

REPORT OF THE WORKSHOP FOR CREATION OF A EUROPEAN IGBP POLLEN DATABASE

Frostavallen/Lund, Sweden
24-27 August 1989

Establishment of a Database

Participants of the workshop included representatives of 20 European nations (list attached). Numerous other colleagues, who were unable to attend on these dates, had written supporting development of the database. All participants agreed upon the importance and urgency of the database enterprise, in particular because of the current planning for research related to global environmental changes. The database should play a critical role in many research projects, ranging from palaeoclimatology to human impacts in Europe. This archive for data is intended to be the IGBP Pollen Database for Europe to be used for palaeoclimatological and palaeoecological studies.

I. Why should the database be established?

During the next few years, many nations' palaeoclimate research initiatives will be seeking to understand climate changes and biotic responses at various temporal and spatial scales. The accumulated body of palynological data from the past thirty years in Europe will play a key role in these analyses. As a permanent archive for the data generated over the years in European Quaternary palynology, the database will be a resource for a wide variety of applications, some of which are even impossible to foresee at this time.

Several specific reasons for a European database were identified, including the following:

- (1) its central role in palaeoclimatic reconstructions dealing with continental-scale and eventually hemispheric-scale processes;
- (2) an urgent need for synoptic palaeoecological analyses that take into account the complexity of Europe with respect to topography, geology, biogeography, ecology, human history, and climate;
- (3) a large number of palynological sites already studied with high temporal and taxonomic resolution;
- (4) the opportunity to use modern computer-based techniques in studies of prehistoric and historic human impacts on the landscapes — a major source of information about environmental history;
- (5) increasing attempts to answer a broad range of scientific questions that require comparisons among sites and among regions; and
- (6) contributing toward the long-term goal of forming a global database for late-Quaternary pollen data.

II. What should the database contain?

Initially the database will be for Quaternary pollen data from Europe as far east as the Ural Mountains, all regions surrounding the Mediterranean, and the North Atlantic islands including The Faroe Islands, Svalbard, Iceland, and Greenland. (It is intended that the

database design will enable the possibility of extending the database farther east as more data become available.) Priority initially will be given to late-glacial and Holocene data, but older records, especially those that are long and continuous, will also be included.

The database will include primarily all data generated since 1960, after which radiometric chronologies and modern pollen taxonomy have been standard. Selected data of particular value from earlier work may also be included, however, especially where possibilities exist for reliable dating by regional correlation.

In addition to complete pollen counts, which will form the core of the compilation, information for each site should also include radiocarbon dates and other chronologic data, site descriptions (location, elevation, size, type of deposit, sediment type, etc.), a listing of other data available for that site (e.g. macrofossils, diatoms, palaeomagnetism, charcoal), bibliographic references to any relevant published work, and the names and addresses of the pollen analyst and authors of primary publications. (This list is incomplete; the formulation of a complete list will be a first priority for the database organizers, in consultation with the Advisory Board (see below), and in due course standard forms or computer software with specific information will be distributed.)

Included in the database would be data from lake sediments, mires, and stratigraphic profiles of soils (e.g. mor humus). A special and important subset should consist of surface samples and the associated data required for climatic and other environmental calibrations. Not included in the database would be isolated pollen samples from buried soils, archaeological materials, cave sediments, and the like.

The completed database would be an important archival resource of two kinds: (1) a directory of sites and the information about them and (2) the data themselves.

III. Data accessibility

Accessibility to the data stored in the database should be restricted as little as possible, and it is agreed that participation in the database as a contributor would automatically entitle a researcher to receive the compiled database at little or no cost. A protocol for acceptable use of data in the database will be prepared by the organizers, in consultation with the Advisory Board, and will be distributed to all users.

IV. Computer hardware/software and data transfer

The database will be developed (at least initially) for IBM-compatible microcomputers. Data transfer has two aspects — transfer to the database and transfer from the database. Transfer of data to the database would ideally be on magnetic media (e.g. diskettes, magnetic tape). However, many potential contributors of data may have neither the time nor the desire to keypunch existing data themselves, although they would be willing to transfer the data on paper. It is highly desirable that most new data be transferred on magnetic media. To encourage this development, user-friendly software for data entry and analysis will be distributed to all pollen labs requesting it. Transfer of data from the database would be on magnetic media, either in ASCII (the code used by

the majority of computer systems) files or with software that could produce ASCII files from a more condensed format. In most cases this would mean using discs of the type standard for IBM-compatible personal computers. At least one research group in every country ought to have access to an IBM-PC compatible microcomputer in order to facilitate access to the database. One urgent goal of the database enterprise is to assist with acquisition and use of PC facilities throughout Europe.

Several kinds of portable software have been and are being developed for data entry, analysis, and display. Spreadsheet programs of the sort demonstrated at the workshop will be distributed in the very near future for data entry and manipulation. Development of associated programs for database interrogation must be a high priority for the early stages of the database. Longer-term goals are programs for stratigraphic diagrams, synoptic maps, and the like. These programs should be user-friendly with menu-driven interfaces.

