

DELIVERY (18/05/2026)

SPECIES: NO₂, O₃, PM_{2.5}

Years: 2015 | | 2022, 2023, 2024

**NILU (Active)
VALIDATION**

| | Methods | BIT + RSU | BI + RSU | T + RSU | B + RSU | | B + SU | B + R |
|--------|---------|-----------|----------|---------|---------|---|--------|-------|
| CIEMAT | 2 | X | X | | X | X | | |
| NILU | 1 | X | | X | X | | X | X |
| NKUA | 1 | X | | | | | | |
| CHMI | 3 | | | | X | | | |
| BSC | 4 | | | | X | | | |
| METNO | 1 | | | | X | | | |
| IATWG | 3 | | | | X | | | |
| IVU | 1 | X | | | | | | |

Standardization of Results

- **Renaming of Files**

- **Added info: 'BIT', 'RSU', 'Active1'**




Ex: BaseCase_CIEMAT_NO2_2015_CSA.Each.Mult.EBK.Active1.B.RSU

Scen_NKUA_NO2_2022_CSA.Cell.Add.IDW.BIT.RSU

- **Standard naming of nc variables: [NO₂,O₃,PM_{2.5}], lon, lat**
- **Correction of units (ug/m3)**
- **upside-down; 'lat' is running from South to Nord**

-
- **DATA BASE: WG5_Phase2_Standardized_DataBase**

Number of Stations (based on the Sam-Erik proposal)

| Nb STATIONS | | 2015 | | | SCEN(2022) | | |
|-------------|--|----------|----------|------|-------------------------------|---------------------------------|------------|
| | | Active=0 | Active=1 | All | 2015(All) \wedge Scen(2022) | 2015(Act=1) \wedge Scen(2022) | Validation |
| NO2 | B.R | 73 | 315 | 388 | 285 | 226 | 59 |
| | B.SU | 231 | 888 | 1119 | 746 | 600 | 146 |
| |  B.RSU | 306 | 1199 | 1505 | <u>1031</u> | <u>816</u> | <u>215</u> |
| O3 | B.R | 92 | 388 | 480 | 375 | 308 | 67 |
| | B.SU | 188 | 786 | 974 | 690 | 553 | 137 |
| |  B.RSU | 297 | 1176 | 1473 | 1065 | 836 | 229 |
| PM2.5 | B.R | 27 | 120 | 147 | 99 | 80 | 19 |
| | B.SU | 93 | 405 | 498 | 330 | 271 | 59 |
| |  B.RSU | 132 | 512 | 644 | 429 | 344 | 85 |

Note: Activity of a station depends on the species considered

Country Graphic

NO2 BSC

Freq=YEARLY

BiasC Year=2015

Scen Year=2022

StatType=B

StatArea=RSU

Meth=CA.Each.Mult.LGB.withoutTopo

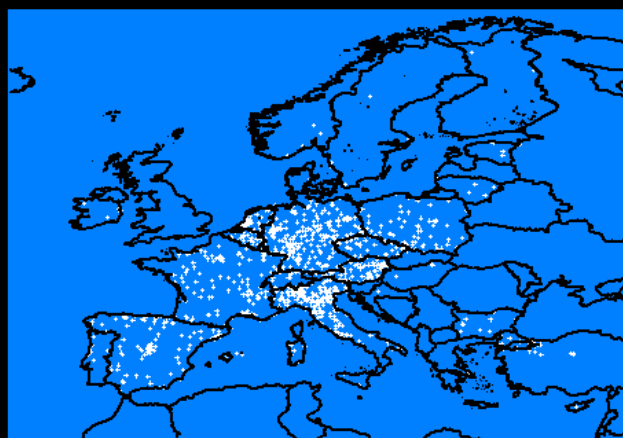
SCEN 2022 (nc->Stats->Cntrs)

SCEN 2022 (nc->Cntrs)

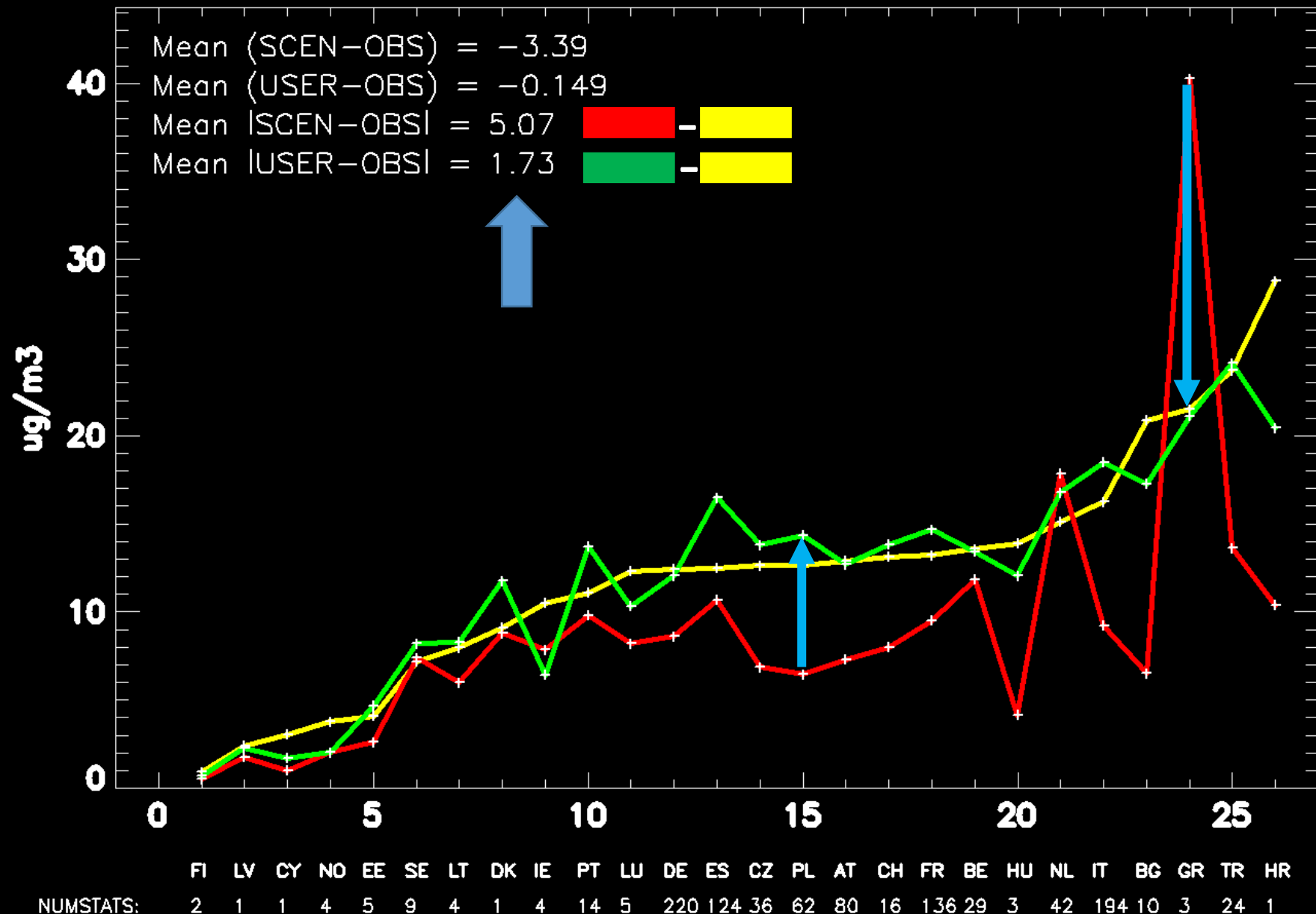
OBS 2022 (Stats->Cntrs)

(BiasC) BSC (nc->Stats->Cntrs)

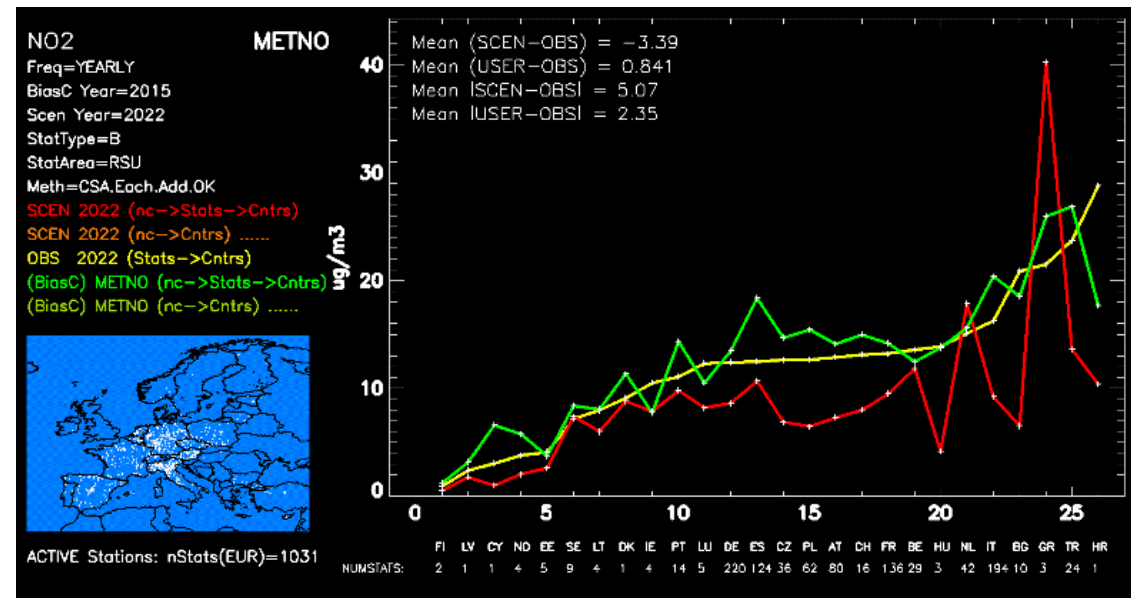
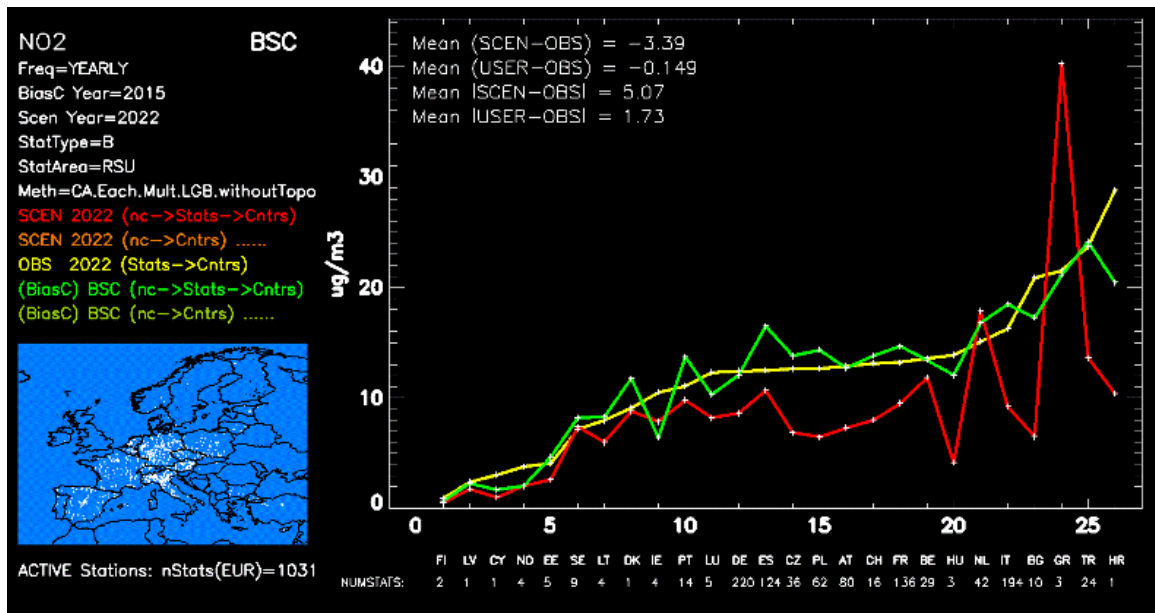
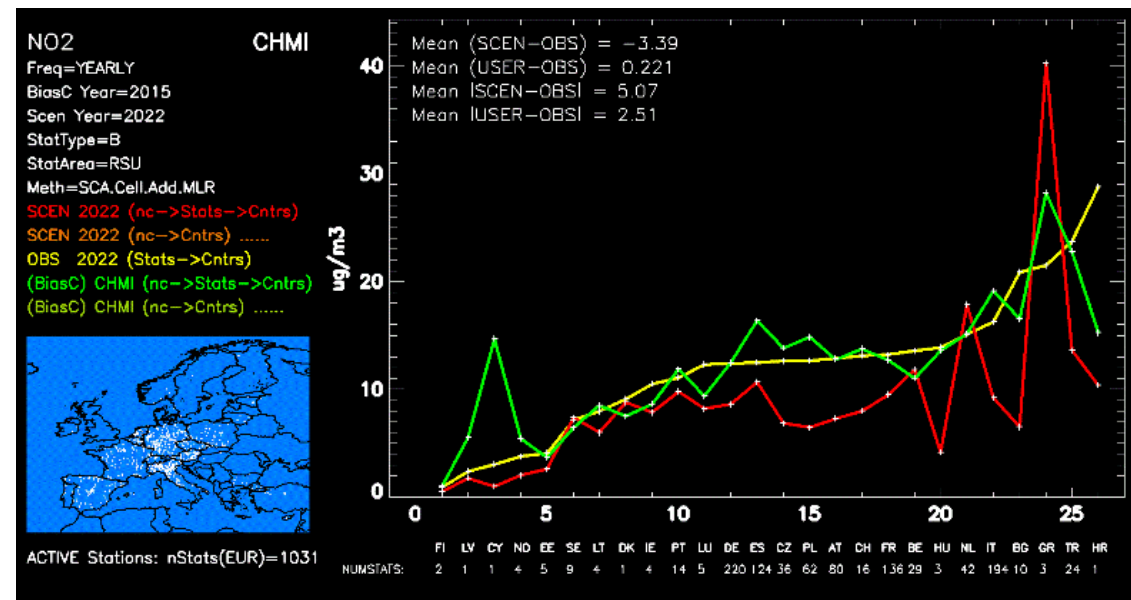
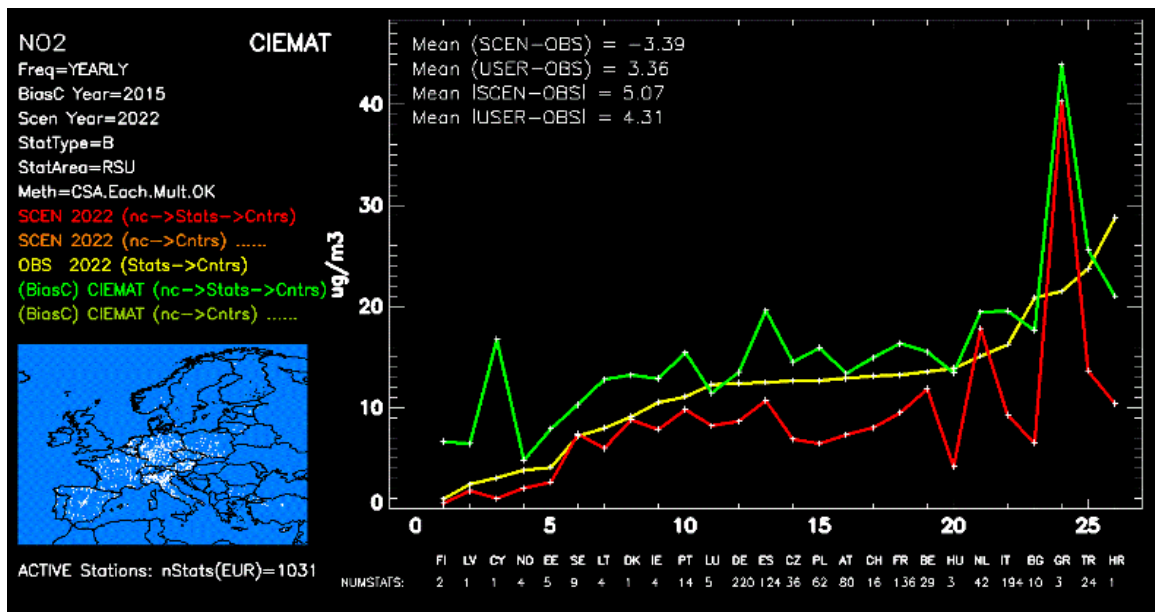
(BiasC) BSC (nc->Cntrs)



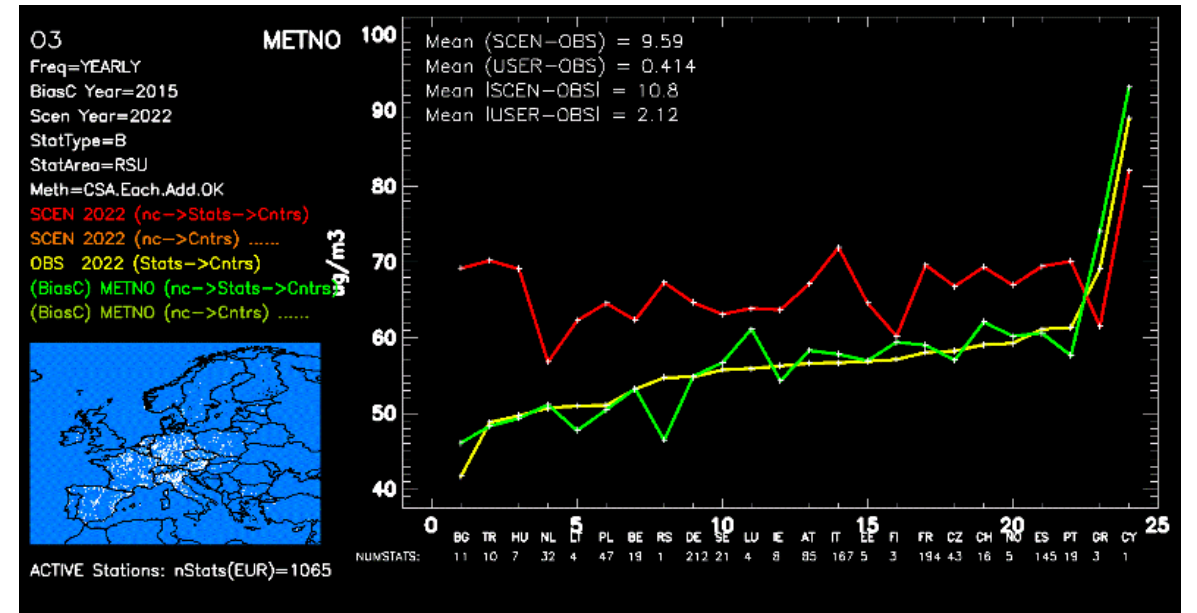
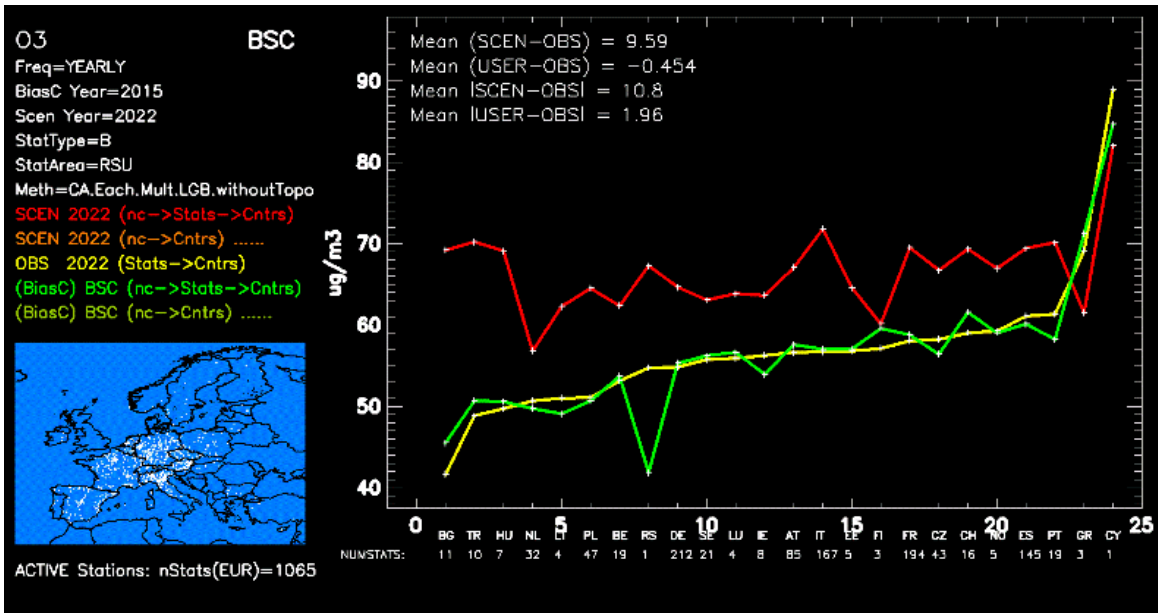
