

# CLIVAR/CliC/SCAR Southern Ocean Region Panel SORP

## National activities report

Country: Turkey

Contributor(s) (writer(s)): Dr. Burcu Ozsoy

Date: 26.01.2019

*Receipt of material prior to 1 February 2019 will ensure inclusion discussions at the first SORP video conference for 2019. The reports contribute to future SORP discussions, as well as input to the SOOS and other CLIVAR/CliC/SCAR activities. All reports will be posted on the SORP website.*

- Purpose of material gathered for the SORP:

To build an overview of observational, modeling, national projects and initiatives, ocean reanalysis and state estimation initiatives relevant to the SORP

(This can be detailed as a list of activities; maps showing where instruments have been or will be deployed; examples of modeling developments, experiments and set-ups; major national and international project involvement; etc.)

- Please refer to SORP's terms of reference (also given at the end of this template) for guidance on scope: <http://www.clivar.org/clivar-panels/southern>

Note: Biological topics such as marine ecology research, for example, are not within the scope of SORP's terms of reference and are therefore not required in these reports. However, SOOS has an interest in such research, so National Representatives are encouraged to include summaries of such research as separate sections.

Note: The Southern Ocean is not explicitly defined in SORP's terms of reference, so please note what the limit used for your national report is (e.g., research on regions only beyond an oceanographic boundary like "south of the Polar Front", or research contained within latitudinal limits like "south of 50 °S").

## **Summary of National Activities**

*(Half page max. This section should include a succinct list of the main annual activities and breakthroughs as well as future plans (including any possible future opportunities for international collaboration))*

Republic of Turkey aims to engage in scientific cooperation on Arctic and Antarctic regions with all the states. Universities in Turkey have established cooperation with their counterparts in Germany, United States of America, Australia, South Korea, United Kingdom, Bulgaria, Belgium, Czech Republic, Ukraine, Denmark and Chile. Cooperation with these countries is planned to continue during the implementation of the National Polar Science Program. The objective of the National Polar Science Program (2018-2022) is to implement the scientific activities and research on polar sciences with a systematic integrity and project approach. National Polar Science Program consists of four main titles, which shall be executed in harmony with the Working Groups composed under SCAR: (1) Physical Sciences, (2) Geosciences, (3) Life Sciences and (4) Social Sciences and Humanities. Physical Sciences includes research topics which are directly related to “Global Climate Change” and deal with atmospheric and glacier issues. Applied Physical Sciences and Innovative Technologies, Atmosphere and Climate Research, Modeling Studies, Kinematic and other monitoring systems, Sea Ice Processes are studied under physical sciences. On the other hand, the topics studied under Life Sciences are “Polar Biodiversity, Biochemistry and Biochemical Cycles, Biotechnology, Ecology and Pollution Studies. Geosciences includes topics such as: Geodesic studies, Geomorphology, Volcanology, Marine/Lake Geology and Geophysics, Glacial Studies, Geodynamic Modelling, and Seismology.

2018-2019 Antarctic camping TAE-III (Turkish Antarctic Expedition III) will, charter vessel between 1<sup>st</sup> of February to 2<sup>nd</sup> of March, include establishing Monitoring sites with Meteorological and GNSS Stations. Bathymetry studies will be conducted during Austral summer 2019. Ship track will cover 62<sup>o</sup> South to 68<sup>o</sup> South.

