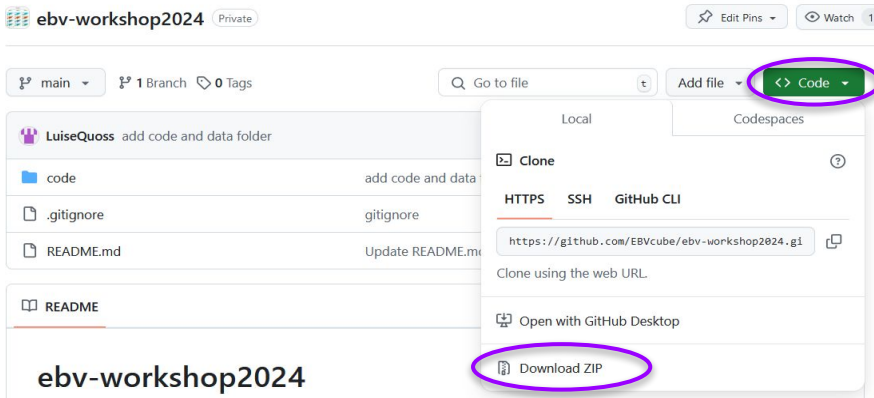
Preparation

Please do this while waiting

1. **If you haven't done yet: download the GitHub repository**
   - If you have git installed use: git clone https://github.com/EBVcube/ebv-workshop2024.git
   - Else:
     a. Go to the GitHub repository: https://github.com/EBVcube/ebv-workshop2024
     b. Download as Zip-file and then unzip



1. **Open your RStudio and the the two codes:**
   b. 01_explore_dataset.R
   c. 02_create_ebvcube.R

Now you are ready!

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BIODIVERSITY BUILDING BLOCKS FOR POLICY

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EBVCube: Enhancing Biodiversity Data Sharing with Interoperable Geospatial Standards

EBV Data Team

iDiv

NATURA CONNECT

In collaboration with NaturaConnect

EBV Data Portal Workshop

Session 2 / 14.10.2024 / On-line

Workshop

EBVCube: Enhancing Biodiversity Data Sharing with Interoperable Geospatial Standards

Session 1:

Overview of the EBVCube Concept and EBV Data Portal

Date and time: 07-Oct. 2024 from 11:00 to 12:00 am

Session 2:

Hands-on training on the `ebvcube` R package

Date and time: 14-Oct. 2024 from 11:00 to 12:00 am

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Agenda

1. Recap of EBVCube format by Emmanuel (5 min)
1. Module 1: Explore an EBVCube netCDF with R (20 min)
1. Module 2: Create an EBVCube netCDF with R (20 min)