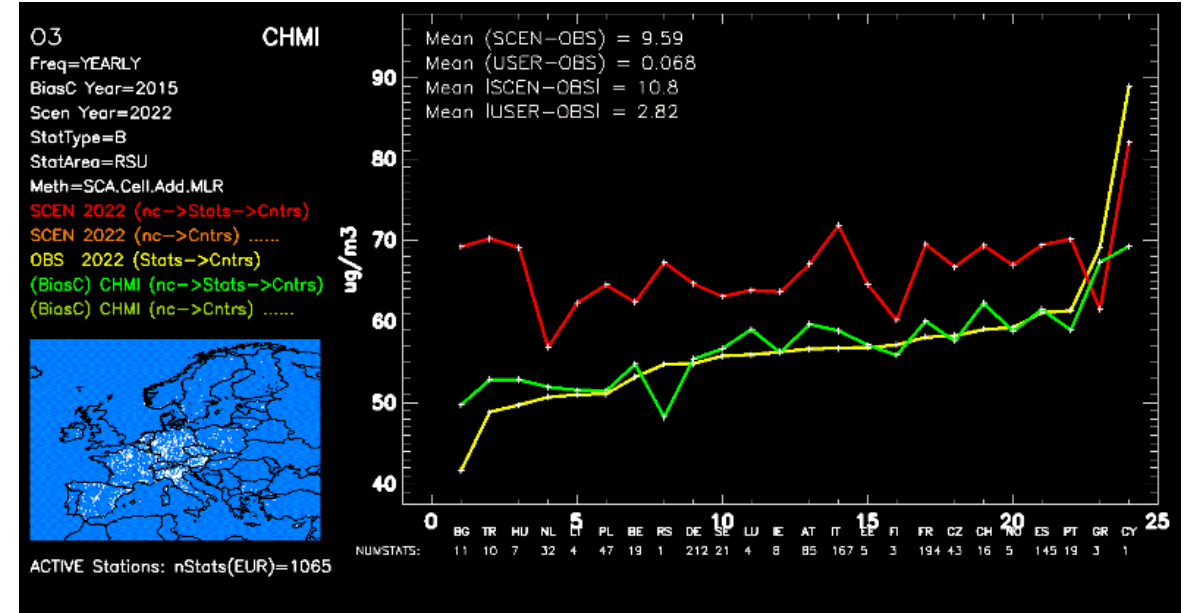
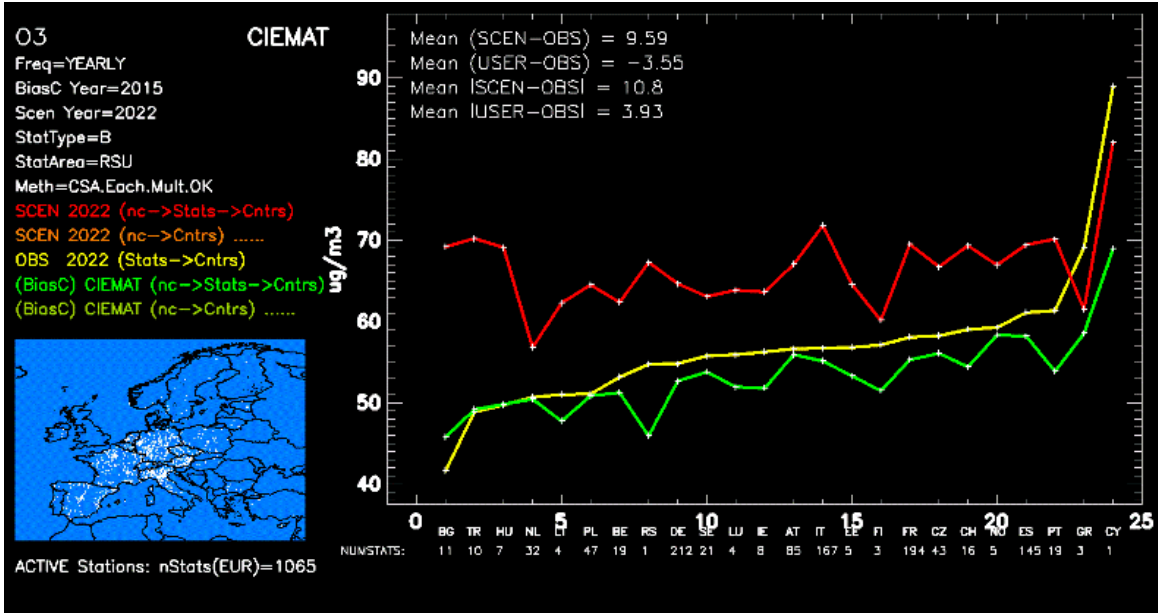
ACTIVE Stations: nStats(EUR)=1031



