COST 735 MEETING
16-17 October 2007, Brussels, Belgium, COST Office Headquarters

INTRODUCTION – CHAIR: JEFF HARE

(note that MC Decisions below were made during Introduction session on 16 October and during Wrap-up session at the end of 17 October).

Chair encourages the WG chairs to set their own agenda, organize their meeting and invite the relevant people. It is suggested that the WG's conduct workshops and meetings in an independent fashion over the next 12 months or so, in order that progress be made along all three of those fronts. Regular reporting to the Chair is required from all WG co-chairs, including with respect to allocation of financial resources.

MC Decision (Oct16): It is agreed that the near-term strategy is for the Working Groups to act 'quasi-independently' for the next year. We will reconvene as an entire group sometime in mid-to-late 2008.

Chair is asked about the composition of the MC and how members are "elected". This is a matter for the National Representatives to COST and is not directly controlled from the Action.

The financial administration will be transferred almost completely to the UEA (Chair's institution) within the next 6 months.

Chair seeks approval of the MC of a 2,000 € transfer to the UEA to set up the web page.

MC Decision (Oct16): GASG of 2000 EUR from the Action budget to UEA for website development is approved.

Discussion on the composition of meetings. COST office recently communicated to us that we have over-representation by the United Kingdom for the current meeting. Chair seeks MC approval for this circumstance for the current meeting.

MC Decision (Oct16): MC approves the current over-representation by the UK for today's meeting.

Futhermore, the Chair requests assistance from the MC and all WG participants to avoid such situations in the future. That is, that we be diligent to more carefully compose the meeting participation so that geographic representation across all participating nations be more uniform.

MC Decision (Oct16): MC agrees that we develop a more democratic composition of the WG's to reflect the participation of the nations in the Action.

Chair presents the current budget of the Action. Discussion as to how to make maximum use of the funds in the next 6-9 months, and continue planning for the next 12-18 months.

MC Decision (Oct17): MC approves the current budget (see attached).

Chair seeks MC approval for a motion that STSM's be a high priority for the Action and that we continue to emphasize their value.

MC Decision (Oct17): MC approves STSM's as a high priority instrument for the Action.

A number of workshops have been approved by the three Working Groups, including a Benguela-upwelling (CO2) workshop in Denmark, a gas transfer parameterization workshop in the UK or Germany, and a workshop on halocarbon intercalibration (tentatively scheduled for the UK, perhaps London).

MC Decision (Oct17): MC approves of these workshops, in concept, provided the full proposal be provided to the Core Group and to the MC for complete perusal and official approval.

October 16 Plenary

COST ADMINSTRATIVE OFFICER: CHANDRASA SJAMSUDIN

Presents what is happening at COST: changing administration, towards a new contract with EC, report of the last calls (4 new actions in ESSEM domain in 2006, 2-3 in 2007).

Budget of 735 until May 2008: 90,000€. (5,840€ have not allocation yet)

Costs of publications in the course of the Action have to be taken by the Action itself. COST only covers publication at the end of an action.

For training schools, a max of 600€ per student can be funded (including travel and subsistence), over a max of 5 days.

We are asked to dedicate more time to MC decision making and financial strategy.

WG1 CO-CHAIR: RICHARD BELLERBY

WG1 compares and synthesises our understanding of the biological and chemical processes that regulate the concentrations of these gases in seawater, with particular emphasis on the effect of atmospheric inputs on these processes. To do this it requires collaboration with WG2 to develop estimates of atmospheric inputs to the ocean.

A compilation of data on the oceanic cycling of sulphur allows for an evaluation of the different models currently in use. A model intercomparison will be conducted and the outputs synthesised for a best estimate of ocean sulphur cycling. Oceanic DMS concentrations will be converted to air–sea fluxes using the gas transfer velocities developed by WG2.

