

Integrating Activities for Advanced Communities



D2.1 - INTERACT GIS with new features

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Author: Britta Löfvenberg

Dissemination Level		
PU	Public	
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the Consortium (including the Commission Services)	
CO	Confidential, only for members of the Consortium (including the Commission Services)	x

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Publishable Executive Summary

A range of development and improvements have been made to the INTERACT GIS system. It includes more attractive and user-friendly system, both for the external visitors and for station managers that can edit information in the system. In addition, a thematic background map has been implemented to allow researchers and other visitors to locate Arctic research stations of interest when visiting the INTERACT GIS. The thematic background map currently includes seven layers displaying; glaciers, permafrost, climate, soil, greenness (NDVI), vegetation and tree line. An API (Application Programming Interface) has also been developed for INTERACT-GIS which allows the INTERACT web site to harvest meta-data from the system. This reduce the work load for station managers and INTERACT staff that now only need to enter the meta-data in one system.

1. Description of developed features

The different features that have been developed and improved in INTERACT GIS during INTERACTIII are described below.

1.1. Thematic background map

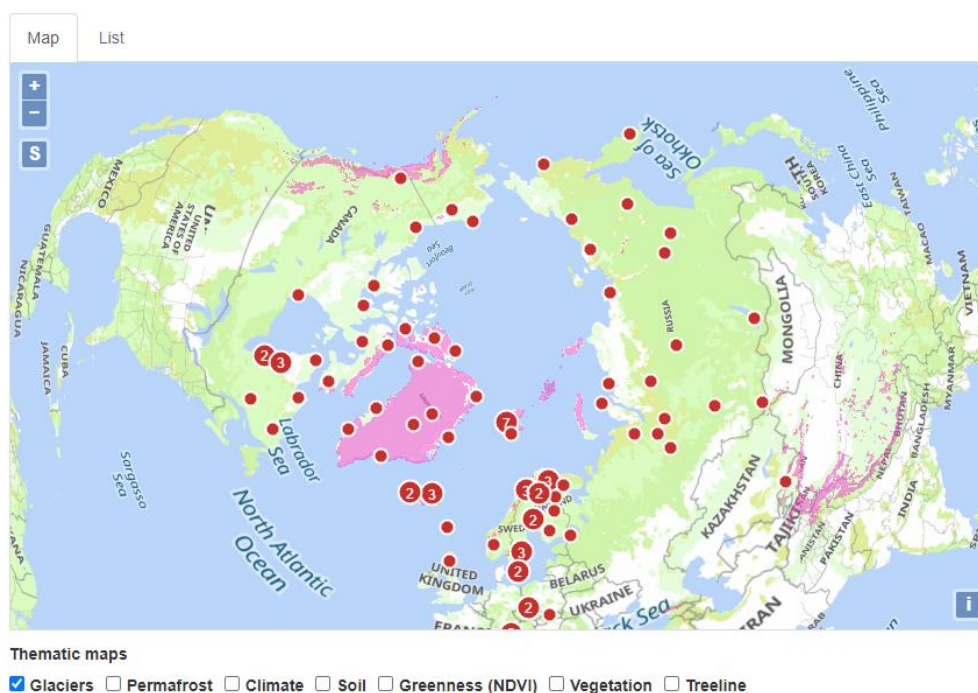
One task that was planned for improving INTERACT GIS was to introduce a thematic background map. The purpose was to provide a better way for researchers and others to find Arctic research stations of interest when visiting INTERACT GIS. The thematic map has been implemented and has layers added that come from international scientific networks. The layers include information on e.g. Glaciers, Permafrost and Vegetation (see detailed description below).

The thematic map application is based on a map framework provided by openlayers.org. This framework makes it possible to use maps from different providers and add a wide range of features to that map as layers or overlays. The map can interact with the mouse cursor showing detailed information about the layer or station where the cursor is located.

