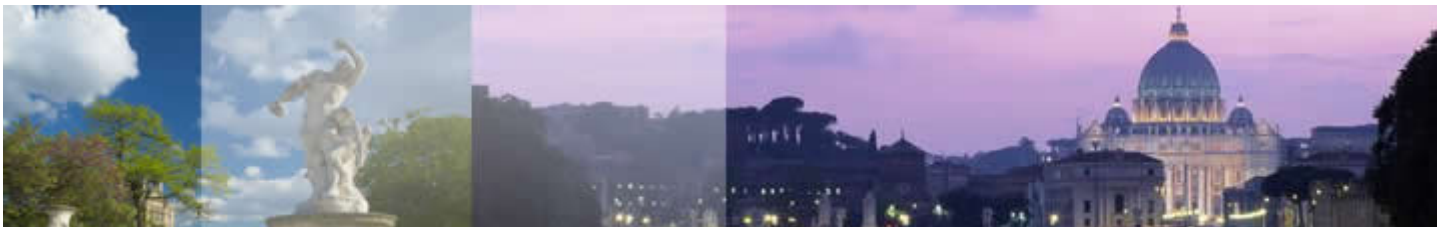# Join us

## A guide to joining the
## Common Operational Webpage (COW)

## www.airqualitynow.eu

Date: 6th March 2007

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# Introduction

The CITEAIR project, co-funded through the INTERREG IIIC programme, is developing an efficient means of collecting, presenting, comparing and improving air quality across a multitude of European cities. The CITEAIR project has created a web- based interface to compare air quality data from major cities and regions. It provides near real-time comparative data that is both easily understood by the wider public and a useful tool for air quality technicians and policy makers.

After three years of productive work among partners and exchange of opinions with stakeholders, including the European Commission (DG Environment) and the European Environment Agency (EEA), the project has developed the Common Air Quality Index (CAQI), the first air quality index on the European level. This index is developed as a city/country independent air quality index facilitating the comparison of real time air quality in different European cities. An important feature of the CAQI is that it differentiates between traffic- and city background conditions. The index can be applied on an hourly and a daily basis. In addition to the short term index, an index for comparing yearly averages the Year Average Common Air Quality Index (YACAQI) was developed.

To facilitate the practical implementation of the CAQI and the YACAQI the project has developed the Common Operational Webpage (COW) which is accessible via www.airqualitynow.eu. This webservice provides a platform for comparing air quality in different cities in real time. www.airqualitynow.eu does not aim to replace existing local or national websites, but to complement them in providing a common place and a common way of presenting air quality.

To make www.airqualitynow.eu attractive it is designed as a dynamic platform offering hourly or daily updated air quality data using the CAQI as an efficient means to present and compare the air quality situation across European cities. However, to make city participation as broad and easy as possible, cities can also join www.airqualitynow.eu in the section where year average air quality is compared.

The project team has set up a simple procedure to allow cities to join the COW by submitting air quality data. The procedure is designed in a way that only limited actions are necessary to join the COW. Please have a closer look at www.airqualitynow.eu and see how air quality is presented and how easy a comparison with other cities in Europe is.

**To join the COW you just need to follow the steps:**

1   Send a request to join the COW to
    Join@airqualitynow.eu

2   You will receive soon a confirmation and a FTP
    account from the COW administrator

3   Select you background- and traffic air quality
    monitoring station list.

4   Implement a client-FTP solution, based on the
    FTP-Transfer protocol, to provide regularly data
    to the COW.

5   Provide a description of your city and your
    efforts to improve the local air quality.



Please take note of the fact that www.airqualitynow.eu is under development. Apart from the general look and feel and the way how the data are presented some of the pages will likely to be changed in the near future.

The following pages of this document provide you with the relevant instructions to prepare your input to the COW. The COW Administrator (Airarif, Paris) is ready to assist you at any time. The team in charge of handling the COW is accessible under **join@airqualitynow.eu**

For further information about the CITEAIR project you may also consult the project dissemination webpage http://citeair.rec.org

## Join us

www.airqualitynow.eu is designed in a flexible manner and is ready to accommodate data from a multitude of cities and regions across Europe. To join www.airqualitynow.org we have created a procedure, which requires only limited actions from the subscribers. Cities need only to deliver their data according to a defined data format. All data processing, including the conversion of monitored values from µg/m$^3$ into the air quality index (CAQI and YACAQI), is done by www.airqualitynow.org.

