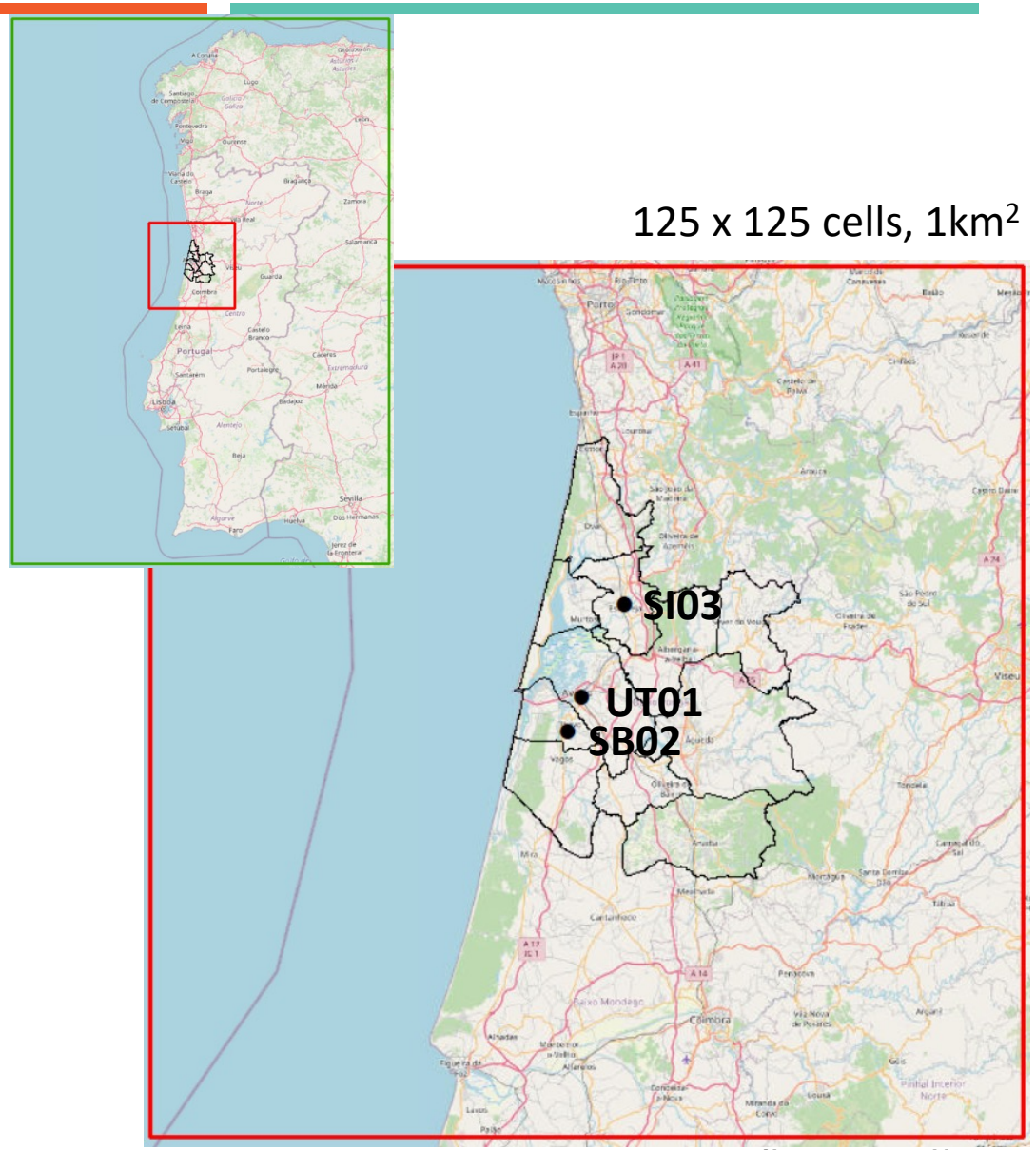
FAIRMODE | NO_2-SA UAVR contribution

Period	10/12/2017 –31/12/2017
Sectors	Industrial combustion(A) Road Transport(B)
Methods	Brute Force
Emissions	All, NOX

125 x 125 cells, 1km^2



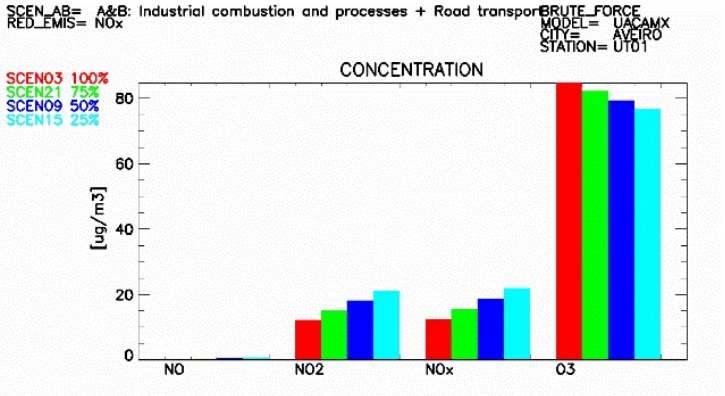
Joana Ferreira & Sílvia Coelho

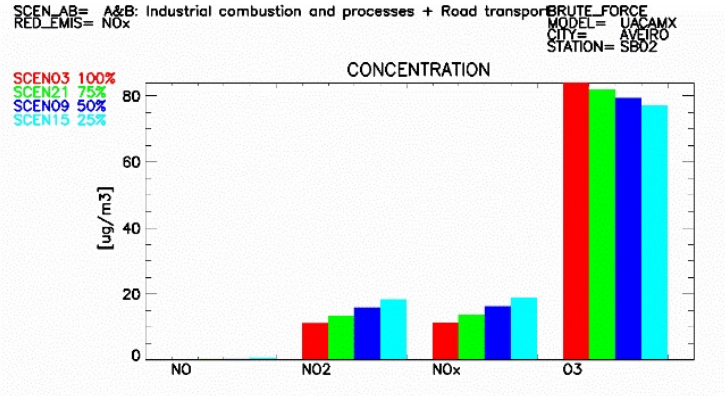
Are your SA results for NO_2 consistent?

