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Sensing and Monitoring of Airborne Real-Time Pollen

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This research aims to modernise the pollen monitoring infrastructure in Ireland, by introducing real time monitoring using the Swisens Poleno and comparing it to the already established Hirst sampler. Using pollen data that was collected from previous years, updated pollen calendars were constructed for the benefit of individuals afflicted with hay fever. The Swisens Poleno device was subjected to a diverse range of pollen types in order to develop a comprehensive database for the purpose of pollen detection and identification. The Swisens Poleno device provides the capability to acquire real-time data on pollen concentrations. The utilisation of modelling techniques will be employed to determine the origins of pollen in Ireland, which will, in turn, make environmental monitoring operations easier to accomplish. Development of a sophisticated pollen forecast model specifically for Ireland will be created by integrating traditional, real-time, and meteorological parameters so that pollen concentration will be able to be predicted. This research represents a significant leap forward in pollen monitoring. The study improves our understanding of the dynamics of airborne pollen by comparing the Hirst and Swisens Poleno samplers and making use of sophisticated modelling techniques. Improvements in public health and environmental management are anticipated as a result of the findings, which are applicable to individuals who suffer from allergies, healthcare professionals, and environmental scientists.

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