

## LifeWatch Belgium

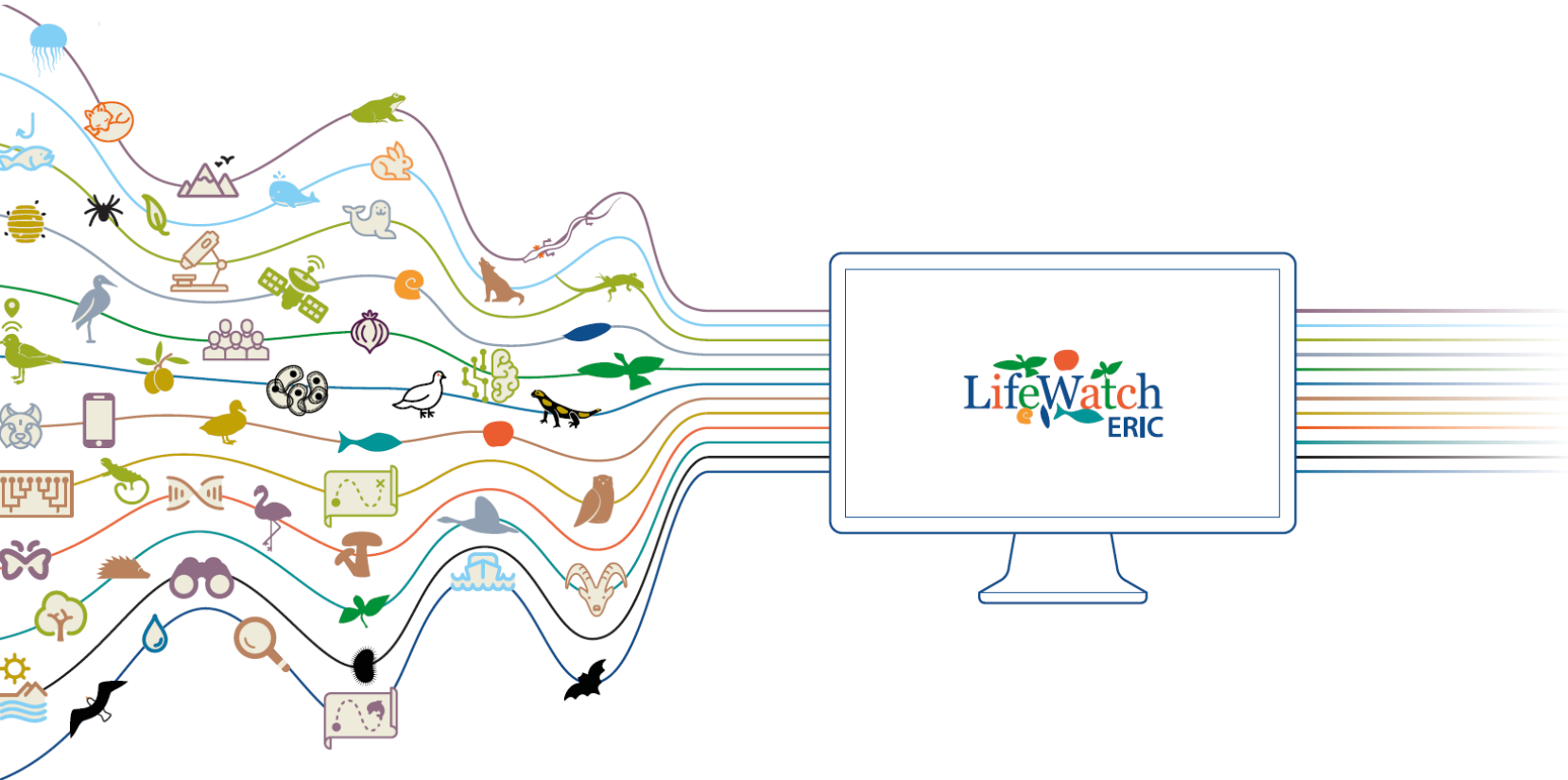
A research infrastructure supporting biodiversity and ecosystem study

Empowering Biodiversity Conference II

24-25 May 2022, Belgium

Klaas Deneudt – Flanders Marine Institute (VLIZ)