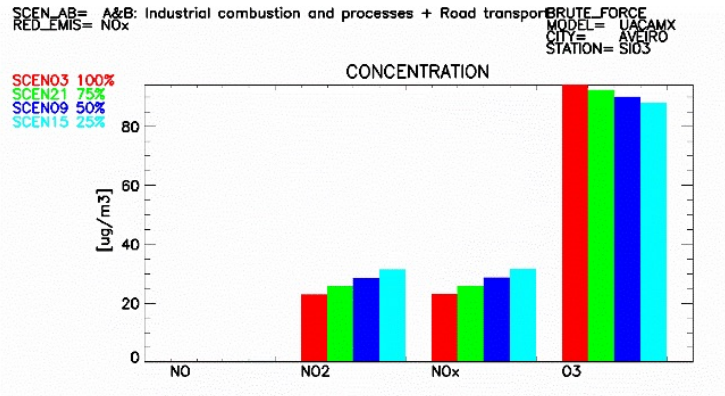
GEMAC

NOx red → Conc

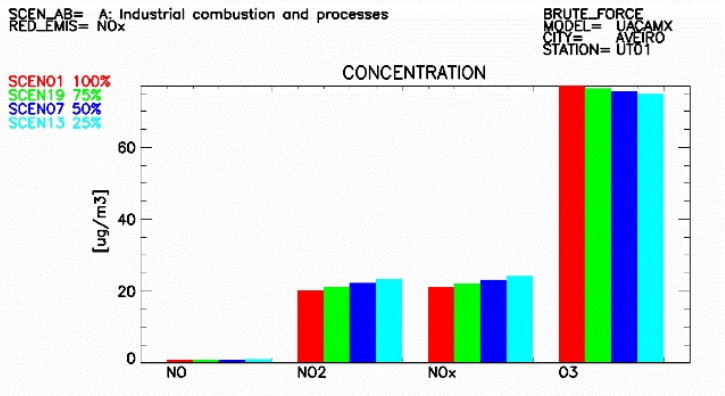
UT01

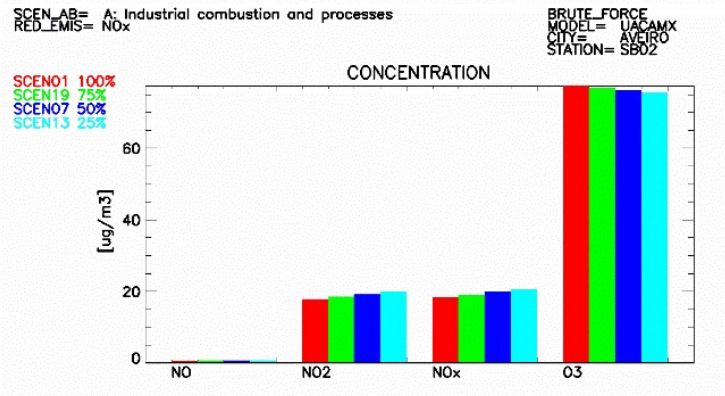


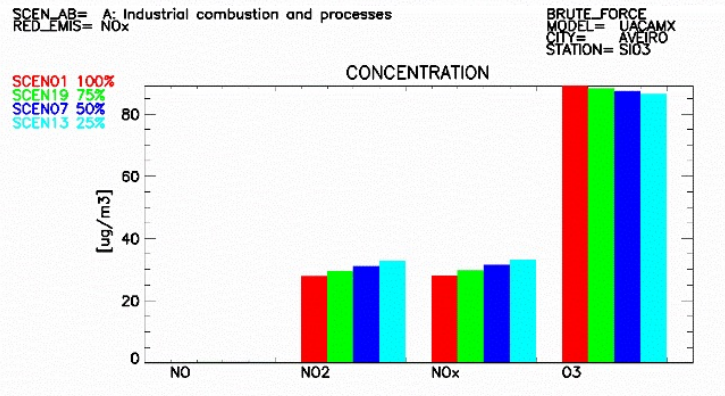




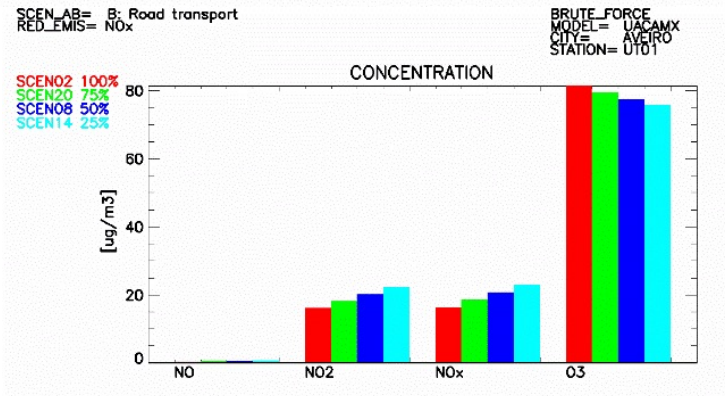
SB02

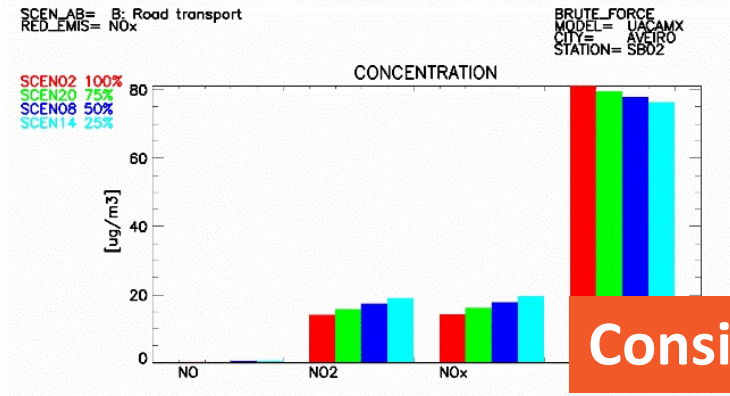


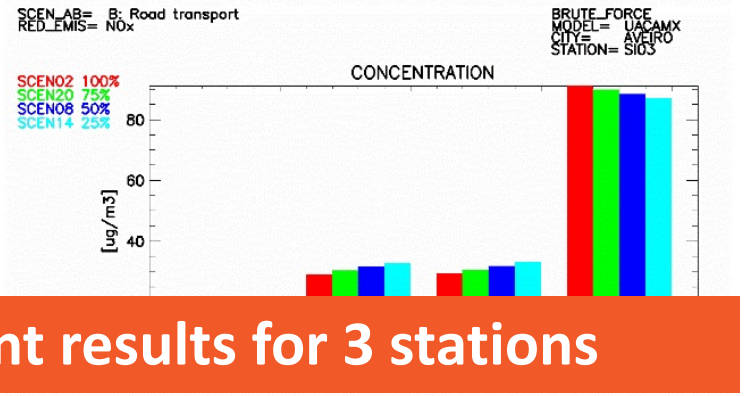




SI03







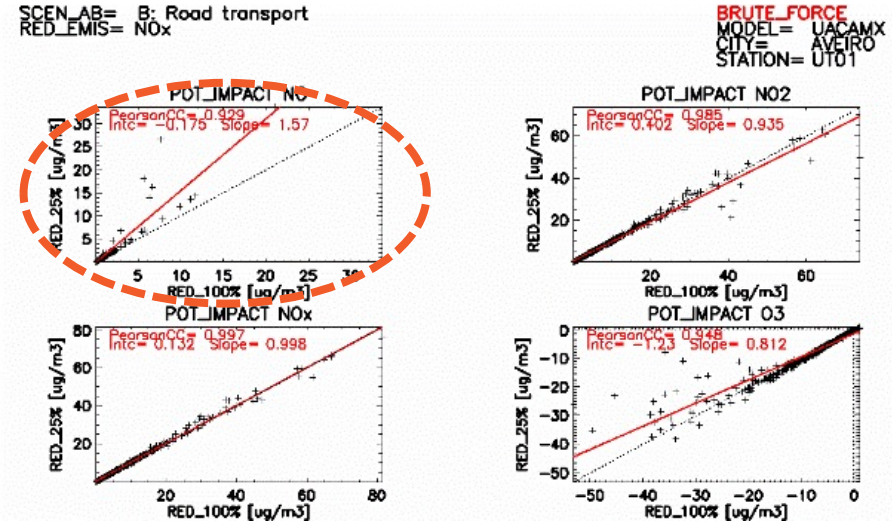
Consistent results for 3 stations

