

# QA/QC

## Tracks to follow

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**A Clappier**

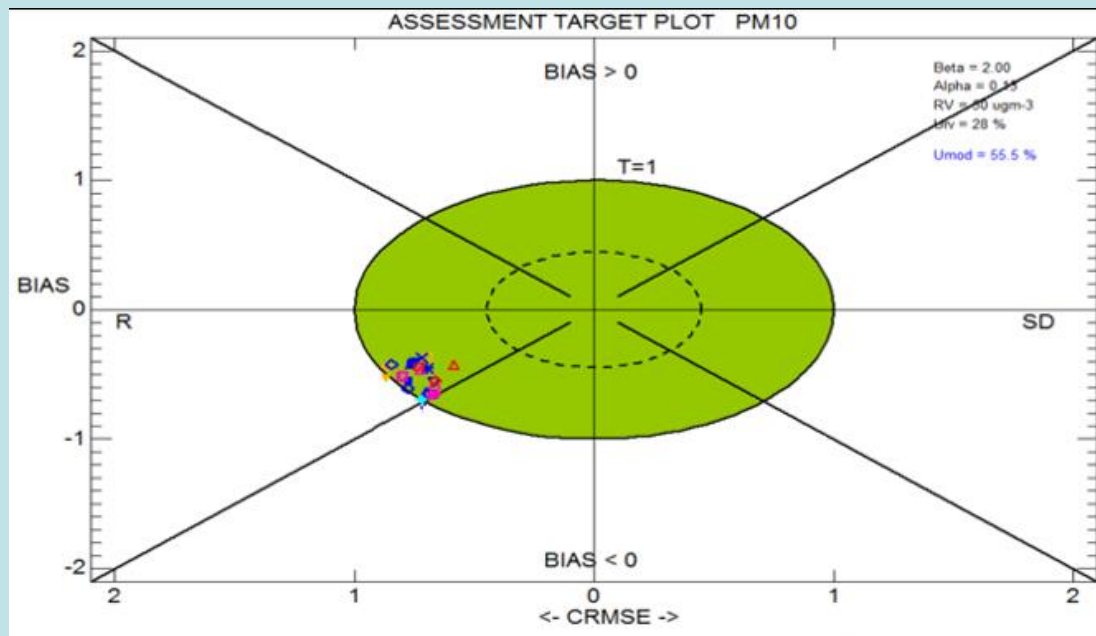
Madrid, October 2019

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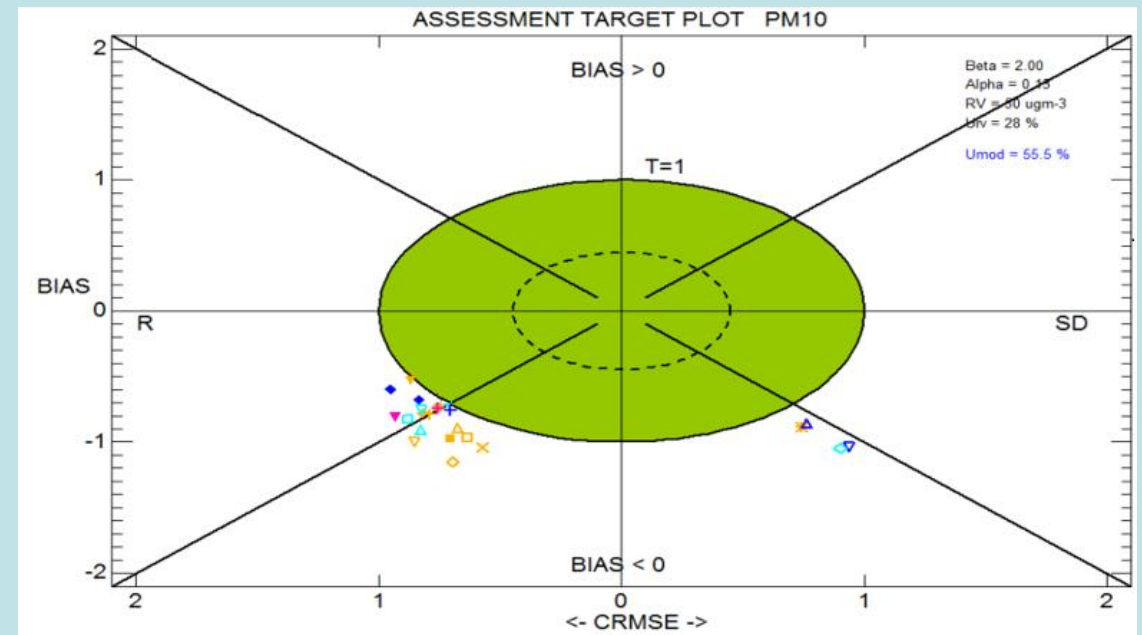
# Assessment

