



Eyes on the ground

EO for better decision-making

Space for Arctic – Tromsø, 2-3 July 2024

Tina Schoolmeester

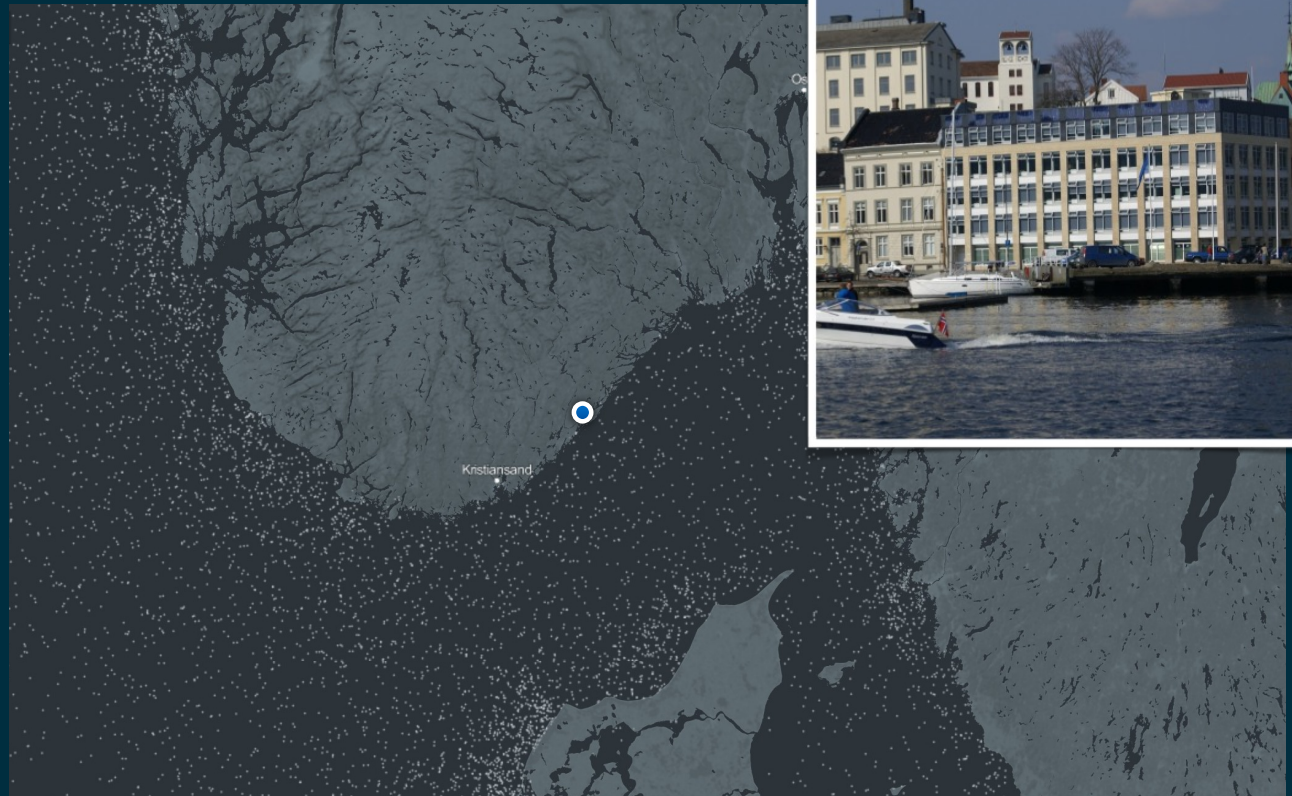


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GRID-Arendal | At a glance

*“Environmental
knowledge for
change”*

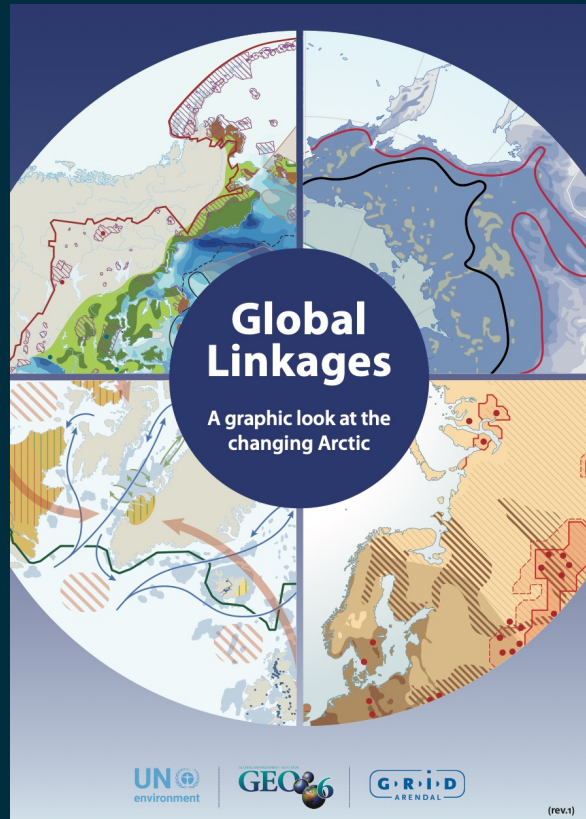


GRID-Arendal | At a glance

*“Environmental
knowledge for
change”*

- Norwegian non-profit foundation
- Supporting the United Nations Environment Programme (UNEP) (& many others)
- Supporting informed decision-making to enable better environmental governance
 - Bridging science to policy gap

UNEP Key Polar Centre



- Understanding the links between the Poles and global systems is vital for UNEP to deliver on its global mandate
- UNEP is an observer to the Arctic Council - GRID-Arendal supports UNEP in this role
- *Vice versa*, GRID-Arendal brings polar issues to the global arena

Regional Support Office | UN-SPIDER

The screenshot displays the UN-SPIDER Knowledge Portal website. At the top left is the United Nations logo and the text "United Nations". To the right of the logo is the text "Office for Outer Space Affairs" and "UN-SPIDER Knowledge Portal". A search bar is located in the top right corner. Below the header is a navigation menu with the following items: Home, About Us, Space Application, Links & Resources, Risks & Disasters, Advisory Support, Network, Projects, and News & Events. The main content area shows a breadcrumb trail: Home / Network / Regional Support Offices / Regional Support Offices. The title "Regional Support Offices" is prominently displayed. Below the title is a paragraph explaining that a Regional Support Office (RSO) is a regional or national centre of expertise set up within an existing entity by a Member State or group of Member States. It further states that these offices communicate and coordinate with UN-SPIDER on a regular basis, covering outreach and capacity building, as well as horizontal cooperation and technical advisory support. A second paragraph notes that the RSO section includes a list of UN-SPIDER RSOs, a brief description of each Office, and an overview of its facilities, expertise, and infrastructure. At the bottom of the page is a world map with blue location pins indicating the locations of various Regional Support Offices. A tooltip for the "Norway Regional Support Office" is visible over the map. The map also shows labels for continents (NORTH AMERICA, SOUTH AMERICA, AFRICA, ASIA, AUSTRALIA) and oceans (Pacific Ocean, Atlantic Ocean, Indian Ocean).