Are your SA results for NO_2 consistent?

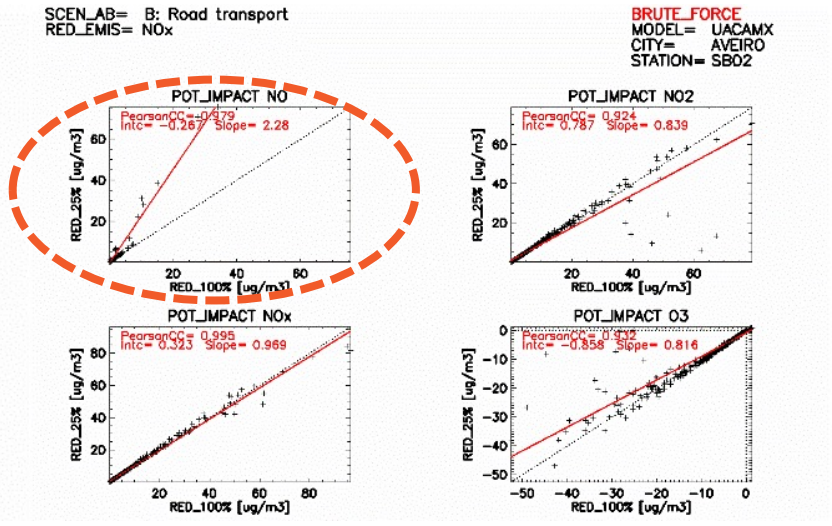
NOx red → PI red25 vs red100

Correlation >0.98 for all stations except for Road Transport

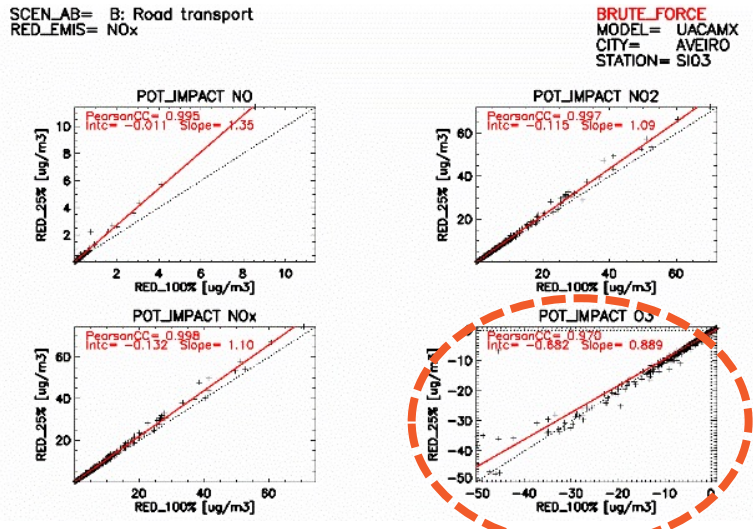
UT01



SB02



SI03



Diferences between Red25 and Red100 just for a few hours, for all stations and both sectors

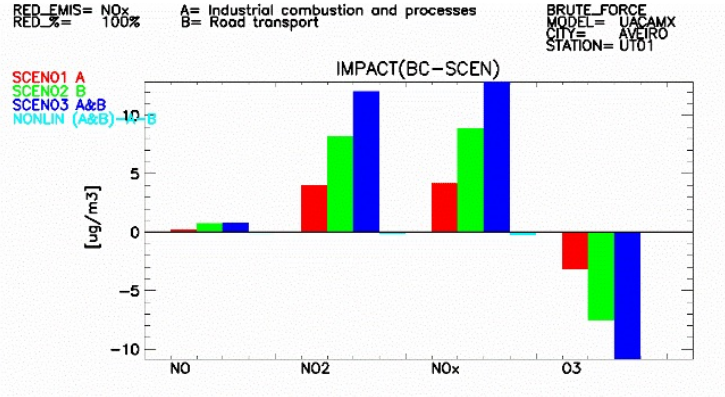
Are your SA results additive?

