Common ragweed pollination in France

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4th International Symposium on Weeds and Invasive Plants
May 18-23, 2014 Montpellier, France

Weeds and Invasive Plants

Introduction of ragweed in France

- 1860: in a field of Allier (French department) with seeds of red clover from North America
- First World War
- Then spreading along roadsides and river banks (Rhône, Loire)

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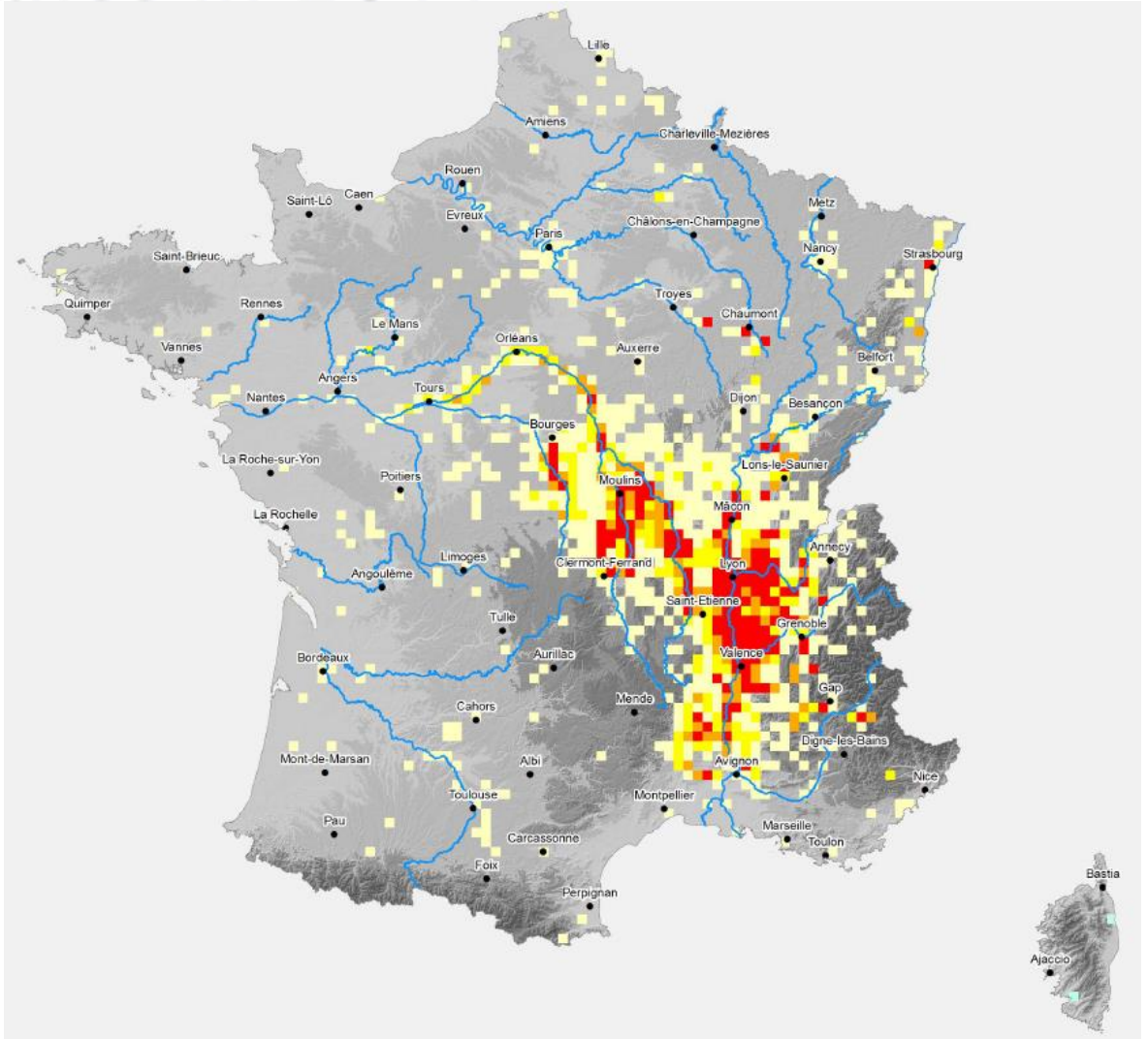
Ragweed in France in 2011

Number of ragweed observations by 10x10 km

- 1 – 5
- 6 – 10
- 11 – 15
- >15



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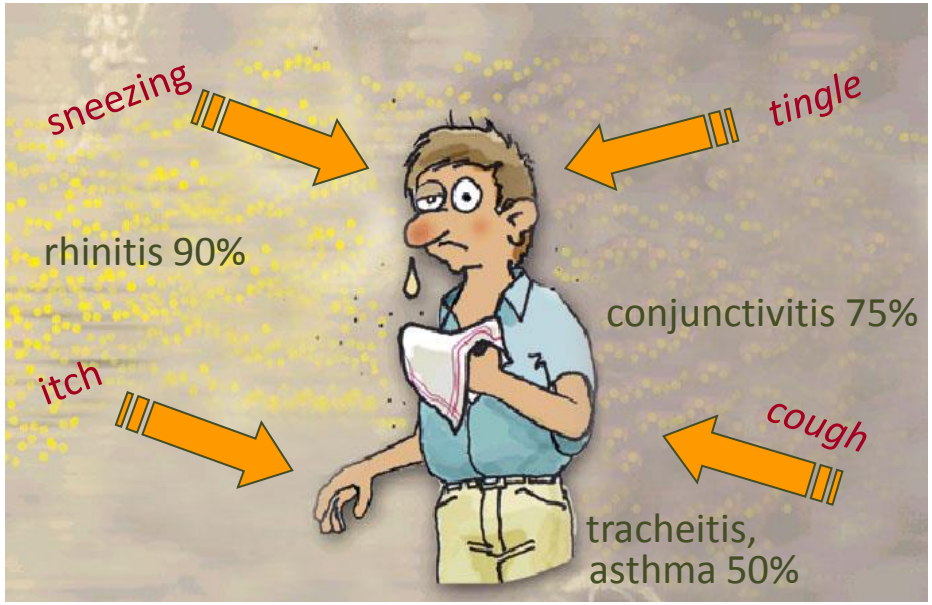
Health impact of ragweed pollens

- around 1970, role of ragweed highlighted in pollinosis cases in Lyon
- 6 to 12% of French population is allergic to ragweed, especially in Rhone-Alps region



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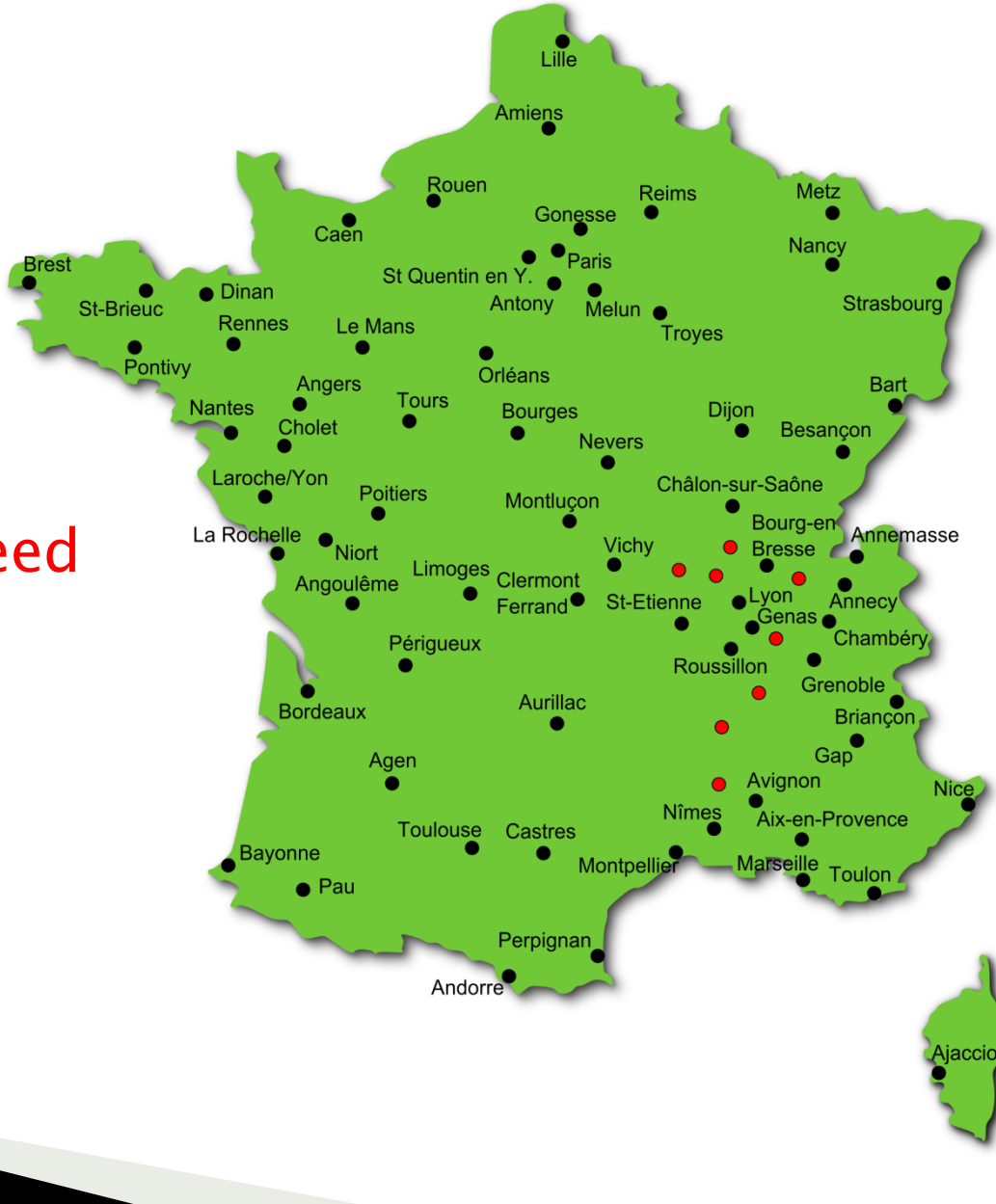
Pollen stations in France in 2014

70 stations

+

8 during ragweed pollination



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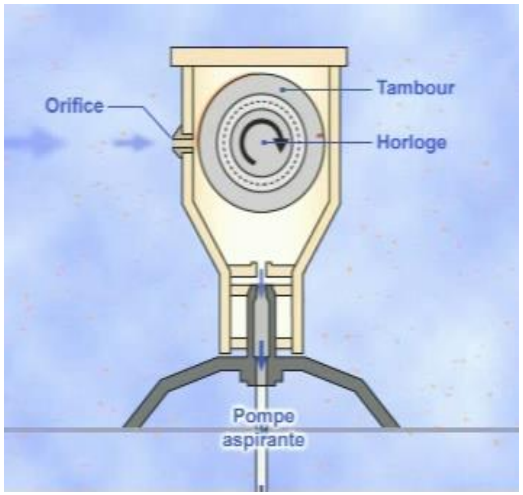
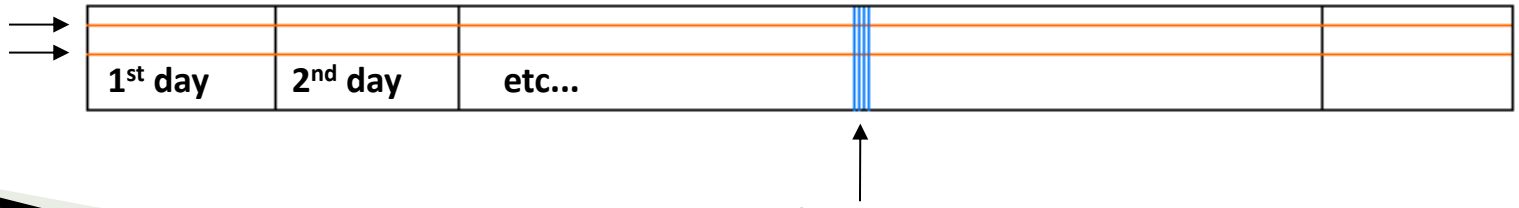
Pollen exposure: pollen traps



Orifice
(10 l. air/min)

Reading
2 horizontal lines

Tape on the drum



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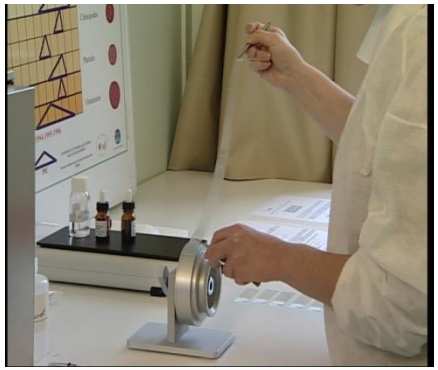
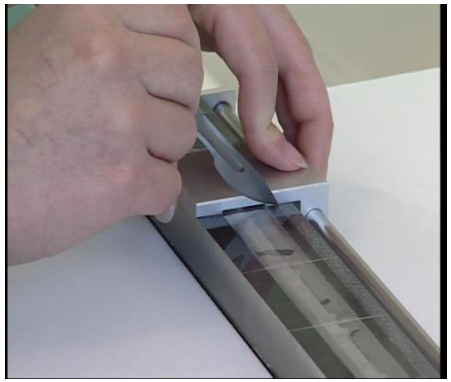
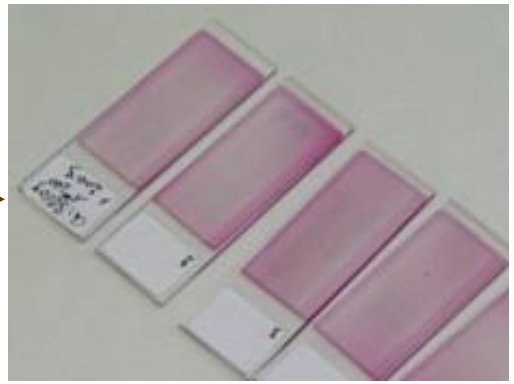
Pollen exposure: analysis



Retrieving of the strip
on the drum



Cutting of the strip
in daily parts



1 slide by day

Counting thanks to
a voice recognition system

Daily concentrations (grains/m^3 of air)
Based on a bi-hourly time step

Pollens counts

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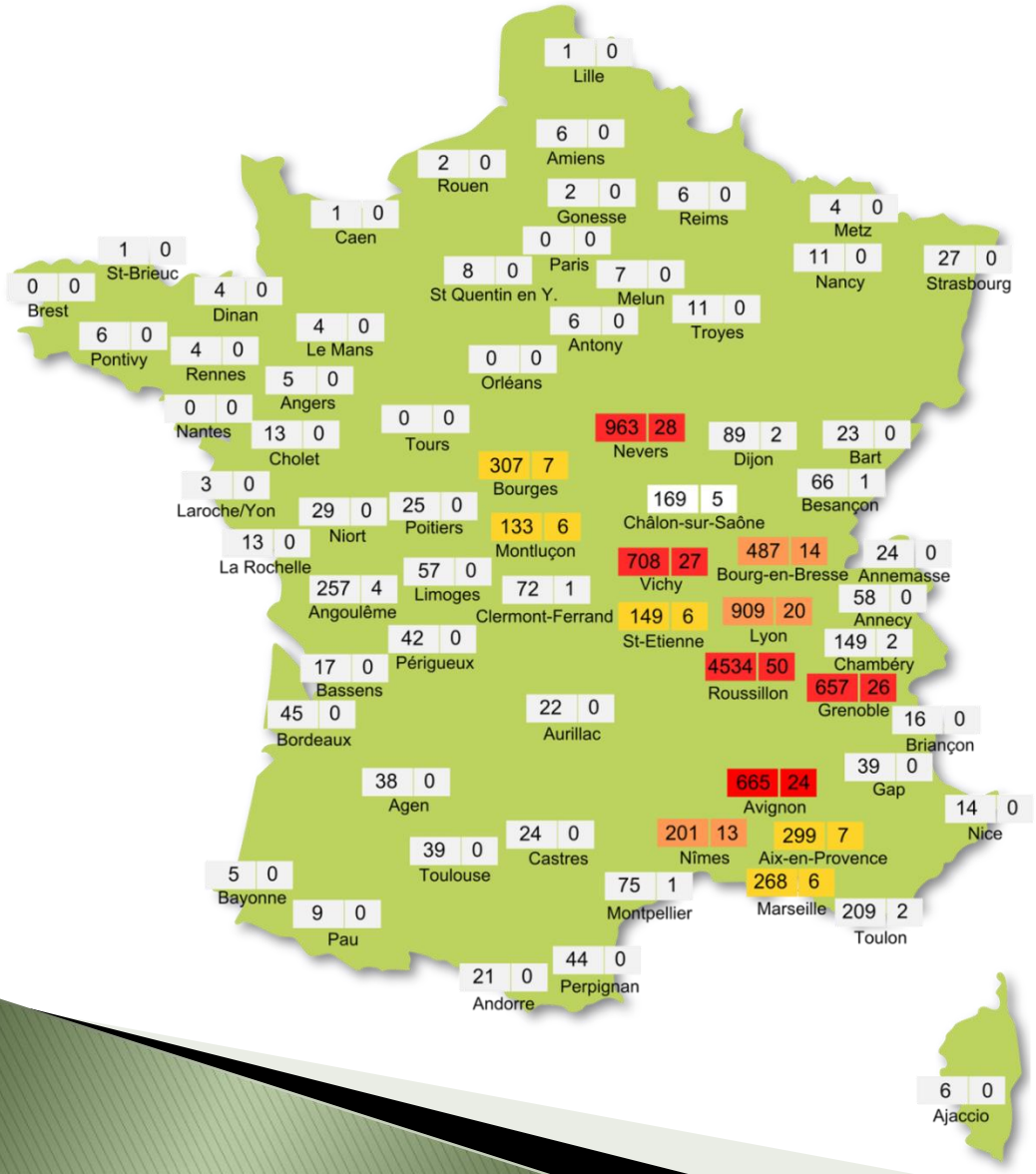
Pollen index of ragweed – 2013



Map key

294 | 4

Yearly pollen index — Days with allergy risk ≥ 3

- < 5 days with allergy risk ≥ 3
- From 5 to 10 days with allergy risk ≥ 3
- From 11 to 20 days with allergy risk ≥ 3
- > 20 days with allergy risk ≥ 3

Allergy risk:

- depends on allergy potency and concentration of pollens
- scale: from 0 (null) to 5 (very high)
- Allergy risk = 3 → all allergy sufferers show symptoms

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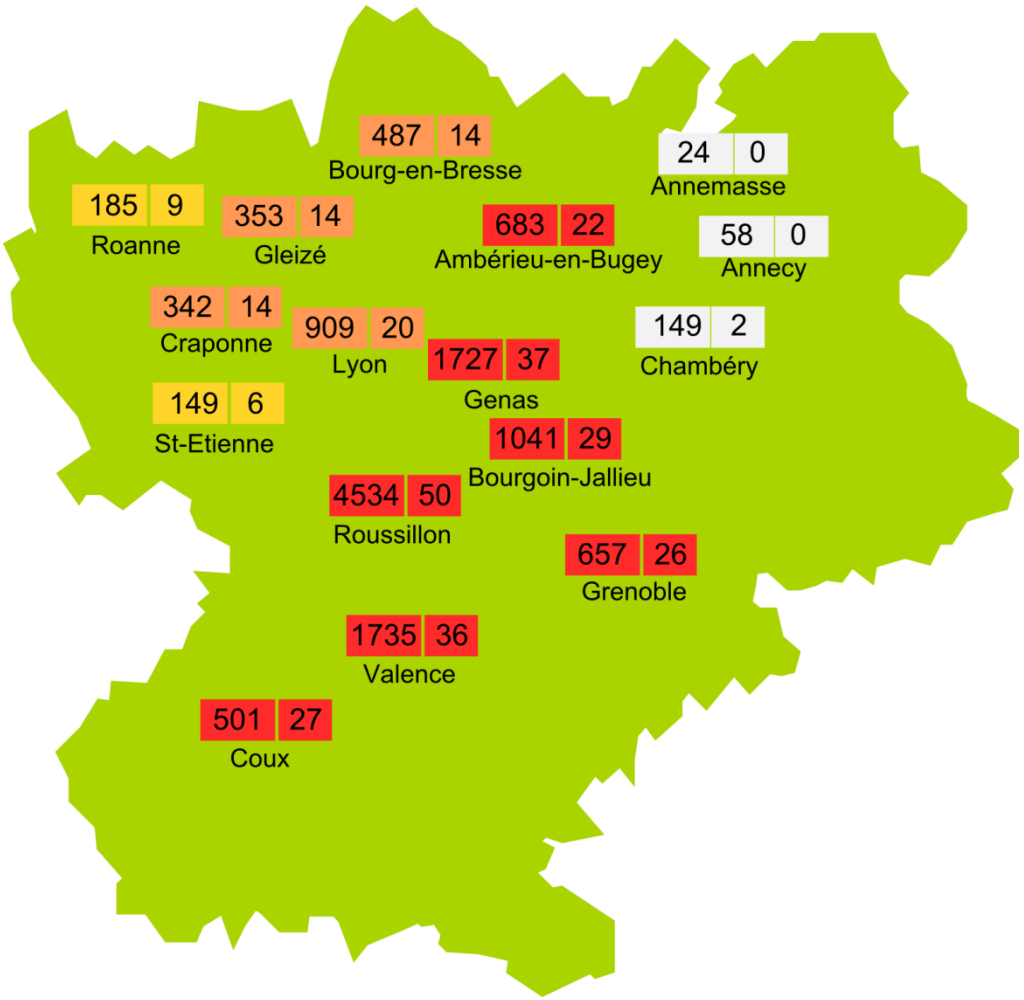
Pollen index of ragweed – 2013



