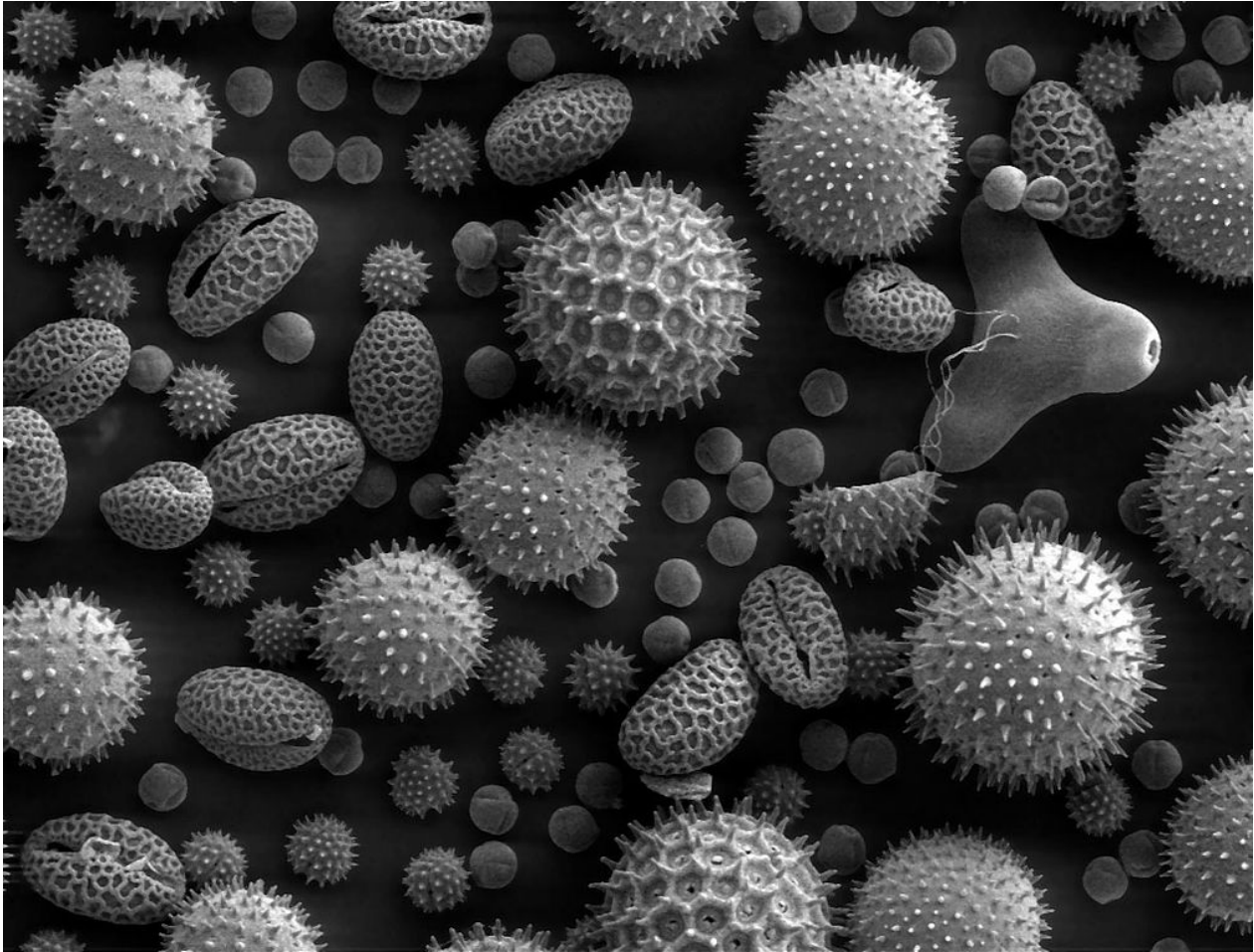


Pollen analysis

By Lennart Kiil



Pollen from different plant species, magnified 500 times.

[Dartmouth College Electron Microscope Facility](#), Public Domain.

The study of plant pollen, fossil and living, for identifying vegetation changes.

Pollen grains of plants are very resistant to decay. They are dispersed easily by wind. Plants produce them in very large numbers, and they will settle and accumulate on any undisturbed surface including for example in lake sediments or peat bogs. The low levels of oxygen in such places help preserve the pollen.

Over time, as the sediments form layer by layer, a vertical profile of the history of the vegetation in the area is created. Pollen fossils as old as 400 million years have been found.

Pollen grains have very distinct shapes and surface structures (see picture). By examining pollen from a sample of for example old lake sediment, scientists are able to tell which plant made the pollen and when.

Plants are adapted to certain climates, and if the climate changes in an area, some plant species will disappear. Other species more suited to the new climate conditions may appear. The changes in the plant communities, and the pollen they make, is, therefore, an indication of climate changes.

The method of pollen analysis does, however, contain some inaccuracies. For example, the abundance of pollen from a particular plant species in a sediment does not necessarily mean that this plant was very abundant in the vegetation of the area. The reason is that different species do not produce pollen in equal amounts, or maybe their pollen do not spread in the same way. Because of this, the results of pollen analysis are usually only used as an indicator of past climate conditions.

Pollen analysis is only one of several different methods for constructing [temperature records](#) in climate research.

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