



Activating UIP and UIP handbook

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About this document

Work package in charge: WP8 - Coordination and Management

Lead author:

INEDEV / Bastien Caillard

Other contributing authors:

Max Planck Society (MPG) / Max Planck Institute for Meteorology, Nico Caltabiano

Internal reviewer(s):

1st reviewer: Guy Brasseur (MPG)

2nd reviewer: Claire Granier (CNRS)

Contacts: aq-watch@mpimet.mpg.de

Visit us on: www.aq-watch.eu

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1. Abstract /publishable summary

The AQ-WATCH website (<https://www.aq-watch.eu>) has been created to serve as a portal to all activities related to the project. It will be the main point of information for all partners, and also for a wider community. The roles of the website are the following: It will provide the public image of the project and will serve as the basic online point of reference for the different target groups. It will be the project information source that will present the project's objectives, activities, achievements and the new knowledge related to AQ-WATCH topics of interest. It will also serve as a repository of information on various access layers, making available project resources, documentation, dissemination material, publications and deliverables to the general public, to selected target groups and to project partners. As part of the dissemination and exploitation activities of the project, a **User Interface Platform (UIP)** has been developed to periodically provide information on progress and achievements which can be accessed by all potential users. The UIP can be accessed directly via the web address <https://www.aq-watch.eu/uiip>, and will contain a complete description of the toolkit and its modules that AQ-WATCH is developing, and fact sheets and information for the sectors/market segments that may have interest in the products and services developed. The UIP will be constantly updated and will also be used as a platform for user feedback.

2. Conclusion & Results

The project website is up and running since January 2020 and has been reshaped in October 2020 with a new look and feel and modern design. The UIP pages have been setup in February 2021 and will allow users and stakeholders to investigate further about the products and services being developed by AQ-WATCH.

3. Project objectives

This deliverable contributes directly and indirectly to the achievement of specific objectives indicated in section 1.1 of the Description of the Action:

Specific objectives of the project	Contribution of this deliverable?
[1] To design and produce new global and regional air pollution atlases that include the climatological distribution of chemical pollutants complemented by quantities such as the diurnal and seasonal variations, air quality and related health indices, premature mortality exceedance frequency, long-term trends, etc.	No
[2] To develop software packages with the capability to provide more accurate daily forecasts of air quality at the regional scale including tailored high-resolution fire smoke and wind-blown dust forecasts; downscaling of air quality forecasts to 2 km resolution in urban areas.	No
[3] To develop a source apportionment service to mitigate air pollution and hence increase the life expectancy of the population in different regions of the world, with special focus on the role of agricultural sources of air pollution and the potentially important effects of fracking operations.	No
[4] To develop a new tool-box that will be user-friendly and accessible to decision-makers to evaluate the efficiency of proposed mitigation measures in different industrial sectors on the resulting level of air pollutants in three different regions	No

AQ-WATCH Deliverable

of the world. This will establish the basis for their wider adoption and generalization.	
[5] To co-design, co-produce and co-evaluate for the first time prototype products and services with prime users in three regions of the world chosen for their specific level of economic, social and environmental development.	Yes

This deliverable directly contributes to the achievement of specific objectives indicated in the description of the two Work Packages WP7 and WP8.

Objectives of WP7	Relevance in this deliverable?
7.1 Clustering with major EU and international projects and initiatives relevant for the project to guarantee the use of available knowledge (state-of-the-art);	Yes
7.2 Establishing contact with potential international end-users by building a community interested and capable to make the best use of the project results;	Yes
7.3 Providing information and technological briefings to the competent authorities to make them aware of project results;	Yes
7.4 Providing support for standardization activities;	No
7.5 Preparing the AQ-WATCH Plan for Use and Dissemination of Foreground Knowledge;	No
7.6 Develop business cases in the regions of the world of the pilot-cases.	No

