

## What is ADAM

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The Advanced geospatial Data Management platform (ADAM) is a tool to access a large variety and volume of global environmental data. ADAM allows you extracting global as well as local data, from the past, current time, as well as short term forecast and long-term projections. Most of the data are updated daily to allow users having always the most recent data to play with.

## ADAM interfaces

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ADAM offers four main interfaces for data access:

- the **Explorer**, a web-based graphic user interface to allow users to explore, access, process and download data
- The **Application Processing Interfaces (APIs)**, that provide a python-library to directly access the ADAM data access and processing capabilities directly integrated in the user's code and applications.
- the **Jupyter Notebook**, a web-based processing environment to allow users to import, write and execute code that runs close to the data, exploiting the power and the APIs on a remote computation environment (no user resources are used).
- The **QGIS Plugin**, to allow QGIS users to benefit from the large ADAM data offer within their local projects.

Moreover **micro-services** are provided for specific applications and machine-to-machine data exploitation purposes. Examples of usage can be found on the [ADAM's YouTube channel](#).

## Getting Started

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- 1.** Access. <https://adamplatform.eu> take a tour on the platform features and access the relevant services.
- 2.** Register. [https://dashboard.adamplatform.eu/accounts/registration\\_page](https://dashboard.adamplatform.eu/accounts/registration_page) Registration is free and automatic.
- 3.** Play <https://explorer.adamplatform.eu/> start looking at the Earth's status, browsing data, extract time series. Take some inspiration from our [videos](#).
- 4.** Jupyter <https://jupyter.adamplatform.eu/> if you are fan of coding, try out the python-based processing environment.
- 5.** Happy? Want more? Please give us your feedback or contact us [contactus@adamplatform.eu](mailto:contactus@adamplatform.eu)

## User Access

- ✓ The usage of ADAM is regulated through user quota accounting. The User Quota allows a simple way to set a limit for free usage of data and processing dedicated to demonstration and promotional initiative and to establish a pricing mechanism for advanced and intensive usage. The User Quota model is a combination of accessed byte, storage, processing and bandwidth resources consumed by the user. The following user profiles are available.

	ESSENTIAL	STANDARD	ADVANCED
Explorer	<ul style="list-style-type: none"><li>- Access to the open datasets</li></ul>	<ul style="list-style-type: none"><li>- Access to open and extended datasets</li><li>- Limitation on monthly user queries or data volume quota cumulative with Jupyter and APIs (1000 credits).</li></ul>	<ul style="list-style-type: none"><li>- Access to open and extended datasets</li><li>- Access to advanced functionalities (e.g. specific functions for media and / or the processing functions)</li><li>- Max quota applied 10.000 credits</li></ul>
Jupyter	<ul style="list-style-type: none"><li>- Access to open datasets</li></ul>	<ul style="list-style-type: none"><li>- Access to baseline notebooks</li><li>- Quotas as above</li></ul>	<ul style="list-style-type: none"><li>- Access to powerful notebooks</li><li>- Quotas as above</li></ul>
APIs	<ul style="list-style-type: none"><li>- Access to open datasets</li></ul>	<ul style="list-style-type: none"><li>- Access to open and extended datasets</li><li>- Quotas as above</li></ul>	<ul style="list-style-type: none"><li>- Access to open and extended datasets</li><li>- Quotas as above</li></ul>
	<b>Free</b>	<b>Fee</b>	<b>Fee</b>

Bundles (from 10 users on) and unlimited accounts are available for mid to large entities and developers, with the possibility to customize functionalities and upload owned data. Please contact us for further information and inquires ([contactus@adamplatform.eu](mailto:contactus@adamplatform.eu)).

If you want “your own” ADAM platform, please contact us ([contactus@adamplatform.eu](mailto:contactus@adamplatform.eu)).

If you want to receive specific training, upload your data or host at your premises an ADAM instance, please contact us ([contactus@adamplatform.eu](mailto:contactus@adamplatform.eu)).

## Micro-services

- ✓ The provision of dedicated services (micro-services) for private users, public administrations, insurances can be considered.

Service products can be provided as service (e.g. via APIs), or via e-mail (attached images). The service price depends on different aspects (number of products requested, need of data processing, surface to be monitored). Service examples are provided below.

Service Description	Yearly cost (EUR)
<p><u>Name:</u> Air quality monitoring service.</p> <p><u>Description:</u> Daily provision of air quality information (past 2 days, 5 days forecast) over a specific point or area</p> <p><u>Periodicity:</u> Daily</p> <p><u>Data delivery mode:</u> e-mail report</p>	2.500,-
<p><u>Name:</u> Vegetation status monitoring service</p> <p><u>Description:</u> Provision of time series of vegetation index, precipitation, temperature for the past 3 months and monthly / seasonal statistics on the past 5 years. The service can work for points or areas</p> <p><u>Periodicity:</u> on-demand</p> <p><u>Data delivery mode:</u> customised REST interface</p>	8.500,-
<p><u>Name:</u> Environmental parameters provision for critical infrastructures management</p> <p><u>Description:</u> Provision of gridded (on a user-defined grid) environmental information (precipitation, temperature, vegetation status, water status, ...) for a max time range of 10 years. The service can work for points or areas</p> <p><u>Periodicity:</u> on-demand</p> <p><u>Data delivery mode:</u> customised REST interface</p>	12.000,-

## The APIs

An application programming interface (API) is an interface or communication protocol between a client and a server intended to simplify the building of client-side software. The ADAM API exposes the data discovery and access service interfaces in a standard python package called **adamapi**.

