



ICA2018

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ALTERNARIA SPORES IN EMILIA-ROMAGNA, NORTHERN ITALY: CURRENT DIFFUSION AND TRENDS

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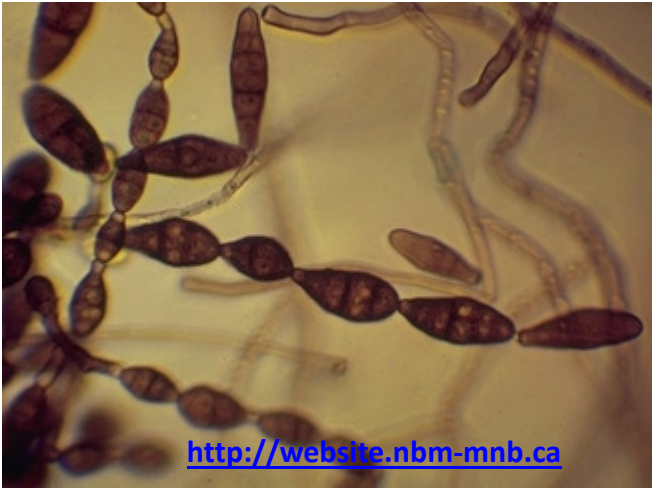
Technical Direction

Regional Center for environment, prevention and health





<http://pollen.utulsa.edu>



<http://website.nbm-mnb.ca>



<http://www.crec.ifas.ufl.edu>

OUTLINE

Daily concentrations of Alternaria spores in Emilia-Romagna

Introduction of synthetic indicators (from daily airborne concentrations to annual values)

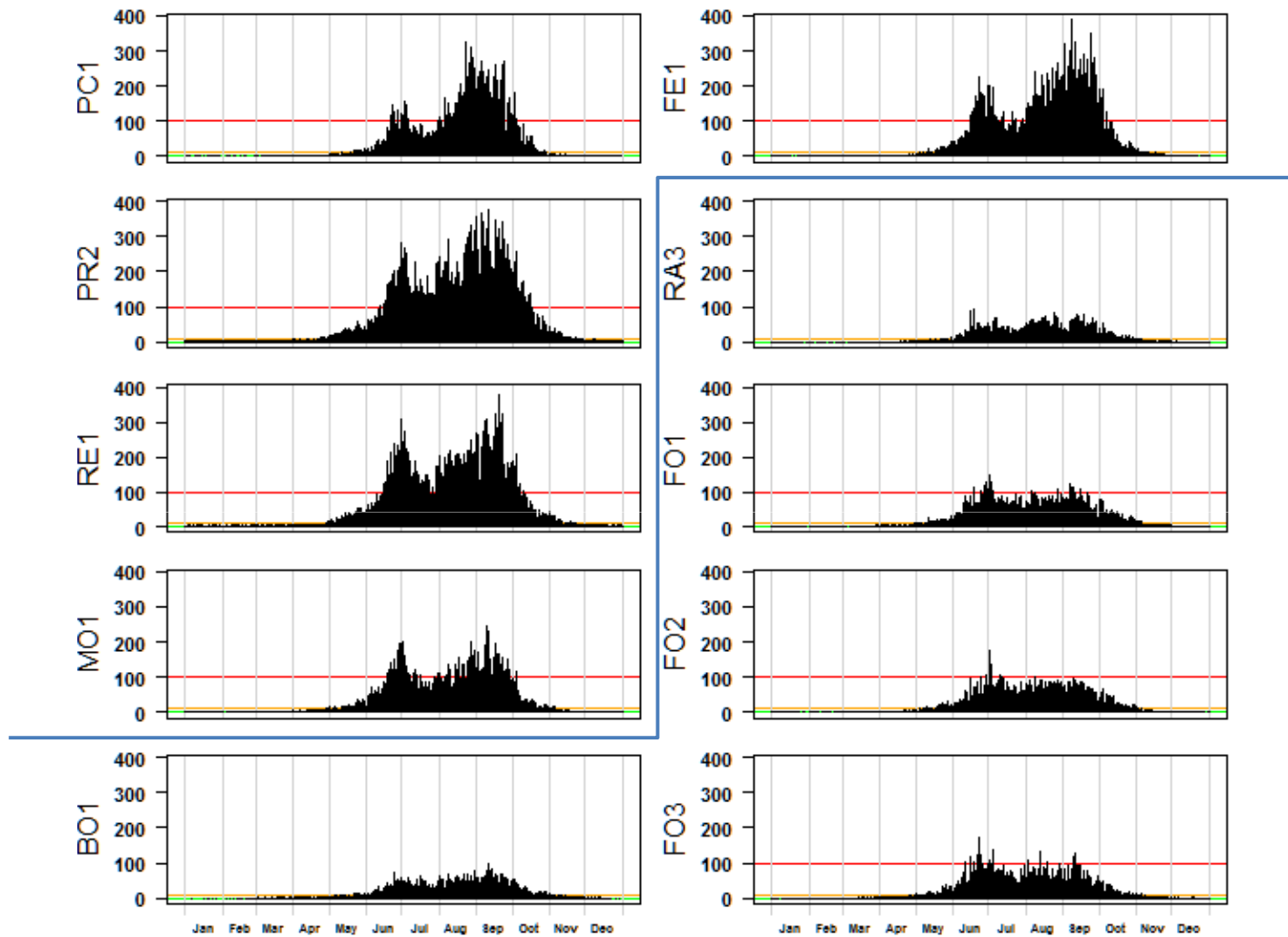
Characterization of Alternaria spore production period (geographical analysis)

