

WG1 - Source apportionment in support AQ management

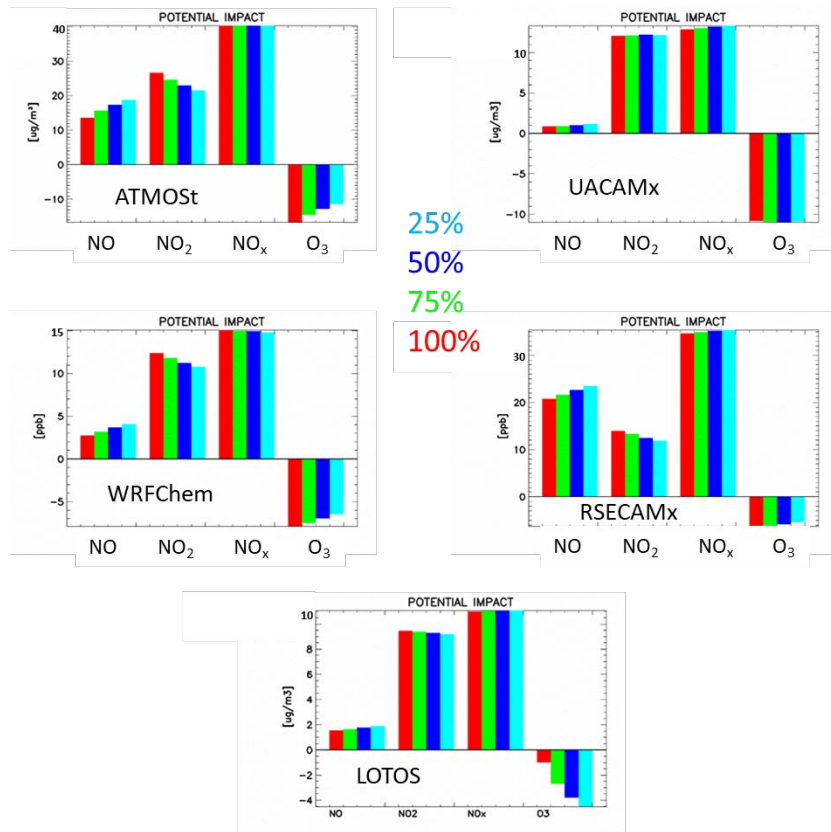
Source apportionment of NO₂

WG1 Session

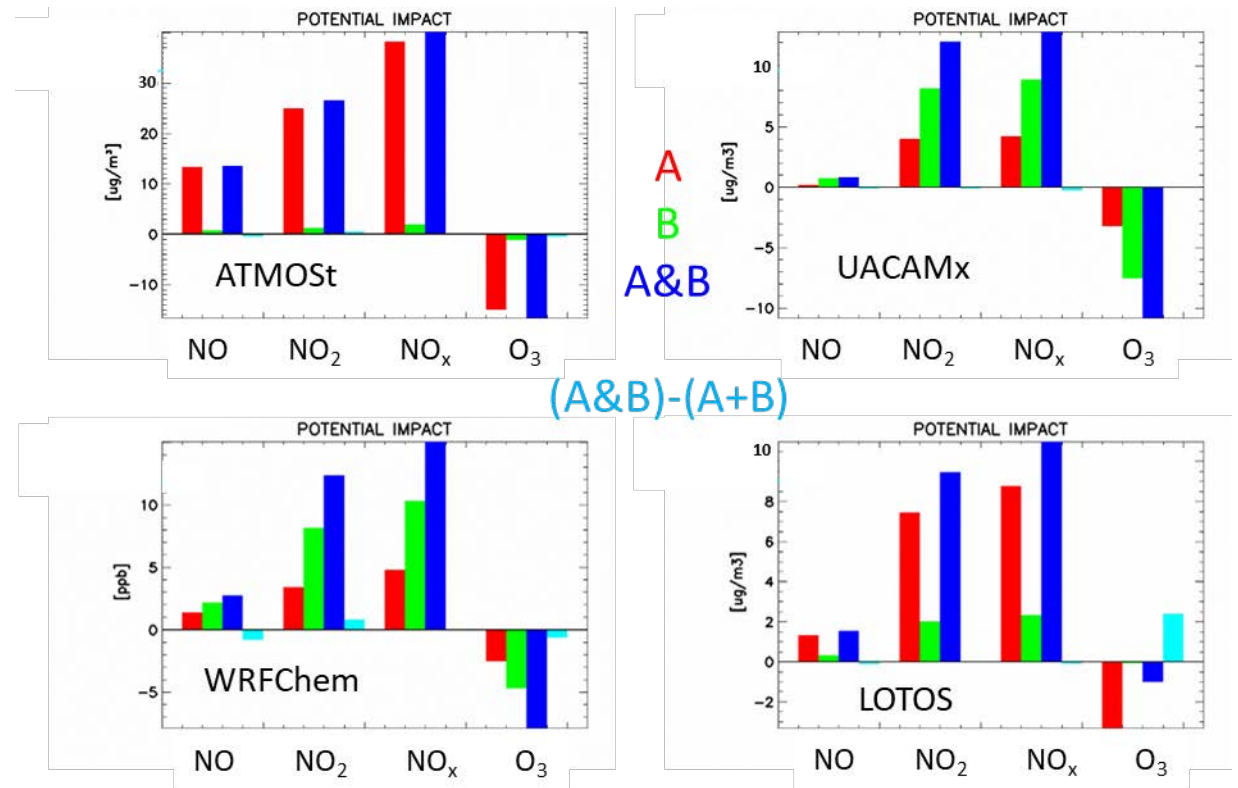
FAIRMODE TECHNICAL MEETING
Athens - 4/6 October 2023

