

METU POLAR RESEARCH WORKSHOP DECLARATION

Northern and Southern polar regions are of significance importance; due to their key role in climate change, natural resources they embody, also scientifically and geopolitically. At the same time, polar regions function as a natural laboratory for many field, to study important subjects, ranging from social sciences to engineering. Middle East Technical University, playing a leading part for sustainability and innovation, in our country and in the World, organized the METU Polar Research Workshop in 20th of March 2017, gathered its researchers and entrepreneurs interested, and **assessing the multidisciplinary polar research potential within METU.**

Workshop was pioneered by METU Institute of Marine Sciences, which have the leading position with its experience, on one of the foundational fields in polar research; marine sciences, in national and international waters. METU Institute of Marine Sciences already holds a young researcher team, experienced in both north and south poles, collaborating with leading institutions. Befittingly to the multidisciplinary structure of polar research, **academics from 15 different disciplines within METU**, as well as undergraduate and graduate students with addition of METU Technopolis firms attended. (Appendix-1)

Throughout the workshop, the importance of polar research and advanced studies has been discussed with a multidisciplinary approach, alongside with review of other countries' up to date scientific and geopolitics effectiveness of their research centers in the poles. Within this context, as the recently risen national and international opportunities and difficulties to overcome have been discussed, **5 polar explorers, who conducted research in poles with leading institutions in Europe and USA, from METU shared their knowledge and experiences.**

Within the scope of the workshop, existing research fields and research potential for polar studies of METU has been determined. At the same time, **a core researcher list was created with our academics from a variety of different institutes, faculties and departments; that would want to participate in a future Polar Research Center in METU (Appendix-2).** In the upcoming processes, existing researcher portfolio is planned to be grouped under categories (eg. i) Experienced in polar research and continuing their research, ii) Previously experienced and has contacts for collaboration, iii) Not experienced but interested in polar research, iv) Researchers who are not actively interested in polar research but specialties are applicable for polar research) identifying multidisciplinary polar research opportunities with respect to researchers' portfolios.

While determining multidisciplinary polar research potential of METU, specific research topics in this field have been listed (Appendix-3) and context of the topics have been broadened with specialties of workshop attenders.

While discussing the topic of what are necessary needs to increase the effectiveness of polar research of METU researchers, the importance of these needs not being just research focused but being a holistic system including logistic (operational), financial support, management issues and polar legal order have been emphasized. Also a consensus was established concerning the necessity of building predictions for financial and operational resource needs for the first 5, 10, and 15 years periods of the research programs.

In the panel section of the workshop, the roadmap was developed with the contributions of all workshop participants. First of all, establishment of a communication network targeting the researchers who are interested in the polar research and formulation of a strategy plan to bring this community together were recommended.

As the first step of the roadmap for the establishment of the METU Polar Research Center, importance of multidisciplinary cooperation, which would take place in a transparent process with the participation of all key stakeholders was emphasized. Necessity of organizing workshops on the issue with the participation of leading institutions were also stated.

One of the proposals to be realized in the near future is the preparation of the METU Polar Research Science Strategy Plan during the workshops mentioned above. This multidisciplinary METU Polar Research Science Strategy is aimed to be served as an basis for development of national polar research science strategy. Therefore, it is also aimed that METU would once again play a pioneering role not only on university scale but also on national scale and create added value for the country.

Establishment of a working group to develop the Scientific Strategy Plan of the Polar Research, which is of great importance both for our university and for our country was decided. The assessment of how the workgroup would be established and from whom it can be formed has resulted in two different groups, the working group being a core group and the extended group comprising a wider group, including all other related scientists. The right strategy for the creation of the working groups would be determined and the support will be provided from our experts in the process of forming these groups. In addition, the objectives and activities of these working groups will be broadly defined.

Communication mainly via emails during the first period was decided, but communication channels be extended to the various alternative platforms (such as wikis) was also recommended.

In summary, METU Polar Research Workshop has established a core team and road map that has attained its objectives and can contribute to the National Polar Research, which will continue under the coordination of the Ministry of Science, Industry and Technology.

APPENDIX-1
List of Participants

Workshop Participants List				
No	Full Name	Department/Firm	E-mail	Position
1	Mustafa Yücel	METU-IMS	muyucel@metu.edu.tr	Assist. Prof. Dr.
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		Problems)		
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People get in touch after the workshop				
50	Y. Cengiz Toklu	Okan University/Civil engineering	cengiztoklu@gmail.com	Prof. Dr
51	Hakkı Erman Ergincan	METU-CE	heergincan@gmail.com	Student

APPENDIX-2
Researchers and Their Subjects of Interest

High altitude vegetation, snow and ice cover

Doç. Dr. Uğur Murat Leloğlu, Geodesy and Geographical Information Technologies / Earth System Sciences