1.1.1. Map Layers

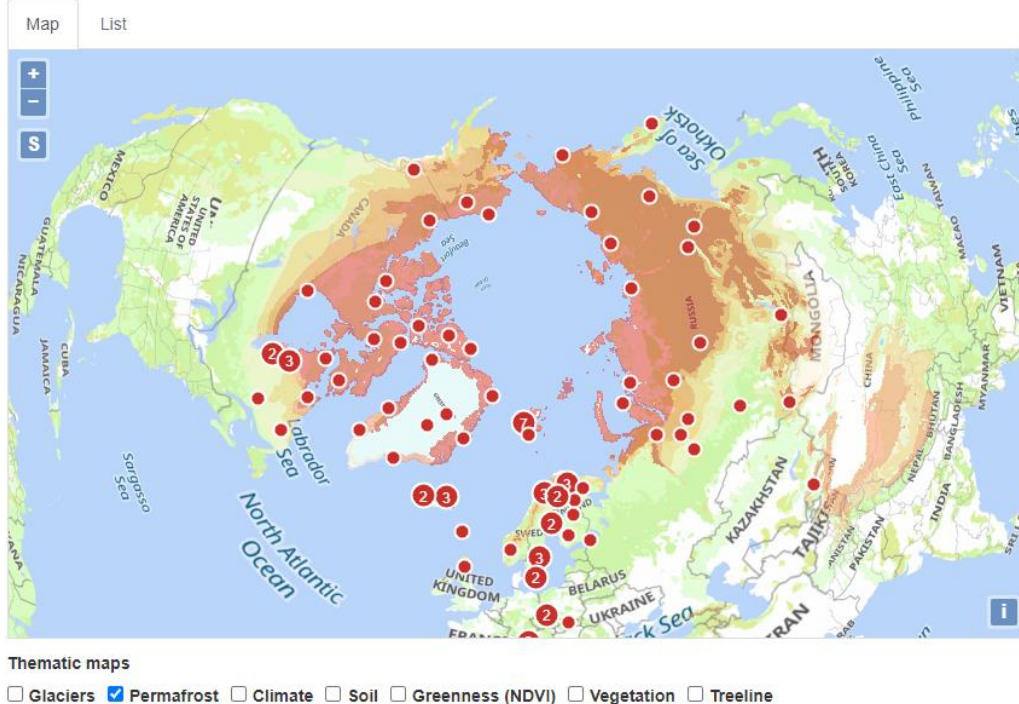
The layers added on the map come from different scientific networks and each of them are presented below. If more layers, features or behaviours is needed in the future, it will be a relatively straight forward operation to add those.

Glaciers



Source: International Snow & Ice Data Center <https://nsidc.org/>

Permafrost



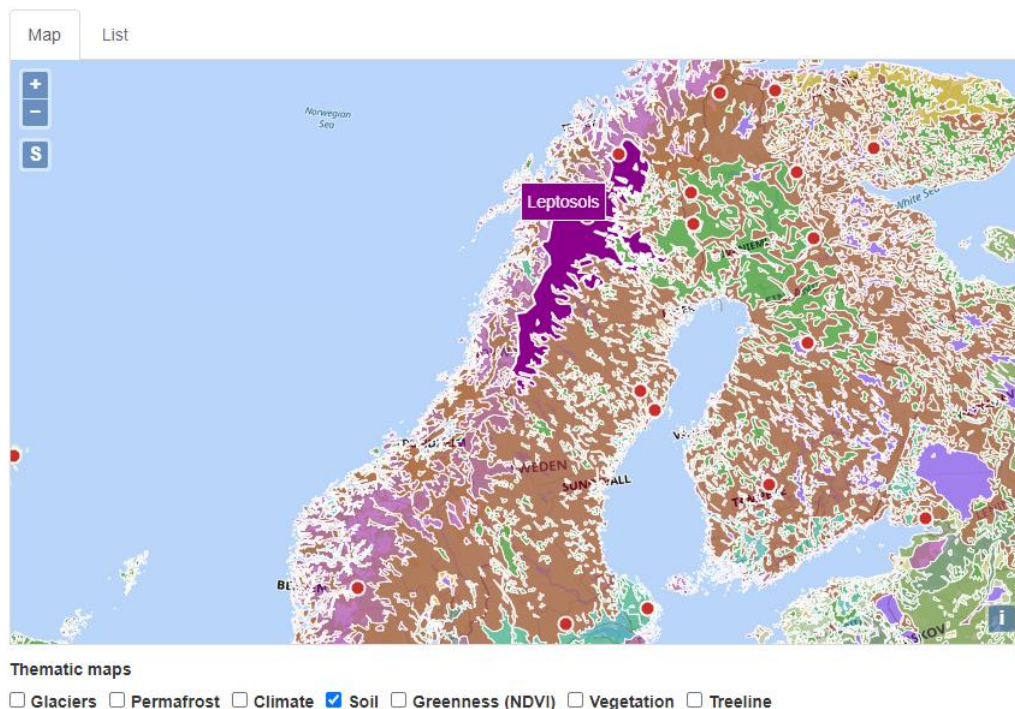
Source: International Snow & Ice Data Center <https://nsidc.org/>

