



# Demonstrator #2



# Plankton Genomics



Blue-Cloud workshop 23rd of March 2021



# Plankton Genomics


-  Genetic potential and diversity of plankton is unlocked by sequencing projects
-  However we are still only scratching the surface of microbial diversity in the Ocean

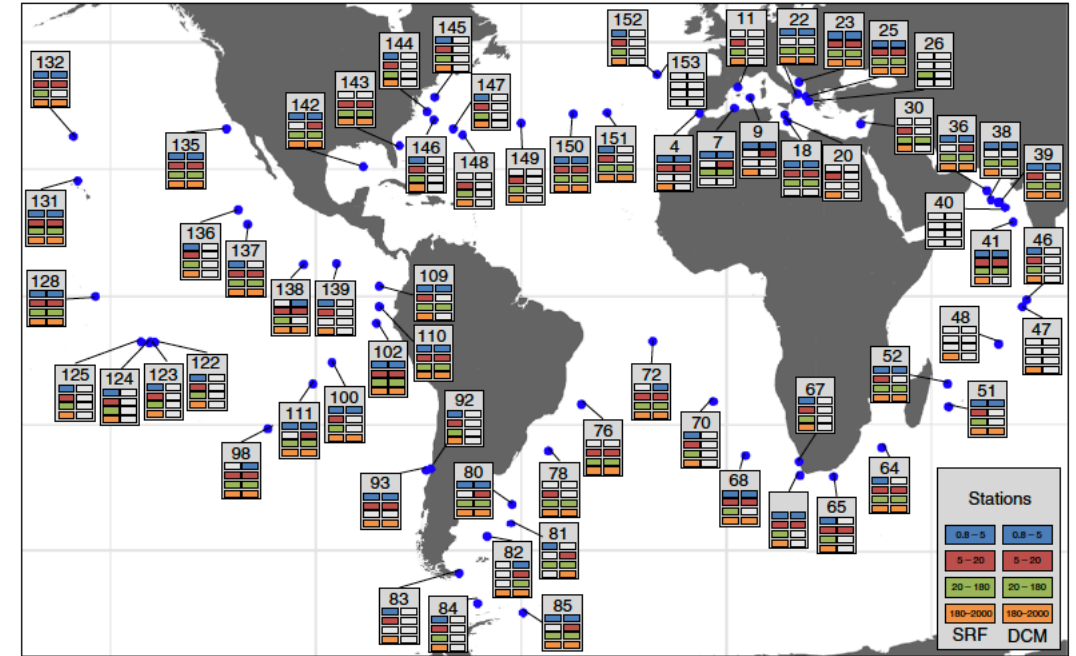


© Christian Sardet

# Plankton Genomics

 No match in existing databases:  
**Marine Eukaryotes 50 %**  
(Carradec, Pelletier et al., 2018)


 Common practice to discard  
any data that cannot be  
annotated through public  
databases




