



J R C T E C H N I C A L R E P O R T S

ECMap Database

Version 3

Datasets and Map management
User Manual

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1. Introduction

The EC Maps Website is intended to support the FAIRMODE-WG1 initiative to collect and assemble modelled air quality maps into an EU wide 'Composite Map'. The website can be accessed through the DELTA benchmarking website at <http://aqm.jrc.ec.europa.eu/>. Through this website users can register to upload their datasets. Datasets have their own format depending on the data context. The formats for emission and concentration data are described in specific user guides. Regarding maps for the composite mapping exercise, each map file (.asc or .tiff) must relate to one pollutant only. When the proposed dataset relates to more than one pollutant, users are kindly requested to keep the maps as separate files and upload all the ASCII or GeoTIFF files separately into the database.

2. How to register and manage your profile

2.1 Registration

Before accessing the database user must register in the JRC AQM (Air Quality Modeling) website at <http://aqm.jrc.ec.europa.eu/>. After filling in the registration form and submitting it, users are approved by a board of experts.

In the application form, users must fill in their details and check all the boxes with all the activities they are interested in participating. In particular users must tick both the "*I am a member of FAIRMODE*" and the "*ECMap - European Composite Map Database*" boxes (Figure 2.1).



Figure 2.1 shows a registration form with two main sections. The first section, "I am a member of FAIRMODE", contains a checked checkbox and a link to a help page. The second section, "Select your desired options", contains four checkboxes: "Δ - Assessment", "Δ - Emission", "ECMap - European Composite Map Database" (which is checked), and "SHERPA - Screening for High Emission Reduction Potential on Air".

<input checked="" type="checkbox"/> I am a member of FAIRMODE
Select your desired options
<input type="checkbox"/> Δ - Assessment
<input type="checkbox"/> Δ - Emission
<input checked="" type="checkbox"/> ECMap - European Composite Map Database
<input type="checkbox"/> SHERPA - Screening for High Emission Reduction Potential on Air

Figure 2.1

2.2 Managing your profile

Participants already registered but who have not yet participated in the composite mapping exercise must send a request before they can upload their datasets (assessment/concentrations or emissions). To send a request tick the “European Composite Map Database” box under the section “Software & Tools” in the “User profile” page and press the send button (Figure 2.2).

- Δ - Assessment & Planning (A&P)
- Emission
- SHERPA - Screening for High Emission Reduction Potential on Air
-  European Composite Map Database



Image verification code:

 **Send**

Figure 2.2

New users can register following the procedure described above in paragraph 2.1.

2.3 How to recover passwords

From 15th of September 2022 the AQM platform uses the EU Login to authenticate users. To create a new EU Login account or to change your personal details or password, please follow the procedures described in the [EU Login Tutorial](#).

3. Uploading datasets

Approved users can access the ECMAP website at
<http://fairmode.jrc.ec.europa.eu/ecmaps/>

Before uploading participants must access the website with the credentials (username and password) defined during the registration procedure described in paragraph 2.

To access the website press the button “My datasets” or “Login” in the top right corner of the home page of the EC Maps website (Figure 3.1).