United Nations | Office for Outer Space Affairs
UN-SPIDER Knowledge Portal

Search

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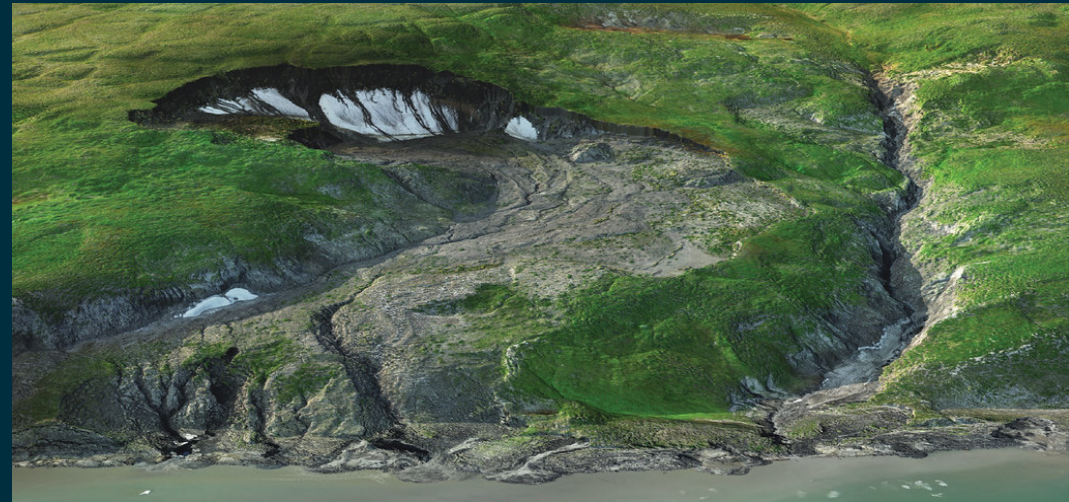
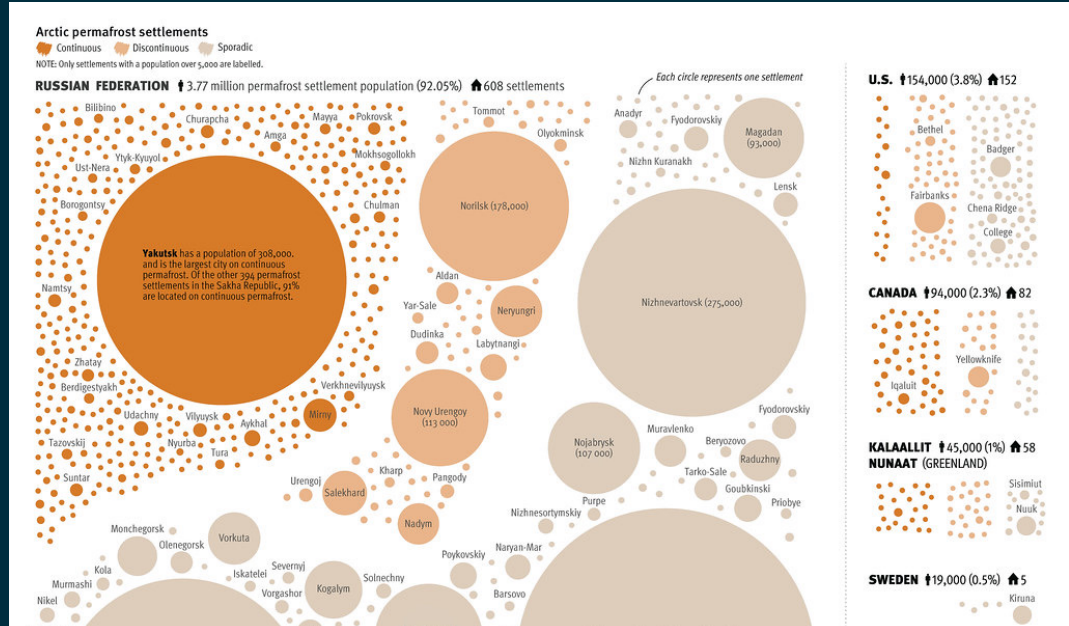
Regional Support Offices

