

## ***Interactive comment on “Technical Note: The air quality modeling system Polyphemus” by V. Mallet et al.***

### **Anonymous Referee #1**

Received and published: 2 July 2007

Review of "Technical Note: The air quality modeling system Polyphemus" by V. Mallet et al.

This technical note describes a new air quality modeling system that includes several different dispersion models, various options for physical parameterizations and chemical schemes, and the ability to perform operations such as ensembles, model coupling and data assimilation. This modeling system is an impressive tool. This technical note provides a good description of the system, and is an appropriate way to communicate this information. The paper is reasonably well written and well organized. It should be published in ACP with minor revisions as described below.

Comments

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

## 1. Introduction

p.6460, l.12-15: These statements seem contradictory. Is the point here that air quality models are "mature", or that they need to be developed further to address the needs of air quality forecasting?

pp. 6460-6461: Provide some context for this modeling system in the Introduction. What is meant by a "modeling system" or "modeling platform"? What other air quality modeling systems exist? How does Polyphemus differ from existing systems, either in technical implementation details or scientific abilities?

### 2.1 Overall architecture

p.6461: What sort of models are you referring to here as "atmospheric models"? Do you mean chemical or physical models? What input data are you referring to? Meteorology and emissions data, or chemical observations (i.e., for data assimilation)?

pp.6461-6463: Discuss which computer platforms Polyphemus can be run on. Do it support parallelization? What are the computational requirements? (This will obviously vary widely depending on the model configuration.)

### 2.2 Data processing and physical parameterization

p.6464, l.18-21: Are such coefficients usually saved each timestep? (Do all component models have a common timestep?)

### 3.4 Other abilities

p.6470: Is it possible to nest Eulerian models (i.e., to embed a high-resolution copy of a model within a coarse-resolution version of the same model)?

## 4. A few illustrations

pp.6470-6472: While the point of this Technical Note is not to provide a complete model evaluation, it would be useful to make some comment on the quality of the

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

model results presented here (e.g., vs. other existing models).

p. 6472, I.14-20: Do you have an example plot showing how linear combinations of ensemble members can improve forecasts (as alluded to in the last sented of this paragraph)?

## 5. Conclusions

p.6474: It would be useful to provide more information about other resources available to potential users. For instance, give the address of the Polyphemus web page. Also, describe what is included in the Supplementary material.

---

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 6459, 2007.

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper