EPD Newsletter Number 8

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Editors: S. Hicks, J.-L. de Beaulieu, R. Cheddadi and G. Jacobson

Editorial

The Executive Committee (EC) and Advisory Board (AB) of the EPD held their Annual Meeting in Bonn, Germany 19-21 March 1998, hosted by Prof. Thomas Litt. Following normal tradition this Newsletter primarily reports what took place at that meeting. As agreed in 1997, the Newsletter is available on the internet at the following web sites:

http://medias.meteo.fr/paleo/epd/epd.html
http://www.ngdc.noaa.gov/paleo/epd.html

It is also being announced via the EPD list-server. Paper copies are being sent only to those scientists who have specifically requested that they receive the letter in this form. We realise, however that the number of subscribers to the list server is fairly small so if you suspect that any of your colleagues have omitted getting their names on the list then do, please, take this opportunity to remind them. Remember you may subscribe by sending an e-mail to:

listproc@lists.colorado.edu (with the sole contents of this message: SUBSCRIBE EPD-L <your-full-name>)

In order to try and reach a wider public we are sending out an announcement of this letter on the QUATERNARY and TILIA will thus receive this information several times.

At the same time we would like to encourage people to use the EPD list as an active forum for questions and answers. All the EC and AB members are only too happy to answer queries as they arise and also welcome suggestions for improvements to the EPD. It is certainly not necessary to wait until the annual meeting to have problems ironed out. Many queries – such as one recently received requesting clear guidelines as to how data from the the EPD should be acknowledged in publications in which it has been used (see later in this letter) are of wide interest to all European pollen analysts. We would also like to see more use of the EPD list for the exchange of information and advise between the European pollen community.

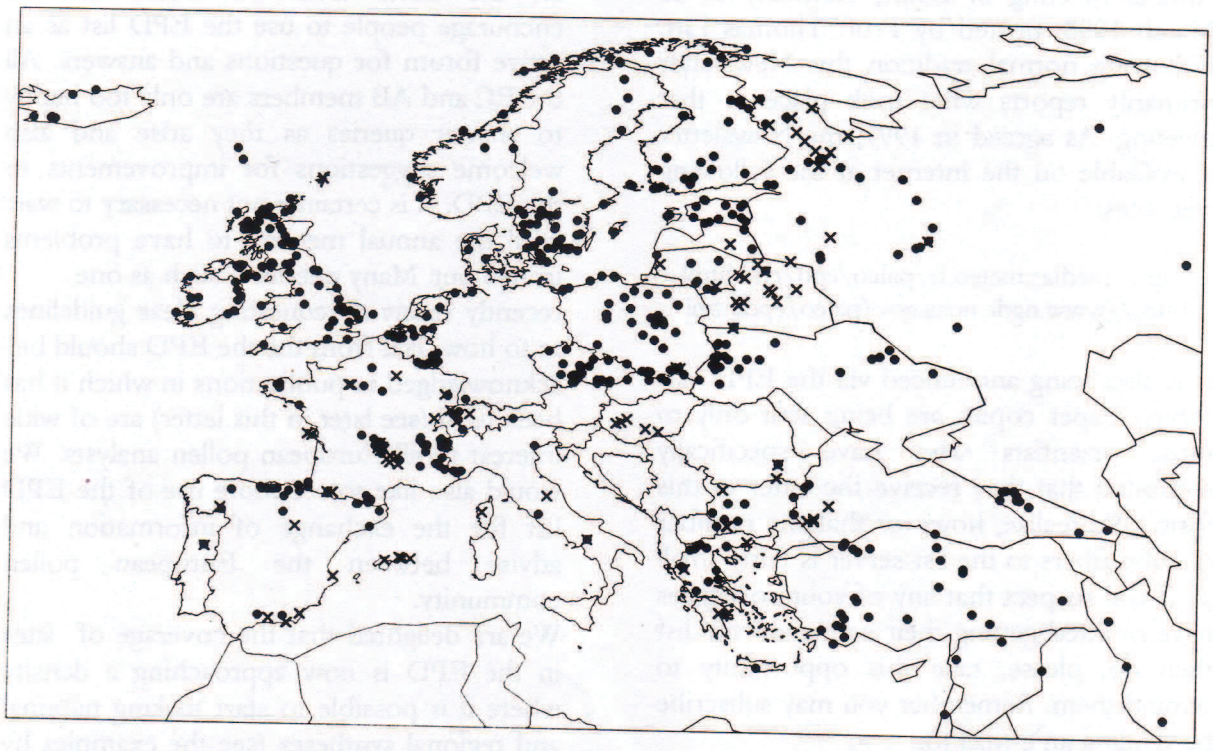
We are delighted that the coverage of sites in the EPD is now approaching a density where it is possible to start making national and regional syntheses (see the examples by Simon Brewer and Joël Guiot later in this letter) and start addressing wider problems. The EPD has plans to set up projects to involve contributors in just such syntheses (see details of EUPALMAP later in this letter) but we hope that individual contributors will also begin using the EPD more actively. In order to insure that