To use the ADAM API, the user must have an "ADAM API KEY", the authentication key linked to the ADAM instance.

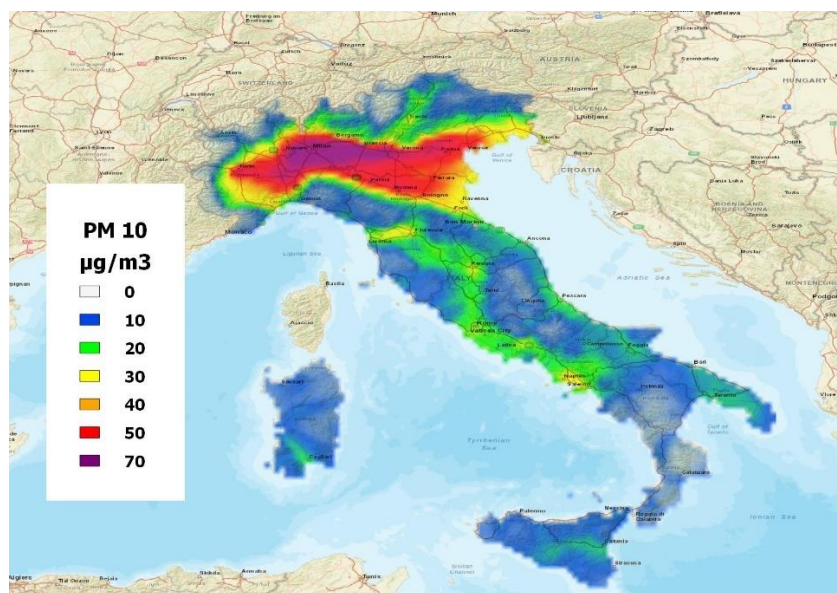
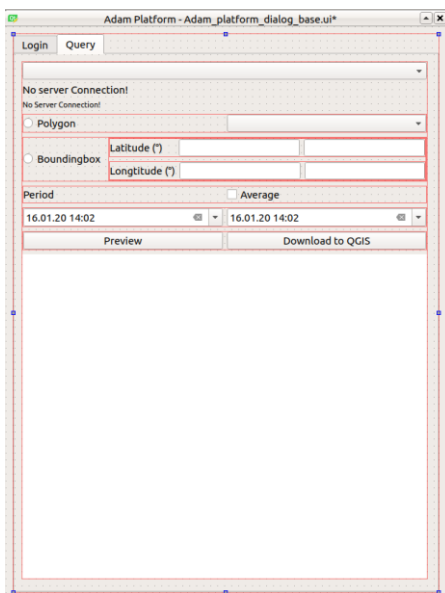
Currently the **adamapi** package provides following functions:

- *Auth*, the module to configure the environmental variables and a method to manage the authorization
- *Datasets*, the module to discover the **datasets** available in the ADAM instance, including all properties (e.g. description, start/end date, spatial coverage)
- *Search*, the module to discover the **products** available for a specific dataset, including filter options by supported parameters (e.g. geometry, attributes, tile, ...).
- *GetData*, the module to access a product or a timeseries of products, up to pixel granularity, including the support of different encodings (json, tif, png, gif).

## The QGIS Plugin

Recently the ADAM QGIS plugin has been released to allow QGIS users to directly access to the ADAM data sources and import into QGIS data layers and manipulate with local tools.

The ADAM QGIS interfaces (Figure below, left-hand side) allows specifying the dataset, the area of interest, time range and some basic operations to be done with the data (e.g. if an average shall be performed over the period). As example, the ADAM QGIS plugin has been used to generate the average PM10 concentration map over Italy with defined color classes using CAMS regional European data analysis and forecast (see figure below, right-hand side).



## Data

- The currently available datasets are listed below. Datasets for the “ESSENTIAL” profile are marked in green. The list of available data updates continuously. If you want to provide you recommendation for a new dataset to be added please contact us (contactus@adamplatform.eu).

