



Tuesday 29th May 2007

JEFF HARE

Jeff Hare presents the objectives and structure of the Action:

Goals, benefits. Stress on the global dimension.

It is a European initiative, though off-E scientists can be invited and can even join if they get funding from national sources. Some countries have recognized the importance of the Action and created funds.

Products expected are databases, inventories, parameterizations, etc., for end users such as IPCC, modelers, etc.

Other benefits include identification of gaps in understanding, project integration and encouragement/education of young scientists in the field.

Then Jeff goes through the goals and tasks within each WG.

Other tasks of the Action would be to develop topical meetings & workshops. And STSM, particularly for young scientists.

Linkages with other International efforts will be explored and developed.

TOM BELL

Self presentation. Also presentation of the SOLAS Project Integration aims. He stresses overlap or coincidence with the Action.

SPI seeks not to do data management only but to produce usable products.

Both experimentalists (for comparisons) and modelers (for validation, for initial conditions, or to identify gaps that require improvement) need global datasets.

Process: data originator – metadata submission – data processing – flux products – visualization and analysis

COST735 aims mainly at flux products, and the SPI can take care of the 3 last steps of the process all together.

Priorities:

DMS, CO₂, N₂O, orgX, particles – high

Alkyl nitrates, isoprene, other – low

All data providers will be co-authors on resulting publications, and data will only be used to generate concentration and flux fields.

Metadata means having accompanying info: some essential (date and time, coordinates, sample depth, bottom depth), some non essential but ancillary (chl_a, wind speed, temp, etc).

Questions/comments

J. Williams: Ozone may be an interesting substance to include.

N. Gruber: How long into the future the co-authorship of data providers extends?

R. Simó: People should be encouraged to submit accompanying data (ancillary).

D. Wallace: Journals could be approached to allow publication of per-reviewed high quality datasets. And have the datasets published in the SCI.

RICHARD BELLERBY

Richard presents the tasks within WG1, and expected products.

The straightforward operation mode is to collapse data into a virtual year. But the more complicated (further) steps are to do meta-analyses of metadata, which requires lots of accompanying data (such as nutrients, microbial speciation, light fields, etc...). This is necessary to gain knowledge and advance in modeling capabilities.

WG1 network tasks include identifying task leaders, external experts, national networks, funding bodies, centers of excellence for housing/training young researchers, and develop meetings and symposia for WG1 sub-goals – with significant papers resulting.

Richard presents the work intended for tomorrow.

Comments –There is the challenge of closely integrating the works of WG1 and WG2.

CHRISTOPH GARBE

Chris presents the tasks within WG2, and expected products (gas transfer velocity, dry and wet deposition, factors influencing gas transfers).

He briefly overviews the state of the art of air-sea exchange parameterizations, and novel methods to make “direct” measurements (eddy correlation, thermography). The timing of COST735 is perfect, and significant advances are to be expected within the funding period.

He stresses that linkages have to be developed to WG1 and WG3, as well as linkages with national initiatives, and with SOLAS and WCRF.

The aim of COST735 would not be at developing new parameterizations but looking at existing ones and identifying which one is more appropriate for what.

Questions/comments

N. Gruber: There are these fine (micro)scale approaches that address all processes that affect the transfer velocity and are applied to the small scale; and there is the large-scale (global) empirical approaches with 14C and so forth. At some point they have to meet.

P. Liss: Most of the work has been done with gases that are controlled by the water side. Is there intention to focus on gases with control on the air side?

Chris' answer: yes of course. Thermography uses heat which is also controlled on the air side.

ALBERTO BORGES

He presents the major goals, and the expected products of WG3: databases of CH₄, N₂O and CO₂ with emphasis in the coastal region, and typology of coastal regions to scale up to global.

He overviews what is known about anthropogenic CO₂ uptake by the ocean, and how CO₂ is being measured (VOS, time series stations, global map of sampling frequency).

For coastal regions, he stresses that data so far are biased towards NH sites, and mostly temperate (and some subtropical) latitudes.