To become a member, please follow the instructions below and your air quality data will soon be available in an easy understandable and comparative way side by side with data from other European cities.

**Which data to deliver**
As a general rule cities are required to deliver two sets of monitored values from monitoring sites representing the urban background and the roadside conditions.

Roadside situation:
$NO_2$ and PM10 as the main pollutants; CO as auxiliary pollutant (each in µg/m$^3$)

Background situation:
$NO_2$, PM10 and $O_3$ as the main pollutants; CO and $SO_2$ as auxiliary pollutants (each in µg/m$^3$)

Preferably data from a number of sites is requested, however it is up to each city what they want to contribute. www.airqualitynow.eu will accept whatever a city submits as their data for the roadside and background situation, undertake any averaging calculations required.
Ideally www.airqualitynow.org accepts the above data on an hourly basis to exploit the dynamic design in the best possible way. To attract as many cities as possible and to accommodate different needs and capabilities, cities are free to enter the service on the following levels:

- Way 1: a City delivers hourly data in near real-time
- Way 2: a City has hourly data available but delivers data once per day
- Way 3: a City does not want to submit hourly data but wants to feed annual data*

Please note that the means to send annual data and presenting them on www.airqualitynow.eu is currently under preparation. Cities willing to join this service should register, we will contact these bodies in due time.

**Data transfer**
The well-known File Transfer Protocol (FTP) has been chosen to transfer data to the COW. The reasons are because this protocol is easy to use, a remote directory can be treated just as a local directory and a large number of free and cross-platform FTP clients are available. Moreover, the more recent FTP servers have improved security respect to their ancestors. Each city will have its personal directory, named with the city/region name, for uploading data using a Username and Password. The adoption of the FTP protocol assures that control is in the hands of the subscribing cities, who run the upload and don't have to allow external access to their databases.

**Data format**
A common data format for delivering air quality data to the COW has been developed and will be made available for subscribers to the COW. The data format uses the UTF-8 character set and consists basically of comma separated values (CSV). This type of data can be easily generated by any system and software. The data format will comprise an ID for the name of the station, its co-ordinates (longitude/latitude), information on the time and the concentration values as such. The details of the Common Data Format for data transfer are described in Annex 1 of this document.

**City Pages**
Beyond presentation and comparison of air quality data the COW wants to provide relevant background information for each of the cities. A common layout defining which information should be published and the way this city information is presented can be seen at www.airqualitynow.eu In Annex 2 of this document you receive some further guidance on the provision of your input to your City Page.

**Registration**
To join, please send a mail to **join@airqualitynow.eu.** You will receive a confirmation in short time.

# Annex 1


**The Common Data Format for data transfer to COW**

## AQ index calculation

Cities will send to the COW system their measurements. COW will provide the AQ index calculation. In this way we'll simplify the procedure for joining the COW.
Measurements older than one week will be deleted. The AQ indices will be retained, due to critical issues relating with this kind of information for the cities.

Joining the COW
At the moment of COW subscription, cities will provide some general information and the following information regarding each measurement station:

Name of the station
X and Y coordinates: Latitude and Longitude in degrees, minutes, seconds (ddmmss)
Type: background or traffic

The COW will send, in automatically way (probably mail), the numeric ID associated to the above stations, will create a city folder on the FTP server and will create a username and a password.
Every city will also indicate the "difference from GMT" used in data files.

## Transfer protocol

We will use the well-known File Transfer Protocol (FTP). The reasons are:

Easy of use: treat the remote folder just as a local folder, drop the file in and it's done
Large diffusion of free and cross-platform FTP clients

Moreover, the more recent FTP servers have improved security respect to their ancestors.
Each city will have his personal folder named with the city/region name, for uploading data. Anyway, FTP doesn't permit to easily manage the time of insertion in the folder.

## Characters and numbers encoding

The character set will be UTF-8, *all* and *only* characters belonging to this specification will be accepted in the files sent to the COW.
For floating point numbers, the dot symbol "." will be used as decimal separator.

## File format

We will use comma separated values (CSV) in text files. This format is in fact easy to produce and to manipulate.
In order to simplify the efforts by the Cities, there will be only one file for each city:

city.txt (example: rome.txt) containing a completely free set of measurers for one city/region

Note lowercase name for the city name.

These files will be overwritten any time from the cities. A COW process, in the website engine, will read files every ten minutes and will try to insert them in the database. The correct time of the values is anyway reported into the file format (see next paragraph), hence there is no possibility of mismatching data. Old data will be simply ignored. In this way, there is no problem for cities' delay in uploading files: they will be shown in COW when they will be made available.