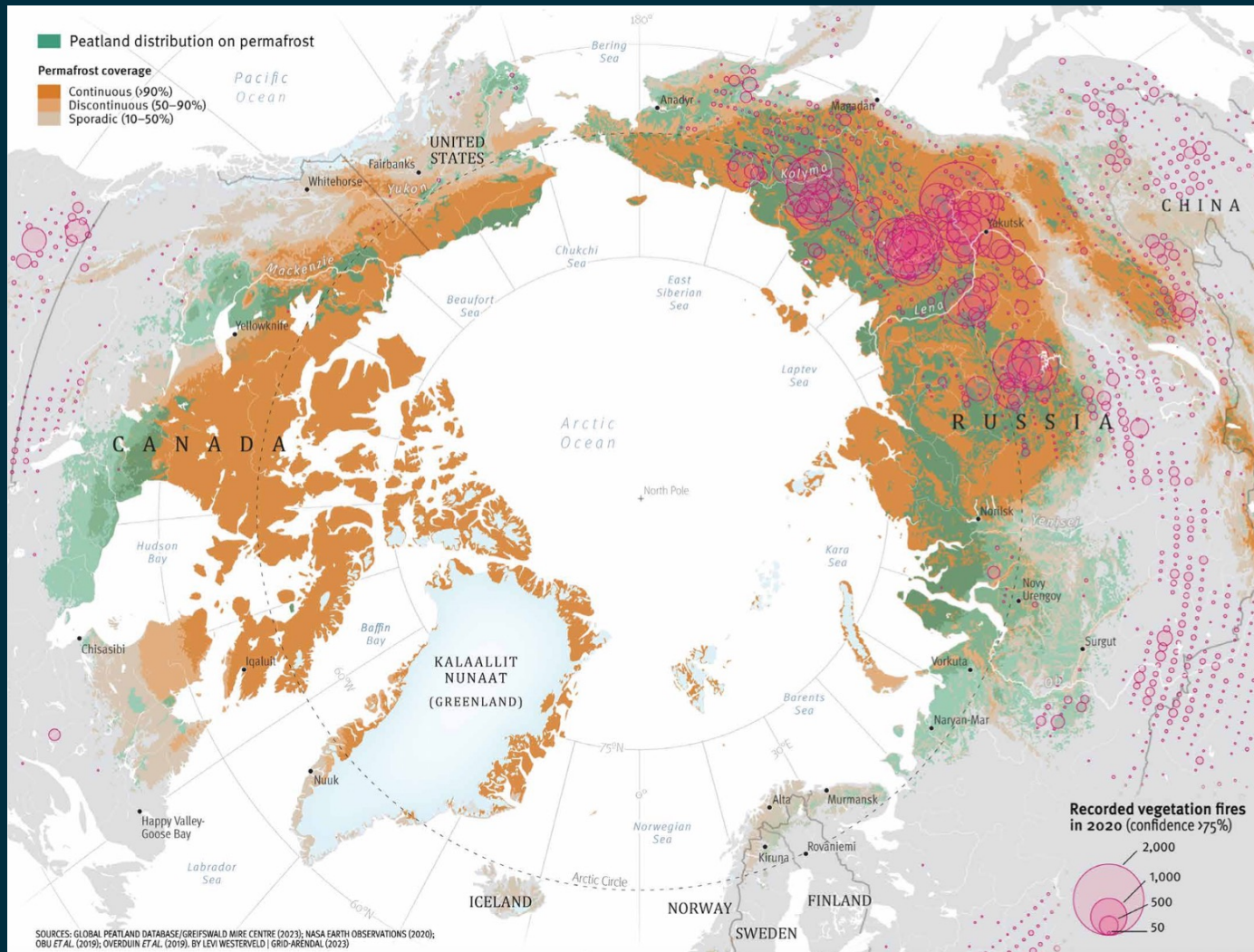
A Regional Support Office (RSO) is a regional or national centre of expertise that is set up within an existing entity by a Member State or group of Member States that have put forward an offer to set up and fund the proposed RSO. An RSO can be hosted by a space agency, a research center, a university, or a disaster management institution, to name but a few examples. These offices communicate and coordinate with UN-SPIDER on a regular basis, covering the realms of outreach and capacity building, as well as of horizontal cooperation and technical advisory support.

The RSO section comprises a list of the UN-SPIDER RSOs as well as a brief description of each Office, and an overview of its facilities, expertise and infrastructure.

