

# Photochemical Smog Investigations with a Parallel Version of the Mesoscale Model GESIMA

Hartmut Kapitza  
Dieter P. Eppel  
Institute for Coastal Research  
GKSS Research Centre  
21502 Geesthacht  
Germany

The atmospheric mesoscale model GESIMA (**GE**esthacht **SI**mulation **M**odel of the **A**tmosphere) has been developed in the early 90's and successfully applied to a wide range of problems, e.g. sea-breeze studies, pollutant transport, wind energy evaluation studies. For a brief summary of features, references, availability, and a list of external users visit the GESIMA web site at <http://w3g.gkss.de/staff/kapitza/gesima>.

In a pilot study (Bauer 2000) a chemical reaction and transport module has been implemented to simulate photochemical smog episodes. The combined chemistry-atmosphere model was validated with data from an extensive field campaign showing very promising results. The chemistry module is now being integrated into the official community version of GESIMA to be made available to all interested users.

Furthermore, there is ongoing activity to implement GESIMA on distributed memory computer architectures (SMP machines or workstation clusters) using a public domain message passing library (MPI).