There is need for measurements in high latitude estuaries, ecosystems with large OM loads, river plumes. Need for better quantification of area coverage of different coastal typologies. Little info on interannual variability.

N₂O: ocean 17% of emissions. Agricultural soils: 24%, natural soils: 34%. Half of the emissions are anthropogenic (direct or indirect).

Coastal oceans are an important part of oceanic emissions. Future questions: Effects of eutrophication? Mangrove emissions?

CH₄: ocean 10% of emissions. Most emissions are anthropogenic (direct or indirect).

Oceanic sources: rivers, estuaries, seeps, mud volcanoes, mangroves and, in the open ocean, mostly grazing. Coastal emissions are much larger than open ocean emissions.

Future questions: Effects of eutrophication? Mangroves? Geological sources: How much reaches the atmosphere?

Recommended future activities: more measurements are needed.

COS: oceanic emissions make up 20%, plus oxidation of DMS in the atm. contributes 25%, and oxidation of CS₂ amounts 10%. Uncertainties: Diurnal and seasonal variabilities, coastal (emission) vs open (mainly uptake?). Need for a better typology of coastal & estuarine systems, and better estimates of area coverage of these regions.

A workshop is suggested on modeling – comparison of models and observations, and application of shelf-waters models (e.g., ERSEM).

OPEN DISCUSSION

Aerosols: How are they treated in COST735? They play an important role in processes addressed by the Action.

J. Williams: interesting talks at the different institutes could be recorded and posted on a web for all students (maybe funded by COST).

Integrate the atmospheric/meteorological community somehow.

D. Wallace: Push for allowance to publish data collections (quality controlled) in peer-reviewed citable journals.

One way to do it is by suggesting a special issue on COST735-derived datasets.

JEFF: CHARGE TO THE WGs

Assign a rapporteur.

Discussion of the MoU and goals

Potential revisions to developed mandate

Discussion of assembled WG scientific expertise (something/someone missing?)

Discussion of WG composition and potential deficits/adjustments/etc

Discussion of Project Integration

Subgroups? (coordinators / leaders)

Co-chairs/Rapporteur to report to the MC

WG DISCUSSION TOPICS

How we achieve the deliverables?

What COST tools will we use?

STSM

Meetings, workshops, conferences

Training schools

Publications and web-sites

Identify co-ordinators

Identify external experts

Who and what's missing

Present

Richard Bellerby (chair), Phil Nightingale (vice-chair), Alex Baker, Dorothee Bakker, Tom Bell, Laurent Bopp, Peter Croot, Veli-Matti Kerminen, Jamie Kettle, Peter Liss, Tuija Ruoho-Airola, Rafel Simo, Jonathan Williams

Agenda

- 09:00 Aims for the day Phil
09:15 Talk 1: Assembling and uses for the DMS database Jamie Kettle
09:45 Open Discussion on Task 1: Assembling a database for air and water gas concentrations
11:00 Talk 2: Information required for regional and global DMS models Rafel Simo
11:30 Open discussion on Tasks 4&5 (modelling DMS and other gases)
13:30 Talk 3: Supply of atmospheric nutrients to the sea and feedbacks? Alex Baker
13:50 General Discussion on Tasks 3 (trace metal, organics database)
14:35 Talk 4: Perturbation experiments Dorothee Bakker
14:55 General Discussion on Tasks 6&7 (Fe and pCO₂ manipulation expts)
15:15 Way forward

Discussion Areas

- Which climate active/relevant gases, elements, etc
- How to approach (Internet site/ e-mail/questionnaires)?
- Who to approach ?
- Co-ordinators?
- Next meetings/expert groups?
- Outside experts?
- Revisions to MoU?

The main aims for WG1 were discussed in detail and the outcomes of these discussions are summarized below under each task. In particular, the group focused on year 1 of the project when the main deliverable for the group is to build an inventory of the various datasets that might be available within the international scientific community. The intention is to host this meta database in the global change master directory (GCMD).

The start of the action was confirmed by Jeff Hare (Chair of the MC) to be June 2007.