can be added to and even reinterpreted within the framework of such projects, we would like to encourage both present and future EPD contributors to be particularly careful over the following two points: (1) that basic metadata is always provided in an unambiguous form, and (2) that a depth-age chronology is provided along with the original pollen counts. Chronologies, whether based on radio-carbon or calendar years are essential and some extra guidelines for these are provided later in this letter.

We have always had strong links with the North American Pollen Database and these are now being extended to ones with the African Pollen Database and the European Pollen Monitoring Programme's database of annual modern pollen deposition. We look forward to seeing a really strong development and expansion of EPD activities in the coming year.

The present status of the EPD

At present the database contains 810 sites with fossil data and, as a separate entity, surface-sample data for approximately 800 localities (see later in this letter). During the past year data were added for 108 new sites (see map below), with major contributions from the Mediterranean region, Belarus and the north-westernmost part of Russia.



X = data submitted last year

Approximately 90% of the new additions are in unrestricted form. The AB has re-affirmed the "three-year rule" that specifies that contributors of restricted data are to be contacted after three years, and given the option (by positive response only) to continue the restriction. Without positive response the data become unrestricted.

Restricted data are not available on web servers, but are available on disk by request from investigators to the central DB in Arles. Anyone wishing to see the full list of data in the EPD (both restricted and unrestricted) should either download the EPD from the internet server and then read the table "P_Entity" (which contains the

data status and the name of the person responsible for the data) or contact the central DB.
In addition to database access via the World Data Center–A in Boulder, during the past year the database was downloaded approximately 200 times from the MEDIAS web server in Toulouse (see addresses in the editorial). Only one request was received for data on disk.

New data

The following data editions are expected:

Germany: Thanks to Prof. T. Litt, who coordinated the data collection in Germany last year, data for ten important sites are now being compiled and should be submitted to the EPD soon. The sites have good geographic distribution for this important region. All data will be in unrestricted form. Information about German pollen data can also be obtained from the Internationale PaläoKlima-DatenBank which is maintained at Hohenheim:
http://www.pkdb.uni-hohenheim.de/

Iberian peninsula: Several new sites are being investigated in Spain and Portugal. Prospects are good for these data to be included in the EPD relatively soon. Given the many important scientific questions involving the Mediterranean region the addition of these new data from Spain and Portugal is of special significance. Last year 10 new sites were contributed by colleagues from the laboratory of Palynology of Barcelona (UAB).

Chronologies

During the past year chronologies have been developed for approximately 320 sites, making a major step toward having the database in a form that is easily queried for research projects. Additional chronologies are now being developed at a rapid rate, thanks in part to the participation in database management of Simon Brewer who is working on a project involving the EPD (see later).

Pollen nomenclature

The database includes some 2700 taxa. Issues of nomenclature have been resolved for 1600 of these. The standardization of the nomenclature of the remaining 1100 taxa, primarily of the Russian flora, was completed in December 1997 by a working group consisting of Jacqueline van Leeuwen, Andrei Andreev, Jacques-Louis de Beaulieu, Pavel Tarasov and Rachid Cheddadi. These taxa have been included in the database list.
Training sessions, at which trainees learnt how to use TILIA and other database software, and how to manage data efficiently, were held in Arles for few visitors from Poland (A. Wacnik) and Russia (T. Bliakharchouk and E. Panova).

