ACCESS SAG Meeting, 9 August 2006, Bureau, 9 AM

Attendance


Note: This SAG meeting had to be shortened in order to accommodate the University network meeting immediately following the SAG meeting and the University-SAG Workshop starting at 1PM.

Agenda

• Action items from previous meeting:
  ACCESS web site (Puri)
  Carbon Cycle/Land surface coupling

• Report on Steering Committee Meeting (Smith/Mitchell)

• Visits to/from the Met Office (Puri)

• Planning Reports
  Ocean Modelling (Alves)

• Progress/Current Status with ACCESS modules (note these reports might need to be shortened):
  Unified Model (Jakob)
  VAR (Steinle)
  Coupling AusCOM with UM (Hirst)
  Infrastructure (Dix)

• Issues/Developments:
  Universities
  CSIRO
  Bureau

• Any other issues

• Next meeting

Action items from previous meeting

ACCESS Web site

• Two templates for the site have been developed by Joanne Richmond (CMAR) and were forwarded to SAG members for comment;
• SAG members agreed unanimously on the preferred template;
• A further comment from SAG members was that the draft logo looked very similar to those from NIWA (New Zealand) and the Met Office; Richmond will work on a new design;
• Team Project/Work plans will be added to the site;
• SAG members were asked for suggestions on additional material that could be included in the website.

Carbon cycle/Land surface coupling

• A recommendation from the July SAG meeting was to aim for a faster timeline for coupling CABLE to the UM; a further recommendation was that ACCESS should adapt an existing river routing scheme rather than develop one from scratch and that since UM already has a river routing scheme it would be best for ACCESS to start with this scheme. Once coupling of CABLE is achieved, work on improvement to the scheme could commence;
• Puri reported that a follow up meeting was held at CMAR on 7 July. This was a productive meeting and a desirable outcome was that Eva Kowalczyk will commence coupling work for CABLE with help on the UM from Dix. This arrangement should address the faster timeline recommendation;
• Pitman noted that starting with the Met Office river routing scheme might not be a good option for ACCESS as it might require extensive retuning to work satisfactorily with CABLE. He recommended that it might be better to start with the river routing scheme used in the CSIRO Mk3 model. In response SAG asked Hirst to report on the details of the CSIRO river routing scheme and its suitability for use in ACCESS.

Report on Steering Committee Meeting

Mitchell reported that:

• The recommendation for using UKCA as the Chemistry module instead of MOZART was accepted;
• Smith and Mitchell were tasked to develop a more robust communication plan including meetings with university Vice Chancellors;
• Additional initiatives that are required to support ACCESS but are not part of ACCESS were discussed. An example was the supercomputer upgrade where the Bureau has a defined process but the CSIRO process is being developed; there was also need for discussions with APAC concerning portability of ACCESS modules;
• Licensing agreement with the Met Office is moving forward although there are some legal issues that need to be resolved;
• Resource issues were discussed; Pitman noted that resources remain a real problem and cited the carbon cycle/land surface as an example; in his view key ACCESS timelines will be seriously compromised unless the resource issues are satisfactorily resolved;
• It was agreed that Puri will circulate minutes of the SC meeting to the SAG members.
**Visits to/from the Met Office**

- The SC, noting the importance of visits to and from the Met Office and that security clearances for access to the Met Office infrastructure is required, had tasked the Science Leader to begin the process of facilitating the visits;
- Following this Puri has been in communications with Alan Dickinson and he too agreed that it was now the right time to start the process. Dickinson asked for names of ACCESS scientists and on receipt of these he would start the process of obtaining security clearances;
- The SC and SAG agreed on the following priority visits by ACCESS scientists that could be forwarded to Dickinson:

  1) UM expert – M. Dix or M. Naughton or A. Sulaiman
  2) VAR expert – P. Steinle
  3) Coupling – D. Bi
  4) Carbon cycle/Land surface – E. Kowalczyk

- Mitchell noted that a summary providing justification for the visits and what will be achieved needs to be prepared.

**Planning Reports**

**Ocean Modelling**

Alves presented some diagrams (Attachment A) outlining the strategy and key directions for the ocean plan. These covered 3 basic areas:

- MOM based ocean modelling - locally centrally supported versions of the MOM code supporting a range of applications and model configurations including: AusCOM for climate modelling, OFAM the global ocean prediction model and CLAM the regional ocean model mainly for tropical cyclone prediction;
- A strategy for developing a scientifically robust first version of AusCOM (version 1). Two parallel paths would be followed in the next couple of years. The first path would involve experiments to evaluate and tune the ocean deep circulation, particularly thermohaline circulation and water mass formation. CSIRO have plans to commit an ocean modeller to this task. The second path is to conduct ocean tropical variability experiments focussing on thermocline variability, Indonesian throughflow etc. It was suggested that this should be a priority position for BMRC to fund. Both these paths are in ocean only mode and need to be completed before the coupled model can be adequately evaluated;
- The present coordination in ocean data assimilation is somewhat adhoc, with a multi-variate OI scheme developed as part of the BLUElink project (BODAS) and an extension of this for time evolving ensembles developed by the POAMA group at BMRC (called eBODAS or PEODAS). A plan was presented that involved a centrally supported multi-variate ensemble based OI
scheme (including Ensemble Kalman Filter extensions) with the various applications (BLUElink, POAMA, Wave modelling, SST) using the central tool. A plan for a more coordinated effort will be developed as part of the ocean plan.