According to WG1 recommendations the target is to reach a given level of precision:

**GOOD** 😊



**BAD** 😞

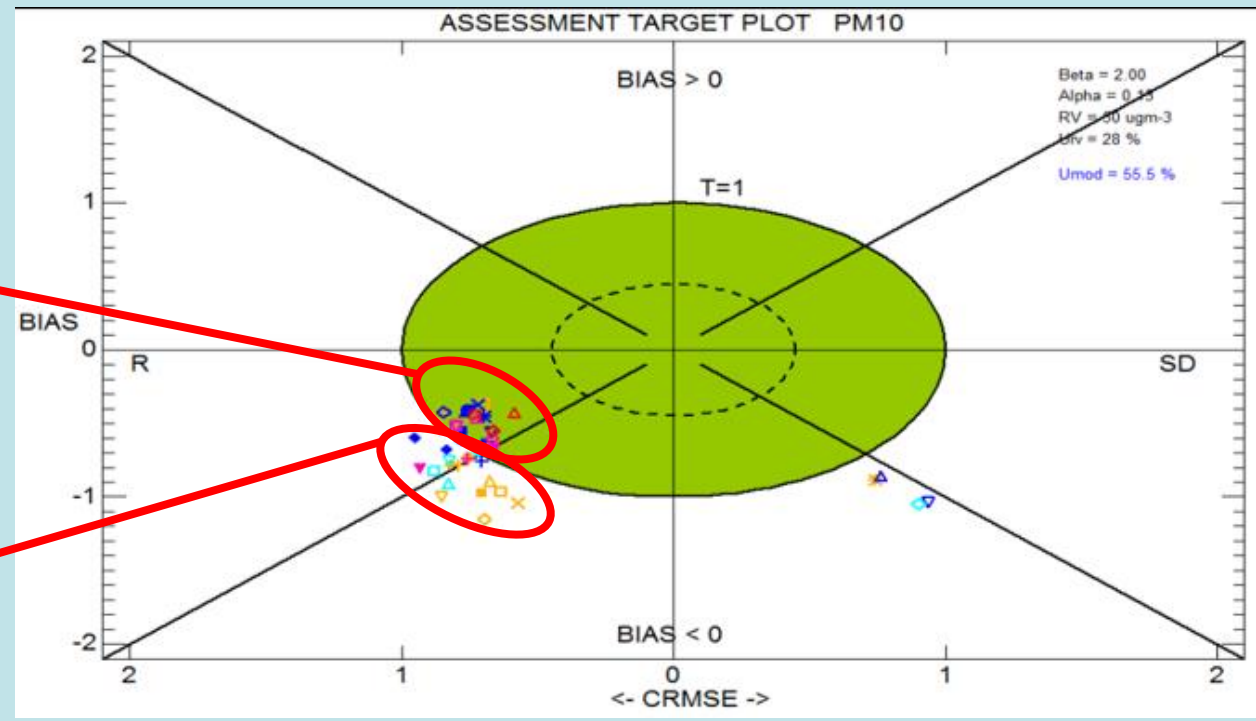


# Assessment

**NOT SO BAD** 😐

Is it due to the compensation between different kind of errors ?

What are the causes of these errors?



