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The goal of OpenAIRE-Connect, *OpenAIRE - CONNECTing scientific results in support of Open Science*, is to provide technological and social bridges, and deliver services enabling uniform exchange of research artefacts (literature, data, and methods), with semantic links between them, across research communities and content providers in scientific communication. It will introduce and implement the concept of Open Science as a Service (OSaaS) on top of the existing OpenAIRE infrastructure, delivering out-of-the-box, on-demand deployable tools.

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GLOSSARY

ABBREVIATION	DEFINITION
RCD	Research Community Dashboard

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DELIVERABLE SUMMARY

This deliverable includes the results of the functional requirements, a specification of the software, and a release plan for the user interface functionalities of the Research Community Dashboard Service.

1 INTRODUCTION

The main concept behind OpenAIRE–Connect is to realize, operate, and leverage the uptake of two new services that build on and extend the existing OpenAIRE technical and networking infrastructure, to stimulate a technical and cultural shift towards a scholarly communication ecosystem supporting more effective/transparent evaluation and reproducibility of research results. Services will be conceived that contribute to the realization of a common scientific communication ecosystem in support of Open Science publishing principles. As such, this effort will strongly ground on an end-user driven approach, to deliver services that bring immediate benefits to demanding users and can therefore appeal to others.

1.1 SYSTEM OVERVIEW

OpenAIRE-Connect extends the technological services and networking bridges (human/social/support) currently offered by the OpenAIRE infrastructure to foster the expansion of an Open Science publishing paradigm and facilitate the emergence of shared solutions for it. OpenAIRE-Connect introduces three classes of new services:

- Research community services: offering support for a uniform transition of research communities towards Open Science publishing;
- Content provider services: leveraging the transition of content providers towards Open Science publishing;
- Support services: building community capacities for European and global alignment on Open Science publishing

The OpenAIRE Research Community Dashboard Service will offer a dedicated portal for each research community as one-stop solution, with a portfolio of common functionalities that are configured and adapted to the community’s research production and practices. For the configuration of the dedicated portal, each community will be provided with an administration tool. Communities will be able to configure the portal through this administration tool and deploy on-demand a portal that meets its specific needs.

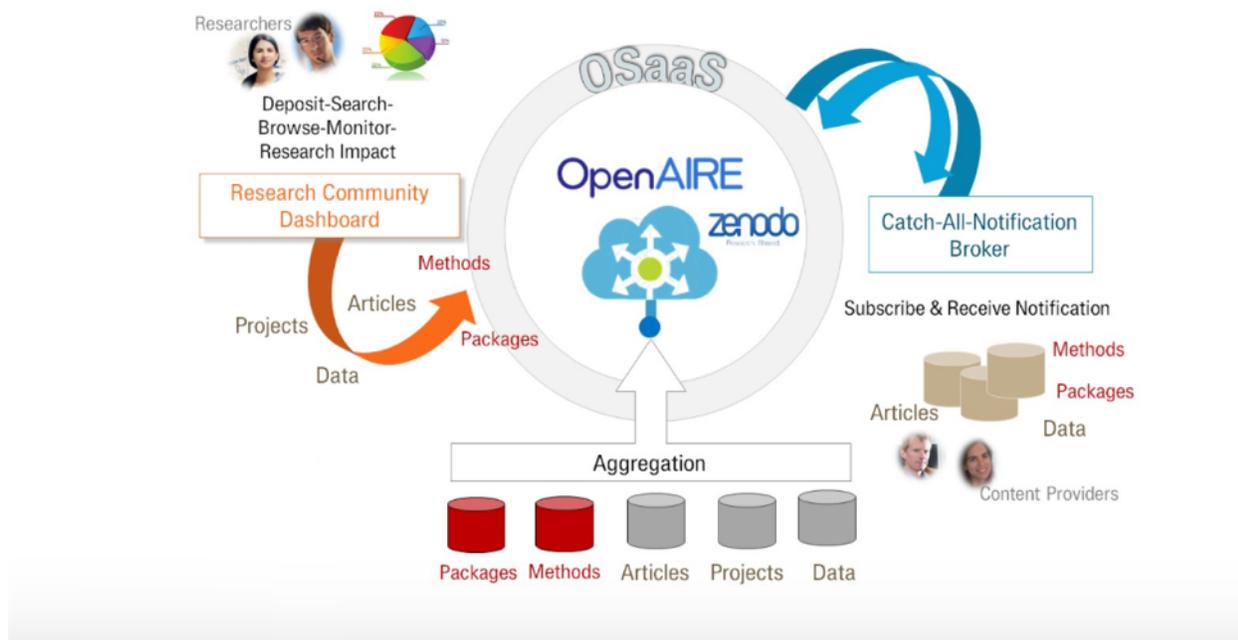


Figure 1 - Research Community Dashboard and Catch-All Notification Broker Service

1.2 USERS OVERVIEW

The Research Community Dashboard aims to serve the needs of Research Communities, i.e. the needs of researchers and research operators. In general, these users need to share, re-use, promote, monitor report and evaluate scientific results related to the subject of their research. The scientific results are all intermediary and final research artefacts. In addition to scientific literature, artefacts include research data, software, and other research products (e.g. workflows, protocols, scripts, algorithms, etc.).

For the Research Community Dashboard, we have 2 kinds of users: the researchers and the research operators.

1.2.1 RESEARCHERS

Researchers need to share (for “discovery” and “transparent evaluation”) and re-use (for “reproducibility”) their scientific results.

1.2.2 RESEARCH OPERATORS

Research operators need to promote, monitor, report and evaluate scientific results of research within their community.

2 FUNCTIONAL REQUIREMENTS

Functional requirements/specifications specify the functions that a system must perform to meet the user’s needs. The user’s needs, i.e. what a user would expect from a software/system to do, are described by the *user requirements*. In the next section, we present the functional requirements of OpenAIRE-Connect, together with the user requirements that imply them.

2.1 FORMAT

Each functional specification is described by the following fields:

- **Functional Specification ID** is the unique ID of the functional specification. The format of the ID is prefixed with “FS”, followed by an acronym of the corresponding service and by an incremental number.
- **Functional Specification Name** is the name of the specification.
- **Functional Specification Priority** is the level of importance of the specification.

Each user requirement is described by the following fields:

- **User Requirement ID** is the unique ID of the user requirement. The format of the ID is prefixed with “FL”, followed by an acronym of the corresponding service and by an incremental number.
- **User Requirement Name** is the name of the requirement.
- **User Requirement Priority** is the level of importance of the requirement.
- **Description** explains the specification in more detail.
- **Constraints and Assumptions** detail the conditions under which a functional specification has meaning or not (if any).

Each functional specification is recorded using the following format:

Functional Specification ID	Functional Specification Name	Functional Specification Priority
User Requirement ID 1	User Requirement Name 1	User Requirement Priority 1
...
User Requirement ID n	User Requirement Name n	User Requirement Priority n

Figure 2 - Functional specifications format

The priorities assigned are:

- **Mandatory:** functionalities that are fundamental for the OpenAIRE-Connect Community Dashboard Service.
- **Important:** functionalities that will make the system more appealing to end users.
- **Interesting:** functionalities that will bring an added value to the system, but their absence does not make the product less appealing to its potential users.

The ID of the Research Community Dashboard services are:

- **CI** stands for Community Information
- **PT** stands for Portal look and feel
- **SB** stands for Search and Browse
- **CL** stands for Claim
- **MN** stands for Mining
- **DP** stands for Deposition
- **MT** stands for Monitoring
- **USM** stands for User Management
- **-A** stands for the Administration related functionality that will be offered to configure the parts of the Dashboard mentioned above.

2.2 FUNCTIONAL REQUIREMENTS

2.1.1 DISCOVER & DEFINE COMMUNITY INFORMATION

FS/CI/01	Search & Browse through all the available communities	Mandatory
FL/CI/01	Everyone can view all the available communities	Mandatory
FL/CI/02	Everyone can search all the available communities	Mandatory
FL/CI/03	Everyone can view the dashboard of each community	Mandatory

- **Description** The Research Community Dashboard will offer an overview page where all users will be able to search and view all the available communities together with some minimum information about each community (name, logo, description, creation date). If a user wishes to find out more about a community, a specific community page will be provided where more information will be available (statistics, details for content, numbers for content, tags, etc.)

- **Constraints and Assumptions** A Community API¹ will be provided by CNR. This API will provide GET methods that will return the available information for each community.

