

Short communication

Beginning of pollen flight information in the former German Democratic Republic

H. Winkler, G. Völksch, and H. Horn

Institute of General and Communal Hygiene of the Medical Academy Erfurt, Gustav-Freytag-Strasse 1, O-5082 Erfurt, Federal Republic of Germany

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Abstract. Volumetric air sampling via the Burkard pollen and spore trap is described. The influence of meteorological factors on the occurrence of airborne pollen was investigated; the concentration of pollen grains is increased in strata of reduced vertical air exchange. A pollen flight information service has been developed since 1989 for Erfurt and other areas in the former German Democratic Republic.

Key words: Airborne pollen – Volumetric pollen sampling – Pollen flight information service – GDR

Airborne pollen grains are biological particles and not pollutants. However, because they have allergenic properties, they are pathogens leading to hayfever or pollinosis in an increasing percentage of the population. Therefore pollen became the object of our research, of relevance not only to biology and medicine but also to hygienic and environmental sciences and control. For prevention of pollinosis it is necessary to identify qualitatively the causative pollen and to estimate their quantity in relation to clinical observations.

The method mainly used (Leuschner 1974) is the sampling of pollen in the air with the Burkard pollen and spore trap working with a volumetric principle: an equal stream of air is suctioned into a box through a small slit. The airborne particles, including the pollen, become impacted against an adhesive transparent tape which is moved under the orifice with a constant velocity. The types of pollen are identified microscopically, and their quantity related to a sampling volume of 1 m³ air per day. The daily results evaluated in connection with meteorological data and phenological observations were published by pollen flight forecasting services (Nilsson 1989).

Table 1 shows the number of pollen measuring stations in European countries. Some of them have been

working more than 20 years, for example in the Federal Republic of Germany. Here the pollen measuring network up to 1990 has been enlarged to 52 stations. In the former German Democratic Republic there was no pollen measuring, the reason being that the knowledge of the actual state of pollen flight could lead to disinclin-

Table 1. Number of pollen measuring stations in European countries up to 1987 (following Nilsson 1989). (Iceland to 1988, FRG to 1990, GDR to 1990.)

Austria	20	Ireland	48
Belgium	4	Italy	61
Bulgaria	31	Netherlands	2
(gravimetric method)		Norway	6
CSFR	2	Poland	2
Denmark	3	Portugal	3
Finland	6	Spain	22
France	24	Sweden	7
FRG	52	Switzerland	10
GDR	5	United Kingdom	8
Iceland	1	Yugoslavia	12

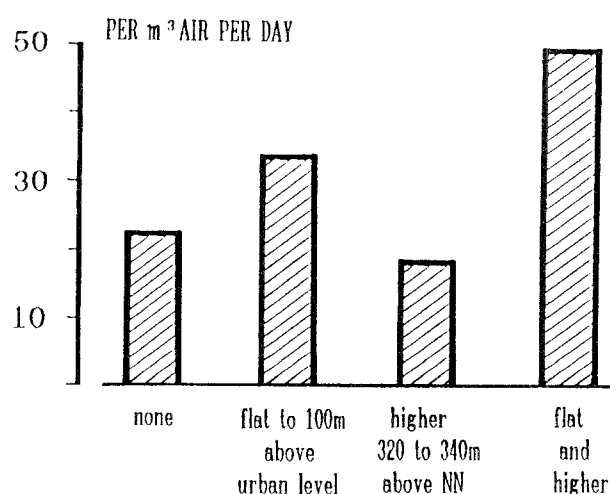


Fig. 1. Mean daily pollen concentration per m³ in relation to flat and higher inversions of air currents up to 900 m above NN

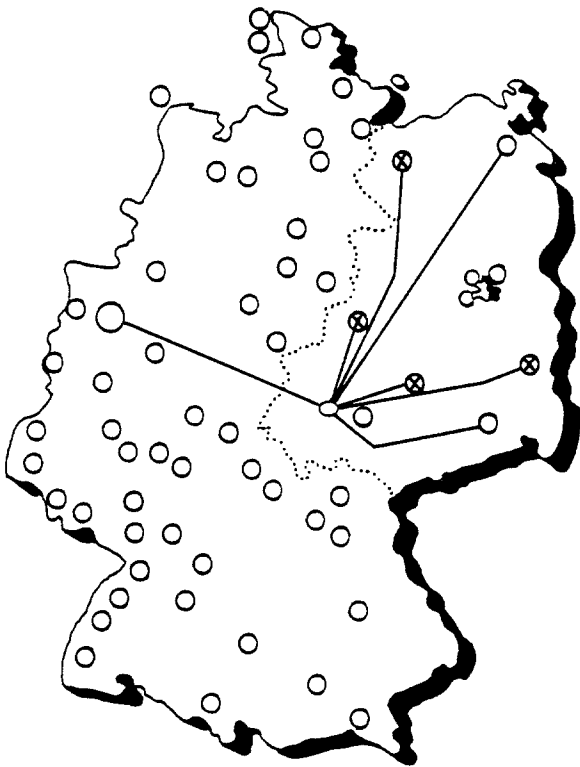


Fig. 2. Pollen measuring network in the western and eastern parts of Germany in 1990; x, planned stations. The former border between the GDR and FRG is indicated by a dotted line

ation to work of pollinotic patients. Nevertheless we started pollen registering in 1987 in Erfurt.

We used the volumetric method described above, but at first with a self-constructed pollen trap. Our results showed all known airborne types of pollen causing hay-fever in Middle Europe, comparable with the results of a Burkard trap. Investigating the influence of meteorological factors on the occurrence of airborne pollen we

observed that the pollen concentrations in the outdoor air seem to be increased in atmospheric situations with reduced vertical air exchange as shown in Fig. 1. If these observations are to be statistically verified during further investigations, atmospheric inversion should be included in the pollen flight forecasting.

In the beginning of 1990 we obtained an original Burkard pollen and spore trap. Now we have developed a pollen flight information service for Erfurt and Thuringia; the information is published in newspapers, by radio and can be asked for by phone. Detailed weekly information has been sent on request to doctors, clinics, and hospitals since 1989. Further pollen traps are working also in Jena, in the eastern part of Berlin, in Greifswald, and Dresden. It is planned to enlarge the pollen measuring network on the territory of the former German Democratic Republic, mainly sponsored by the Stiftung Deutscher Polleninformationsdienst in Mönchengladbach.

Figure 2 shows the existing pollen measuring network in the western and eastern parts of Germany including the location of planned stations. Lines of communication between Deutscher Polleninformationsdienst in Mönchengladbach and in Erfurt, and from there to other pollen measuring stations in the former GDR are indicated. We hope that a unified pollen flight forecasting service will soon be established, also, in the new states of our unified Germany.

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