schulzii*, *Gedaniella mutabilis*, *Planolithidium delicatulum*) did not exceed 0.37 wt% and 0.04 at%. The highest Hg content was measured on the surface of the planktic taxa *Cyclotella choctawhatcheeana* (OPB19), Hg was measured by EDX as 28.99 wt% and 5.88 at%. Among the benthic species, *Diploneis didyma* (OPB19) had the highest Hg content on the surface – 15.82 wt% and 2.81 at%. Planktic and benthic taxa from location OPB19 show overall the highest accumulation of the Hg on the surface of the valves. That can be explained by the proximity of the two potential sources of the high Hg concentration in this area, riverine inflow of Kacza as well as the Harbor of Gdynia.

Reconstruction of the holocene environmental changes in the Yana-Indigirka lowland using Chironomidae (Diptera) remains - preliminary results

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Contemporary climatic changes are affecting many ecosystems. Boreal regions, such as Siberia, are considered to be especially vulnerable to climate warming consequences. While this vast region is still underrepresented in palaeoenvironmental studies, we decided to track past fluctuations in order to understand present changes. In 2019, the 24-long AL1 sediment profile was taken from the active layer of the paleo-alas in the Bioroloch River valley in the Yana-Indigirka Lowland. Radiocarbon dates indicate that its history reaches 3,000 years BP. Alases are shallow thermokarst lakes, periodically filled with water from melting permafrost. They are inhabited by insects with rapid reproduction, such as chironomid flies (Chironomidae). The remains of chironomid larvae are used in palaeoecological analyses because of their abundance, diversity, and sensitivity to environmental factors. Numerous larvae head capsules (mean 33.7/1 cm³ of sediment) were found also in AL1 profile. Their analysis enable to preliminarily establish the probable trend of increasing summer air temperature, episodic connections with river waters and fluctuations in water level of alas. The research results will not only provide information about the tundra ecosystems evolution, but also help to understand how contemporary climate change may affect Arctic habitats. The project has been financed by the INTERACT grant "HOLARCLIM" (2019) and by the University of Gdansk grant for Young Scientists (2022).

Sperm whales' echolocation

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The sperm whale (*Physeter macrocephalus*) is marine mammal found in all oceans of the world except the Arctic Ocean. It lives in social systems based on matrimonialism. Sperm whales build flocks composed of young and females, called family units. Their vocal code varies in each clan. Young males move closer to the pack ice with increasing age, but during the mating season they return to lower latitudes and compete with each other for females. Females show mutual aid, while a mother dives deep in search of food, other females take care of her young. This system gives a calf more security. Thanks to a unique code, calves are able to recognize which individual belongs to a family unit. Sperm whales produce four types of clicks: regular clicks, buzzes, codes and slow clicks, and each is used in a different situation. Sperm whales have a very large head with a spermaceti organ, which is a chamber containing an oily liquid. It is responsible for echolocation and communication between individuals, but also for controlling buoyancy. Echolocation is a process by which sperm whales send and receive sound waves, which is one of the most effective ways to transmit information under water. Thanks to this, sperm whales can track their prey from a distance of up to several hundred meters, in poor light conditions and acoustic interference.

Lability of permafrost-derived dissolved organic matter in high-Arctic Valley (Longyeardalen, Spitsbergen)

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Characteristics of organic matter released from permafrost is a source of interest for many scientists, mostly due to the so-called mechanism of the permafrost carbon feedback. Dissolved organic matter (DOM) released from permafrost can undergo remineralization by microbial organisms. Several studies have shown that permafrost-derived DOM is highly susceptible to biodegradation, and is therefore generally considered to be bioavailable. However, it's still unclear how fast and to what extent it undergoes remineralization. Therefore the following goals have been planned in our study: 1) to assess the permafrost-derived bioavailability and related to that CO₂ production 2) to determine the DOM composition changes during remineralization via optical measurements. For the study site, we have selected Longyeardalen (Spitsbergen). Our study was done through 180-day-lasting incubation experiments of leachates obtained by extracting the permafrost active layer samples with MilliQ water (to reflect precipitation influence). Samples for DOC (Dissolved Organic Carbon), DIC (Dissolved Inorganic Carbon), nutrients, and optical measurements were taken so far at the beginning of incubations and after 1, 2, 3, 5, 9, 21, 40, 61, 90, and will continue until 180 days. Preliminary results show that an important part of DOM is bioavailable and its remineralization contributes to CO₂ release which can have a positive feedback on Arctic and global warming.