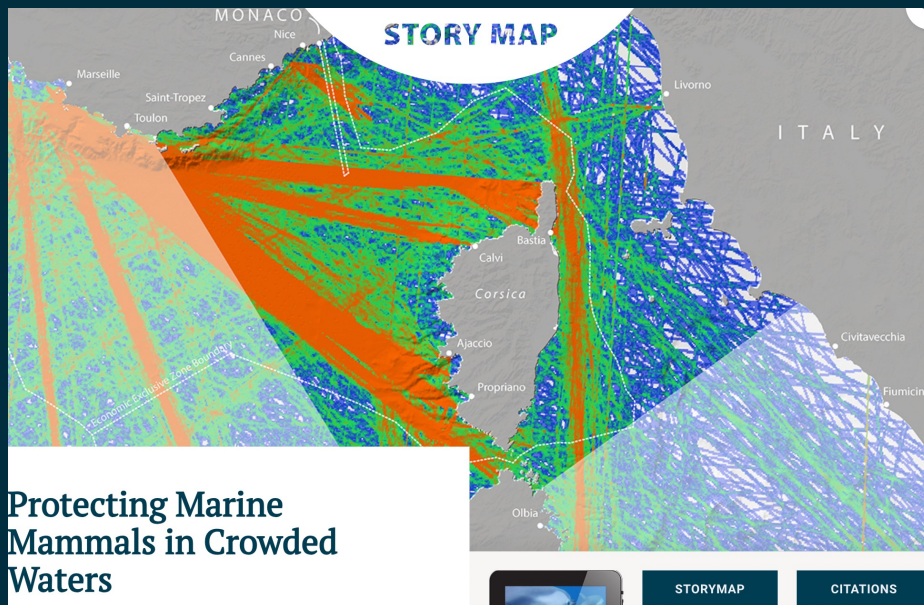
Map showing the locations of Regional Support Offices (RSOs) across the world. The map includes labels for continents (NORTH AMERICA, SOUTH AMERICA, AFRICA, ASIA, AUSTRALIA) and oceans (Pacific Ocean, Atlantic Ocean, Indian Ocean). A tooltip for the Norway Regional Support Office is visible.

