

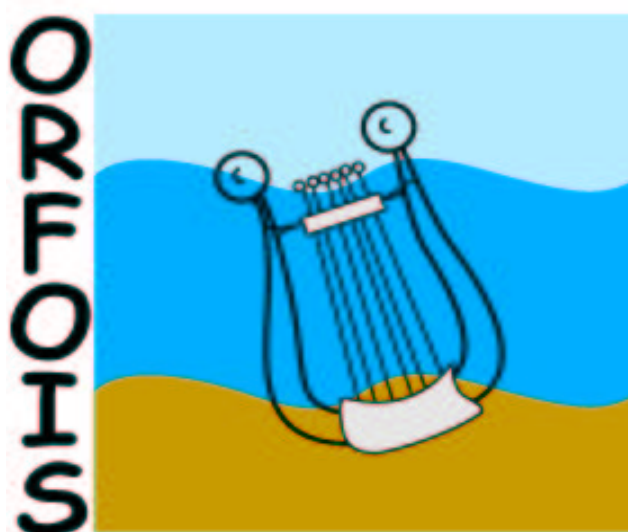
Minutes of 1st Annual “ORFOIS” workshop

Max Planck Institute of Meteorology,
Hamburg, January 20-21, 2003

CONTRACT N°: EVK2-CT-2001-00100

PROJECT TITLE: ORFOIS

"Origin and Fate of biogenic particle fluxes in the Ocean and their Interactions with the atmospheric CO₂ concentration as well as the marine Sediment"



Workshop participants:

Jørgen Bendtsen, Claus Brüning, Nicolas Dittert, Marion Gehlen, Jim Greenwood, Christoph Heinze, Iris Kriest, Axel Michaelowa, Christophe Rabouille, Olivier Ragueneau, Karline Soetaert, Richard Tol (excused were: Dorothee Bakker, Panagiotis Michalopoulos).

Agenda:

Monday, January 20, 2003

- 10:00 - 10:30 General project goals: a. first year, b. next year (Christoph Heinze)
- 10:30 - 11:00 Overview on the project flow during the first year (Christoph Heinze)
- 11:00 - 11:30 Report by partner 4 on particle dynamics in the MPI OM1 (HOPE-C) model (Iris Kriest)
- 11:30 - 12:00 Report by partner 2 on modelling and experiments (Marion Gehlen, Christophe Rabouille)
- 12:00 - 12:30 Report by partner 1 on modelling and forcing (Jørgen Bendtsen, Christoph Heinze)
- 12:30 - 14:00 Lunch break (Cafe "Klett")
- 14:00 - 14:45 Report by partner 3 on data management and process parameterisations (Nicolas Dittert, Olivier Ragueneau)
- 14:45 - 15:30 Report by partner 7 on 1-D modelling (Karline Soetaert, Jim Greenwood)
- 15:30 - 16:00 Coffee break
- 16:00 - 17:00 Comments by the advisors
- 17:00 - 18:00 Discussion
- 19:00 Dinner (Restaurant "Arkadasch")

Tuesday, January 21, 2003

- 09:00 - 10:30 Planning the actions for finishing of the first phase of the project
- 10:30 - 11:00 Coffee break
- 11:00 - 12:00 Planning the actions for the optimisation phase of the project
- 12:00 - 13:00 Final discussion
- 13:00 End of workshop

Details of the participants' presentations reports can be found in the first annual scientific progress report of the project.

The core of the workshop was the discussion of the deliverables due within the next 6 months of ORFOIS. The deliverables and the persons responsible for them are listed below as a reminder. The list can be changed if required by scientific procedure or change in personnel. If urgent changes should be made, the principal investigator of the participant in question should address the co-ordinator (Christoph Heinze) so that the responsibilities for the respective deliverable are clear and timely finishing is ensured. The sequence of the deliverables below is in chronological order (in contrast to the Work Programme). Due to the very short notice concerning the start of the project, a slight delay of one month occurred. The status of all deliverables below will have to be documented in the coming management report which is due May 31, 2003.

Deliverable No. 4 - Data extraction techniques (due after month 15, i.e., February 28, 2003):

Scientist(s) responsible: N. Dittert, D. Bakker

Comments:

The collection of data will go on beyond month 18.

3 different tools are already in use.

Format of deliverable:

Ca. 1 written page about the techniques.

Deliverable No. 5 - Parameterisation of particle flux dynamics (sinking velocity, coagulation, disaggregation) (due after month 15, i.e., February 28, 2003):

Scientist(s) responsible: I. Kriest, K. Soetaert

Comments:

Several code versions are already available.

Gaps exist still for the formulation of disaggregation, e.g., due to turbulent shear and corresponding break-up of particles – open issues:

1) Which data should be used for the validation of the particle fluxes ?

a. Sediment traps (reliability ?) ?

b. The sediment itself.

c. Deposition rates (how to get those from observations ?).

d. O₂ flux between sediment and water column.

2) In the OPA model the export fluxes increased considerably after the introduction of particle dynamics. Why ?

3) Should the disintegration of particles made be proportional to the zooplankton concentration ?

4) How to include the ballast effect ?

5) What are the best test sites for the particle dynamics and are observational data for those sites available ?

Format of deliverable:

Computer code plus short documentation.

Deliverable No. 6 - Parameterisation of the dissolution rate of POC, CaCO₃, and biogenic silicate in the water column and in the sediment (due after month 15, i.e., February 28, 2003):

Scientist(s) responsible: K. Soetaert, J. Greenwood, I. Kriest., C. Heinze, M. Gehlen (address also O. Aumont), C. Rabouille, O. Ragueneau

Comments:

The best available parameterisations should be listed in the form of an “ad hoc” catalogue. Due to experimental difficulties, the dissolution kinetics for aggregates will be available probably in October. A short comment on these difficulties and the procedure to overcome them should be sent to the co-ordinator.