Task 1: Assemble database for climate active gases in air and seawater

The discussion focussed on identifying those gases that the WG should focus their efforts on due to the possible role of these gases in atmospheric chemistry and climate. The gases mentioned in the MoU are DMS, CHBr₃, CH₃I, MeNO₃, isoprene and methanol. The DMS database originally developed by Jamie Kettle has been successfully taken on by Johnson & Bates at PMEL, USA and is therefore already in existence. There is no need to duplicate this valuable resource. The WG felt that Cost 735 should remind/push for data that has yet to be submitted to database eg in Southern Ocean where only a few high concentration data are in database but it was known that there are other much lower values in datasets held by the community.

Action Put a request/reminder for PIs to add their DMS data to the existing database onto SOLAS newsletter / SOLAS website / COST 735 website. Phil to talk to Jeff Hare

The group discussed other gases including those already identified in the MoU and ammonia, ozone and carbon monoxide. The main sources of the latter were thought to be land based and given the long lifetime of CO it was not thought that the marine source was particularly important for atmosphere regionally or globally. It was noted that although the flux of ozone was controlled by its air concentration and by other as yet unknown variables in the sea surface microlayer. It was therefore felt that progress in developing flux fields for ozone was beyond the present remit of this group. The group concluded that we should concentrate on assembling an inventory of organohalogen, isoprene, alkyl nitrates and methanol datasets.

Action Develop an inventory of databases for brominated and iodinated volatile compounds. Phil to talk to Birgit Quack about both of them undertaking this.

Action. Develop a database of “organic” (isoprene, alkyl nitrates, methanol) gases
Jonathan Williams

There was also discussion concerning the development of long term standards and an inter calibration exercise. The STSMs could be used as a vehicle to fund an intercalibration exercise and it was thought useful to plan a workshop of invited experts and COST members re development of standards or the use of the same supplier of commercial standards.

Action: Identify experts with experience in calibration of gases, Phil to talk to Birgit Quack

Action: Workshop for standards (preliminary date Feb 08) – Birgit Quack?

Task 2: Assemble database of DMS oxidation products

This task was only discussed briefly as the expertise was not available within WG members at the meeting. It is possible that Jim Gunson and Ken Carslaw have some knowledge in this area or perhaps other members of the group who were not present. It was noted that there was no good recent overview paper available on DMS oxidation products in the atmosphere.

Action: Need WG member to pursue a workshop with external/invited experts with the aim of producing a review paper. Possible contact B. Huebert. Richard to contact possible co-ordinator(s) from WG.

Task 3: Assemble database of trace metals, nutrients and organics in marine aerosols

Much of recent data on marine aerosol inputs (at least to the Atlantic) appears to be resident at UEA. A project is underway there to assemble aerosol climatologies for N&S Atlantic. There is a need to target soluble speciation data. The group believed there was little recent data available from oceans other than the Atlantic but this needed investigating.

Action: Develop a meta database on dry and wet deposition to aerosol Alex & Jordi Dachs

Action: A possible invited expert could be from the Leipzig group that recently assembled a marine aerosol database (H. Hermann/J Heisenberg?). Peter C to pursue

Action: Change to MoU. Add wet deposition to task description. Richard to recommend to MC

Task 4: Intercomparison of process and diagnostic models of air-sea sulphur fluxes

The group discussed what was required for this task. It was felt that the task is already being addressed by CODiM, a SOLAS related project aimed at intercomparison of DMS/P models. In particular, Laurent and Rafel are already active members of this group. The need for good time series data of DMS in seawater was stressed as well as the lack of data in under-sampled regions (eg S. Ocean). There was further discussion as to whether the main product from WG 1 should be a database of datasets on concentration fields for individual gases and/or interpolated global concentration/flux fields. Both were thought to be of equal importance for use in models.

Action: WG to be kept informed of progress within CODiM. Laurent and Rafel

Action: STSM for new DMS climatology. Rafel to pursue

Task 5: Develop framework for modelling air-sea flux of other gases

This task was only discussed briefly as the expertise was not available within WG members at the meeting. The expertise was probably held by Jim Gunson, Ken Carslaw and others.