16 stations in Rhone-Alps region
4 areas

Map key

294 4

Yearly pollen index

Days with allergy risk ≥ 3

< 5 days with allergy risk ≥ 3

From 5 to 10 days with allergy risk ≥ 3

From 11 to 20 days with allergy risk ≥ 3

> 20 days with allergy risk ≥ 3

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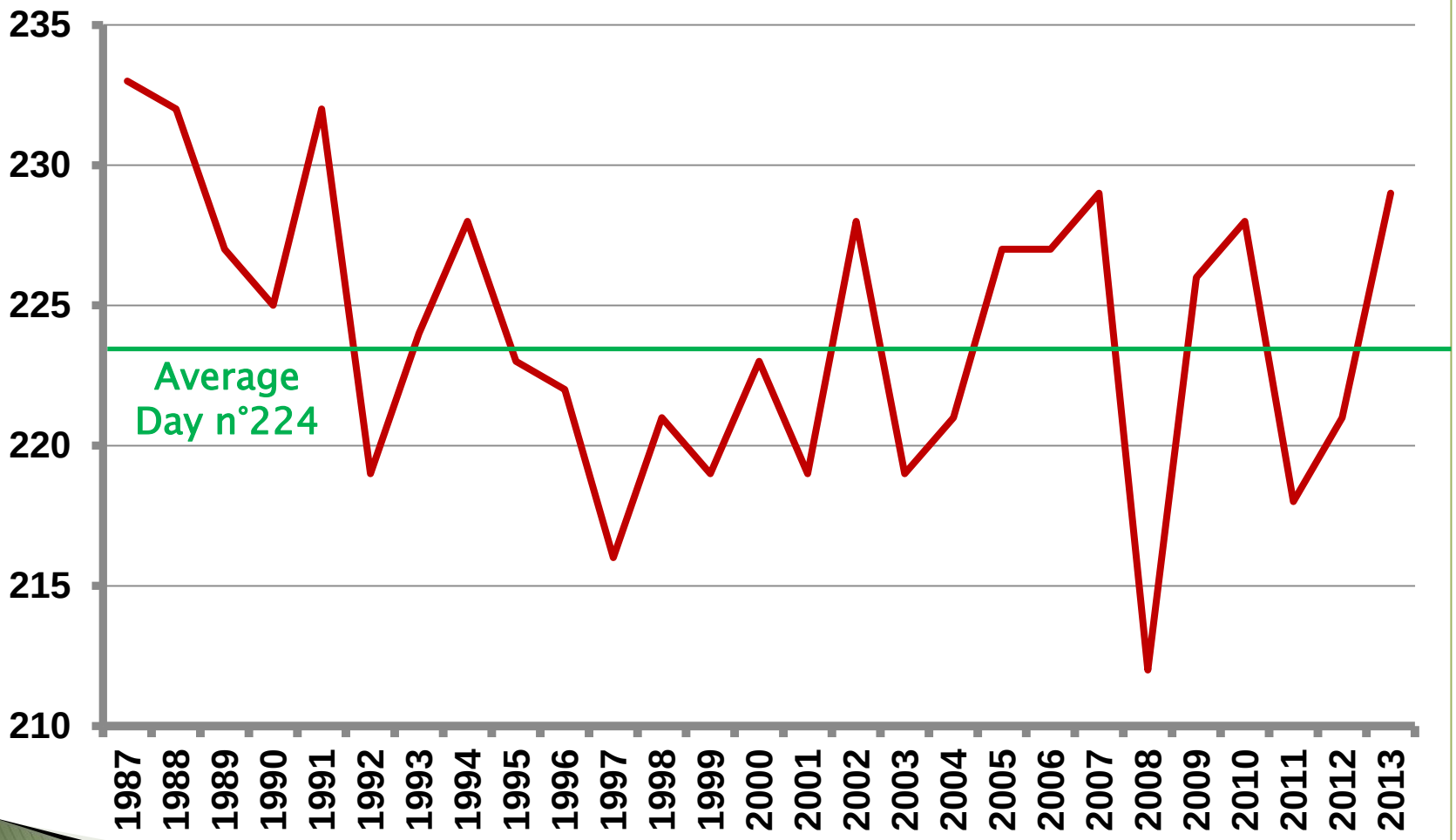
25 years of pollen data

- Evolution of the start date of pollination
- Evolution of the yearly pollen index
- More and more infested areas

Weeds and Invasive Plants

Start date of ragweed pollination in Lyon



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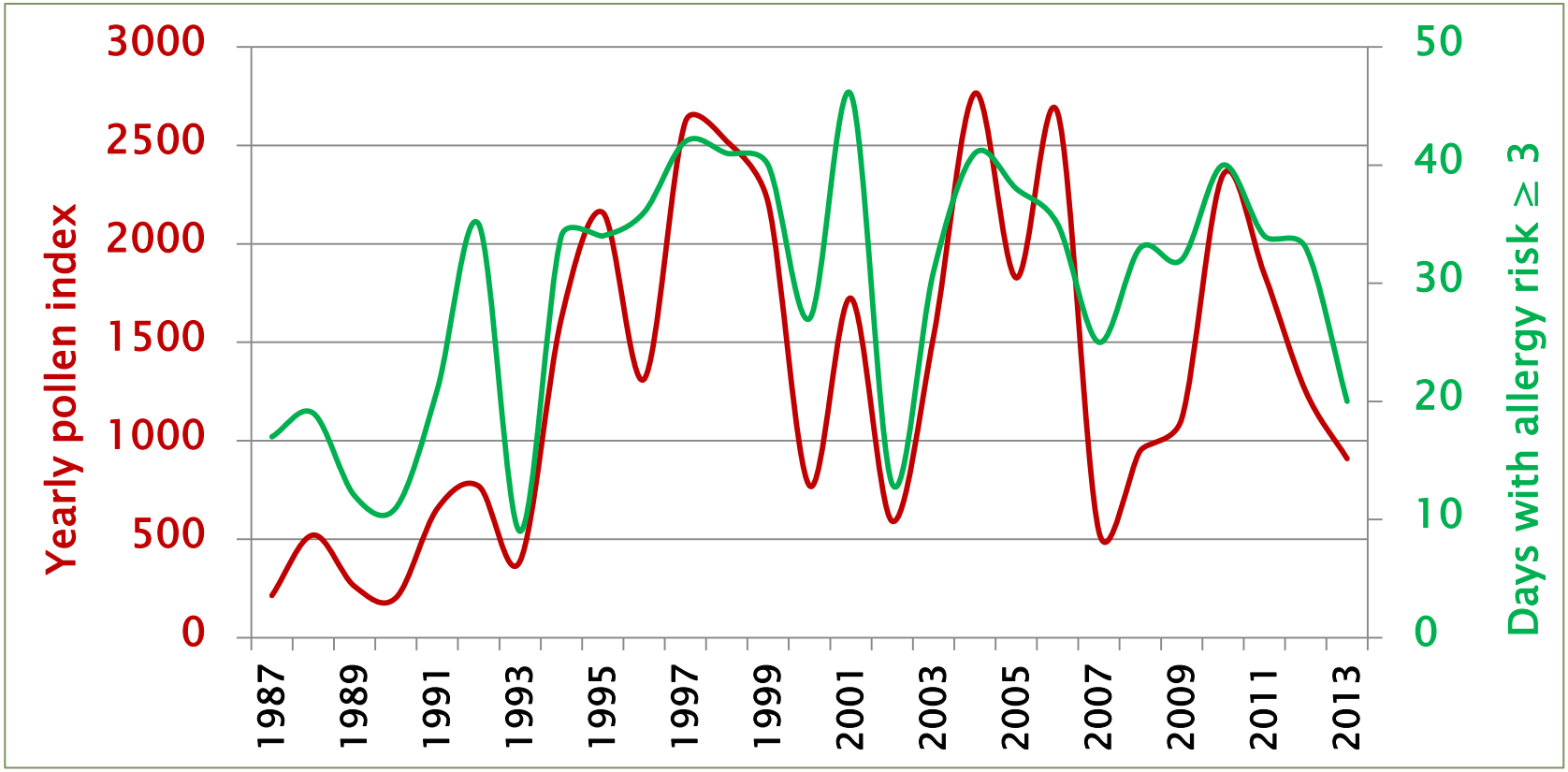
Lyon
The longest history



