

Minutes of the 2nd TPT working group meeting
Nantes, Tuesday May 30th 2000

The main scientific aspect of this meeting was the presentation and discussion of ideas and results concerning the distinction of car versus traffic produced turbulence and the so-called saturation effect for high traffic densities.

The idea was also to define our progress since the Cambridge meeting and to fix the future and most probably final activities of the working group.

AGENDA:

- 5.00 pm: Opening of the meeting
- 5.10 pm: Presentation by Silvana Di Sabatino:
Modeling of Traffic Produced Turbulence - distinction between isolated vehicles and non isolated vehicles
- 5.25 pm: Presentation by Jean-Francois Sini:
Scaling concepts versus the "saturation" effect
- 5.35 pm: Discussion
- 6.00 pm: Conclusions and decision on future/final activities
- 6.10 pm: Closing of the meeting

LIST OF PARTICIPANTS:

Ruwim Berkowicz, NERI
Rex Britter; CERC
Silvana Di Sabatino, CERC
Evgeni Fedorovich, U.Karlsruhe
Petra Kastner-Klein, ETHZ
Matthias Ketzel, NERI
Petroula Louka, ECN
Patrice Metsayer, ECN
Peter Sahm, LHTEE/AUT
Jean-Francois Sini, ECN

SUMMARY OF THE PRESENTATIONS:

Silvana discussed in her presentation the link between the two approaches on modeling traffic produced turbulence

- (i) summation of turbulent kinetic energy associated to each vehicle
- (ii) balance between production and dissipation of turbulent energy due to moving vehicles

The first approach is presently used in the OSPM model, whereas the second one was firstly presented at the Aveiro meeting in August 1999 independently both by the CERC team and the U.Karlsruhe team.

Silvana presented the theoretical background for both approaches and has shown that the first approach is relevant in the case of low traffic densities, i.e. the wakes of singles vehicles are not overlapping, whereas the second approach is appropriate in the case of high traffic densities with overlapping, interacting wakes. For both approaches the choice of different length scales and their implications on the traffic produced turbulence is discussed.

Jean-Francois presented physical considerations concerning the estimation of the proportionality constant in the traffic related production term in the turbulence kinetic energy production and dissipation rate. He has shown ideas how this proportionality constant can be related to situations with different traffic densities, but so far there are no experimental data which allow to check this ideas.

FUTURE ACTIVITIES:

It was decided that two joint publications will be prepared for submission during summer on the basis of the material summarized by Silvana (theoretical background, scaling concepts) and by Petra during the morning session of the scientific meeting (evaluation of scaling concepts based field and laboratory experiments). The second one will also include the work of Matthias which he presented in Rouen. The main initiative for preparation of the papers should be taken by Petra and Silvana.

Ruwim asked us to focus in the future on the specific improvement of the so-called OSPM method, i.e. the traffic produced turbulence parameterization in the OSPM model. We agreed to consider this point to be a central one for the remaining period.

Another important aspect is the formulation of a better dispersion model which enables to take into account the spatial distribution of the traffic related turbulence components in the street canyon. The data from the URBCAP Nantes '99 campaign, which were partially presented by Petroula during the morning session, should deliver the necessary information.

The data sets for Göttinger- and Schildhorn Straße, which can be downloaded from the TPT homepage will be used by Silvana for evaluation purposes of the ADMS-urban model.

The improvement of the TPT-incorporation in MISKAM is still an open question. It is not clear so far if we will be able to come to recommendations until the end of TRAPOS.

The next working group meeting will take place beginning of October in Zurich.