SOLUTION FOR REAL-TIME POLLEN COUNTING

Real-time identification

Automatic counting

Autonomous operation

Plair

Identify Invisible Threats

SOLUTION FOR REAL-TIME POLLEN COUNTING

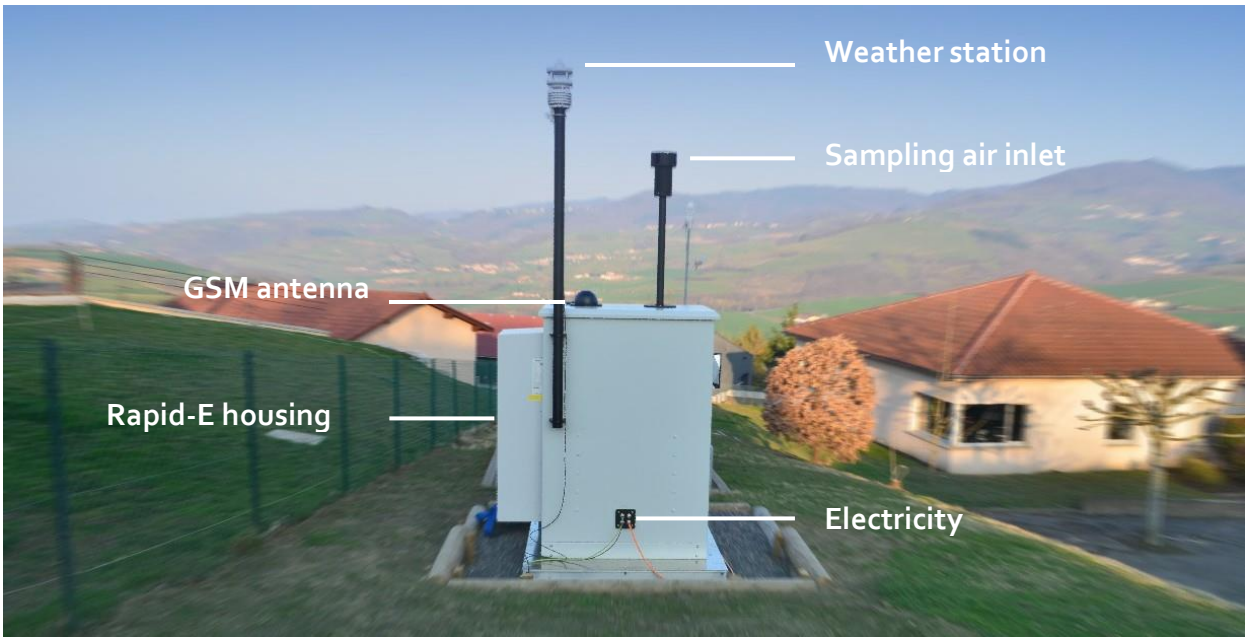
Continuous monitoring and real-time identification

Rapid-E, or Real-Time Airborne Particle Identifier, is the new, easy way to count allergens – automatically, and more rapidly and precisely than ever before. The operation of the Rapid-E monitoring station is based on proprietary, state-of-the-art laser-sensing technology and artificial intelligence to identify and count multiple pollen species simultaneously and in real time.

Rapid-E

Plair offers the world's most advanced comprehensive solution for allergen detection. The solution comprises Rapid-E with its monitoring station housing, cloud-based data processing, and a customer online dashboard.

Rapid-E's rugged housing withstands continuous outdoor operation in temperatures between -30°C and 45°C, and has a SIGMA-2 inlet for a more efficient sampling. The Rapid-E station requires no human intervention and low maintenance, ensuring reliable and uninterrupted environmental monitoring.



Rapid-E monitoring station

TECHNOLOGY

For comprehensive single airborne particle detection

Rapid-E's technology is based on scattered light pattern analysis and fluorescence spectroscopy. The instrument continuously aspirates ambient air with all its aerosol particles. Once the aerosol particles are captured, they enter the nozzle, which creates a narrow laminar flow in the measurement chamber (Figure).

The scattered light pattern analysis, performed through the interaction of each individual airborne particle and infrared (IR) light, allows the instant determination of a particle's morphology, such as size and shape. The fluorescence spectroscopy analysis, through the interaction of each individual airborne particle and ultraviolet (UV) light, provides real-time information on chemical characteristics, such as measurements of spectra and lifetime.