20 days with an allergy risk ≥ 3 in 2013
Sharp fall since 2012

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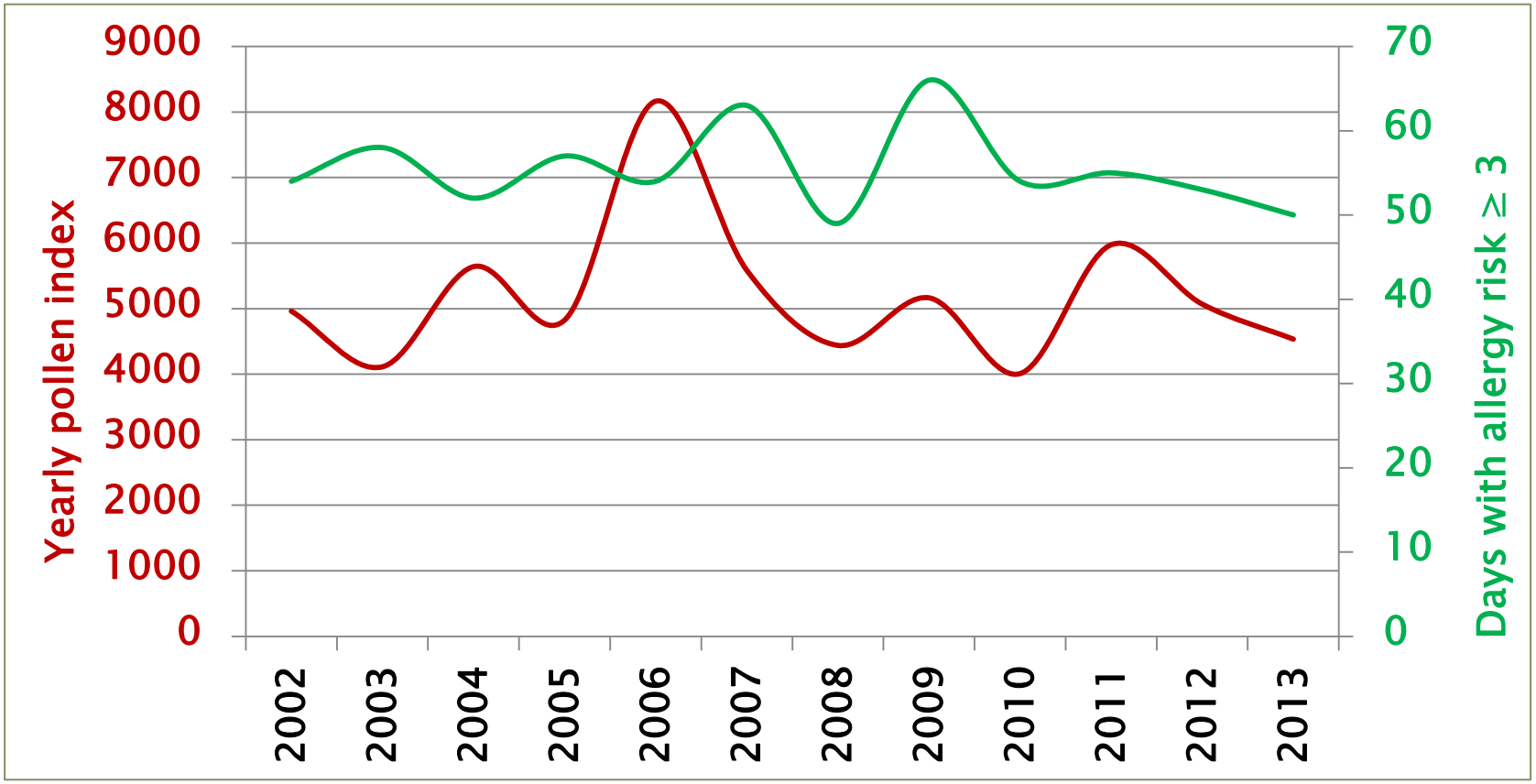
Roussillon
The worst place to be



50 (!!) days with an allergy risk ≥ 3 in 2013
Stable but very high level of pollen index

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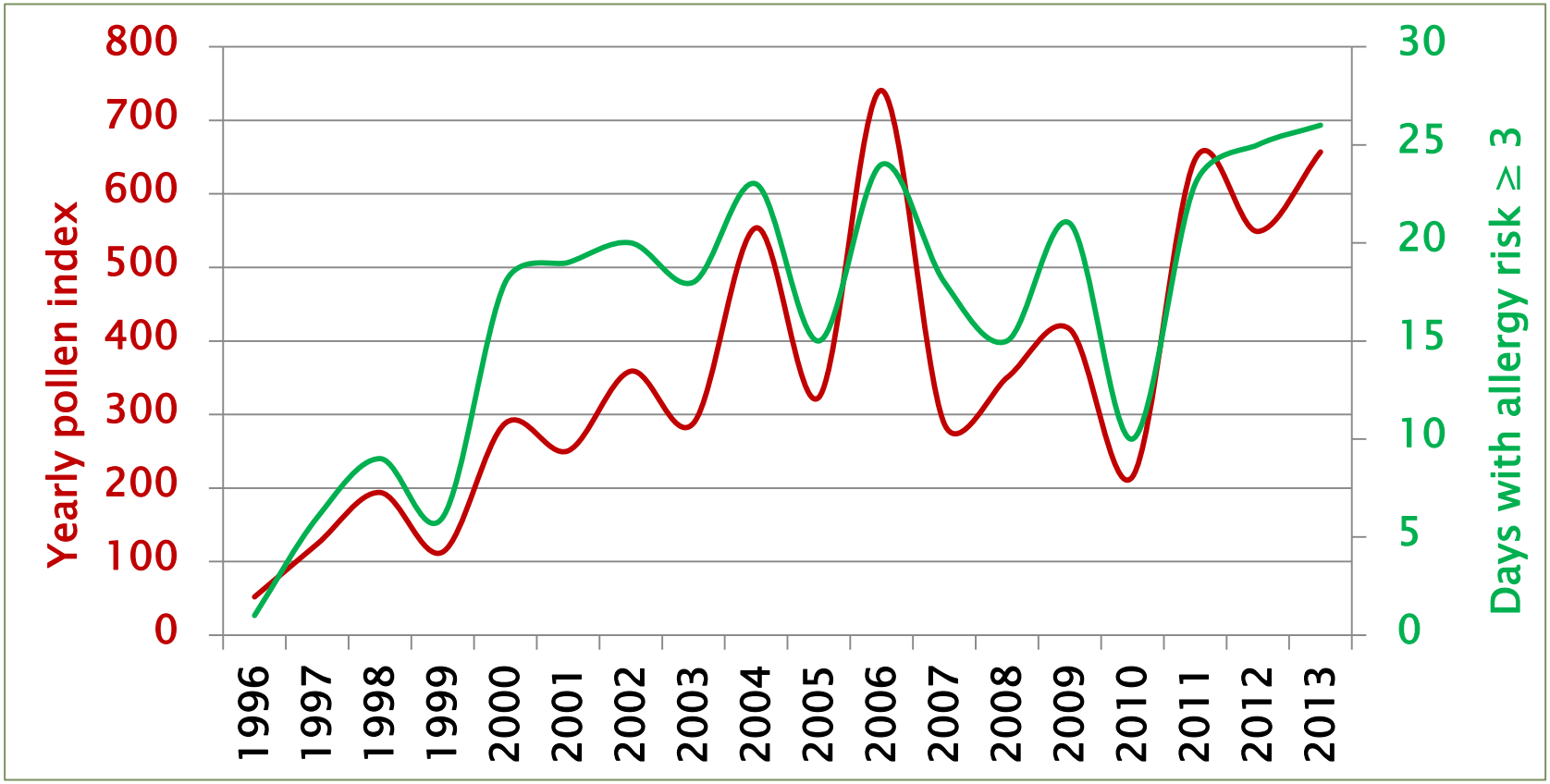
Grenoble
Keep a close eye on