Dataset / sensor	Spatial resolution	from / to (frequency)	Spatial domain
<b>Optical / SAR high resolution data</b>			
Sentinel 2 Level 1	10 to 60m	2015 – today (3-5 days)	Global
Sentinel 1 Level 1 GRD	3.5 to 40m	2014 – today (1-3 days)	Global
Landsat 5/7/8	15 to 90m	1984 – today (16 days)	Global
<b>Land Datasets</b>			
NDVI / EVI MODIS	250m – 5 km	2000 – today (daily, 16 days)	Global
NDVI Sentinel 2	10 – 20 – 60m	2015 – today (3-5 days)	Global
Land Surface Temperature (LST) MODIS	1 – 5 km	2000 – today (daily)	Global
Land Surface Temperature Sentinel 3	1 km	2017 – today (daily)	Global
Soil Moisture SMOS	10 km	2010 – today (daily)	Global
Soil Moisture ESA CCI	0.25 Deg	1978 – 2018 (daily)	Global
Land cover classification (CCI)	300 m	1992 – 2015 (yearly)	Global
Land cover classification (Copernicus)	100 m	2015 (yearly)	Global
<b>Ocean Datasets</b>			
Sea Surface Temperature Sentinel 3	1 km	2017 – today (daily)	Global
Sea Surface Temperature ESA CCI	0.05 Deg	1991 – 2010 (daily)	Global
Sea Surface Temperature ESA CCI	0.25 Deg	1991 – 2010 ( monthly)	Global
Ocean Salinity from SMOS	10 km	2010 – today (daily)	Global
Chlorophyll-a concentration ESA CCI	5 km	1997 – 2018 (daily)	Global
Sea Level Anomaly ESA CCI	0.25 Deg	1993 – 2015 (monthly)	Global
<b>Atmospheric and climate datasets</b>			
Air temperature Copernicus ERA5	0.25 Deg	1979 – today – 5 days (hourly, daily)	Global
Air temperature Copernicus ERA5 land	0.1 Deg	1981 – today – 2 months (hourly, daily)	Global
Air temperature – ECMWF seasonal forecast	1 Deg	present – present + 6 months (daily)	Global
Air temperature – NEX-GDDP	0.25 Deg	1950 – 2100 (daily)	Global
Air Relative Humidity Copernicus ERA5	0.25 Deg	1979 – today – 5 days (hourly, daily)	Global
Air Relative Humidity Copernicus ERA5 land	0.1 Deg	1981 – today – 2 months (hourly, daily)	Global
Precipitation – NOAA hydro Estimator	4,5 Km	2006 – today (hourly, daily)	Global
Precipitation – NASA GPM IMERG	10Km	2000 – today (daily)	Global
Precipitation – NASA GPM IMERG	10Km	2000 – today (30 min)	Global
Precipitation – SM2RAIN	10 Km	2007 – 2019 (daily)	Global (only land)
Precipitation – Copernicus ERA5	0.25 Deg	1979 – today – 5 days (hourly, daily)	Global
Precipitation – Copernicus ERA5 land	0.1 Deg	1981 – today – 2 months (hourly, daily)	Global
Precipitation – ECMWF seasonal forecast	1 Deg	present – present + 6 months (daily)	Global
Precipitation – NEX-GDDP	0.25 Deg	1950 – 2100 (daily)	Global
Wind gust – Copernicus ERA5	0.25 Deg	1979 – today – 5 days (hourly, daily)	Global
Aerosol information – Sentinel 5P	3.5 x 5.5 Km	2018 – today (daily))	Global
Aerosol – PM10 surface CAMS global	0.4 Deg	2003 – today + 5 days (hourly)	Global
Aerosol – PM10 surface CAMS EU Regional	0.1 Deg	2016 – today + 5 days (hourly)	Extended Europe

# ADAM PLATFORM

## overview

Dataset / sensor	Spatial resolution	from / to (frequency)	Spatial domain
NO2 tropospheric column – Sentinel 5P	3.5 x 5.5 Km	2018 – today (daily))	Global
NO2 total Column CAMS global	0.4 Deg	2003 – today + 5 days (hourly)	Global
NO2 surface CAMS EU Regional	0.1 Deg	2016 – today + 5 days (hourly)	Extended Europe
SO2 total column – Sentinel 5P	3.5 x 5.5 Km	2018 – today (daily))	Global
SO2 total Column CAMS global	0.4 Deg	2003 – today + 5 days (hourly)	Global
SO2 surface CAMS EU Regional	0.1 Deg	2016 – today + 5 days (hourly)	Extended Europe
NO2 surface CAMS EU Regional	0.1 Deg	2016 – today + 5 days (hourly)	Extended Europe
Ozone tropospheric column – Sentinel 5P	3.5 x 5.5 Km	2018 – today (daily))	Global
Ozone total Column CAMS global	0.4 Deg	2003 – today + 5 days (hourly)	Global
Ozone surface CAMS EU Regional	0.1 Deg	2016 – today + 5 days (hourly)	Extended Europe
CO vertical column – Sentinel 5P	3.5 x 5.5 Km	2018 – today (daily))	Global
CH4 total column – Sentinel 5P	3.5 x 5.5 Km	2018 – today (daily))	Global