North Atlantic Oscillation (NAO)/ Meteorology

Prof.Dr. İsmail Yücel, ODTÜ Civil Engineering – Water Sources /Earth System Sciences

Earth Sciences Intelligence, Risk and Resistance Assessment

Prof. Dr. Şebnem Düzgün - Geodesy and Geographical Information Technologies / Earth System Sciences

Climate, Earth Sciences and Energy

Prof. Dr. Bülent Akınoğlu, Physics / GÜNAM / Earth System Sciences

Climate, Earth Sciences and Energy

Prof. Dr. Raşit Turan, Physics / GÜNAM / Earth System Sciences

Snow thickness, Effective snow cover, snow water equivalent

Prof.Dr. Zuhâl Akyürek, ODTÜ Civil Engineering – Water Sources / Earth System Sciences

Plant adaptation, plant species, existing plant biodiversity

Prof.Dr. Zeki Kaya – METU Biology / Earth System Sciences

Carbon Cycle, carbon transport, Ocean acidification, Primary production

Prof.Dr. Ayşen Yılmaz – METU Institute of Marine Sciences / Earth System Sciences

Paleo-oceanographic / oceanography studies, paleoclimate, energy and mine sources

Prof.Dr. İsmail Ömer Yılmaz - Geology Engineering / Earth System Sciences

Maritime Law and Arctic Ocean

Globalization and Arctic governance

Prof.Dr. Şule Güneş, International Relations / Earth System Sciences

Economics - Process of Early Accordance for Climate Policies

Doç.Dr.Ebru Voyvoda, Economy/ Earth System Sciences

Atmospheric Sciences in Poles

Prof. Dr. Gürdal Tuncel, Environmental Engineering

Bio-prosthesis

Yard. Doç Dr. Batur Ercan, Metallurgical and Materials Engineering

Stated interest, no information on subject

Prof. Dr. Y. Cengiz Toklu, Okan University / Faculty of Engineering (METU CE'67)

APPENDIX-3

Main Research Topic and Sub-Topics Listed in the Workshop Agenda:

Oceanography

- Marine Ecosystem and Environmental Change
- Modelling
- Physical Oceanography and Chemical Flux / Transport
- Ocean Acidification
- Marine waste and Pollution at Sea
- Carbon cycle, CO₂ deposition, Carbon transport in deep sea
- Primary production

Polar Engineering

- Polar Materials
- Strain Based Design
- Renewable Energy and Environment
- Tsunami and Security
- Coastal Engineering
- Hydrodynamic and CFD
- Protection of intact pole structure
- Offshore Technology
- Cryogenic Materials
- Geotechnical / Geoenvironmental Engineering
- Submarine Pipeline Booster
- Ocean Mining and Gas Hydrates
- Material Reliability in Petrochemicals
- Underwater Systems
- High Performance Materials
- Robotics and sensor technologies
- Material science

Polar-oriented Social Science and Humanities

- Oil, gas and society
- Space and distance: orbits of nomads, shamans, merchants and aviators
- The reindeer shepherds and their ecology
- Changing religions: god, experience and politics
- Family dynamics and intercultural psychotherapy
- Ethnicity and regionalization

Health and Social Sciences Research

- National defense
- Resource development
- Rapid population change
- Stress factors affecting native and non-Arctic populations

Circumpolar History and Public Policy

Polar-focused Psychology: harmonization with isolated and limited circles
International relations and law

- Sovereignty, Security and Dispute Analysis
- Climate change, Management of Environment and Resources
- Maritime Law and Arctic Ocean
- Human Rights in Poles and Arctic Natives

Globalization and Arctic Governance

Health Sciences and Biomedical

Economics - Process of Early Accordance for Climate Policies

Atmosphere Sciences in Poles

Space and Aeropause Sciences Group

Biological Sciences - Biodiversity

Polar region administration and expanding our knowledge on Polar flora and fauna

- Plant adaptation, plant species, existing plant biodiversity

Geology / Geoscience

- Permafrost
- Earth Sciences Intelligence
- Paleo-oceanography / oceanography studies
- Paleoclimate
- Possible energy and mine sources

Sea Ice, Ice Sheets, Glaciers and Sea-Ice Environments

- Glaciers, ice covers and ice sheets
- Sea Ice
- Lake / estuary ice
- Snow cover
- Seasonal frozen soil
- Permafrost
- Snow thickness, effective snow cover, snow water equivalent

Meteorology and Glaciology group

- Atmospheric science
- Meteorology
- Glaciology
- Sea ice
- Oceanography and paleoclimatology

Polar Landscape and Remote Sensing

- High altitude vegetation, snow and ice cover

Planet Science

- Solar System Change
- Earth Climate History
- Earth Climate Future
- Glaciers in Mars

Paleo-oceanography

Climate

- North Atlantic Oscillation
- Climate and Earth Sciences