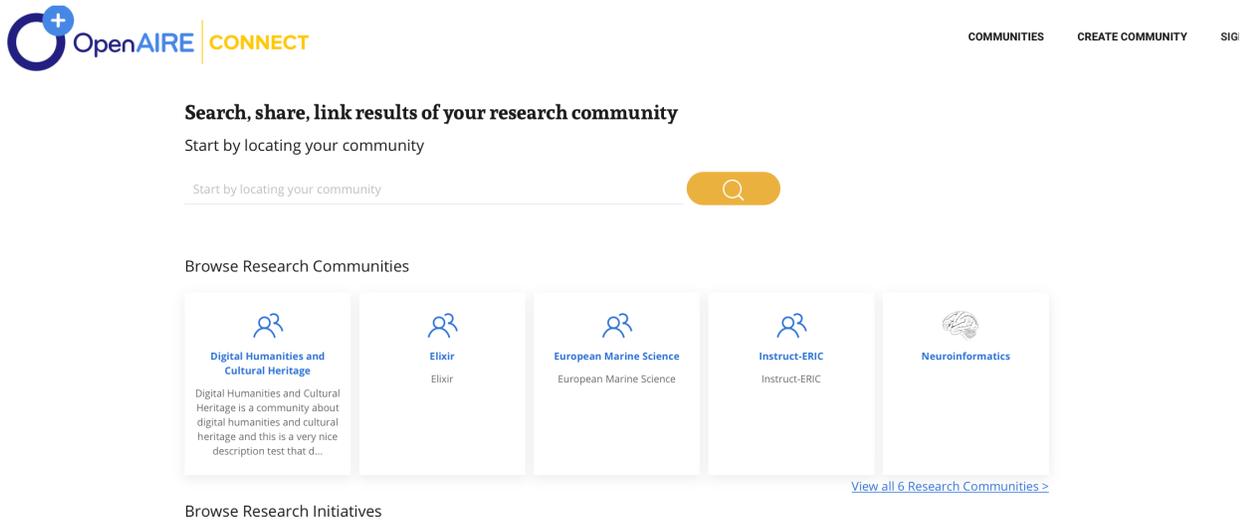


Figure 3 - Communities Search & Browse functionalities in Connect first page

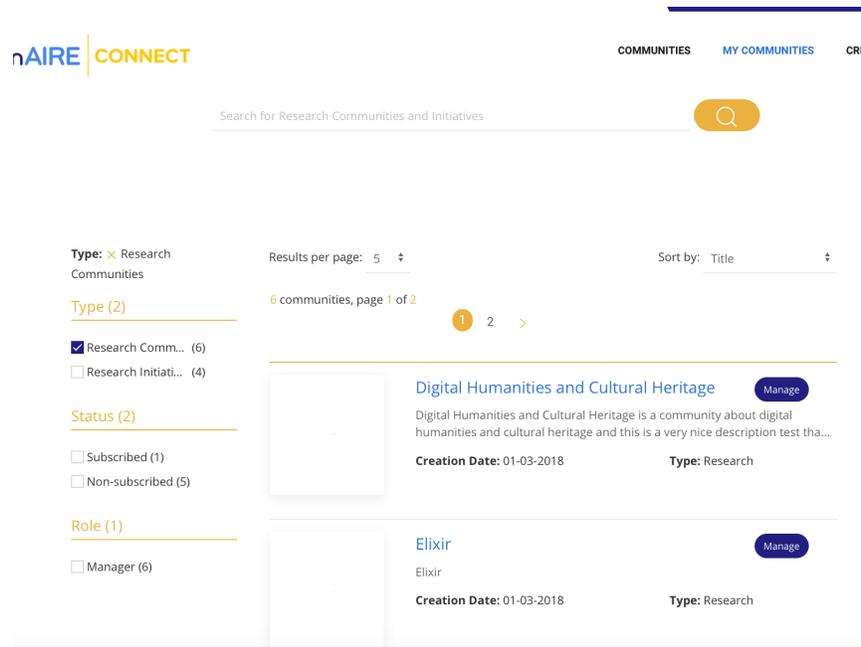


Figure 4 - Communities search results

¹ Documentation of development version available here: <https://dev-openaire.d4science.org/openaire/swagger-ui.html> (please in the “Select a spec” dropdown list select “OpenAIRE Communities”)

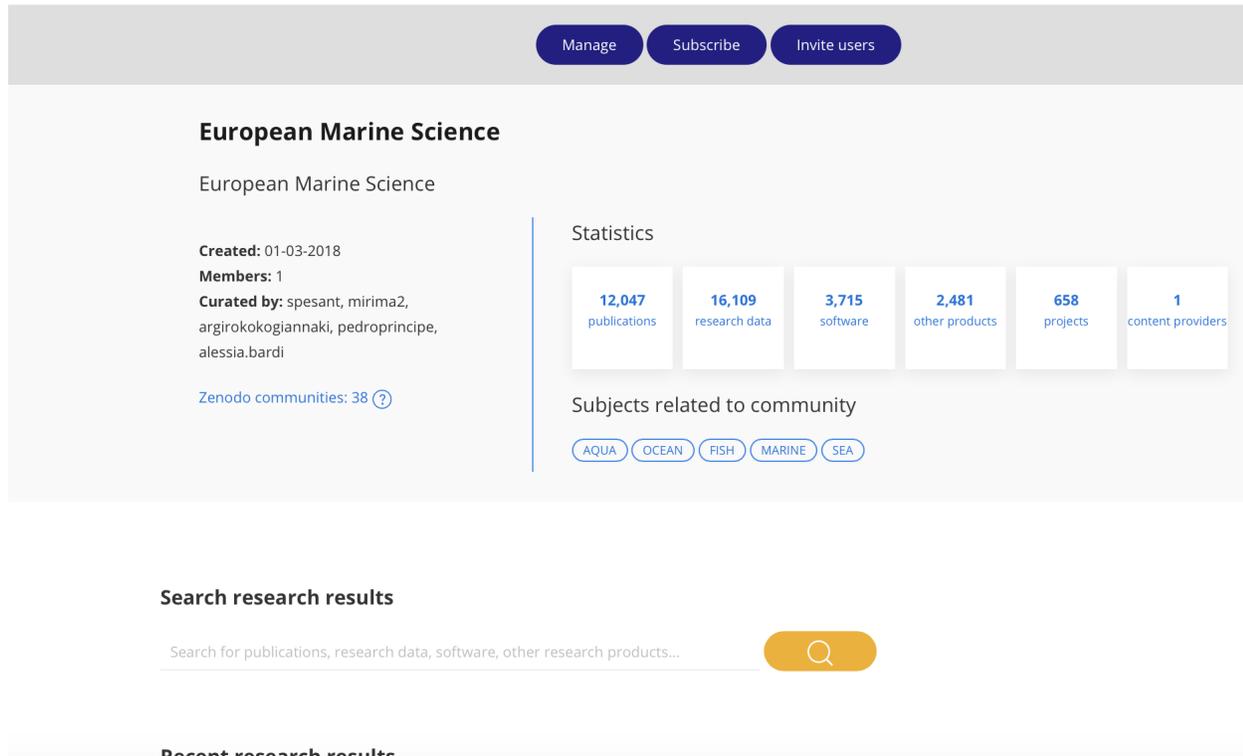


Figure 5 – A part of the Marine Environmental Science Community Dashboard

FS/CI/02	Provide easy navigation to communities that users manage or are subscribed to (“my communities”)	Mandatory
FL/CI/04	Every logged in user will have quick links to the communities they are subscribed to	Mandatory
FL/CI/05	Research Operators will have quick links to the communities they manage	Mandatory
FL/CI/06	Every logged in user will be able to filter all available communities based on their subscription status	Mandatory
FL/CI/07	Research operators will be able to filter all the communities they manage	Mandatory

- **Description** The Research Community Dashboard will offer information about the subscriptions of the users and their managing possibilities. This information will appear once the user is logged in:

- in the form of quick links in the first page of the Connect project
- as filters in the communities' search page.
- **Constraints and Assumptions** The Administration Community API provide GET methods that will return the available information for each user.