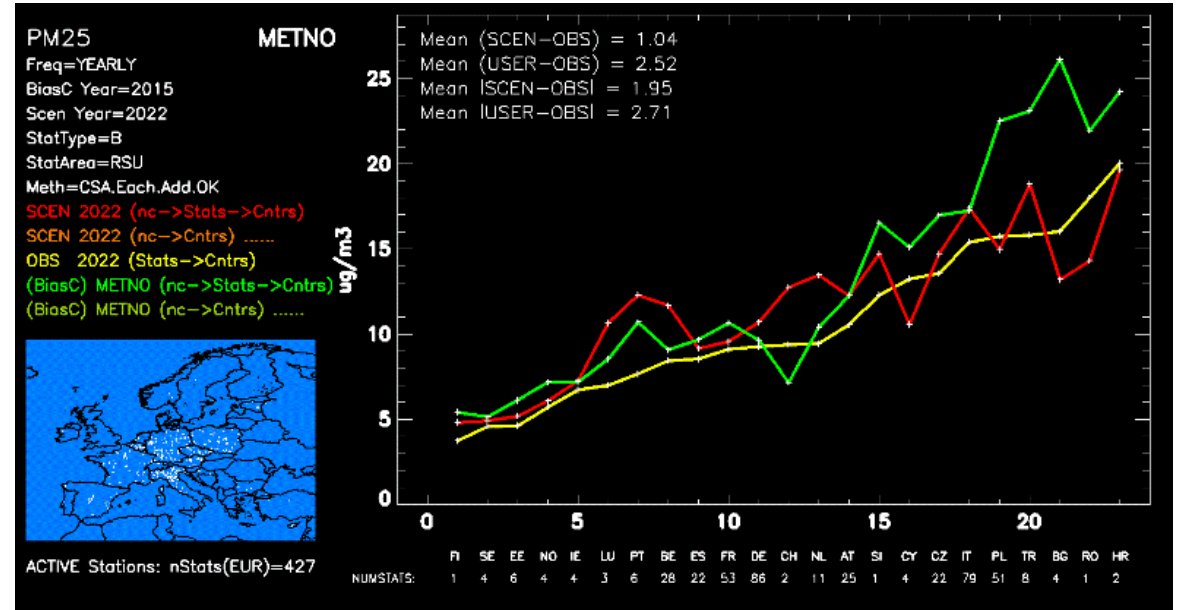
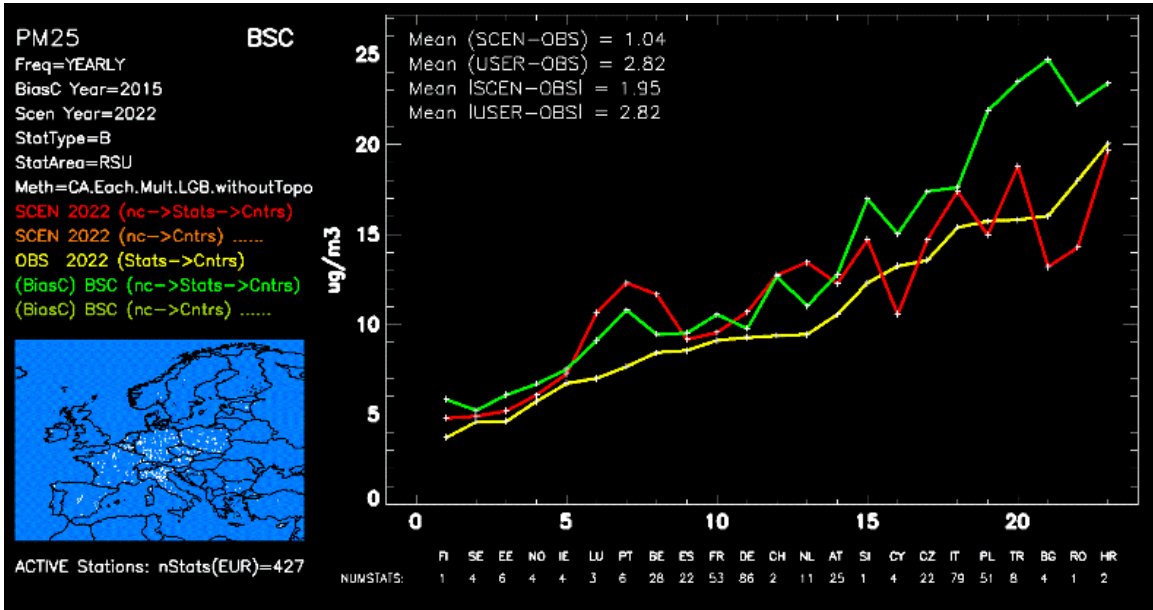
