museum
Operational Directorate Natural Environment
OD Nature | OD Natuur | DO Nature

BIODIVERSITY.AQ

Exploring Antarctic biodiversity data

Anton P. Van de Putte

21 may 2015

Empowering biodiversity data

Belgian Science Policy Office
belspo

LIFEWATCH

THE INTERNATIONAL COUNCIL FOR SCIENCE
SCAR
SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH

museum
Operational Directorate Natural Environment
OD Nature | OD Natuur | DO Nature

Antarctic Treaty

BIODIVERSITY.AQ

« In order to promote international cooperation in scientific investigation in Antarctica, […],

Scientific observations and results from Antarctica shall be exchanged and made freely available. »

Our vision: Antarctic biodiversity data are open, linked, useful, interoperable and safe.

museum
Operational Directorate Natural Environment
OD Nature | OD Natuur | DO Nature

Background

BIODIVERSITY.AQ

- Born during the IPY as Census of Antarctic Marine Life as the data, visualization and analysis component
- Free and open access to biodiversity data
- SCAR-MarBIN, AntaBIF and AntaBIS projects
- Science, conservation and management
- Networked community developments

OPEN ACCESS

CC BY

www.SCARMarBIN.be

biodiversity.aq

LIFEWATCH

museum
Operational Directorate Natural Environment
OD Nature | OD Natuur | DO Nature