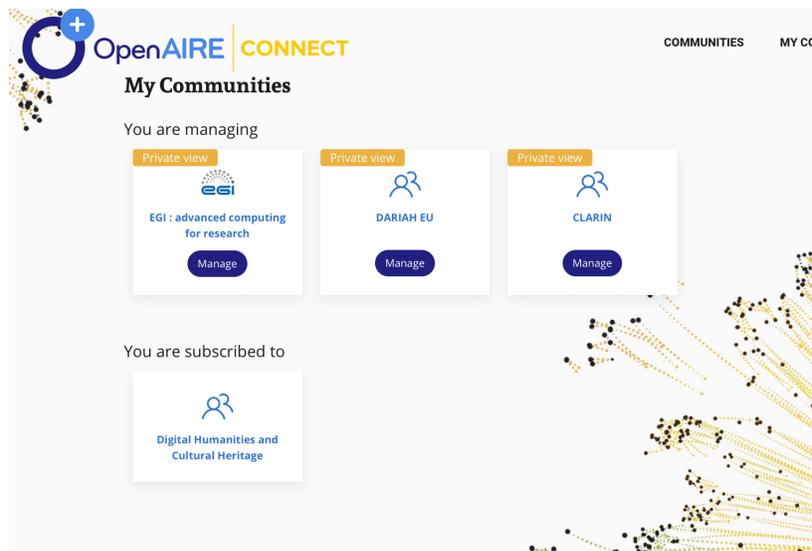


Figure 6 - First page quick links to user's communities

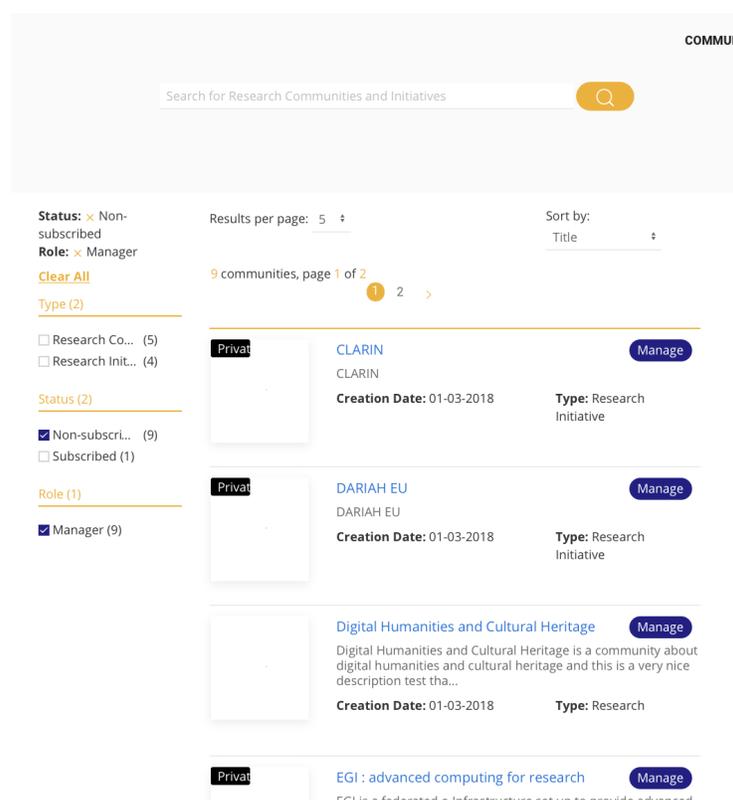


Figure 7 - Communities search results with user filters

FS/CI/03	Provide community organization information	Mandatory
FL/CI/08	Everyone will be able to see the organizations that are related to a community	Mandatory
FL/CI/09	Research Operators will be able to edit the organization information	Mandatory

- **Description** The Research Community Dashboard will offer information for the organizations that support each research community dashboard.
- **Constraints and Assumptions** Information for organizations will be available through the Community API..

FS/CI-A/01	Change community information	Mandatory
FL/CI-A/01	Research Operators changes the metadata information of a community	Mandatory

- **Description** The Administration tool will to research operators the possibility to edit community metadata/information.
- **Constraints and Assumptions** A Community API will be provided by CNR. This API will provide POST methods that will update the available information for each community.

The screenshot shows the 'Edit your community profile' form. At the top, it says 'Administration Dashboard' and 'Katerina Iatropoulou'. The form has the following fields:

- Name:** Marine Environmental Science
- Short Name:** Marine Environmental Science
- Description:** Marine Environmental Science
- Logo Url:** (empty)
- Managers:** argirokologiannaki@gmail.com (with a red 'x' and a green '+')
- Subjects:**
 - marine (with a red 'x')
 - ocean (with a red 'x')
 - fish (with a red 'x')
 - aqua (with a red 'x')
 - sea (with a red 'x' and a green '+')

At the bottom, there are two buttons: 'RESET' (grey) and 'SAVE' (blue).

Figure 8 - Community Information edit form

2.1.2 DISCOVER & DEFINE COMMUNITY CONTENT

FS/SB/01	Search/Browse allow community specific searches	Mandatory
FL/SB/01	Everyone runs keyword queries on the community specific content	Mandatory
FL/SB/02	Everyone runs advanced queries using AND/OR/NOT operators on the community specific content.	Mandatory
FL/SB/03	Everyone runs browse queries on the community specific content	Mandatory

- **Description** The Research Community Dashboard search and browse functionalities will give access to the community related products. Users will be able to browse, to do keyword search, and to create complicated queries (keywords + AND/OR/NOT operators).
- **Constraints and Assumptions** The OpenAIRE entities are tagged as being part of the community. These tags are made available through the Index & Search Services.

FS/SB/02	Search/Browse allow searches overall OpenAIRE content	Mandatory
FL/SB/04	Everyone runs keyword queries on the overall OpenAIRE content	Mandatory
FL/SB/05	Everyone runs advanced queries using AND/OR/NOT operators on the overall OpenAIRE content.	Mandatory
FL/SB/06	Everyone runs browse queries on the overall OpenAIRE content	Mandatory

- **Description** The Research Community Dashboard search and browse functionalities will give access to the overall OpenAIRE content. Users will be able to browse, to do keyword search, and to create complicated queries (keywords + AND/OR/NOT operators).
- **Constraints and Assumptions** The OpenAIRE content is made available through the Index & Search Services.

FS/SB/03	Search/Browse provides filters for the community scientific products	Important
FL/SB/07	Everyone narrows down search results by selecting special content-related filters	Important

- **Description** The Research Community Dashboard search and browse functionalities will provide content-tailored filters to limit the search results.
- **Constraints and Assumptions** Categorization of community products will be provided. These categories will be made available as facets from Index and Search Services.

FS/SB/04	Allow users to configure search results display	Important
FL/SB/08	Everyone can change the number of results displayed per page	Important
FL/SB/09	Everyone can sort the results based on specific metadata values (e.g. the publication date of a research product)	Important

- **Description** Search results are currently presented to the users in the default order returned by Index, i.e. based on the ranking of the results for the user's keyword search. The possibility to change this order by sorting the results based on specific metadata values (e.g. the publication date of a research product) will be provided. Additionally, the possibility to alter the default presentation of 10 results per page will be provided.
- **Constraints and Assumptions** The Index will offer sort functionality for different metadata fields. The Search API will include parameters for sorting functionality. Both Index and Search API will allow paging.

FS/SB/05	Provide application boxes where CSV files containing the scientific products can be downloaded	Important
FL/SB/10	Everyone downloads CSV files containing the scientific products of the community	Important

- **Description** The community products will be provided as CSV files to every user.
- **Constraints and Assumptions** Search Service will provide CSV formatting for the available content.

FS/SB/06	Provide downloadable CSV files containing search/browse results	Important
FL/SB/11	Everyone downloads CSV files containing the results of their search/browse queries.	Important

- **Description** The search/browse results will be provided as CSV files to every user.
- **Constraints and Assumptions** Search Service will provide CSV formatting for the returned search results.

Search for Publications SEARCH

RESULTS IN OPENAIRE →

193 PUBLICATIONS, PAGE 1 OF 20 1 2 3 4 5 > (CSV)

FUNDER (12)

- Netherlands Organisa... (193)
- European Commission (193)
- National Science Fou... (27)
- Research Council U... (12)
- Swiss National Scienc... (6)

View more ▶

FUNDING STREAM (41)

- EC|FP7 (193)
- NSF|IMPS/OAD (14)
- NSF|GEO/OAD (9)
- EC|H2020 (6)
- RCUK|INERC (5)

View more ▶

PROJECT (100+)

- ANAMMO (40)

Metagenomic analysis of nitrogen and methane cycling in the Arabian Sea oxygen minimum zone

ARTICLE ENGLISH OPEN (2016)

Project: NWO | A process study on the im... (2300139588), EC | ECO-MOM (339880), EC | ANAMMOX (232937)

Oxygen minimum zones (OMZ) are areas in the global ocean where oxygen concentrations drop to below one percent. Low oxygen concentrations allow alternative respiration with nitrate and nitrite as electron acceptor to become prevalent in these areas, making them main con...