Temporal trends of Alternaria indicators (statistical analysis)

Aerobiological network in Emilia-Romagna

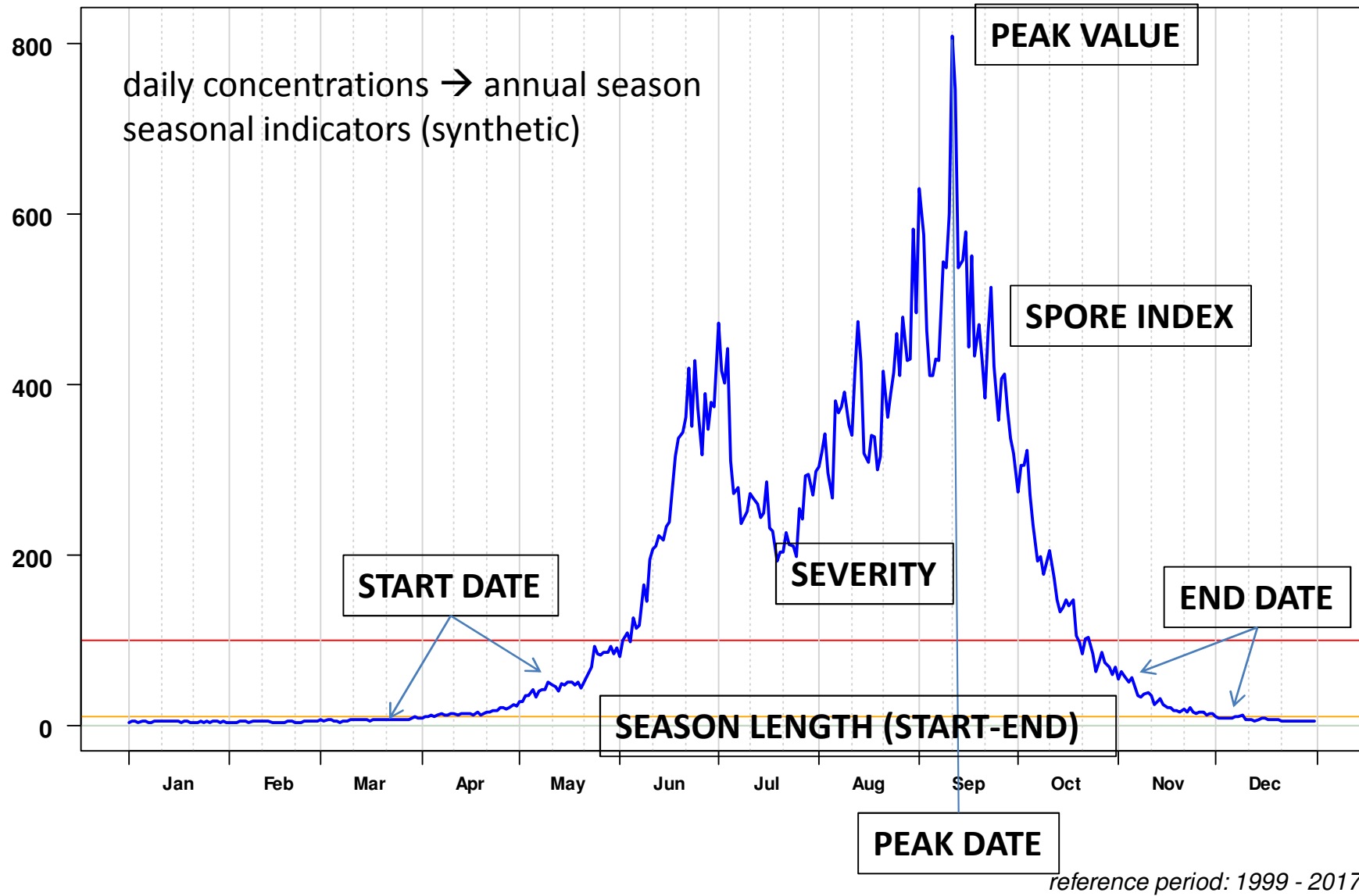


ALTERNARIA

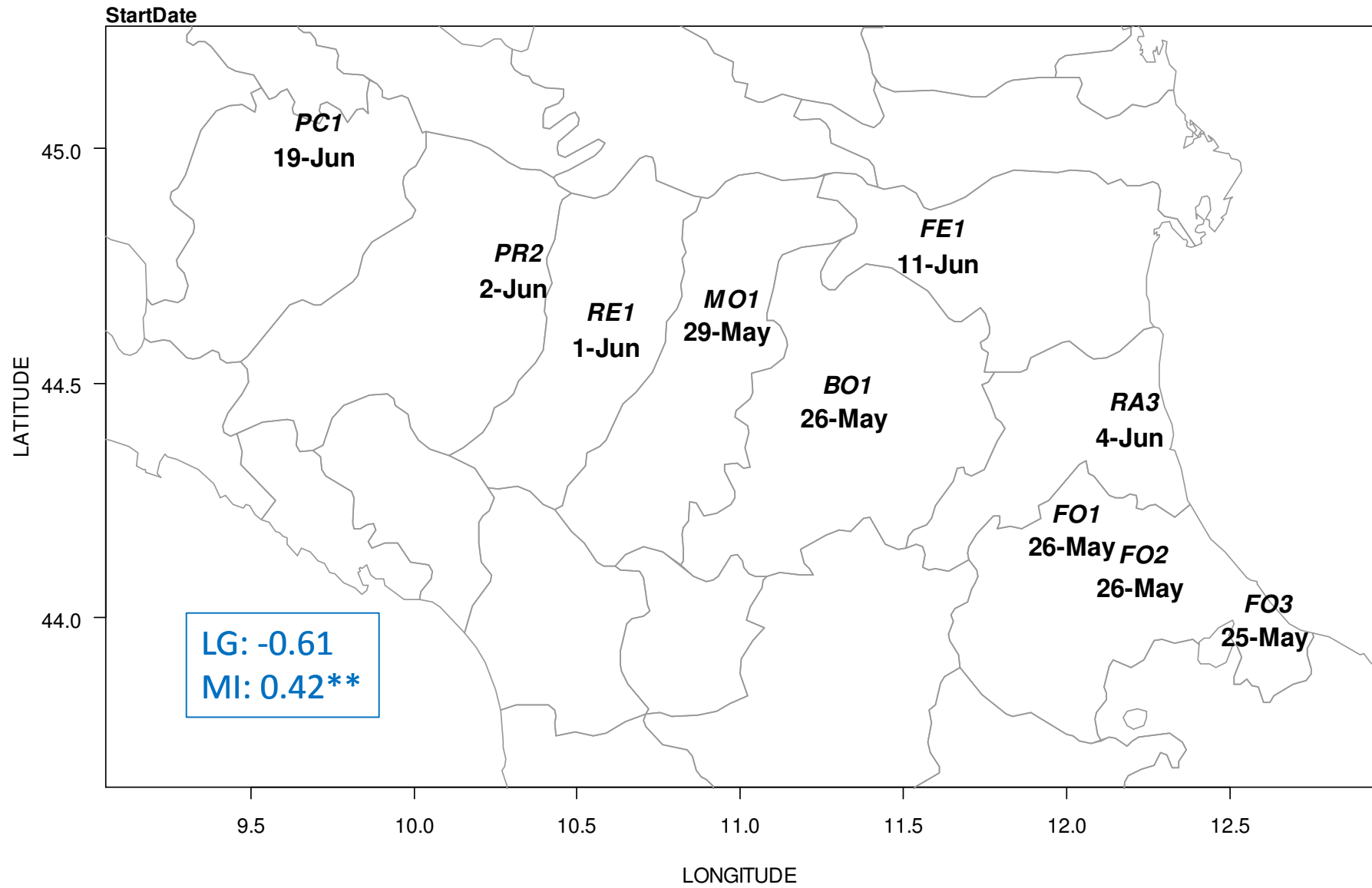


