SCAGI - UK National Report

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British Antarctic Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

POLAR SCIENCE FOR PLANET EARTH

Outline

- Published maps
- Antarctic Digital Database
- Place names
- Operations Support
- Remotely Piloted Aircraft Systems (RPAS)
- Geospatial training
- GIS support for estates asset management and infrastructure modernisation
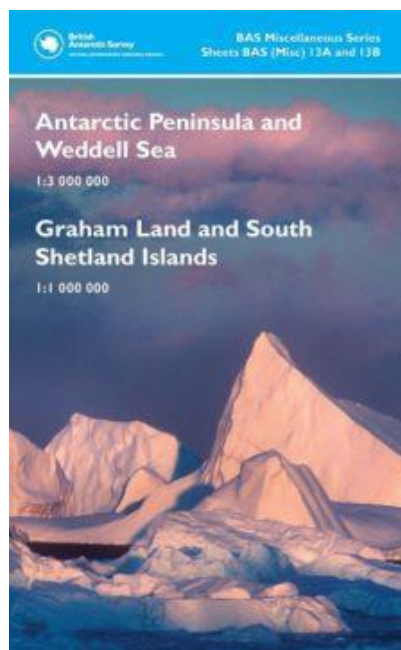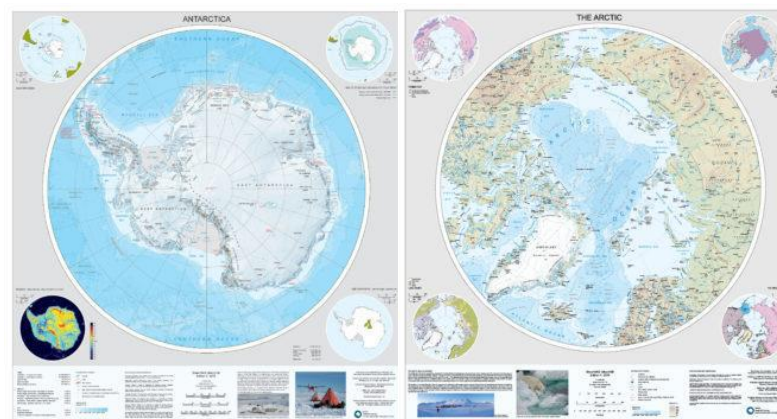- Challenges and opportunities

Published Maps

Updates in progress and new maps

Updated since 2020
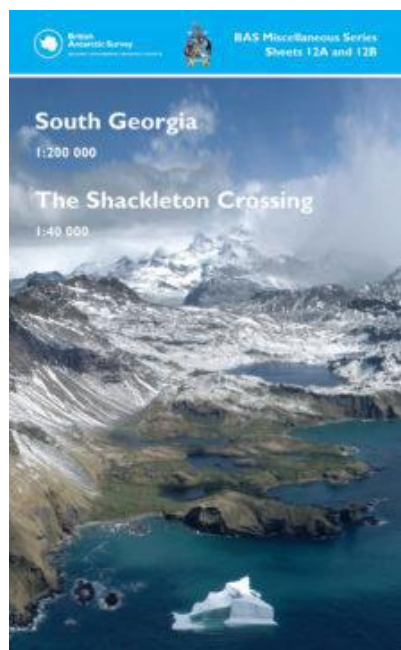
Misc 12
South Georgia and the
Shackleton Crossing
Edition 3, 2021