Climate



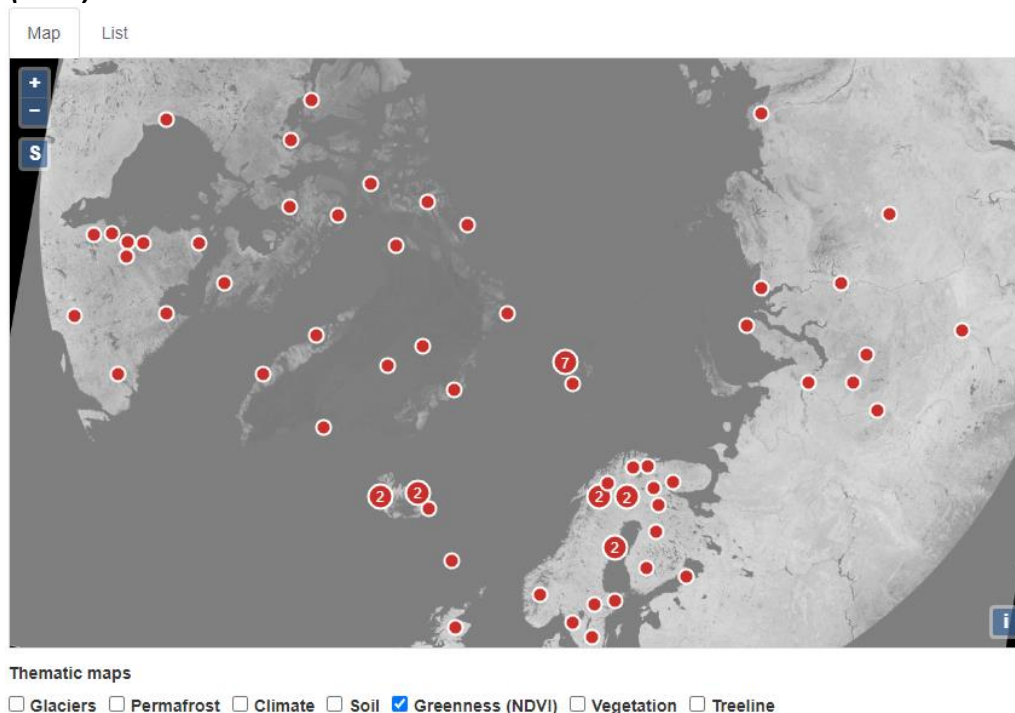
Source: The Köppen climate classification system is one of the most common climate classification systems in the world. It is used to denote different climate regions on Earth based on local vegetation. [World Maps of Köppen-Geiger climate classification \(vu-wien.ac.at\)](http://World%20Maps%20of%20Köppen-Geiger%20climate%20classification%20(vu-wien.ac.at))