reference period: 1999 - 2017

ALTERNARIA

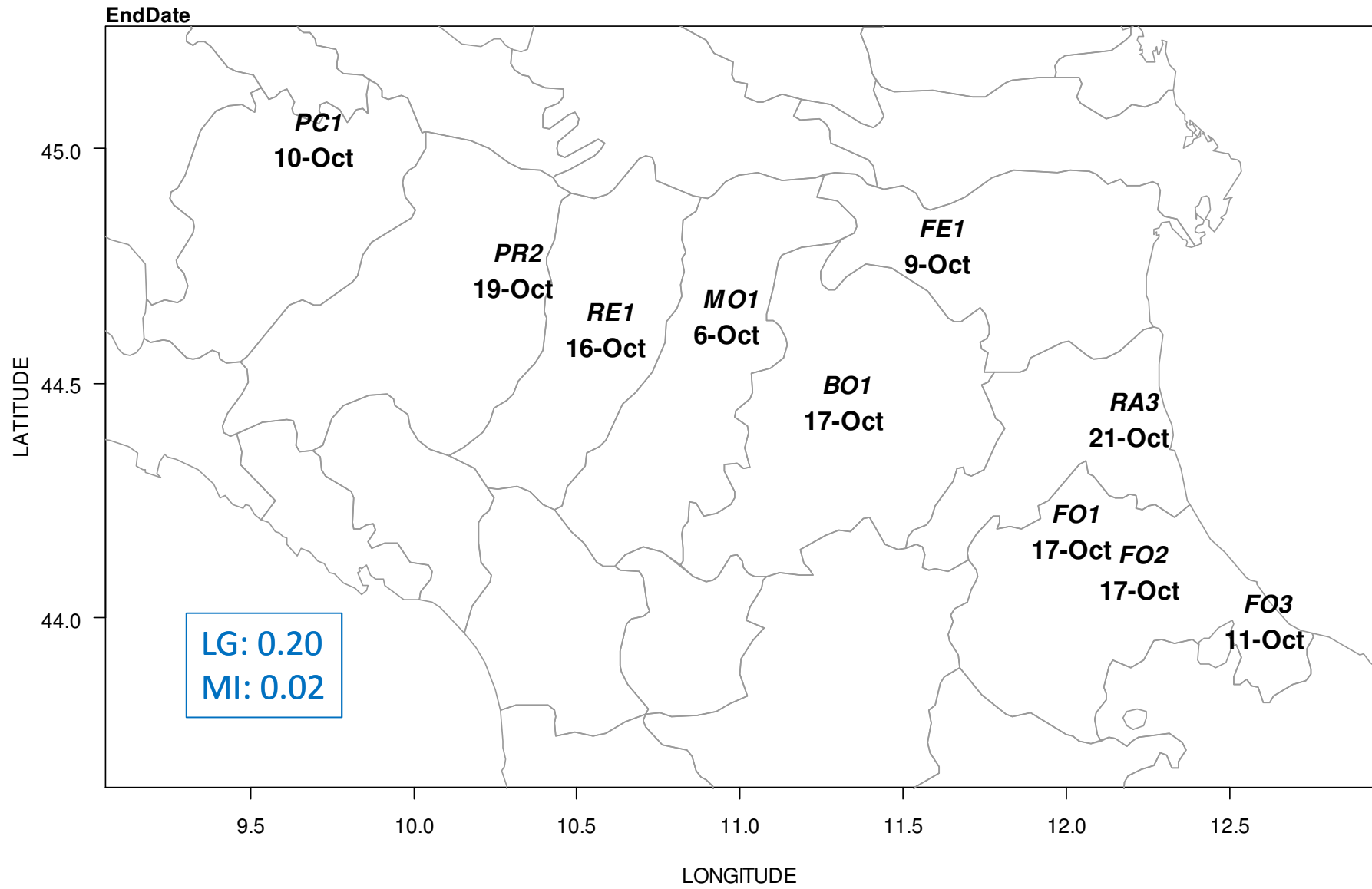


ALTERNARIA

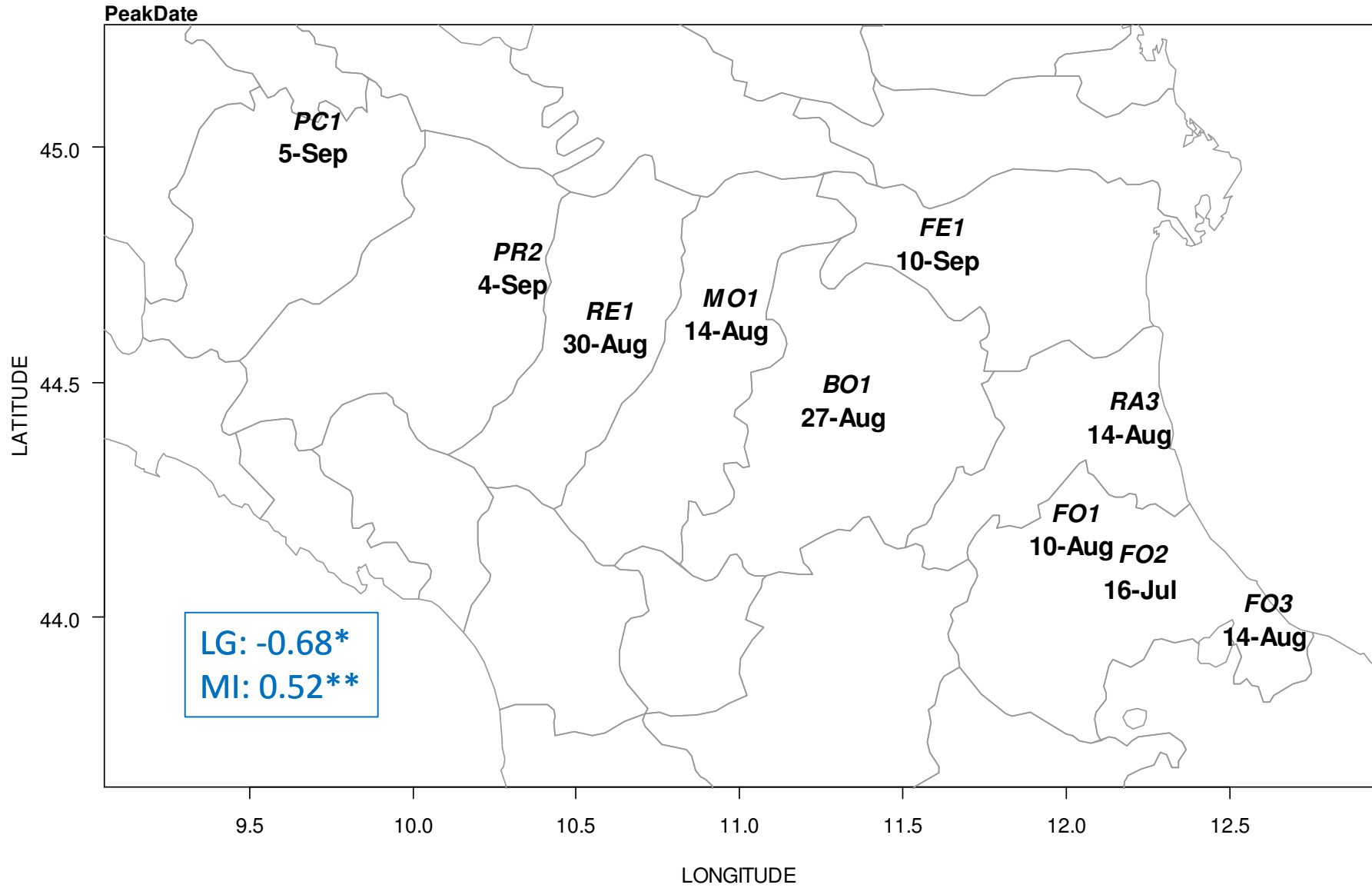


reference period: 1999 - 2017