Sedimentary geology of the middle Carboniferous of the Donbas region (Dniepr-Donets basin, Ukraine)

ARTICLE ENGLISH OPEN

Van Hinsbergen, Douwe J J; Abels, Hemmo A; Bosch, Wolter; Boekhout, Flora; Kitchka, Alexander; Hamers, Maartje; van der Meer, Douwe G; Geluk, Mark; Stephenson, Randell A.; (2015)

Figure 9 - Search and browse for Marine Environment Science community (filters, OpenAIRE search and csv marked)

Advanced Search for Publications

Search for:

and

18261 PUBLICATIONS, PAGE 1 OF 1827

1 2 3 4 5 >

Density Imaging of Volcanoes with Atmospheric Muons using GRPCs

CONFERENCE OBJECT, UNKNOWN

Cartoganu, C.: (2011)

Their capability to penetrate large depths of material renders high-energy atmospheric muons a unique probe for geophysical explorations. Provided the topography of the target is known, the measurement of the attenuation of the muon flux permits the cartography of matte...

Quantification of Internal Stress-Strain Fields in Human Tendon: Unraveling the Mechanisms that Underlie Regional Tendon Adaptations and Mal-Adaptations to Mechanical Loading and the Effectiveness of Therapeutic Eccentric Exercise

ARTICLE ENGLISH

Constantinos N. Maganaris; Panagiotis Chatzistergos; Neil D. Reeves; Marco V. Narici: (2017)
Project: RCUK | Structural and metabolic ... (BB/K019104/1)

By virtue of their anatomical location between muscles and bones, tendons make it possible to transform contractile force to joint rotation and locomotion. However, tendons do not behave as rigid links, but exhibit viscoelastic tensile properties, thereby affecting the ...

The American Joint Replacement Registry?the first 5 years

ARTICLE ENGLISH

Etkin, Caryn D.; Springer, Bryan D.: (2017)

Project: NIH | Creating National Surveil... (1U01FD005478-01)

Exploring dark current voltage characteristics of micromorph silicon tandem cells with computer simulations

ARTICLE

A. Sturiale; Hongbo T. Li; J. K. Rath; R. E. I. Schropp; F. A. Rubinelli: (2009)

The transport mechanisms controlling the forward dark current-voltage characteristic of the silicon micromorph tandem solar cell were investigated with numerical modeling techniques. The dark current-voltage characteristics of the micromorph tandem structure at forward ...

The Wave-Front Correction System for the Sunrise Balloon-Borne Solar Observatory

Figure 10 - Advanced search for Marine Environment Science community

FS/SB-A/01	Define searchable subsets of OpenAIRE content for each community	Mandatory
FL/SB-A/01	Research Operators indicate OpenAIRE content providers that have data relevant to the community	Mandatory
FL/SB-A/02	Research Operators indicate projects in OpenAIRE that have research results relevant to the community	Mandatory
FL/SB-A/03	Research Operators indicate a subset of the OpenAIRE content as relevant to the community	Important
FL/SB-A/04	Research Operators indicate a subset of an OpenAIRE content provider as relevant to the community	Interesting

FL/SB-A/05	Research Operators indicate/propose external content providers with data relevant to the community	Interesting
------------	---	-------------

- Description** The administration tool will give research operators the possibility to indicate which content providers and projects in OpenAIRE contain content relevant to their community. There will also be the possibility to indicate a subset of OpenAIRE content or of an OpenAIRE content provider, as related to their community. Additionally, we will investigate how to give them the possibility to propose content providers external to OpenAIRE.

Constraints and Assumptions The possibility to indicate which content providers and projects in OpenAIRE are related to a community will be achieved through the Community API provided by CNR. The enhancement of the OpenAIRE content with this information will be provided as an offline procedure, during the aggregation phase, where all the aggregated records will be enhanced with the community information.

The screenshot shows the 'Administration Dashboard' for 'Marine Environmental Science'. It includes a search bar for 'community projects', a 'MISSING PROJECT?' button, and a table of projects. The table has columns for PROJECT, GRANT ID, FUNDER, and ACTION. The projects listed include:

PROJECT	GRANT ID	FUNDER	ACTION
Multi-Sensor Offshore Safety system	605973	EC	X
30-year re-analysis of CARBON fluxES and pools over Europe and the Globe	242355	EC	X
3D Full-Waveform Inversion on seismic data at the East Pacific Rise	655083	EC	X
65 Years Together	265718	EC	X
Development and pre-operational validation of the "Ocean Monitoring and Forecasting" component of the future GMES Marine Core Service	218812	EC	X
A collaborative project aimed at developing a GMES-service for monitoring and forecasting subsidence hazards in coastal areas around Europe	242332	EC	X
A Compact Dynamic Positioning System of General Purpose for Marine Units, Crafts and Ships	650473	EC	X
A compact, unmanned, renewables-powered and self-sufficient vessel able to pick up marine litter and to treat it on board for volume reduction and energy recovery	717863	EC	X
A computational study of the interaction between nanoplastic and model biological membranes	618550	EC	X
A coupled ice sheet ocean model for calibrated prediction of the future contribution to sea level change from the Pine Island Glacier, Antarctica	499735	EC	X

Figure 11 - Administration view of community projects

Search projects

MANAGE PROJECTS

The screenshot shows the 'Administration Dashboard' for 'Marine Environmental Science'. At the top, there is a search bar for projects and a 'MANAGE PROJECTS' button. Below the search bar, there is a list of projects. Each project entry includes a title, start and end years, and the organization. A green 'ADD' button is visible next to several project entries, indicating the process of adding projects to the system.

Figure 12 - Administration form for adding projects

FS/SB-A/02	Share searchable subsets between different communities	Important
FL/SB-A/06	Research Operators indicate other communities whose content/scientific products can be shared	Important
FL/SB-A/07	Research Operators indicate a subset of other communities' content/scientific products which can be shared	Interesting

- **Description** The administration tool will give research operators the possibility to indicate whether the searchable content of different communities (as a whole or a subset of it) is also of interest to their community.
- **Constraints and Assumptions** The Research Community Profile will express inheritance of the community categories and contexts.

2.1.3 LINK COMMUNITY CONTENT

FS/CL/01	Allow implicit linking of scientific products to a community	Mandatory
FL/CL/01	When claiming, researchers will be prompted with their community-specific categories.	Mandatory

- **Description** When claiming, i.e. when linking scientific products with other OpenAIRE Connect entities, researcher will be able to indicate which community category they would like to link their research products with.
- **Constraints and Assumptions** The hierarchy of community categories and contexts to be provided by community operators.

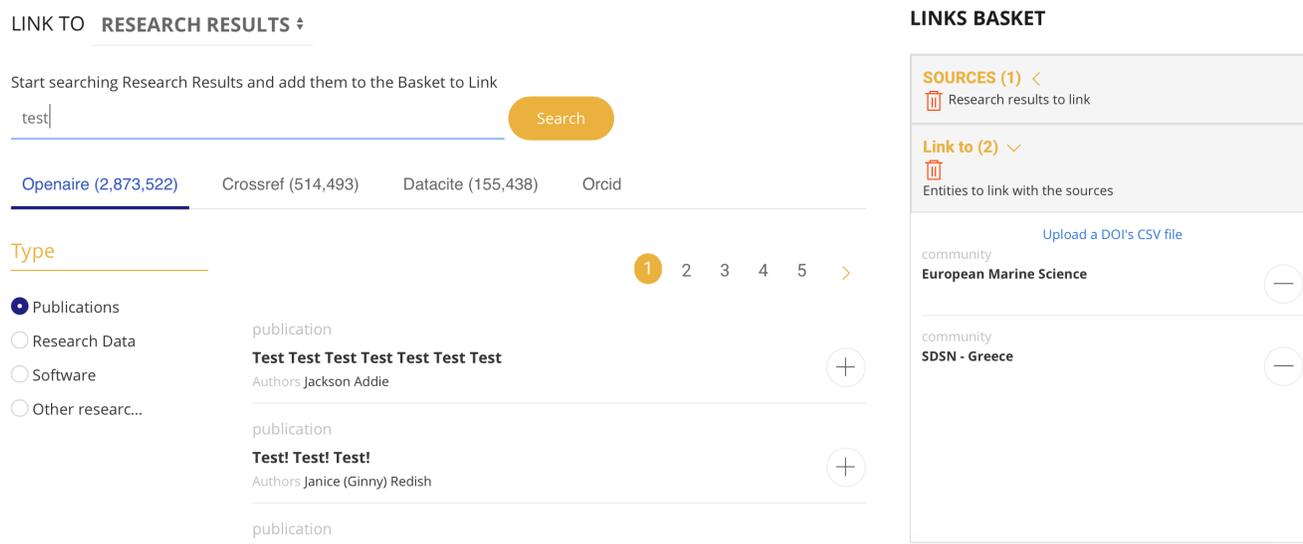


Figure 13 - Part of linking functionality

FS/CL-A/01	Curate and manage links of scientific products to a community	Mandatory
FL/CL-A/01	Research operators have access to all the community links	Mandatory
FL/CL-A/02	Research operators filter all the community links	Mandatory
FL/CL-A/03	Research operators will be able to mark community links as invalid	Mandatory
FL/CL-A/04	Research operators will receive an e-mail notification when a new link is created related to their community.	Important

- **Description** The research operators will be able to view all community claims and mark them as invalid (if applicable). For better visualization of the claims, filters will be available (e.g. by date, category, etc.). For better supervision of links, research operators will receive e-mail notifications when a new community-related link is created.