NO2 SOURCE APPORTIONMENT EXERCISE

Testing results and properties of SA methods for NO₂



CONSISTENCY



(A&B)-(A+B)

ADDITIVITY

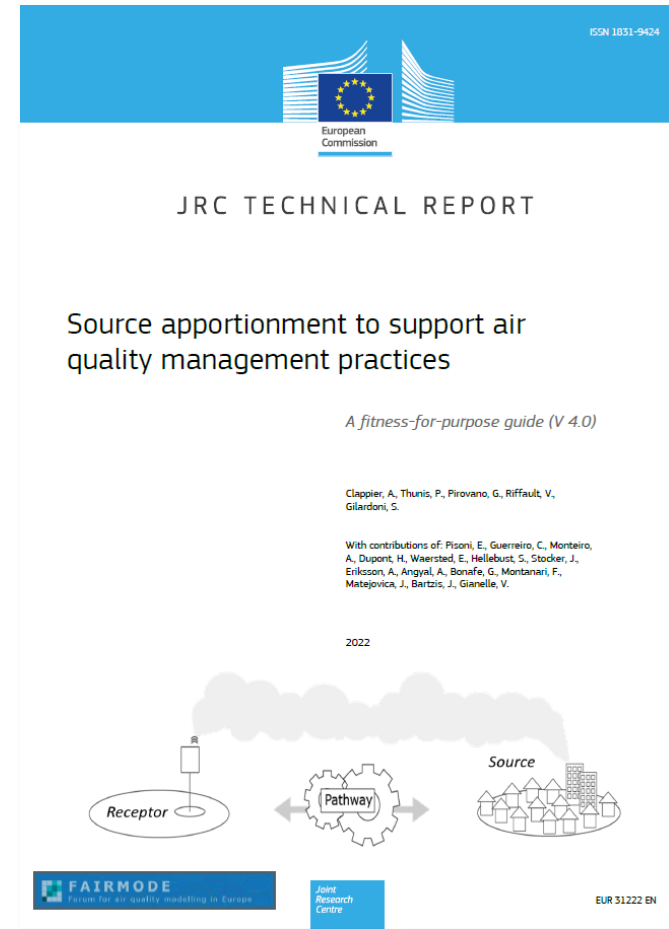
NO2 SOURCE APPORTIONMENT EXERCISE

First output

Source apportionment to support air quality management practices

A fitness-for-purpose guide (V 4.0)