Action: WG members to develop an expert group on how to address this task. Richard to contact Jim Gunson and Ken Carslaw

Task 6: Assemble Fe enrichment experiment database including biological impacts and trace gas fluxes

There is a recent overview paper in Science that has pulled together results from all the existing iron enrichment experiments. Some data is presently held within Pangea a German database. A proposal has been resubmitted to SCOR to set up a working group on in-situ iron experiments: data compilation and modelling.

Action: WG to set up a joint SCOR/COST meeting in 2008 (if SCOR proposal funded). Dorothee and Peter C.

Task 7: Assemble mesocosms database for acidification experiments

This was discussed only briefly as a joint UNESCO/EurOceans meeting has been planned for Sept 2008 to assemble such a database including pCO₂ manipulation experiments in Norway and Korea.

Action: Joint COST/UNESCO/EurOceans meeting Ulf Riebesell and Richard Bellerby

Wrap-Up

Action : Confirm task co-ordinators within 1 month. Richard & Phil

Action: Task co-ordinators to report on progress to Richard & Phil. Task Coordinators

Action: WG members to comment on the suitability of Tom Bell's questionnaire and advise him of any changes All.

Action: Requests for metadata info probably best to come from Tom Bell rather than individual task co-ordinators. Needs to be decided. Tom & Task Coordinators

*All requests for STSMs, working groups, invited experts, workshops/meetings and additions to WG1 membership **must** be approved by executive group via Richard Bellerby.*

Minute Notes of the COST action 735 WG2, May 30th in Brussels

A first meeting of the COST action 735 working Group 2 was held on May 30th at the “Le Châtelain“ Hotel in Brussels, Belgium. The working group was in session from 9:30 until 15:00, with breaks for lunch and coffee in between. Apart from members of the group, two external visitors were invited to the meeting: Wade McGillis, Columbia University, NY, USA, and Daniela Turk, European Science Foundation (ESF), Strasbourg, France.

During the meeting, five presentations were given. These were

Wade McGillis: “Links of COST 735 to SOLAS and WGSF”

Anna Rutgersson: “Global gas transfer velocities”

David Woolf: “Factors influencing gas transfer”

Cécile Guieu: “Deposition and Impact of pollutants, key elements and nutrients”

Mike Smith: “Aerosol Particles in the Atmosphere”

David Woolf also made a short overview paper available, titled “Physical Controls on Gas Transfer Velocity; Overview, Highlights of CASIX Activities and Future Directions”.

During the discussions that followed the talks, several issues were discussed:

- It was noted that surfactants cannot only decrease transfer velocities due to suppression of turbulences, but may also increase the transfer velocity of CO₂ by largely reducing its solubility.
- Heat flux is increased at high wind speeds; this is due to effects such as sea spray.
- Correlation of scalar quantities (humidity, temperature CO₂) seemed not to be unity as expected during measurements. Deviations from one indicate that other processes are effective for the different transported scalars.
- Local effects (Tide etc.) on global climatology
- Currently, the profiles of heat and other scalar quantities are not used in parameterizations. These could easily be included and would give a measure for the stability of the atmospheric boundary layer. This could potentially increase accuracy of estimates.

It was noted that Hans Burchard (IOW, Germany) might be a valuable asset to the group, based on his knowledge on GOTM (General Ocean Turbulence Model) and that he should be invited to the working group.

It was established, that sufficient expertise is currently represented by the group members, concerning different aspect of exchange processes . However, outside experts such as David Ho (LDEO, Columbia, USA) on rain should be invited for future meeting. These outside expert will advise the WG on key issues. Also, some experts on biological/chemical and physical processes are not member of WG2 of this COST action, but in different working groups. Therefore, the importance of joint meetings with other working groups was stretched.