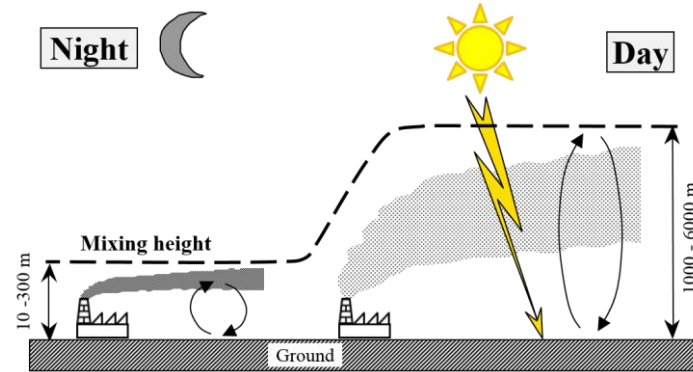
# A track to follow...

Take advantage of the information provided by different pollutants:

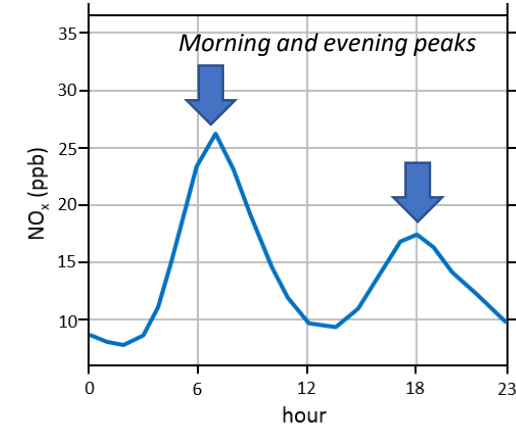
- the meteorology is the same for all the pollutants...
- ...but they are not produced at the same place and at the same time

# Primary and secondary pollutant sources

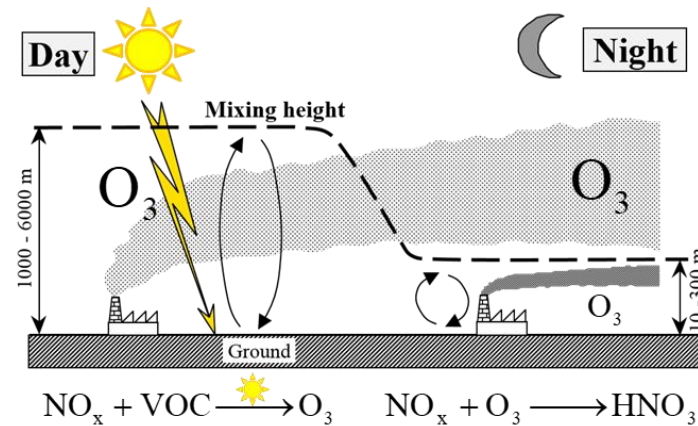
Primary pollutants are produced by the emissions in the layers close to the ground



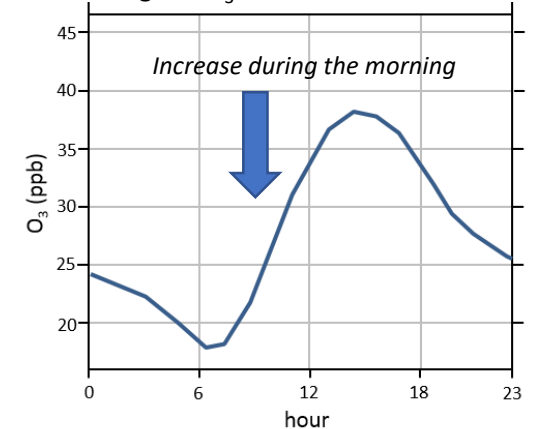
Annual average of NO<sub>x</sub> concentrations over all Rhone-Alpes region.