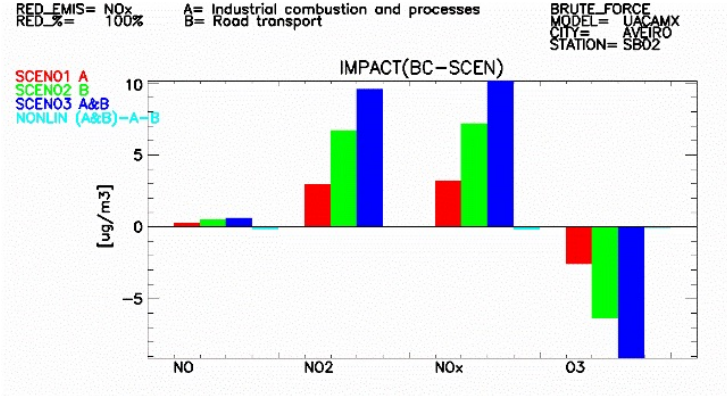
UT01

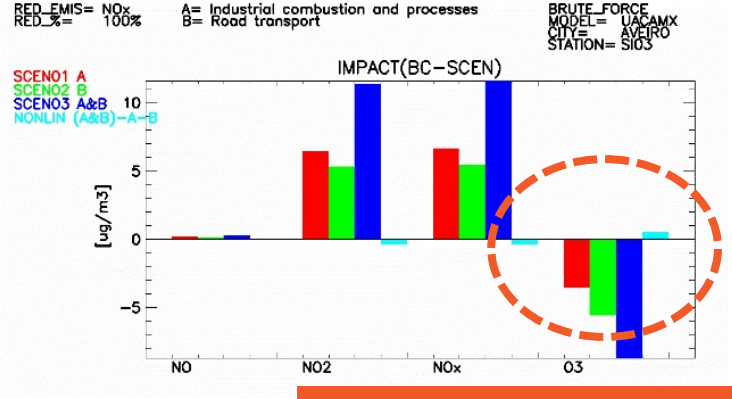
SB02

SI03

NOx red100 → Impact

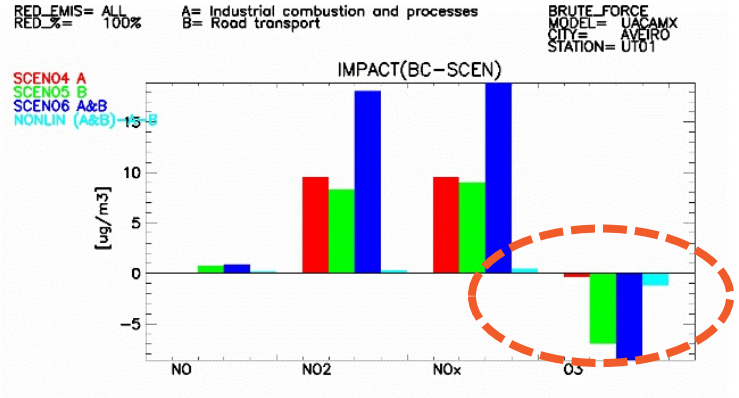


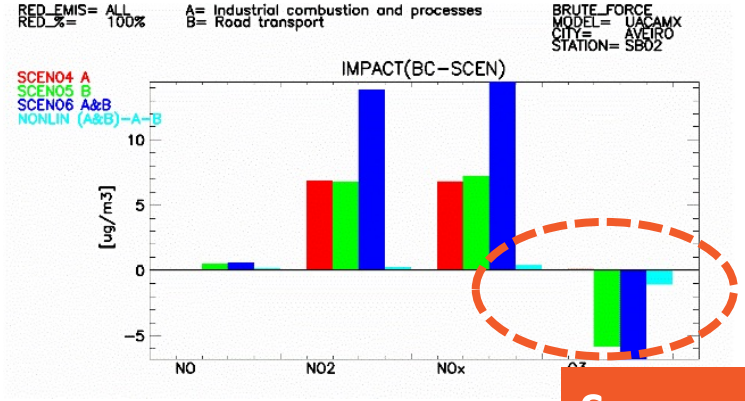


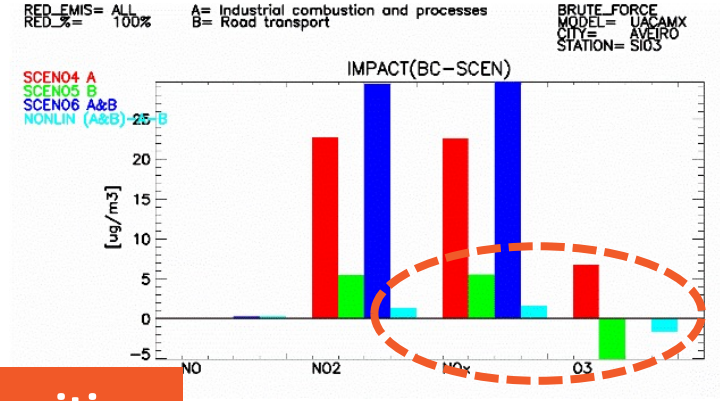


Some non-linearities

ALL red100 → Impact







Some non-linearities

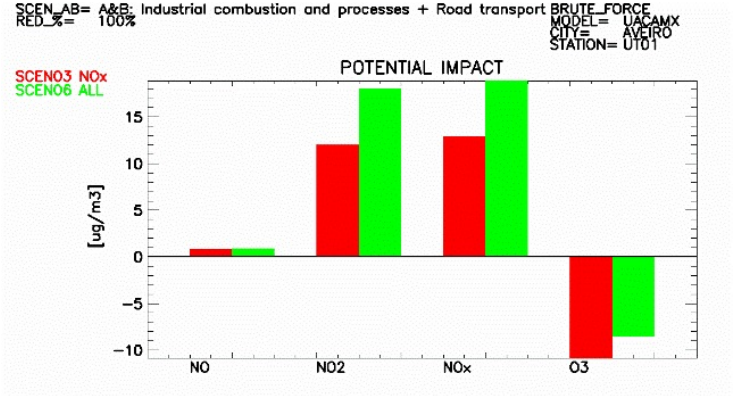
Results are generally addictive

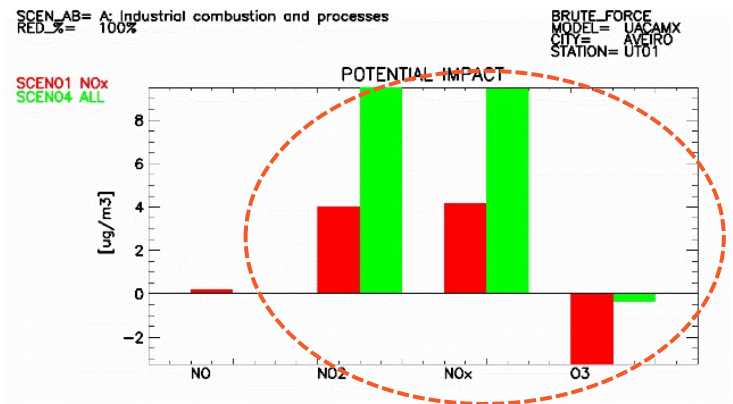
Are your results influenced by the chemical profile of the considered sources?