Once combined with a compilation of atmospheric measurements of the oxidation products of DMS, our knowledge of the oxidation pathways and branching ratios will be evaluated and best estimates for inputs to chemistry transport models provided. This work will allow sulphur cycling in coupled general circulation models (GCMs).

A vital task of WG1 is to develop a dialogue between process modellers and those implementing diagnostic models within GCMs. For other short-lived trace gases, process models need to be developed and tested against data, global fluxes estimated and their importance to atmospheric chemistry evaluated.

For each short-lived trace gas of interest (e.g. DMS, CHBr3, CH3I, MeNO2, isoprene, methanol)

- Compile existing databases of relevant parameters to produce the definitive dataset of air–sea fluxes combined with a gas transfer velocity to produce a flux estimate.
- Identify issues relating to calibration of different measurements, and develop and seek funding for intercomparison experiments where Short Term Scientific Mission (STSMs) will not suffice.
- Examine the data products and compare them with modelling results.
- Depending on the skill of available models, the WG will include model results and global averages in the database.
- Identify gaps in the current data set and coordinate further research to address these.

Stage 1 Products

- Global database of trace gas concentrations in the ocean and atmosphere (DMS, CHBr3, CH3I, MeNO2, isoprene, methanol, etc.).
- Database of concentrations of oxidation products of DMS.

- Intercomparison of process and diagnostic models of air–sea sulphur cycling.
- Framework for modelling the air–sea flux of the other trace gases.
- Database of measurements of trace metals, nutrients and organics in marine aerosol.
- Database of all oceanic iron fertilisation experiments conducted to date.

Database of mesocosm experiments

WG1 Network tasks

- Identify national networks of the WG1 participants
- Identify COST 735 experts for co-ordination of sub-areas of WG1
- Identify external experts (European and "international")
- Identify centres of excellence for housing/training students and researchers in Short Term Scientific Missions (STSMs)
- Identify funding bodies for WG1 sub-area development
- Develop meetings and symposia for WG1 sub-goals

Significant paper as a result of these symposia (Nature or Science)

WG1 Science Tasks

- Identify relevant variables
- Database of sea and air concentrations
- Calibration of different measurements
  - intercomparison experiments
  - crossover comparisons
- Examine data products
- Comparison with modelling results – evaluation/comparison of different models
- Develop a dialogues between process and (diagnostic) global circulation modellers
- Identify gaps in the current database and co-ordinate future research

List of tasks:

Task 1: Assemble database for climate active gases in air and seawater
organohalogen – Phil Nightingale/Birgit Quack
"organic" gases - Jonathan Williams
Workshop for standards – Birgit Quack

Task 2: Assemble database of DMS oxidation products

(external expert lead)
Task 3: Assemble database of trace metals, nutrients and organics in marine aerosols
Jordi Dachs/Alex Baker
Task 4: Intercomparison of process and diagnostic models of air-sea sulphur fluxes
(addressed by CODIM – Laurent Bopp Rafel Simo)
STSM for new Kettle climatology
Task 5: Develop framework for modelling air-sea flux of other gases
(Jim Gunson and Ken Carslaw + expert group)
Task 6: Assemble Fe enrichment experiment database including biological impacts and trace gas fluxes (Dorothee Bakker and Peter Croot) Joint meeting with SCOR (June 2008)
Task 7: Assemble mesocosms database for acidification experiments
(Ulf Riebesell and Richard Bellerby) Joint meeting with UNESCO/EurOceans Sept 2008

October 16
Breakouts
Working Group 1 (COST 15th Floor - Meeting Room)
13:00 Some recent studies of marine methyl halides – Invited speaker Bob Moore
13:45 Current WG3-orientated research in New Zealand: Focus on CO2 and CH4 – Invited speaker Cliff Law
14:30 Coffee Break
15:00 Modelling the flux of trace gases of shorter and longer lifetimes at fine vertical resolution – Alastair Jenkins
15:45 How to assemble a database: Part 2 – Tom Bell