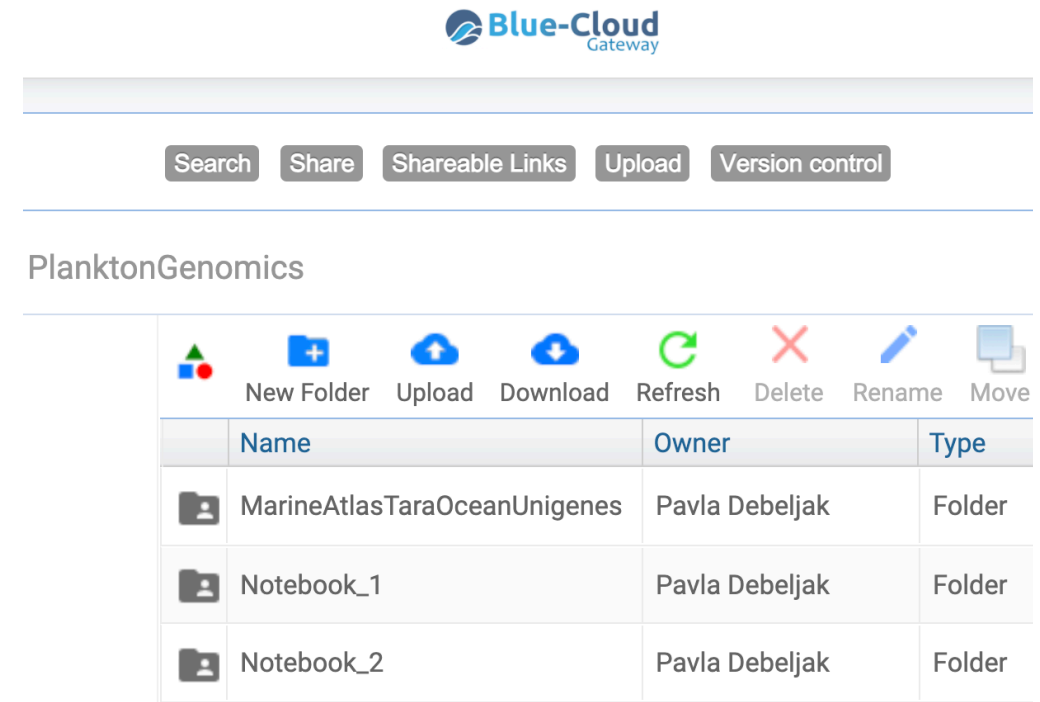
Tara Oceans: 68 different geographic locations across all the major oceanic provinces

# Plankton Genomics Demonstrator

## Notebooks in the Blue-Cloud VRE

 **Notebook 1:** Discovery of unknown biodiversity from unassigned genetic signals, co-occurrence with known biodiversity, and environmental context

 **Notebook 2:** Niche modelling and biogeography of as yet unknown biodiversity

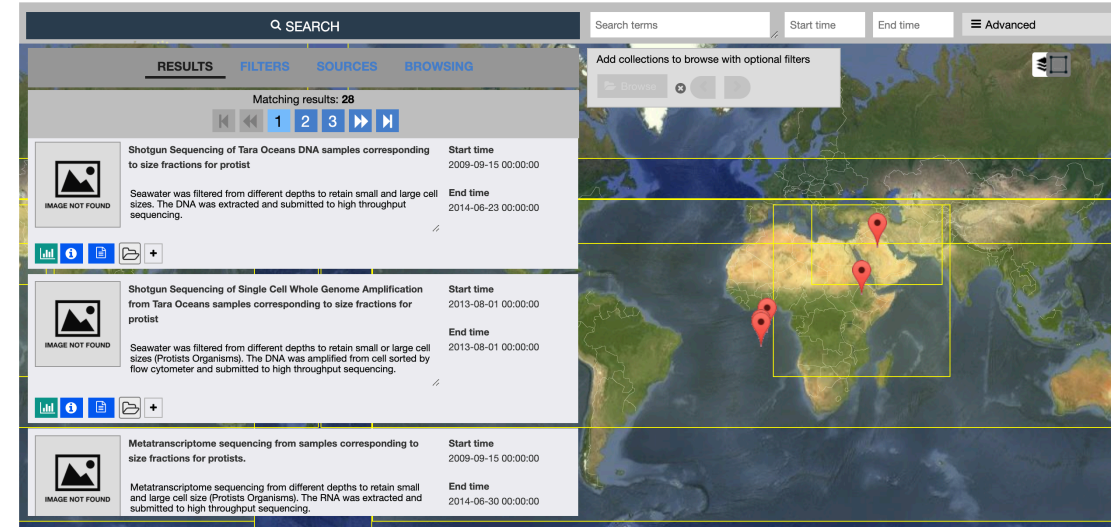


The screenshot shows the Blue-Cloud Gateway interface for the PlanktonGenomics workspace. At the top, the Blue-Cloud Gateway logo is visible. Below it, a navigation bar contains buttons for Search, Share, Shareable Links, Upload, and Version control. The main workspace area displays a toolbar with icons for New Folder, Upload, Download, Refresh, Delete, Rename, and Move. Below the toolbar is a table listing the contents of the workspace.

