

KIKUMOTO LAB.

[Monitoring and Control Technology of Urban Environment]

Department of Human and Social Systems

Control Engineering of Complex Environmental System

Department of Architecture, Graduate School of Engineering

<http://venus.iis.u-tokyo.ac.jp/>

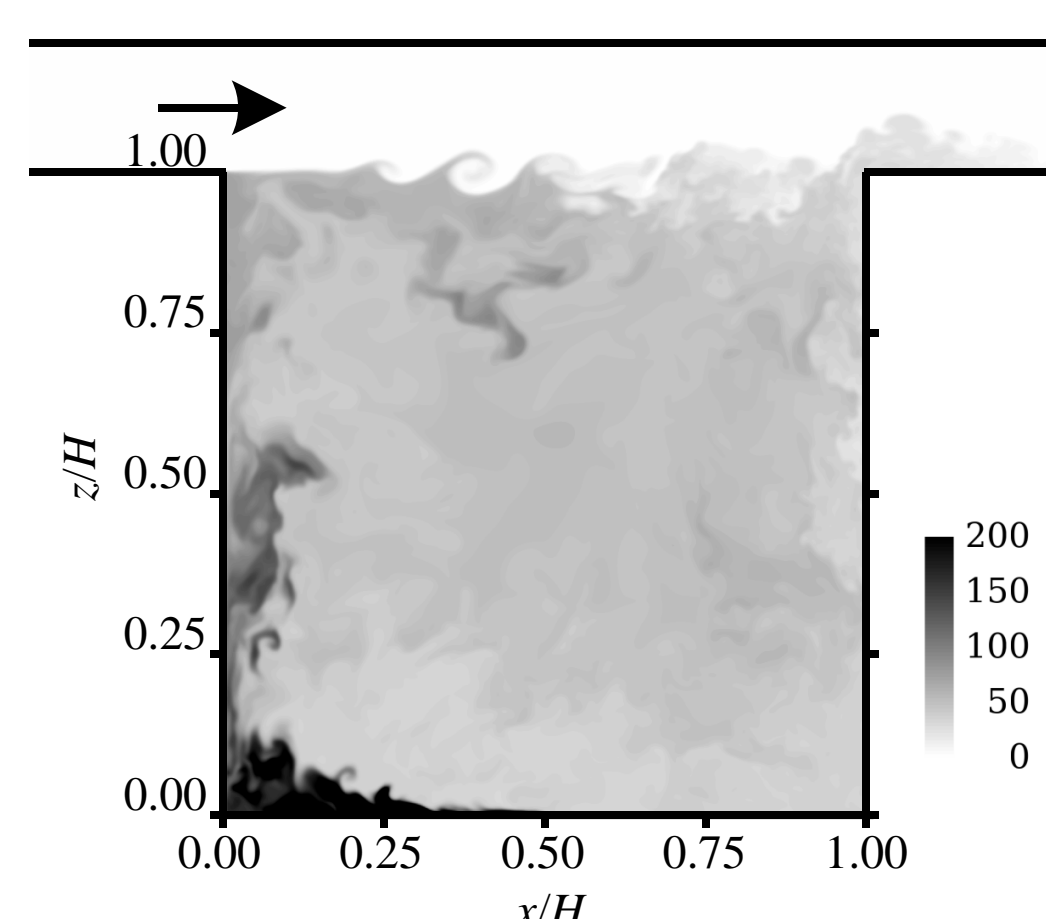
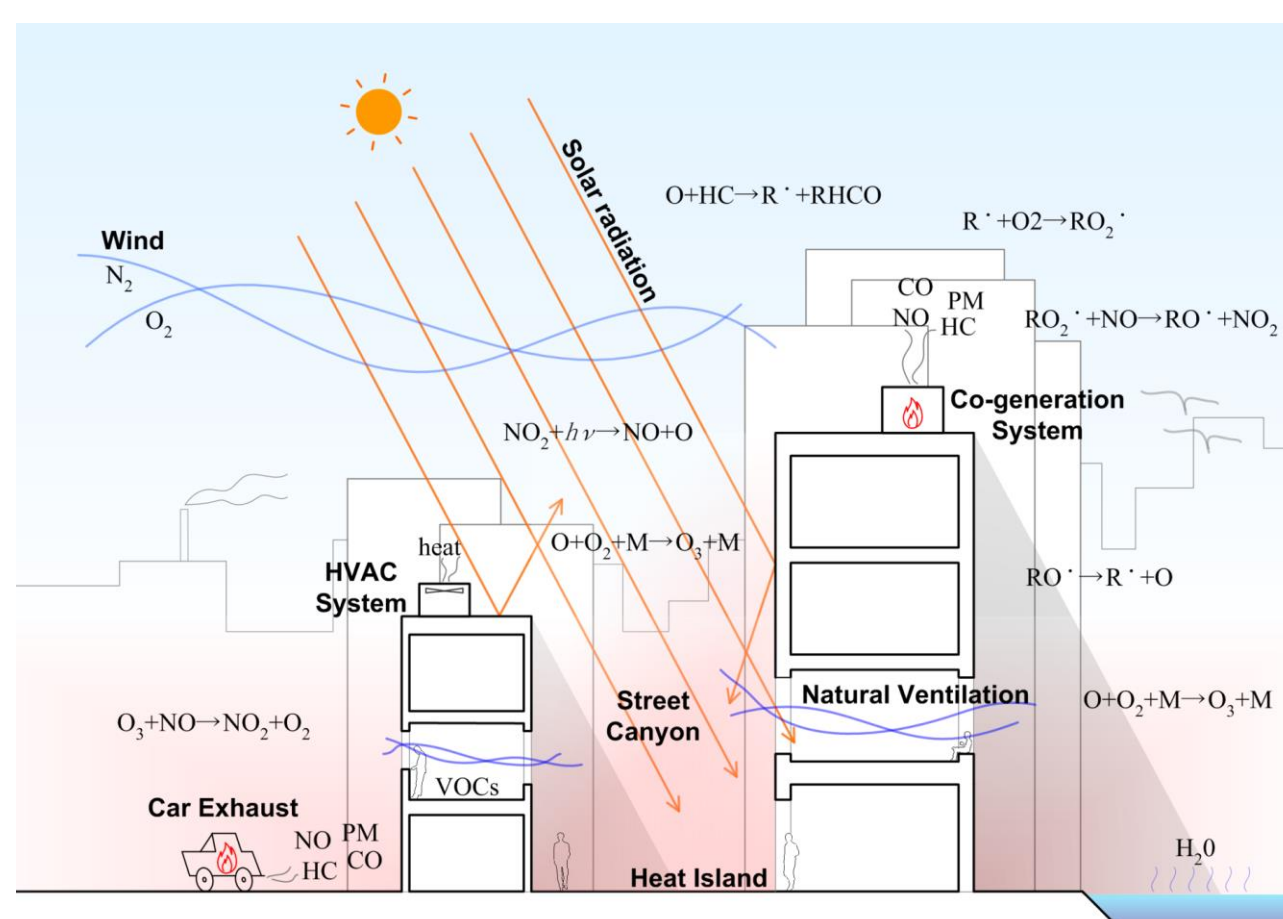
This laboratory makes researches to understand, predict and control urban and building environment as a complex system. The main research interest is the wind, air and thermal environment. We have been developing monitoring and simulation technology for each environmental element, and also studying environmental control technology that integrates measurement and prediction techniques by mathematical/statistical methods.