Censorship in Libraries

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Censorship in libraries is a widely studied topic. Some books and the subject they take up may be found controversial. For librarians, it is simple to conceal resources they consider controversial. The censorship conducted by librarians is worldwide and unnoticeable. The American Library Association, for example, made a statement in which they condemn all attempts at acts of censorship. Also, UNESCO proclaimed a manifesto in which they stated that collections should not be subject to any form of pressure. In Poland, studies were conducted to show that subjects like LGBT issues, religion, patriotism or illness and death divide librarians. They may become reluctant to share and allow to use all the resources of their library collections. They become gatekeepers to all knowledge. The prepared poster aims to present the outcome of conducted studies.

How Do You Say: "Gender Equality"? Feminization and Neutralization

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Gender equality has been a widely discussed topic for a long time now. Women's emancipation has led to a number of benefits and new opportunities but it also created a linguistic challenge concerned with the way in which language users should refer to women working in professions which used to be accessible only for men. Two main processes employed in order to solve this issue are feminization and neutralization. This topic has attracted public attention, and is widely discussed not only by linguists but also by ordinary language users who express their opinions on the Internet. The heated debate seems to suggest a great importance of this issue. This poster is based mostly on Szpyra-Kozłowska's article: "Premiera, premierka czy pani premier? Nowe nazwy żeńskie i ograniczenia w ich tworzeniu w świetle badania ankietowego" (2019) and on my personal observations. It focuses on an analysis of Polish language, and aims at overviewing a historical background of the presented issue and discussing potential solutions, i.e. the processes of feminization and neutralization. The aim of this poster is not to discuss the topic of gender equality itself nor to promote one of the solutions but to investigate what is the best way in which gender equality can be expressed by means of language and to create a foundation for a structured discussion.

The future of sea turtles

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The scientific poster focuses on the protection of sea turtles and the critical neglect they face due to factors such as plastic pollution caused by human activity. The poster aims to raise awareness about this issue and explore potential solutions for preserving these important marine creatures. It provides an overview of the current state of sea turtle populations and highlights the ecological significance of safeguarding these animals. The poster ultimately seeks to encourage individuals and organizations to take action in protecting sea turtles and their habitats, promoting greater responsibility and sustainability in the use of natural resources.

Environmental impact of butchery and meat eating

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This project will explore the environmental impact of meat-eating and butchery and how it is shaping the future of our world. We will discuss the effects of global warming, the deforestation of rainforests for the purpose of raising animals for food, the depletion of natural resources, the proliferation of factory farming and its consequences. We will also explore the rise of plant-based diets and the potential for alternative sources of protein. Lastly, we will consider how these trends can be managed to create a sustainable future for our planet. This paper will provide an overview of the current state of the environment, the consequences of our dietary choices, and a look at the potential of alternative sources of protein to provide a more sustainable future.

Growing importance of female figures based on video games

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Female figures has been recently pioneering in the video games' world. Their importance is constantly growing and is prominent within the latest productions. Starting out as side characters, now the whole plot is about them. The precursor of this phenomenon was the world-famous character of Lara Croft and her story beginning in 1996, created by Crystal Dynamics studio. Over the years, many games have been created starring her, portraying her as a strong, independent and determined character. She became an icon, thanks to her groundbreaking behavior that was different for women in previous productions - she broke the stereotypes. Bioware studio in 2007 introduced gamers to the cosmic world that launched trilogy known as Mass Effect. Players had a choice of which character they would play - female or male. The games are recognised now by Commander Jane Shepard - her character was naturally portrayed by the developers as an independent individual who is capable of leading the entire galaxy to victory. The Last of Us (2013) and The Last of Us Part II (2020), created by Naughty Dog studio, showed the world a female character who has been mentioned most often in recent years. Ellie was introduced as a real person, who makes decisions both good and bad. She is brave and strong but she can also be stubborn and impulsive, and that is exactly why players respect her as a character – for her humanity.

Gender Gap Salary

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Despite the 21st century and constant attempts to publicize the problem of income inequalities between men and women, the described problem is still present and visible in everyday life. Women and men performing the same job receive significantly different salaries overall, which in turn leads to general dissatisfaction and a lack of sense of accomplishment and appreciation among women, which generates their overall low self-esteem in working life. Despite the constant publicizing of the problem among the public and expressing dissatisfaction in connection with the above, this problem does not seem to disappear. Immersed in lack of self-confidence and circulating stereotypes related to the lack of appropriate professional qualifications among the female sex - women are still afraid to fight for their own, and some employers do not believe in their ability to work at the same level as men. In the prepared project, we intend to discuss the aforementioned problems, show their origins and discuss potential solutions suggested by the interested parties.

