Greencycles RTN 2nd annual meeting minutes
15-18 February 2006, Lisboa, PT.

Action items:

responsible	task
Andrew	Help Stephen to establish contact with the group in Bialystok
Andrew	Identify potential organisers for the GC supercomputing workshop
Anne/Andrew	Clarify the budget from which ES4 and ERCA are paid
Alcatel	Organisation of the remote sensing workshop in Sept/Oct 2006, but without clash to ES4! JRC is interested in joining the WS (contact via Sandy)
Maciek	Inform Andrew about the potential for a network meeting in Poland, including the organisational details…, Barcelona will need to know by April.
Nick	Inform Andrew about the detail options for a supercomputing WS that Corinne may know about
Sandy	Contact Andrew about the requirement of timesheets in the financial reporting (to be clarified with PM)
Soenke	Send template for GC-website personal pages to all ESRs and ERs
Stephen	Send details on data assimilation WS in Edinburgh to CEA
Torben	Send parameters measured in Abisko to VAU, CEA, MetOffice and UBRIS to inform modellers about potential model-data comparison
Torben	Organisation of the GC methane workshop
All	Give feedback to Sandy on recruitment activity and potential ways to improve the system
All	JRC is interested in being involved in the GC research using remote sensing workshop, contact via Sandy
All	Update CDP plans and send updated info on secondments to Soenke and Andrew
All	Send information relevant to local opportunities on science communication to the greater public to Soenke for the GC webpage. Likewise, any other communication and outreach info (workshops, conferences, publications…)
Anne??????	Organise a special issue of the ILEAPS newsletter and contributions to SOLAS newsletter.

Important deadlines:

The next report is due 45 days after new year: 14th Feb. 2007.
Send activity report to CEA before the 22nd December 2006
Send Finance report to CEA before 31st of January 2007

15/02/2006

Jose: Introduction to the logistics of the meeting

Andrew: Overview of the administrative background of the network, introduction of the individual partners, especially the non-contractual collaborators. These are to be included into the science, but this is not fixed in the contract (only mentioned in Appendix A). It is possible to add other full partners, as the project goes along, but the total budget cannot be changed. Potential new partners could be invited to meetings, but there is no obligation to do this.

Science objective: understand the role of biological system in the global climate system and the impact of human activities. Reduce uncertainty in climate change prediction, by quantifying and reducing the uncertainty in biogeochemical feedbacks of both oceans and land. Themes: carbon dioxide, fire, landuse, methane, dust, DMS and BVOCs. Thread themes together: new developments in ESMs, improve realism of biological feedbacks

Training objective: link ESRs and ERs, industrial partnership, summerschools, ToK
Science of Greencycles: climate change, land use, effects of trace gases.

Discussion:

Nick asks about the contribution of Alcatel, Dust and aerosols.
Sandy: secondments need to better defined, no real clue about project will develop when in the planning state – all of us now have to define now, how these should best be organised and timed to suit there needs! Should be as concrete as possible, and effective -> need really to pay off.
Andrew: secondments are required, but not forced

Allen: What does Alcatel do?
Andrew: Not yet specified. Andrew reports on the telecom with Alcatel in January. They don't have real products on their own, but are keen on getting involved in downstream activities. For this they need to understand the sciences their sensors are used for to target future missions. Interested to look for needs so that they can investigate possible solution.
Allen: working with remote sensed data, little experience in processing these data, could we learn about this?
Marcin: This is his reason to go there, just for info seems a waste of time
Andrew: Idea is collaboration with industry, must be useful for project in some way: There is no contractual obligation for a definite period.
Sandy: need to discuss this here and now. Sandrine had been in contact with Jose and Allen to discuss the first two projects (Yannick and Allen).

Sandy: Recruitment report:

Targets: 5 Experienced researchers, 12 Early stage researcher that should aim for a PhD, but this is no obligation… Criteria for selection are demonstrated scientific excellence, to be the potential leaders in this field, background a large diversity, origin from less-favoured-regions.
Status: 3 of 5 ER, 11 out of 12 ERS. All excellent, equal gender, 8 of 14 scientists from less-favoured-region. The problems seem to be to keep the women in the business (all ERs hired so far are male. Wide range of countries of origin. Despite large intake of female ESR, still unresolved problem of retaining women in science: related to mobility, family, etc.. Perhaps need to look more carefully of family status and its effects. Need key data/info. Discuss with EC. There are deep psychological reasons why families find it hard to move to other countries.

Explanation of the functioning of the recruitment board

3 position left to fill

- ESR II, MetOffice, half of the candidates already interviewed, to start in April
- ER III, PIK, just started interviewing to start later than March
- ER V, UBRIS just started selection procedure, position to start in October.

To get the best takes time, hence there has been a delay for nearly all position (up to 6 months). Timing and purpose of secondment need to rethink and reschedule, as well as time budget for courses needs to be thought about, as the scientists are now hired, to fit the schedules for the ESRs and ERs.

Advice on recruitment to the EU: Time to achieve criteria demands more time than foreseen. Suggestions to improve this? All to give feedback to Sandy.

Science Objective 1: Quantifying feedbacks in the global carbon cycle

ER1 Sönke:
Title: Terrestrial ecosystem processes modelling and global feedbacks

Sergey : N stuff is very brave, what kind of validation data?
Sönke : Fluxnet, N2O fluxes are rather local, 4 FACE experiments
Allan : constraints by N on C uptake? Will be very different in N limited systems such as in S. Africa.
Dorothea : Atmospheric inputs?
S : Will use industrial inputs eventually, but not initially.
Allan : fire in this project may be an important link to other groups

ER2 Nicolas:
Title: From physiology to PFT: Functional representation of N2 fixation in a Dynamic Green Ocean Model

No CDP, because this is expected to change soon in response to the recent research results.