Potentially 'lost' data

The importance of ensuring the survival of major data-sets that were developed by colleagues who have now retired was emphasized. If anyone has access to such data sets and knows that the compilers are happy to have their data in the database, they are encouraged to arrange for its contribution

Pollen data from marine cores:

The general issue has been raised as to whether or not data from marine cores should be included in the EPD. The consensus opinion is that such data are appropriate, so long as the pollen signal has potential for contributing to understanding of a terrestrial region. In some cases, ODP cores may be valuable because of chronologies already developed for other purposes. See:
http://www-odp.tamu.edu/database

Pollen concentrations The AB reminds and strongly encourages colleagues to include with their data complete information about sample size, exotic spike added, etc., in order that pollen concentrations (and hence pollen accumulation rates) may be calculated.

Chronologies

(A. Lotter & C. Tzedakis)

The importance of providing a chronological framework for all EPD pollen records is once again emphasized. Building on the intentions expressed in the previous newsletter where, if possible, all sites should include at least one chronology, the AB recommends that in addition to a radiocarbon chronology (expressed in conventional radiocarbon years BP) an absolute chronology (expressed in calendar years BP) should be available. Such an absolute chronology will on the one hand enable direct comparisons with other data-sets based on calendar years (e.g. ice cores, insolation, GCM reconstructions, etc). On the other hand, the use of such a sidereal time-scale also provides the opportunity to estimate realistic rates of environmental and ecological change.

Unless a varve chronology is available for a site, the conversion to calendar years will be carried out by the EPD in collaboration with the data contributor and will utilize the latest available calibration techniques. The depth-age models (e.g. linear or polynomial interpolation, etc) and the calibration method used to derive the chronologies must be documented in the EPD.

The development of accurate chronologies for all pollen records will enable the EPD to realize its full potential and will be paramount for its promotion to a wider scientific community.

Review of TILIA metadata forms

The extensive meta-data that are requested as part of a submission of data by TILIA seem to be a barrier to contributions from many colleagues who either do not have all the information readily available or do not have the time to enter it. A review of the SITE FORM entries confirms that, virtually all the information are appropriate and important. A suggestion has been made to divide the form into two sections: Essential Information (latitude, longitude, altitude, and the "contact person") and Desirable Information, making it clear that submission of data is welcomed with only the former completed.

Pollen Visualization

(J. Keltner)

In the coming year the WDC-A for Paleoclimatology will be investigating the possibility of adding mapping to its current search and diagramming tools for pollen data (http://medias.meteo.fr/paleo/ftp-pollen.html). This current WDC-A mapping application displays climate model output: http://www.ngdc.noaa.gov/cgi-bin/paleo/gissbore.pl.

Modern Pollen Data

(S. Hicks)

Modern pollen data play an important role in projects which use the present day vegetation situation for interpreting the past (e.g. the Biome 6000 – PMIP projects mentioned later in this letter). In such projects the quality and reliability of the reconstruction stands or falls on the quality of the modern samples. The EPD has records of approximately 800 modern samples which give the pollen composition

of moss polsters, lake surface sediments, surface soil samples etc. This data set is not as yet included within the EPD proper. The AB of the EPD would like to see this data set extended and also have it in a form where the different sediment types are equally well represented spatially, so that it can be made available to a wide range of researchers. To this end we are hoping to enlarge both the lake sediment and the moss polster set by including the core tops (those that represent the true modern surface of the sediment) of lake and peat profiles respectively which are already in the EPD. For this modern pollen data to useable for a wide range of projects, however, it is essential that the accompanying metadata includes all of the following information:

- Latitude, longitude and altitude of the sample.
- Type of sample (moss, peat surface, soil surface, lake sediment etc.)
- Type of site (open/within closed vegetation, natural/anthropogenic vegetation, etc.)
- Species present in the immediately surrounding vegetation and their abundance.
- Main species of the regional vegetation.
- The year in which the sample was collected.
- The analyst.

We would encourage contributors who already have such data in the EPD to provide additional metadata (as above) which may have been lacking and also ask for additional contributions wherever data of this type are available.

A second, but rather different type of modern pollen sample is that collected by traps. A database of this type is also being developed within the framework of the INQUA Workshop 'European Pollen Monitoring Programme' (EPMP) (see information later in the letter). This database, too, will be in the same format as the fossil profiles in the EPD. The major way in which these values will differ from the modern pollen values mentioned above is that there will be a series of annual records from the same site. Moreover, these annual values will be expressible as pollen influx values, so that values for individual pollen taxa are directly comparable between sites and even over great distances. In term of vegetation reconstructions it will be necessary to use the average of several years to produce a value for comparison with fossil samples but in terms of climate the annual variations at one and the same site are highly significant. Pollen trap data, as standardized through the EPMP, will be kept quite separate from the data set of modern pollen samples from mosses and lake sediments.

