



ECOLOGICAL SUPPORTING FOR TRAFFIC MANAGEMENT
IN COASTAL AREAS BY USING AN INTELLIGENT SYSTEM



AXIS 4: Maritime Transport
Objective 4.1: Improve the
quality, safety and
environmental sustainability of
marine and coastal transport
services and nodes by
promoting multimodality in the
Programme area

Minutes of the workshop in Venice

Veneto Region

Ca' Foscari University of Venice, Institute of Atmospheric Science and
Climate of the National Research Council (ISAC-CNR)

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WP2: Project communication and capitalization activities

ACT 2.5: Public events

CONTRIBUTED TO THIS WORK

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The ECOMOBILITY workshop in Venice was held on 15th May 2019 in the Conference Room of the Alfa Building, in the Scientific Campus of Ca' Foscari University, from 10:00 am to 1:00 pm. The workshop was carried out in Italian language, with the name: "*Muoversi in città riducendo l'impatto ambientale*". The workshop was attended by 88 participants (Attendance list in Annex) with following Agenda:

10.00 - 10.20	Saluti istituzionali <i>Welcome and introduction</i>	Antonio Marcomini <i>Director of DAIS, Ca' Foscari University of Venice</i> Roberto Bertaglia <i>Veneto Region, organizer of the workshop</i>
10.20 - 10.40	Presentazione progetto ECOMOBILITY <i>Presentation of the ECOMOBILITY project</i>	Andrea Gambaro <i>Ca' Foscari University of Venice, Leader Partner of ECOMOBILITY</i>
11.00 - 11.20	Misure di particolato atmosferico in prossimità dell'area portuale di Venezia <i>Measures of particulate matter close to the harbour area of Venice</i>	Daniele Contini <i>ISAC-CNR</i>
10.40 - 11.00	Distribuzione dimensionale e primi risultati di caratterizzazione del particolato atmosferico nella città di Venezia <i>Dimensional distribution and first characterization results of particulate matter in the city of Venice</i>	Elena Gregoris <i>Ca' Foscari University of Venice</i>
11.20 - 11.50	App e servizi ICT per la raccolta e la visualizzazione di dati ambientali e per la pianificazione di viaggi ecologici <i>Tools for collecting and visualizing environmental data in Venice and Rijeka, and for planning ecological trips</i>	Salvatore Orlando <i>Ca' Foscari University of Venice</i>
11.50 - 12.00	Chiusura workshop <i>Closure of the workshop</i>	
12.00 - 13.00		<i>Light lunch</i>

After the welcome of prof. **Antonio Marcomini**, Director of the Department of Environmental Science, Informatics and Statistics (DAIS) of Ca' Foscari University of Venice, prof. **Andrea Gambaro** (DAIS)

introduced concepts and terms that were essential to understand the subsequent talks. He illustrated the principal atmospheric pollutants; he clarified the concept of aerosol, with a specific attention to the dimensional distribution of particles. He explained the link between the dimension of particles and their impact on human health. He also gave a brief description of the correlation between PM_{2.5} (particles with diameter below 2.5 µm) concentration and maritime traffic. Then he gave an introduction about the ECOMOBILITY project, highlighting the connections between ECOMOBILITY and previous European project such as POSEIDON, CAIMANS and APICE. Also some of the previous results of POSEIDON, with connections with ECOMOBILITY, have been reported. In the end he showed the work plan of ECOMOBILITY and the next foreseen activities.

Dr. **Daniele Contini** presented the objectives of the WP3 of ECOMOBILITY coordinated by ISAC-CNR focused on filling the knowledge gap regarding the assessment of the impact of ship traffic to fine and ultrafine particles, taking advantage of the methodologies developed and the lessons learnt within previous European projects. The methodologies developed in the previous project POSEIDON, based on two approaches: statistical analysis of chemical composition data and statistical post-processing of high temporal data were discussed illustrating previous results obtained in Venice area regarding the impact of ships to atmospheric pollutant and particulate matter. Successively the high temporal resolution (1 minute resolution) measurements campaign done in Venice between September and November 2019 was illustrated and some of the preliminary results were discussed with particular emphasis on the diurnal and weekly trends of number particle concentrations of different sizes from nanoparticles to PM₁₀. Comparison of the data collected among the different instruments available, including the multistage impactor, showed good agreement. A very good correlation as also observed with PM₁₀ measurements done by Arpa Veneto. The trends were correlated with ship traffic at stazione marittima showing potential correlation especially for nanoparticle concentrations. The measurement site is likely influenced by shipping mainly in the first hours of the day when, typically, ships arrive in Venice. A similar campaign has also been performed in Rijeka and data are still under post-processing. At the end of the project the impact of shipping in the two harbours will be available and done using comparable approaches.

Dr. **Elena Gregoris** (DAIS) reported the activities of the environmental group linked with the objective of the enhancement of knowledge about the impact of maritime traffic to air quality in the city of Venice. She explained the importance of this topic and she detailed the phases of such activities. She shows the sampler for collecting particles in different dimensions, the procedure for weighting filters and she illustrated the results of particulate matter concentration and the dimensional distribution of particles. Then she illustrated the subsequent phase of characterisation of particulate matter and data

elaboration, that was in progress, highlighting the novelty of the work. She showed the first results of concentration of major ions in particulate matter of different size.

Prof. **Salvatore Orlando** (Ca' Foscari University of Venice) presented the application for planning ecological trips. The application visualises maps of pollution data of particulate matter and nitrogen oxides in real time and enables the user to select ecological trips, avoiding the most polluted areas. It can also display a forecast of pollution, so that the planning can be programmed for 3 days in advance. Orlando described the project structure and technologies and showed to the audience some screenshots of the application, describing the various features of the tool (display the current grid, the historical grid, the forecast grid, etc.). He also mentioned the involvement of ARPAV in the modelling phase of the project with the aim of creating the grid-base pollution distribution, that is available only for Venice. At the end he showed some videos of the application and invited the audience to download the application from the Play Store and to fill in the survey.



Dr. Daniele Contini presenting the objectives of the WP3 of ECOMOBILITY coordinated by ISAC-CNR



Dr. Elena Gregoris presenting the first results of the chemical analysis conducted within ECOMOBILITY



Prof. Salvatore Orlando presenting the informatics outputs of ECOMOBILITY



The participants to the ECOMOBILITY workshop in Venice

The event was attended by 88 people, of which 25 were University and National Research Council representatives (professors, researchers and university students), 12 were representative of local bodies and enterprises, 51 were high school students.