Sergey: are there major differences between terrestrial and ocean nitrogen cycle?
Nick: not in principle, same processes involved. Can take evidence from terrestrial sources to constrain marine processes
Dorothea: potential reason for decoupling of P and N resulting from a lack of iron?

ESRI Raquel
Title: Ecosystem processes in Mediterranean and mountain zones
Supervisor: Andrew Friend, LSCE

Disc: Could use shrub parameterisation from Sarah Shannon.
Stephen : most models perform badly in Med. Systems, hence work on this useful to the community.
A PhD student of Ben Smith has been working on Mediterranean shrublands within the landscape version of LPJ.
Allen suggests an IDL course in Apeldoorn, NL.

ER3 Alberte reports on this position: Hotspots

Tasks of the ER3:
Identify key processes in key regions + ecosystematic feedback
Missing processes in LPJ
Possibility of change in face of driving force
Land-use change

Key regions are boreal forest, Amazonia rainforest, Sahel, South Africa (aridification), India (population), China (population)

The ER is to work with offline models. First project is Amazonia (in collaboration with the German TRACES project (tropical Atlantic ecosystems).

Ideas for the work: benchmarking from field, flux and satellite data to improve many processes, e.g. phenology, respiration and soil stocks, fire dynamics in connection for ENSO, DOC export and river outgassing, nitrogen cycle, land-use practises, shifting cultivation, problem of degrading soil conditions under shifting cultivation.

Soenke: Who is going to do the nitrogen coupling in LPJ? (unclear)
Andrew: big leaf model and plant physiology addressed by ER3?
Pierre: Long term dynamics: how do you test the model in the long-term.
Stephen: there are drought experiments in tropics. You can see mortality from induced drought.
Allen: Climate data for Amazon?
Alberte: CRU, but now in contact with Mahli in Univ. Edinburgh. Use, but not enhance climate data to test site level model performance.
Allen: CRU is relaxing precipitation where no data available, Impairing on the applicability of the data.

ESRIV Maciek
Title: The Marine carbon cycle and air-sea fluxes of CO2 in the North Atlantic
Supervisor: Dorothea Bakker, Andrew Watson

Soenke: Problem with process identification in ANN limits usefulness of approach to inform modellers.
Dorothea: If the ANN allows to construct temporal and spatial patterns of pCO2 in top-layer is already a very important step.
Jose: Rule methods can be used to constrain the neural network and make the effect size of input data on output variability clear. An example are regression trees to identify causal mechanisms.
Dorothea: however, regression analysis do not identify the processes, there is then the need for modelling as well.
Allen: Martin has a student on neural networks in Jena, who will be finishing relatively soon.

ESRIV Valentina
Title: Global Atmospheric CO2 remote sensing data assimilation system
Supervisor: Martin Heimann
Day to day supervisor: Christian Rödenbeck.

To start beginning next week, details and CDP not yet discussed. Does Martin has definite plans? Links to inversions?

Han Dolman: project very broad, try and convince Martin to get a more precise idea what to do very quickly.

ESRVIII Trevor
Supervisor: Santi Sabate

Sandy: Disappointed that results of Niimets and Guenther are similar.
Trevor: But they are calibrated against the same data… have plans to add processes for future simulation, e.g. CO_2 increase.
Sandy: interannual variability of Guenther is more pronounced then Niiments? Correct?
Trevor: really preliminary results.
Andrew: Proportion of C uptake lost to BVOC?
Trevor: Varies up to 100% on daily basis, but on the annual basis 2-3% (for the unique experiment done, species dependent), locally up to 10%.
Pierre: globally from Orchidee 1-2%
Andrew: initial idea of the ESR project more on carbon-hydrology interactions in modelling, now more emissions – not sure how appropriate the originally planned secondments will be?
Trevor: BVOC is only introduction to the model/modelling [only the first year]. The focus will shift toward the original plan after this phase.
Torben: Other GC projects have research on BVOC as well. ESRVIII should be coordinated with research of the ESR at the MetOffice, who will be working on BVOC.
Stephen: Trevors work could be complementary since he is working more on the processes, whereas MetOffice ESR is going to work more on the climate effects.
??: Should link to Bialystock group. Water interactions and link to fieldwork?

Science Objective 2: Determine the effect of land use on climate

ESRIII Marlies
Title: Effect of land use policies and agricultural management strategies on the global biogeochemical cycles: Simulation with the LPJ dynamic global vegetation model
Supervisor: Alberte Bondeau, Wolfgang Cramer

Aims: better representation of agricultural management in model and quantifying the role of different practices and policies on biospheric processes. Only simple land management functions in mLPJ, want better to quantify the effects of land use. Characterise worldwide. Use of fire in agriculture. Nice to have N cycle. Implement managed biosphere.

Sergey: data to quantify agricultural fires?
Marlies: publications, very general statistics (e.g. county level in the US, but very heterogeneous). Collaboration with ISA.
Jose: different data sets (landuse and fire) from satellite.
Andrew: You compile a global data base on management – incredibly ambitious.
Alberte: true but inevitable.
Andrew: should be constrained to a certain amount of work, otherwise too much.
Sandy: how does this relate LCCS (FAO)? LCCS provides a hierarchical classification of what is an important management system.
Alberte: possible to have a demand for more data than that.
Sandy: under LUCC there is an activity to feed into LCCS, there is a potential for feedback from Marlies research into the LUCC project topic 1.
Jose: JRC global landcover initiative conforms to LCCS, but more regional detail.