Misc 13
Antarctic Peninsula and
Weddell Sea
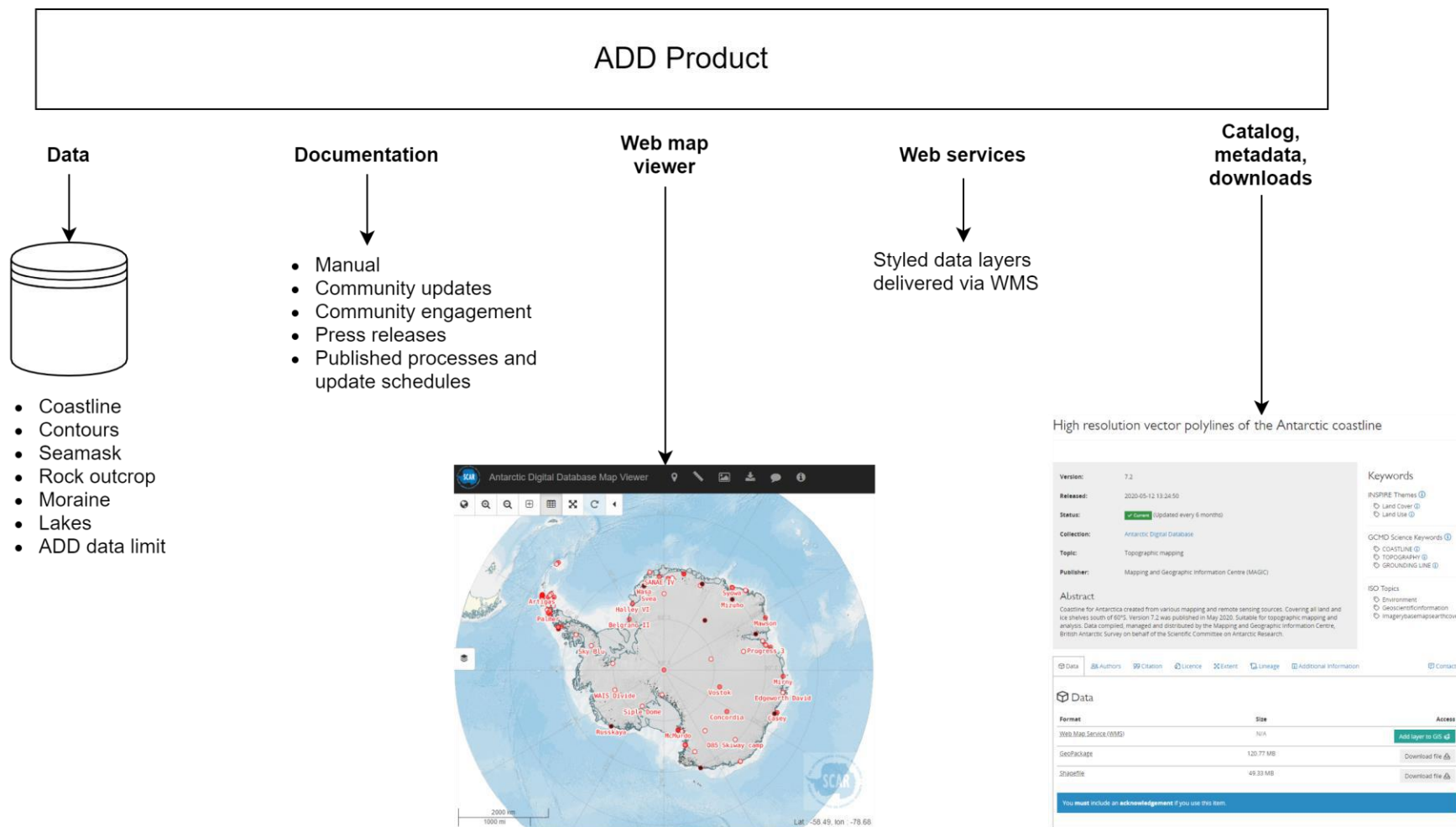Edition 4, 2021

Misc 15
Antarctica and Arctic
Edition 5, 2022

Adelaide Island and
Arrowsmith Peninsula
2023

Also in progress, a
new map for
South Orkneys and
Signy Island

bas.ac.uk/data/our-data/maps/topographic-maps/

Antarctic Digital Database (ADD)

Place-names

- Improvements to place name proposal process with introduction of web-based map form.
- ? Number of new names since July 2020
- Mapping of naming themes