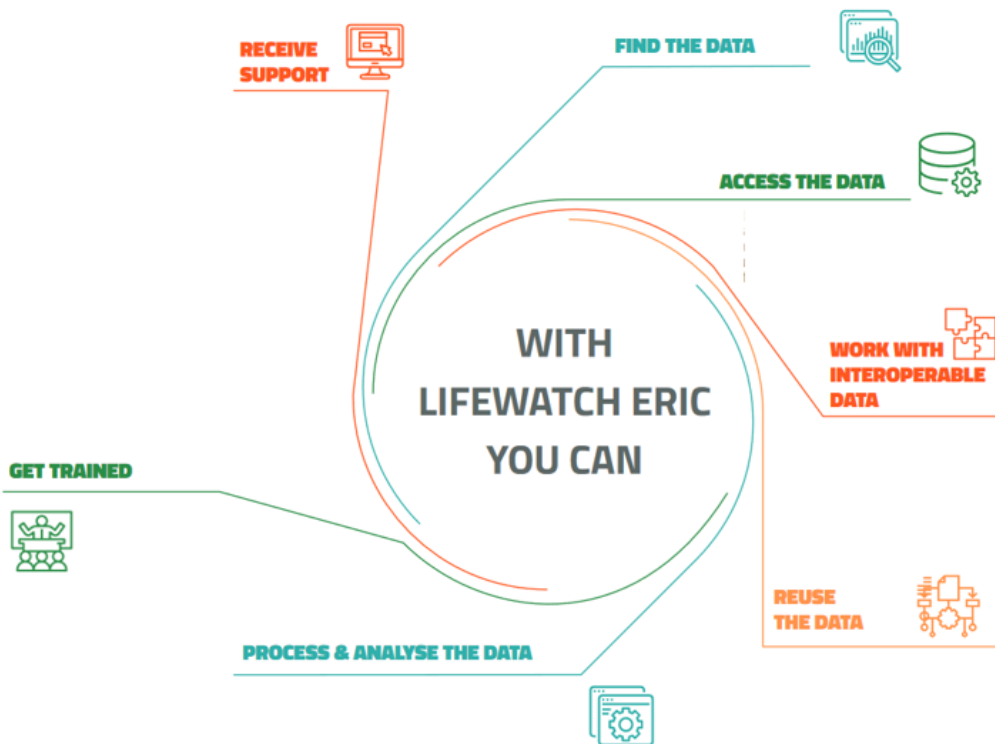
# What is LifeWatch?



# LifeWatch ERIC

## e-Infrastructure for Biodiversity and Ecosystem Research

A distributed e-Infrastructure to support research and sustainability of biodiversity and ecosystems



# What is LifeWatch Belgium?

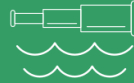


RESEARCH INSTITUTE  
NATURE AND FOREST



## Species Information Backbone

Central LifeWatch service that facilitates the standardisation and integration of species data and provides access to information on species taxonomy, biogeography, genetics and traits (habitat, morphology, vulnerability, etc.).



## Marine Freshwater Terrestrial Observatory

Integrated observation systems that generate long-term and openly accessible biodiversity data applying innovative approaches (imaging, acoustics, genomics, tagging and tracking, artificial intelligence, citizen science).



## Thematic remote sensing

An interactive geoportal provides thematic pan-European remote sensing data. An object-based ecotope database integrates geographic data for Belgium. Moreover, biophysical variables are available for the South Pole.

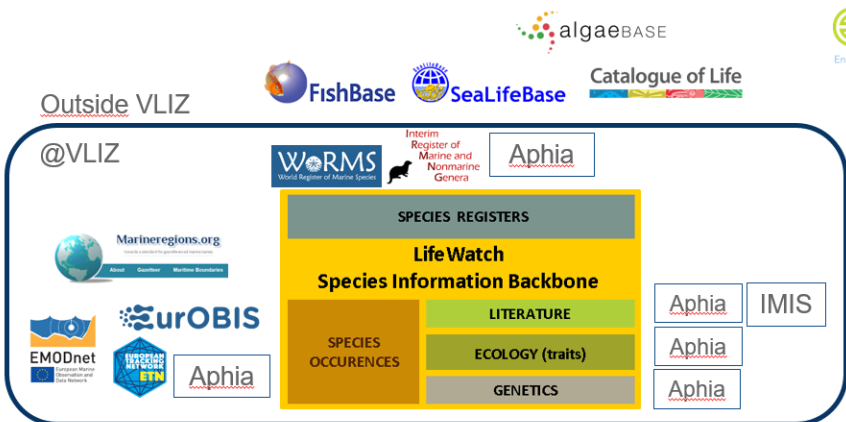


## Antarctic Biodiversity Portal

The Antarctic Biodiversity Portal (biodiversity.aq) works closely with the Scientific Committee on Antarctic Research (SCAR) to provide access to data and tools for understanding Antarctic marine and terrestrial biodiversity.