October 17
09:00 Measurement and modeling of DMS – Steve Archer
09:45 Progress on Task 1 "Assemble database for climate active gases in air and seawater"
- Progress on Task 2 "Assemble database of DMS oxidation products"
- Progress on Task 3 "Assemble database of trace metals, nutrients and organics in marine aerosols"
- Progress on Task 4 "Intercomparison of process and diagnostic models of air-sea sulphur fluxes"

10:45 Coffee Break
11:15 Earth System Modelling of air-sea gas fluxes - Jim Gunson
Noon Lunch
13:00 Discussion on Task 5 "Develop framework for modeling air-sea fluxes of other gases"
13:30 Advances in our understanding of the oceanic response to natural and artificial Fe fertilization – Peter Croot
13:50 Discussion on Task 6 "Assemble Fe enrichment experiment database including biological impats and trace gas fluxes"
14:10 Acidification perturbation experiments: recent advances and metaanalysis plans – Richard Bellerby

14:30 Discussion on Task 7 "Assemble mesocosm database for acidification experiments"
14:45 Discussion of WG1 developments and progress

WG3 CO-CHAIR: HERMANN BANGE

Presentation of WG3- aims, current ativities
Submitted or ongoing initiatives for global N2O and CH4 compilations, led by COST735 participants.
For CO2, CARBOOCEAN is performing the compilation (so far 6.3 million measurements)
For COS, there have been some publications, but most data are from coastal and estuarine regions, and there is little coverage as to global distribution.
Overview of the meeting agenda.

WG3 products

- Database of N2O, CH4, CO2 and COS
  sea and air concentrations measurements
  incl. representation of the coastal zone
- Typology of coastal regions for scaling global fluxes
- (Protocol for mesocosm simulations of ocean ecology in high CO2 conditions → moved to WG1)

Timetable

- Year 1: Preparation of an inventory of exsisting relevant data with detailed description. WG3 will identify gaps in the data and will make recommendations on how to close them. Report to MC.
- Years 2-4: Meetings for planning, implementing, reviewing and synthesising the work. Report at least every 12 months to MC.
- Year 5: Finalisation of the expected outputs

Current activities – N2O
A Freing & HW Bange: ongoing DFG project to compile open ocean data;
a report and first version of database to be finalized by end of 2007
12300 data records from 1026 stations and 55500 surface data points
(incl. atmospheric data, associated nutrients, O2, Temp and Sal)

- Request to COST Action 735: STSM for A. Freing to visit N. Gruber's lab in Zurich (in Feb 2008)
- Visit to Norwich, Dec 07: Collaboration with T Bell, SOLAS Project Integrator)

Current activities – CH4

R Upstill-Goddard (in cooperation with HW Bange)

"Towards a global database of marine methane measurements" proposal submitted to NERC, incl. student exchanges between the labs of Upstill-Goddard and Bange

Current activities – CO2

"Global ocean surface water partial pressure of CO2 database: Measurements performed during 1968-2006 (Version 1.0)"

by T Takahashi, SC Sutherland and
A. Kozyr, report RNL/CDIAC-152, NDP-088, published September 2007
>3 millions measurements of pCO2
Current activities – CO2

"CARBOOCEAN surface pCO2 database"

Report in preparation by Benjamin Pfeil (CARBOOCEAN data manager)
ca. 6.3 million measurements
from 1972-2006

Current activities – COS
Tom Bell is compiling the datasets

Current activities – Atmospheric Data

Atmospheric data of N2O, CH4, and CO2 are available from the SIO and NOAA monitoring sites

What is missing so far? – Future activities (in cooperation with T Bell)

- Compilation of coastal data of N2O, CH4 and CO2
- Compilation of COS data
- Typology of coastal regions