Sandy concerns: level of management practices described for LPJ is really beyond what in the hierarchy, so could identify more data need.

Science Objective 3: Improve understanding of natural sources of CH4 and their responses to human activities

ESRX: Marcin
Title: Methane processes and controls
Supervisor: Torben Christensen, ULUND

Sergey: How will you be scaling your result up to smaller scales?
Sandy : Secondments at MetO, and UBRIS will help to achieve this.
Han: Link becomes clear after Roxana's talk.

ESRXI: Roxana
Title: Hydrology and scaling
Supervisor: Han Dolman, VAU

Torben: There is a lot of outside interest in this area, also outside GC. Should have outside workshop on this.
Allan: Will tropical peatlands be dealt with as well
Torben : lacking data. Allan but large emissions very high from their.
Sandy: nonetheless UBRIS is developing global methane model…

[see also discussion on methane workshop below]

ESRXII Anna
Title: Changing CH4 and CO global budgets: New constraints from their mixing and stable isotopic ratios measured in ice cores
Supervisor: Jérôme Chappellaz, LGGE

Sandy: secondments at MetOffice and UBRIS should be the coordinated and organised as one single activity.

Science Objective 4: Quantifying impacts of climate change and climate variability on fire-induced emissions of greenhouse gases

ERII Allen
Title: Land Use and Fire: Global Greenhouse Gas Budgets

ESRIX Yannick
Title: Global fire activity and its connection with the climate system
Supervisor: Jose Pereira, ISA

Kirsten/Sandy: it may be a problem to relate fire activities observed by satellites to climatic modes such as ENSO because of the long timescale of ENSO and the comparable short timescale of satellite data – probably only covering one or two full cycles.
Andrew: Could use climate reanalysis (such as ERA40) to obtain fields of soil moisture and precipitation to evaluate remotely sensed fire patterns.
??: RS may be wrong tool for looking at modes of variability. May be hard to relate to ENSO.

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Science Objective 4: Quantify impacts of climate change on terrestrial and oceanic biogenic emissions of aerosols and chemically active gases and their effects on tropospheric chemistry

ESRII (reported by Stephen)

Hadley uses Guenther approach (1993) at the moment to calculate BVOC emissions, CO2 interactions are not taken account of. ESRII should update these effects applying new dependencies to CO2 etc.

3 out of 5 candidates have already been interviewed. Start date April, but subject to the time required for security clearance.
Supervisor Mike Sanderson, Richard Betts
MetOffice are confident to be funded for the period after GC to compensate for the last start.
Secondments planned in Bialstok, Poland (Stephen has not been able to get in touch with them yet), and at the University Lund (Almut Arneth).
Possible collaboration with Trevor Keenan (ESRVII)

ESRV Meike
Title: Marine Production of DMS and its Interaction with Climate
Supervisor: Corrine Le Queré, Peter Liss, UEA

Andrew: Is somebody working on the feedback of DMS on climate (not the otherway round)?
Meike: Coupling seems not possible for thesis, doing offline forcing. There are some model results that show locally ~2deg C change, but globally the feedback seems to be not so important.

Science Objective 5: Quantify impacts of vegetation and climate changes on atmospheric dust and its feedbacks to CO2 and climate

ESRVII Sarah
Title: Global dust processes and consequences
Supervisor: Sandy Harrison and Colin Prentice, UBRIS

Project aim: influence of vegetation on dust cycle, especially wind speed.

Alberte: soil water content important for dust emissions, which soildepth is used?
Sandy: should be skin water content – top layer. Explicitly simulate first centimeter? Better soil data would probably not help.
Andrew: maybe remote sensed data can help in this case, as they can measure top soil.
Dorothea: How could this be evaluated?
Sarah: locally possible from sediment traps etc., global DIRTMAP data set.
Andrew: how much work would be necessary to modify LPJ?
Sandy: Not too much, possible to do with keeping the focus.
Han: Classical example for the importance of sub grid-scale processes. Cannot give advice, but probably rather drastic simplification necessary.
Sandy: Got so far as possible without these modification. To get better, gustiness and vegetation spacing are necessary. There is a lot of uncertainty, but no stronger constraint is

possible of dust emissions without these processes. The representation may not be completely physical, but perhaps probabilistic.

ER5: Sandy reports on this position
Title: Climate forcing by dust and CH_4

Interactions sarah Shannon, ynanick, allen,Pierre (fire) (QUEST rita, wetlands and CH_4 + Marcin), validation data from Anna Lourantou…

Dorothea: How sophisticated are dust models, sources from different soils?
Sandy: Predicts where source are from vegetation cover. i) little vegetation equals bare ground, ii) soil types from discover data set, emission from certain topography and fine soil texture (subgrid scale). Take a 5min hydrological model to get basins to find fine grain places within a grid cell. iii) 6hourly wind speed (directly from GCM or corrected by observation) iv) phenology. This delivers good prediction of present-day emission for Asia and Africa. Also when forced to simulate local individual dust storms the results are good.
Carole: starting date?
Sandy: October, which fits good to other schedules. Remote sensing comes in before that, so Sarah and Kirsten might be wanting to use the data for validation.
??: Coupled simulation of climate
Sandy: offline radiative forcing first. To do really coupling need a stable coupled model in either Paris or Exeter.

