Madrid grass pollen characteristics

Grass pollen is the main cause of polinosis in the Madrid area. Concentrations in Madrid similar to Northern European cities (eg. London), where there is more rainfall and grasses are more abundant. Predominance of small-grained grass pollen diameter less than 30 μ (Medical recommended threshold: 50 grains/m3). Trisetum panicum was the most frequent species in the pollen sample.

Seasonal forecasts. Total year counts

Relationship between grass pollen counts and rainfall into the previous months, rainfall in May and maximum and average temperatures in May and June. Data from 1979 to 2006. Year 2004 always excluded building and average temperatures in May and June. Data from 1979 to 2006. Year 2004 always excluded building

Represented forecasts

Example of tree pollen daily counts. Madrid (March - April): Always highcount. Once started pollen presence in the air, allergic symptoms remain even if emission decreased or ceased.

Scores

Cluster analysis (1979-2006)

Cluster Scatterplot. Madrid 1979-2006

Cluster 2 are years linked towards late pollen patterns (June). Cluster 1 are "normal" years. Cluster 3 are years with low pollen counts. Cluster analysis provide another criteria to characterize every year to raw total year amount.

Coming tasks and studies

- Developing grass peak modelization. Provide operational forecasts.
- Extending to oil trees and Cupressaceae/Taxaceae pollen type at the extreme plateaus of Spain.
- Extending to other autonomous regions in Spain. Developing products at national level.

Some references

- Galán I, Tobías A, Banegas JR, Aranguez E. Asthma and pollen. Asthma prevalence is 5% in Europe. 4/5 or asthma patients have allergies. 60% of pollen patients are allergic to grass and 30% to plane tree pollen.
- Studies made in Madrid showed that 94% of persons sensitive to allergic pollens react to grass (hay fever) and 56% react to pollen of trees. Significant number of asthmatic crisis derived into urgency services or hospitalization.

Acknowledgments

This work is a development of the Cooperation Agreement between Spanish Meteorological Agency (AEMET) and Madrid Regional Public Health Institute (ISP). We gratefully acknowledge support given by both institutions.