Breakout Meeting 16 Oct 2007, Agenda
C Law, "Current WG3-orientated research in New Zealand: Fous on CO2 and CH4"
A Borges, "Present day CO2 cycle in tjhe coastal ocean and possible evolution under global change"
L Sörensen, "CO2 flux data from the Benguela upwelling"
T Vesala, "High-frequency measurements of photosynthesis of planctonic algae using new Vaisala carbon dioxide probes"
A Jenkins, "Modelling the flux of tace gases of shorther and longer lifetimes at fine vertical resolution"

HW Bange, “Trace gas measurements in the eastern tropical North Atlantic Ocean“

WG3 Schedule of Talks 17 Oct

- T. Vesala, “High-frequency measurements of photosynthesis of planktonic algae using new Vaisala carbon dioxide probes”
- A. Borges, “Present day CO_2 cycle in the coastal ocean and possible evolution under global change”
- L. Sørensen, “CO_2 flux from the Benguela upwelling“
- C. Law, “Current WG3-orientated reseach in New Zealand: CH_4 and CO_2”
- H. Bange, ”Trace gas measurements in the eastern tropical North Atlanic“
- J. Boutin, “CARIACO measurements off Brest (mooring) and in the Southern Ocean (drifters)”
- V. Garçon, “pCO_2 measurements in the Drake passage”

INVITED EXPERT: BOB MOORE, DALHOUSIE, CANADA

Polyhalogenated compounds have shorter lifetimes and have a bio source.
Methyhalides: sources less well known; some definite biological sources and a less certain photochemical source.

N Pacific Fe fertilization: isoprene production was clearly stimulated; no clear response of CH3I and CH3Cl (diatoms are not major sources). Unfortunately the decline of the bloom was not studied (there might be microbial sources).

Seasonal and spatial variation in the N Atlantic: CH3I increases in summer (July vs April), as well as spatial variation. Phyto organisms responsible not clearly identified. Some correlation with T, and depth-averaged daily radiant exposure (325 nm and PAR), R about 0.6, but not with any pigment.

Smythe-Wright et al. GBC 2006 found a strong correlation between CH3I and Prochlorococcus C in the Atlantic and the Indian Oceans.
Discrepancy of results from cultures between Moore’s and S-W’s groups. It seem that Prochloros do produce CH3I indeed, but high cell conc cultures give conc that are similar to those of oceanic waters.

Irradiance of experiments with a mix of seawater and high CDOM riverwater (3:1) shows photochemical production of CH3Cl. Irradiance of deuterated syringic acid shows photoproduction of deuterated CH3Cl.

WG1 CO-CHAIR: RICHARD BELLERBY

Acidification perturbation experiments

Aragonite saturation – would expect reduced growth rates and even dissolution of cold water corals based on projected CO2 levels.
Proposal in to study effect on DMS products due to impacts on coccolithophores.
C:N ratio affected by CO2 concentration

Future work – EUR-OCEANS data transformation project starting in 2008.
Mandate to collate data and meta-datasets of all experiments relating to CO2 effects on marine ecosystems
Start date and science meeting in Sep 2008
Potential synergy with FP7 projects EPOCA and MEECE, which have a strong perturbation and meta-analysis component.

Cruise opportunities for trace gas measurements (with Richard) – looking at effects of changing CO2 and copper concentrations.

WG2 MEMBER: ALASTAIR JENKINS

A coment is made by Jim Gunson on the need, for climate modelling, to fill the gap between fine-resolution gas exchange models like the one presented here and the parameterization schemes like Wanninkhof.

PROJECT INTEGRATOR: TOM BELL

Shortly presents his project and how it coincides with the aims of COST735.
States that major challenges of WG1 revolve in tasks 1 & 3, i.e., assembling databases for trace gases and aerosols.
Examples of Project Integration fostering of integration activities:
-UK SOLAS knowledge transfer meetings on air-sea exchange and halocarbons
-STSM for the update of the Kettle DMS database
-Forseen UK SOLAS knowledge transfer meeting on chemical composition of aerosols and dust deposition
Proposes discussion in smaller groups and presents recommendations for an efficient construction of datasets.