Andrew thanks all for their excellent presentation and the stimulating discussions

Open discussion of model coupling, led by Pierre and Stephen

Presentation of current results from C4MIP and IMOGEN

Conclusion: Models agree on feedback sign, but large uncertainty, less robust in regional response than CO_2, need for validation. with forced simulations, models agree (global surface NEE I think) within 20-30%, but when coupled with the atmosphere much larger variation. long list of variables to be included into the fully coupled chemistry-climate models

Andrew: Relation to Greencycles: How to better constrain hotspots for ER 3?
Pierre: Amazon big unknown (in several models: triffid, lpj, hyland) because of the fate of large C stocks. Also permafrost, frozen carbon methane…Terrestrial Feedbacks are less constrained than ocean. Ocean CO_2 uptake is critically controlled by CO_2 diffusion into deep ocean and not so much biology, whereas in terrestrial biosphere is different. Higher CO_2 may affect ocean biology, but not necessarily ocean carbon fluxes.
Andrew: Better constraints due to the work (data/experiments/models) carried out in GC? Work of Raquel, Marcin, Sönke.
Han: From CarboEurope there are no manipulation experiments, but for instance the real world experiment of the 2003 summer drought in Europe…?
Sönke: Intercomparison on local and regional level done using different models, however, until now only preliminary results.

Open discussion on methane, led by Torben

Aim: key uncertainties in models and how to meet them best with what is really that Marcin, Roxana and Anna can do to help Sandy, Stephen and Pierre?

Sergey: several models on methane, what do they need to be improved?
Sandy: focus in UBRIS on wetland PFTs, problem: peat body vs. “wetter things” (mangroves and other plants with aerenchyma), leading to preferential emission of CH4) – need several mires of different species composition,
Torben: bryophyte ratio as a function of nutrient content. Could models predict that?
Sergey: link between CH4 and permafrost?
Torben: Our measurements yes, and for example those in Finland, but altogether only few sites.
Han: MPI Jena works in the Lena basis (Sergey corrects this to Potsdam)
Torben: What about Barrow?

Andrew: What’s the greater problem: biogeochemical or hydrology?
Han/Torben: hydrology! But it’s difficult, because it’s very small scale.
Sandy: issue: scaling, is it possible beyond the 10km scale?
Han: 100km upscaling to higher is not so much of a problem, but getting from site level to 10 km is probably a substantial problem.

[discussion on secondments at ULUND that took place here moved to the general section on secondments etc. below]

Torben then gives a report on a recent paper by Keppler et al., Nature, suggesting substantial methane emissions on terrestrial plants under aerob conditions.

Satellites see tropical CH4 sources where emission models do not show as strong a sign given the currently known processes. Field scale experiments in canopy of tropical forests (Carmo et al. in press for GRL) in dry conditions, could be interpreted to be related to mosses in the branches, or termites. Also in Sweden unusual CH4 eddy covariance measurements. Thus, there is independent support for the existence of the kind of source Keppler propose, but not on the same magnitude. Question: is the extrapolation approach reasonable and does it matter?

Scaling the same from living and sterilised leaves suggests abiotic methane production processes. Could there be a measurement technique problem because of the assumed zero background methane? There is some effect of background concentrations on methane emission, thus the methods seems to be an issue, but this is yet unclear whether the problem is large enough to affect the overall conclusions. The extrapolation by Keppler is based on scaling with NPP. Leaf production is less than 40% of NPP, methane emissions derive predominantly from leaves. While the measurements assume full light exposure, this approach does not consider self shading of leaves (beer’s law etc.). Thus the approach is not reasonable, and probably an order of magnitude to high?

No evidence for a consistent/systematic change in methane emission with replacement of vegetation type

Why has the process been not identified before: lack of chemical mechanisms identified, dispersed with other effects in nature, hence not recognisable, CH4 is too uncertain to go looking for a new mechanism.

Andrew: interest in CH_4 stimulated from this paper, good even if science is wrong.
Problem with the review process?
Pierre: when BVOCs are measured, why is CH_4 not seen?
Torben: those machines don't see CH_4, but probably CH_4 is relevant in the VOC affair.

Open discussion on fire, led by Kirsten

Overview over the QUEST/IGBP fast track initiative fire workshop in Exeter, UK 27-28 Oct. 2005. GC participants: Kirsten, Allen, Sergey, Sandy, Pierre.

Summary: Understanding and representation of fire in carbon cycle currently very active. Observations are emerging to support modelling

Results:

- Synthesis paper on the role of fire in the Earth System (written by Kathy Hibbert),
- Assemblage of paleao data sets to allow hind casting of past fire regime,
- establishment of an information catalogue of fire earth observations products with guidance on the domain of their reliability.

There is a (QUEST-organised) workshop on the palaeo activity in Totnes, UK, 30-Oct. 2-November 2006

Overview on GC fire workshop in Bath (May 2005), protocol available on Greencycles webpage.

Discussion points: Coupling strategy, fire model intercomparison, natural wild fires vs. land-use related fires to obtain global biomass burning C budget estimates. Input to other GC activities: fire quantification for synthesis of other biogeochemistry, CH_4, land-use change interactions with nitrogen cycle, dust, ecophysiology in the Mediterranean.

Allen: global budgets of fire emission: peat lands!

Situation at the Metoffice, Sergey and Stephen

Sergey's going to work on Triffid to implement an ignition and area burnt model
In parallel ER2 will be implementing an emission sub-model for chemistry and aerosols, using prescribed input of area burnt etc.. Remote sensed products can be used to for model evaluation (example intercomparison with products by JRC and UBRIS, AHVRR based), or used to prescribe area burnt to simulate impacts on atmosphere chemistry and aerosol concentrations.

Sergey's workplan for the MetOffice:
Key issues: improving models, coupling to GCMs, usage of data for model validation.