Soil



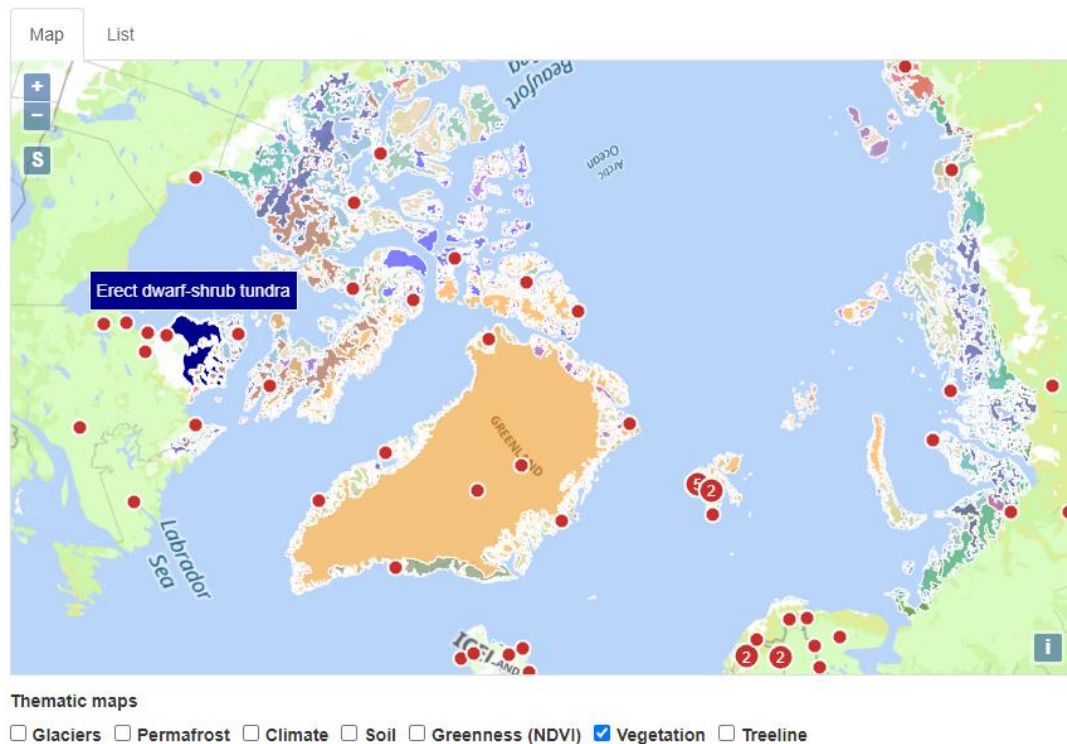
Source: European Soil Data Centre (ESDAC), EU Joint Research Centre's Land Management and Natural Hazards Unit <https://esdac.jrc.ec.europa.eu/content/soil-atlas-northern-circumpolar-region>

Greenness (NDVI)



Source: CAVM Team, 2003. Circumpolar Arctic Vegetation Map. (1:7,500,000 scale), Conservation of Flora and Fauna (CAFF) Map No. 1. U.S. Fish and Wildlife Service, Anchorage, Alaska. ISBN: 0-9767525-0-6, ISBN-13: 978-0-9767525-0-9. <http://www.arcticatlas.org/maps/themes/cp/cpndph>

Vegetation



Source: CAVM Team, 2003. Circumpolar Arctic Vegetation Map. (1:7,500,000 scale), Conservation of Flora and Fauna (CAFF) Map No. 1. U.S. Fish and Wildlife Service, Anchorage, Alaska, Alaska. ISBN: 0-9767525-0-6, ISBN-13: 978-0-9767525-0-9. <http://www.arcticatlas.org/maps/themes/cp/cpvq>

Treeline



Source: International Snow & Ice Data Center <https://nsidc.org/>

1.2. Separation of INTERACT GIS and SITES GIS

The system INTERACT GIS contains information for both the INTERACT organization and the Swedish organization SITES as it has been a co-development between the two projects. We have during INTERACT III created separate entries to the web site so that visitors interested in INTERACT access information about stations connected to the INTERACT network and so that visitors interested in SITES access information about SITES connected stations and research projects.

1.3. Project metadata upload function

An import function for project metadata has been implemented in INTERACT GIS which makes it possible for station administrators to add information to the system regarding one or several projects connected to the research station. Even before the import functionality was implemented, Principle investigators have been able to add project metadata in the system connected to their project. This has been used mostly by a few stations that also use the built-in application functionality. With the new import function, it is likely that more stations will add project metadata to INTERACT GIS.

Work is continuously done together with international data management communities to ensure that INTERACT GIS adhere to international standards and interoperability.

