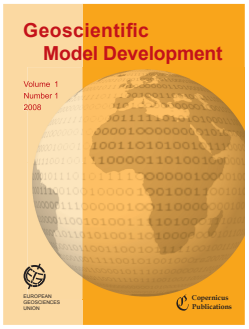

Geoscientific Model Development

An EGU journal about models, for modellers

"Improving the transparency, traceability, and reproducibility of model development"

http://www.geoscientific-model-development.net
gmd-executive-editors@copernicus.org

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(1) INTRODUCTION

The journal Geoscientific Model Development arose from the observation that despite modelling being central to geoscience, the models themselves are not generally subject to the same level of scrutiny and peer review as the results they generate. Model descriptions are generally difficult to publish independently from scientific results, and so are necessarily space-limited when they do appear. Consequently, it is not uncommon that the description of a given model is spread across several papers, and crucial aspects of the formulation may not be published at all. Issues of reproducibility, platform-dependence, version proliferation and the various fudges and corrections often needed in modelling, are rarely addressed in the literature.

In the field of climate science, this issue has been recently highlighted by the UK parliament:

"It is not standard practice in climate science and many other fields to publish the raw data and the computer code in academic papers. We think that this is problematic because climate science is a matter of global importance and of public interest, and therefore the quality and transparency of the science should be irreproachable. We therefore consider that climate scientists should take steps to make available all the data used to generate their published work, including raw data..... In addition, scientists should take steps to make available in full their methodological workings, including the computer codes. Data and methodological workings should be provided via the internet. There should be enough information published to allow verification."

(Paragraph 54, House of Commons Science and Technology Committee
The disclosure of climate data from the Climatic Research Unit at the University of East Anglia, published March 2010)

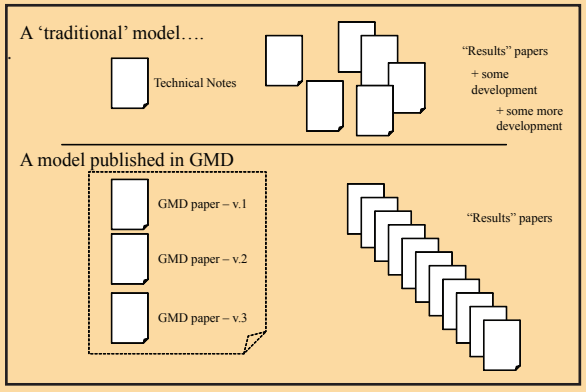
(2) AIMS AND SCOPE

Geoscientific Model Development (GMD) is an international scientific journal dedicated to the publication and public discussion of the description, development and evaluation of numerical models of the Earth System and its components. Manuscript types considered for peer-reviewed publication are:

* Geoscientific model descriptions, from box models to GCMs;
* Development and Technical papers, describing development such as new parameterisations or technical aspects of running models such as the reproducibility of results;
* Papers describing new standard experiments for assessing model performance, or novel ways of comparing model results with observational data;
* Model intercomparison descriptions, including experimental details and project protocols.

(3) MODEL PORTFOLIOS

As models are developed, traditionally the pathway of model development can be impossible to trace, with development scattered around several papers and journals. At GMD we encourage 'update' papers to be published as a model develops, which complement the original paper and allow clarity in the documentation of model devlopment.



(4) EXAMPLE PAPERS

The papers below are a representative selection of GMD papers.

First description of the Minnesota Earth System Model for Ocean biogeochemistry (MESMO 1.0) . Matsumoto, K. S. Tokos, A. R. Price, and S. J. Cox

A description of the FAMOUS (version XDBUA) climate model and control run. R. S. Smith, J. M. Gregory, and A. Osprey

LANL* V1.0: a radiation belt drift shell model suitable for real-time and reanalysis applications. J. Koller, G. D. Reeves, and R. H. W. Friedel

Bayesian calibration of the Thermosphere-Ionosphere Electrodynamics General Circulation Model (TIE-GCM). S. Guillas, J. Rougier, A. Maute, A. D. Richmond, and C. D. Linkletter

ECHMERIT V1.0 – a new global fully coupled mercury-chemistry and transport model. G. Jung, I. M. Hedgecock, and N. Pirrone

Icosahedral Shallow Water Model (ICOSWM): results of shallow water test cases and sensitivity to model parameters. P. Ripodas, A. Gassmann, J. Förstner, D. Majewski, M. Giorgetta, P. Korn, L. Kornblueh, H. Wan, G. Zängl, L. Bonaventura, and T. Heinze

Coupling global chemistry transport models to ECMWF's integrated forecast system. J. Flemming, A. Inness, H. Flentje, V. Huijnen, P. Moinat, M. G. Schultz, and O. Stein

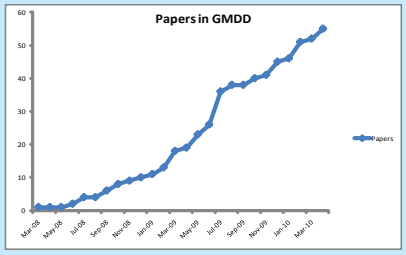
QUAGMIRE v1.3: a quasi-geostrophic model for investigating rotating fluids experiments. P. D. Williams, T. W. N. Haine, P. L. Read, S. R. Lewis, and Y. H. Yamazaki

Evaluation of the new UKCA climate-composition model – Part 1: The stratosphere. O. Morgenstern, P. Braesicke, F. M. O'Connor, A. C. Bushell, C. E. Johnson, S. M. Osprey, and J. A. Pyle

Pliocene Model Intercomparison Project (PlioMIP): experimental design and boundary conditions (Experiment 1). A. M. Haywood, H. J. Dowsett, B. Otto-Bliesner, M. A. Chandler, A. M. Dolan, D. J. Hill, D. J. Lunt, M. M. Robinson, N. Rosenbloom, U. Salzmann, and L. E. Sohl

(5) GROWTH OF GMD

The graph shows the number of GMD papers submitted as a function of time since its launch.



(6) EDITORIAL BOARD