Open discussion on the development of datasets, as pertaining to the Action

Tom suggests going through a list of questions mainly aimed at identifying the data sources and quality, and assigning tasks to people and resources.
Richard introduces the need for identifying key people who can contribute from outside COST735.
Jonathan warns about the fact that for some gases there is so few data that those questions are too easy (poor) to answer, and rises the issue of using global models to complement scarce data to produce reasonable emission fields.

David, Vero and some others raise some caution on using models at this stage of development, that is, at the stage of gathering data.
Jacqueline and Birgit ask about the work flow for both the meeting and the action in general.
Richard and Vero mention that for first year it was planned to gather datasets, while analysis is to be done in subsequent years.

BREAKOUT GROUPS FORMED

…

WG1 MEMBER: STEVE ARCHER

We still do not know what is the dominant DMS production process.
Methods for DMSP production measurement:
-Dilution exps
-deuterated

There is a gap here.
Tight coupling between production and consumption. Typically >50% of the stock grazed (often >100%).
Picoeukaryotes and DMSP producers grow and are grazed at higher rates than bulk phyto.
With revised estimates of DMSPd concentrations and fluxes, the DISCO S budget comes up with the need for a high direct source of DMS from phytoplankton.

DODiM: models that do better are those that introduced a light-forced production of DMS(P). What is the physiological basis?

Seasonal study: DMS some sort of correlation with SRD, with outliers corresponding to Phaeocystis. Nice correlation between DMSP/SRD and SRD, coincident with protection pigments and MAA to Chla ratios.

Light experiments clearly show release of DMS from phyto under UV!

WG1 MEMBER: JIM GUNSON

Things than climate models need:
-Improved understanding of the response of plankton community to changing external forcing.
-Reduce uncertainty of air-sea gas flux params
-Improved understanding of prod. of climate-active gases by marine biota.
-Impact of atm dep on ocean ecosyst
-Improved understanding of S chemistry in the atmos
-More data to validate and evaluate models

Data are needed to see whether models simulate observations, asses where models need to be improved, tune models, create climatologies of new gases (e.g. isoprene).

Major questions:
Is complexity always necessary?
Can this complexity be validated at the global scale? Are there enough data?

WG1 MEMBER: PETER CROOT

Task 6 – assemble and synthesise the iron enrichment experiment data (not natural).

Overview of EIFEX
- Lots of Carbon removal from the mixed layer.
- Spikes in transmissometer showed sinking.
- Follow up cruise (few weeks later) focussed on benthic layer. Benthic core – fluff layer. Diatom chains with chloroplasts present. Bacteria also present (DAPI stain). Very fast sinking rates.
Disagreement as to why the bloom crashed – physical mechanism? Stratification (calm winds, increased sun). Or diatom life cycle – programmed cell death?

Task 6 progress:
SCOR has endorsed the Working Group "The legacy of in situ iron enrichments: data compilation and modelling" (for 1 year)
Money only for chairs (Phil Boyd and Dorothee Bakker)
Good enough progress = SCOR would welcome a follow-on proposal
COST workshop on Fe fertilisation experiments to be organised for 2008-09 financial year.

WG1 MEMBER: RAFEL SIMO

DMS Sub-Group Discussion

- What needs doing and who could do it (not necessarily a commitment to do the work!)? Break it down stage by stage.

1. Data are being assembled, dataset maintained at NOAA/PMEL.

2. The DMS community (part. Modellers) have identified the need for an update of the Kettle climatology. COST 735 takes the challenge.
3. We need a person to do the hard work - Arancha Lana, Rafel's PhD student.
4. We need a place with the required expertise – UEA
5. We need a time frame – 2008
6. We need money…
7. - How big is the dataset likely to be (no. of data points, spatial and temporal coverage)?

35,000 data points (surface ocean DMS concentrations)

- What information is needed from WG2 to calculate a flux (e.g. average wind speed over what time period?)?