- **Constraints and Assumptions** Claims Service will support filtering of all the available links. Claims service will also be enhanced by a “marking” functionality that will allow research operators to mark links as invalid (if applicable).

Administration Dashboard

Claims Administrator

[Add new](#)

Filter By:
 Search for keywords in titles ...

Project
 Publication
 Research Data
 Software
 Community

Show 10 Showing 1 to 10 of 2636 claims 1 2 3 4 5 >

<input type="checkbox"/>	RESEARCH RESULT	LINK TO	CLAIMED BY	CLAIMED DATE
<input type="checkbox"/>	ABS-Scan: F1000Research/ABS-Scan	EGI	argirok_1@hotmail.com	Nov 9, 2017 4:49:37 PM
<input type="checkbox"/>	Acta Synodi Nationalis, in nomine Domini nostri Iesu Christi, auctoritate illvstr. et praepotentvm DD. Ordinvm Generalivm Foederati Belgii Provinciarvm, Dordrecht habitae anno MDCXVIII et MDCXIX : accedunt plenissima, de quinque articulis, theologorum iudicia	EGI> EGI classification scheme> Natural Sciences> Mathematics> Pure Mathematics	nataliamanola@gmail.com	Jul 31, 2017 6:22:37 PM
<input type="checkbox"/>	Acta Synodi Nationalis, in nomine Domini nostri Iesu Christi, auctoritate illvstr. et praepotentvm DD. Ordinvm Generalivm Foederati Belgii Provinciarvm, Dordrecht habitae anno MDCXVIII et MDCXIX : accedunt plenissima, de quinque articulis, theologorum iudicia	EGI> EGI classification scheme> Natural Sciences> Earth sciences> Atmospheric science	nataliamanola@gmail.com	Jul 31, 2017 6:22:37 PM
<input type="checkbox"/>	Acta Synodi Nationalis, in nomine Domini nostri Iesu Christi, auctoritate illvstr. et praepotentvm DD. Ordinvm Generalivm Foederati Belgii Provinciarvm, Dordrecht habitae anno MDCXVIII et MDCXIX : accedunt plenissima, de quinque articulis, theologorum iudicia	EGI> EGI classification scheme> Natural Sciences> Mathematics> Applied Mathematics	nataliamanola@gmail.com	Jul 31, 2017 6:22:35 PM

Figure 14 - Administration of claims

2.1.4 DEPOSIT COMMUNITY CONTENT

FS/DP/01	Deposit of research products	Important
FL/DP/01	Everyone uploads their research community products in Zenodo.	Important
FL/DP/02	Everyone uploads their research community products in other repositories than Zenodo.	Interesting

- **Description** All users will be able to deposit research community products to Zenodo seamlessly from the Research Community Dashboard. This functionality could be opened to other repositories.
- **Constraints and Assumptions** Zenodo will provide deposition APIs. The Research Community Dashboard and Zenodo will share community information. We will also investigate if repositories that are used by the communities offer APIs that could be integrated.

FS/DP/02	Search for available repositories to deposit	Important
FL/DP/03	Everyone who does not want to deposit in Zenodo can search for other repositories.	Important

Environment and Economy Home Dashboard Search Monitor Share Link

Deposit Publications

See if your institution has a repository

Organization name

Or locate repository on map

Datasource type

- journal
- projects
- unknown
- institutional
- thematic
- journals
- entityregistry

Compatibility

- OpenAIRE Basic (DRIVER OA)
- under validation
- proprietary
- OpenAIRE 3.0 (OA, funding)
- not available
- OpenAIRE 2.0+ (DRIVER OA, EC funding)
- OpenAIRE 2.0 (EC funding)

Country

[select all] none

all countries selected

- AF
- AL
- AM
- AR
- AT
- AU

Figure 15 - Search for available repositories

2.1.5 PROVIDE MINING RULES

FS/MN-A/01	Configure Mining Algorithms	Mandatory
FL/MN-A/01	Research operators will be able to configure mining algorithms	Mandatory

- Description** Research operators will be able to configure mining algorithms. The purpose of these algorithms is to identify links from literature to research communities. The administration tool allows users to configure and customize mining algorithms and run them on their test datasets.
- Constraints and Assumptions** We will provide an interactive system where the users will be able to configure the algorithms, run them on their datasets, examine and evaluate the results and reconfigure if necessary. The reader is referred to D4.3 “Configurable mining algorithms: specification and release plan” for more information.

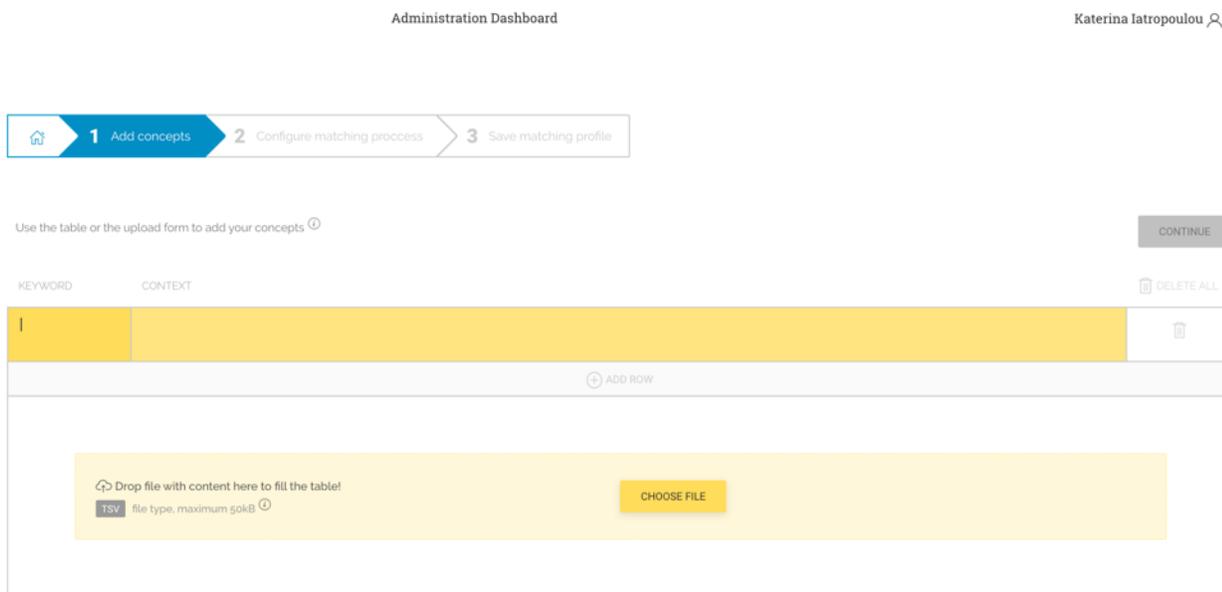


Figure 16 - Part of define mining rules admin functionality

2.1.6 USER AUTHENTICATION

FS/USM/01	Register for the Research Community Dashboard	Mandatory
FL/USM/01	Everyone can register for the Research Community Dashboard	Mandatory

- **Description** All users will be able to register for the Research Community Dashboard.
- **Constraints and Assumptions** An OpenAIRE/OpenAIRE-Connect Identity Provider (IdP) will be available for user registration.