**A. Recent and ongoing activities**

*If your country has a national committee tasked with oversight of Southern Ocean climate science (e.g., like US CLIVAR), please give the name of the committee here:*

---

*Describe which major activities have been carried out in the last year or are in progress now. For each activity/project, provide a contact information (e.g., Principal Investigators and Associate Investigators), a website if available and a list of relevant publications.*

1. Observational Activities

N/A

2. Modeling Activities

N/A

3. Ocean reanalysis and state estimation Activities

N/A

4. National and International Projects/Initiatives

**Projects below will be conducted during TAE II (2017-2018 Antarctic Campaign)**

**Determination of coastal marine meroplankton diversity in Antarctica-Robert Island and its vicinity by Environmental DNA (eDNA) method**

**Principal Investigator:** Dr. Rasit Bilgin and Dr. Evrim Kalkan

**Responsible Researcher:** Kubra Karaman Arslan

**Places where project work conducted:** Robert Island, Deception Island, Nansen Island, King George Island

**Elucidating the effects of climate change on Antarctic freshwater ecosystems (lakes and rivers) by using ecological characteristics, biological diversity and food web structure**

**Principal Investigator:** Dr. Korhan Ozkan

**Places where project work conducted:** Robert Island, Nansen Island, Deception Island, King George Island

**Secondary Metabolites, Bioactivity and Drug Potentials of Fungi from Antarctica Live Sources**

**Principal Investigator:** Dr. Bulent Gozcelioglu

**Places where project work conducted:** Robert Island, Nansen Island

**Glacial and climatic studies in the Antarctic Peninsula**

**Principal Investigator:** Dr. Attila Ciner

**Places where project work conducted:** Calmette Bay, Horseshoe Island, Deception Island, King George Island

**Relative Sea Level Change along the Antarctic Peninsula: implications for climate and geodynamic processes**

**Principal Investigator:** Dr. Cengiz Yildirim

**Places where project work conducted:** Calmette Bay, Horseshoe Island, Deception Island, King George Island

**Late Quaternary glacial and deglacial stratigraphy and sea-bottom morphology in West Antarctica**

**Principal Investigator:** Assist. Prof. Dr. Gulsen Ucarkus

**Places where project work conducted:** Gerlache Strait, Portal Point, South of Nansen Island, Horseshoe Island, Calmette Bay

**A study on the investigation of microplastic contamination in Antarctica and the distribution of microplasticity**

**Principal Investigator:** Dr. Cem Gazioglu

**Responsible Researcher:** Dr. Burak KARACIK

**Places where project work conducted:** Horseshoe Island, Hovgaard Island, Nansen Island

**The Phylogenetic Origin of Cold-Adaptive Mechanisms of Endemic Notothenioid Sub-Order members in Antarctica Continent**

**Principal Investigator:** Müge Yaşar

**Responsible Researcher:** Zeki Yaşar

**Places where project work conducted:** Horseshoe Island, Nansen Island, Videla Island, Deception Island, Hovgaard Island, King George Island

**Determination of Polyaromatic Hydrocarbon (PAHs) Pollution and Bioturbation in Antarctic Ecosystem**

**Principal Investigator:** Asst. Prof. Dr. Burak Karacik

**Places where project work conducted:** Robert Island, Horseshoe Island, Hovgaard Island, Nansen Island, Portal Point

**Projects conducted as international initiatives (2017-2018 Antarctic Season)**

Dr. Şafak Altunkaynak and Ayşe Z. Caliskanoglu joined the Czech Republic expedition to conduct the project title “**Origin, Timing and Geodynamics of James Ross Island Volcanism (W. Antarctica)**” at J.G. Mendel station

Yagmur Gunes joined the Polish expedition to conduct the project title “**Alteration process of basaltic rocks under extreme conditions and implications for Mars**” at Henryk Arctowski Polish Antarctic Station

Dr. Mehmet N. Bodur and Mert Bezcioglu joined the Bulgarian expedition to conduct the project title “**Environmental and climatological impacts on recently deposited marine and terrestrial sediments from Livingston Island, South Shetland Islands, Antarctic Peninsula.**” at St. Kliment Ohridski Station

Dr. Naki Akcar and Serdar Yesilyurt joined the Belgium expedition to conduct the project title “**DEAIS: Deglaciation history of the Eastern Antarctic Ice Sheet**” at Princess Elisabeth Station