- Implementation of fire risk into GCM
- Simplification necessary to be implemented into Hadley model
- Re-parameterisation for PFTs
- Design of fuel functions for PFTs
- Comparison of Moses and Triffid
- Evaluation of existing fire models for their applicability in GCMs.

Data for evaluation: national statistics are not consistent, cosare and potentially biased. RS data gives spatial patterns, but the uncertainty can reach 300% in extreme cases.

Allen: how to reduce processes to scale of GCMs, cannot plug regional fire model into GCMs
Important that there is a feedback between vegetation and fire, you cannot simply couple a detailed fire model to coarse resolution GCM.
Han: GC is about science, not development of a particular GCM
Sandy: trying to improve fire model (incl. human), as a forcing first, than later for feedback.
Allen: synergies between ISPL and HadCM groups.
Sandy: GC debates science, coupling issues are a different ball park. What is the neglected in fire model?
Allen: belowground carbon
Sandy: how to do that? Also, interaction between land management and fire. What is the strategy for peat land burning, what's the key issues that need to be done?
Allen: need RS data, digital maps of peat and peat depth. How to model moisture flux in climate variability.
Sandy: Better handle of peat land hydrology? Here the work of Roxana could be of help!
Han: A lot of peat land drained, limited scope for hydrological model, because this requires knowledge about the magnitude etc. of drainage
Allen: nobody in GC doing this work.
Sandy: There could be a synergy with the QUEST work on wetland areas, that could be looking on the hydrology side on this. Is there anything that could help develop the burning modelling?
Allen: Water table depth from rainfall data, but limited by precip. data quality. Need alternative rainfall datasets. Outside scope of GC.
Kirsten: Should concentrate on feasible exercises in GC: E.g. synthesis of biomass burning from different sources (as planned by Marlies). Great step forward to take agriculture burning into account. Peat important, but beyond the scope of what we can do here.
Allen: Borneo data. Intercomparison?
Sandy: Could that be included in ER3 plan for Metoffice. Future emission.
Jose: RS link with Alcatel. EO tool are limited with hotspots, e.g. deforestation locally, resolution problem, peat, 3D problem. Current limitation of RS could be a fertile link for Alcatel to devise new sensor needs.
Allen: Hotspots and burnt area products should be explored in GC.
Sergey: How involve PhDs, what is doable?
Dorothea: lost the overall objective in fire issue.
Andrew: there is no GC objective to directly improve fire. Objective is to reduce uncertainties in biogenic feedbacks in the climate system. 6 science themes, on is fire.
Allen: what about the hotspots project?
Alberte: fire ok, synergies good but not the first objective of ER hotspots.
Jose: overall aim should be to strive for a coupled GCMs, but there needs to be a specific objectives for small projects of ESRs! Training network.
Han: three issues: 1) problem area where we don't get it right (e.g. tropical rainforests and peatlands) – fine tuning the current estimates. 2) what drives the fires, important for LSMs. 3) when we produce fire maps, global inversions can constrain those.
Stephen: specific tasks for ER are emissions
Andrew: inversions pretty simple to use, not our job, but there is inversion groups loosely involved (Valentina).
Sergey: get PhD advantages from existing fire model.

Allen: Should revisit GC objectives.
Andrew : that was the point of the Greencycles fire workshop
Sandy: Has been done at the fire workshop. That strategy hasn't changed.
Kirsten: But the situation is better now. Yannick can look at climate-fire interactions, PIK focuses on agricultural burning, ER5 in Bristol summarises this all. Kirsten offers to give advice.
Allen: more work on lighting needed.
Nick: two sets of data that don't work individually, why not use data assimilation?
Allen: most of the data we have are RS that doesn't give processes. Causes? Get different data sets together to see what drives the RS patterns to better understand this from a statistical point of view.
Jose: Flashing discussed with Yannick. Man-made vs. natural fire activity, run the models with a world without humans
Alberte: We want to model fire that are related to land-use.
Andrew: close of fire discussion.

Open discussion on remote sensing and potential interaction with Alcatel, led by Jose

Carole Rosso presents Alcatel, the industrial partner of GC

Secondments:
Gives a list of contact person for individual secondments (see her presentation)

Jose: discussed with Sandrine Mathieu on the scope of the collaboration – interest of Alcatel in the construction of new instruments. Unsure how that ties in with the PhD plans. Unsure whether PhD students are appropriate for the ToK from science to industry.
Andrew: each project is individual in the demand for science or technical stuff. There should be intensive discussions with the supervisors at Alcatel and the PhDs and their supervisor to get benefit out for GC. This can be training or science for their thesis.
Nick: feeling that it's more a drain of time for PhD students.
Andrew: There is a commitment to the collaboration, but the scope must be to the benefit of both. This is difficult to find out…
Nick: I get to gain from going there, but PhD students not necessarily.
Andrew: Plan was made for those project that may be relevant for the RS collaboration. In addition there will be some interaction for the last annual meeting and hopefully some ToK on this as well. Clearly there are some scientific interest in the collaboration with a RS company, e.g. ocean colour. For wetland it's perhaps a different issue. This needs to be discussed, and if there was no benefit for either side, the secondment could be cancelled.
Sergey: Is the ToK doable for students?
Andrew: Why not.
Alberte: I gave info what I would be interested in, but no response.
Andrew: Has been a problem because the planned meeting in Cannes between Andrew and Alcatel didn't take place (availability of persons). These questions should be sorted out bilaterally.
Allen: Sandrine (Alcatel) is also involved in Cyclops (Fapar etc.)
Maciek: how does it work technically?
Carole: Alcatel has no laboratory but an office in Cannes. The idea of these secondments is to get a feeling of the technical limitation (and potentials) of RS data, and where they come from – face reality, understand the problems of the data. Collaboration of Alcatel mostly European, but a lot. ESA, JRC…
Andrew: for ocean there seems a clear scientific interest.