26 days with an allergy risk ≥ 3 in 2013
Low level of pollen index but increase since 1996

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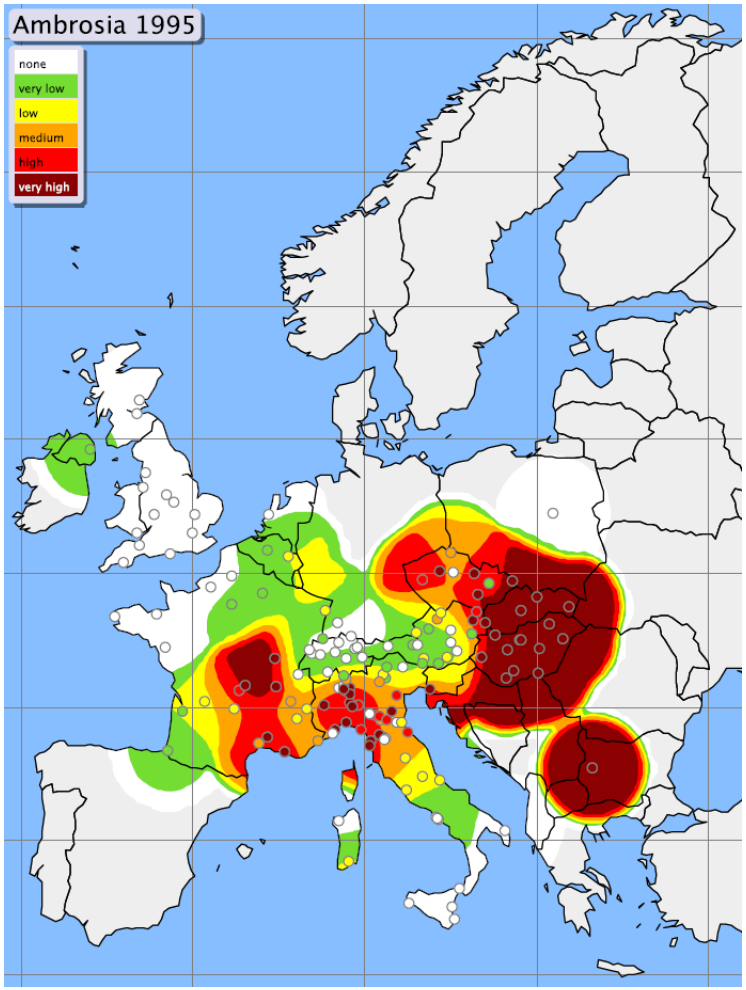
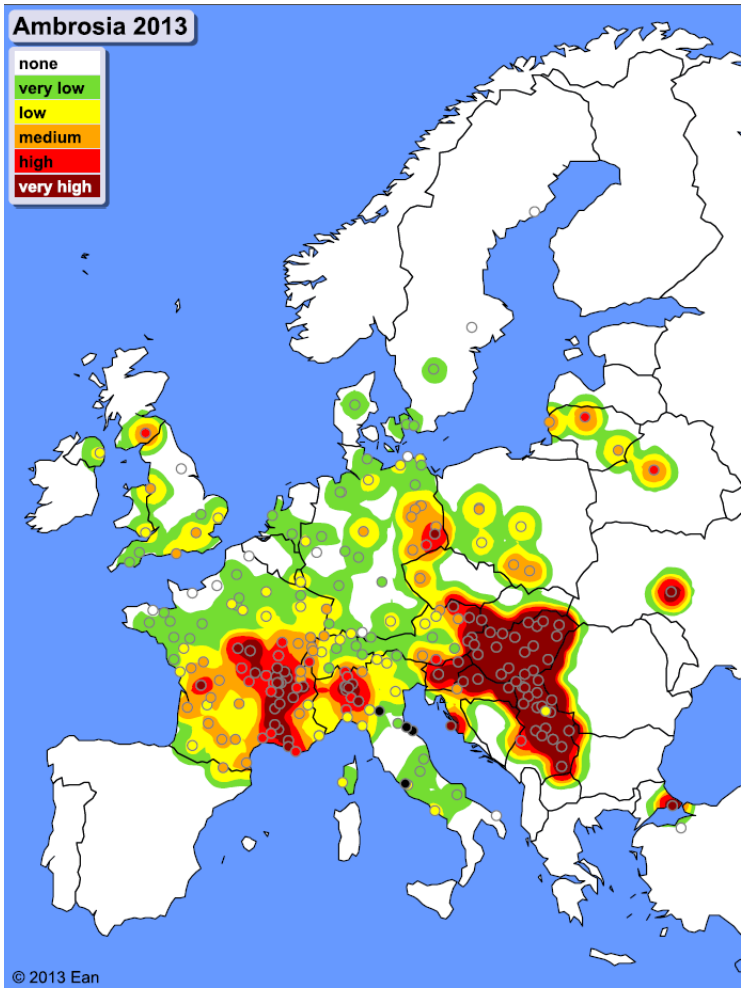
More and more infested areas





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Bi-hourly data

- Allow to determine the circadian rhythm of the plant and to evaluate if the pollens are of a local origin or transported over longer distance by the wind