Objectives of WP8	Relevance in this deliverable?
8.1 Project management: Facilitating governance and strategic decision-making through project committees, boards, management procedures, and project management tools, performing technical, financial and contract management of the consortium, establishing and maintaining an effective working relationship between AQ-WATCH and the European Commission (EC).	No
8.2 Day-to-day scientific and innovation coordination: Carrying out the overall coordination necessary for reaching the scientific and innovation objectives, and elaborating research risk management.	No
8.3 Data management: Establishing data management linked to the Copernicus system (DIAS) at project level, fostering transparency and the promotion of data and meta-data standards, implementing open access data policies.	No
8.4 Implementing the innovation management, support dissemination and communication activities: Coordinating innovation management and monitoring the IPR relevant issues. Supporting WP6 and WP7 to deliver dedicated communication tools and materials, tailored dissemination and communication activities, and promotion of AQ-WATCH Toolkit and marketable products towards stakeholders and customers in several regions of the world outside Europe.	Yes

4. Detailed report on the deliverable

4.1. Objective, scope and functions of the UIP

4.1.1. Objective

The AQ-WATCH UIP (User Interface Platform) is an important step towards the project objective [5], namely, “to co-design, co-produce and co-evaluate for the first time prototype products and services with prime users in three regions of the world chosen for their specific level of economic, social and environmental development.” The UIP was created in a way to highlight the products and services developed by the project. The UIP’s main objective is defined as a structured means to periodically provide specific information on progress and development which can be accessed by all potential users.

4.1.2. Scope

The long term aim of AQ-WATCH is that the products developed will be used by policymakers, local municipalities, researchers, non-governmental organizations, solar energy providers and many others. The modules have received first feedbacks by the project prime users and have been improved and adapted according to their evaluation. Further dialog and evaluation will improve the conceptual design and usability of the products and services in the future. As the project further develops a range of prototype products/services to help mitigate air pollution and their effects on health and infrastructure, the UIP will enable partners to open dialogue with a wider range of potential users, to better identify their specific needs and to establish if the proposed products/services address their needs. Through the UIP, the capabilities of different modules will be shown, as well as the observational and model data used.

4.1.3. Functions

The UIP will enable interactions that help refine user needs and product capabilities, particularly to stakeholders other than the project prime users. These new stakeholders can be from different market segments or from different regions of the world. To achieve its objective, the UIP is aiming for four outcomes:

- (i) Visibility: Showing the specific features of each module, as well as description of what those modules can offer to specific market segments, the UIP will increase the visibility of the products;
- (ii) Dialogue: Serving as a platform for stakeholders to learn about the products and be in contact with partners and providers of the services;
- (iii) Outreach: Improving knowledge of impacts of air pollution on health and infrastructure by the user community;
- (iv) Feedback: Making easier to provide feedback of products and open to a wider community

4.2. Structure

The UIP pages have been developed under the main AQ-WATCH website, using the same functionalities but with a different menu configuration. The configuration and information available in the UIP will evolve with the development of the products, as well as identification of other users’ needs and new market segments that may be interested in AQ-WATCH products.



Figure 1: User Interface Platform landing page

In its initial configuration, the UIP contains four sections: Modules, Sectors, data and Feedback.

4.2.1. Modules

In the "Modules" section (<https://www.aq-watch.eu/modules>), a full description of each module is available, their functionalities, and geographical coverage. It will also show the value chain in the development of the products as well as the progress and next steps of such development.

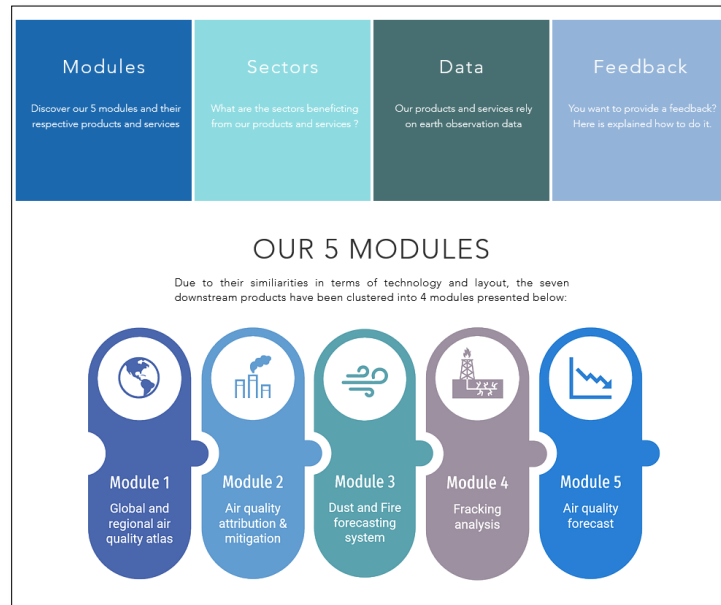


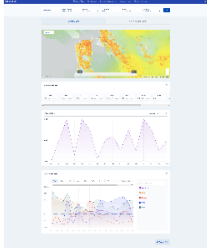
Figure 2: UIP – Modules page

The visitors then access to the detailed presentation of each module providing the following structured information:

- What does this module do? (see Figure 3)
In this part, the visitor is made aware of the final outputs provided by the module and of its core purpose.
- Who is this module designed for? (see Figure 4)
The second part provides information about who the module is made for.
- Geographical coverage (see Figure 5)
The geographical coverage of the 5 modules can differ. In this part, the user is informed about the current available geographical coverage of the module.
- Value-Chain (see Figure 6)
The value-chain shows out the outputs are generated and what are the various steps from the input data to the final results.
- Current progress of the module (see Figure 7)
The last part provides detailed explanation on how to operate the online interface of the module and presents its layout.

Module 1
Module 2
Module 3
Module 4
Module 5

What does this module do ?



Module 1 presents the Global and Regional Air Quality Atlases. It allows users to easily understand the air quality and its change over time in different areas in their country or region. This will help policymakers and local authorities to take informed decisions to improve air quality, provide NGOs with necessary information to act, and grant researchers and students easy access to global and regional air quality data. It includes global and regional atlases of individual air pollutants, graphical and numerical information on the regional climatology of air pollutants based on the Copernicus CAMS model global and regional reanalyses, SILAM and LOTOS-EUROS forecast model results as well as satellite information on AOD and NO₂.

Who this module is designed for?

+

Geographical coverage

+

Value-chain

+

Current progress of the module

+

Figure 3: UIP – Modules page “What does this module do?”

Module 1
Module 2
Module 3
Module 4
Module 5

What does this module do ?

+

Who this module is designed for?

☒ Public authorities
☐ Municipalities
☒ Research centres
☐ Impacted industries (e.g.: solar plant and electricity grid operators, health industry...)
☒ Emitting Industries (e.g.: Fracking)
☐ Emergency services
☐ Airports and flight control authorities
☐ Citizens

Geographical coverage

+

Value-chain

+

Current progress of the module

+

Figure 4: UIP – Modules page “Who this module is designed for?”

Module 1	Module 2	Module 3	Module 4	Module 5	
What does this module do ?					+
Who this module is designed for?					+
Geographical coverage					-
<p>All countries of the world in addition to states/provinces for the largest countries (USA, Canada, Russia, China and India) for the global atlas.</p> <p>For the regional atlas, Santiago de Chile (Chile), CONUS area (USA) will be available and other regions may be developed afterwards depending on the demand.</p>					
Value-chain					+
Current progress of the module					+

Figure 5: UIP – Modules page “Geographical coverage”

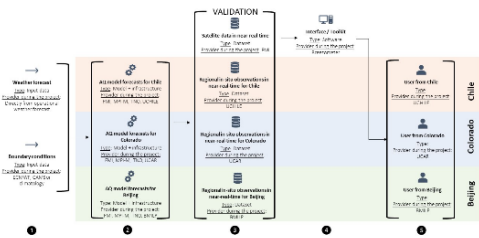
<p>What does this module do ?</p>		+
<p>Who this module is designed for?</p>		+
<p>Geographical coverage</p>		+
<p>Value-chain</p> <div>  <p>Click on the image to enlarge it.</p> </div>		-
<p>Current progress of the module</p>		+

Figure 6: UIP – Modules page “Value-chain”

Module 1
Module 2
Module 3
Module 4
Module 5

What does this module do ?
+

Who this module is designed for?
+

Geographical coverage
+

Value-chain
+

Current progress of the module
-

The layout of Module 1 is shown below.

In the topmost part **(A)**, the user can choose between the Global and the Regional Atlas, select the country and target city or region, the data type and the time frame and resolution. The atlases both consist of a map **(B)** with zooming capability for each of the pollutants, a time series and statistical analysis tools. In the Global Atlas, air quality maps of the entire world at 80 km grid resolution are shown based on historical Copernicus Atmosphere Monitoring Service (CAMS) reanalysis data, NO₂ column integrated data from the satellite-based Ozone Monitoring Instrument (OMI) and aerosol optical depth (AOD) from the Moderate Resolution Imaging Spectroradiometer (MODIS).