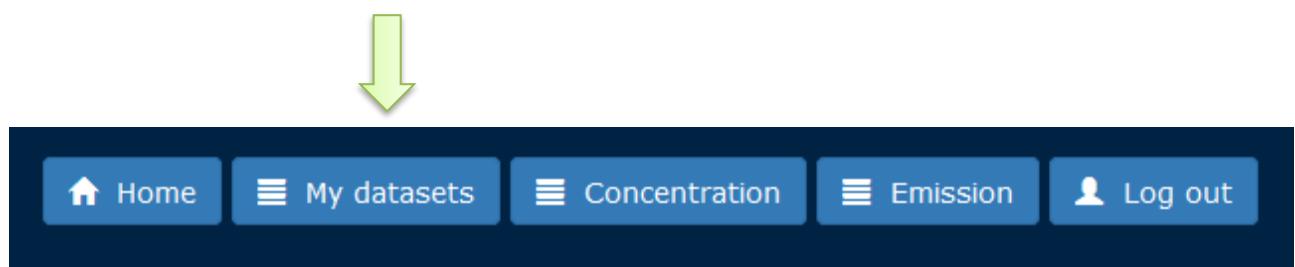
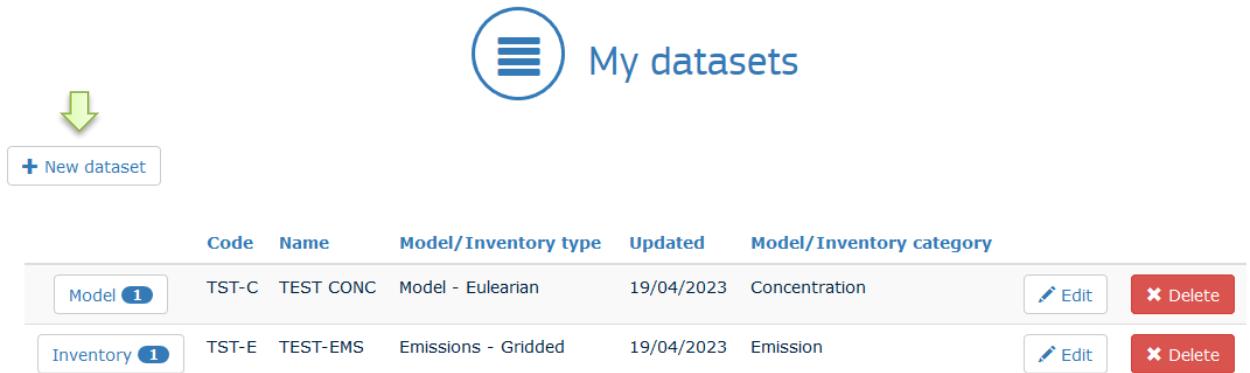


Figure 3.1

3.1 Datasets

After logging in, users are able to manage their own models/inventories (Figure 3.2)



	Code	Name	Model/Inventory type	Updated	Model/Inventory category		
Model 1	TST-C	TEST CONC	Model - Eulerian	19/04/2023	Concentration	 Edit	 Delete
Inventory 1	TST-E	TEST-EMS	Emissions - Gridded	19/04/2023	Emission	 Edit	 Delete

Figure 3.2

By pressing the button “New dataset”, users can add one or more model/inventory to their personal list (Figure 3.2). A dropdown list allows to choose between “Concentration” and “Emission” depending on the type of data that must be uploaded in the database.

The type of models (Eulerian, Gaussian, Lagrangian, etc) makes sense only for concentrations.

When adding a dataset to the database, users must fill in:

- **Model/Inventory Category:** Concentration or Emission models;
- **Code:** a reference label that will be used on the map viewer to identify the data. The recommended format is institute model where the institute identifies the user and could also be the name of an administrative unit or a university for example. If the resulting label is not specific enough this can be extended to institute model country city keeping in mind that the label should be suitable for use in a legend. The length of the Code must not exceed 16 chars. Abbreviations or acronyms are therefore advised;
- **Name:** name of the model that was used to generate the results;
- **Description (*):** some additional information;
- **Model type:** the type of model used, selected from a drop down list with choice between Eulerian, Gaussian, Lagrangian and Other.

(*) For emissions, please specify if aggregated or gridded (Fig 3.2.1)

New dataset

Model/Inventory Category

Emission

Code

Reference code to your dataset. Meaningful code names (istitute abbreviation or namimng conventions) will help to identify your data on the EC Maps viewer.

Name

For emissions, please specify if aggregated or gridded

Model/Inventory type

Emissions - FUA/City

Save Cancel and return to list

Figure 3.2.1

The dataset is successfully added to the database when all mandatory fields are filled in correctly and the button “save” is pressed. Once added to the database the dataset can only be edited or deleted.

3.2 Models/Inventories

Users must add models or inventories to dataset. Model/Inventory contains attributes which describe the files uploaded in the final step. Model/Inventory can be added to a dataset by pressing the button “New Model” or “New Inventory” in the Model/Inventory list.