Architectural design & developments

BIODIVERSITY.AQ

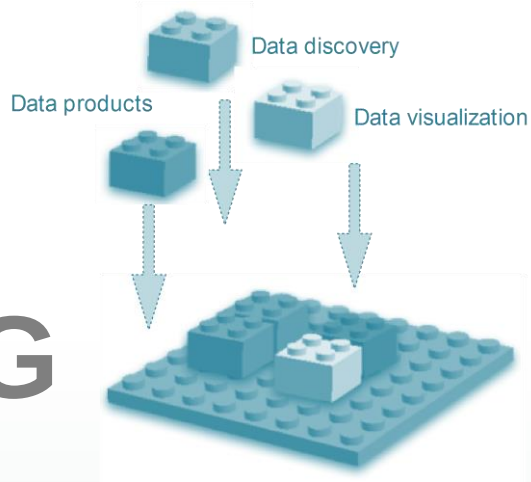
DATA IPT

ATLAS WWW AFG

mARS

share

MODULAR ARCHITECTURE

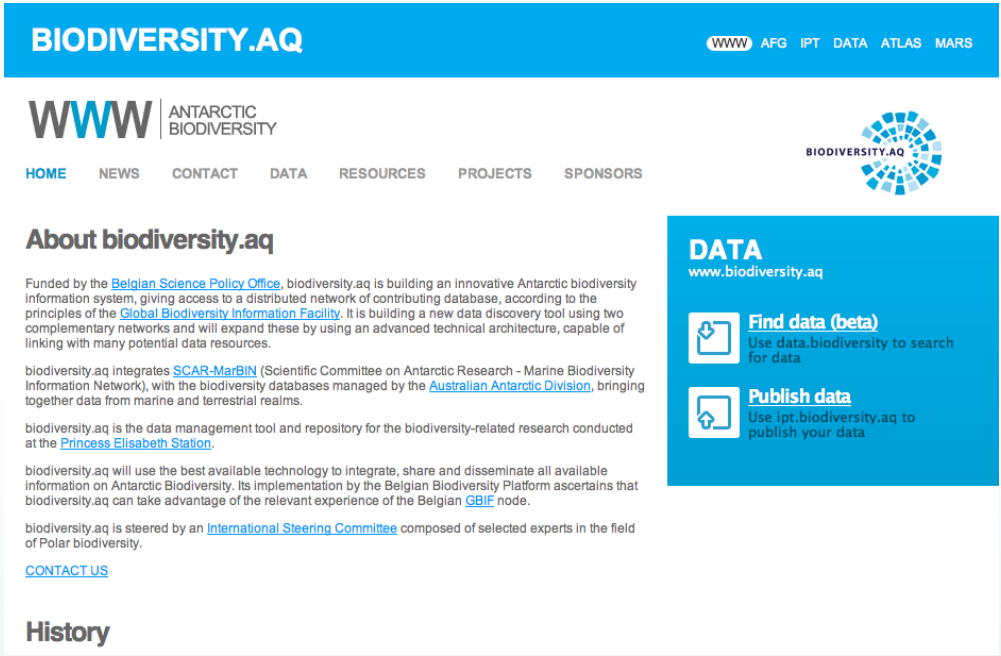


museum
Operational Directorate Natural Environment
OD Nature | OD Natuur | DO Nature

WWW.BIODIVERSITY.AQ

BIODIVERSITY.AQ

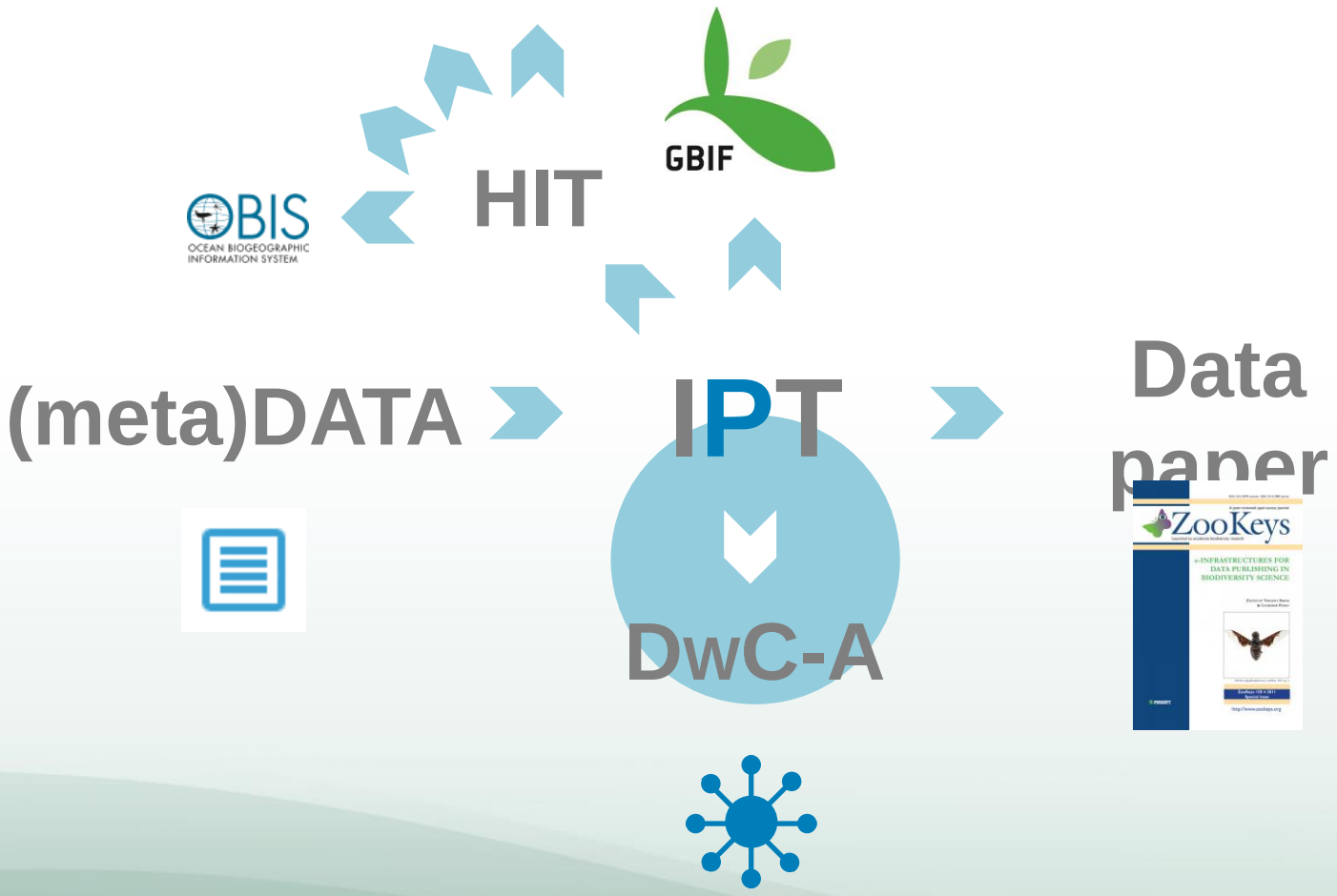
- General website
- latest news
- contact
- sponsors
- governance
- resources
- projects