Figure 17 - Registration form

FS/USM/02	Third party sing-in into the Research Community Dashboard	Important
FL/USM/02	Everyone can sign-in with their social networks accounts	Important
FL/USM/03	Everyone can sign-in with their eduGAIN account	Important

- **Description** Everyone will be able to login with the credentials they have in the research/education organization they are affiliated with. This is provided by eduGAIN². Users should be able to login with third party accounts’ credentials. More precisely they should be able to login using credentials from social networks and communities (Google+, ORCID, Facebook).

² https://www.geant.org/Services/Trust_identity_and_security/eduGAIN

- **Constraints and Assumptions** For the third party and the eduGAIN login, an authentication and authorization proxy will be used that is developed by GRnet³. For a successful login it is important that a minimum user information will be provided by third parties (e.g. an e-mail).

FS/USM/03	Login with OpenAIRE account in Research Community Dashboard	Important
FL/USM/04	Everyone can sign-in with their OpenAIRE account	Important

- **Description** Everyone will be able to login with the account they might already have in OpenAIRE.
- **Constraints and Assumptions** An OpenAIRE/OpenAIRE-Connect Identity Provider (IdP) will be available for user authentication.

FS/USM/04	Use OpenAIRE SSO service in Research Community Dashboard	Important
FL/USM/05	Everyone can use the account they already use in OpenAIRE	Important

- **Description** Everyone who is already be using the OpenAIRE SSO service will be able to login to OpenAIRE-Connect, without any need to create new account.
- **Constraints and Assumptions** An OpenAIRE SSO Service will be provided. This is developed by GRnet and it is already available in BETA version at <https://aai.openaire.eu/oidc>.

³ <https://grnet.gr/en/>

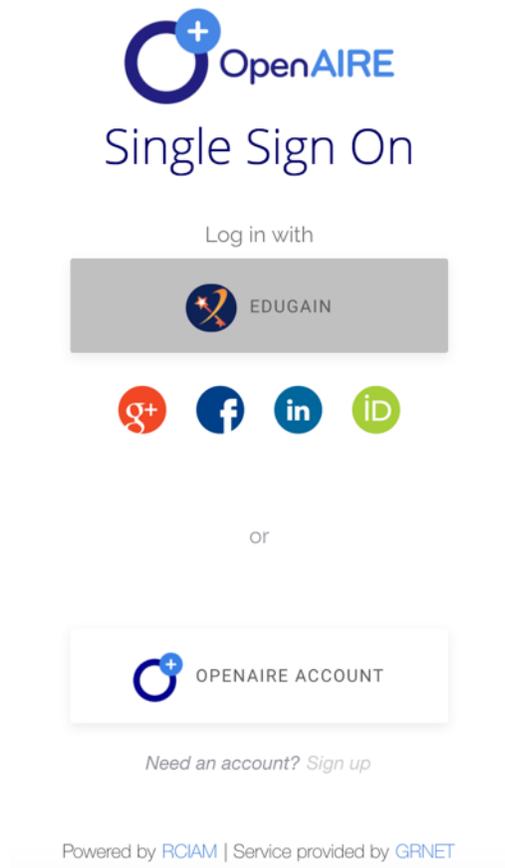


Figure 18 - OpenAIRE SSO service initial screen (eduGain, third-party and OpenAIRE login available)

2.1.1.7 USER FUNCTIONALITIES

FS/USM/05	Send invitation to new users outside the Research Community Dashboard	Important
FL/USM/06	Everyone can invite new users to visit the Research Community Dashboard	Important

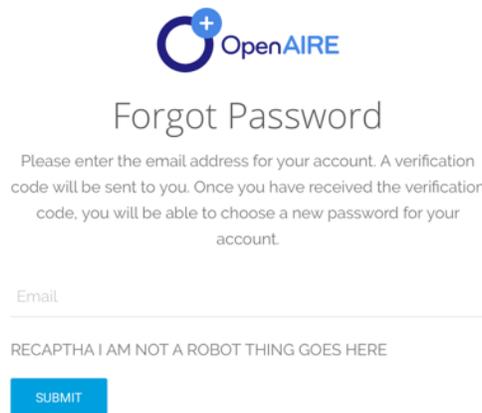
- **Description** Every user will be able to invite new users to visit the Research Community Dashboard, through an e-mail invitation.
- **Constraints and Assumptions** The functionality of automatic creation and sent of an e-mail invitation will be available.

2.1.1.8 USER AUTHORIZATION & PROFILE

FS/USM/05	Manage user profile	Mandatory
-----------	---------------------	-----------

FL/USM/06	Everyone can change or reset their passwords	Mandatory
FL/USM/07	Everyone can add additional information to their profile	Mandatory
FL/USM/08	Everyone can subscribe/unsubscribe to one or more communities	Mandatory
FL/USM/10	Everyone can request for additional privileges	Mandatory

- **Description** Apart from the reset and forget your password functionalities, users will be able to add additional information about them (e.g. affiliation information), subscribe to communities and ask additional privileges for the communities they are subscribed to.
- **Constraints and Assumptions** An OpenAIRE/OpenAIRE-Connect Identity Provider (IdP) will be available for editing the user profile. The different privileges of users will be implemented by assigning to each user different roles.





Forgot Password

Please enter the email address for your account. A verification code will be sent to you. Once you have received the verification code, you will be able to choose a new password for your account.

Email

RECAPTCHA I AM NOT A ROBOT THING GOES HERE

Figure 19 - Forgot password form

FS/USM-A/01	Manage Community Users	Mandatory
FL/USM-A/01	Research operators have access to the subscribed users of their community	Mandatory
FL/USM-A/02	Research operators can assign the research operator role to other users	Mandatory

FL/USM-A/03	Research operators will be able to invite other users to be research operators of their community	Important
FL/USM-A/04	Research operators will receive an e-mail notification when the list of research operators of their community changes.	Important
FL/USM-A/05	Research operators will be able to invite new users to their community	Important

- Description** Research operators will be able to manage the users of their community. They will be able to view them, assign them roles and send invitations to either new simple users or to new research operators. More specifically, when new research operators are added in a community, the already existing research operators of the community will be automatically notified through an e-mail.
- Constraints and Assumptions** The authentication and authorization proxy will support roles.

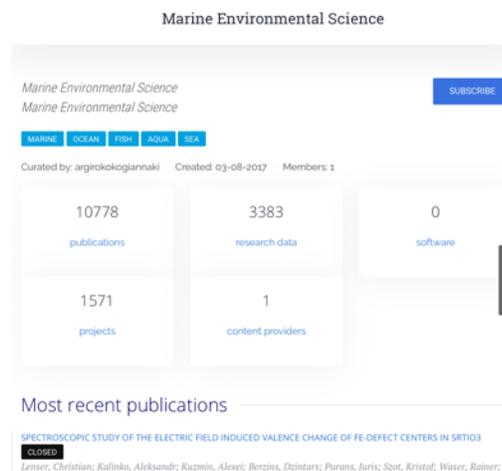


Figure 20 - Subscribe button for the Marine Environment Science

Figure 21 - Addition of managers in community (marked in square)

2.1.9 SELECT STATISTICS

FS/MT/01	View statistics relevant to a community	Mandatory
FL/MT/01	Everyone have access to statistics (numbers and charts) of a community.	Mandatory

- **Description** For each community, statistics (numbers and charts) will be available in two places: the dashboard page of a community and the statistics dedicated page (“Monitor” page) of a community. For example, there could be pie charts presenting how many “open access”, “closed access”, “embargoed”, etc. research products a community has; timelines of how many research products there are through the years; column charts with the number of research products per project or per content provider and much more.
- **Constraints and Assumptions** Embeddable charts will be available.