When adding a new version (Figure 3.4), users are requested to fill in the following information:

- **Pollutant:** selected from a drop down list
- **Output Frequency:** select between daily/hourly and yearly
- **Data Assimilation (*):** select the data assimilation method from a drop down list:

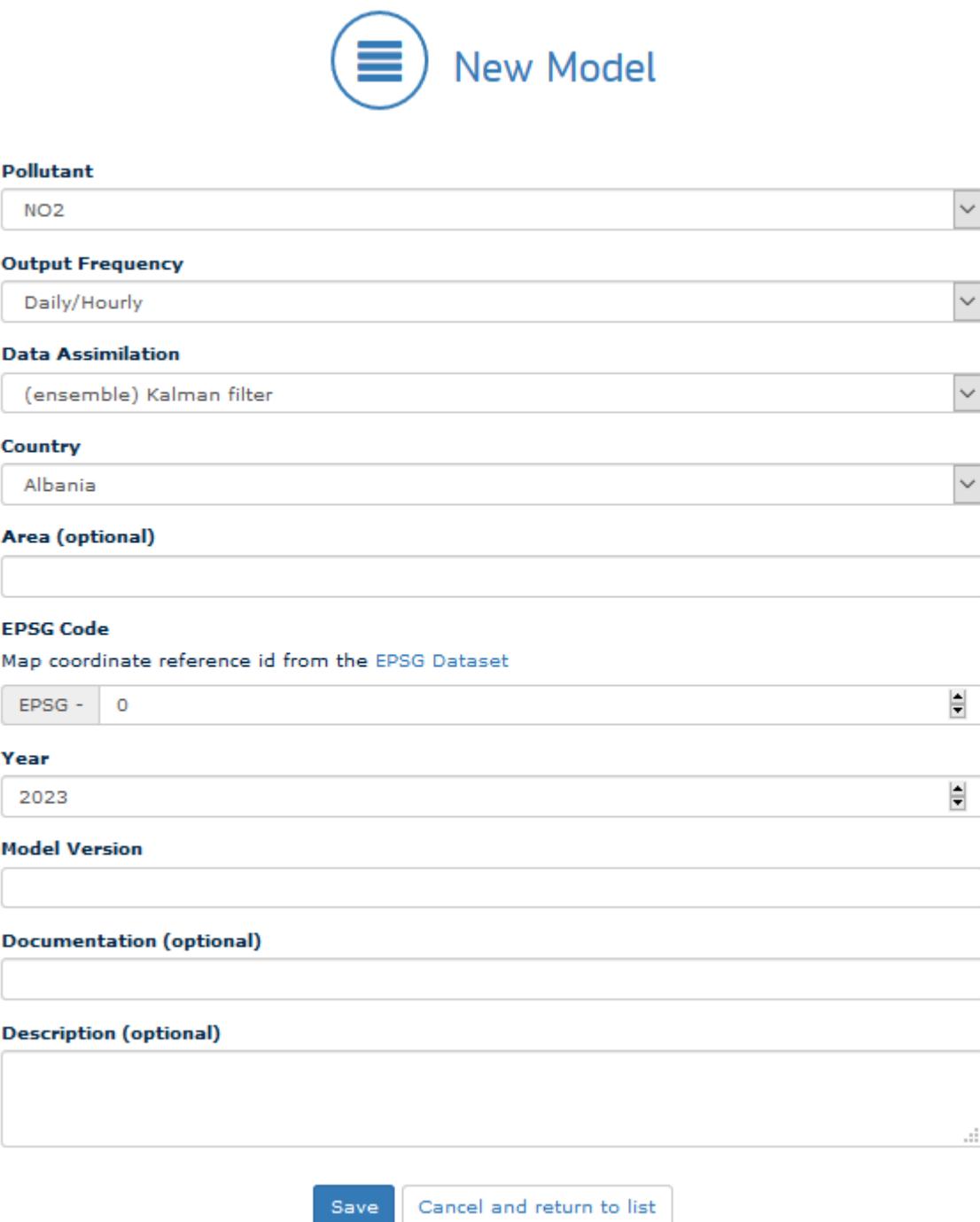
None, 3D-Var data assimilation, 4D-Var data assimilation, Background Measurement values, (residual) Kriging, Linear regression, Interpolation, Optimal interpolation, Successive correction method, Support vector regression (machine), Variation analysis, (ensemble) Kalman filter, others...