An important goal associated with the database enterprise is enhancement of computer-related and data-analytic capabilities within the European community of Quaternary palaeoecologists. This will involve initiatives such as educational workshops designed to teach computer-based techniques and efforts to assist in distribution of computer hardware and software to those laboratories that thus far have been unable to acquire such equipment.

V. Coordination and location of the database

The workshop participants agreed that the database must be established in one place with appropriate persons responsible for its overall operations. These persons should be familiar with both computing and palynology. The amount of work involved will require that the coordinator have technical assistance in the form of an experienced computer programmer and a person to handle data entry and retrieval. To some extent the programming demands may be reduced by collaborating with other database coordinators (e.g. for the extended COHMAP database in North America) so as to share the task of developing specialized software. Such collaboration would also ensure compatibility between databases, facilitating the later development of a global database.

Participants at the meeting as well as other colleagues emphasized the importance of confidence and scientific/technical capability for the staff actually handling the database. The group nominated an Executive Committee of three persons, chosen especially for their wide expertise in both palynology and fund raising, and an Advisory Board of 10 persons. An important function of the Executive Committee, on behalf of all contributors and users of the database, is to ensure the quality of the staff and the operation.

Several institutional possibilities for coordination were discussed, including Marseille (France), Lund (Sweden), Bern (Switzerland), and Durham (England). The workshop participants were greatly impressed with the strength of the proposal from the Marseille group (headed by Prof. A. Pons), and strongly endorsed that alternative.

VI. Organizational Structure of the Database

The following proposals were made; the organizers of the workshop have written to the proposed members who were not present, inviting them to serve as proposed. In the meantime, the following lists must be considered provisional.

Coordinating Institution
University of Marseille

Executive Committee
A. Pons (France)
W. Watts (Ireland)
B. Ammann (Switzerland)*

Advisory Board
K.-E. Behre (West Germany)*
B.E. Berglund (Sweden)
H.J.B. Birks (Norway)*
E. Bozilova (Bulgaria)
M. Follieri (Italy)*
G.L. Jacobson Jr. (U.S.A.)
C.R. Janssen (Netherlands)*
M. Kabailiene (Lithuanian S.S.R.)
M. Ralska-Jasiewiczowa (Poland)
J. Ritchie (Canada)*

* proposed members who were not present at the workshop.

Regional and National Centers can play an important and useful role in areas where they already exist and have begun to compile databases for the region. It is suggested that the Advisory Board function as an intermediary in cases where it is impractical for the central database coordinator to deal with regional problems of taxonomy and related technical issues.

VII. Schedule of development and funding of the database

The database is considered to be established as of this date with the concurrence of the workshop participants. Funding is critically needed before activities associated with the database (presumed to be at Marseille) begin. Acquisition of the funds is therefore the immediate concern and is to be addressed during the coming few months by the Executive Committee (listed above), which is given the responsibility of coordinating requests for the funds required to support the establishment of the data center and its related activities. With the availability of financial support, the initiative can proceed immediately. The funding outlook is optimistic, with possible sources including the European Community, the European Council, and several national research councils. Strong agreement exists that support for the establishment and operation of this international database, as well as associated activities (e.g. workshops focused on topics such as computer use and data analysis), should be provided from multiple sources.

Given the technical challenges involved with respect to obtaining funding and organizing appropriate physical facilities and personnel, the database will not be completely functional for some time. Nevertheless, certain highly desirable elements of the whole will be available quite soon, in some cases immediately. Some regional centers of research have already compiled palynological databases, which will form a nucleus from which the comprehensive database can expand.

Respectfully submitted,

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Lund, Sweden
31 August 1989

List of participants at European Pollen Database Workshop,
Frostavallen, Sweden, 24-27 August 1989

Belgium	Dr C Verbruggen
Bulgaria	Dr E Bozilova
Czechoslovakia	Dr E Rybnickova
Denmark	Dr S Th Andersen
The Faroes	Dr J Johansen
Finland	Dr H Hyvärinen
France	Prof A Pons
	Dr J Guiot
Great Britain	Dr B Huntley
Greece	Dr S Bottema
Iceland	Dr M Hallsdottir
Ireland	Prof W A Watts
	Dr R H W Bradshaw
The Netherlands	Dr W O van der Knaap
Poland	Dr M Ralska-Jasiewiczowa
	Dr A Walanus
Spain	Dr M C Penalba
Sweden	Prof B E Berglund
	Dr G Digerfeldt
	Dr U Miller
	Mgr T Persson
	Dr N-O Svensson
Switzerland	Dr M-J Gaillard
USSR	Dr L Saarse, Estonian SSR
	Prof M Kabailiene, Lithuanian SSR
USA	Dr G L Jacobson Jr
	Dr E C Grimm
	Dr T Webb III
	Mrs J M Webb
Yugoslavia	Dr M Culiberg