Science for Policy

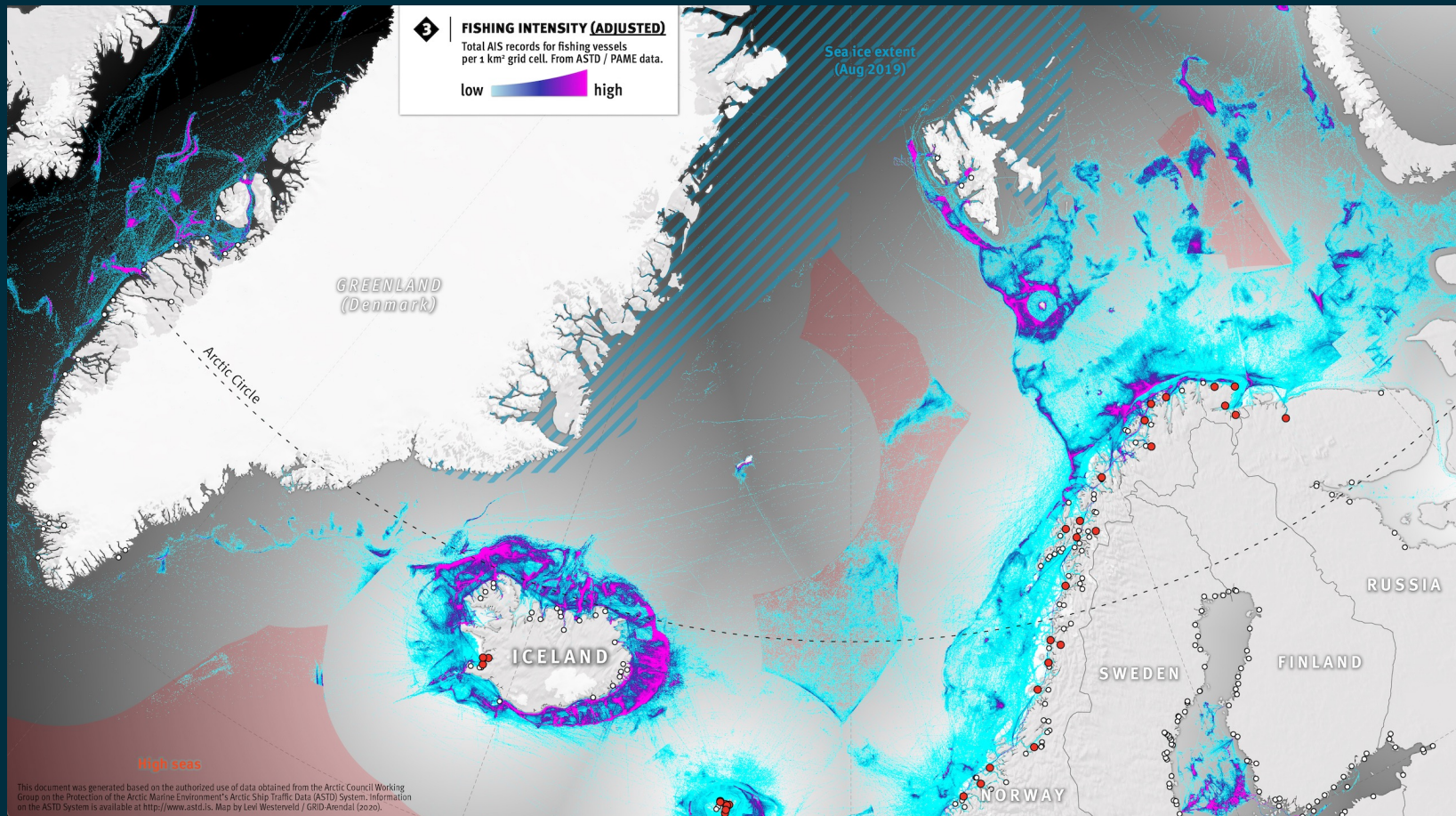




Assessments, atlases, graphics, models, story maps, policy briefs, exhibits,...



Fishing intensity – AIS (PAME's ASTD)



Ecopotential (H2020)



Earth Observation for Environmental Management

Science for post 2020 Environmental targets:
Insights from Earth Observation of Protected Areas



Abisko SWEDEN

Abisko National Park, located 200 km inside the Arctic circle in Sweden, was founded in 1909 to protect the scenic Abisko-Jokkå valley, which hosts rare plant and bird species, with the Arctic valley of Lapporten nearby and the likelihood of witnessing the aurora borealis (commonly known as the Northern Lights). Abisko is an ideal destination for experiencing Sweden's northern mountainous landscape.

Abisko's plants and animals are characteristic of Arctic and subarctic regions. Arctic birch, rhododendron, and reindeer are common. Semi-domesticated reindeer roam the tundra and dense grasslands, herded by the Sami indigenous people.

The park is located on the border between two important northern ecosystems. Here, the northern limit of boreal forest

meets the southern fringes of tundra. This transition zone is very sensitive to climate change, making Abisko an interesting area for scientists to study. Findings from Abisko could potentially be applied to a huge area in Northern Europe, Asia and America.

One question scientists want to answer is how climate change will affect the transition: the tundra could advance north and upward, as conditions become warmer. At the same time, a warmer climate improves the conditions for insects feeding on leaves and trees frequent and severe insect outbreaks could push the tundra further south. The ECOPOTENTIAL project is using satellite imagery to detect the tundra, in order to find out whether the forest will advance due to warming or retreat due to insect herbivory. Other important processes can also be tracked, including phenology and rates of vegetation growth.

Earth Observation can also be used to understand an area's carbon balance - that is, how much carbon is being absorbed from the atmosphere and stored in the trees and soil, and how much is being released into the atmosphere. Understanding if and how from ground measurements will look is important, as making predictions can release vast quantities of greenhouse gases into the atmosphere.

In Abisko National Park, birches mark the southern and alpine limits of the boreal forest and the northern limit of the tundra. The ECOPOTENTIAL project is using satellite imagery to monitor these boundaries and their movement.