The possibility of publication of WG2 results was discussed (a book published by OPOCE, the COST publisher or by Springer Verlag, or a special issue in a prestigious journal), but the decision was delayed until more substantial work has been conducted by the group.

A password protected web site will be set up to share information among the Working Group. Members of the group will present information about their research, so that experts for the different fields can more easily be identified. This will also help to set up short term scientific missions (STSM) among the groups. Furthermore, short papers, talks given at WG2 meetings, interesting links and other information can be uploaded. The web site will be editable by all group members and will be set up as a Wiki. This web site will be hosted by the University of Heidelberg. The group will apply for two STSMs per year.

During the first period, the current state of the art of the fields of interest will be reviewed and presented to the group. Based on these reviews, shortcomings and current lack of knowledge will be identified.

Wade McGillis will send an extended abstract summarizing the effects of different processes influencing gas transfer.

The following contributions will be presented at the next WG2 meeting:

- Review of heat fluxes by Anna Rutgersson
- Overview of effects of waves and wave breaking on gas transfer by Anna-Maria Sempreviva
- Possibly an overview talk by Detlef Stammer regarding Satellite products and global maps of CO₂ (Detlef Stammer was not able to attend this meeting)

The next meeting of the Working Group will be in September or October 2007. If possible, it will be held prior to or after the 7th EMS Annual Meeting in San Lorenzo de El Escorial, Spain. The EMS meeting will take place from 01 – 05 October 2007.

COST WG2: Outline of 30.05.2007

- | | | |
|-------|---|---------------|
| 9:00 | Introduction, definition of aims, introduction of participants | Kahma & Garbe |
| 9:30 | Links of COST 735 to SOLAS and WGSF | McGillis |
| 9:50 | Talk 1: Global gas transfer velocities | Rutgersson |
| 10:10 | Talk 2: Factors influencing gas transfer | Woolf |
| 10:30 | Open Discussion on Task 1,5-8: Role of bubbles, surfactants, rain and wind on gas transfer, global climatology of gas transfer velocity | |
| | - Current state of the art | |
| | - Satellite products | |
| | - Parameterizations | |
| | - Current problems/shortcomings? | |
| | - Most widely used / most accurate parameterizations | |
| | - Coordinators | |
| | - Next meetings / expert groups | |
| | - Outside experts | |
| 12:30 | Lunch | |
| 13:30 | Talk 3: Deposition and Impact of pollutants, key elements and nutrients | Guieu |
| 13:50 | Talk 4: Aerosol Particles in the Atmosphere | Smith |
| | Discussion on Task 2-4: Atmospheric concentration of trace metals in aerosol and soluble forms | |
| 15:30 | Meeting Closure | |

COST 735 - WG3: The Air-sea Flux of Long-lived Climate Active Gases

Present at the WG3 meeting:

Alberto BORGES (Chair and rapporteur)	alberto.borges@ulg.ac.be
Hermann W. BANGE (Co-Chair)	hbange@ifm-geomar.de
Lise Lotte SOERENSEN	lotte.geern@risoe.dk
Véronique GARÇON	veronique.garcon@cnes.fr
Truls JOHANNESSEN	Truls@gfi.uib.no
Magdalena SANTANA	jmsantana@dqui.ulpgc.es
Christiane LANCELOT	lancelot@ulb.ac.be
Jack MIDDELBURG	J.Middelburg@nioo.knaw.nl
Abdirahman OMAR	Abdirahman.Omar@bjerknes.uib.no
Aida RIOS	aida@iim.csic.es
Robert C. UPSTILL-GODDARD	rob.goddard@newcastle.ac.uk
Ute SCHUSTER	u.schuster@uea.ac.uk
Günther UHER	guenther.uher@ncl.ac.uk
Niki GRUBER	nicolas.gruber@env.ethz.ch

7 oral presentations were given :

- “CO₂ in the open ocean” by A. Rios
- “CO₂ in the coastal ocean & Typology of coastal regions” by A.V. Borges
- “CH₄ in the open ocean” by R. Upstill-Goddard
- “CH₄ in the coastal ocean” by H. Bange
- “N₂O in the open and coastal ocean” by H. Bange
- “Carbonyl sulphide in open and coastal oceans” by G. Uher
- “Air-sea exchange models in coastal versus open ocean” by R. Upstill-Goddard