All the data used to calculate the CITEAIR indices are average values among all monitored background or traffic stations. This calculation of average values will be carried by COW engine.

# *The city.txt file*

This file has to be put in the specific city/region folder, accessible by a username and a password.

## File format

```
<id_station>,<date>,<hour>,<pollutant><pollutant_value>
<id_station>,<date>,<hour>,<pollutant><pollutant_value>
<id_station>,<date>,<hour>,<pollutant><pollutant_value>
<id_station>,<date>,<hour>,<pollutant><pollutant_value>
<id_station>,<date>,<hour>,<pollutant><pollutant_value>
```

This file can contain more than 1 set of data, in order to provide a simple way to insert data for multiple pollutants at the same time, or for re-inserting data failed in the past for some reason.

*Remember:* if you send data that you've already sent, the substitution will be automatic!

## Fields description & types

`<id_station>`
Type: integer number
Format: An integer number assigned from the COW to the cities.
Example: 1
Description:The ID of the measurement station.

`<date>`
Type: date
Format: YYYY-MM-DD
Example: 2005-06-20 (20th of June, 2005)
Description: the date of the measure, in GMT time

`<hour>`
Type: time
Format: HH. Allowed values are "integers" between 00 to 23, always with two digits. The hour tag refers to the beginning of the measurement period, that is 03 data are measures collected between 03:00:00 to 03:59:59.
Example: 07
Description: the time of the measure, in GMT time

`<pollutant>`
Type: text
Format: possible values admitted are NO2, O3, PM10, CO, SO2
Example: O3
Description: name of the pollutant of the measure.

`<pollutant_value>`
Type: floating point number or "\N"
Format: floating point number with max two decimals separated by a "."
Example: 53.37
Description: pollutant value expresse in <pollutant> specific units.

## Example for city.txt

This is an example of multiple pollutants data for a certain city:

```
1,2005-06-20,07,O3,52.38
1,2005-06-20,07,NO2,57.27
2,2005-06-20,07,O3,30.21
2,2005-06-20,07,NO2,140.54
2,2005-06-20,07,PM10,140.54
```

Note that the pollutants values shown are only for example purposes. Besides, different station can measure different pollutants (in the example above, station 2 measures also PM10 values).

## *Delete previously sent data*

Data validation is performed by cities. Every city can perform this task in a different way, absolutely not relevant for the COW. Data validation can be a quite long process, taking also some days. It may be possible that a city wants to delete a previously sent data to the COW if its validation process should show that the already sent data were wrong: in this case cities have to send a new record to the COW, including exactly the same values of the file they want to delete, with the exception of the "pollutant_value" field that must be the special character "\N" (N uppercase and without quotes).

In this way, old values will be overwritten (as previously showed) with a NULL value in the "pollutant_value" field. NULL values are correctly managed from COW engine, that is not considered in Air Quality Index calculation.

# Annex 2

**Template city page**

## Recommendations for CITY Pages

**City Logo**
A gif/png/jpg image, size 257x100 pixels with a white background according to the website background

**Template Sections**
All cities will have to provide some contents for each of the following topics:

- Background information (1000 characters max.)
- Environmental situation (2000 characters max.+ up to 2 images)
- Air quality assessment (2000 characters max.+ up to 2 images)
- Air quality improvement (2000 characters max. + up to 2 images)
- Rekated links (Optional, 10 links max. with short description, no images)

Keep in mind:
- no subsections
- no extra sections

**Images**
Images included in the sections will have a maximum width of 515 pixel. If an image needs some explanations ( a content or a title), do no include in the image, but write in the text (over or below the image). Do not write text at left or right side of the image. Every image will be centred in the main content area of the city page.

Allowed text styles are: bold, underline, italic of a combination of. Please do not use specific effects in the text.

**Document format**
The best format you can use in order to simplify our job is a simple text file (.txt), sending the images as an attachment. In this case, indicate the spot where you want to insert the image whritign the image name, as in this example:

[…]
TITLE: Our Beautiful city
Beautiful_city.gif
COMMENT: A picture of our beautiful city at midnight
[…]

This way, we avoid problems with document formatting due to word processors. Otherwise, please send the input in WinWord format (.doc), and all the images you use as an attachment.

Of course, send also to city logo as an attachment, naming it in a comprehensible way (e.g. "Rotterdam_logo.jpg".