museum
Operational Directorate Natural Environment
OD Nature | OD Natuur | DO Nature

IPT.BIODIVERSITY.AQ

BIODIVERSITY.AQ



museum
Operational Directorate Natural Environment
OD Nature | OD Natuur | DO Nature

DATA.BIODIVERSITY.AQ

BIODIVERSITY.AQ

AMD

NASA

GBIF

OBIS
OCEAN BIOGEOGRAPHIC INFORMATION SYSTEM

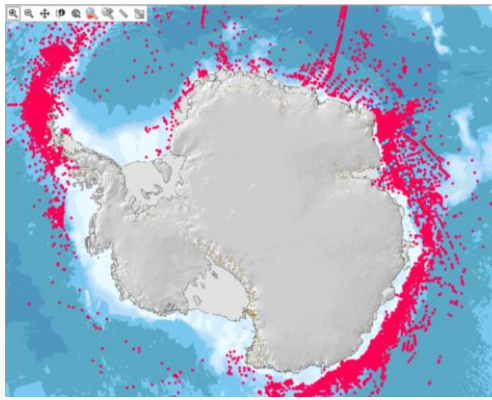
AADC

BIODIVERSITY.AQ IPT

HIT

DATA

OCCURRENCE
(INTERNAL WEB SERVICE)



Taxonomy

WoRMS
World Register of Marine Species

RAMS

FADA
Freshwater Animal Diversity Assessment

eol
Encyclopedia of Life

Environmental

TAXONOMY
(INTERNAL WEB SERVICE)

AADC

museum
Operational Directorate Natural Environment
OD Nature | OD Natuur | DO Nature

AFG.BIODIVERSITY.AQ

BIODIVERSITY.AQ

Expert Provided Content (text & images)

