Synthesis Workshop – São Paulo 11th November 2005

- 22 people present
- Introduction of the Book outline
- Revision of the outline – there were new topics/authors that will be included
- Considered the translation of the book into Portuguese (Diogenes's suggestion – Hucitec)
- Editors will send guidelines for the authors for writing sections/chapters
- Reminder about the parameters needed for the models
- Modelers should also be provided with the information on the needs of the biogeochemical group about processes

Recent Agricultural Transitions in the Amazon Basin and their Biogeochemical Consequences

An LBA Synthesis Activity

Coordinator: Jerry Melillo

Goal

The goal of this activity is to synthesize the results of LBA and related research that has considered the recent agricultural transitions in the Amazon Basin and their biogeochemical consequences.

Transitions of Interest

A. *Introduction (Jerry Melillo, Mercedes, Diogenes Alves and Doug Morton)*
   1. review the history of agriculture in the Brazilian Amazon including the role of remote sensing documenting change in agricultural expansion
   2. consider socioeconomic drivers
   3. discuss LBA goals

B. Agriculture in the Cerrado region - case studies of transitions (Mercedes, Richard Zepp and others)
   1. Cerrado to pasture
   2. Pastures in transition (reformation, row crops such as soy)
   3. Cerrado to row crops
   4. Amazonian savannas
   5. Livestock and trace gas fluxes (Magda Lima – Embrapa Environment)

B. Agriculture in the forest region - case studies of transitions

1.Forest to pasture

Eastern Amazon – Robert Walker and Eric Davidson

Central Amazon – Flávio Luizão and others

Western Amazon – Chris Neill and Reynaldo Victoria

2. Pastures in transition (reformation, row crops, agroforests, pasture abandonment) – Flávio Luizão and others; Robert Walker

3. Forest to row crops – D.Fitzjarrald

4. Small scale slash and burn and alternatives (chop and mulch without fire) in the eastern Amazon – Claudio Carvalho, Ricardo Figueiredo, Tatiana Sá, Robert Davidson (identify other possible collaborators –CIAT, LAET, IRD)

6. Livestock and trace gas fluxes (Magda Lima)

C. Fire and trace gas fluxes (Paulo Artaxo and Doug Morton)

D. Comparative analyses - General lessons learned and Policy relevant information

Consequences of Interest

Changes in:

- within system stocks and fluxes
- land-atmosphere interactions (includes aerosol component)
- land-water interactions, and
- climate feedbacks

Scaling Process-level Understanding to the Region

A. A general strategy - Coupling remote sensing and simulation modeling

B. Remote sensing to document changes in land cover and land use (regional extrapolations)–(Greg Asner, Doug Morton, Laerte Ferreira, Edson Sano, Diogenes Alves, group from Equador)

C. Simulation models – CASA, TEM, Century, DNDC and others – (Chris Potter)

D. Regional extrapolations, remote sensing and simulation modeling (Chris Potter, Carlos Eduardo Cerri, Diogenes Alves, Britaldo Soares and Mateus Batistella)

Agriculture and the climate system – local to regional consequences

A. *The concept of thresholds in relation to mosaic structure (Pedro Dias)*
B. *The importance of landscape mosaics (topography, vegetation cover, road networks) on precipitation (Pedro Dias, R. Avissar)*
C. *Sensitivity of climate feedbacks to land cover – SIB-2 approach (Doug Morton)*

Alternative futures – scenarios of future land cover and land use

- *The scenarios – for the next two decades (based on current trends in the economy, climate and so on). Dan Nepstad, Eustaquio Reis, Robert Walker, Equador group*
- *Scenarios for climate and demography feedbacks – larger time scale- 50 and 100 years (???) – Jose Marengo, Jerry Mellilo, Emilio Moran*
- *Coupling simulation models and scenarios- Carlos Eduardo Cerri, Jose Marengo, Britaldo Soares, Chris Potter, Emilio Moran*
- *Implications for policies - Tatiana Schor, Roberto Porro, Paulo Moutinho, Paulo Egler and others*

Conclusions and Perspectives (Research needs)

- *State of current knowledge and future needs*
- *Biogeochemical unknows and scenarios unknows – Editors and the whole group*

Timetable for production of LBA Agriculture Synthesis Book
"Biogeochemical changes associated with agroecosystems of Amazonia"

July 2004	Second workshop Book outline draft
November 2005	Review of chapter/sections and authors
February 2006	Biogeochemistry "case study" chapter outlines submitted and distributed "Case study" outlines reviewed and returned
May 2006	Biogeochemistry "case study" chapter drafts submitted and sent out for review Overall introduction, modeling, remote sensing and scenario chapter outlines written and sent for review

August 2006	Biogeochemistry case study chapter reviews returned **Workshop** to: 1) revise biogeochemistry chapters along similar lines 2) write detailed outline/draft of cross-cutting synthesis for "case study" section Modeling, remote sensing and scenario outlines back from review
October 2006	Modeling, remote sensing and scenario chapter drafts written and sent for review
February 2007	Modeling chapter reviews back
April 2007	All chapters submitted and distributed in final draft
June 2007	**Workshop** Final cross-cutting chapter draft written
October 2007	Draft book sent to publisher
End of 2007	Publication