# LifeWatch Species Information Backbone

**Species Information Backbone**  
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algaeBASE

eol  
Encyclopedia of Life

Outside VLIZ



FishBase



SealifeBase

Catalogue of Life



ZooKeys  
ZooBank



Facilitate the standardisation of species data



(Virtually) integrate different component databases & systems



Offer better-quality data & avoid duplication of efforts



*Setting up the Backbone*  
System architecture & development



*Data management*  
= completing, standardization & updating



*Community support*  
= organize & mobilize experts

# LifeWatch Species Information Backbone

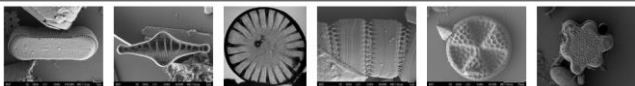
## New portals launched or to be launched



World Nemertea Database



World list of Scleractinia

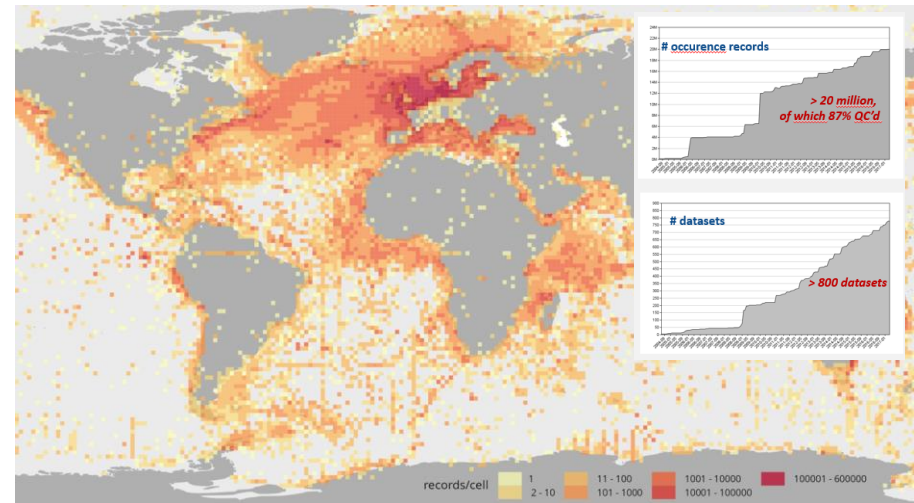
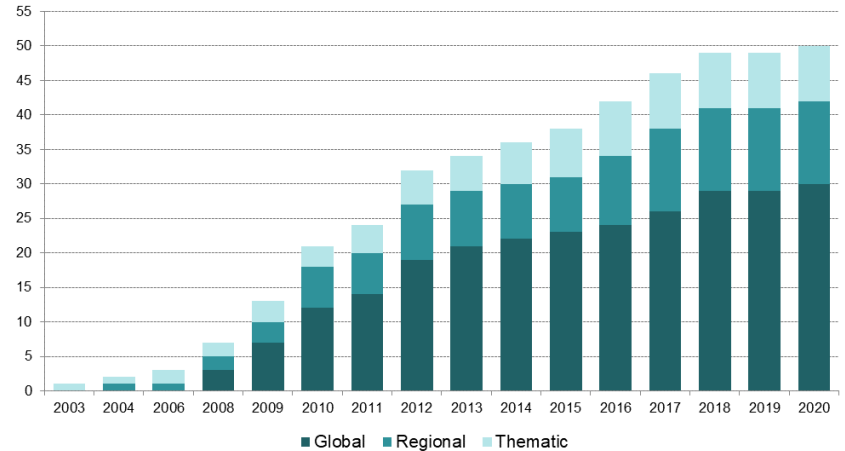