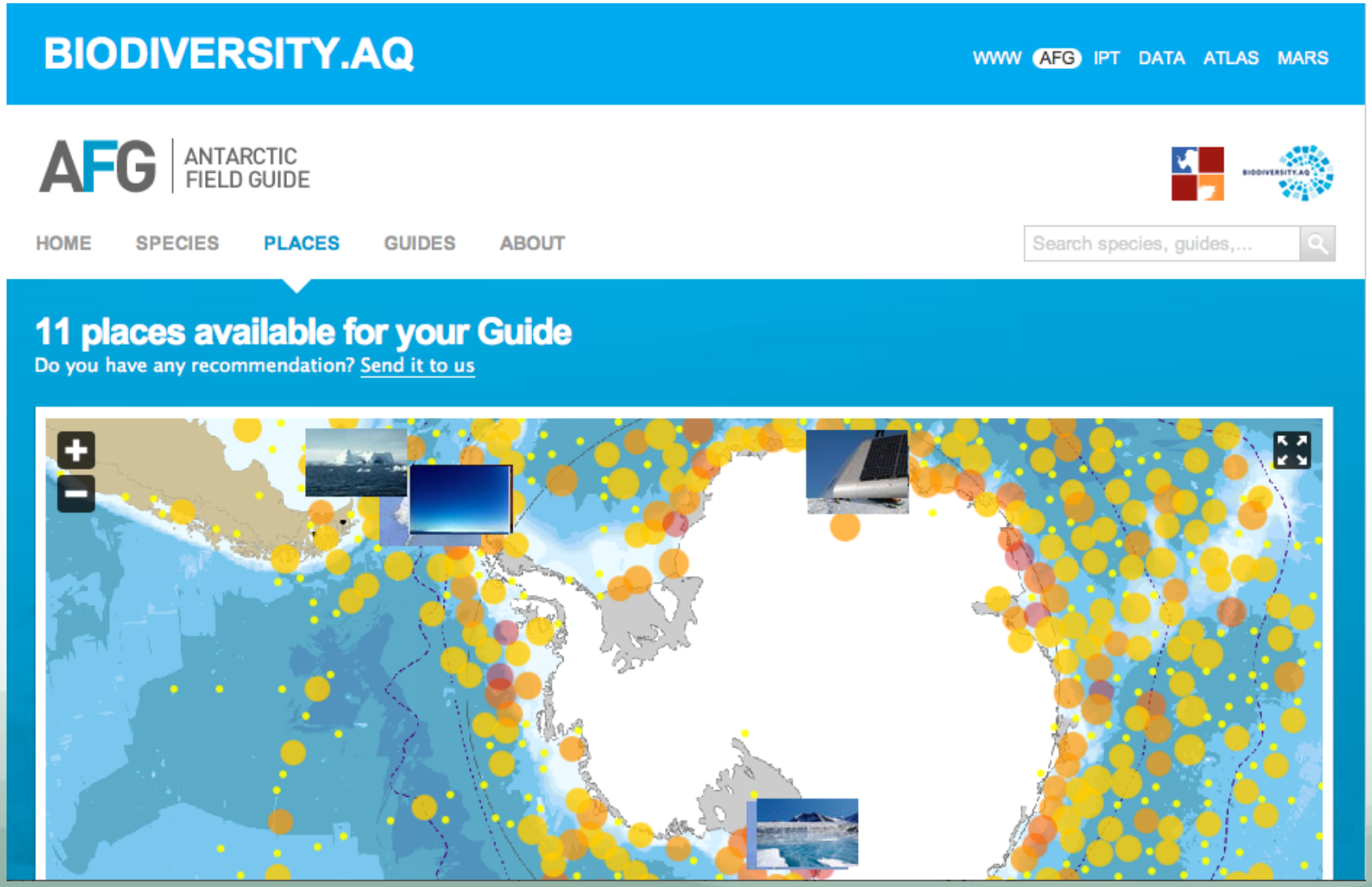
DATA

Occurrence
Taxonomy

AFG

museum
Operational Directorate Natural Environment
OD Nature | OD Natuur | DO Nature

BIODIVERSITY.AQ



museum
Operational Directorate Natural Environment
OD Nature | OD Natuur | DO Nature

ATLAS.BIODIVERSITY.AQ

BIODIVERSITY.AQ

- Biogeographic Atlas of the Southern Ocean
- Editors: De Broyer & Koubbi
- Redo of Hedgepeth 1969 Folio
- Predictive approach
- Static and dynamic versions
- Modelization loops are ready

museum
Operational Directorate Natural Environment
OD Nature | OD Natuur | DO Nature