- **Country:** country to which the map applies, select from drop down list
- **Area** (optional): name of the region, city, ... to which the data relate. This should be left blank if your data is for the whole country.
- **EPSG Code:** spatial reference code. Through the link (<http://spatialreference.org/ref/epsg/>) next to the entry a list of existing EPSG codes can be consulted
- **Year:** year to which the model run results relate, example 2015 or 2012
- **Version:** version of the model run
- **Documentation:** a web link to the manual or documentation for the model
- **Description** (optional): extra information for the model run such as a reference to a project, main intention for the model run, if the model run was validated, etc.

(*) concentration models only

Versions are saved to the database when the button “Save” is pressed.

Versions can always be edited or deleted (Figure 3.5).



Pollutant
NO2

Output Frequency
Daily/Hourly

Data Assimilation
(ensemble) Kalman filter

Country
Albania

Area (optional)

EPSG Code
Map coordinate reference id from the [EPSG Dataset](#)
EPSG - 0

Year
2023

Model Version

Documentation (optional)

Description (optional)

Save **Cancel and return to list**

Figure 3.4



Model

[Back to datasets](#)

[+ New model](#)

Code	Pollutant	Year	Country	Area	Updated	Category	Actions
Version 0	TST-C_2023_O3_AL	O3	2023	Albania	19/04/2023	Concentration	Details Edit Delete

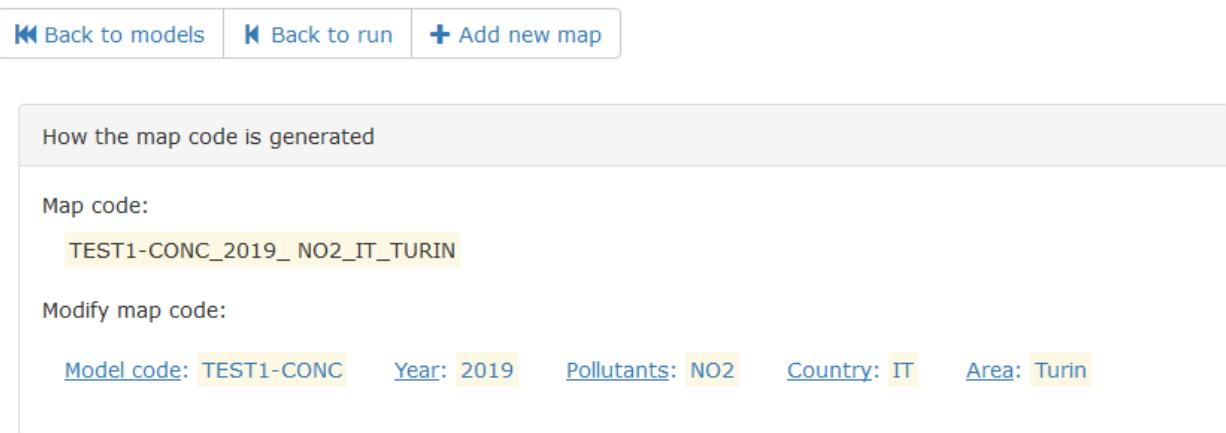
Figure 3.5

3.3 Files and links

The last step consists in uploading files and datasets. This can be done by pressing the button “Version” in the “Model/Inventory” list.

The map code that will be used in the ECMAP Viewer is shown at the top of the page. This code can be easily modified by clicking on the corresponding meta-tag (model code, year, pollutants, country and area) before uploading a new file or setting a link.

To upload a file or to set a link in the database press the button “Add new map” (Figure 3.6)



The screenshot shows a user interface for adding a new map. At the top, there are three buttons: 'Back to models' (with a left arrow icon), 'Back to run' (with a right arrow icon), and 'Add new map' (with a plus icon). Below these buttons is a section titled 'How the map code is generated'. Inside this section, the 'Map code:' field contains the value 'TEST1-CONC_2019_NO2_IT_TURIN'. Below this, a 'Modify map code:' section contains five input fields: 'Model code:' (TEST1-CONC), 'Year:' (2019), 'Pollutants:' (NO2), 'Country:' (IT), and 'Area:' (Turin). The 'Year:', 'Pollutants:', 'Country:', and 'Area:' fields are highlighted with a light orange background.