Secondary pollutants are produced by chemical reactions in all the mixing layer

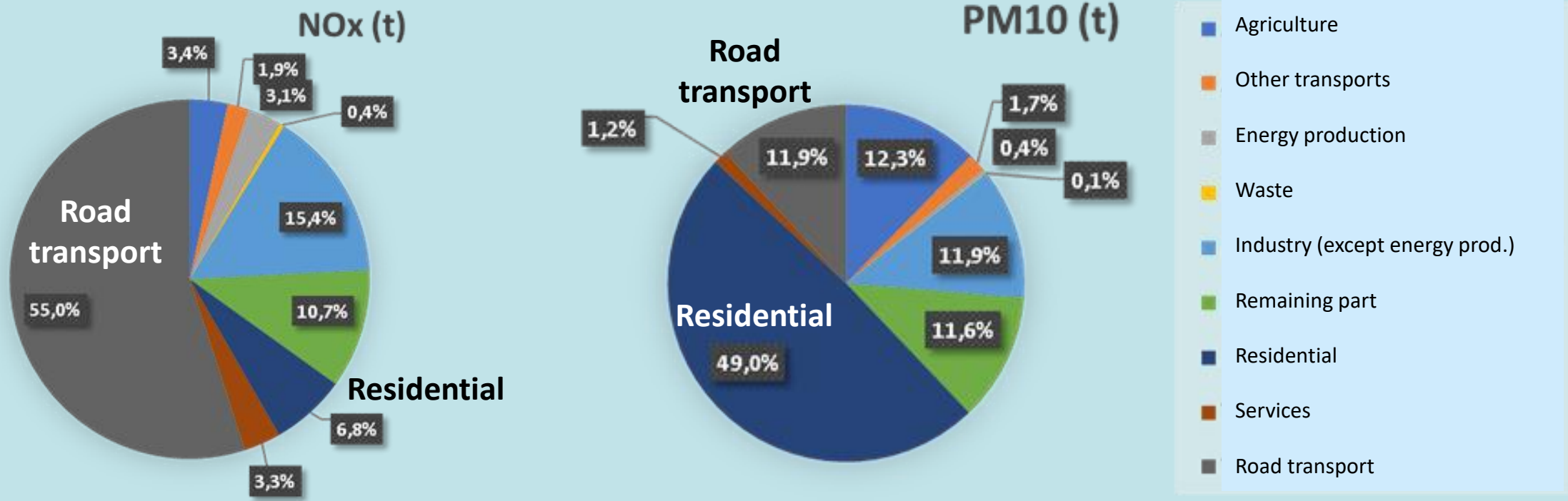


Annual average of O<sub>3</sub> concentrations over all Rhone-Alpes region.



# Emission sectors

NOx and PM10 Emissions over Rhone-Alpes region.

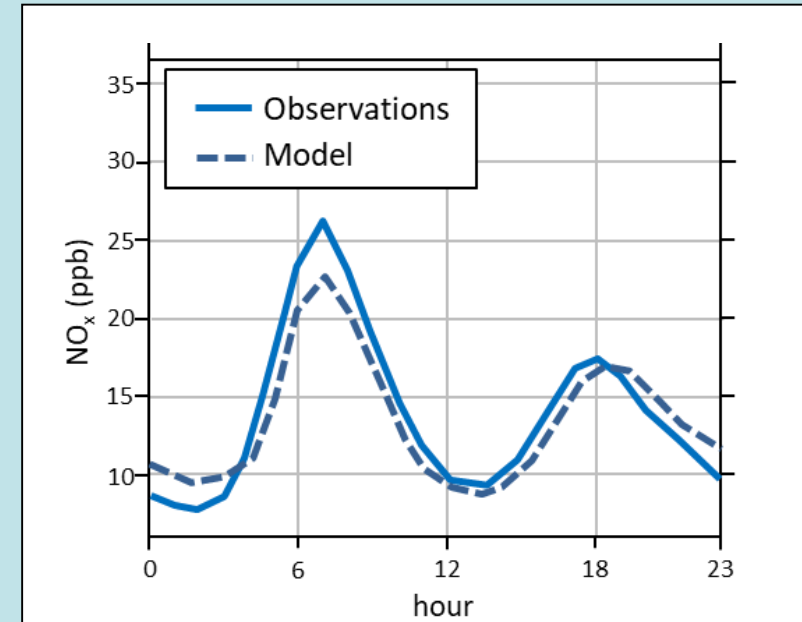


# NO<sub>x</sub>

Start with NO<sub>x</sub> because their chemical reactivity is relatively low...