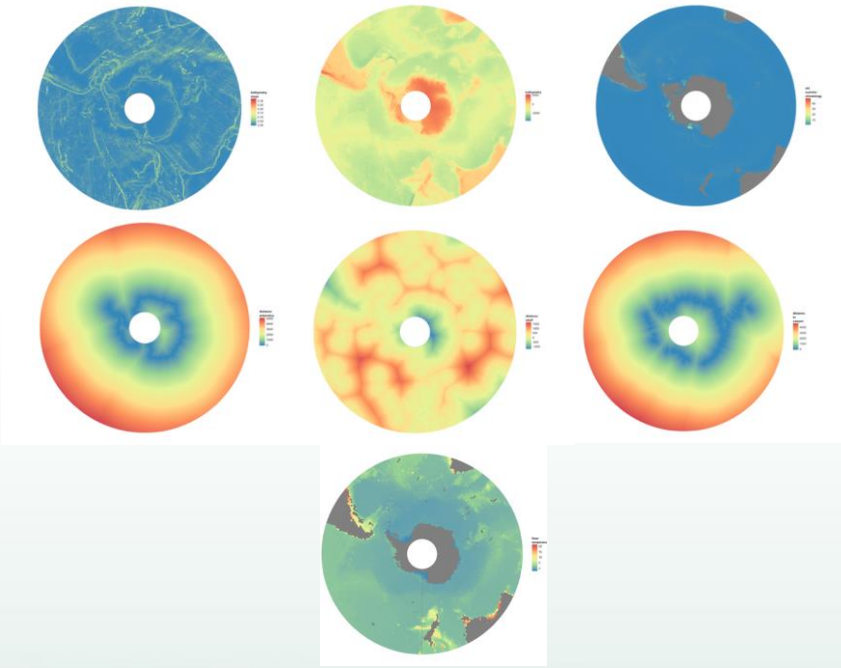
BIODIVERSITY.AQ

Integrating environmental data and modeling tools

museum
Operational Directorate Natural Environment
OD Nature | OD Natuur | DO Nature

Environmental layers

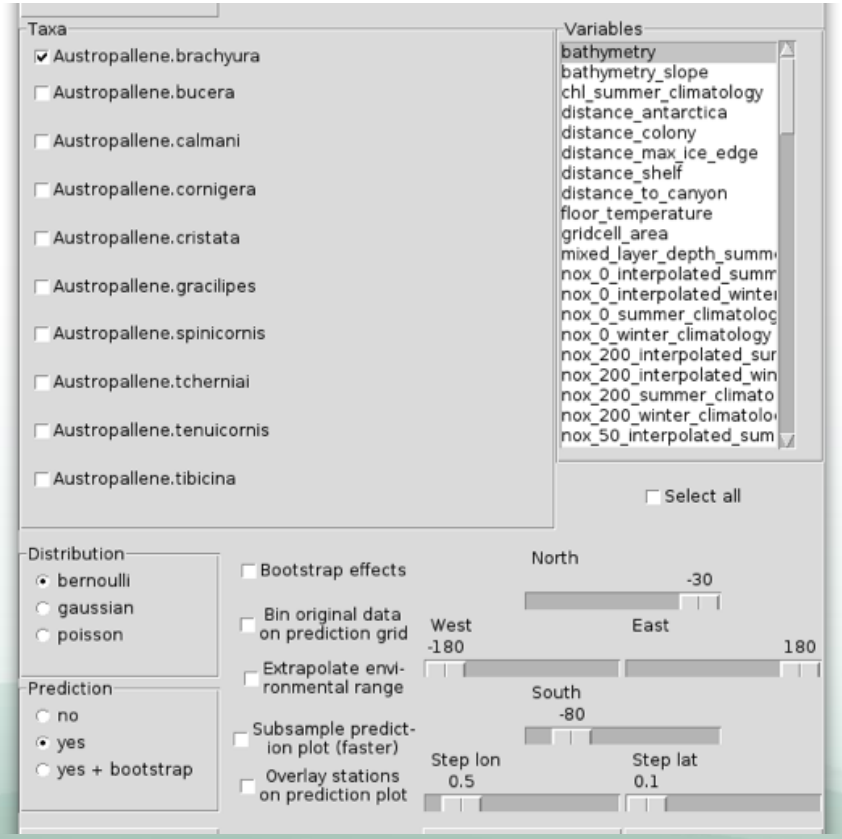
BIODIVERSITY.AQ



- Slope
- Bathymetry
- Chlorophyll
- Distance to the continent
- Distance to bird colonies
- Distance to ice
- Distance to shelf
- Distance to canyon
- Floor temperature
- ...
- +
- ANTABIF Occurrence records

museum
Operational Directorate Natural Environment
OD Nature | OD Natuur | DO Nature