Wind tunnel experiment of city airflow

Fluid phenomena in the environment

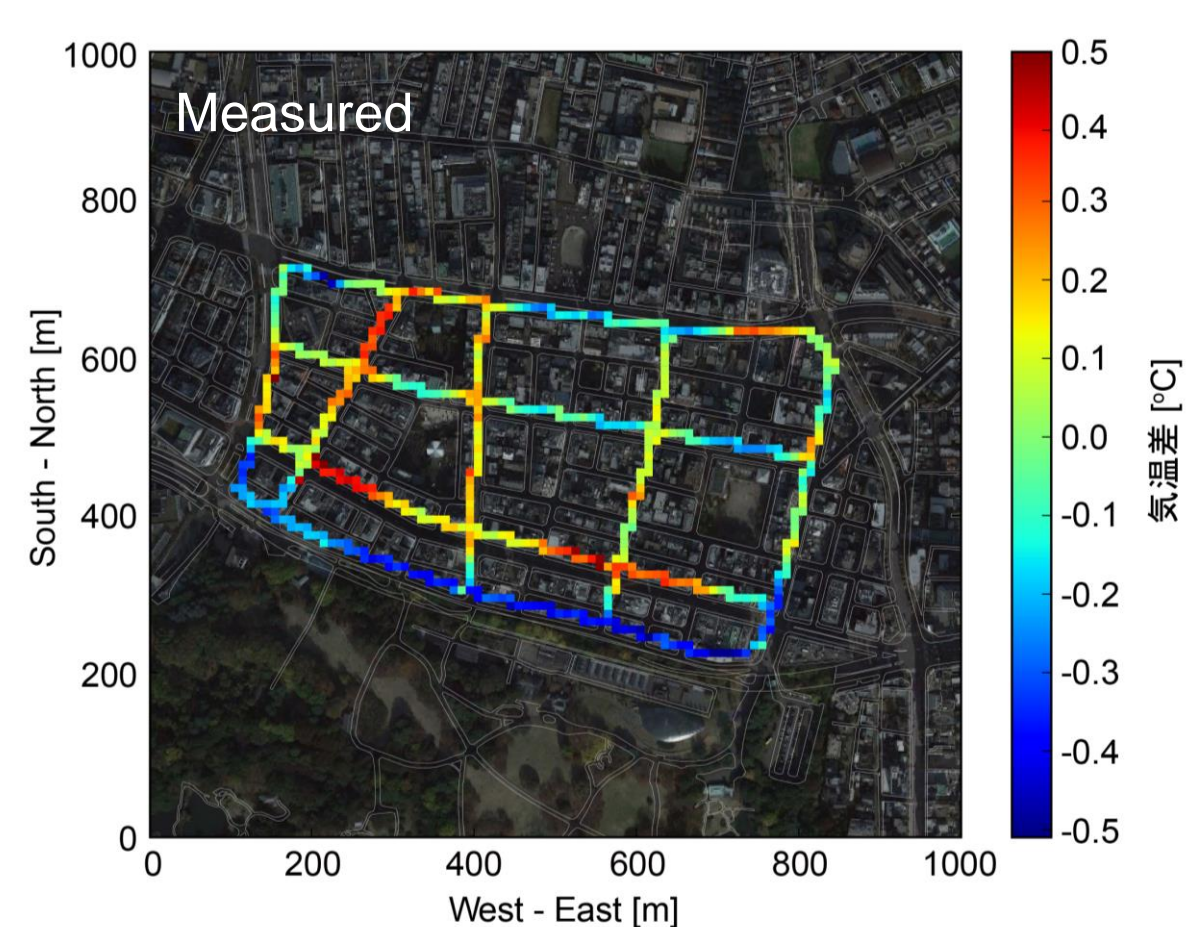
We are analyzing the air flow formed in cities and around buildings using observational method, wind tunnel experiment and computational fluid dynamics (CFD).



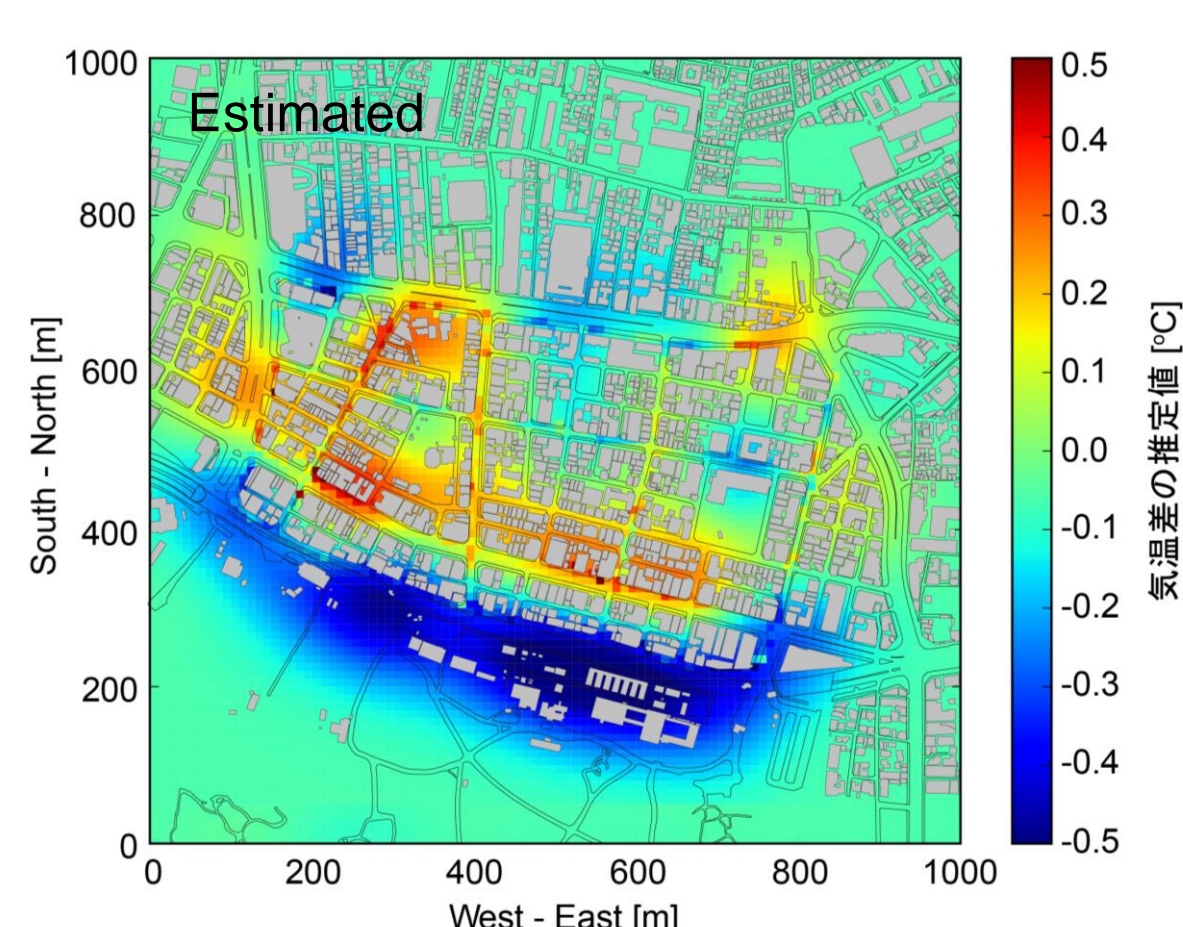
Prediction of pollutant concentration distribution

Dispersion modeling of air pollutants

We are developing highly accurate prediction technology for the dispersion phenomenon of air pollutants using turbulent flow analysis models.