Maciek: interested in data processing, and instruments.
Carole: Alcatel does not posses an image data base ifself, but some data sets (?), but meris post processing tools to do atmospheric corrections, fusion of for example landsat and meris data set to improve resolution etc.
Maciek: do not see how to produce a paper.
Andrew: could be a paper on technical stuff, could be beneficial nevertheless.
Dorothea: Could there be confidentiality issues?
Andrew: Contract states that all of the knowledge in the contract is freely available to the network, so there should be no problem.
Alberte: work done with instruments that you work with
Carole: Alcatel doesn't own the images that are made by the instruments
Allen (not entirely serious): but we want data!
Carole: need to discuss the contact person at Alcatel directly.
Andrew: Dutch centre of Meris ocean product, maybe facilitation of collaboration due to Alcatel. More the post-processing side of things. Alcatel seem to be now more interested in post processing activities. Ocean biology interested in species detection – not clear whether that can be done, could be a small project on a limited set of data to test this. Other issues?
Sandy: JRC would like to be involved in the RS part of Greencycles meetings. (WS5: RS data and scaling, summer 2007) collaboration established already, so JRC should be contacted in need (Sandy is the contact person).

Open discussion Marine Carbon Cycle: Dorothea:

Interactive presentation on marine carbon cycle, C fluxes and dominant processes.

Allen: polar icecaps effects of carbon sequestration in ocean?
Pierre: sink reduction due to themohaline circulation?
Allen: and for southern ocean?
Pierre: physics are the same in the north and south
Dorothea: in the south huge difference between models and observations
Pierre: Still there is an agreement between modelling and inversions, are the data wrong?
Han: If you were to spend a lot of money, what would you do?
Dorothea: Combination of shipboard observations (time series) and modelling. Make use of ships of opportunity if available.
Allen: Why is work on carbon cycle biased to NH?
…

Open Discussion Terrestrial Carbon Cycle: Han:

Gives a report on activities in CarboEurope. General issues: land use, human dynamics in changes of land use, land use management, what level of detail is required and meaningful to simulate this is biogeochemical models. Drought effects (extreme event 2003), real world experiment to test model assumptions, CEIP intermodel comparison. Increasing CO2 rates has been 2ppm for 2002, 2003 and 2005. Causal mechanism unclear, but the hottest years globally. Fire, soil?
Soil behaviour, stocks and lability uncertain (see GCB special issue in Jan 2006).
How resilient is vegetation?

Alberte: data are important, results of carbon fluxes can be very different based on different landuse data sets. Land management representation may improve certain things, but as long as the data are of poor quality, uncertainty remains.
Allen: Inversions?
Pierre: only inferred regional carbon fluxes, but no process attribution.

Trevor and Josep present some work at CREAF with the GOTILWA+ model and experimental studies. Drought experiment data available from CREAF – link to the secondment of ESRI.

18/02/06

Project management:

Secondments

Suggested length of secondments:
working paper: 3months
educationally: 1 month rest work per mail.
Problem for short stays: travel costs increase, difficult to organise university housing
Secondments should conform to the networking idea of GC, but make sure that the PhD gets the most of the network for the course of their particular PhD goal.

Costs of the secondment are covered from the 400 € monthly allowance for network activities. The CDPs should consider this financial constraint, even though it is not perceived as being a general limitation. Any usage of financing above this frame needs to be clearly justified by the CDP, and essential to the project. Field studies are not included in this budget.
Soenke: Make clear that CDP should be designed concerning the financial limits
There is an extra budget for supervisors etc. (category F), of which supervisors attendance at network meetings should be paid.

Soenke to put latest MarieCurie handbook on the website.

Marcin: Can a secondment be outside the network?
Andrew: Current handbook says no, but is unclear in the moment. Andrew has contacted the PM. Response of PM : “Indeed secondments should be at other nodes (contractors) of the network. However and when it is justified and well described in Annex I secondments can be performed in other institutions. The role of this institutions is then marginal, it is only for the purpose of a well specified training that cannot be performed in the network, otherwise such institutions would be part of the network as full contractors.”

Sandy: As a general suggestion, the secondments at MetOffice and Bristol secondment could be merged to be organised from Bristol with day trips to MetOffice for ease or organisation.
Sergey: But what if necessary to stay more than one day at MetOffice.
Sandy: there is an en suite bedroom for greencyclist in Exeter available…

All ERs and ESRs to inform Andrew and Soenke about the latest developments of their secondments following the individual discussion.

Secondments at Lund:

Metoffice ESR: The planning should be earlier, possibly early 2007, given all the administrative constraints that apply for UK universities. Contact person in Lund: Almuth Arneth. Care should be taken wrt university obligations (must be after the first three months)
Roxana's secondment should be moved to autumn 2007 [unsure if this wasn't 2006, please clarify…]. Han and Torben to clarify the details of this secondment.
ER1: Something could be organised in terms of evaluating nitrous oxides emissions from different soil types, possibly also agriculture (VAU)? To be discussed offline between Soenke and Torben. Timing stays as planned a month in January 2007
Sandy: Roxana is not visiting Bristol, but it may be useful for her to have a short visit, because UBRIS are modelling CH_4 on a global scale. Probably is would be useful for her to visit Bristol early next year for a short time to catch up with the global stuff, and this should be linked to her visit to the MetOffice…

Marcin's secondments:
Join UBRIS and Metoffice to be around the same time, with primary placement at UBRIS and visits to the MetOffice.
Sandy: timing should be flexible to the project.
CEA late in 2007? Or join with the Metoffice meeting to do a half year on global modelling and be back for the field season.
Idea: the methane model should be ready to run and then he could do the evaluation for his sites.