Guidelines for acknowledging the use of the EPD and/or individual data abstracted from it in publications

When a publication includes data obtained from the EPD it is appropriate that a statement of the following kind is included in the acknowledgements:

"Pollen diagrams produced by the following authors have been used in compiling this article: *(list here the names of all the authors whose data forms part of the synthesis)*, while the data itself has been accessed via the European Pollen Database (EPD). The contribution by these individual pollen analysts is gratefully acknowledged, as is the facility afforded by the EPD. The synthetic interpretation of these data, however, is that of the present authors.

2nd Workshop of Global Paleoenvironmental data held in Boulder, Colorado 9-12 February, 1998

The Data Manager and the Chairperson of the AB represented the EPD at this meeting which, as part of the PAGES programme, brought together members of many different databases which all, in one way or another, focus on the general palaeoenvironment theme.

The following main points of the meeting are of relevance to the EPD:

1. A booklet of guidelines for standardization of databases is being produced and will soon be available.
2. Journals are starting to notice that databases should be recognized in some fashion. Possible ways of doing this include (a) reviews of databases somewhat after the same format as the 'Book Review' section (b) short articles that describe databases, (c) protocols or conventions for citation or acknowledgement of databases in publications (see section above for the EPD's own suggestion).
3. A **G**lobal **C**hange **M**aster **D**irectory is already available at: **gcmd.nasa.gov**

See also:
<http://www.palecol.plantsci.cam.ac.uk/inqua/>

Broad scale projects which have involved the EPD

1. EPD and climate (Biome 6000 - PMIP) (Joel Guiot)

There is a demand from the climate community for past vegetation and climate information. In this respect, the Biome 6000 project which started in 1993 and made an important step this year, has utilized most of the continental pollen databases and has produced vegetation maps (at the biome level) for the 0, 6 and 21 ka BP periods. Other periods will certainly be reconstructed in the next years. These maps are extensively used for tha data-model comparaison in the frame of PMIP (Paleoclimate Modelling Intercomparison Project).

From the EPD point of view, the projects have advantages and weaknesses. The main advantage is that Biome 6000 has developed an objective method to assign biomes to pollen spectra. This method has been genralized to all the continents, but the subsequent weakness is that the biome unit is too broad a one for a more local study. Starting from the same basic ideas, however, the method can be refined for the pollen-analyst's needs. In the frame of PMIP, paleoclimate maps have also been produced which question classical ideas of refuges. The reconstructed climate variables may be somewhat biased or even not compatible when using different statistical methods or additional proxies. That comparisons lead to fruitful discussions which can be tested, by climate and vegetation models which become more and more precise in resolution. So a continuous exchange of ideas within the framework of the EPD can lead not only to improve climate models but also to a more mechanistic understanding of the pollen diagrams themselves.

2. Oak Genetic Project and the EPD (Simon Brewer)

The project to construct and compare isopollen maps with the distribution of *Quercus* chloroplast DNA cytotypes at the European scale, moved into its second year. At the EPD, the addition of more data, in particular from the Mediterranean area, and the increase in the number of entities with chronologies based on radiocarbon dates has allowed the production of a series of preliminary maps showing the distribution of oak pollen percentages over the time period 13.5 to 8 ka BP. The maps, at 500 year timeslices, were presented to the EPD AB and EC.

Whilst some problems exist with the maps, several points concerning the distribution of *Quercus* during this period could be clearly seen: notably, the importance of four regions in providing refugia for the taxa: Greece, Italy, Spain and the Balkans close to the Black sea, and the postglacial spread of the *Quercus* into northern Europe, from 13.5 ka BP onwards. However, some sites in the North of Europe showed the presence of *Quercus* at a time in contradiction with that known from regional experts suggesting chronological probable errors. A few sites 'disappeared' between maps, indicating a problem with the interpolation method used, linear interpolation between samples will be used in future to eliminate this problem Finally, these first maps were constructed using a single *Quercus* taxa, with no species differentiation. These problems are being tackled in the forthcoming year.