Figure 3.6 – Uploading files

From version 2.1 of the ECMAP Database there are three ways to store dataset in the database (Figure 3.7):

1. A physical dataset (Map file) (Figure 3.7.a)
2. A link to a public dataset (Map Link) (Figure 3.7.b)
3. A target diagram (Figure 3.7.c)

Select file or link to map data

The [CMAPPING tool](#) should be used to check the concentration maps before these are uploaded to the Composite mapping database. Please, avoid to upload unvalidated data to the database to help us keeping the database consistent.

File or link type

-- Please select --

-- Please select --

Map File

Map Link

Target Diagram

Submit

[Cancel and return to list](#)

Figure 3.7 – Select a resource

Select file or link to map data

The [CMAPPING tool](#) should be used to check the concentration maps before these are uploaded to the Composite mapping database. Please, avoid to upload unvalidated data to the database to help us keeping the database consistent.

File or link type

Map File

[Browse...](#)

[Submit](#)

[Cancel and return to list](#)

Figure 3.7.a – Uploading a map file

Select file or link to map data

The [CMAPPING tool](#) should be used to check the concentration maps before these are uploaded to the Composite mapping database. Please, avoid to upload unvalidated data to the database to help us keeping the database consistent.

File or link type

Map Link

Web Link

<http://test.jrc.eu/file1.asc>

[Submit](#)

[Cancel and return to list](#)

Figure 3.7.b – Setting a public link

Select file or link to map data

The [CMAPPING tool](#) should be used to check the concentration maps before these are uploaded to the Composite mapping database. Please, avoid to upload unvalidated data to the database to help us keeping the database consistent.

File or link type

Target Diagram

[Browse...](#)

[Submit](#)

[Cancel and return to list](#)

Figure 3.7.c – Uploading a target file

The **CMAPPING tool** is used to validate your data. It should be adopted to check the concentration or emission maps before these are uploaded. The [CMapping Tool v1.0.0](#) can be downloaded from the home page of the EC Maps website: <http://fairmode.jrc.ec.europa.eu/ecmaps/>

Your maps and target files are shown in two distinct areas of the page (Figure 3.8).

How the map code is generated

Map code:
TEST1-CONC_2019_NO2_IT_TURIN

Modify map code:
[Model code: TEST1-CONC](#) [Year: 2019](#) [Pollutants: NO2](#) [Country: IT](#) [Area: Turin](#)

Maps files or links

[✖ Delete](#) [TEST1-CONC_2019_NO2_IT_TURIN] [MAP] [773] [⊕ Download](#)
[⊕ Target Diagram](#) [🔍 Details](#)

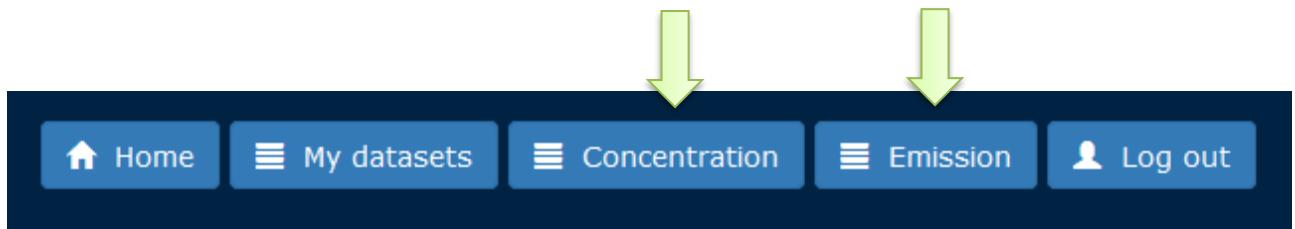
Target Diagram

[✖ Delete](#) [TEST1-CONC_2019_NO2_IT_TURIN] [TG] [774] [⊕ Dowload](#)

Figure 3.8

4. Meta data view

For both concentration and emission maps it's possible to view the metadata provided by all other data providers.



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