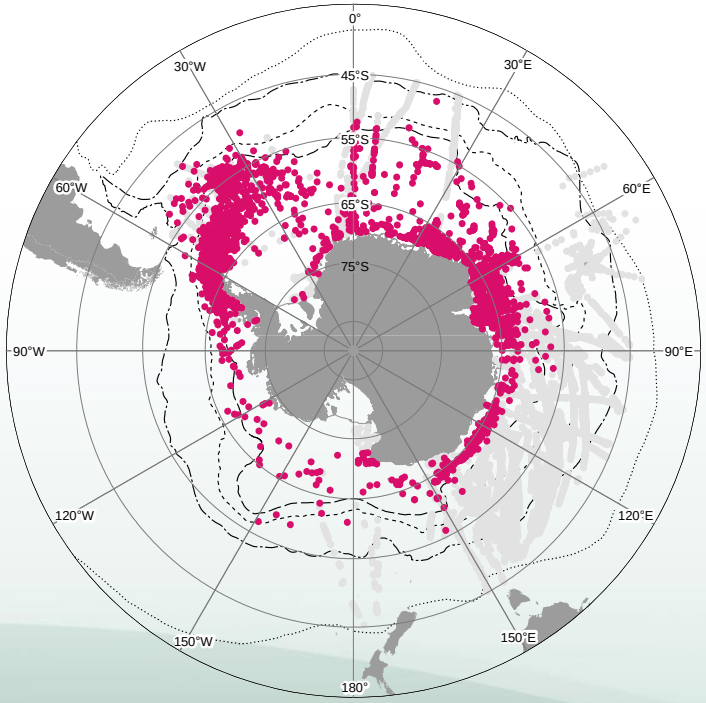
BIODIVERSITY.AQ



- R-functions GUI for BRT and GDM
- https://github.com/jiho/atlasr

museum
Operational Directorate Natural Environment
OD Nature | OD Natuur | DO Nature

