

SOCIETY AND ADVANCED TECHNOLOGY IN THE ARCTIC, PROJECT'S OVERVIEW

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Society and Advanced Technology in the Arctic (SATA) project is developed to train Norwegian and Russian graduate students in cross-border transdisciplinary analysis and problem-solving. The topic is transdisciplinary application of fundamental research for improving living conditions in the Arctic using advanced technology (especially remote sensing and space-based technologies). The graduate students are challenged to develop socio-technical solutions moving between demands and possibilities of society, economy, culture, regulation, natural science and technology.

The 2018 field course was in Tromsø and Harstad, hosted by the UiT-The Arctic University of Norway. Within a week of intensive studies and interaction with leading research centers in different fields of R&D activity for Arctic regions, students developed several research proposals that turn out to be tightly interconnected forming circle structure that may be named after the name of the whole course “SATA loop” – mutual interaction between Industry-Science-Education-Society. Below we present short overview of the proposals and give brief explanation of this very idea of the “loop”.

Project 1. “Ranking Oil Rig Placement Locations in the Barents Sea: A Utility Assessment for Multiple Stakeholders” developed by Sergey Demin, Kat Hodgson, Iana Korotova, and Denis Tverskoi. We consider it as “Technological impact” (PTe).

The purpose for this project is to construct a ranking system that assesses several placements for potential oil production based on their utility. To this end, the project team seeks to maximize potential opportunities and minimize potential risks as well as conflicts between a variety of stakeholders.

Project 2. “The network of Arctic research centres” developed by Yana Zykova, KyongSa Ri, Guzel Almukhametova, Maria Ermolova. We consider it as “Scientific impact” (PSc)

The purpose for this project is to increase the cooperation level of research centers studying the Arctic problems. The study among the objectives should

1. determine the level of collaboration between research centres working with the same topics concerning the Arctic region, using different criteria, e.g. number of joint publications, number of joint projects, student exchange programs within each discipline and transdisciplinary ones;
2. determine the primary research focus of the research centres; which topics are less covered and need more international cooperation;
4. determine factors and their effect on the level of collaboration, including economic, scientific, cultural and geographical factors;
5. analyze the demand for research in different fields based on the country’s problems and needs (climate changes, health level, other Arctic problems).

Project 3. “Brain Circulation in the Arctic: Locations of studies, living and occupation of northerners” developed by Daniela Schuster, Yulia Gurova, Irina Gavrilenkova, Alexander Proskuryakov. We consider it as “Educational impact” (PEd).

It is an interdisciplinary research of university graduates and their career trajectories. The main purpose is to consider the relocation of graduates between their places of birth, study and work and to determine reasons of relocation. The modeling of this processes allow us to track the human flows and predict future choices of study, work and living places of the Arctic youth. By this many national and international user-conflicts in the Barents Sea area can be addressed in providing strategies for attracting qualified labor which requires intense collaboration of the different stakeholders.

Project 4. “Migration in Arctic Region” developed by Alexander Buldyaev, Hema Naderajah, Anna Rezyapova, Yuan Jing, Johan Birkelund. We consider it as “Societal impact” (PSo)

The goal of this project is to advance and disseminate knowledge concerning the reasons for internal migration in the Norwegian and Russian Arctic regions. Society in the Arctic is facing the different consequences of the development process, such as climate change, increasing diversity in the society, rise of new technologies and lack of natural resources. The project is intended to study how migration in the Arctic is going to contribute to the problems mentioned above.

“SATA loop”

In course of the presentation of projects proposals the interdisciplinary of whole SATA course and strong interconnection of all disciplines provided within the course to students resulted in fact

that there are obvious interconnections between different projects that allows forming their circular representation that we entitled “SATA loop” after the title of the whole course.

Project 1 “Ranking Oil Rig Placement Locations in the Barents Sea: A Utility Assessment for Multiple Stakeholders” and project 2 “The network of Arctic research centres” form the Technology-Science link (LTeSc). Problems induced by Arctic special features of industrial activity induce demand for special research topics and corresponding research activities contribute a lot to possibility to solve industrial challenges.

Project 2 “The network of Arctic research centres” and project 3 “Brain Circulation in the Arctic: Locations of studies, living and occupation of northerners” form the Science-Education link (LScEd). Possibility to achieve state-of-art scientific results depends heavily from availability of researchers of corresponding skills and expertise which in turn determines to high extent the flows of university graduates and their career trajectories. In turn, launching of ambitious research projects allows to establish new educational programs that may be quite competitive in order to attract more talented students to Arctic universities.

Project 3 “Brain Circulation in the Arctic: Locations of studies, living and occupation of northerners” and project 4 “Migration in Arctic Region” form the Education-Society link (LEdSo). It is obvious that “brains” circulation contributes to total migration but at the same time it is important to take into account how the global migration affects migration flows of students and researchers.

Finally, project 4 “Migration in Arctic Region” and project 1 “Ranking Oil Rig Placement Locations in the Barents Sea: A Utility Assessment for Multiple Stakeholders” form the Society-Technology link (LSoTe). Environmental impact of technologies applied in industrial activities influence the quality of life that in turn is one of the fundamental factors to determine migration flows. In turn, high standards of quality of life allow an immigration to prevail over emigration, induce high standards for safety and environmental impact of industrial activities that demand implementation of more advanced technologies.