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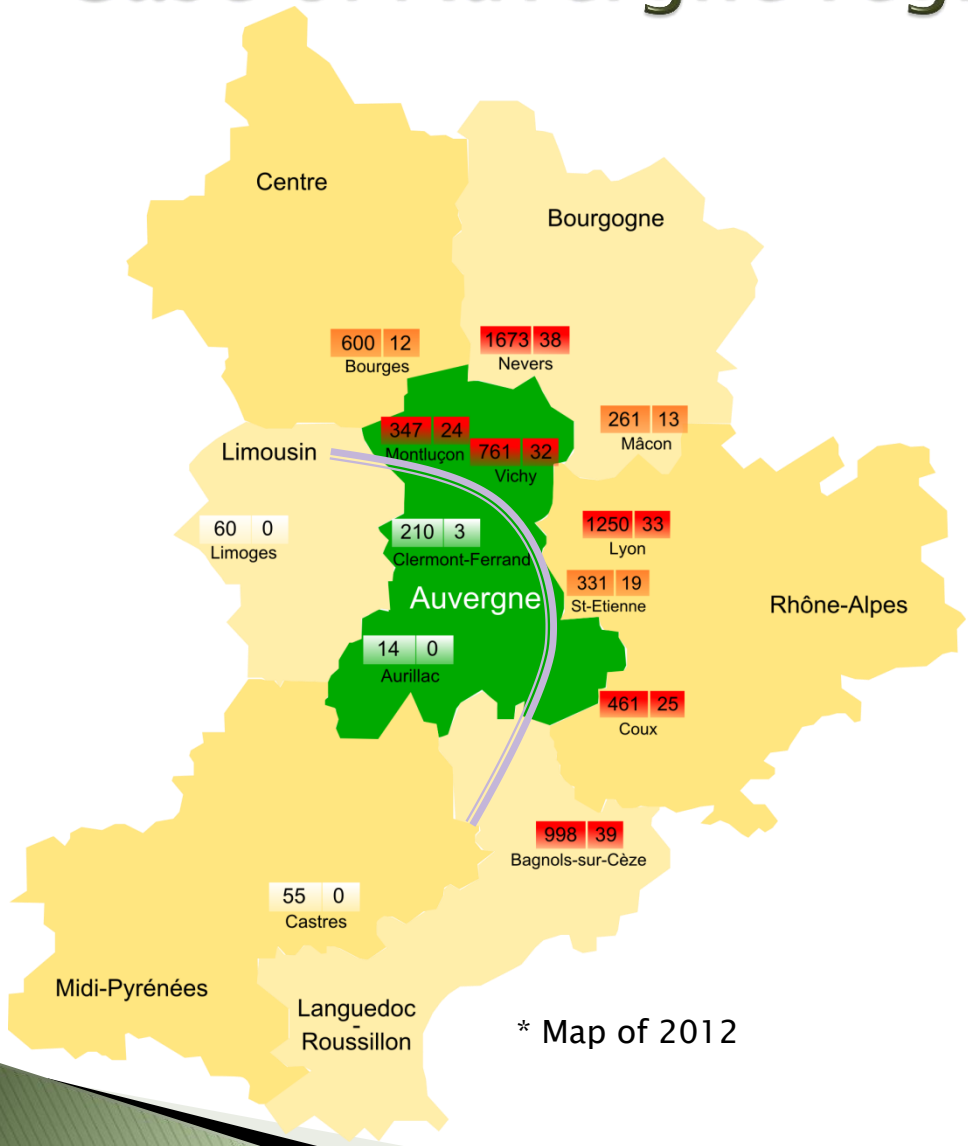
Case of Auvergne region



* Map of 2012

Only the North of the region (Montluçon
and Vichy) seems to be infested by ragweed.

Clermont-Ferrand (center of the region)
Some pollens but few days with allergy risk ≥ 3

Few ragweed pollens in Aurillac (South of the region)

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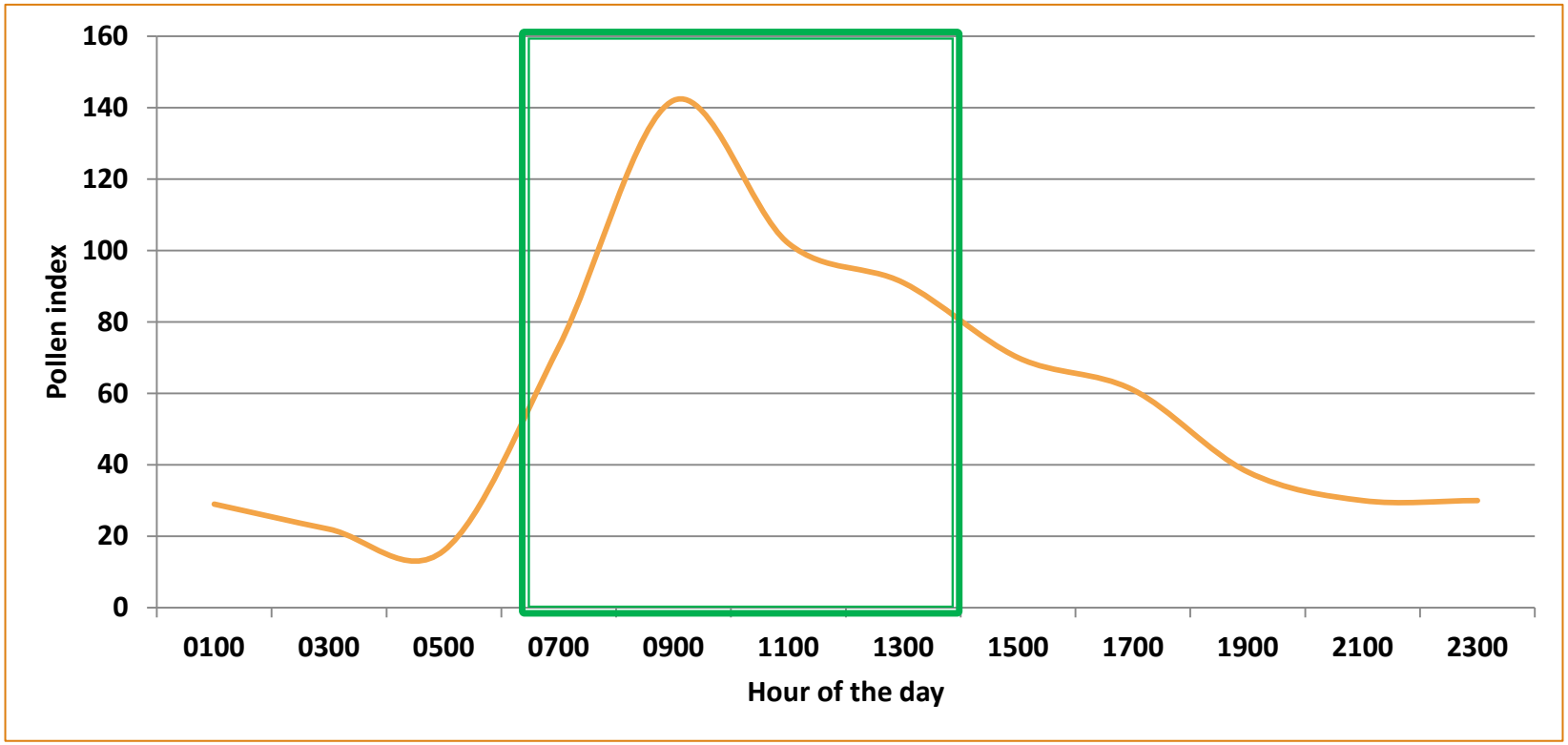
Case of Auvergne region: Vichy