The Regional Atlas allows the user to understand and research historical, current, and forecasted air pollutants in a specific area. It is based on modelling data from CAMS reanalysis, WRF-Chem, SILAM and LOTOS-EUROS forecast data, and satellite-based observations of NO₂ from OMI and the TROPOspheric Monitoring Instrument (TROPOMI) and AOD from MODIS.

Below the map **(C)**, the user can choose between a statistical summary at country level or from a manually selected area. Depending on the selection, in **(D)** a summary (mean, standard deviation and total relative change within the chosen time frame) and in **(E)** a time series for each pollutant are shown below, averaged either for the selected country or the area selected on the map.

If the Country Data tab was selected above, the next plot allows the user to relate air quality data to demographic data over time for different pollutants and different demographic variables such as gross domestic product or population density for the selected country **(F)**.

The last plot **(G)** sets the selected country in relation to other countries. A time series of the relative change of each pollutant since the beginning of the chosen time frame is shown. On the right side, an overview of the total change since the beginning of the chosen time frame until the end is shown for the selected country and a list of other countries.

If the Surface Data tab was chosen, polygons can be drawn on the map in **(B)**. The Pollutant Summary graph **(D)** below shows then the overview of all pollutants for the selected area (mean, standard deviation and total relative change within the chosen time frame), the Pollutants Time Series graph **(E)** shows the absolute levels of each pollutant with time in the selected area and the Pollutants Change over Time graph **(G)** shows the relative levels with time for each pollutant in the selected area.

The data can be exported by clicking on the Export Data button **(H)** on the bottom of the page.

Figure 7: UIP – Modules page “Current progress”

4.2.2. Sectors

In the “Sectors” section (<https://www.aq-watch.eu/sectors>), there is specific explanation for specific market segments on how the products can help and support their activities.