ANNEX 3



NO2 SOURCE APPORTIONMENT EXERCISE

Overview of the available results

Team	Model	Domain	Period	Sectors	Receptors	Scenarios
VITO	ATMOS ^t (IFDM + OSPM + RIO)	Local domain consisting of Hoogstraten and Wuustwezel rural to suburban area	2017 (hourly)	Traffic & Agriculture	Hoogstraten and Wuustwezel. ST1, ST2,RT3,RT4,RT5, SB06, RB07, RB08	scen PI "NOX"
UAVR	CAMX (UA-CAMx)	Aveiro region (1 km resolution)	10/12/-31/12 2017 (hourly)	Industrial combustion & Traffic	Aveiro and surroundings (UT01, SB02, SI03)	SCEN PI and TAG complete
IASS	WRF-Chem	Nested domains over EU and Berlin (3 km)	2015 February (hourly)	Traffic & Res. Heating	Berlin (UB1, UB2, UB3)	scen PI complete / TAG "NOX"
RSE	CAMX (RSE-CAMx)	Po Valley (4km) and Milan region (1 km)	2017 Jan-Mar (hourly)	Traffic and Residential heating	UB1 (IT1692A - MI PASCAL); UT1 (IT0761A - MI LIGURIA); UT2 (IT0480A - S.S.GIOVANNI); UB (IT1650A - SARONNO); UB3 (IT1965A - LODI)	scen PI/TAG "ALL"
TNO	LOTOS	Nested domains over EU and Berlin (0.125°x0.0625° resolution)	2018 (hourly)	Road transport & Energy-Industries	Berlin (UB01, UB02, UB03); Brandenburg (RB04, RB05, RB06, RB07)	scen PI/TAG "NOX"
CONCAWE	SHERPA(Chimere)+QUARK (IFDM kernel)	Europe (SHERPA 0.1*0.1 degree + QUARK 100*100m)	Yearly average	Depending on the receptors	All receptors of the other modelling teams	scen PI "NOX"

NO2 SOURCE APPORTIONMENT EXERCISE

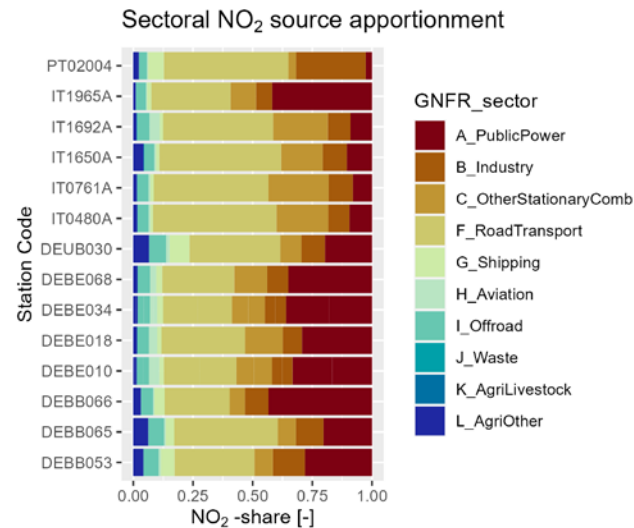
Performed analysis

Model	Domain	Period	Sectors	Receptors	Cons.	Addit.	NOX vs ALL	City	Receptor	TAG vs BF	Model intercomp
ATMOST (IFDM + OSPM + RIO)	Local domain consisting of Hoogstraten and Wuustwezel rural to suburban area	2017 (hourly)	Traffic & Agriculture	Hoogstraten and Wuustwezel ST1, ST2,RT3,RT4,RT5, SB06, RB07, RB08							
CAMX (UA-CAMx)	Aveiro region (1 km resolution)	10/12/-31/12 2017 (hourly)	Industrial combustion & Traffic	Aveiro and surroundings (UT01, SB02, SI03)							
WRF-Chem	Nested domains over EU and Berlin (3 km)	2015 February (hourly)	Traffic & Res. Heating	Berlin UB1, UB2, UB3							
CAMX (RSE-CAMx)	Po Valley (4km) and Milan region (1 km)	2017 jan-mar (hourly)	Traffic and Residential heating	UB1 (MI PASCAL); UT1 (MI LIGURIA); UT2 (S.S.GIOVANNI); UB (SARONNO); UB3 (LODI)							
LOTOS	Nested domains over EU and Berlin (0.125°x0.0625° resolution)	2018 (hourly)	Road transport & Energy-Industries	Berlin (UB01, UB02, UB03); Brandenburg (RB04, RB05, RB06, RB07)							
SHERPA(Chimere)+QUARK (IFDM kernel)	Europe (SHERPA 0.1*0.1 degree + QUARK 100*100m)	Yearly average	Depending on the receptors	All receptors of the other modelling teams							

NO₂ SOURCE APPORTIONMENT EXERCISE

Next steps...

- Update/extension of available results *[October – November 2023]*



- Results at European scale
- Model intercomparison (qualitative)
- Comparison of emission and concentration maps
[Optional – Meeting in November]

- Scientific publication *[Draft by December 2023]*