Lack of Women in STEM (science, technology, engineering, and mathematics)

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The underrepresentation of women in science, technology, engineering, and mathematics (STEM) fields is a multifaceted issue influenced by numerous factors. This poster aims to delve into some of the key contributing factors that hinder gender equality and diversity within STEM disciplines. Gender bias is one of the primary factors perpetuating the underrepresentation of women in STEM. Biases can manifest in various forms, leading to disparities in hiring, promotion, and recognition. Stereotypes also play a significant role in impeding women's progress in STEM. Societal perceptions often portray STEM fields as traditionally masculine, perpetuating the misconception that women are less capable or interested in pursuing careers in these domains. The lack of visible and accessible role models further exacerbates the underrepresentation of women in STEM. Having relatable role models who have succeeded in STEM can inspire and provide guidance to aspiring women in these fields. Family responsibilities pose unique challenges for women pursuing careers in STEM. Balancing work and family commitments can be particularly demanding. Educational and cultural barriers also contribute to the underrepresentation of women in STEM fields. Research indicates that girls may face implicit biases and discouragement in educational settings when it comes to pursuing STEM subjects.

Hunger and lack of access to clean water – need of actions

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Hunger is present in many different parts of the world. It might be caused by the lack of resources available to the people or something much more complex but there's one thing to know: the urge to take actions and to do something – to solve the “world hunger” we need to act. Few of probably the most affected places by hunger and lack of fresh water are: Afghanistan, Ethiopia, Nigeria, Somalia, South Sudan, Yemen, Angola, Benin, Syria, Haiti. There is so much food wasted everyday in many places, according to study conducted for the International Congress “Over a third of all food produced (~2.5 billion tons) is lost or wasted each year.”. It might be caused by the fact that some consumers tend to buy more than they need, and it leads for example to groceries shops overstocking shelves, inaccurately predicting shelf life, etc. Around 2 billion people around the world do not have access to clean and safe drinking water, and approximately 3.6 billion people – 46% of the world's population – lack adequate sanitation services, according to a new United Nations World Water Development Report. Sadly there is a lot of bad people (abusing and exploiting poorer) in the world, that probably as the highest value treat the money and being rich. But I'm in hope that there's more people of good will and that empathy is living in so many hearts that will bring words into actions and bring help to those who needs it.

Climate Change: The Urgent Need for Action

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Climate change is a pressing global issue that demands immediate attention. The poster aims to shed light on the escalating global temperatures and the profound consequences they entail. Firstly, we will delve into the alarming rise in temperatures, which has triggered a cascade of devastating effects. The frequency and intensity of wildfires have surged, resulting in the loss of countless lives and widespread destruction of ecosystems and habitats. Furthermore, this poster will explore the far-reaching impact of climate change on food security. Changing precipitation patterns and prolonged droughts have ravaged agricultural regions, leading to decreased crop yields and food scarcity. It is crucial to understand the intricate links between climate change and food production to develop effective strategies for ensuring food security in a changing climate. The poster will also discuss potential solutions to address climate change. Reducing greenhouse gas emissions is of utmost importance and can be achieved through transitioning to renewable energy sources. However, it is essential to recognize that individual efforts alone are insufficient; collective action and political will are imperative to drive systemic changes at local, national, and global levels. In conclusion, this poster highlights the urgent need for action to combat climate change. The rising global temperatures and their disastrous consequences on human lives, food security, and ecosystems demand immediate attention. By implementing comprehensive strategies, reducing greenhouse gas emissions, and fostering collective action, we can pave the way for a sustainable future.

Disturbances in levels of chaperone proteins as one of aspects of the pathogenesis of mucopolysaccharidoses

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Mucopolysaccharidosis (MPS) is a rare metabolic disease caused by mutations in genes encoding lysosomal enzymes. Disturbed activities of enzymes lead to excessive deposition of glycosaminoglycans (GAGs). This disorder leads to cell and tissue destruction over time, and ultimately leads to death before the patient reaches adulthood. At the moment, it is possible to only minimize the symptoms, thus searching for adjunct pathomechanisms is crucial. The physiological function of chaperones is to support newly formed proteins in achieving correct conformations, preventing the formation of protein aggregates. This is critical because the proper conformation of the protein determines its proper functions. The results of this study indicated significant differences between levels of Hsp40 and Hsp70 chaperones in cells derived from MPS patients relative to controls. Experiments were performed by using immunofluorescence staining and Western-blotting. We also found that localizations of chaperone proteins is different in MPS cells. Enzyme replacement therapy and the reduction of substrate synthesis caused normalization of Hsp40 or Hsp70 levels in some, but not all MPS cells. We conclude that there is a doubt on a possibility to cure patients using currently available therapies, especially to correct levels of chaperone proteins, which confirms the urgent need for further research related to this aspect of the pathogenesis of MPS.