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Session 2

By
Emmanuel Oceguera
Luise Quoss
Lina Estupinan-Suarez

EBV Cube Format

A data format for multidimensional geospatial data of biodiversity

Recap slides

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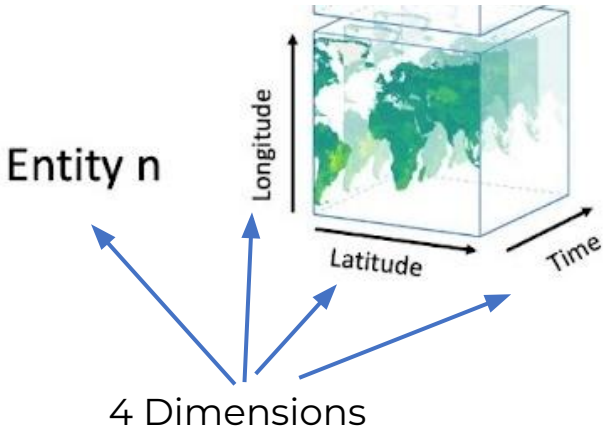
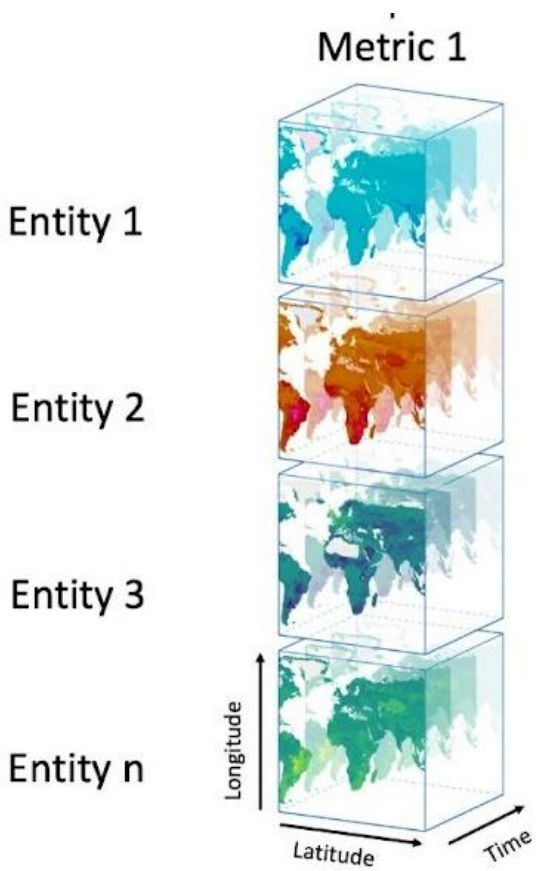
Hierarchical structure of the EBV Cube Format

A data format for multidimensional geospatial data of biodiversity

4D Data cube





How to: https://portal.geobon.org/downloads/pdf/how_to_ebv-portal.pdf

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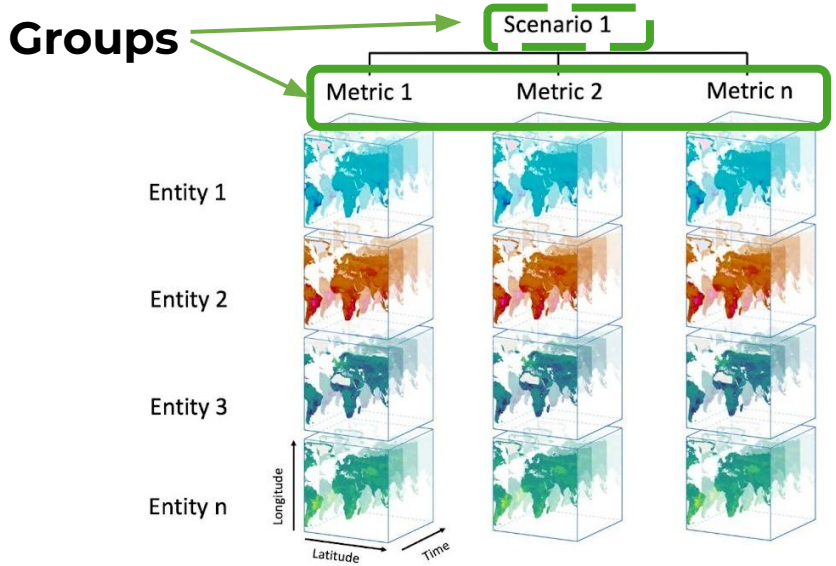
Hierarchical structure of the EBV Cube Format

A data format for multidimensional geospatial data of biodiversity

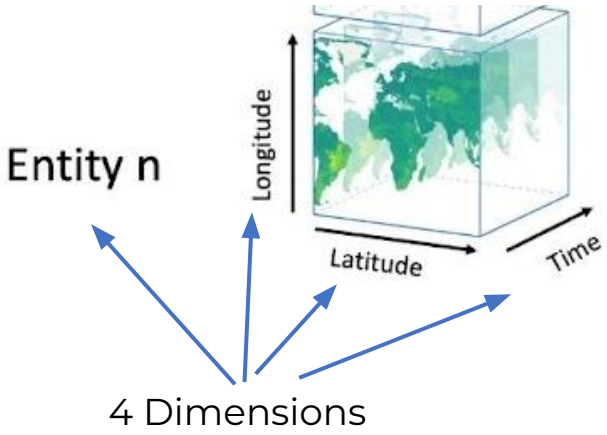
(NetCDF)
Root

Groups



© Christian Langer/ iDiv
Quoss et al. (in prep)