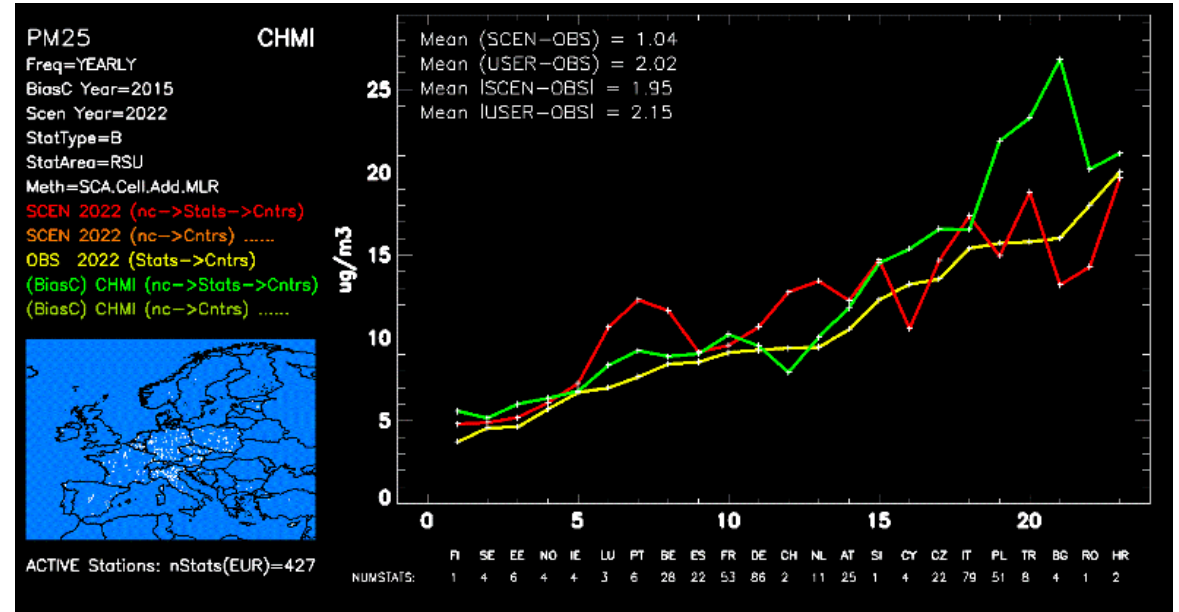
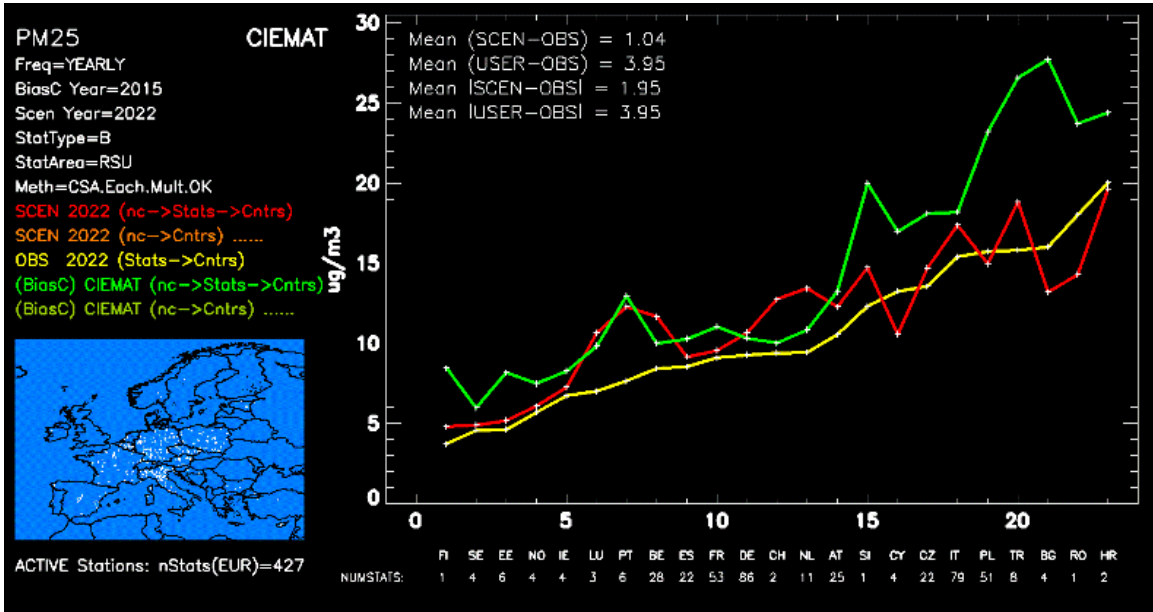
NO2 ALL CIEMAT, CHMI, BSC, METNO