Name	Owner	Type
MarineAtlasTaraOceanUnigenes	Pavla Debeljak	Folder
Notebook_1	Pavla Debeljak	Folder
Notebook_2	Pavla Debeljak	Folder

# Plankton Genomics Datasets

- Exploration of the biggest Eukaryotic plankton database built from **metagenomic** and **metatranscriptomic** sequences
- Combining information on biogeographic distribution and providing data for global ocean modelling

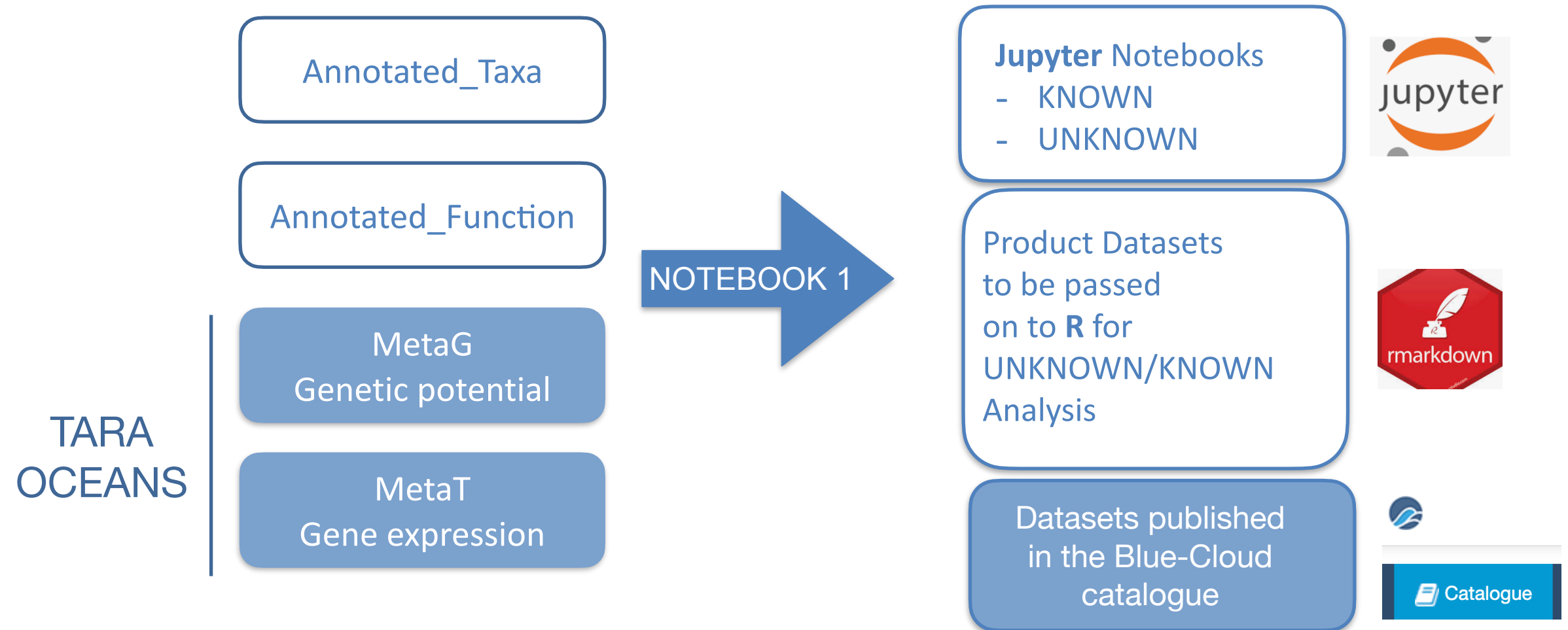


Data available through



<http://gs-service-production.geodab.eu/gs-service/search?view=elixir-ena>

# Workflow - Notebook 1: Discovery of Unknowns





# Workflow - Notebook 1: Discovery of Unknowns

Annotated\_Taxa

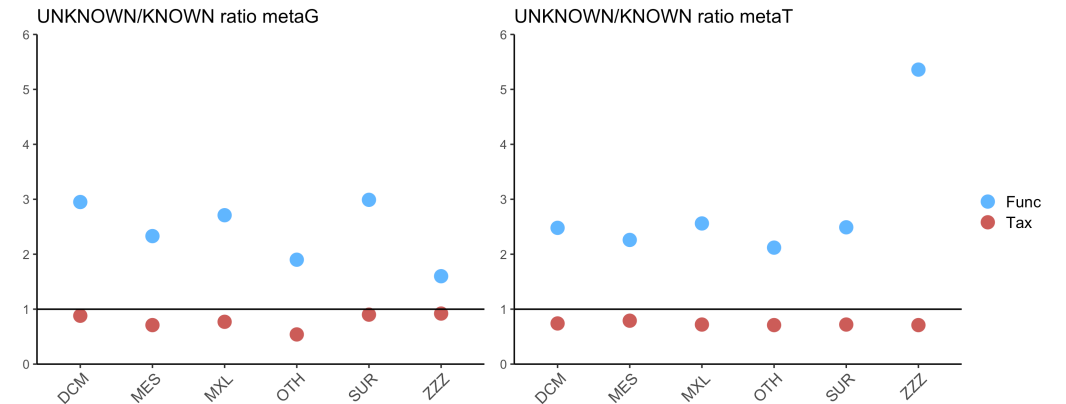
Annotated\_Function

MetaG  
Genetic potential

MetaT  
Gene expression

NOTEBOOK 1

Ratio of UNKNOWN/KNOWN for MetaG and MetaT by depth layer



# Workflow - Notebook 1: Discovery of Unknowns

Annotated\_Taxa

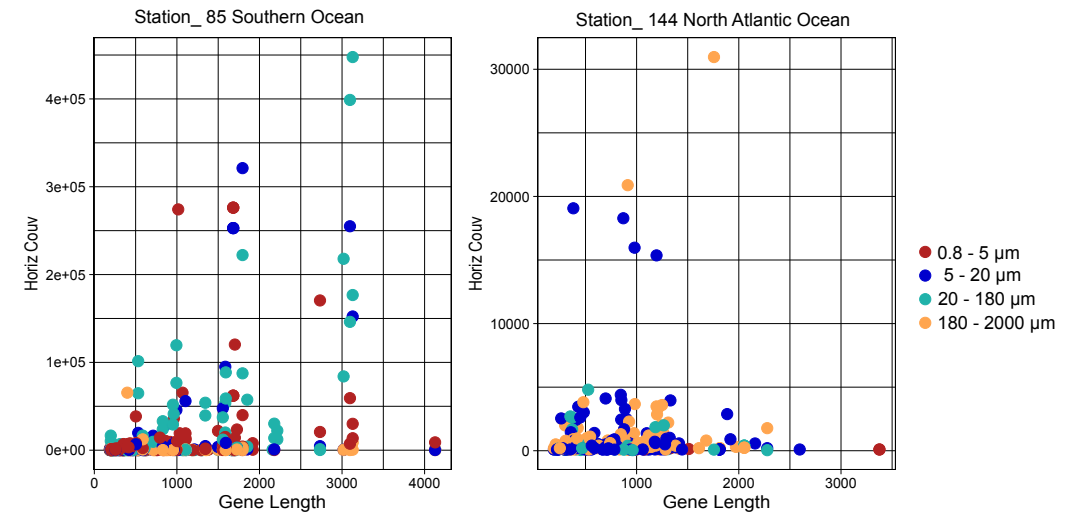
Annotated\_Function

MetaG  
Genetic potential

MetaT  
Gene expression

NOTEBOOK 1

Horizontal coverage by sampling station and planktonic size class