DiatomBase



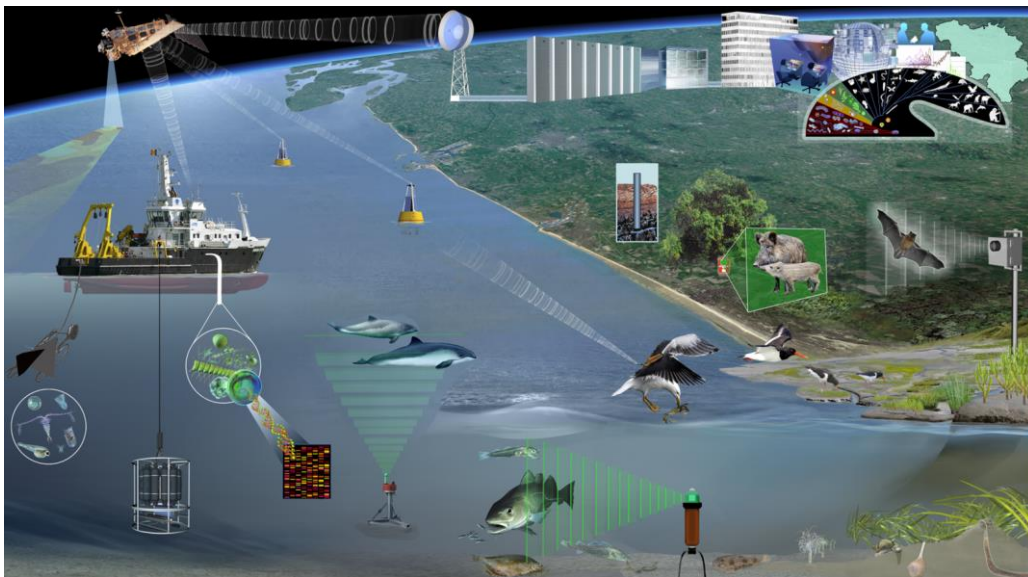
MOLLUSCABASE

## Evolution in the number of LifeWatch Backbone portals





## LifeWatch Marine, Freshwater and Terrestrial Observatories



### Marine Freshwater Terrestrial Observatory



Integrated observation systems that generate long-term and openly accessible biodiversity data applying innovative approaches (imaging, acoustics, genomics, tagging and tracking, artificial intelligence, citizen science).



Manage and operate the observatories



Innovate and optimize the observatories



Valorize observation data



Build high-quality long-term biodiversity and ecosystem data series



Apply innovative methods and automation pipelines towards faster, more efficient data collection

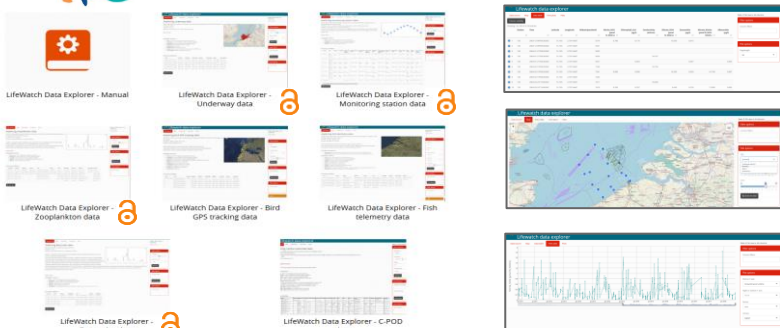


Generate FAIR and Open Access observation data

## Virtual Laboratories



### Rshiny LifeWatch Data Explorer



### Other LifeWatch software packages



#### Software packages

etn  
marinespeed  
OpenSeaLab  
sdmpredictors  
wateRinfo

pydov  
grofwildjacht  
bioRad  
niche\_vlaanderen  
pywhip

GitHub

33 repositories

[github.com/topics/lifewatch](https://github.com/topics/lifewatch)



## Marine Freshwater Terrestrial Observatory

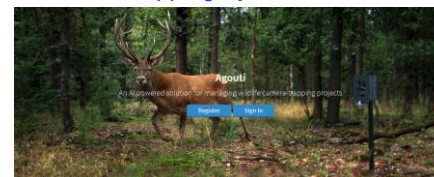
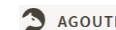
Integrated observation systems that generate long-term and openly accessible biodiversity data applying innovative approaches (imaging, acoustics, genomics, tagging and tracking, artificial intelligence, citizen science).