Presentation “CO₂ in the open ocean” by A. Rios focussed on the long term evolution and change of the open oceanic CO₂ sink, and recommended:

- Pursuing underway fCO₂ measurements from ships of opportunity and Time Series Stations to allow us to better understand the evolution of the CO₂ uptake rates.
- To obtain consistent Carbon Storage estimates for the past decades using good data and fitting methods.
- Continue with the deep-ocean repeated sections to enable us to know the variability in the Carbon Storage.
- Review of the CANT transport and budget along the zonal sections and conciliate the CO₂ air-sea fluxes obtained by different ways.

Presentation “CO₂ in the coastal ocean & Typology of coastal regions” by A.V. Borges summarised preliminary scaling of CO₂ fluxes in coastal environments, emphasized the unreliability of estimates of surface areas of coastal environments, in particular estuaries, and recommended:

- Need for more CO₂ measurements in coastal environments, in particular near-shore ecosystems (estuaries, mangroves, ...)
- compilation of available pCO₂ data-sets in coastal environments
- establishment of typology of estuarine systems (macrotidal, fjord, fjard, ...) with corresponding surface area estimates

Presentation “CH₄ in the open ocean” by R. Upstill-Goddard summarized source and sinks of CH₄ in open oceanic waters and underlying drivers and recommended:

- Compilation of up-to-date open oceanic CH₄ database
- Analysis of completeness and representativeness of database
- Analysis of the representation of CH₄ seasonality
- Identification of underrepresented important areas (e.g. Arctic)
- Development of interpolation procedures, using proxies

Presentation “CH₄ in the coastal ocean” by H. Bange summarised available information on CH₄ fluxes in coastal environments with emphasis on vents and mangroves, reviewed available global estimates, and recommended:

- CH₄ measurements with an obligatory standard scale
- Need for more CH₄ measurements (cf. areal coverage, seasonality, interannual variability !)
- Development of GIS data base to archive trace gas measurements/computed fields with associated parameters such as wind speeds, nutrients, etc.
- Development of an obligatory standard protocol to estimate emissions/fluxes (gas transfer velocity parameterization).
- Better evaluation of CH₄ data from seeps
- Solving problems with measurement techniques: equilibration versus purging.

Presentation “N₂O in the open and coastal ocean” by H. Bange summarised available information on NO₂ fluxes in open and coastal oceans, emphasized contrasting model outputs for open ocean and lack of validation of coastal models, and recommended:

- N₂O measurements with an obligatory standard scale
- Need for more N₂O measurements (cf. areal coverage, seasonality, interannual variability !)
- Development of GIS data base to archive trace gas measurements/computed fields with associated parameters such as wind speeds, nutrients, etc.
- Development of an obligatory standard protocol to estimate emissions/fluxes (gas transfer velocity parameterization).

Presentation “Carbonyl sulphide in open and coastal oceans” by G. Uher summarised available information on COS dynamics in open and coastal oceans, and recommended:

- Global data compilation & synthesis
- Need to better understand COS formation processes from DMS and CS₂
- Need of improved biogeographic classification, despite limited COS spatial and seasonal coverage
- Use of models, that may require regional parameterisations, but challenging in coastal / estuarine waters where variability is highest

Presentation “Air-sea exchange models in coastal versus open ocean” by R. Upstill-Goddard summarised drivers of air-sea exchange in coastal environments with specific emphasis on wind stress, wave breaking, bubbles, rain, surfactants, micro-scale wave breaking, bottom-driven turbulence, and recommended:

- More field data
- Co-ordinated programmes in coastal and open ocean
- Relate turbulent dissipation to more easily measured quantities

Discussion and future plans :

The general discussion that followed the presentations focussed on how 1) to achieve databases of N₂O, CH₄, COS and CO₂ sea and air concentration measurements including representation of the coastal zone and 2) synthesize the databases to derive global fields.