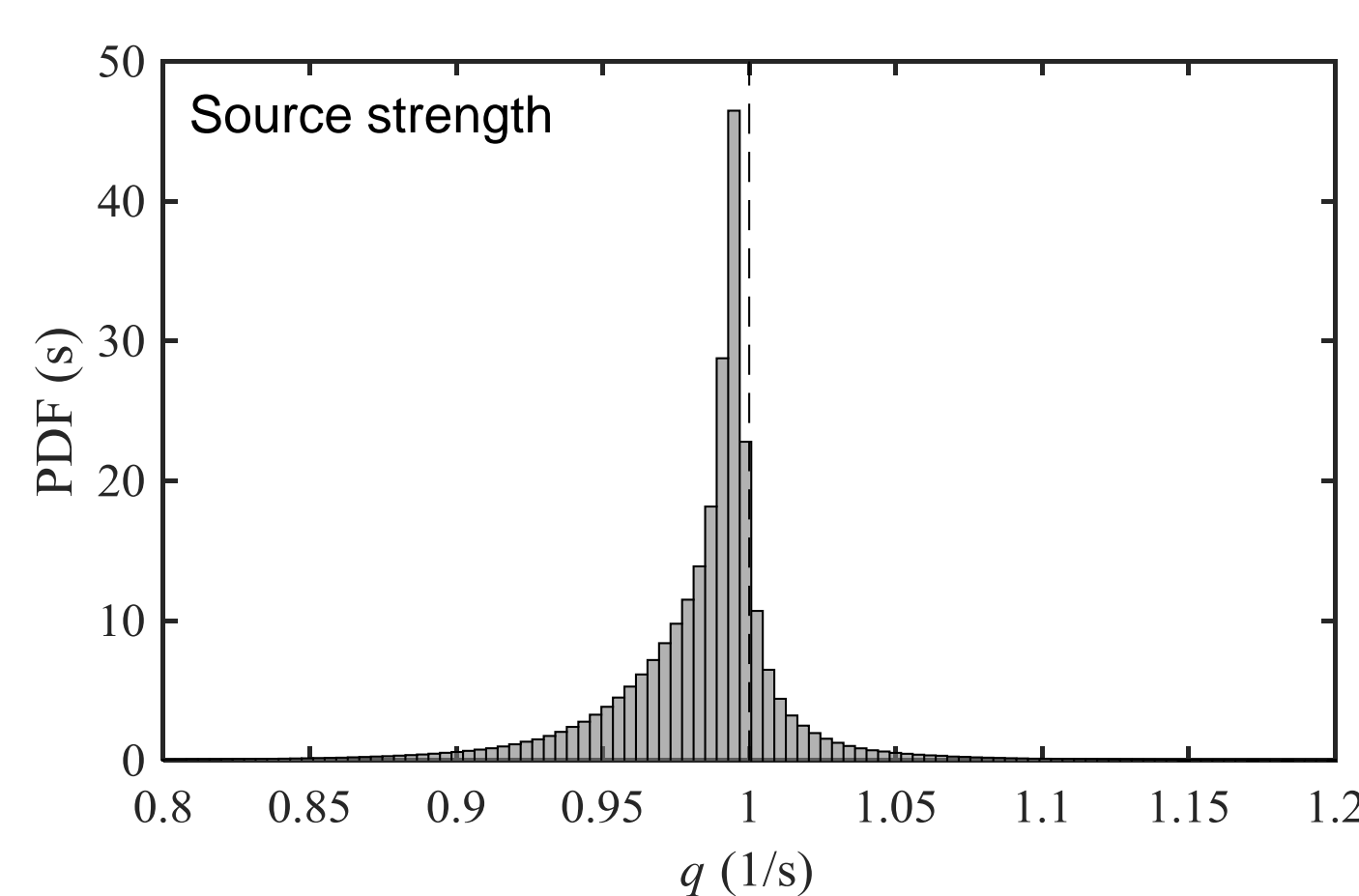
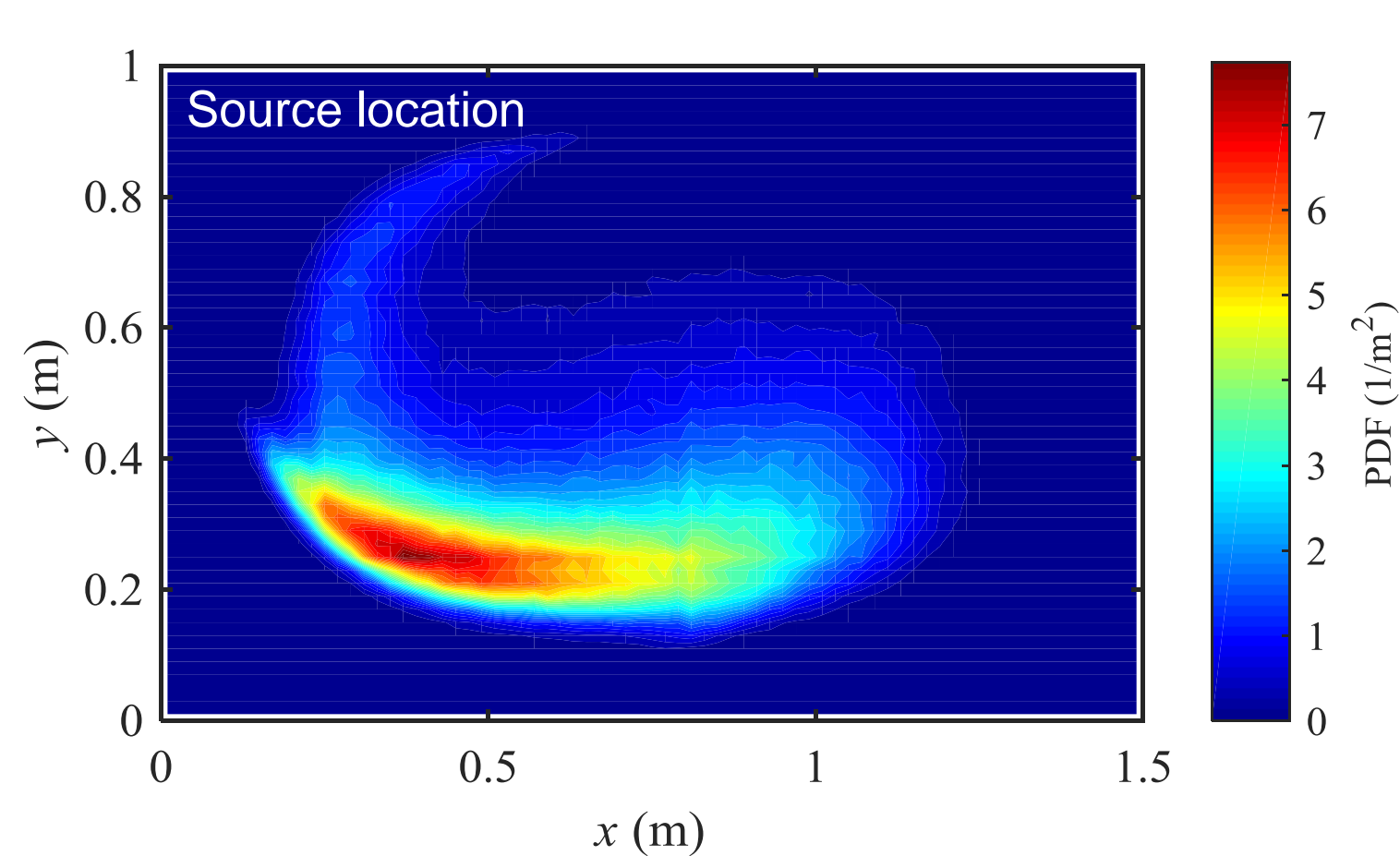


Monitoring of air temperature distribution in a city



Monitoring of the urban environment

We are developing technology to measure urban atmospheric environment with high spatial resolution. We are also studying resolution enhancement technique applying statistical models to the measurement data.



Inverse analysis of pollutant source parameters

Inverse analysis of environmental parameters

We are researching methods of stochastically estimating the environmental factors such as unknown air pollution sources with combination of physical and statistical models.