BIODIVERSITY.AQ

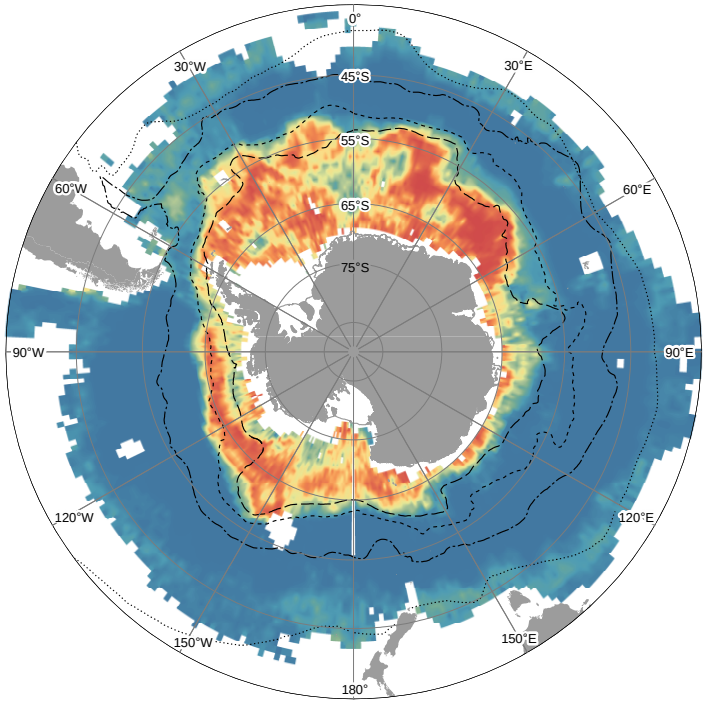


Legend

euphau_pres-abs

Euphausia6

- 0
- 1



Legend

Value

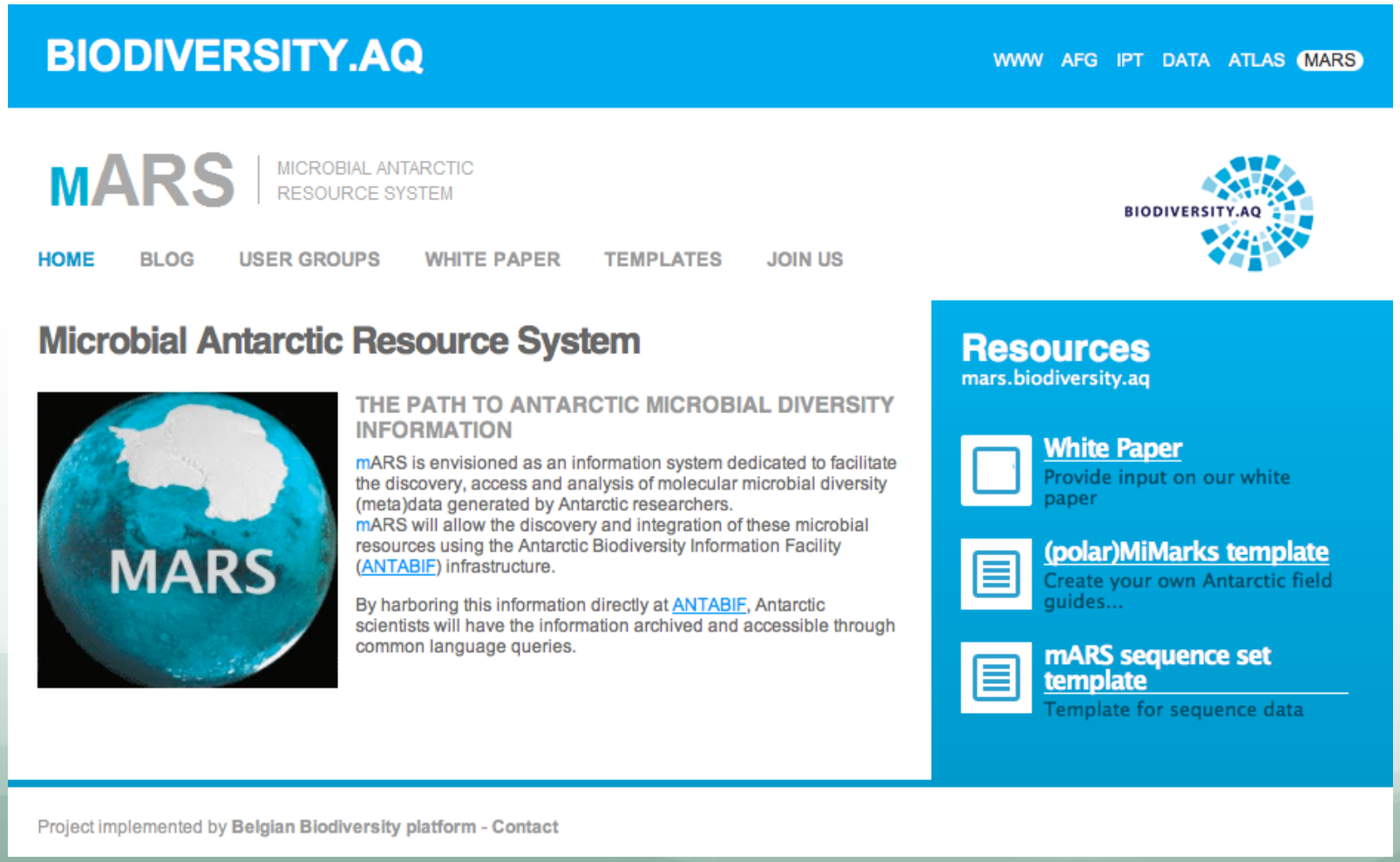
High : 0.994270

Low : 0.001170

museum
Operational Directorate Natural Environment
OD Nature | OD Natuur | DO Nature