ALTERNARIA

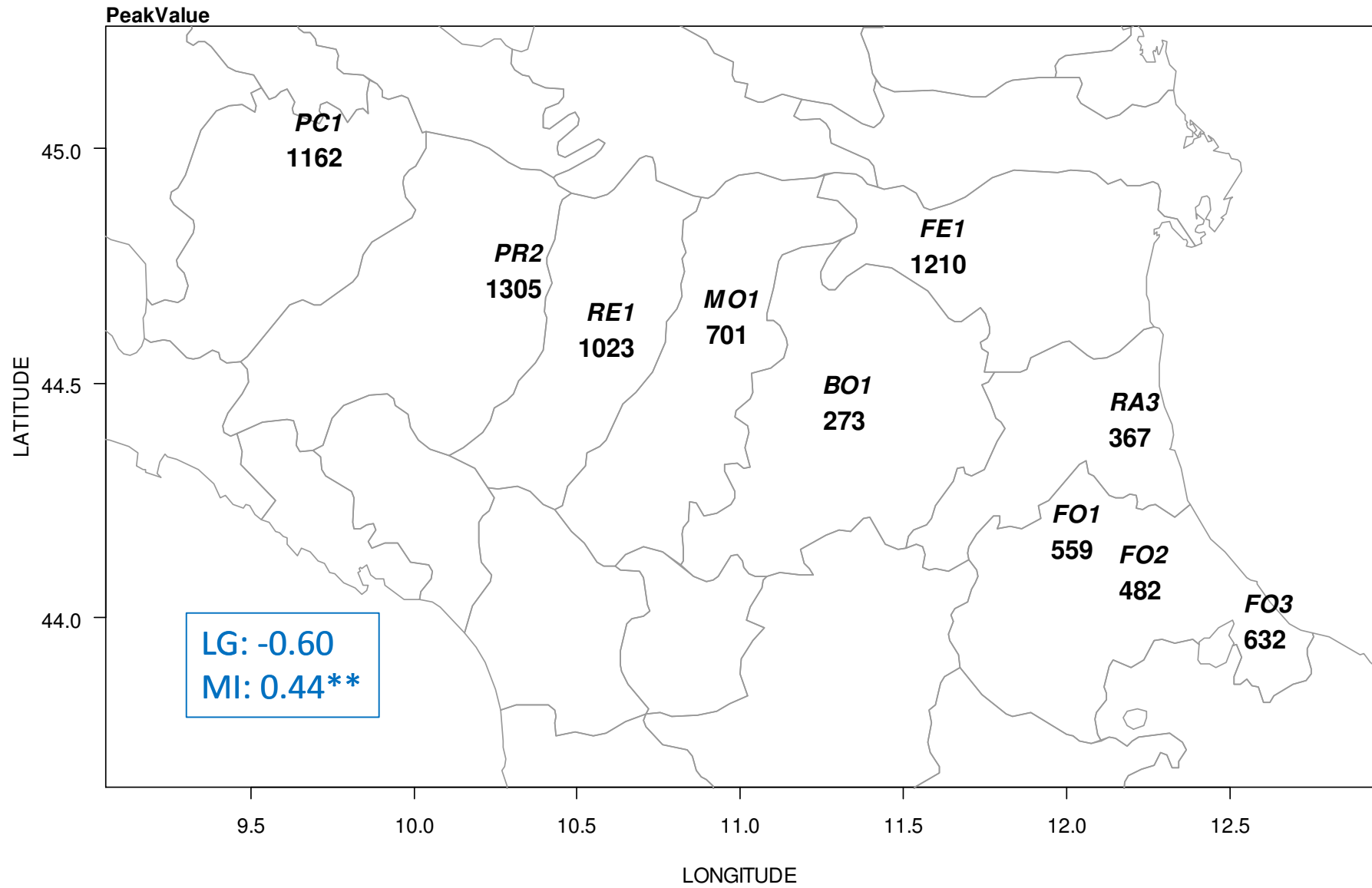


ALTERNARIA



reference period: 1999 - 2017

ALTERNARIA



reference period: 1999 - 2017

KENDALL τ COEFFICIENT