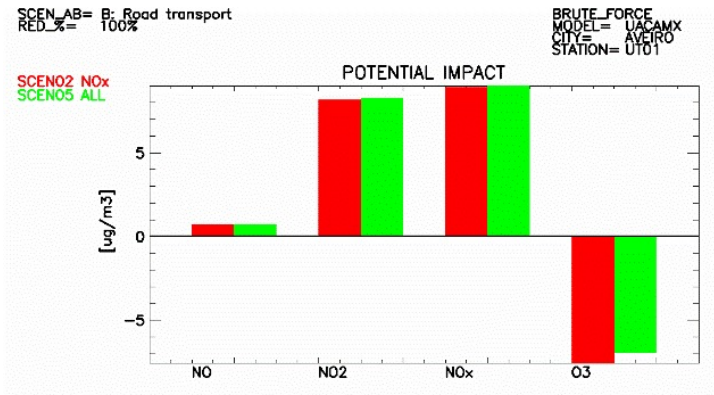
GEMAC

NOx vs ALL red → PI red100

UT01

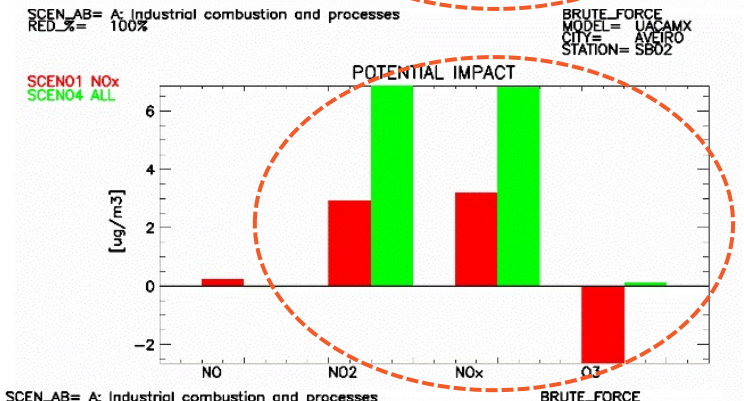


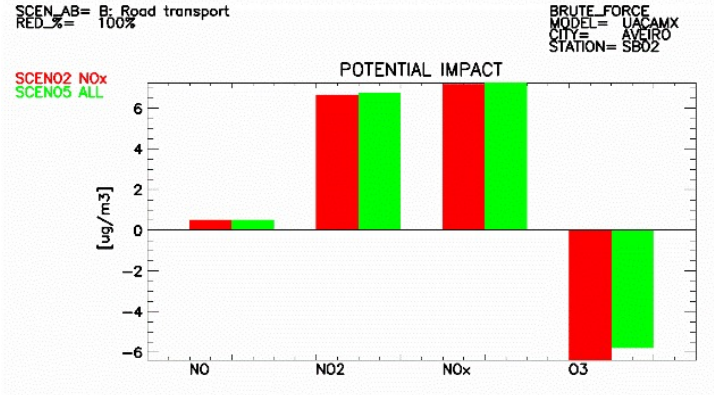




SB02

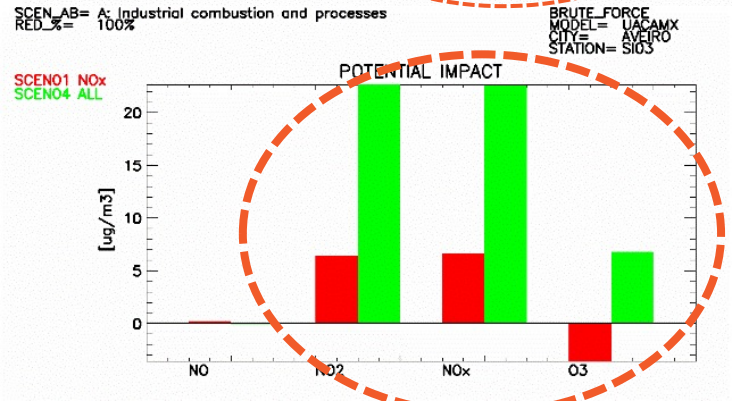
Results for AB influenced by A for 3 stations

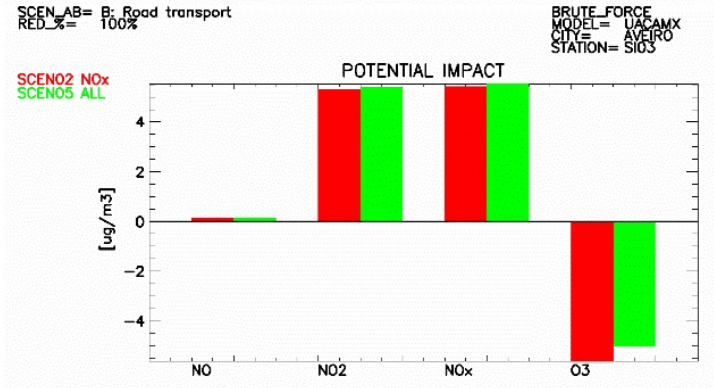




Big diferences NOx vs ALL for Industry, especially for SI03

SI03



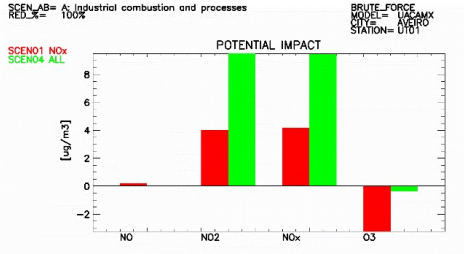


Are your results influenced by the chemical profile of the considered sources?

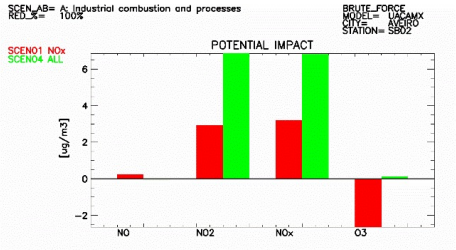
GEMAC

NOx vs ALL red → PI red100

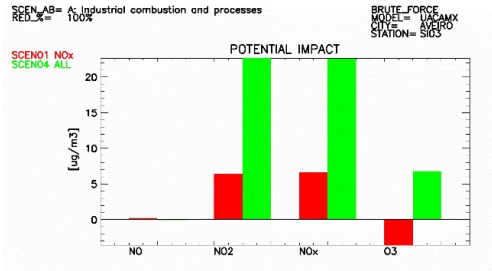
UT01



SB02

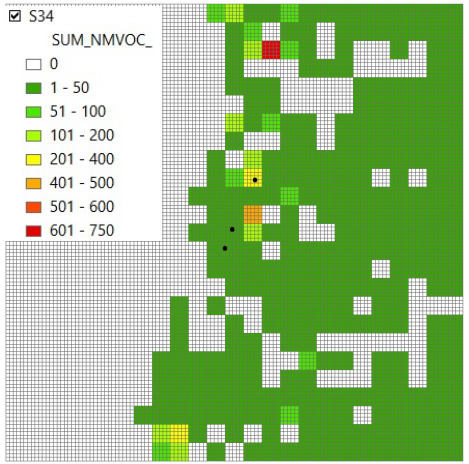


SI03

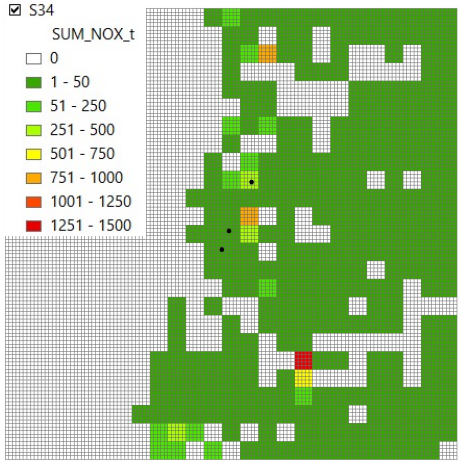


Industrial emissions

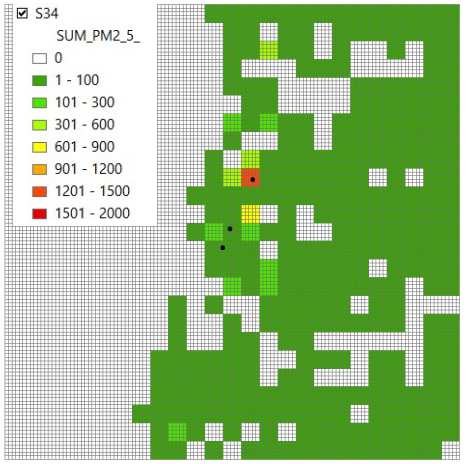
NMVOC



NOx



PM2.5



All stations influenced by industry

Additional Runs:

– 100% reduction of NOx and NMVOC from industry – TEST1

- 100% reduction of NOx and PM – TEST2
- 100% reduction of PM only – TEST3 - ongoing
- 100& red ALL run with Process Analysis to understand which processes are driving the concentrations at SI03 - ongoing

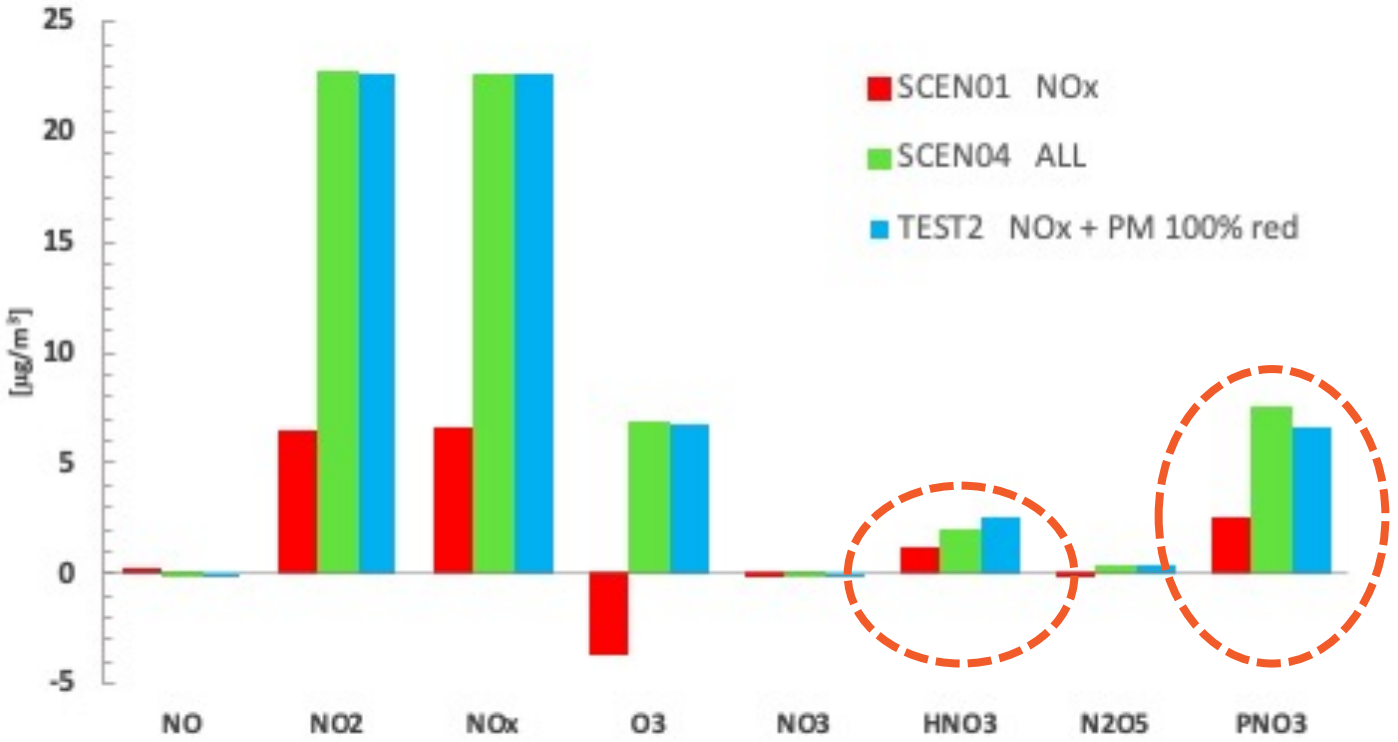
Are your results influenced by the chemical profile of the considered sources?