### European Tracking Network Virtual Research Environment



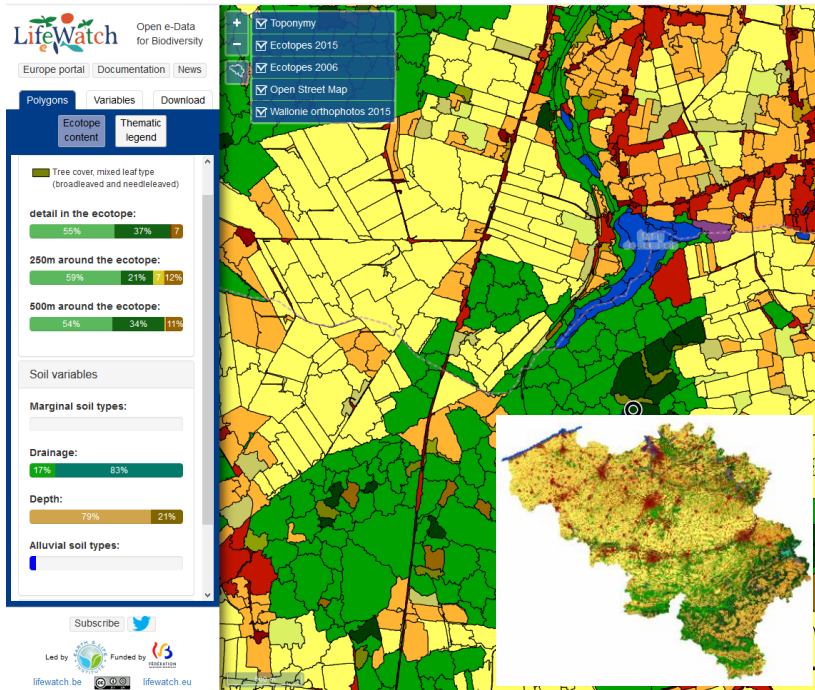
### AGOUTI Wildlife Camera Trapping System





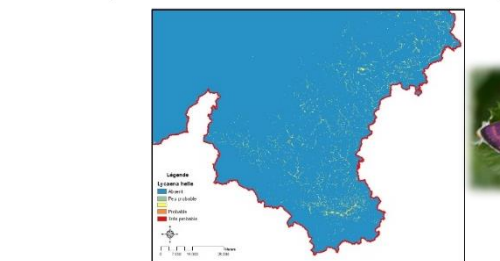
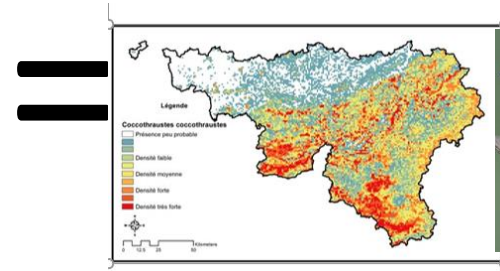
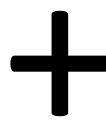
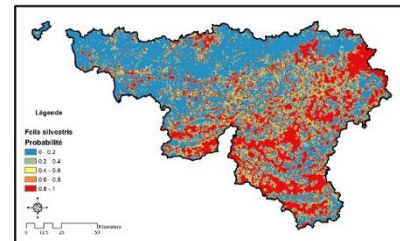
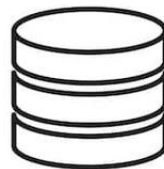
# Integrated data for ecological modeling

## High resolution ecotopes




**Thematic remote sensing**

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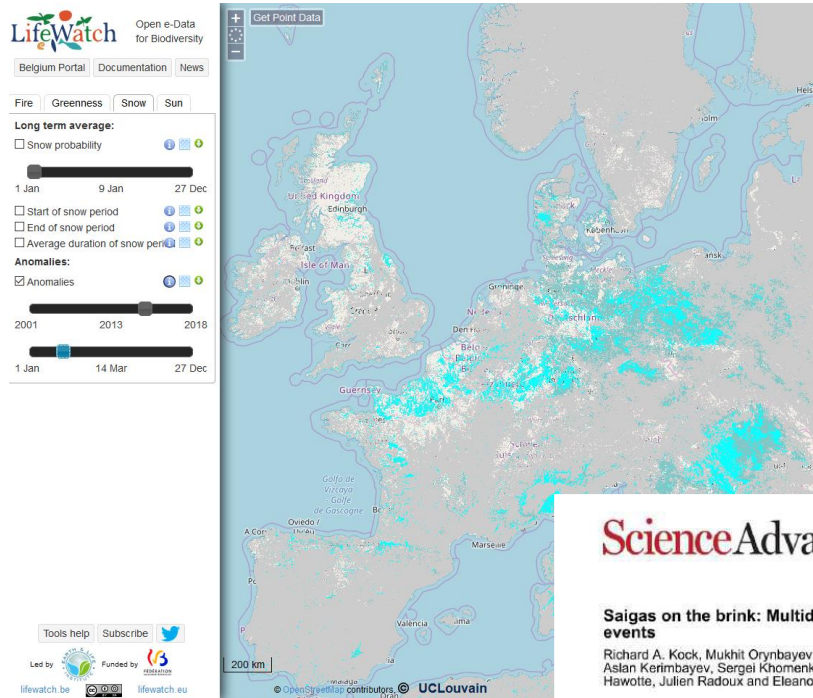