$$\tau = \frac{S}{D} = \frac{\sum_{i < j} \text{sgn}(x_j - x_i) \text{sgn}(y_j - y_i)}{\frac{n(n-1)}{2}}$$

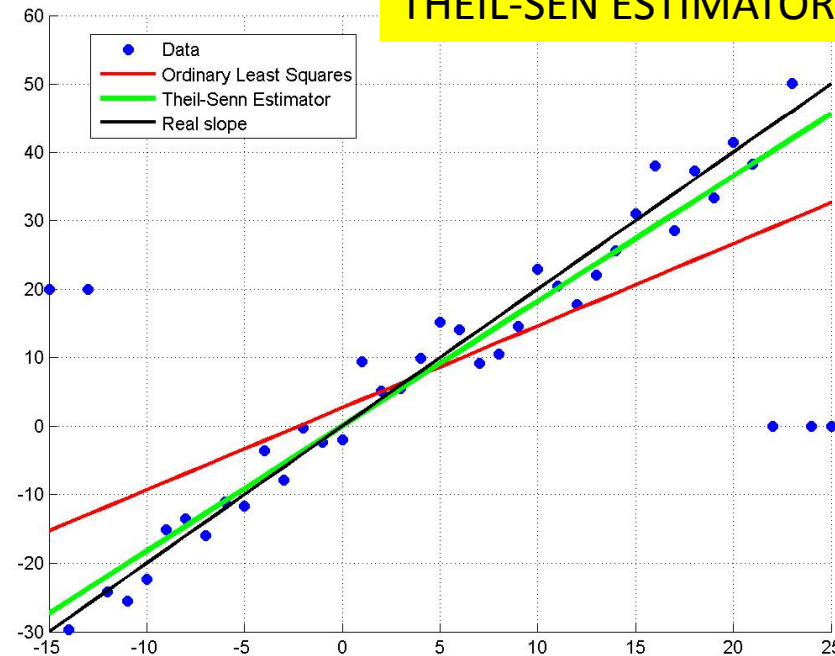
COMPARISON BETWEEN EACH VALUE
AND THE NEXT ONE