## **B. Planned activities**

*List which major activities are planned or likely to occur during the next several years, together with a contact information (e.g., Principal Investigators and Associate Investigators).*

1. Observational

N/A

2. Modeling

N/A

3. Ocean reanalysis and state estimation

N/A

4. National and International Projects/Initiatives

### **Projects below will be conducted during TAE III (2018-2019 Antarctic Campaign)**

Plankton in Antarctic Pelagic Ecosystem: Pigment Composition, Community Structure, Prokaryotic Metagenics

Dr. Muzaffer Feyzioglu

Investigation of Amphipod Krustase Fauna in the Shallow Water Tidal Zone Habitats of Antarctica Peninsula Region by DNA Barcoding Method

PI: Dr. Elizabeth Mather Hemond Bilgin and Dr. Evrim Kalkan

Detection and Determination of Heavy Metal Pollution in Sediment and *Nacella Concina* in the vicinity of Antarctica

PI: Dr. Ibrahim Bilici

Antarctic Peninsula Biodiversity and Food – web Relationships

PI: Dr. Korhan Özkan

Determination of Levels of Persistent Organic Pollutants in Antarctic Ecosystem; Passive Sampling Techniques

PI: Dr. Oya Okay

Investigation of marine invertebrate diversity in the Antarctic Peninsula Region by using environmental DNA (eDNA) method

PI: Dr. Rasit Bilgin and Dr. Mahmut Caliskan

Genomic Variety Variation in Antarctica Vascular Plants Specimens

PI: Dr. Sedat Serce

Psychrophil and Psychro-tolerant microorganism studies which can breakdown with Genomic analysis of herbicides (Dalapon and Bromoxynil)

PI: Dr. Yilmaz Kaya

Ecology, diversity, taxonomy and biogeography of diatoms (Bacillariophyta) of Horseshoe Island

PI: Dr. Barbora Chattova

The analysis of the reactions of Antarctica food webs to environmental changes with stable isotopes, eDNA and paleo-ecological methods

PI: Dr. Korhan Özkan

**Projects below will be conducted as international initiatives (2017-2018 Antarctic Season)**

DEAIS: Deglaciation of the Eastern Antarctic Ice Sheet

Conducted at Princess Elizabeth Station

PI: Dr. Naki Akcar

Sedimentological, geochemical and magnetic susceptibility properties of permafrost and soil deposits in King George Island: Paleo-environmental implications

Conducted at King Sejong Station

PI: Dr. Alper Gurbuz

Spatial and Temporal Geophysical Anatomy of Permafrost

Conducted at King Sejong Station

PI: Dr. Mustafa Senkaya

5. Opportunities for future international collaborations

International projects and collaborations are welcomed to future Antarctic Campaigns.



---

## CLIVAR/CliC/SCAR SORP terms of reference

(<http://www.clivar.org/clivar-panels/southern>)

*"To serve as a forum for the discussion and communication of scientific advances in the understanding of climate variability and change in the Southern Ocean. To advise CLIVAR, [CliC](#), and [SCAR](#) on progress, achievements, new opportunities and impediments in internationally-coordinated Southern Ocean research."*

### **Specific Activities:**

1. Facilitate progress in the development of tools and methods required to assess climate variability, climate change and climate predictability of the ocean-atmosphere-ice system in the Southern Ocean.
2. Identify opportunities and coordinated strategies to implement these methods, spanning observations, models, experiments, and process studies.
3. Provide scientific and technical input into international research coordination, collaborating as required with other relevant programs, including the [Southern Ocean Observing System \(SOOS\)](#).
4. Monitor and evaluate progress in Southern Ocean research, and identify gaps.
5. Enhance interaction between the meteorology, oceanography, cryosphere, geology, biogeochemistry and paleoclimate communities with an interest in the climate of the Southern Ocean.
6. Work with relevant agencies on the standardization, distribution and archiving of Southern Ocean observations.