Most recent statistics

Publications

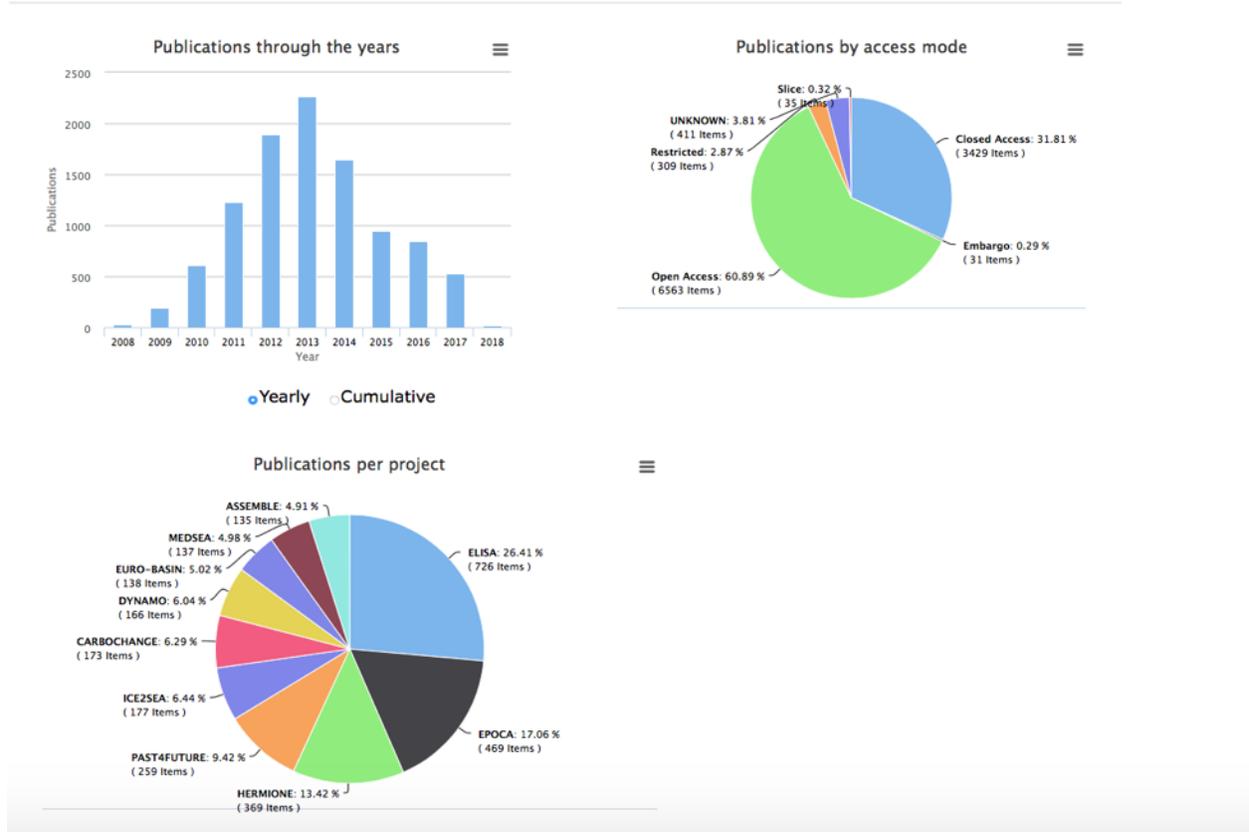


Figure 22 - Statistics view in community dashboard

Publications statistics

10778 PUBLICATIONS FROM 2697 PROJECTS.

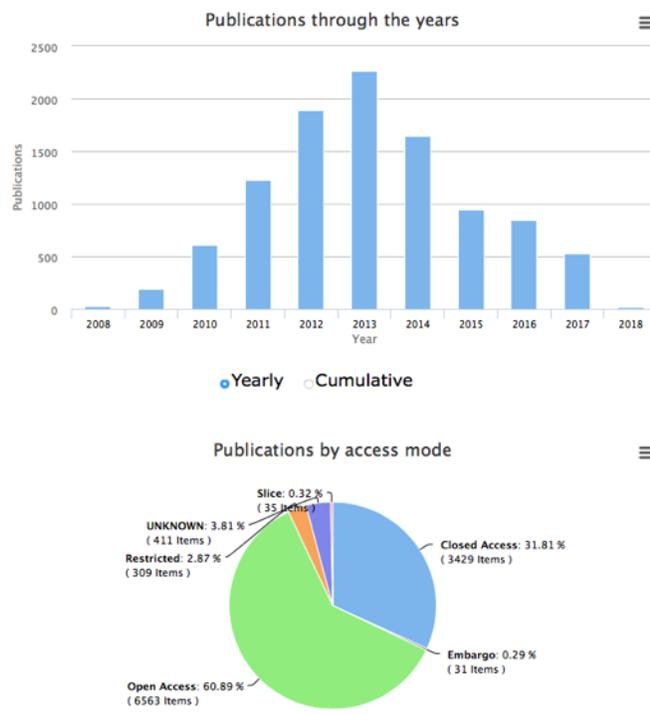


Figure 23 - Statistics view in monitor page

FS/MT-A/01	Define statistic charts relevant to a community	Mandatory
FL/MT-A/01	Research operators indicate which statistics (numbers and charts) will be available for their community	Mandatory
FL/MT-A/02	Research operators create/suggest charts to be visible in the Research Community Dashboard	Interesting

- **Description** Research operators will be able to indicate which statistics (charts & numbers) will be available in the Research Community Dashboard, i.e. in the dashboard page of their community and in the statistics dedicated page (“Monitor” page) of their community. These charts will be selected from a predefined list of charts. The possibility to suggest or even create

statistics that the research operator would like to have available for the community in the Research Community Dashboard will be examined.

- **Constraints and Assumptions** Embeddable charts will be available.

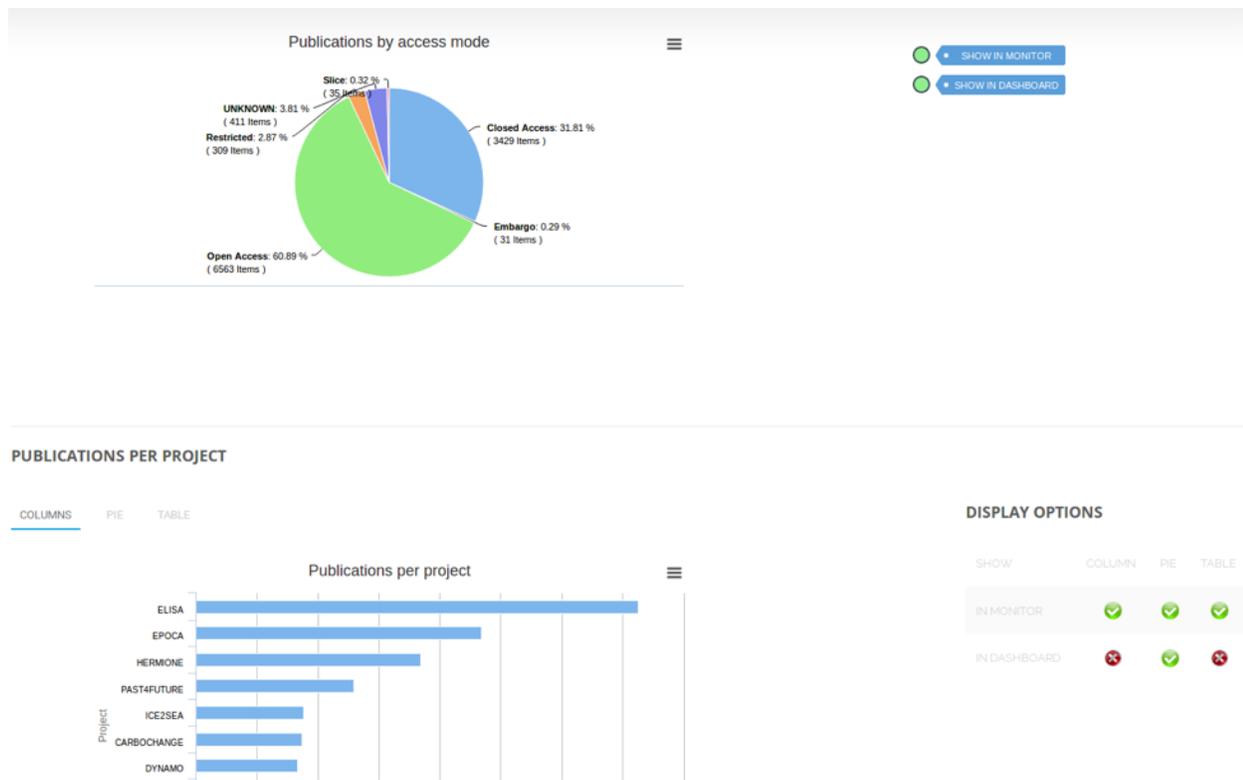


Figure 24 - administration panel for statistics

2.1.10 CONFIGURE COMMUNITY DASHBOARD

FS/PT/01	Configure the community dashboard	Mandatory
FL/PT/01	Research operators adds the community logo	Mandatory
FL/PT/02	Research operators change the fonts and colours of the pages	Important
FL/PT/03	Research operators add help texts in the Community Dashboard pages	Important
FL/PT/04	Research operators active/deactivate pages	Important
FL/PT/05	Research operators upload images to highlight different sections of the dashboard	Interesting

- **Constraints and Assumptions** The Community Research Dashboard portal will be configurable in a way that will allow a dynamic loading of both presentation and content aspects. If images are to be uploaded more disk space should be provided to each community in order to store them.