SUM OF CONCORDANT AND
DISCORDANT TERMS

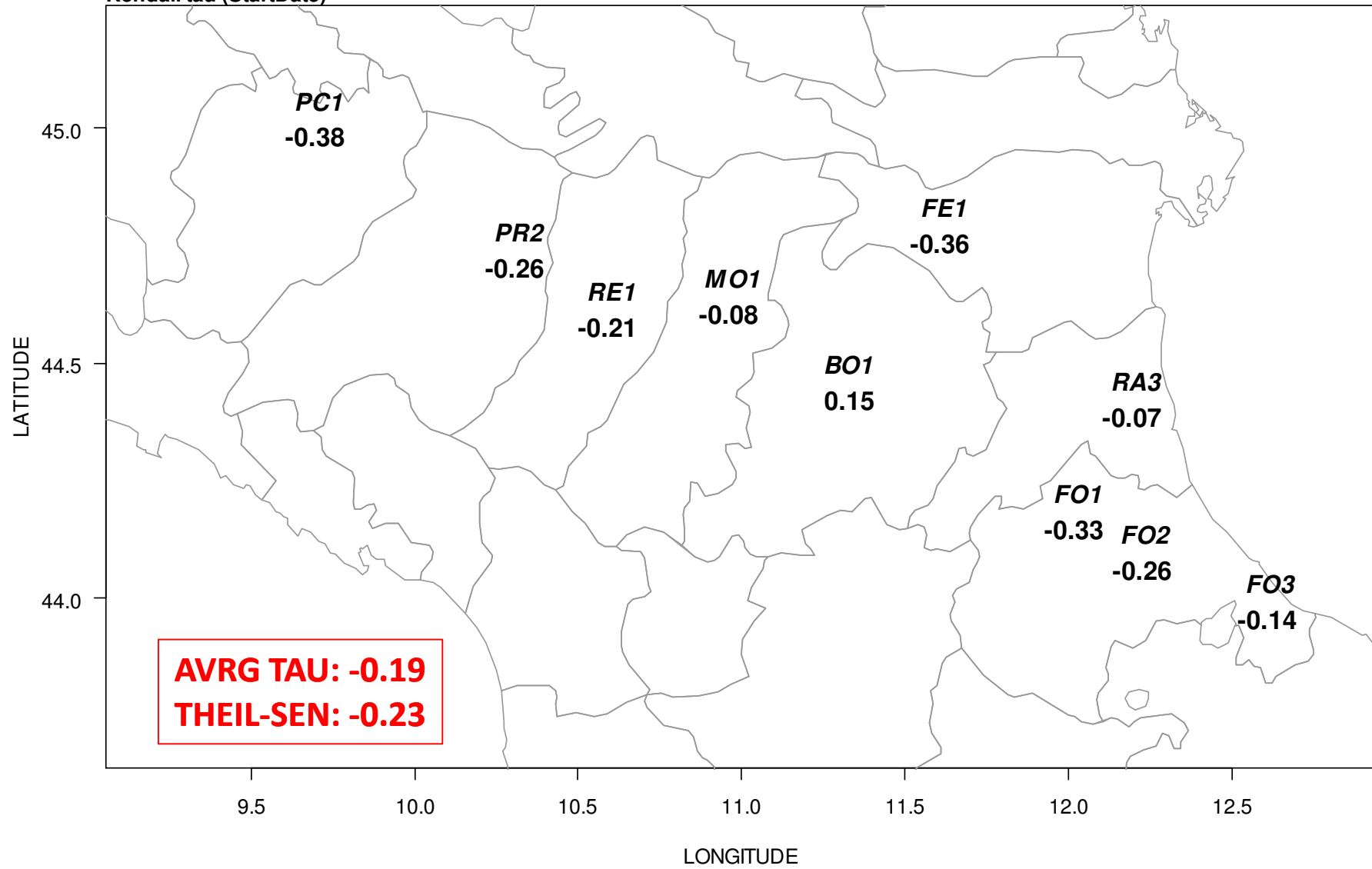
MEASURE OF THE MONOTONIC TREND → COEFFICIENT VALUE IN THE RANGE (-1, +1)