4D Data cube



How to: https://portal.geobon.org/downloads/pdf/how_to_ebv-portal.pdf

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The EBV Cube Module 1

Exploring EBV Cubes

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Module 1 - Plan of action

1. Theoretical exercise: apply one hypothetical data set to the EBVCube netCDF structure (5 min)
2. Coding exercise: explore the structure of an EBVCube data set with the ebvcube R package (15 min)

Useful links:

Repository of the ebvcube R package: https://github.com/LuiseQuoss/ebvcube

CRAN repository: https://CRAN.R-project.org/package=ebvcube

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Theoretical dataset exercise

Map the following setup to the EBVCube format

Imagine you modelled the global species richness and the relative species richness change for three different scenarios (e.g. SSP-RCP based) for all taxa. You cover the historic baseline (1900) and one future date (2050).

1. What is the hierarchical structure of the dataset? Draw a quick graph.
2. What are the dimensions of the cubes?
3. How many cubes are in this EBVCube netCDF?
4. Additional: What is changing if you model for different species, e.g. ten bird species?

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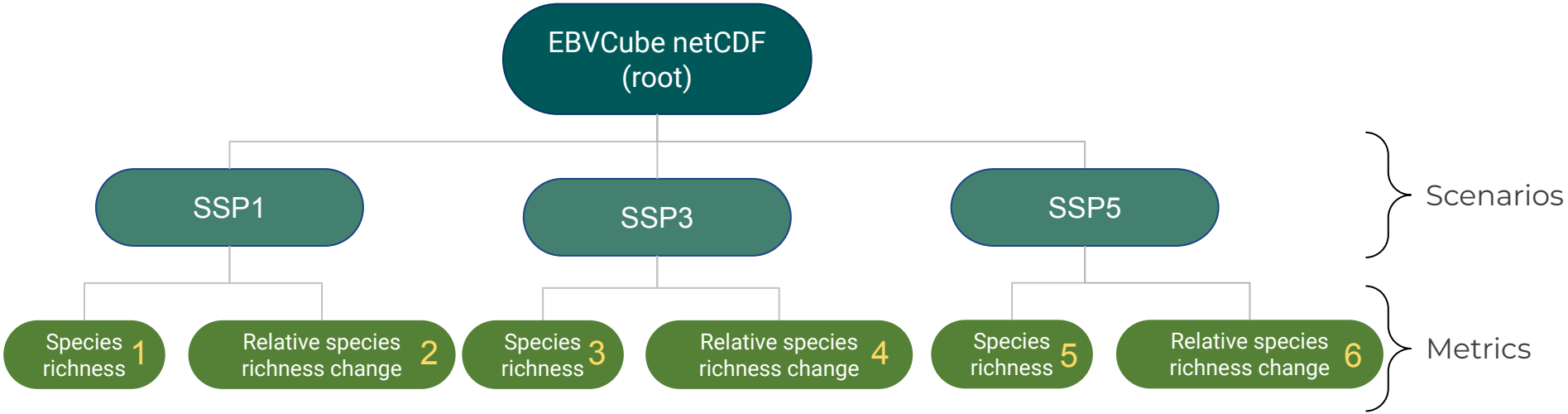
Solution



Cube dimensions: longitude [360], latitude [180], time [2], entity [1] [10] Amount of entities if ten bird species

Amount of cubes: 6

Similar dataset: Global trends in biodiversity (BES-SIM PREDICTS)

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Coding exercise

Switch to your RStudio and get started!