3 SYSTEM ARCHITECTURE

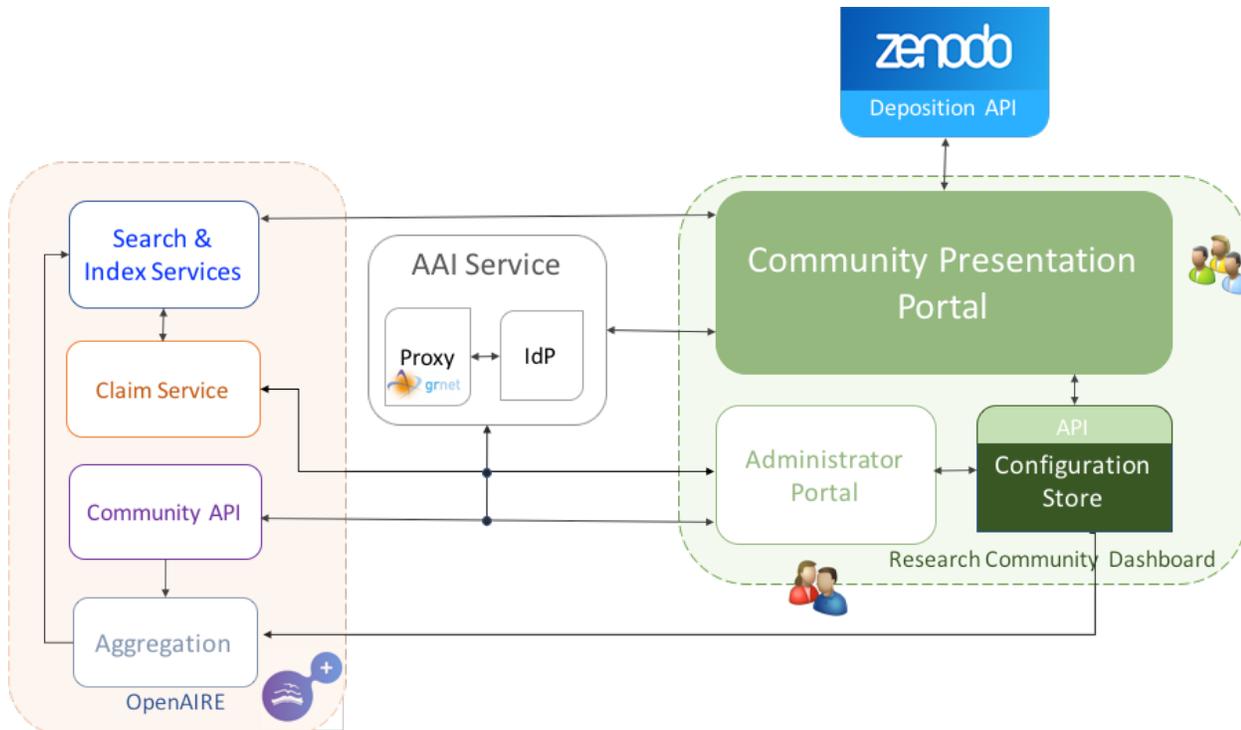


Figure 27 - System Architecture

The **Community Presentation Portal** is the core part of the Research Community Dashboard that will be accessible to all community users. It will be a web application, developed in Angular2, that will offer a portal where all the functionalities that allow users to discover, access and enhance the community's content will be available.

For the configuration of the Community Presentation Portal, each community will be provided with an administration tool. This administration tool will also be an Angular2 web application with a user interface, the **Administrator Portal**, accessible only to research operators. The research operators will be offered, through the **Administration Portal**, all the administrator functionalities.

For the storage of the community specific preferences, that are related with the configuration of the Community Presentation Portal (look and feel, active pages, fonts, help texts etc.) the **Configuration Store** will be provided. The Administration Portal and the Presentation Portal will share the configuration information through a REST API that will expose the contents of the Configuration Store. This store is a Mongo DB⁴ database.

⁴ <https://www.mongodb.com>

The community specific information, i.e. the metadata of each community (name, description etc.) and the OpenAIRE entities that are related to a community, will be stored and retrieved through the **Community API**. Additionally, through the community API the community information will be made available to the OpenAIRE system and more specifically to the **Aggregation Service** and the **Index and Search Services**. In that way, the OpenAIRE Information Space will be enhanced with the community specific information.

For researchers to be able to upload or acknowledge a research product linked to a community, the Deposition and the Claiming mechanisms will be available. More specifically, for deposits, the Research Community Dashboard will use the **Zenodo Upload API**⁵ to make direct requests for upload and publishing of files. For the claiming process, the Research Community Dashboard will use the **Claim Service REST API**, to link research results and communities.

The Claim Service will also be responsible for exposing to the Administrator portal, through its API, the research products linked with communities. In that way, the research operators will be able to curate and manage the links that are related to their community.

OpenAIRE/OpenAIRE-Connect IdP will be available for users to be registered in the OpenAIRE/OpenAIRE-Connect system, edit their profile and reset their password. The IdP will be in Shibboleth⁶, a single sign-on (SSO) system. It allows users to sign in using just one identity to various systems run by federations of different organizations or institutions. The OpenAIRE/OpenAIRE-Connect IdP will be also integrated in the **AAI Proxy** implemented by GRNet. This proxy will allow the SSO with third parties such as social networks and communities such as ORCID, and GEANT's eduGain inter-federation service. The Proxy will interact with the Research Community Dashboard platform following the OpenID Connect standard⁷, an authentication layer on top of OAuth 2.0⁸.

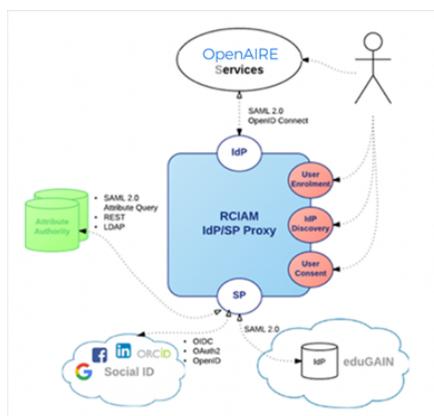


Figure 28 - AAI proxy architecture (by GRNet)

⁵ <http://developers.zenodo.org/#quickstart-upload>

⁶ <https://shibboleth.net>

⁷ <http://openid.net/connect/>

⁸ <https://oauth.net/2/>

4 RELEASE PLAN

The first BETA release of the Research Community Dashboard is planned to be realized by M16. For this first phase the available functionalities will be:

- Search and browse overall OpenAIRE and by community content
- Search and browse filtering for the scientific products made available by M12
- Search and browse results downloadable in CSV format
- Downloadable CSV community reports
- Basic linking to a community
- Basic user registration and subscription
- OpenAIRE SSO integration
- Basic layout configuration (logo, simple texts)
- Search for repositories to deposit
- Mining configuration
- Basic curation of community links (delete)
- Selection of statistics charts to appear

For the second BETA release by M23, the comments received during the first testing period will be integrated for all the above mentioned functionalities. In addition,

- Search and browse filtering for the scientific products made available by M20
- Organization information pages
- Advanced Curation of community links
- Management of community users
- Depositing in Zenodo

For the M27 release, the comments received during the second testing period will be integrated. Based on the testing results and the suggested recommendations available in D7.3 “Assessment of the services and recommendations v2”⁹, we will invest in the improvement of the already provided functions of the Research Community Dashboard, rather than the addition of new features. Special care will be given to the following pages and functionalities

- The central pages of the Research Community Dashboard, where all the communities are searchable and the concept of the RCD is explained, will be updated;
- The first page of each community will be restructured to give a better overview of the community’s content;
- The linking functionality will be entirely redesigned;

By M30 the final comments will be integrated together with the following improvements:

- The share functionality will be redesigned in a way that:

⁹ <https://support.d4science.org/projects/openaire-connect-wiki/wiki/D73>

- the discovery of community related repositories will be tailored to each community needs;
- Zenodo communities will be made more clear
- Additional community related information will be added (eg. Organizations & Curators)

4.1 PROCESS

- **Regular deployment:** The regular deployment of the platform is always scheduled together with ICM and the process starts 2 or 3 months before the actual release. This helps us identify new system requirements and deployment issues that might appear in a BETA/PRODUCTION environment, due to the various services running.
- **Hotfix deployment:** Hotfixes will be made immediately and deployed depending on urgency.