The measured optical parameters of airborne particles are analyzed in real time with state-of-the-art artificial intelligence algorithms to automatically provide users with real-time counts of the most common allergenic pollen species.

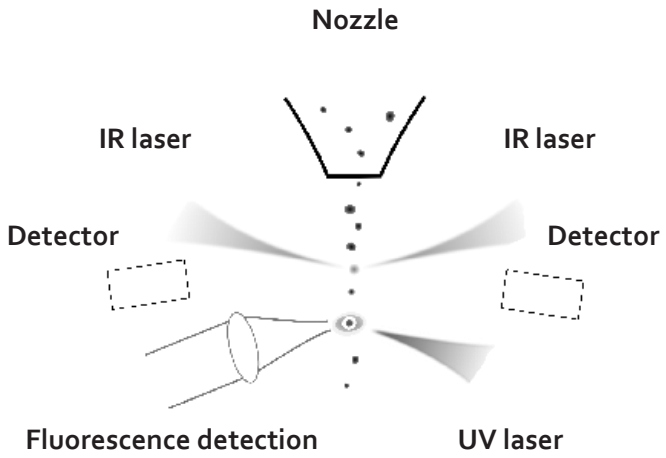


Figure
Plair technology working principle

Reference: Benoît Crouzy, Michelle Stella, Thomas Konzelmann, Bertrand Calpini and Bernard Clot, "All-optical automatic pollen identification: Towards an operational system", *Atmospheric Environment*, Vol. 140, September 2016, pp.202–212.

PlairGrid

ONLINE DATA VISUALIZATION

The solution includes PlairGrid, an online dashboard, to visualize data acquired in the field. PlairGrid enables viewing and managing hourly and daily counts of different pollen types and other particles, as well as total pollen and particle counts. In addition, it provides all useful servicing parameters of Rapid-E.

APPLICATIONS

Pollen species

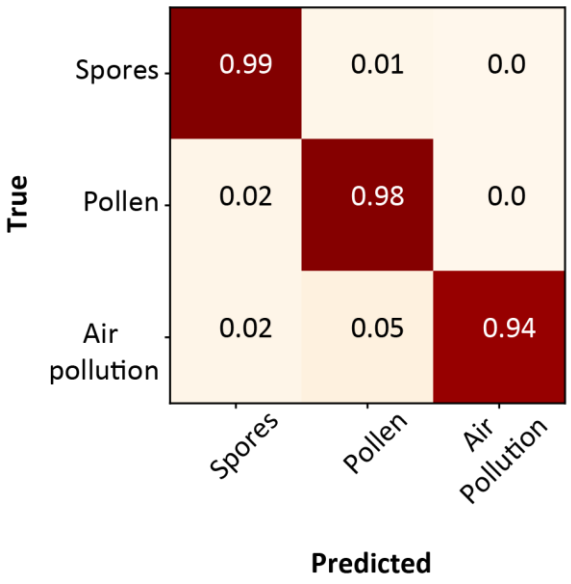
- Foxtail grass *(Alopecurus)*
- Ragweed *(Ambrosia)*
- Birch *(Betula)*
- Hazel *(Corylus)*
- Hornbeam *(Carpinus)*
- Cypress *(Cupressus)*
- Sorrel *(Rumex)*
- Elm *(Ulmus)*
- Orchardgrass *(Dactylis)*
- Ash *(Fraxinus)*
- Pine tree *(Pinus)*
- Plantain *(Plantago)*
- Plane tree *(Platanus)*
- Vernalgrass *(Anthoxanthum)*
- Oak *(Quercus)*