Next annual meetings

Content of next meeting: group presentations according to topics with final discussion?
Long discussion about 2-3 days.
Sandy: EU reviewer will be there, hence there is a need to show that we deserve money: mid-term review. Longer meeting to have a chance to present all the work.
Andrew: Some people to coordinate topics about smaller presentation to have all faces on the podium?
Stephen: premeeting discussion about content to be shown?
Proposal: 2 days for science, 1 day for discussion+planning. Management at the end of the meeting.
Proposal: Option to cut one day half
One potential design: 1 day science, one day mixed science and management, one day discussion.
Interest in a field trip from Barcelona possible in one day or half day (sandy would like to see a full day to have a nice informative field trip)

Maciek: Could the meeting be held in Eastern Europe (rural poland)?
9 ESRs are in favour of the Polish option against 4 ESRs for Barcelona
Maciek to put together a proposal for closer evaluation. [Barcelona will need to know in April]

The 2008 meeting has to be before the EGU to prepare this.

Planned GC workshops

1. **Supercomputing**
   Coding issues because of high contribution of modellers?

Marlies in favour for such a workshop (9ESRs and ERs interested)
Allen: MetOffice could, but security in a clearing.
Andrew: the nearer the better.
Potential hosts DKRZ, CEA?
Soenke: CEA potentially, but same security problems as MetOffice, pretty unlikely
Objective: training at example codes.
Andrew to identify potential organisers
Nick is informing Andrew about the detailed options Corinne may know about

2. **Remote Sensing**
Allen (and general audience): absolutely desirable, scheduled for next summer (2007), could this be held earlier, since it's supposed to be a training workshop?
Andrew: Status at Alcatel? Are there any constraints on rescheduling?
Carole: Sometime at the end of this year should be possible to be organised.
Andrew: Is there a long preparation time for the organisation?
Carole: not that big an issue…
Andrew: suggests September/October 2006, but not during ES4 of QUEST, Quest. This would also be an opportunity to discuss secondments.
Dorothea: can supervisors attend workshops?
Andrew: Unclear, but up to us decide.
Alcatel to organise the workshop September/October 2006

3. **Fire**
Has already taken place – there may be a need for a follow up workshop for the fast track people

4. **Landuse**: general scientific relevance, but of little relevance for the work within GC.

5. **Methane**

Opportunity for methane related workshop? Objective to reduce travel: do this at the time of Roxana's stay at Lund. Mid autumn? Timing in September-October would allow to go to Abisko. Participants: relevant researchers of the GC labs working on the methane problem – should not be open to the general scientific community.

Objective: discuss within the GC project are parameters to be measured that help to constrain the models. What comparison can be done during the secondments planned in 2007 and 2008.

Torben to send measured parameters for the website for discussion leading into the workshop. There should be an exchange of parameters to Torben before the summer to be able to measure the desired parameters.
Torben to organise this meeting. Nodes to contribute: UBRIS, VAU, CEA, MetOffice. Information will be made available on the project website.

6. **Data-model evaluation**
Andrew: Linking together observation and models in a somewhat more philosophical way, statistical info. Would have to be carefully planned to be useful.
Allen: would like to learn about data assimilation
Stephen: There is a DA training school in Edinburgh end of this summer (Stephen to send contacts to CEA for website)

Allen: general interest in how to evaluate models.
Andrew: ESRs perspective?
Maciek: interested in data assimulation, but …
Sandy: good thing to do, but it may well need to be targeted to a special problem, because methods are specific to the problem and its (geographic/temporal) scale.
Andrew: What about the general philosophical interest in how you do this across sciences?
Sandy: Difficult, because different foci to problems. Should concentrate on a limited set of examples to be useful.
Dorothea: potential to an extra day at the annual meeting ?
Agreed to be a good idea, but the implication is that there is then no meeting in Hunagary. Could be a good start to see if a meeting in hungary could be successful? Andrew to follow this up!

7. **Outreach and Policy**

To learn and inform non-specialists. Could be at the MetOffice. At the end of the project, but bring it forward a bit anyway (to be moved from winter 2008 to summer 2008).
Stephen: There is experience at MetOffice, could be done in Exeter.
Allen: only non-professional – influencing politics?
Andrew: no, not intended to steer politics. Emphasis on communication of scientific knowledge; this may include communication to politics, press, UNFCC, general public, school children.
Dorothea: courses on communicating with the press available at UEA.
Dorothea: Do we really need a workshop on this topic? Wouldn't it be more useful if each ESR and ER spend this time on outreach in a way that they fancy and if necessary take extra training for this.
Andrew: No one would be forced to engage in activities they don't want to, but communication to non-scientists is clearly a need for successful future scientists (and GC!), and certainly warrants the organisation of a workshop for those greencyclists interested.

8. **General discussion of these and related issues**

Soenke: Make sure that workshops can be used in obtain credit points.
Majick: could we add proposal writing
Andrew: hope that this type of training available locally, not in workshops?
Meike: problem in time availability – need to be taken into account, shouldn't be made fixed now.

Conferences, summerschools etc.