➔ NO<sub>x</sub> concentrations are mainly driven by NO<sub>x</sub> emissions and the dispersion.

Annual average of NO<sub>x</sub> concentrations over all Rhone-Alpes region.

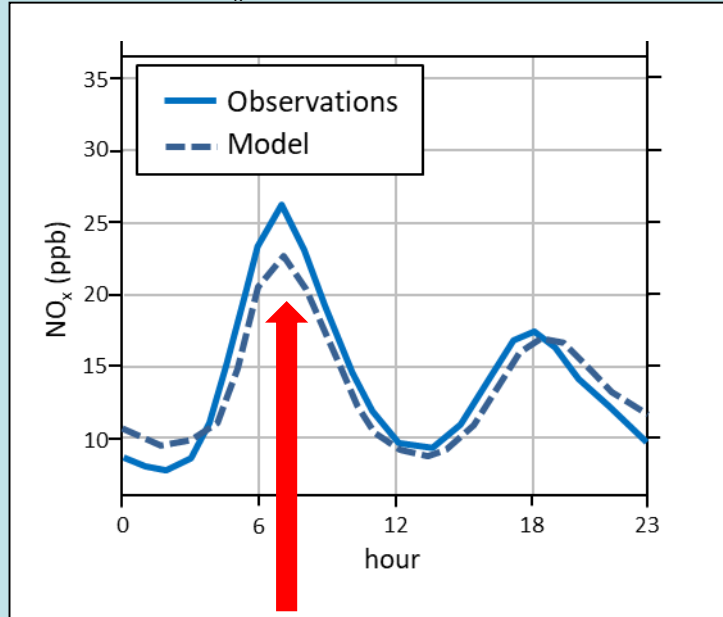


The results show good agreements for the NO<sub>x</sub> **average** as well as for the **hourly trend**...

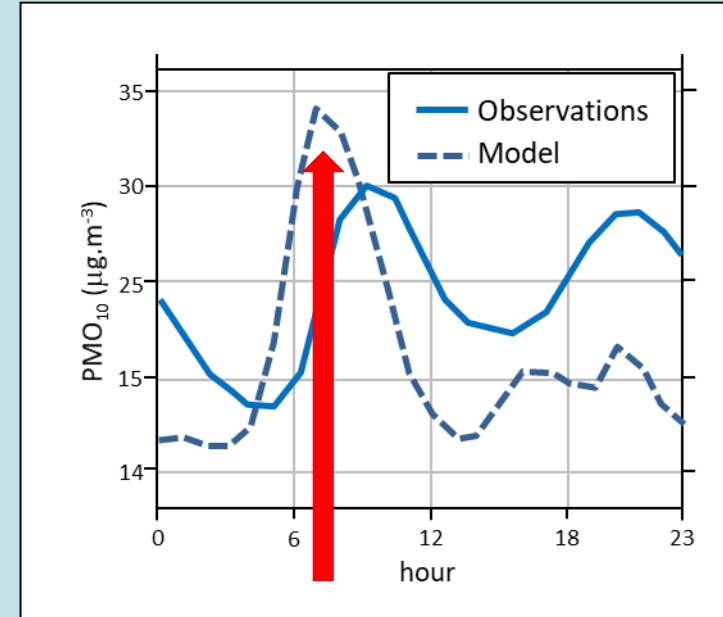
➔ meteorological and emission time profiles (mainly transport) are in good agreement.

# NOx vs PM

Annual average of NO<sub>x</sub> concentrations over all Rhone-Alpes region.



Annual average of PM<sub>10</sub> concentrations over all Rhone-Alpes region.