mARS.BIODIVERSITY.AQ

BIODIVERSITY.AQ

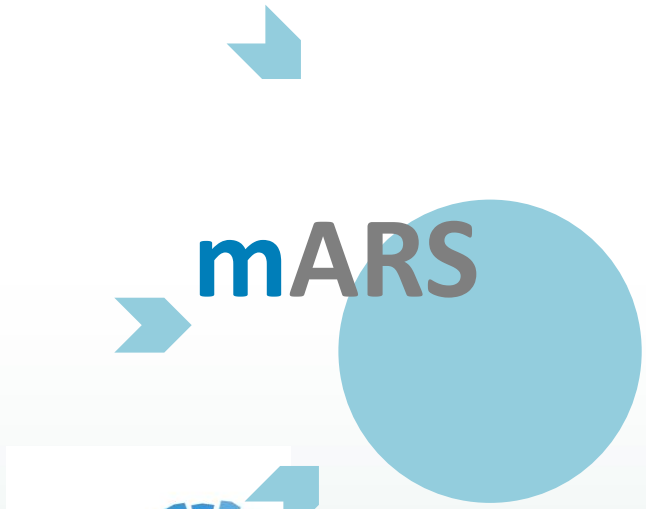


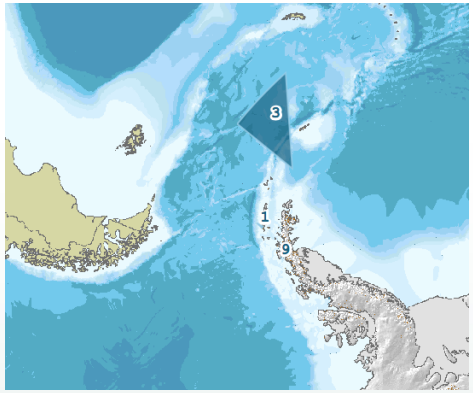
mARS.BIODIVERSITY.AQ

Sequence set summary

MiMARKS

IPT





museum
Operational Directorate Natural Environment
OD Nature | OD Natuur | DO Nature

mARS white paper

BIODIVERSITY.AQ

.

- ***Step 1: Data description and discovery***
- ***Step 2: Habitat and Microbial Sequence Metadata Entry***
  - ***(MiMARKS Data Standard; Microbial_Sequence_Set_Template)***
- ***Step 3: Georeferenced-molecular sequence database integration***
- ***Step 4: Processing batch sequence data –Circum-Antarctic microbial diversity***

museum
Operational Directorate Natural Environment
OD Nature | OD Natuur | DO Nature

Continued efforts

BIODIVERSITY.AQ

Our vision: Antarctic biodiversity data are open, linked, useful, interoperable and safe.

- Webservices, analytical tools integrated into the LifeWatch Infrastructure

LIFEWATCH

museum
Operational Directorate Natural Environment
OD Nature | OD Natuur | DO Nature

BIODIVERSITY.AQ

Privileged partners

Belgian Science Policy Office
belspo

ALFRED P. SLOAN FOUNDATION 1934
ALFRED P. SLOAN FOUNDATION

Partners

AWI
Alfred-Wegener-Institut
für Polar- und Meeresforschung
in der Helmholtz-Gemeinschaft

CENSUS of ANTARCTIC MARINE LIFE
www.caml.aq

Associate partners

DFG

Australian Government
Department of Sustainability, Environment, Water, Population and Communities
Australian Antarctic Division

Antarctica New Zeal

NWO
Netherlands Organisation for Scientific Research

SCAR

museum
Operational Directorate Natural Environment
OD Nature | OD Natuur | OD Nature

Friends

BIODIVERSITY.AQ