A sub-group was formed to stimulate banking of available data in international databases (Niki Gruber, Alberto Borges, Truls Johannessen, Véronique Garçon, Aida Rios).

Regarding the establishment of a coastal CO₂ data-base, it was recommended the collaboration between Benjamin Pfeil, Tom Bell, and CDIAC, that is on-going and will be pursued during Y2.

Regarding the establishment of a N₂O data-base, it was recommended the collaboration between Benjamin Pfeil, Tom Bell, and Hermann Bange and will be pursued during Y2.

Regarding the establishment of a CH₄ data-base (open ocean & coastal), it was recommended the collaboration between Hermann Bange and Rob Upstill-Goddard and will be pursued during Y2.

Regarding the establishment of a coastal COS data-base, it was recommended the collaboration between Günther Uher and Jamie Kettle and will be pursued during Y2.

It was recommended to establish data reporting format and procedures (including discussion on measuring methods) similar to those already existing for CO₂:

- For N₂O : Hermann Bange
- For CH₄ : Hermann Bange and Rob Upstill-Goddard (including a report on equilibrator versus purging measuring methods)
- For COS : Günther Uher

CO₂, CH₄, N₂O and COS data gathering will be focussed during Y2 on several regional areas:

- EU shelf waters in general : all
- California current : Niki Gruber
- Eastern Boundary Currents (Humboldt current, Canary current, Benguela current) : Niki Gruber, Magdalena Santana, Véronique Garçon, Hermann Bange
- Mediterranean and Black Seas : Alberto Borges, Magdalena Santana, Emma Huertas, Aida Rioas, Catherine Goyet, SESAME external experts
- Nordic Seas Truls Johannessen, Abdirahman Omar, Lise Lotte Soerensen

Since Y2 is devoted to data gathering, data synthesis will start after Y2 through modelling and typology assisted scaling.

The following external experts were identified for future WG3 activities :

- W. Koeve wkoeve@ifm-geomar.de (EurOcean programme, data mining)
- G. Friederich frge@mbari.org (CO₂ data)
- W.-J. Cai wcai@uga.edu (CO₂ data)
- E. Huertas emma.huertas@icman.csic.es (CO₂ data)

- C. Goyet cgoyet@univ-perp.fr (CO₂ data)
- N. Bates nick@bbsr.edu (CO₂ data)
 - M. Meybeck Michel.Meybeck@ccr.jussieu.fr (Coastal Typology)

Two possible venues for future WG3 meetings during Y2 were identified:

- Carboocean 3rd annual meeting, Bremen, Germany, December 2007
- EGU General Assembly, Vienna, Austria, 13 – 18 April 2008

Five possible Short Term Scientific Missions (STSM) were identified:

- Travel for Hermann Bange and Rob Upstill-Goddard (or exchange of students) to discuss equilibrator versus purging CH₄ measuring methods.
- Exchange of students between Niki Gruber and Hermann Bange for research on atmospheric inversions of N₂O
- Travel for Gunther Uher and Jamie Kettle for COS data compilation, synthesis and modeling
- Travel for Ute Schuster, Abdirahman Omar and Alberto Borges for CO₂ data compilation and synthesis in the North Sea and Gulf of Biscay
- Student exchange for Véronique Garçon and Lise Lotte Soerensen for CO₂ data compilation in Benguela current.

Final Plenary Assembly:

June 30, 2007

Summary of the three Working Groups by Bellerby, Garbe, and Borges. This was followed by some discussion of mechanics of the Action, reimbursements, training schools, etc.

It was agreed that all participants would re-convene in the fall (September or October).

Management Committee Decision: It was moved that a Core Group be assembled to handle decision-making for the MC. The members of this group are: Jeff Hare (Chair), Rafel Simo (Vice-Chair), Richard Bellerby (WG1 Chair), Kimmo Kahma (WG2 Chair), and Alberto Borges (WG3 Chair). This motion was passed unanimously.