# Land cover phenology for population dynamics



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### Snow



### Vegetation greenness



### Fires



## ScienceAdvances

### Saigas on the brink: Multidisciplinary analysis of the factors influencing mass mortality events

Richard A. Kock, Mukhit Orynbayev, Sarah Robinson, Steffen Zuther, Navinder J. Singh, Wendy Beauvais, Eric R. Morgan, Aslan Kerimbayev, Sergei Khomenko, Henny M. Martineau, Rashida Rystaeva, Zamira Omarova, Sara Wolfs, Florent Hawotte, Julien Radoux and Eleanor J. Milner-Gulland

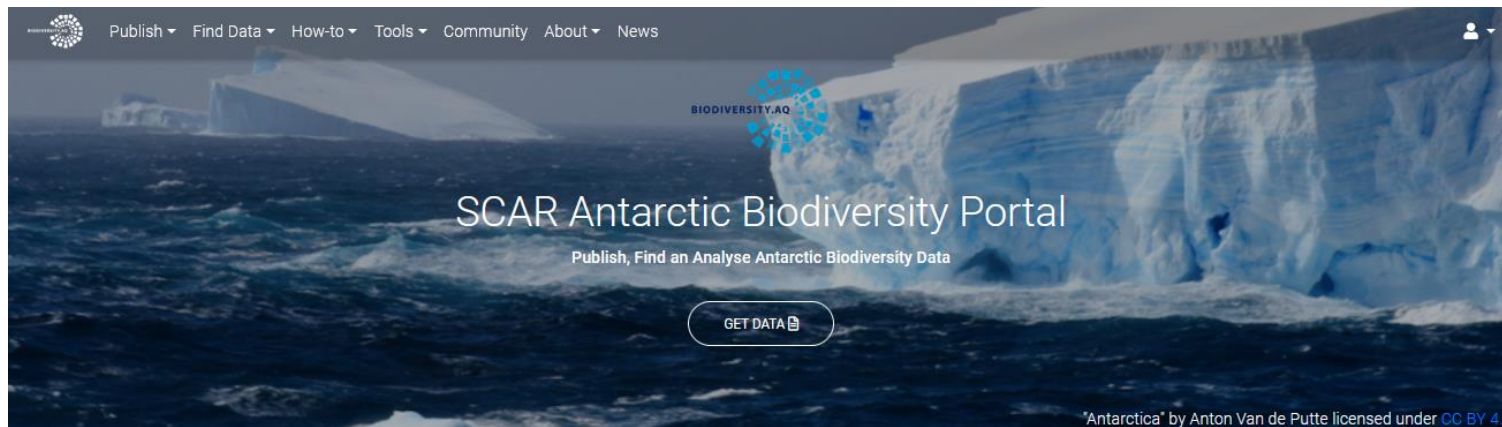


# An Antarctic and Southern Ocean VRE



## Antarctic Biodiversity Portal

The Antarctic Biodiversity Portal ([biodiversity.aq](http://biodiversity.aq)) works closely with the Scientific Committee on Antarctic Research (SCAR) to provide access to data and tools for understanding Antarctic marine and terrestrial biodiversity.



The screenshot shows the homepage of the SCAR Antarctic Biodiversity Portal. At the top, there is a navigation menu with links for Publish, Find Data, How-to, Tools, Community, About, and News. The main header features the Biodiversity.AQ logo and the title "SCAR Antarctic Biodiversity Portal" with the subtitle "Publish, Find an Analyse Antarctic Biodiversity Data". A prominent "GET DATA" button is centered below the text. The background is a photograph of a large ice shelf over the ocean. In the bottom right corner, there is a credit: "Antarctica" by Anton Van de Putte licensed under CC BY 4.0.



### Find Data

Find Antarctic and Southern Ocean biodiversity data.



### Publish

Publish biodiversity data.



### Tools

Tools to explore and analyse data.