https://survey123.arcgis.com/share/15a80c3e618443888bc3f35968d137f8

Operations Support

- Air
  - Depot dataset management and routing tools for BAS pilots
- Land
  - Operations GIS – data management and visualisation for situational awareness and field operation planning
  - Support to Thwaites Glacier collaboration through provision of satellite imagery – Vision-1/MAXAR
- Sea
  - New polar ship Sir David Attenborough now in service
  - Provision of navigation support for sea ice trials 2022
  - Integration of sea ice information with on-board navigation systems
- Deployed station support to Rothera
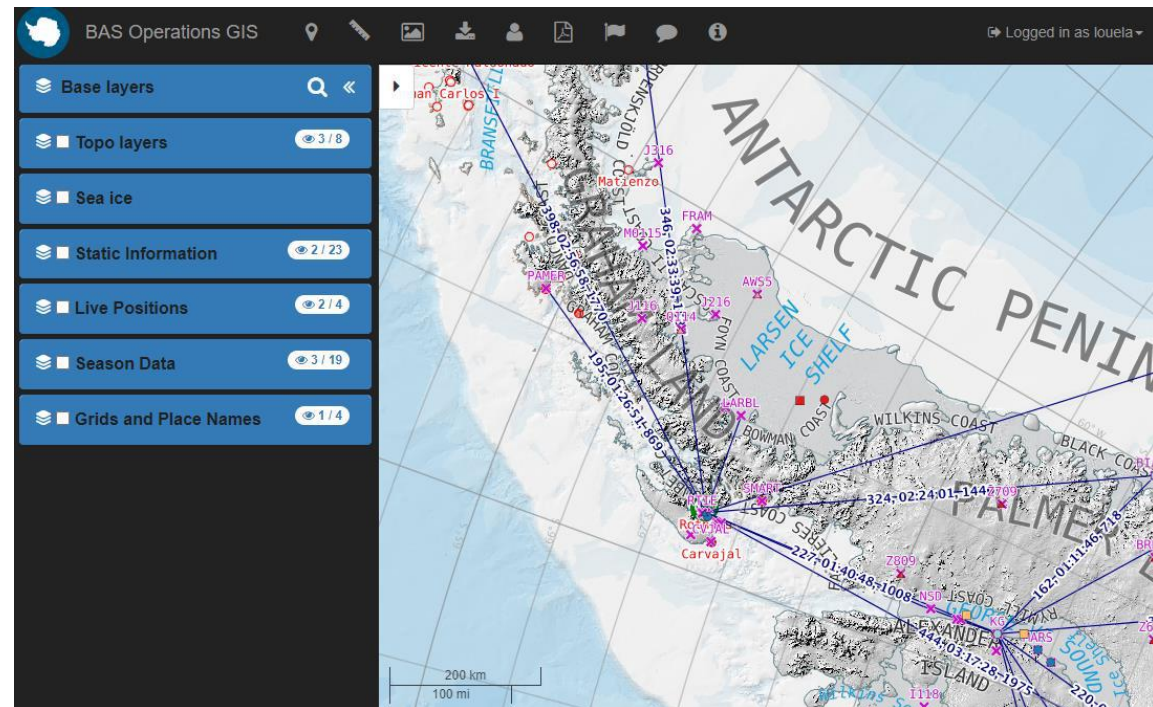
Remotely Piloted Airbourne Systems (RPAS)

First use of SenseFly eBee-X
South Georgia, December 2021

UAVe Ltd Prion 3
First Antarctic flights,
2022/2023 season

Windracers ULTRA
Antarctic test flights,
2023/2024 season

Geospatial training

- New Introduction to GIS training course, using QGIS

- Actively developing geospatial training resources with a polar focus and making these publicly available.

- Tailored training for operations workflows

- A series of bite sized training courses on a range of geospatial topics. For example:
  - using satellite imagery
  - projection and datums
  - Google Earth Engine for polar science

An Introduction to QGIS

Opening QGIS and understanding the Interface

General Introduction

QGIS is a free and open-source desktop geographic information system (GIS) application that supports viewing, editing and analysis of geospatial data.

Development started on QGIS... functionality in the early days, ... with large organisations now r...

It now has more functionality t... getting the hang of the basics. ... the many online tutorial websit...

The Interface

There are different ways to bre... shows one way to split up the ...

Learning Objectives

- Gain a basic concept of what GIS is and some of its key applications, specifically for polar work
- Understand some of the key data types and how to work with them in QGIS
- Familiarise yourself with the interface of QGIS
- Load, symbolise and export vector and raster data
- Carry out and understand a basic spatial analysis query
- Create contours and a hillshade from a Digital Elevation Model
- Learn how to produce an output map or figure with the QGIS Print Layout function

Tools required

- **QGIS Desktop v3.x**. We recommend using the Long Term Release version. Installation instructions are given below.