1. Open the 01_explore_dataset.R code that you find in the code folder
2. Go through the code together
3. Have time to explore the functionality by yourselves and ask questions

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Module 2
The EBV Cube creation

Defining the netCDF structure and input data

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Module 2 - Plan of action

1. Explore metadata from the EBV Data Portal
2. Explore metada in the repository (or zip file)
3. Coding exercise: create an EBVCube data set with the ebvcube R package for Tiff files
4. Create your own cube (if time allows)

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NetCDF structure for the Local bird diversity (cSAR/BES-SIM) data set

Metadata (JSON)

Root (NetCDF)

Groups

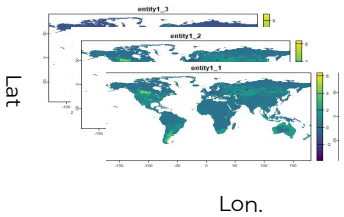
Scenarios N/A

Metrics

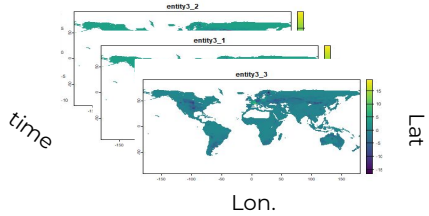
Metric 1
Absolute change in the number of species

Metric 2
Absolute change in the number of species

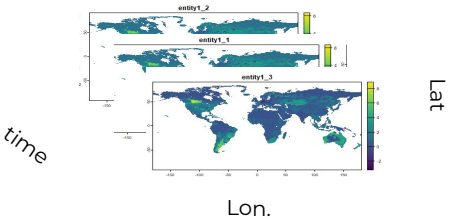
Entity 1: Birds



Entity 2: Forest Birds



Entity 3:
Non forest Birds



4D Data cube

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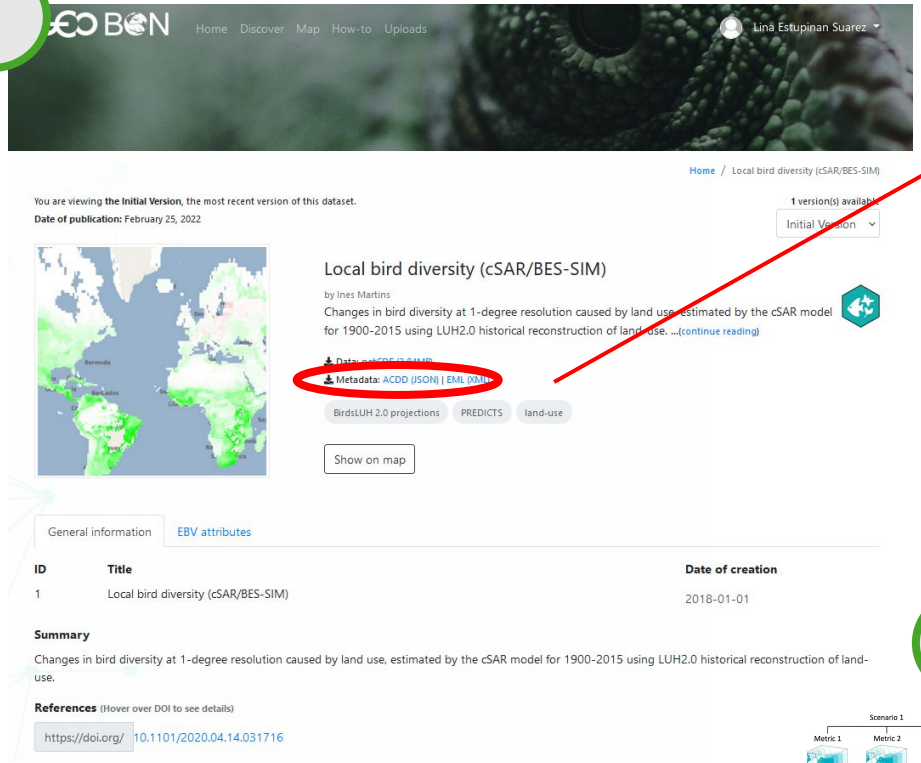
First step: Metadata used to create netCDF hierarchical structure

