



COMMON MEDITERRANEAN STRATEGY AND LOCAL PRACTICAL ACTIONS  
FOR THE MITIGATION OF PORT, INDUSTRIES AND CITIES EMISSIONS.

## **Component 3 “Framework analysis and intercomparison campaign”**

### **WP3.1 deliverable**

**Strategic document to address the technical start-up of the project**

**Methodologies for the local emission inventory updating and**

**for the intercomparison sampling campaign in Marseille**

#### ***Preliminary remarks.***

The present document is a deliverable foreseen in Application Form (AF) for the Component 3 “Framework analysis and intercomparison campaign” and for the phase 3.1 “Kick Off meeting”.

The deliverable in the AF is describe as:

“One strategic document to address the technical start-up of the project: method to perform the local inventory and to carry on the intercomparison sampling in Marseille”.

As the AF, this deliverable should have been an outcome of the kick off meeting, but since the two main points (local inventory and intercomparison) were not both fully discussed during the kick off (Marseille July 2010), this deliverable was not reported as finished at that time.

Indeed technical discussions about these two project activities went on in the months following the kick off and in the next two meetings in Barcelona (January 2011) and in Thessaloniki (June 2011).

The present document presents the methodologies to perform the two activities agreed among the partners involved at the various project meetings and in the technical discussions by e-mail.



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## Methodologies for the local emission inventory updating and socio-economic trends (phase 3.3)

“Update of the local emission inventory and socio-economic trends” (phase 3.3) is describe in the AF as:

“Elaboration and update of the existing emission inventory of the examined areas containing all the major [natural]<sup>1</sup> emission sources from activities carried out in the ports and processing of socio-economic existing data to identify development trends. Emission inventory developed by accounting for gaseous and particulate emissions from all anthropogenic emissions sources (transport, industry, energy, central heating etc). Emphasis will be given on the detailed calculation of emissions from ships and other activities in the harbour that will be based on the implementation of up-to-date methodologies. In addition, natural emissions in the study area will be calculated including biogenic emissions and emissions from wind blown dust and sea salt.”

Coordinating partner : Aristotle University of Thessaloniki

Start date: 01/07/2010

End date: 30/06/2011

Deliverable: 5 db of local emission inventories (one per pilot area)  
5 db of socio-economic trend (one per pilot area)

This project activity has a double aspect: the elaboration of the local emission inventory databases and the elaboration of databases of socio-economic trends.

As most of the APICE activities this double aspect requires the involvement of the two different expertises that characterize APICE partnership: “scientists”, for the emission inventory databases and “institutional” partner dealing with planning topics for the compilation of the socio-economic trend analysis.

As regard the local emission inventory updating the following methodologies has been agreed among partners:

- Pollutants to consider: Gaseous and Particulate Matters (PM10 and PM2.5)
- Source emission typologies: both natural and anthropogenic
- Anthropogenic sources to be split in the following emission sectors:
  - Energy production;
  - Central heating
  - Industries
  - Extraction and distribution of fossil fuels and geothermal energy
  - Solvent and other product use
  - Road transport
  - Non-road transport (without ship and harbor activities)
  - Ship and harbor activities
  - Waste treatment and disposal
  - Agriculture
- Natural Emission Sources to be split in:
  - Biogenic
  - Sea Salt
  - Windblown Dust
- New emission calculations based on methodologies upon each partner decision
- Access to official emission data from environmental authorities
- Emphasis on the estimation of emissions from ships and other activities in the harbour.

<sup>1</sup> Probably the use of the adjective is not correct in this contest.



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As regard socio-economic trends a general framework has been outlined and every partners has been asked to fill in the common framework accordingly to the availability of local data and statistics.

The socio-economic trends have to be analysed collecting multi-annual data on a series of socio-economic indicators:

- period of coverage: possibly 10 years (2001-2010), at the minimum 5 years
- Indicators for ship movements and harbour activities:
  - Loading and unloading materials, possibly split in bulk (dry and liquid) and cargo;
  - Vessels (Ship arrivals possibly split for the different harbour terminals)
  - Number of passengers



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## Methodologies for the intercomparison sampling in Marseille and data analysis (phase 3.4)

“Inter-comparison sampling in Marseille and data analysis” is described in the AF as:

“Given the need of a term of comparison to run the monitoring, a sampling and analysis campaign will be jointly organized and conducted by all the partners in the harbour area of Marseille to assess the level of conformability of the methodologies applied by each partner. At least one expert per each technical partner attend the joint comparison sampling in Marseille, while the follow up activities will be managed by constant communication between the partners. Intercomparison of analysis and source apportionment methodologies will be performed at an urban background site in Marseille (5 avenues)”

Coordinating partner: University of Provence

Participating Partners: ARPAV, University of Genoa, Marseille Port Authority, University of West Macedonia, Spanish Research Council

Start date: 01/11/2010

End date: 30/06/2011

Deliverable: 1 joint source apportionment

The methodology shared among participating partners for the intercomparison campaign is synthetically described in the following points.

*What.* intercomparison of both measurements and source apportionment modelling outputs

*Focus.* As for measurements focus on PM<sub>x</sub> (PM<sub>10</sub>, PM<sub>2.5</sub> or less accordingly to instrumentation availability) and its components (Metals, OC/EC, specific tracers)

*How long.* Duration of the campaign: about 1 month.

*When.* Period of the year: from the end of January to the first day of March

*Where?*

The sampling site of «5 avenue » has been chosen for the intercomparison campaign mainly for 3 reasons.

First because this site is characteristic of the urban background environment in Marseille. Indeed it is more relevant for a source apportionment intercomparison exercise to study a mix of primary sources. Also the main objective of APICE is to assess the impact of harbours and harbour related activities on the air quality in each Mediterranean city involved in the project. These particular sources have then to be apportioned properly. Consequently the most important point of this intercomparison campaign is to assess the ability of each partner to analyse the signature of the different harbour sources from the numerous other anthropogenic and biogenic sources. Here is the challenge of APICE and of this intercomparison campaign.

Secondly, “5avenues” is the historical station of ATMOPACA (Air Quality Network). This station has the longest time series of pollutants concentrations over Marseille. This station is also the most instrumented station in the area and is the reference station for particles. Many other scientific projects such as ESCOMPTE, BOND, and FORMES have used this sampling site. APICE will then directly benefit from our understanding of its environment. For example during the FORMES project the influence of harbour and industrial area has clearly been pointed out.

At last such intercomparison campaign is a huge task and a lot of logistical aspects have to be considered (power supply, security of the instruments, internet access, office for people involved in the campaign). The site of “5avenues” offers all the guarantees.

*Policy for sharing data.*



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- a) data will be shared during the field phase as soon as it is available This is done with the understanding that data is not fully calibrated/corrected/etc..
- b) field data from other groups can only be used by people participating in the campaign, and cannot be shown or shared with people outside the campaign unless you have the permission of the data owners.
- c) data should also be made available to all participants during the data analysis phase. Data from other groups cannot be used in presentations or publications without the permission of the data owners, and co-authorship should be offered to the data producers (which are then free to accept or decline the offer).

*Timing for the results (task deliverable).*

First draft of the analysis and the intercomparison of measurements achieved during the field campaign in Marseille to available by the end of summer 2011.

Receptor models analysis to be presented during the meeting in Venice (January 2012) in a targeted day of work beside the official meeting.

Finalise by the end of 2011 a report of comparison among the source apportionment outcomes (receptor modelling outputs).



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