To be discussed later on. Climatology will be monthly.

- What ancillary data is required? Climatological or in situ data?

A list of recommended ancillary data will be elaborated by the WG1-DMS subgroup and circulated among the DMS community.

- Consider what solutions are needed – these will also be different for each dataset.
  - Is salary required? What pots of money could be applied to for this?

No salary (it's going be us and an already granted PhD student).
We will submit a COST735 STSM, but this will require more funding.
A proposal was submitted to EUR-OCEANS on Monday, which should cover most of it (17,500€). Initial and final workshops are scheduled, one of which could coincide with a WG1 workshop.

- Where is the data located and how can it be brought together?

NOAA-PMEL. We will announce the initiative to the DMS community to foster the submission of not yet submitted data.

- Who could/will lead any proposal?

Tom Bell, Jim Gunson, Laurent Bopp, Rafel Simó* (core group)
Peter Liss, Jamie Kettle, Jacqueline Stefels, Steve Archer, Eva Bucciarelli

- Is a group of experts required to discuss any issues?

Tim Bates & Jim Johnson (NOAA/PMEL)

Atmospheric DMS oxidation products (SO2, nns-SO4, MSA, DMSO, DMSair?)

- - What needs doing and who could do it (not necessarily a commitment to do the work!)? Break it down stage by stage.

1. We need to take a look at the existing data and see their coverage.
2. We should look for literature reviews of the distribution of ox. Prod.
3. If reasonable coverage, a climatology could be attempted (to be compared with aqueous DMS climatology).
4. If too scarce, we could put together those studies with simultaneous

measurements of aqueous DMS and DMS ox. Prod., and see what they all together tell us about DMS oxidation pathways and time scales.
5. Further needs will depend strongly on where we head to.
6. How big is the dataset likely to be (no. of data points, spatial and temporal coverage)?

No idea. Probably large for nssSO4, smaller for SO2 and MSA, and very small for DMSO.

- What information is needed from WG2 to calculate a flux (e.g. average wind speed over what time period?)?

- What ancillary data is required? Climatological or in situ data?

- Consider what solutions are needed – these will also be different for each dataset.
  - Is salary required? What pots of money could be applied to for this?

  - Where is the data located and how can it be brought together?

  Scattered in the literature, unless we find out there is some dataset we do not know of. Aerosol nssSO4 and MSA in AERONET.

  - Who could/will lead any proposal?

  Roland to search in the literature and web.

  - Is a group of experts required to discuss any issues?

  It is clear that such expertise is heavily underrepresented in our current WG1.

October 17 Plenary
WG1 SUMMARY: CO-CHAIR: RICHARD BELLERBY

Presentation of WG1- aims, progress so far, and products expected
Tasks ahead (both networking and science), to be discussed during the current meeting.
Report of the meeting in May.
Overview of the meeting agenda.

Progress in some areas of WG1 (especially Tasks 4, 6 & 7), the major challenge for COST Action 735 revolves around Tasks 1 and 3.

- Task 1:

Assemble database for climate active gases in air and seawater (e.g. DMS, Halocarbons, alkyl nitrates, isoprene, oVOCs)

- Task 2:
  Assemble database of DMS oxidation products
- Task 3:
  Assemble database of trace metals, nutrients and organics in marine aerosols.
- Task 4:
  Intercomparison of process and diagnostic models of air-sea sulphur fluxes
- Task 5:
  Develop framework for modelling air-sea flux of other gases
- Task 6:
  Assemble Fe enrichment experiment database including biological impacts and trace gas fluxes
- Task 7:
  Assemble mesocosms database for acidification experiments and develop protocols

- Consider the issues involved in creating global datasets and flux products – these will be different for each dataset.
  - What needs doing and who could do it (not necessarily a commitment to do the work!)? Break it down stage by stage.
  - How big is the dataset likely to be (no. of data points, spatial and temporal coverage)?
  - What information is needed from WG2 to calculate a flux (e.g. average wind speed over what time period?)?
  - What ancillary data is required? Climatological or in situ data?
- Consider what solutions are needed – these will also be different for each dataset.
  - Is salary required? What pots of money could be applied to for this?
  - Where is the data located and how can it be brought together?
  - Who could/will lead any proposal?
  - Is a group of experts required to discuss any issues (e.g. intercalibration)?
- Consider how I (or SOLAS Project Integration) can help with any of the above!