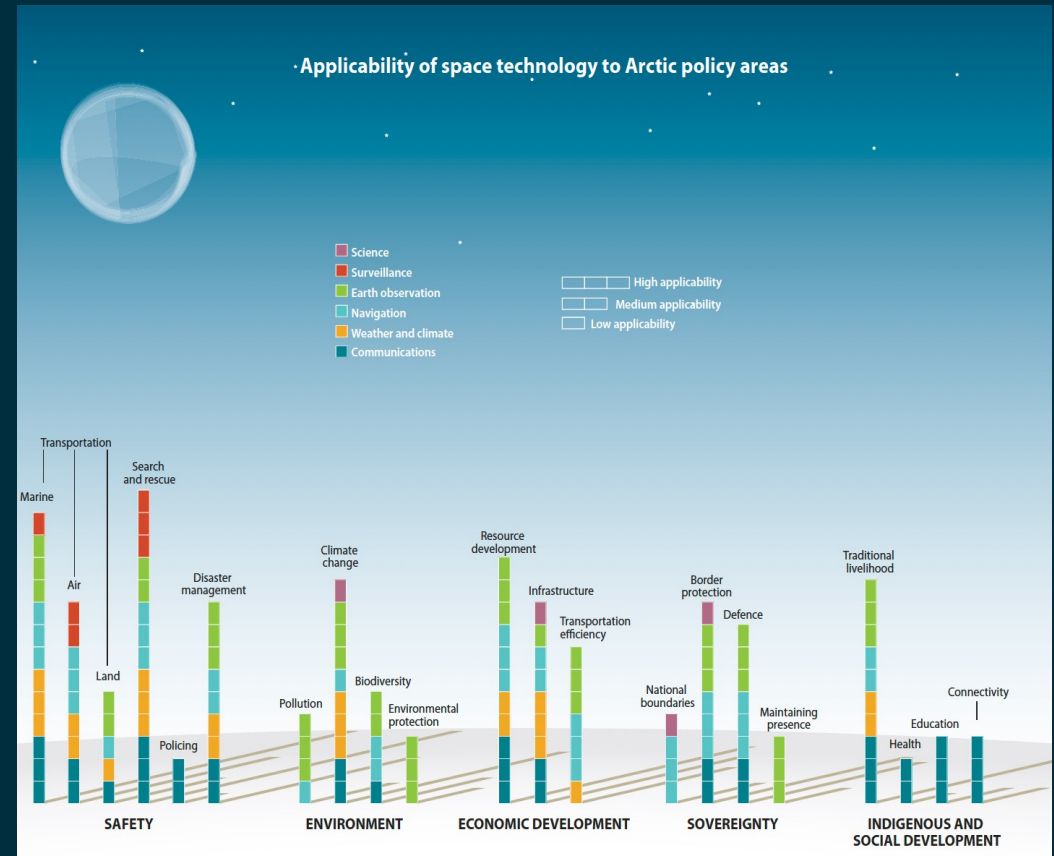
The birches are getting taller and denser because of the mountainous habitat in the area.

Micro-organisms in the soil are also important in the carbon cycle.

The ECOPOTENTIAL project is using satellite imagery to monitor these boundaries and their movement.

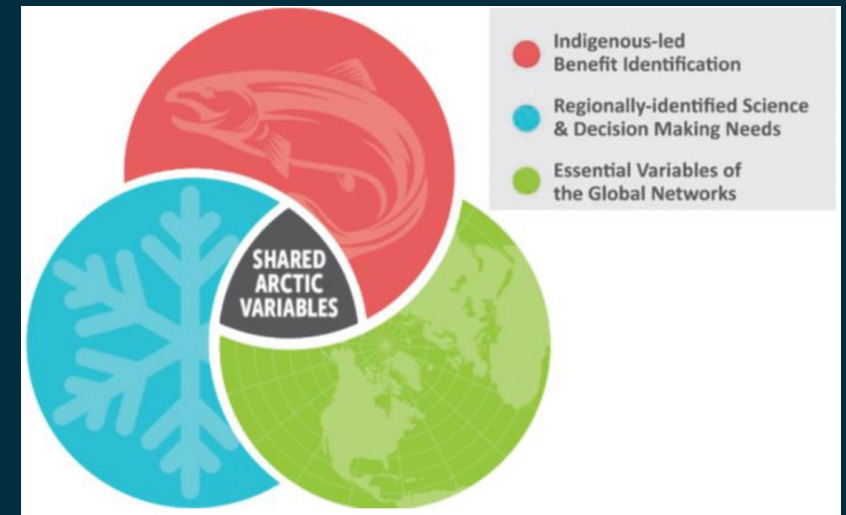
ESA, EOP, and the Swedish Environmental Protection Agency are partners in this project.

Polar View



Eyes on the ground (when feet are failing)

- Much more potential for innovative solutions - especially in current situation
- Expand use of EO to monitor and manage
- Better integration of Remote Sensing and in-situ measurements
- Incorporate Remote Sensing indicators in environmental strategies
- Increase knowledge amongst stakeholders, and consider a coordinated capacity approach
- Relevant variables & indicators. EVs & Shared Arctic Variables (Permafrost, Wildfires and Sea ice – ArcticPASSION project)





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Environmental Knowledge for Change



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Thank you...