Datasets

We have created a set of datasets which will be used throughout the tutorial for different exercises. Please **download this zip file**, unzip it, and **save it somewhere easy to access on your computer** (e.g. in a folder called 'QGIS Tutorial' in your main working drive or desktop). This folder will be your main working folder for the whole tutorial.

Access the zipped folder from ftp, or from OneDrive.

https://guides.geospatial.bas.ac.uk/

GIS support for Estate asset management and infrastructure modernisation
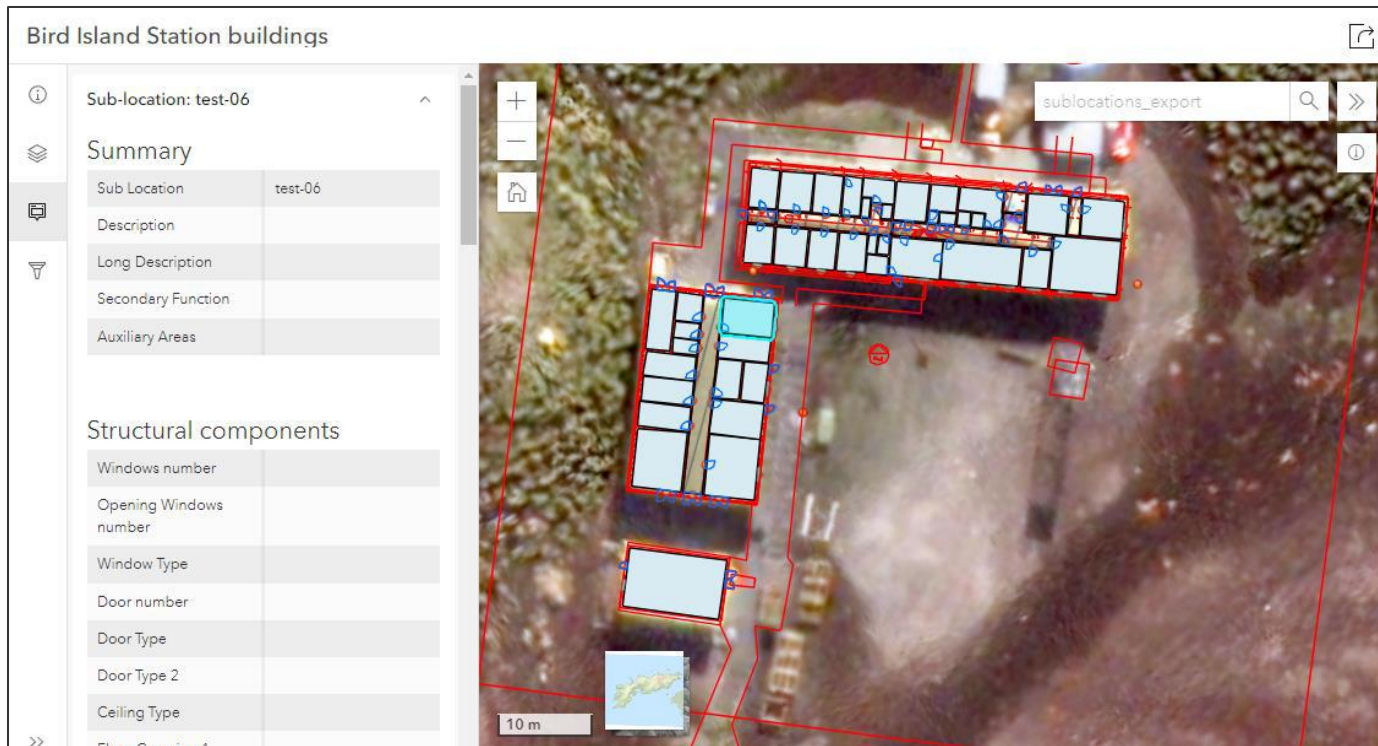
Proof of concept for integration of station asset management data into GIS – Bird Island Station

Rothera station re-development

Discovery building

Challenges and opportunities

- Limited resources, but increased use of spatial data in a wide range of polar applications.

- Growing recognition of need for spatial information across all business areas.

- Ensuring IT infrastructure and/or external cloud services are fit for purpose to support geospatial applications.

- Ensuring access to satellite data is maintained and utilised to maximum benefit.