The Impact of Social Media on Youth Perceptions of Beauty Standards

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Social media has become an increasingly influential platform for young people to shape their perceptions of beauty standards. In our poster we will discuss contemporary Internet ideals taking into consideration filtered and edited images, role of social media influencers, algorithmic biases as well as user-generated content. Wildspreaded trends on Instagram and Tik Tok impact mostly upon the young changing the way they perceive their own bodies. We will explore the potential implications of these changes for mental health and body image. We will also mention the issue of the rise of body positivity and diversity and the role of social media in its promotion. What is more, we will present several potential trends for the future of beauty standards taking into account the interplay of technological, cultural, and social factors and consider both optimistic and pessimistic outcomes they may bring. By understanding the impact of the Internet on youth perceptions of beauty, we can better support young people as they navigate this complex landscape. It is crucial that we embrace diversity and promote body positivity, while also challenging harmful beauty ideals perpetuated by social media and cultural norms.

Long-term changes in the dominance of the main Copepoda species in the southern Baltic Sea

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The study presents long-term data (2006 – 2019) from zooplankton cruises in the southern Baltic Sea in two seasons – summer and spring. We examined how the dominance of four Copepoda species - *Pseudocalanus* sp., *Acartia* spp., *Temora longicornis* and *Centropages hamatus* changed with the hydrological conditions in the basins. The highest biomass were recorded for *T. longicornis*, which clearly dominated over *Pseudocalanus* sp. showing a downward trend. In 2018 an increase in Copepoda biomass in the research area has been noted. The highest average biomass was recorded for *Acartia* spp. in the summer season. Fluctuations in the temperature and salinity in the water column, especially in the summer, have a significant impact on this situation, as the reproduction, development and survival of the analyzed species depend on them.

Environmental impact through wind power farms in Poland and Europe

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Environmental protection has become very popular. Nowadays we try to take care of animals and develop renewable energy. Is the expansion of wind farm construction in Poland and Europe conducive to caring for the environment? These data show that despite the good results of renewable energy, wind farms endanger animals. When looking at the positive aspects of building wind farms, one has to look at the results in Europe, which are achieving global popularity. Worldwide, RES (Renewable Energy Sources) installations of nearly 257 GW have been built, increasing the share in the global energy mix by 9.1 %. This also contributed to an 81% increase in global production. According to the Agency's data, more than half of the new capacity was photovoltaic - 133 GW and wind farms - 93 GW. Unfortunately, in addition to the positives, there are huge disadvantages. Wind turbines are a source of noise and a threat to animals. If we consider Europe, every year in Spain, according to a study by the SEO/Birdlife group, between 6 and 18 million birds are killed and twice as many bats. Statistics from December 2002, published by the California Energy Commission: "In American Bird Conservancy summary of the impact of wind turbines on birds, the number of dead birds was 1.17 million in 2021."

Optimizing Reservoir Operation for Hydropower Generation under Land Use Land Cover Changes in the Blue Nile Basin of Ethiopia: Nashe Reservoir

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Optimal reservoir operation is a challenging optimization problem, but it is an important tool for improving the environment, water supply, and hydropower generation. The goal of the study was to assess the optimal reservoir operation for water resources management in relation to hydropower generation under the influence of LULC changes. As an optimization tool for planning water resources, HEC-ResPRM (Hydrologic Engineering Center reservoir evaluation system Prescriptive Reservoir Model) was integrated with SWAT (Soil and Water Assessment Tool). The results showed that better hydropower generation would occur in the future compared to the existing LULC in both the 2035 and 2050 LULC change scenarios. As a result, changes in LULC have a significant impact on the development of hydropower by changing the average yearly and monthly reservoir inflow volumes as well as their seasonal distribution. Reservoir operating rule curves are widely used in hydropower reservoir operation because they help operators make crucial, optimal decisions with available stream flow. Furthermore, the generated future reservoir rule curves can be used as a reference for long-term hydropower generating capacity prediction, assisting the involved authorities in the successful operation of the reservoir under the influence of LULC changes.

