EUROMECH

Final Report

Date: 5-02-92

Please send this report to the Secretary of the European Mechanics Council, Professor Bengt Lundberg, Dept of Mechanical Engineering, Luleå University of Technology, S-951 87 Luleå, Sweden, within one month after the Colloquium.

General

Euromech Colloquium No: 276

Title: DYNAMICS OF THE URBAN ATMOSPHERE

Co-Chairmen: Pr. Claude REY and Dr Jacques GANDEMER

Place and country: ECOLE CENTRALE DE NANTES (FRANCE)

Dates: 21 - 24 Octobre 1991

Finance

The conference fee 500 FF included

Funding: CNRS (20 000 FF), CSTB (20 000 FF), ECN (20 000 FF)

Accomodation (type and cost): paid by participants

Meals: included

Participation

Total number of participants:

Distribution of participants by country:

Code	Country	Number	Code	Country	Number
A	Austria		I	Italy	2
B	Belgium	2	IRL	Ireland	
BG	Bulgaria		N	Norway	
CH	Switzerland		NL	Netherlands	
CS	Czechoslovakia		P	Portugal	
D	Germany	1	PL	Poland	
DK	Denmark	1	R	Rumania	
E	Spain		S	Sweden	
F	France	16	SF	Finland	
GB	Great Britain	6	YU	Yugoslavia	
GR	Greece		SU	Soviet Union	2
H	Hungary		-	Others	3

Is there need of another colloquium on the same subject? Which year? Yes in 1994.

Please turn

Scientific Report

Building industry, town planning and urban environment protection are requiring an improved knowledge of the dynamics of the urban flows and improved capability to model such effects of wind in the urban environment as structure loads, natural ventilations and heat controls, impacts of hydrometeors, diffusion of atmospheric constituants and pollutants.

Within this objective, the **Symposium EUROMECH 276 "Dynamics of the Urban Atmosphere"** (21 and 22 october) has represented an important opportunity for the meeting of several communities, working in fundamental research, research & development, design, development of numerical codes, experimental investigations, and tests, on site or in large simulation facilities. It was followed by a "Large Facilities Workshop" and an "ERCOFTAC Workshop" on 23 and 24 october.

19 communications have been presented during the symposium, 13 of which were concerned with numerical simulations and 5 with experimental investigations.

The experimental works were obtained using specifics measurements, visualizations with sand on the ground, or with aerosol into the flow, and pressure measurement into cavities. The geometrical configurations were 3D cavities, backward facing step, buildings, built-up area, and suspended constructions.

Numerical simulations were based on direct simulation, k-ϵ models, non linear 2-equations models, with weighted difference scheme or finite element k-ϵ code. Two types of numerical predictions of wind flows were presented, on the one hand, local and mesoscale flows over complex terrains, ridge and valley type, artificial obstacles, escarpment, and on the other hand, at the urban scale, dispersion through groups of buildings or within an urban street canyon, flows through an urban square, around isolated buildings.

In general the discussion emphasized the importance of such a meeting for mutual information about the recent developments of research in this particular application of urban problems. Also it has been evocated the possibility of a coordination of experimental and numerical programs in the future. This meeting wil be extended by the structuration of an ERCOFTAC Special Interest Group "Turbulence modelling in the urban atmosphere" (coordinator Patrice G. MESTAYER). Probably a second EUROMECH/ERCOFTAC meeting on Urban flows will be planned in 1994.

Pr. Claude REY

Please use additional pages if needed and sign at the end.