The Pollen Monitoring Programme (PMP) - the first two decades

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Foundation and development of the PMP

The Pollen Monitoring Programme (PMP) was founded in 1996 by Dr Sheila Hicks. The PMP aims to investigate surface pollen deposition, to gain insights into the pollen-vegetation relationship and factors influencing production, dispersal and deposition. The ultimate goal is to improve the interpretation of past pollen records.

The PMP is essentially a group of collaborating palynologists, managing a network of surface pollen monitoring sites. At many sites, including Finland, Poland, Switzerland, Georgia and Wales, surface pollen deposition has been monitored annually for over 20 years, producing invaluable long records (see Giesecke et al. 2010).

The PMP employs modified Tauber traps to provide absolute estimates of pollen deposition for each taxon. The trap data also provide a basis for comparison with other sampling media including lake sediments and soil samples.

Using PMP data to understand climate and environmental change

PMP data has been used in several studies relating changes in surface pollen deposition to climatic and environmental variables.

For example, Hicks (2001) and Huusko & Hicks (2009) identified the relationship between high values of surface pollen deposition for Pinus and Picea and high temperatures in the spring of the previous year. van der Knaap et al. (2010) compared Middle Holocene fossil samples from the PMP database. They have found that the high values of Pinus prep (in prep) have compared Middle Holocene fossil samples from the Sumava Mountains in the Czech Republic with samples from the PMP database. They have found that the high values of Pinus found in the fossil samples are similar to recent values from the Jura Mountains.

There is enormous potential to use data in the PMP database to elucidate the relationship between surface pollen deposition, vegetation, climatic variables and the environment. Published studies have compared PMP data with the results of aerobiological pollen monitoring by volumetric samplers. PMP data can also contribute to modelling future climate and environmental change and provide modern analogues for past plant communities.

The PMP database; applications and potential

The PMP database includes almost 2000 samples from 14 countries. Samples have been collected from a wide range of plant communities including continental coniferous forest, temperate deciduous woodland, high altitude alpine communities and maritime grassland communities. PMP data are organized in the PostgreSQL relational database, which consists currently of four principal tables: counts (80000 rows), samples (1833 rows), trap sites (263 rows) and pollen taxa (961 rows). The database is currently managed by Dr Visztrich Abraham of the Charles University, Prague.

The intention is to incorporate these data into the multipurpose database Neotoma (www.neotomadb.org). PMP data have been employed to answer a variety of questions and over 70 papers have been published. The network of PMP monitoring sites is still expanding and there are many innovative studies across Europe using and contributing to this unique dataset.

Further information about the latest developments can be found on the PMP’s ResearchGate Project page (researchgate.net/project/Pollen-Monitoring-Programme-PMP-facilitating-quantitative-estimates-of-past-vegetation-and-climate) and there is also information on the PMP webpage which is currently being updated (http://www.pollentrapping.org/). A link to the full list of PMP publications may be found on the ResearchGate Project page.

The PMP group meets every two years. The next meeting will be held in Riga, Latvia in 2019. Anyone interested in monitoring surface pollen deposition is welcome to attend.

References


Huusko, A., Hicks, S. 2009. Conifer pollen abundance provides a proxy for summer temperature: evidence from the latitudinal forest limit in Finland. Journal of Quaternary Science 24, 5, 523-528.


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