# Workflow - Notebook 1: Discovery of Unknowns

Annotated\_Taxa

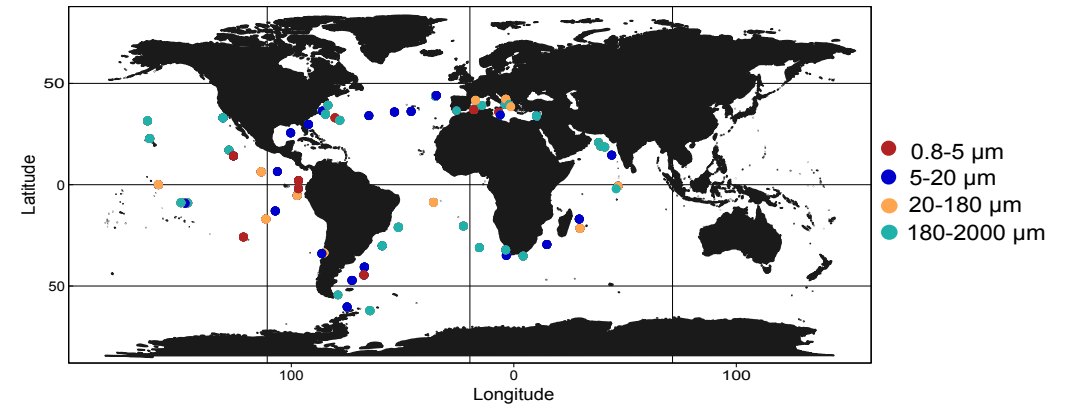
Annotated\_Function

MetaG  
Genetic potential

MetaT  
Gene expression

NOTEBOOK 1


Distribution by oceanic region  
and planktonic size class




Published as catalogue in the VRE to be  
Passed on to Notebook 2 for niche modelling

TARA  
OCEANS


# Workflow - Notebook 1: Discovery of Unknowns





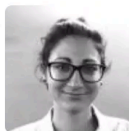
Go to ▾

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Pavla Debeljak ▾

## Piloting Innovative Services for Marine Research and the Blue Economy

### Statistics



ACTIVITY

0
0
0
0

GOT

SPACE USED



0
0
0%

PROFILE STRENGTH

45%

Improve


Pavla's home

Name	Owner	Last modified

### News feed

Show sorted by: newest Post ▾



Catalogue

March 15, 7:59 PM · Blue-CloudProject


Dear members,

Leonardo Candela just published the item 'Communication Dissemination and Stakeholders Engagement Strategy and Plan'.

You can find it at: [https://data.d4science.org/ctlg/Blue-CloudProject/communication\\_dissemination\\_and\\_stakeholders\\_engagement\\_strategy\\_and\\_plan](https://data.d4science.org/ctlg/Blue-CloudProject/communication_dissemination_and_stakeholders_engagement_strategy_and_plan)

#Awareness\_creation #Dissemination #Stakeholders\_engagement #Activity\_plan #Results\_promotion #Key\_performance\_indicators


Reply - Like



Sara Pittonet


March 12, 4:30 PM · Blue-CloudProject

Dear all


Blue-Cloud Project

To support the Blue-Cloud project activities and discussions. It is equipped with the following facilities: Workspace: for sharing files ...

[Read More »](#)


Blue-Cloud Lab

Where scientists can contribute, find, try, and use Blue-Cloud methods as integrated in the infrastructure by scientists across multiple disciplines.

[Read More »](#)

23 March 2021 | Blue-Cloud Event: Open Science for the Ocean: meet Blue-Cloud Demonstrators

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# Thank you for your attention!

## Demonstrator #2 Plankton Genomics

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