THEIL-SEN ESTIMATOR



ALTERNARIA

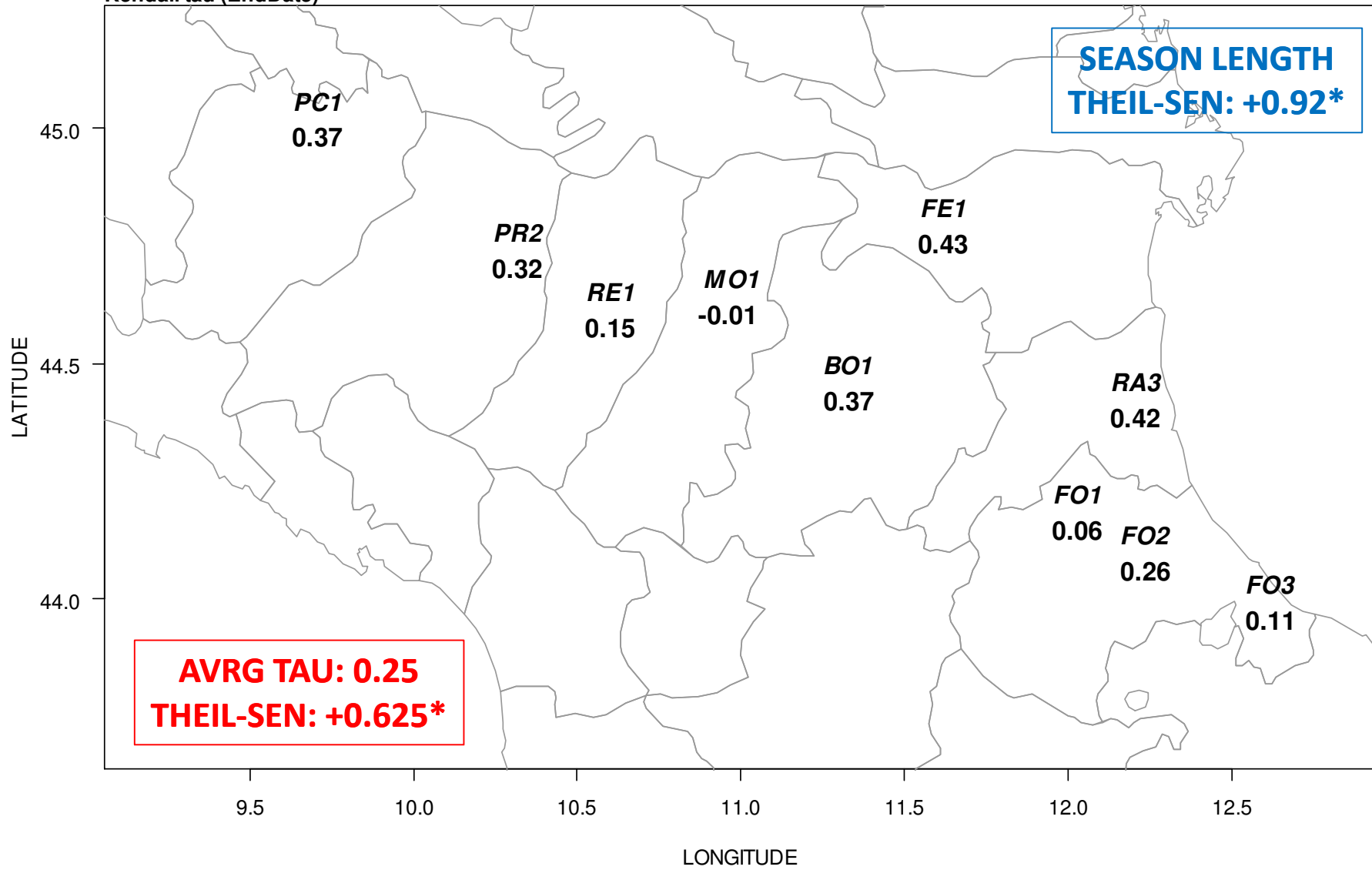
Kendall tau (StartDate)