EGU 2008: interest to apply for a special session on GC, but it is not possible to exclude non greencyclists. Invited speaker possible, but outside applications have to be seriously considered. Aim: At least one key presentation of the key findings needs to be organised. Should aim allow at a lot of greencyclists to talk. Make sure that all Greencycles get to contribute. Ensure that all greencyclists will be present at this and/or for other sessions.

Potential title: Greencycles – biogenic feedbacks in the climate system?

ES4 (September 2006)
Sandy: greencycles commited to a) supporting lecturers, b) ESR training (background of biogeochemical cycles and climate change, all domain, data and modelling, two weeks). Key issue: how many students, who is staff for this.
Dorothea: Clash with UK challenger ocean meeting
Andrew: Who is going to ES4?
Nick: recommends going there, very good, very top people
Sandy: hands on practicals, social interaction should be reinforced between lectures and students. Recommendation taken on board to be around for a bit longer to make connections.
How many are interested?
Info available on the website of QUEST and GC
Andrew: Level of coverage of GC topics?
Sandy: Similar to last year, but taking recommendations on board, covering all relevant aspects, putting envelope around this. Influence depend on commitment. People to commit time, lectures or practicals.
Andrew: Need to make sure that GC is significanty visible.
Sandy: is organised by GC partner. Deadline 10th of may. Need to organised a block booking!
The following ESRs express their interested to participate in 2006: Valentina, Raquel, Sarah, Trevor, Maciek, Marcin, Anna, Marlies, Yannick, Meike, Roxana.

ES4 costs would be payed from what budget position exactly? To be clarified by Andrew/Anne. [response of Andrew: surely this comes from category E : the 400 euros/mo?]

MarieCurie conferences / Summerschools etc.

Summerschool on remote sensing and data assimilation using Envisat in Frascati, Italy July 2006. Contact: Valentina
Carboocean is having a week workshop Bergen in June 2006. see carboocean website.
Sensitivity summerschool in Venetia later this year (Soenke to provide details)

Communication and outreach:

1. **Website:**
   Majic: CDP and timetable
   Soenke to provide a personal page webpage for the official GC pages. CDPs on secure webpage, and short CVs
   Box for secondments to track everyone and addresses?
   Make emails secure against spamsearch machines.
   Section of outreach and aims and findings etc. for pub. Communication. Links resources to non-scientific explanation links.

   Training possibilities at host institutions?
   Han: to be posted on the website or weblist. News board on website

2. **Increase visibility of Greencycles.**

Open terrestrial and ocean carbon conferences in Crete and Las Palma (see respective websites). get them to link us.
Quest annual science meeting in April, science part is open to public (to push GC there for the participants).
IGBP: ILEPS & SOLAS open science conference at the end of lifetime of GC (start of 2008). Sandy is on science committee of ILEAP to make a link to GC.

ILEPS is desperately looking for authors of the ILEAPS, possible to capture a whole magazine for small papers that are not peer-reviewed to communicate to the public science (one of their newsletters, non specialist audience). Anne to organise this? Appears 4 times a year. Doesn't cover the ocean. SOLAS is in principle the same. Could have also a link to oceans in ILEAPS as well, integrated issue for relevant topics…

GCP: Focus has shifted towards human dimensions. Allen has contacts

3. **Less specialist communication:**
CarboSchools: Contact Phillipe Saugier, or their website (have teaching material)

Is the idea to provide facilities for network members to do this?
Andrew: the network would support all these types of activities as much as possible. Anne could help write things, create presentations, pamphlets, etc.
Dorothea: let people decide what type of outreach they do.
Sandy: individual?
Andrew: GC could support that, but there is no should! GC has an aim to promote this. Hard to generalise, depends on local institute. No GC strategy on this
Anne would be happy to support these type of activity.
Nick: is there a requirement?
Andrew: for the network it's a requirement, but this is not forcing individual members to get involved. GC encourages, expects to take an effort
Sandy: local institutions have a have potential to provide opportunities for this kind of communication/communication training. One step forward is to assemble request for public communication on web page!

Mentoring:

Logical connections made up, but not forced. In principle, any ESR can contact any ER. Idea to have a contact point to raise concern or scientific issues, future plans, crisis negotiation etc.

Valentina, Maciek, Meike -> Nick
Raquel, Trevor, Roxana, Marcin -> Soenke
MetOffice, Sarah, Anna -> UBRIS
Yannick -> Allen
Marlies -> PIK

Allen: what is the role of the mentor in relation to supervisor?
Andrew: more general advice, see above

Publication of the network

To be revisited next meeting – encourage joint publications

Reporting:

Andrew reports on the reporting for 2005. The report contains three lists on publications:

1. list of periodic activity, our own publication
2. list of publications of people involved in GC as either author or co-authors
3. Appendix for publication directly arising from GC research

Two things : 'Individual and joint publications, directly related to the work undertaken within the contract', and 'List of publications directly resulting from the project'. ADF takes the former to include all publications within the year with GC scientists amongst the authors that concern the science domain of GC : they show we are active scientists in the research field of GC

The next report is due 45 days after new year: 14th Feb. 2007.
Deadline to send activity report to Andrew: before the 22nd December 2006
Finance report to Andrew before 31st of January 2007

Greencycles has to be acknowledged in all publications! The contract says that the supported researchers must acknowledge the support of the Community under a Marie Curie Research Training Network in any related publications or other media

Sandy: timesheets for financial reporting. For administrative reasons time sheets required to calculate man month?? Sandy to send request to Andrew to ask the contact person in Brussels. Is it a requirement of a research training network to have a time audit.
Han: It's the auditor responsibility to ask for this or not…
CEA requires an audit **for each year** because it makes prefinancing a lot easier!