Fungal spores

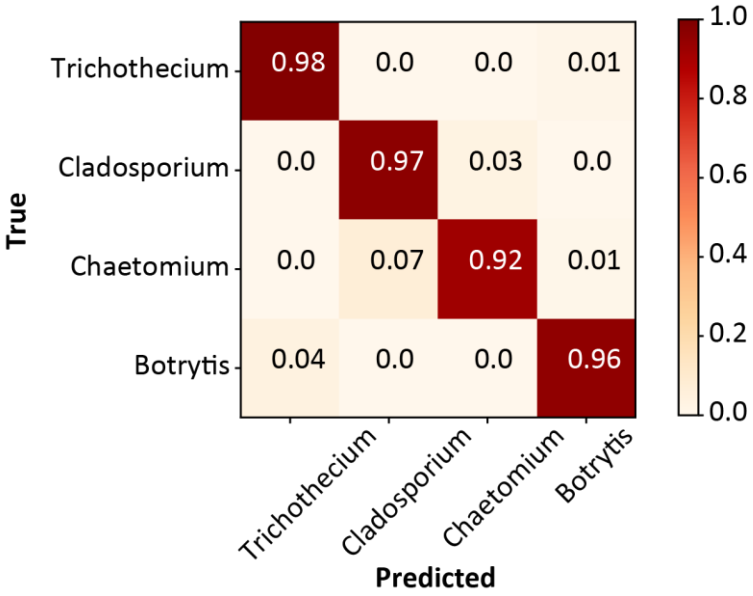
- *Trichothecium*
- *Cladosporium*
- *Botrytis*
- *Chaetomium*

APPLICATION EXAMPLES

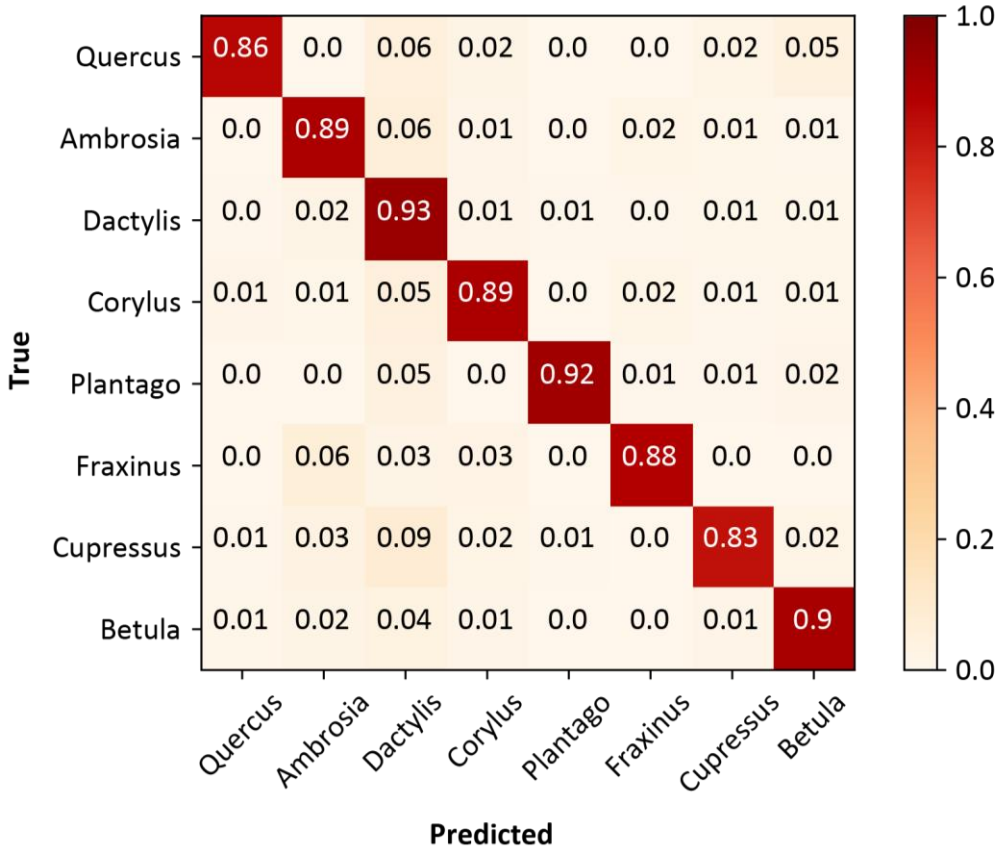
First isolated bioaerosol families: pollen and fungal spores



Some fungal spores measured by Rapid-E



Pollen species identified by Rapid-E



Identify Invisible Threats

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About Plair SA

Plair SA is a manufacturer and provider of instruments for high-specificity airborne particle analysis in real time, offering solutions for allergen and pollution monitoring. The analysis includes detection of pollen species, organic particles such as fungal spores, inorganic particles such as soot and Saharan dust or sand, and pollutants such as polycyclic aromatic hydrocarbons.

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