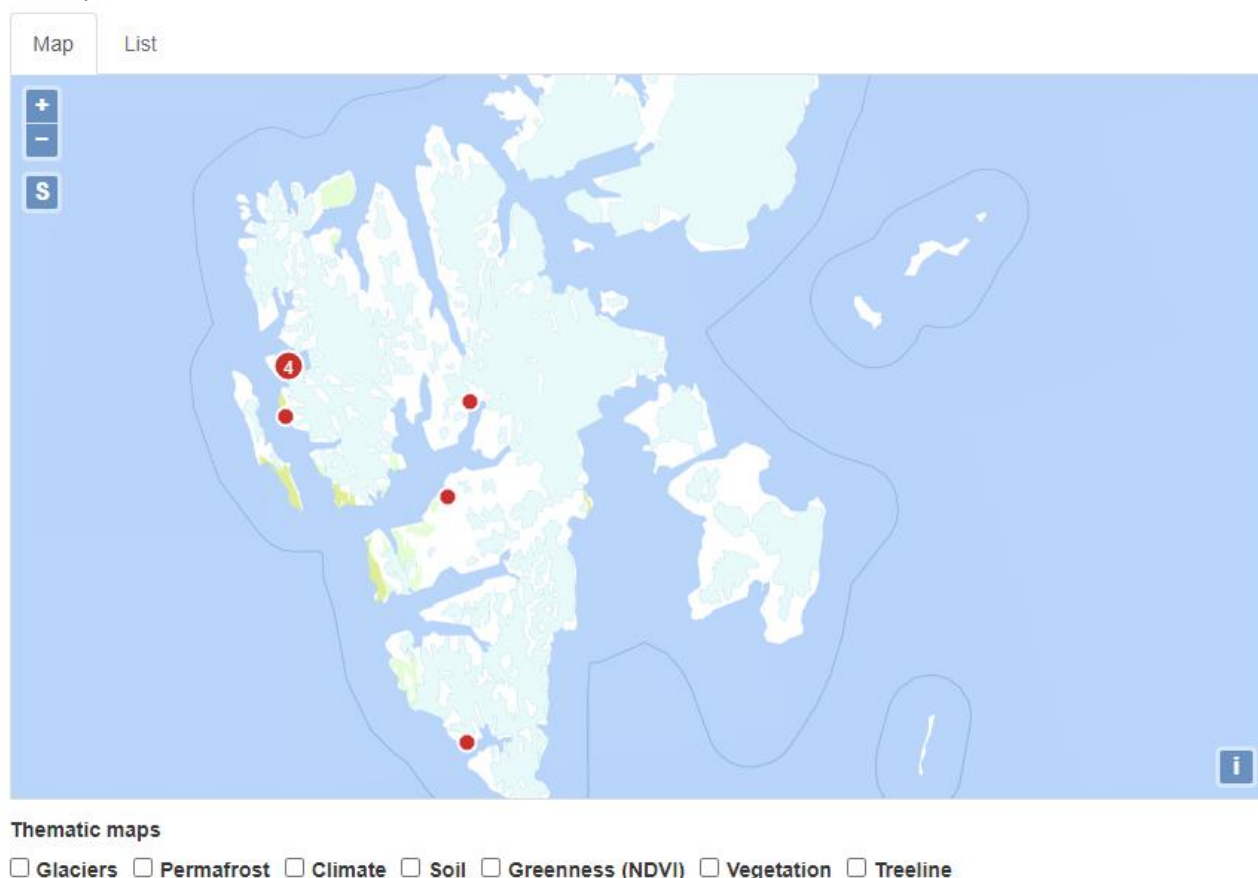
1.4. API for external use

Together with the INTERACT data team it was agreed that an API should be developed for the INTERACT GIS system to make it possible for other actors to reach some station metadata such as station name, location and biodiversity information. It is implemented and as a start it is open so that the INTERACT EU webpage can present station metadata from INTERACT GIS on their web page, so that data only needs to be updated by the station managers in one place. Work is currently done to investigate how the API can assist PolarDex – European Polar Board’s catalogue for polar infrastructure, with data from INTERACT GIS. The ambition is to continue to develop the API so it can act as the general mechanism for sharing INTERACT GIS metadata with other repositories.

1.5. Improved functionality when searching for stations

Improvements have been made to how stations can be filtered out. For example, more filtering options have been added and stations that do not apply to the filter are still displayed on the map, but in a different way so that users also see which stations do not apply to the selected filter.

A new cluster function makes it easier to distinguish stations that are close to each other. As can be seen on the screen dump below there are four stations near each other on Svalbard. If the user clicks on the number, the map will be zoomed in over the four stations.



1.6. Opening page improvements

Changes have been made on the start page of INTERACT GIS where several images now can be shown in a slide show. Different images are shown each time to site reloads and the user can also switch between the pictures.