- Group A = DMS & DMS oxidation products
  - Good progress within STSM for DMS database.
  - DMS oxidation products less progressed. Little idea of dataset size. Expertise

limited with WG1. Link with aerosol database?
- Actions: Roland to do initial search. Further discussion between UEA and Met Office in November.

- Group B = Halocarbons
  - Difficult. Potentially massive database (compounds, spatial scale).
  - Actions: Research application, focussing on Br/I fluxes to be progressed. Identify groups, people and databases. Draft letter/email requesting data for database.

- Group C = Isoprene, alkyl nitrates, methanol and acetone
  - Jonathon discussed with himself! Many datasets smaller.
  - Actions: Isoprene database from MBL. Alkyl nitrate data to be assembled by Tom. Acetone/methanol – Jonathon to email other relevant individuals.

- Group D = Particles and dry/wet deposition
  - 4 separate databases, focussing on ship measurements.
  - Very little understanding of deposition velocities. Will work with WG2 on this.
  - Suggest Douglas Nielson as expert on direct deposition flux measurements.
  - Actions: Salary needed to assemble database (UK SOLAS KT proposal). Adapted metadata request form to be circulated

WG3 MEETING MINUTES: WG3 CO-CHAIR: HERMANN BANGE

Participants
H. Bange (co-chair and rapporteur)
A. Borges (co-chair)
J. Boutino (guest from WG2)
V. Garçon
J. Hare (guest from MC)
C. Law (invited external expert)
A. Omar
J. Piskozub (guest from WG2)
M. Santana
U. Schuster
L. Sørensen
T. Vesala
D. Woolf (guest from WG2)

16 Oct 07,
Discussions
Main WG 3 tasks
- Rob Upstill-Goddard and Hermann Bange will deal with the compilation of coastal N_2O and CH_4 data.
- Typology of coastal areas: invite several experts for the next meeting.

- pCO_2 data from coastal areas: SOCOVV* activites for a metadata inventory have started, data will be stored at CDIAC; U. Schuster, A. Borges are involved.
- WG3 will check SOCOVV* lists of data contributors.

* SOCOVV stands for "Surface Ocean CO_2 Variability and Vulnerability", for details see http://ioc.unesco.org/ioccp/pCO2_workshop/SOCOVVhome.html

Next meetings

- EGU, Vienna, April 2008
- Upwelling Symposium, Las Palmas, June 2008 (maybe just for a sub group of WG3 members)

Experts to be invited to the next meetings

- B. Pfeil, CARBOOCEAN
- F. Millero, pCO_2
- M. Meybeck, typology for coastal areas
- Chen, typology
- K.K. Liu, typology
- J. Sharples, typology
- A. Kozyr, pCO_2 database

Next activities

Workshop in May 2008:
Air-sea gas exchange in the Benguela upwelling, to be held in Risoe, 10 students + 10 scientists, 2 days, Local organizer: LL Sørensen

Next STSMs

Student visit, April 2008, E. Gutknecht (Toulouse) to go to Risoe, 4 weeks
Scientist visit, late 2008, Bruno Delille to Bordeaux (lab of G. Abril), 6 weeks
Scientist visit, late 2007, Merete Christiansen (young scientist) from Risoe to ERI, Thurso, 1 week

Additional funding

WG3 suggests to apply for Marie Curie Network (10 students) as a coordinated action of all WGs.