TEST1 → PI of 100% red NOx and VOC similar to PI of 100% red NOx

TEST2 → PI of 100% red NOx and PM similar to PI of 100% red ALL

PM are responsible for the diferences in PI

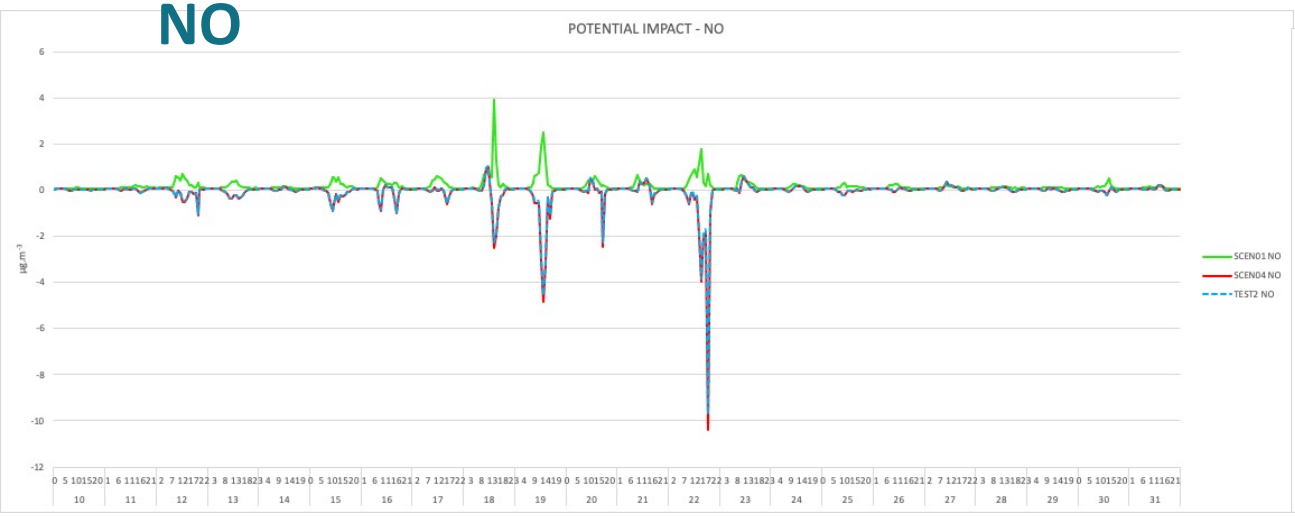
SI03



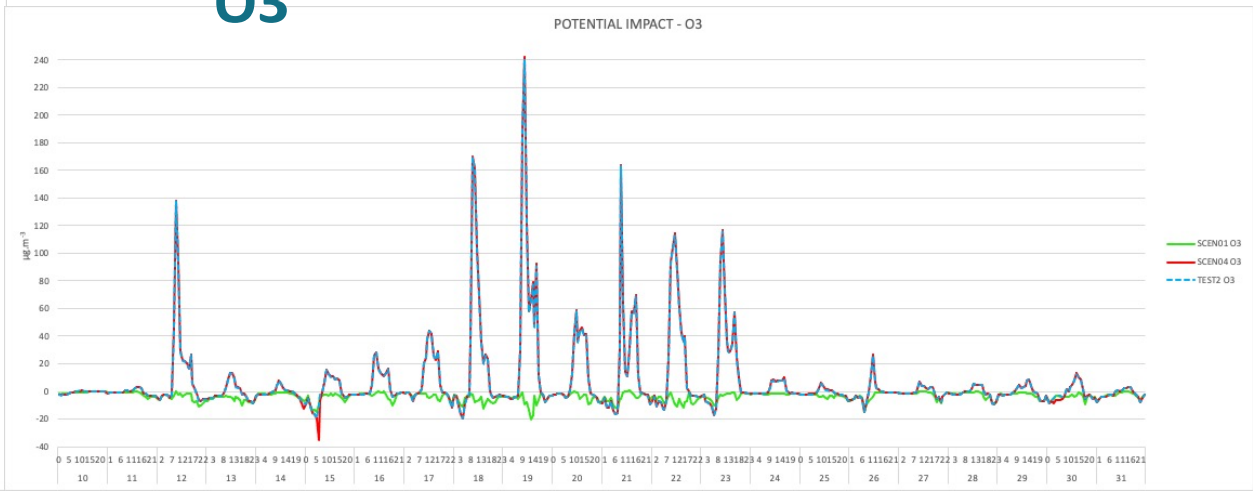
Are your results influenced by the chemical profile of the considered sources?

Hourly variation of PI for SCEN01, SCEN04 and TEST2

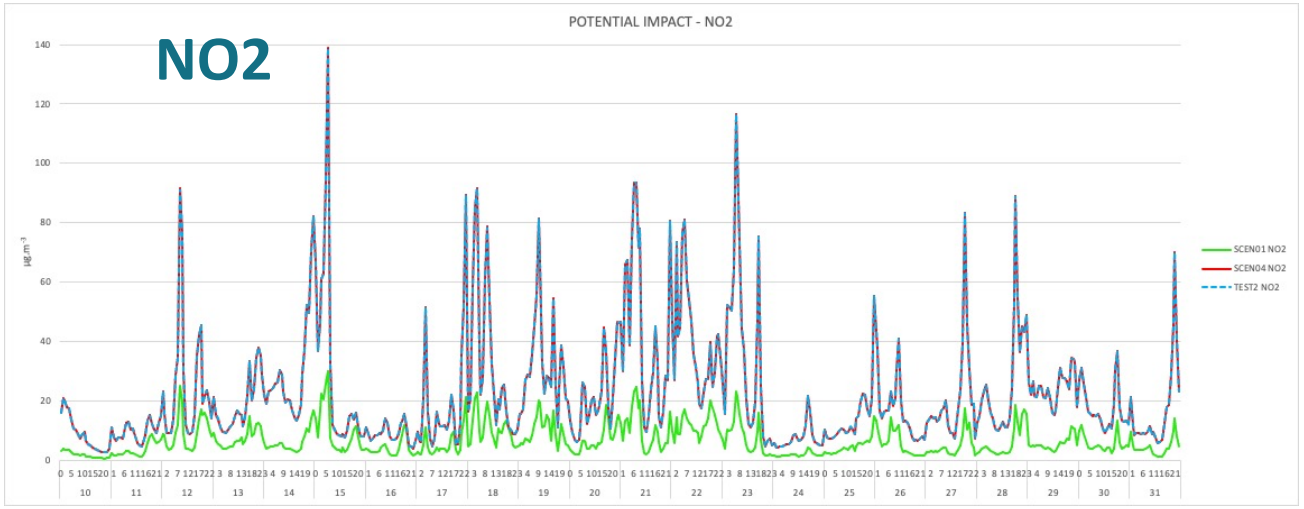
NO



O3



NO2

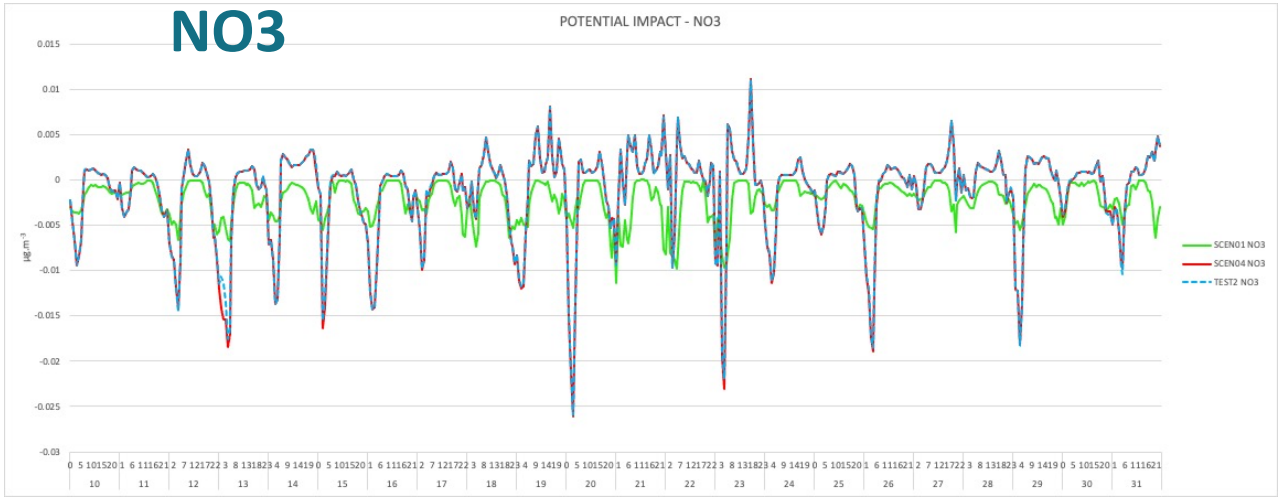


Are your results influenced by the chemical profile of the considered sources?