There was some discussion in regard to coastal modelling. It was suggested that a workshop be convened sometime next year once the BLUElink system was operational.

**Progress/Current Status with ACCESS modules**

**Unified Model**

- UM development is on target;
- Daily global UM runs from Met Office initial conditions have commenced;
- Regional version of UM has been executed; boundary issues are being looked at;
- UM has been successfully run in a climate mode; a 10-year AMIP-type run is planned;
- The single column model (SCM) now works;
- A meeting was held with Dix, Rotstayn and J. Noonan to develop a workplan for Noonan to work on the aerosol component of UM; addition of the sea salt component to the current UM scheme was flagged;
- A resource gap in boundary layer processes was noted. Mitchell suggested that Jakob should have discussions with Cleugh, Raupach and Manins to see if expertise is available within existing personnel;
- The key risk to the UM workplan is lack of resources.

**Data Assimilation (VAR)**

- All of the Bureau's current operational sources of observations are now interfaced to the observation database (ODB). There may need to be some reconfiguration of how the information is stored to meet the requirements of the Observation Processing System (OPS). Further types of observations will also need to be added as they become routinely available;
- Pressure data from synoptic land stations has been successfully read from the ODB, and processed by both the OPS and analysis system (VAR);
- The extension to other surface pressure data continues and then to more general data;
- There are outstanding issues with some small steps between the major components (i.e. OPS and VAR) involving some manipulation of the model fields. This are expected to be resolved with those working on the Unified Model soon;
- Differences in the supercomputer compilers have produced some erroneous optimizations locally within the code from the Met Office. We can overcome these problems once they are detected, but the detection is time consuming;
- It is not expected that the full system will be ready by the end of this quarter, but the 1st quarter of 2007 is a more likely;
- The limited number of people working on using the assimilation remains a concern.
Coupling AusCOM with UM

- Bi has now received the AusCOM model and will commence the coupling work; some technical problems will be discussed with Alves; Puri will contact Met Office expert on coupling to commence future dialogue with Bi;
- Acquisition of the sea-ice model code is being pursued;
- New position in coupled modelling and coupled modelling support is likely to be approved by CMAR;
- I. Watterson will be involved in ACCESS model evaluation.

Infrastructure

- Interviews have been held for the senior IT position (SITOB) in ACCESS;
- Significant amount of work has been carried in coupling CABLE to C-CAM; this work should make coupling CABLE to the UM easier.

Issues / Developments

Universities

It was noted that the universities are creating up to 20 new positions in support of ACCESS across the country (particularly Monash, Macquarie and UNSW). These positions, when filled, should result in enhanced University sector contributions to ACCESS.

CSIRO

Mitchell noted that there are high level discussions within CSIRO on the extent to which climate will feature in CSIRO programmes; outcomes of these discussions which have obvious implications for resources will not be known till May 2007.

BMRC

Smith pointed out that consideration is being given to making available resources to ACCESS. In particular he noted that:

- A senior physics position has now been filled (Jakob);
- Interviews for the senior IT position have been held; this position will take up the role of Team leader for the Model Systems Team;
- A new appointee will soon be arriving to take up a position looking at intra-seasonal aspects such as the MJO in model runs;
- There is a commitment to 2 core appointments on ocean data assimilation and hydrology;
- There are plans for 3-4 ACCESS specific positions on data assimilation; one of these has already been advertised.

Smith also noted that a current pressing issue is high performance computing. Although there is a process in place in the Bureau there is no agreement yet on the details. A compounding issue is that the current supercomputing resources are not
being fully utilised. Any supercomputer upgrade will need to include future storage requirements. Funding for these upgrades will be a challenge and it was important for ACCESS requirements to be stated precisely.

Other Issues/Information

Next SAG meeting

10AM on 12 September at the Bureau, Room 10 West
**ATTACHMENT A**

**MOM based models**

- **MK-3.5**
- **AusCOM** (Climate ocean model)
- **ACOM2**
- **OFAM** (BlueLink global model with enhanced regional res)
- **CLAM** (BlueLink regional model for various domains)
- **BRAN** (Hi-res Re-analysis)
- **NW shelf/GBR models**
- **Ribbon** (Model of Australian coastal waters)

**Infra-structure**

**ACCESS**

**AR5 Projections**

**Climate change science**

**Southern Ocean science**

**Inter-ann variability**

**POAMA-3**

**Re-analysis for science/app studies**

**OceanMAPS Operational ocean pred**

**WAMSI node 2 Clim change downsca**

**Tropical cyclone pred BlueLink/WAMSI node 6**

**ROAM BlueLink-2/3?**

**Climate downscaling WAMSI? Others?**

**Potential BlueLink?**

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Left bio/geo out

**AusCOM Development**

- **Coupling/Transporting everything**
- **Climate simulation experiments**
  - 20-50 years, seasonal cycle, sea ice, water mass formation, heat transport, thermohaline spin, connection ACC, etc.
- **Test New MOM Physics**
  - Transient vs mean response
- **AusCOM-5**
- **Coupled Model**
- **Climate change tuning**
- **ARS projections**
- **Equilibrium spinup*exp**
- **ECODAS**
- **POAMA-3**

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**Pre-ACCESS**

**ACCESS**

**APPLICATIONS**