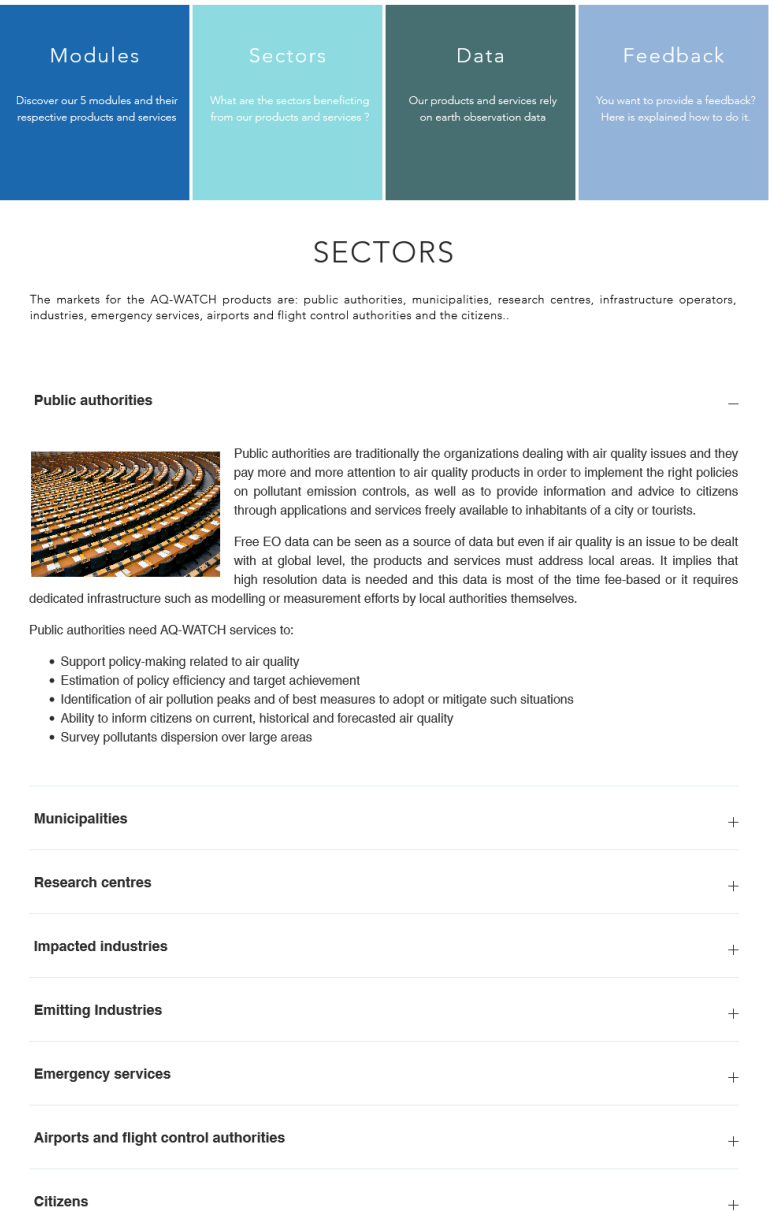


Figure 8: UIP – Sectors page

4.2.3. Data

In the “Data” section (<https://www.aq-watch.eu/dataandtools>), there is a full description of the satellite, in situ and model datasets used in the products.



Data and models

AQ-WATCH products use a variety of satellites and in situ datasets and models. Each of them is detailed below.

CAMS data	+
Satellite data	+
In situ data	+
Models	—

The services will build on Copernicus products but provide much higher resolutions compared to the ~44 km (0.4°) of CAMS-global products. Model output will be in NetCDF-CF compliant and GRIB files. No metadata is automatically generated by the models. However, the modelling teams will be asked to follow specific requirements with regard to, e.g., data structure, file content, variable names, units and global attributes, structure and names of directories and files. Details on modal output requirements will be identified based on past experience in model intercomparison projects (e.g., MarcoPolo-Panda, CMIP5).

The models that will be used in AQ-Watch and the groups providing the model outputs are:

- SILAM Model Results (provider: Finnish Meteorological Institute)
- MONARCH (provider: Barcelona Supercomputer Center)
- WRF-Chem (provider: Max Planck Institute for Meteorology, MPG and University Corporation for Atmospheric Research (UCAR))
- CHIMERE (provider: Beijing Computer Center and University of Chile)
- LOTOS-EUROS (provider: The Netherlands Organisation for Applied Scientific Research (TNO))
- SIRANE (provider: Beijing Computer Center)
- BOXMOX (provider: University Corporation for Atmospheric Research (UCAR))

Figure 9: UIP – Data page

4.2.4. Feedback

In the “Feedback” section (<https://www.aq-watch.eu/feedback>), different ways of providing feedback will be made available. This feedback will be passed onto the product developers and discussed by all AQ-WATCH partners.

4.3. UIP Handbook

For the current version of the UIP, it is not necessary for a handbook to be produced given that at this stage the main objective of the UIP is to highlight the products developed by AQ-WATCH. Once the modules are operational and a “live” version can be tested by users, a handbook will be created. It will

guide users through the modules and instruct how they can be used. It is also envisaged that a handbook in Chinese will also be produced in order to help prime users in China to navigate the English version of the toolkit.

5. Dissemination and uptake

5.1. Uptake by the targeted audience

As indicated in the Description of the Action, the audience for this deliverable is:

X	The general public (PU)
	The project partners, including the Commission services (PP)
	A group specified by the consortium, including the Commission services (RE)
	This report is confidential, only for members of the consortium, including the Commission services (CO)

5.2. This is how we are going to ensure the uptake of the deliverables by the targeted audience

As mentioned, the UIP, together with the project's website would be the main portal for information about the project, with the use of social media channels to drive traffic to the website.

6. Deliverable timeliness

Is the deliverable delayed?

☒ Yes ☐ No

Justification: although the UIP was up and running on the 28th February 2021, this document was submitted on the EC portal three weeks later so that the internal review was done in an appropriate way.

7. Sustainability

Links built with other deliverables, WPs, and synergies created with other projects

The implementation of the UIP is responsibility of WP8. However, dissemination and communication activities are specific tasks in WP7. Constant communication between those two WPs will continue and enhance the development of the platform.

D8.5 will be developed on an ongoing basis.

8. Full track of dissemination activities

Not relevant

9. Full track of publications and IP

Not relevant