

WORKSHOP REPORTS

1st LBA Science Steering Committee meeting (Large scale Biosphere-Atmosphere experiment in Amazonia)

SAO JOSE DOS CAMPOS, MARCH 31ST - APRIL 2ND 1997

The key questions for LBA are:

- How does Amazonia currently function as a regional entity?
- How will changes in land use and climate affect the biological, chemical and physical functions of Amazonia, including the sustainability of development in the region and the influence of Amazonia on global climate?

The LBA is divided in six general areas:-

- Physical Climate (which currently included the paleoclimate studies);
- Carbon Storage and Exchange;
- Biogeochemistry;
- Atmospheric Chemistry;
- Land Surface Hydrology and Water Chemistry;
- Land Use and Land Cover .

The LBA has been endorsed by IGBP as the first Integrated Global Change Science Project. Paleoclimate and paleo-environment studies are definitively included in the LBA frame, linked questions are described in the LBA Integrated Science Plan, soon to be published:

1. What have been the patterns of climate change (precipitation and temperature) on millennial to century time-scales in the Amazon environment?
2. How will analogues of past conditions, which generally represent an average of climate during several decades, help to improve our understanding of large scale mechanisms? (e.g. similarities have been observed between some climate variations during the last 7,000 years and present-day El Nino events).
3. What is the relative importance of external forcing (e.g. changes in insolation, atmospheric CO₂, SST) vs internal mechanisms for Amazon paleo-situations?
4. What have been the impacts of extreme climate variations during the last millenia on Amazon environments (vegetation changes, fires, erosion).

A previous document (LBA scientific meeting) gave emphasis to lacustrine studies and sedimentological/palynological proxies. The new text also includes other methodologies such as: physical geography, fluvial geomorphology, biogeography of vertebrates, soils and soil organic content (¹³C, ¹⁴C, charcoal). Other South American records, including volcanic activity and Andean ice cap cores, must also be considered in our

analysis. In fact, any contribution toward these objectives and the overall objectives of LBA are relevant. For example, the discussions on paleo-studies during the SSC also focused on other contributions:

- high resolution sonic profiles (3.5 kHz) , which appear necessary for the study sites in alluvial plain;
- methods for providing a record of past seasonality (speleothems, tree rings, laminated lacustrine sediment).

Operations and funding are now better defined:

- a US contribution from NASA, mainly dedicated to atmospheric studies, but also considering ecological research (a research announcement has been made) and hydrology / biogeochemistry.
- an EU contribution, to be defined during a European LBA-Workshop, in June-July. This last one, included in the G7 Pilot Project, is dedicated only to Brazil.
- a Brazilian consortium, to be created, including three agencies (FINEP, FAPESP, CNPQ)
- other contributions are from IAI and some European projects.

From an operational point of view, the European funding is, for the moment, restricted to Brazilian sites. For paleo-studies it may offer opportunities for European research in cooperation with Brazilian Institution, but many important EU contributions in other Amazonian countries have to be included in further projects. At the moment, specific research projects linked to the German Program SHIFT or to the French Program, from ORSTOM, AIMPACT, are capable of contributing to integration of the European LBA.

Many objectives of LBA paleo-studies cannot be restricted to Brazil or US or EU operations. One of the most important is the creation of a data bank of present-day pollen deposition, which is also an objective of the PAGES and GCTE Core Projects of IGBP. Such an objective requires full participation by all Amazonian palynologists, in conjunction with Botanists, Climatologists and Statisticians. An effort must then be made, by the scientific community, for the integration of research funded by different countries (Brazil, USA, EU).

The sites for paleo-environment and paleo-climate studies should be, if possible, close to the LBA study sites (where all other researches are centered). The sites chosen dur-

Spatial-Temporal Dimensions of High-Latitude Ecosystem Changes

KRASNOYARSK, RUSSIA, SEPTEMBER 2-7, 1997

The Institute of Forestry, Krasnoyarsk, recently hosted a workshop on "Spatial-Temporal Dimensions of High-Latitude Ecosystem Changes" as a contribution to the development of the IGBP North Siberian Transect. PAGES was represented by expertise in dendro-climatology (notably Keith Briffa, University of East Anglia and Malcolm Hughes, University of Arizona, in addition to members of the Forestry Institute under Eugene Vaganov's leadership) and in peat and sediment studies. The programme included an excursion to contrasted forest sites in the region and a wide range of scientific presentations and discussions. Recognition of the vital role of 'dendro-research' in establishing fire histories, the nature of disturbance regimes and forest stand dynamics at the patch scale, as well as in providing high resolution paleoclimatic information and estimates of changing

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ing this SSC meeting were Rondonia , Sao Gabriel da Cachoeira, Tefe (Mamiraua), Manaus, Santarem, Maraba and Brasilia, this last one representing the extra-Amazonia reference site. For neighbouring countries, some sites have been cited:

- Noel Kempf Reserve (NE Bolivia),
- Sao Carlos do Rio Negro (Venezuela),
- Puerto Maldonado (Peru),
- Napo Valley (Equador),
- Leticia and Araracuara (Colombia).

In the physical climate realm, comparisons may be made on a larger space scale, Amazonia climate variations should be compared with extra-tropical records.

My final consideration would be that a clear call has been made by the LBA, to the paleo-community. This is an excellent opportunity to demonstrate the utility of paleo-environmental reconstructions for a better understanding of the current and future behavior of environmental systems. This regional approach provides a favourable opportunity to put different fields of science in contact with each other.

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