1



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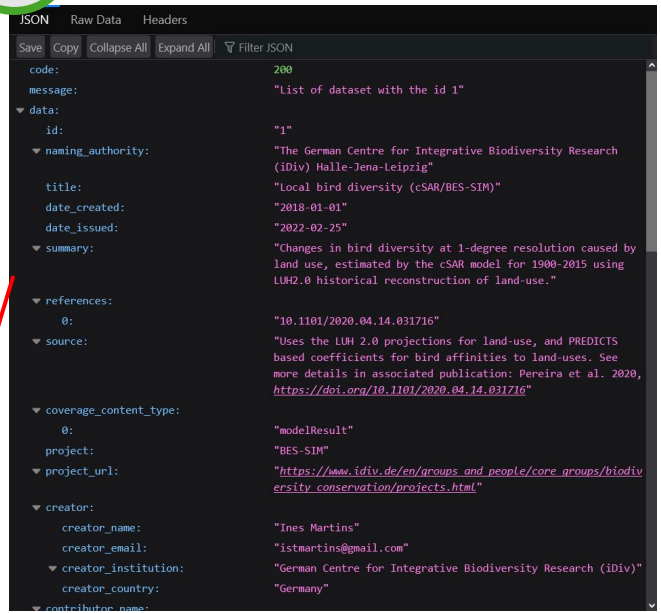
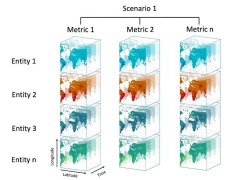


3



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Explore the provided metadata file (JSON format)

Guiding questions/points:

- How many metrics and scenarios are in the data set?
- What is the geographical extent of the data set?
- What is the temporal span?
- Make slight edits to the names of the metrics

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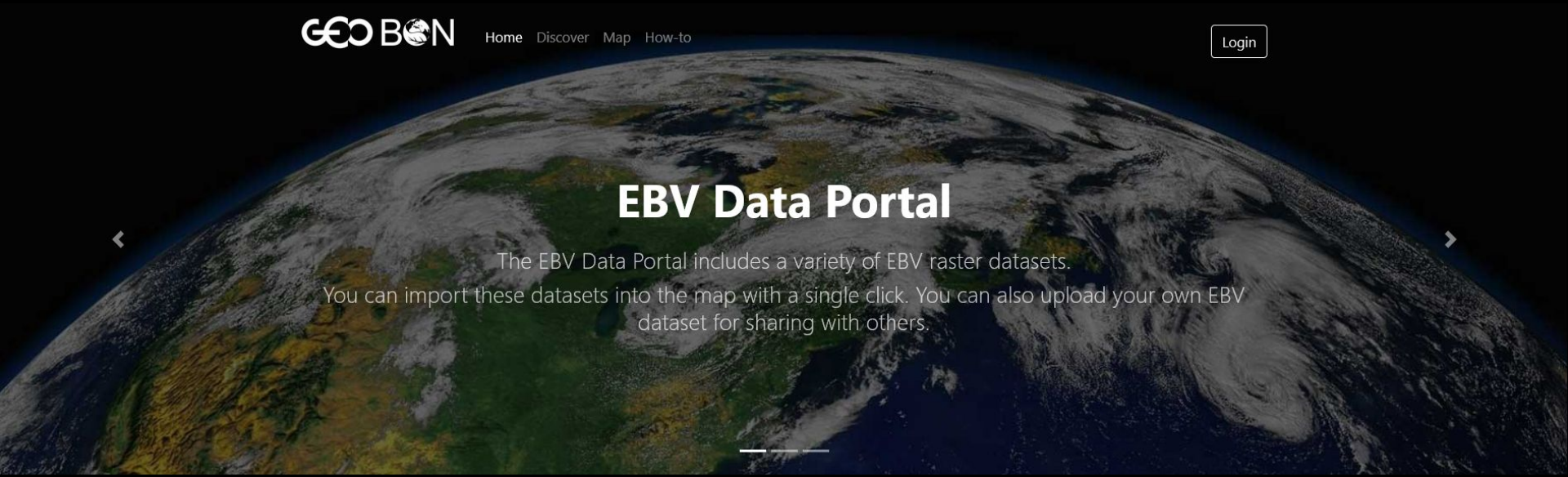
Thank you!



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