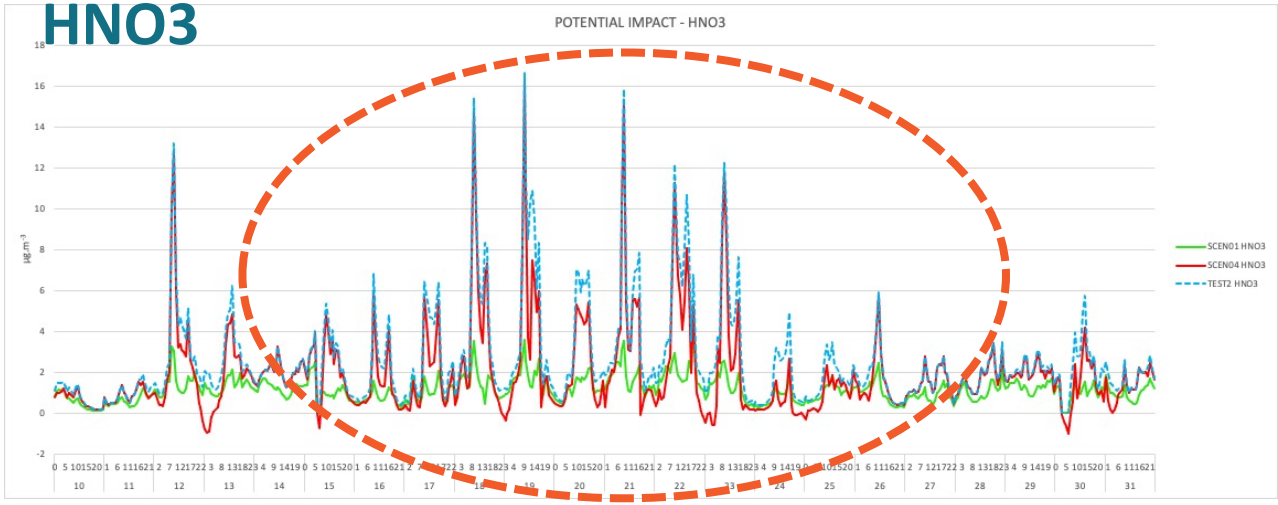
GEMAC

Hourly variation of PI for SCEN02, SCEN04 and TEST2

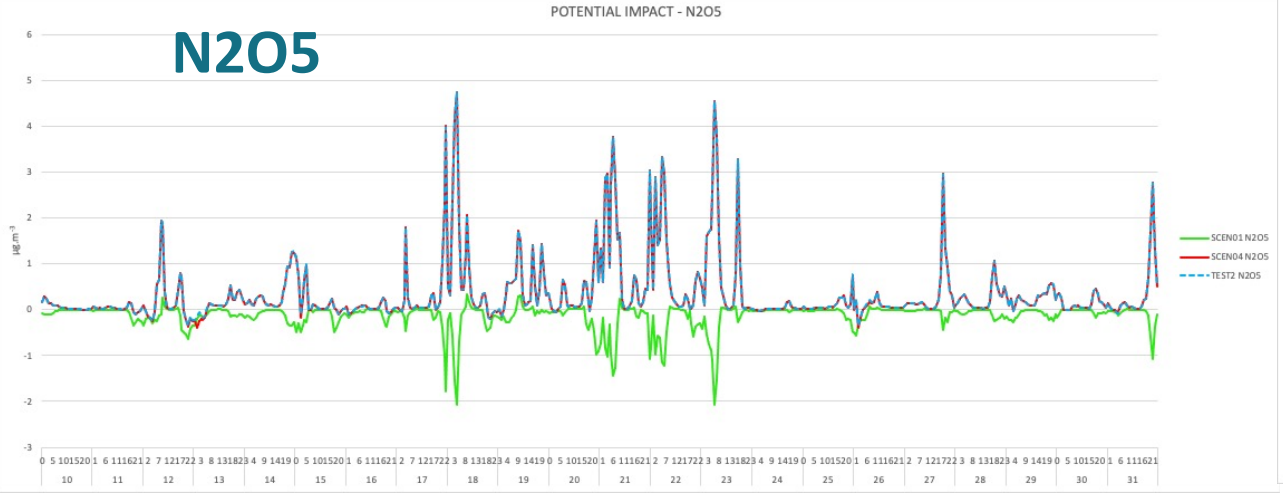
NO3



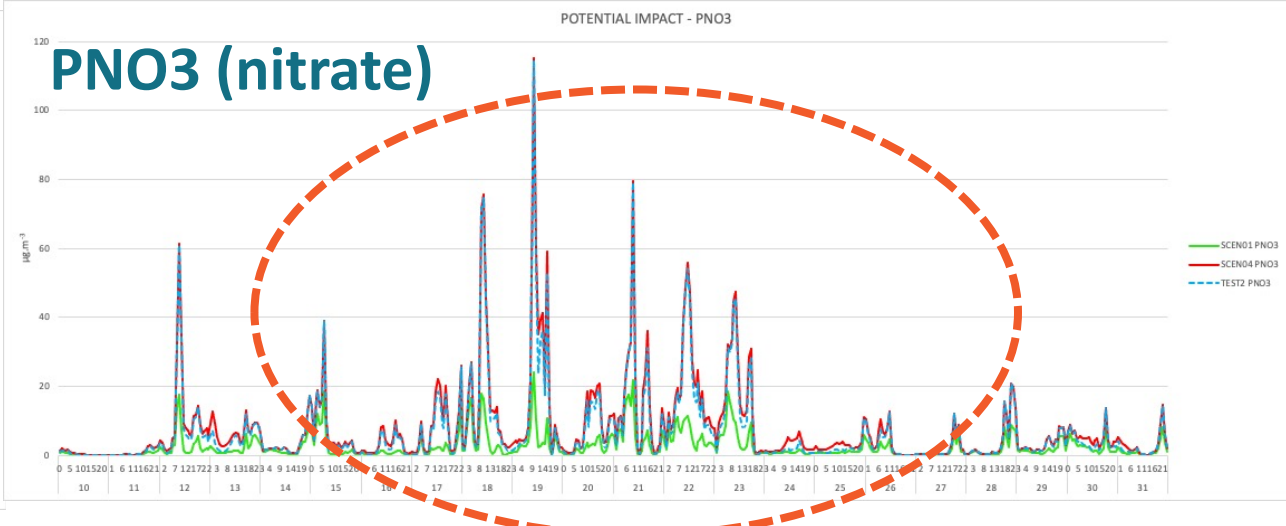
HNO3



N2O5



PNO3 (nitrate)



Next steps

- **Deeply analyse results of additional test runs performed**
- **Analyse the results of CAMx Process Analysis application**
- **Perform a tagging simulation to compare with brute force results**