The comparison between the genetic and pollen data sets should allow a refinement of our knowledge of postglacial migration of oaks, owing to the high spatial resolution of the geneticists study, and the genticists will benefit from having historical data to compare with their study. The project now has a successor in the CYTOFOR project which aims to provide similar genetic maps for a further twenty species. The EPD is involved in this project, with the goal of producing isopollen maps for those species recorded in the sedimentary sequence (*Acer, Alnus, Betula, Calluna, Carpinus, Corylus, Fagus, Fraxinus, Ilex, Salix, Tilia and Ulmus*).

EUPALMAP

This programme has recently been submitted to the ESF for consideration. Its aim is to facilitate the interaction between the experts in pollen analysis from different European countries and scientists from related research fields such as modern ecology, palaeoecology, vegetation and climate modelling. Representatives of these communities will be invited to take part in workshops in order to compare the palaeoreconstructions from pollen data with other proxies.

The programme will start with a workshop (ca 40 participants) aiming to identify the key questions related to the understanding of the global change which can be dealt with using the EPD. Detailed tasks and schedules for each regional and national working group will be assigned.

The EPD will constitute the link between the different regional/national working groups.

Training courses at the database and exchanges between doctoral and post doctoral students will contribute to complement the data compilation and to reinforce the coherence between the working groups.

Every year a workshop will be organized to report on each main research topic. The last meeting will be devoted to the final results and reports.

A steering committee including the EPD advisory board-executive committee will meet once a year to supervise the completion of each task and decide on the allocation of funding.

Publications involving the EPD and other publications dealing with palynology

An internet web site will soon be available. It will include publications using data obtained from the EPD and other references related to palynology in general as well.

European Pollen Database, Centre Universitaire d'Arles, 13200 Arles – France
Tel: 33-4-90.96.18.18 Fax: 33-4-90.93.98.03

Possible training courses to be arranged by the EPD

The central DB in Arles is planning to organise a series of training courses for the use of the pollen DB. These courses are aimed to promote the use of the EPD and introduce more colleagues to the concept of paleoecological DB's. Such courses have already been organized several times in the past. Practically, each participant could bring his (her) own scientific questions that the group uses as a pratical exercise. The training courses will last two to three days and will involve a group of 8 to10 persons. Basic computer experience is required.

If you are interested please contact the central database, giving the following information:

Name:
Institution:
Research interest:
Computer experience: Basic Good Expert

Present composition of the EPD Executive Committee and Advisory Board

(the figure in parentheses indicates the year in which the person comes up for re-election)

1. Executive Committee

- **Jacques-Louis de Beaulieu** (Chairperson) (1999)
Jacques-Louis.de-Beaulieu@lbhp.u-3mrs.fr
- **Brian Huntley** (1999)
Brian.Huntley@durham.ac.uk
- **André F. Lotter** (2002)
lotter@sgi.unibe.ch

2. Advisory Board

- **Sheila Hicks** (Chairperson) (2000)
sheila.hicks@oulu.fi
- **Thomas Litt** (Vice Chairperson) (2000)
pal-inst@uni-bonn.de
- **Henry Lamb** (1999)
hfl@aber.ac.uk
- **Andrei Andreev** (2001)
Paleo@glasnet.ru
- **Bas van Geel** (2001)
vangeel@bio.uva.nl
- **Tiiu Koff** (2002)
koff@eco.edu.ee
- **Ramon Perez-Obiol** (2002)
ramon.perez@cc.uab.es
- **Chronis Tzedakis** (2002)
pct11@cus.cam.ac.uk
- **George Jacobson** (2003)
jacobson@maine.edu
- **Malgorzata Latalowa** (2003)
bioml@monika.univ.gda.pl
- **Spassimir Tonkov** (2003)
tonkov@biofac.uni-sofia.bg

3. Database manager

- **Rachid Cheddadi (forever!)**
rachid.cheddadi@lbhp.u-3mrs.fr

Next EPD Meeting

The next meeting of the EC and AB of the EPD will be in late February or early March of 1999, in either Arles or Marseilles, France. The next meeting of the pollen nomenclature group is in August 1989 in Bern, Switzerland. If you wish to present any new data or projects at the EPD meeting please let us know by contacting the central DB in Arles.

European Pollen Database, Centre Universitaire d'Arles, 13200 Arles – France
Tel: 33-4-90.96.18.18 *Fax: 33-4-90.93.98.03*