In the BOGCMs, the dissolution rate constants K_1 , K_2 etc. should be re-checked and updated.

Format of deliverable:

Ad hoc catalogue of dissolution kinetics formulations in the form of short notes.

Deliverable No. 7 - Parameterisation of the conversion of biogenic silicate to other mineral phases in the sediments (due after month 15, i.e., February 28, 2003):

Scientist(s) responsible: P. Michalopoulos, O. Ragueneau, C. Rabouille

Comments:

The “precipitation rate” of opal as conversion into clay minerals has to be quantified. The Danube river samples can be used for this purpose.

Format of deliverable:

Short notes with respective formulations.

Deliverable No. 7a - Parameterisation of CaCO_3 dissolution (due after month 15, i.e., February 28, 2003):

Scientist(s) responsible: M. Gehlen et al.

Comments:

Due to the experimental difficulties associated with the laboratory experiments, this result will be somewhat delayed. The co-ordinator will be informed about the progress of the work.

Format of deliverable:

Short note on idea and procedure.

Deliverables 8-10 are summarised here as one:

Deliverable No. 8 - 1-D ecological/particle flux model (due after month 15, i.e., February 28, 2003).

Deliverable No. 9 - 1-D sediment early diagenesis model (due after month 15, i.e., February 28, 2003).

Deliverable No. 10 - Coupled version of 1-D biogeochemical/particle flux and sediment model (due after month 15, i.e., February 28, 2003):

Scientist(s) responsible: K. Soetaert, J. Greenwood, C. Rabouille, O. Ragueneau, I. Kriest

Comments:

The ecological modules from the 3-D models will be integrated into the 1-D codes during the project, if the respective 3-D codes are well documented.

Format of deliverable:

Source codes, input data, and brief technical description.

Deliverable No. 11 - particle flux dynamics module ready for coupling to BOGCM (community model) (due after month 15, i.e., February 28, 2003):

Scientist(s) responsible: I. Kriest, J. Bendtsen

Comments:

Iris will send the latest HAMOCC update to Jørgen.

Format of deliverable:

Source code and brief technical description.

Deliverable No. 12 - sediment module ready for coupling to BOGCM (community model) (due after month 15, i.e., February 28, 2003):

Scientist(s) responsible: C. Heinze, J. Bendtsen

Comments:

If possible, create user friendly interface (so that switch from HAMOCC to the IPSL model is facilitated).

Format of deliverable:

Source code and brief technical description.

Deliverable No. 1 - Storage of data sets in online data base (due after month 18; i.e., May 31, 2003):

Scientist(s) responsible: N. Dittert, D. Bakker, P. Michalopoulos

Comments:

The compilation of multi-tracer test site data sets for the model validation would be desirable.

Suggestions for those sites/data sets:

OMEX, EqPAC, JGOFS, BATS, HOTS, BENGAL area (Lampitt), Southern Ocean (3 sectors), AESOPS, ESTOC (Problem: many eddies), NABE, PAPA (Canad. JGOFS), EUMELI, BIGSED.

Format of deliverable:

Data available on pangaea/wdc-mare.

Deliverable No. 2 - CD-ROM with copy of online data base (basic version)(due after month 18; i.e., May 31, 2003):

Scientist(s) responsible: N. Dittert

Comments:

A beta version CD was already delivered to C. Brüning during the meeting.

Format of deliverable:

CD-ROM with data sets.

Deliverable No. 3 - Project home page with references to the data sets (basic version) (due after month 18; i.e., May 31, 2003):

Scientist(s) responsible: N. Dittert and ALL

Comments:

Every participant sends one "archetype" example of work accomplished during ORFOIS to Nicolas for transfer onto the website. Please, take care that no property rights and publication issues are violated. Christoph provides electronic version of progress report (with correct web page address and correction for participant 2 personnel).

Format of deliverable:

Files to be included on website. Web pages.

Deliverables 15-16 are summarised here as one:

Deliverable No. 15 - Basic BOGCM I version with community model components running for preindustrial conditions (due after month 18; i.e., May 31, 2003);

Deliverable No. 16 - Basic BOGCM II version with community model components running for preindustrial conditions (due after month 18; i.e., May 31, 2003):

Scientist(s) responsible: E. Maier-Reimer, I. Kriest, C. Heinze, J. Bendtsen, M. Gehlen et al.

Comments:

MPI and NERI harmonise their MPI OM1 codes and then start longer preindustrial run. Sediment code has to be implemented into IPSL OGCM. Sea ice cover in the Southern Ocean (BOGCM I) has to be correct (too weak at present).

Format of deliverable:

Source code, input data, and brief technical description.

Deliverable No. 17 - Basic shelf regime parameterisation (BOGCM I) (due after month 18; i.e., May 31, 2003):

Scientist(s) responsible: C. Heinze, P. Michalopoulos

Comments:

Procedure was discussed on meeting at NERI (December 2002).

Format of deliverable:

Source code and brief description.

Deliverable No. 39 - management report to the EC after 18 months (due after month 18; i.e., May 31, 2003):

Scientist(s) responsible: C. Heinze (with contributions from all)

Date and location for 2nd annual ORFOIS workshop:

At the meeting we envisaged the week January 19-23, 2004. However, this would be just before the AGU Ocean Sciences Meeting 2004 to be held in Portland (Oregon, USA) during January 26-30, 2004. Therefore it is suggested to hold the meeting in the week February 9-13, 2004. As location Gif-sur-Yvette, France, was suggested.