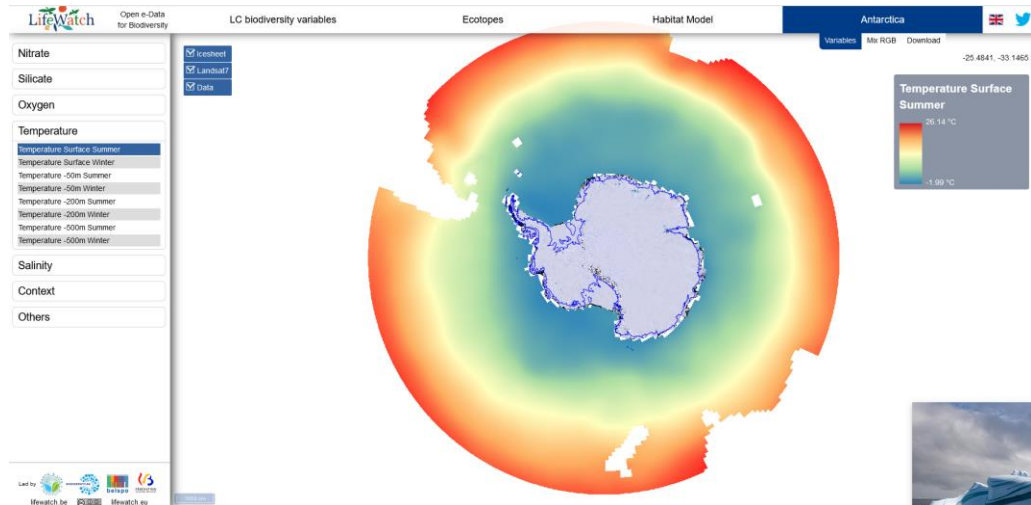


### Community

The Antarctic biodiversity community.



# An Antarctic and Southern Ocean VRE



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### The Southern Ocean Action Plan

The Southern Ocean Action Plan is launched. Action plan is available [here](#)

news



### Southern Ocean Identification Keys

A list of useful identification keys and taxonomic resources for Southern Ocean taxa

news



### Webinar: Increasing availability and digitization of SO identification keys

Wednesday 23rd of June 2021 from 2 to 4PM (CET) - Registration required.

news



### Webinar series: Biodiversity data from the field to research

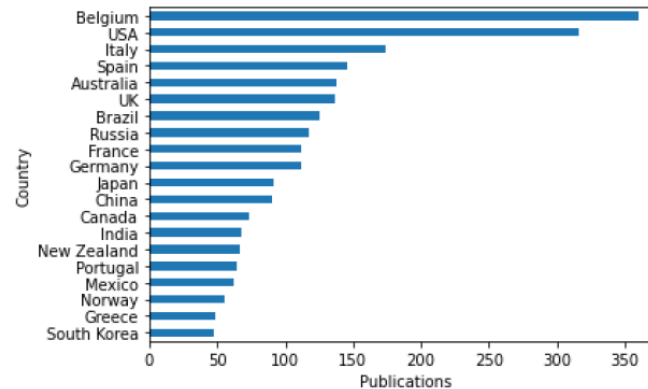
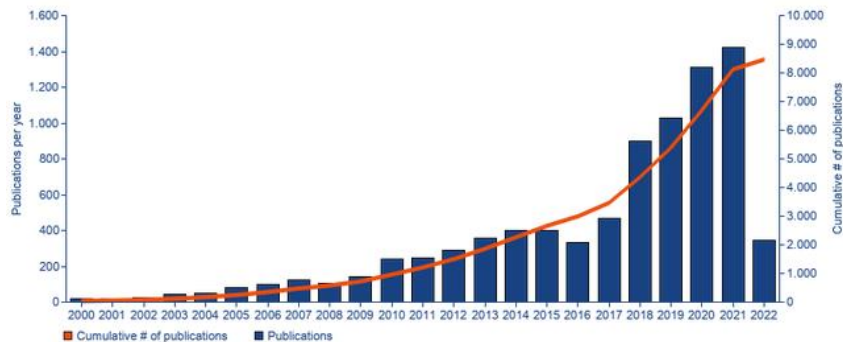
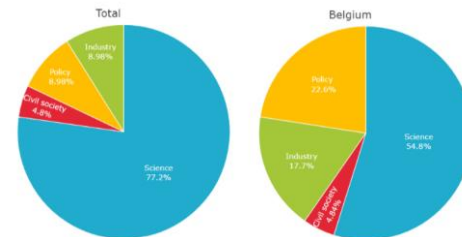
Webinar series from 3 - 6 November 2020

news workshop event

# Output and user uptake

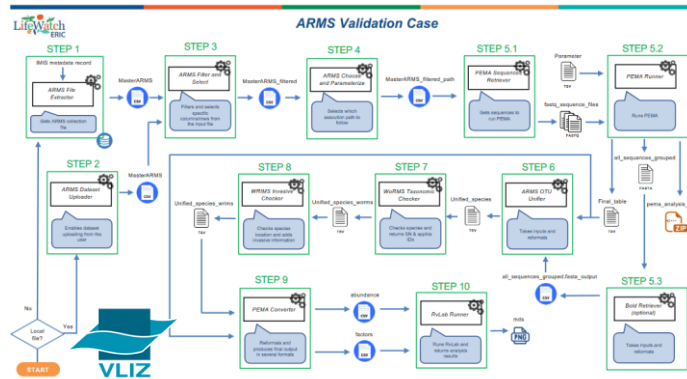
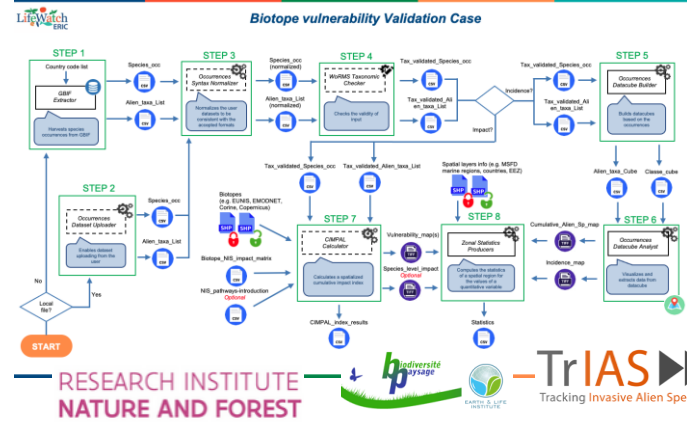
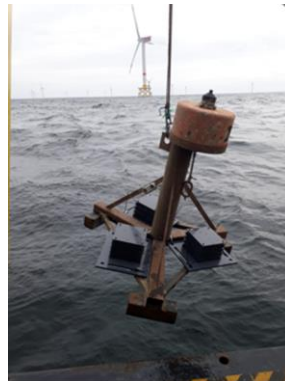
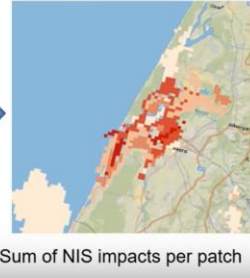
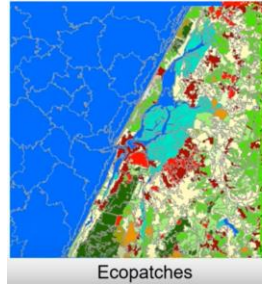
<b>8.457</b> USER CITATIONS	<b>33</b> OPEN DATA SERVICES	<b>2.180</b> REGISTERED USERS	<b>57 million</b> TAGGED SPECIES OBSERVATIONS	<b>345</b> DATASETS RESCUED
<b>240.476 + 66.437</b> ACCEPTED SPECIES IN SPECIES INFORMATION BACKBONE	<b>242</b> OPERATIONAL SENSOR STATIONS	<b>3.296</b> SAMPLES COLLECTED	<b>1.768</b> DATASETS PUBLISHED	<b>7028</b> DNA SEQUENCES PRODUCED

Registered users: > 2.000  
 Web visitors: > 5.000/day  
 Scientific publications: 8.000  
 Institutes using infrastructure: > 2.000





# Internal Joint Initiative





# LifeWatch.eu catalogue



LifeWatch ERIC Metadata Catalogue

🔍 Search

📍 Map

👤 Login



1645 resources for biodiversity and ecosystem researchers

## Browse resources



VREs

12



Datasets

1498



Services

119



Workflows

5



Research Sites

11

# LifeWatch.eu Training platform



WoRMS Video Tutorials available on  
LifeWatch ERIC Training Platform

# EBR II – 24-25 May 2022

# EMPOWERING BIODIVERSITY RESEARCH



- LifeWatch Belgium (Klaas Deneudt)
- From remote sensing and GIS to model-oriented databases (Julien Radoux)
- The LifeWatch Species Information Backbone (Stefanie Dekeyzer)
- Biodiversity.aq (Anton Van de Putte)
- CATREIN (Jim Casaer)
- LifeWatch Fish Acoustic Receiver Network (Carlota Muñoz)
  
- Workshop 2: Linking occurrence data with environmental variables from the ecotopes
- Workshop 3: Research Data Management workshop: Hands-on introductions to research data management and publication
- Workshop 6: Bringing together marine biodiversity, environmental and maritime boundaries data in R organized





Thank you

*[info@lifewatch.be](mailto:info@lifewatch.be)*

*<https://www.lifewatch.be>*