Science is a woman

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Science is a huge and general topic and it become common that in all aspects of life, gender is a crucial factor. Science is included in that aspects because there are different opinions about a job suitable for women and men. Although it can not be skipped that some jobs and careers are better for women or for men. It is known that men are strong phisicaly and women are strong mentally, so science, as it is all about thinking, will be used more effectively in woman' s hands. Argument for it is simple: imagination, further looking, seeing whole picture and every element at the same time, multitasking.

Advancing Equality: Empowering Women and Girls in Science for a Brighter Future

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This abstract explores the significance of empowering women and girls in the field of science. The abstract emphasizes the role of education, mentorship, and role models in nurturing scientific curiosity and providing equal opportunities. It also underscores the transformative potential of increased female representation in science, leading to innovation and addressing societal challenges.

"Generative Pre-trained Transformer" also known as ChatGPT. Short overview of Chat GPT in the career section - the pros and cons of using

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This AI is helping people in a very smooth way and giving the best solutions for any problems. AI Content Creation combines the power of AI with creativity, allowing individuals to create high-quality content in less time and with less effort. What's more this chatbot can provide a personalized answers to questions so most of the users can get unique solutions in a different ways. Also one of the biggest advantages is that it is free to use so there is a cost issue for using it. It is now a crucial component of content marketing strategies thanks to AI technology. Artificial intelligence (AI) poses a threat to many occupations. In many industries, Chat GPT is already in use. Customer service is one of them, as you may have guessed. While chatbots are more than capable of handling straightforward issues, they require human assistance when handling more complicated situations. Not any longer, as Chat GPT will unquestionably be able to put an end to these uncertainties. Next in line is copyrighting, a very reliable source of income. Here, a professional's task was to create persuasive content to convince the reader to either make a purchase, click on a link or any other action that may not have been in his or her bests interest. With the help of some form of manipulation, a reader was easily influenced to do as desired. Nowadays, users can already request for Chat GPT to write strong compelling content which they may use for advertisement purposes.

AI modulators' increasing prevalence in society

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Artificial Intelligence (AI) has become an integral part of our lives, transforming various industries and revolutionizing the way we interact with technology. One of the emerging advancements in AI is AI Modulators, which are rapidly gaining prevalence in our society.

The Illusive American Dream: Challenges and Realities in Modern-Day New York

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The concept of the American Dream has been a prominent cultural ideal since the country's founding. It has been seen as a symbol of hope, opportunity, and upward mobility for generations of Americans. However, in modern-day New York, the myth of the American Dream has taken on a new meaning. Many New Yorkers are struggling to make ends meet, as the cost of living continues to rise and income inequality widens. The dream of homeownership, a stable job, and a comfortable life seems out of reach for many. This poster will explore the ways in which the myth of the American Dream has evolved in modern-day New York, the challenges that New Yorkers face in achieving it, and the impact of this cultural ideal on the city's social and economic landscape.

Diversity of benthic harpacticoids in two different habitats of an Arctic fjord

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A variety of bottom habitats can be found in the coastal waters of Isfjorden. In areas of dense kelp forests, rocky or gravel bottoms, where fauna finds shelter among macrophytes or in rock crevices, standard sampling techniques and methods (nets, Van Veen grabs or drags) are often not sufficient to collect representative samples of some taxa. We used a modified suction pump sampler operated by SCUBA divers to collect benthic Harpacticoida and compare their diversity and community structure between two different habitats. Samples were collected seasonally at two depths (6 & 12m) at station N, with a sandy and gravel bottom with small groups of kelps, and station S with a hard, rocky bottom covered with dense kelp forests. Twelve harpacticoid families were identified: Tisbidae; Harpacticidae; Ectinosomatidae; Thalestridae; Ameiridae; Tegastidae; Pseudotachididae; Miracidae; Laophontidae; Cletotidae; Dactylopusidae; Canthocamptidae with the addition of unidentified specimens. Tisbidae, dominated numerically at both stations, but community structures differed between habitats. Ectinosomatidae and Ameiridae, sand-digging species, occurred abundantly at station N, while Harpacticidae and Thalestridae, phytophilic species, were numerous on hard bottom overgrown with kelp forest. Ectinosomatidae and Harpacticidae were usually more abundant at 6m than at 12m depth. Our results suggest that the bottom structure and the presence of kelp forest differentiate the harpacticoids community.





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