reference period: 1999 - 2017

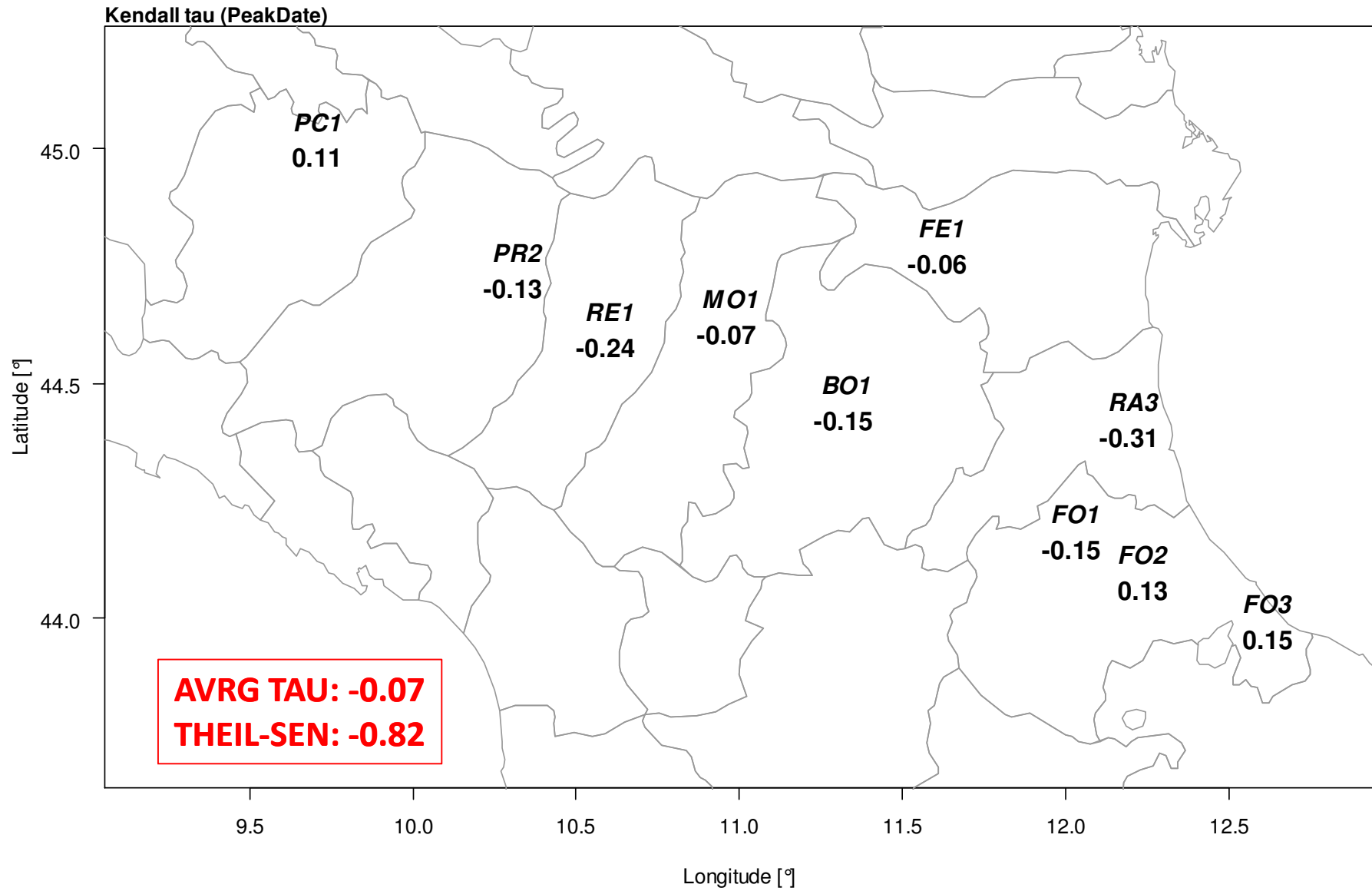
ALTERNARIA

Kendall tau (EndDate)

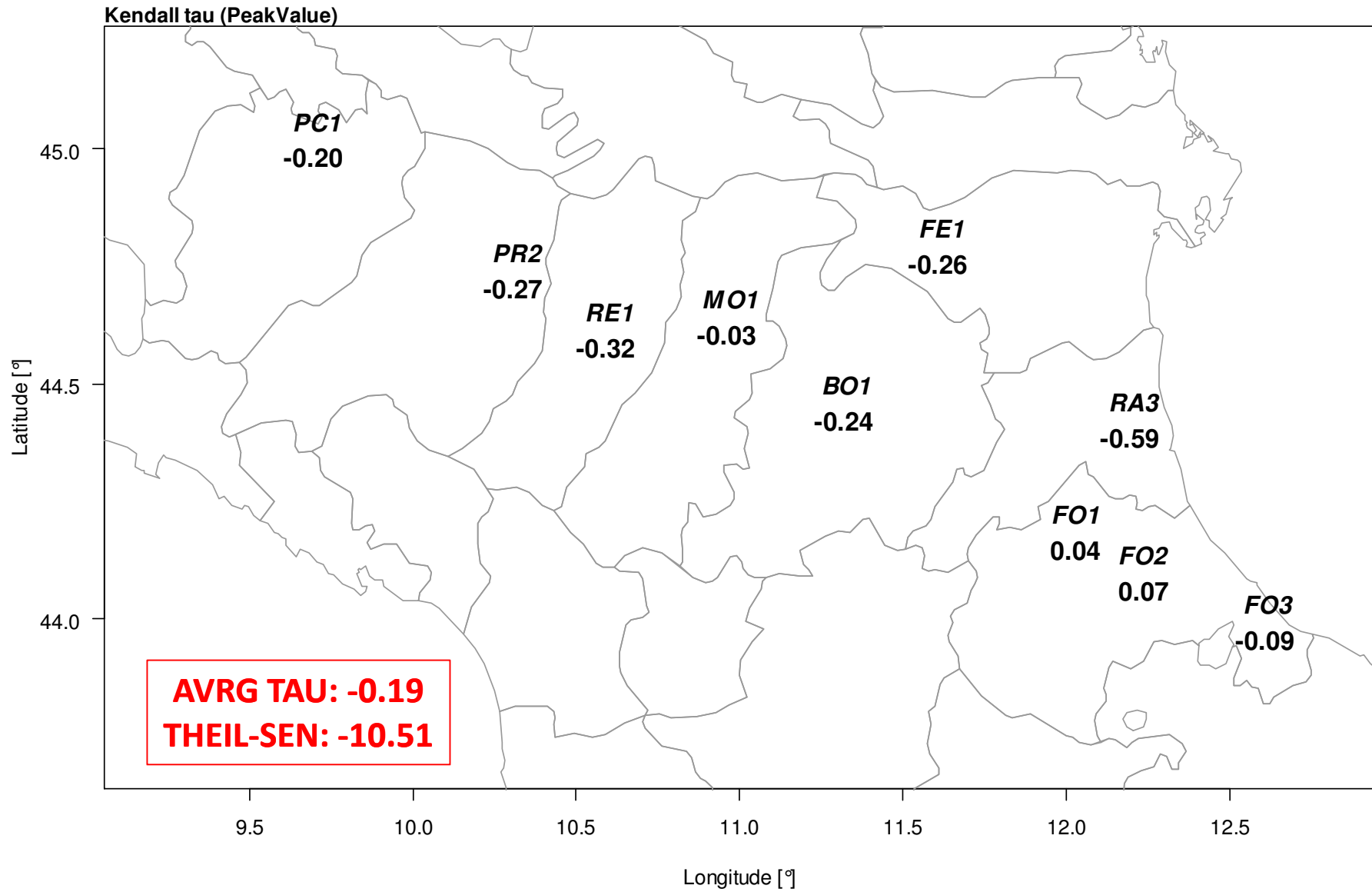


reference period: 1999 - 2017

ALTERNARIA



ALTERNARIA



Concluding remarks

Analysis of Alternaria spores distribution in 10 monitoring stations

Alternaria spores are present during a large portion of the year in Emilia-Romagna (4,5 months, from end-May to mid-October)

Very significant spatial auto-correlation for pollen production indicators; significant also for some phenological indicators

The length of Alternaria season shows a significant increase during recent years (approximately 1 d/year) mainly due to a significant delay in the ending date, but also to a starting date significant advance

Amount of Alternaria spores is slightly decreasing on average, but trends are significant only locally