Local pollens

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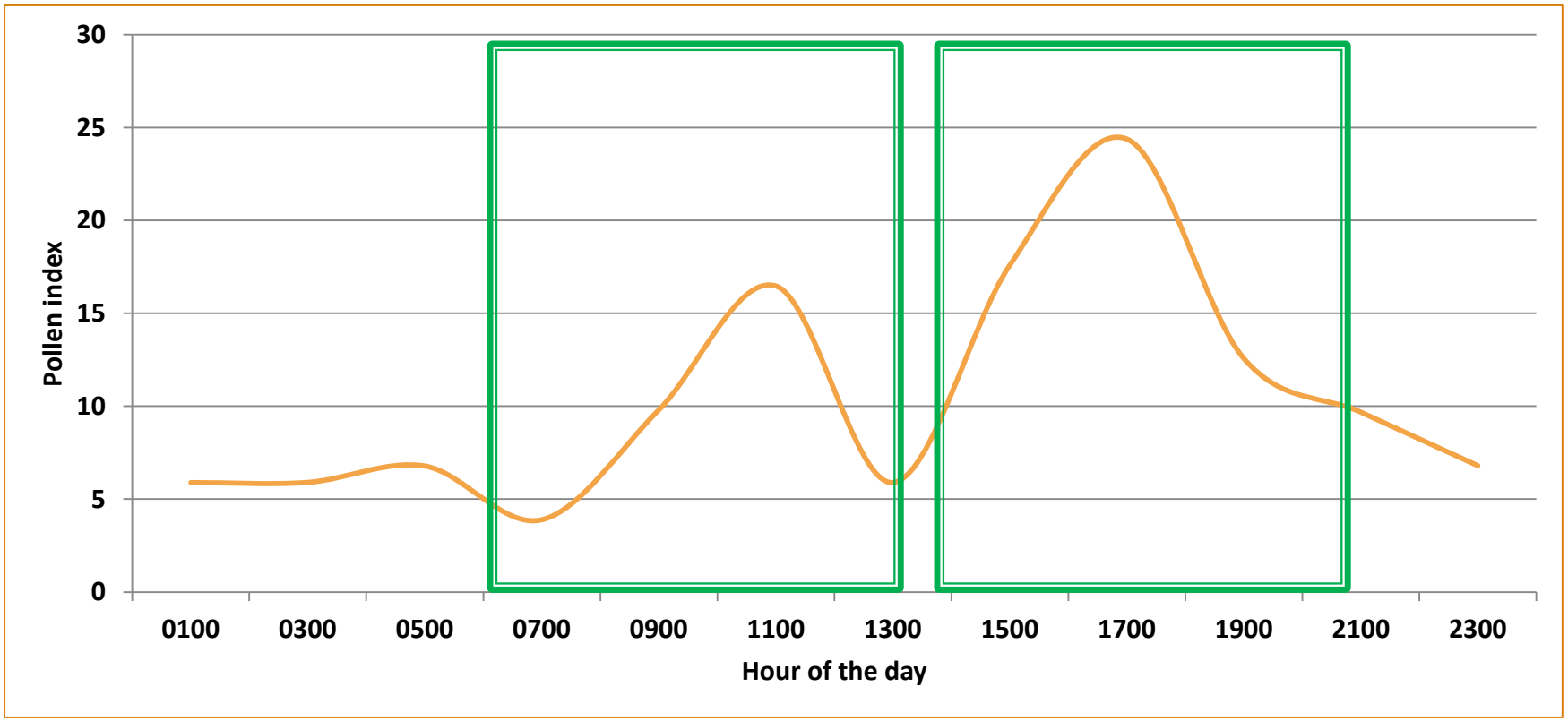
Case of Auvergne region: Montluçon



Local and transported pollens

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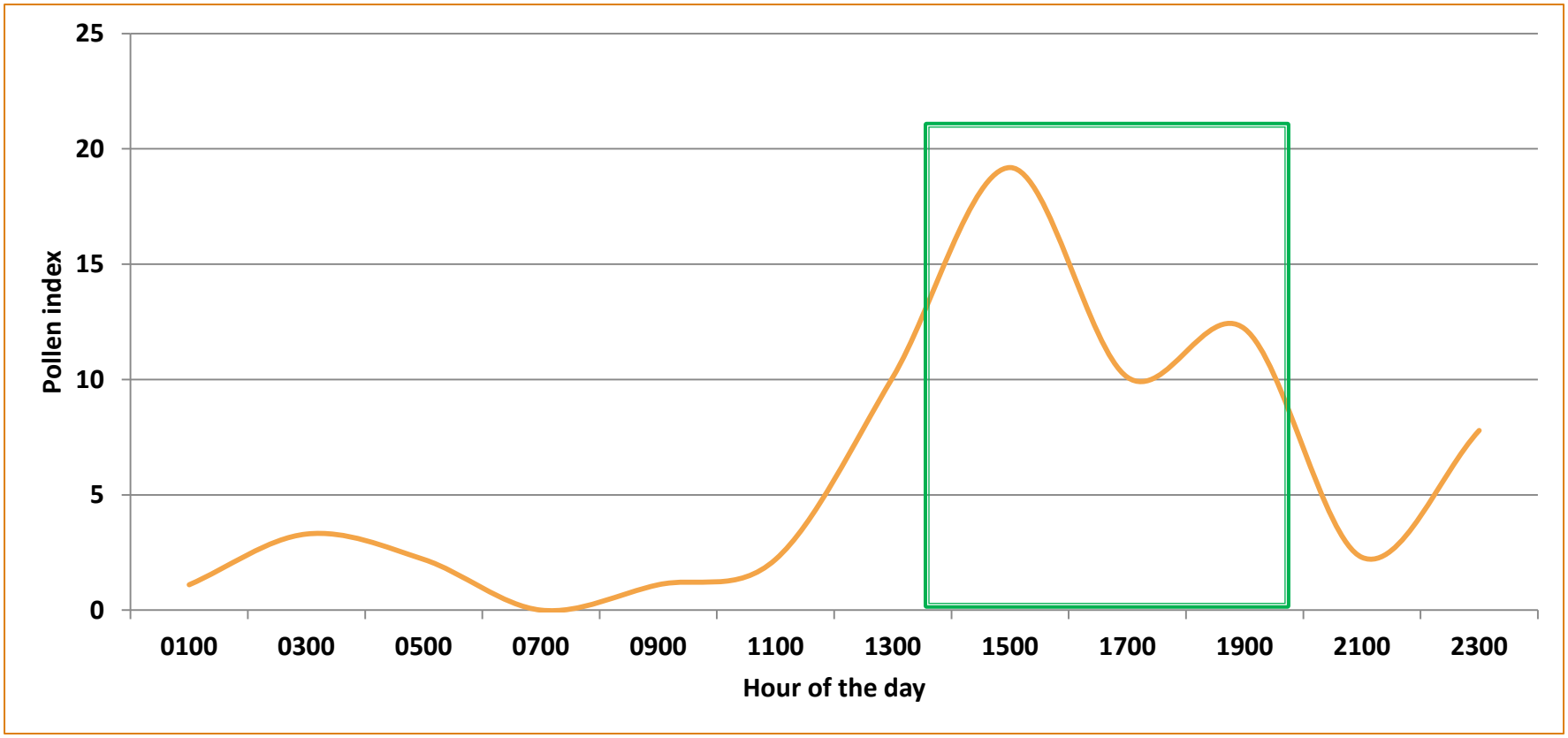
Case of Auvergne region: Clermont-Ferrand



Transported pollens

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Conclusion

Twenty-five years of pollen data history offers an interesting overview of the evolution of ragweed pollination in France: season begins earlier, the amounts of pollen are increasing in most of the stations and it seems that more and more areas are infested and, consequently, more and more people become sensitive and symptomatic.

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THANK YOU
FOR YOUR ATTENTION