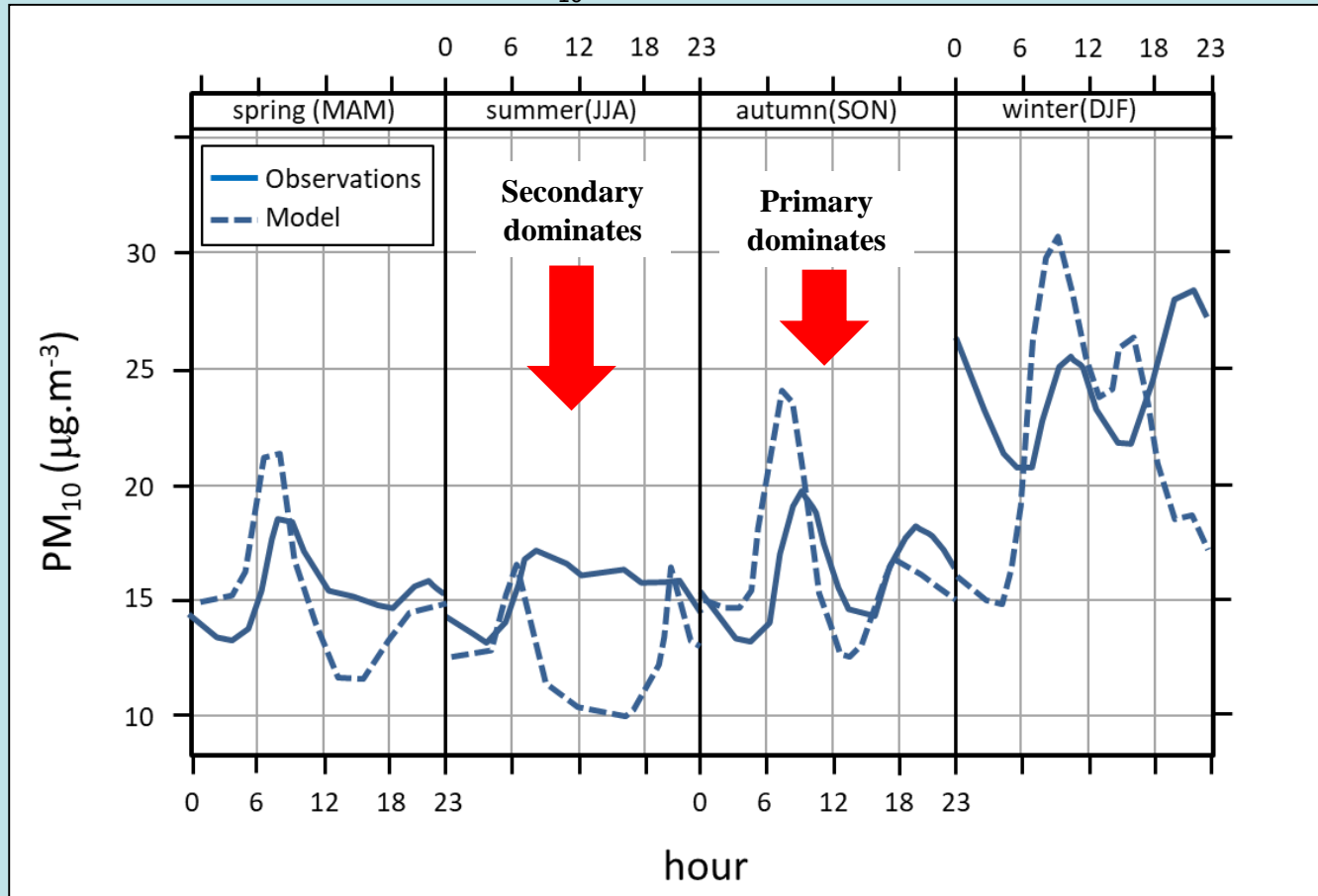
For PM, the model show the same time evolution than the NO<sub>x</sub> , it is not the case for the PM observations.

- Simulated primary PM are impacted by a « wrong » PM emission time profil (mainly residential)
- Simulated secondary PM should be produced later in the morning



# Seasonal trends

Seasonal average of PM<sub>10</sub> concentrations over all Rhone-Alpes region.



- In autumn, winter and spring the PM behave as primary pollutants → problem of emission time profiles.
- In summer PM behave like secondary pollutants → problem of chemical sources