O3 ALL CIEMAT, CHMI, BSC, METNO

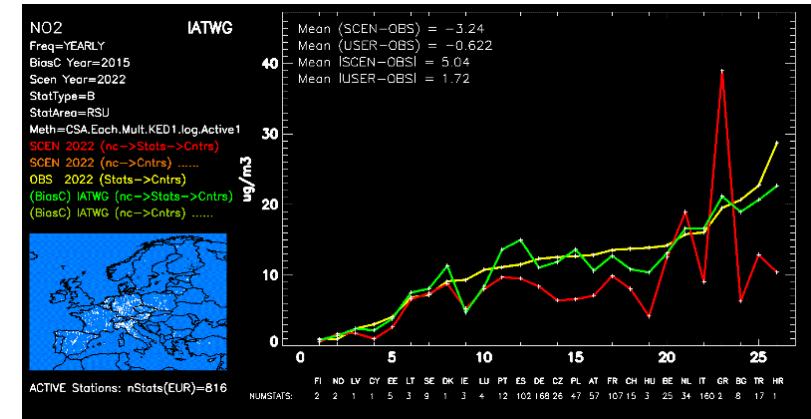
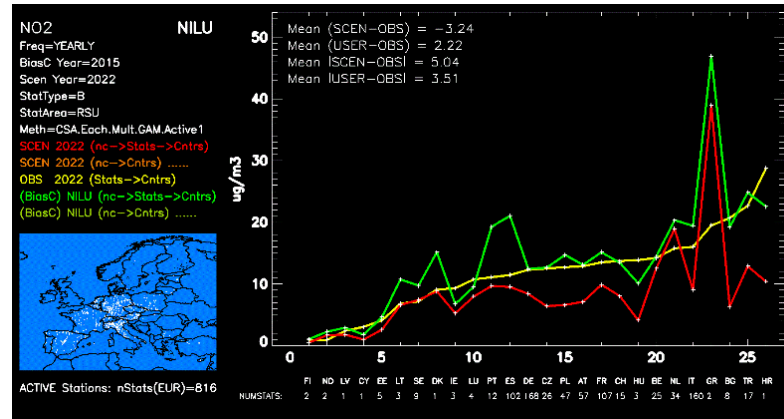
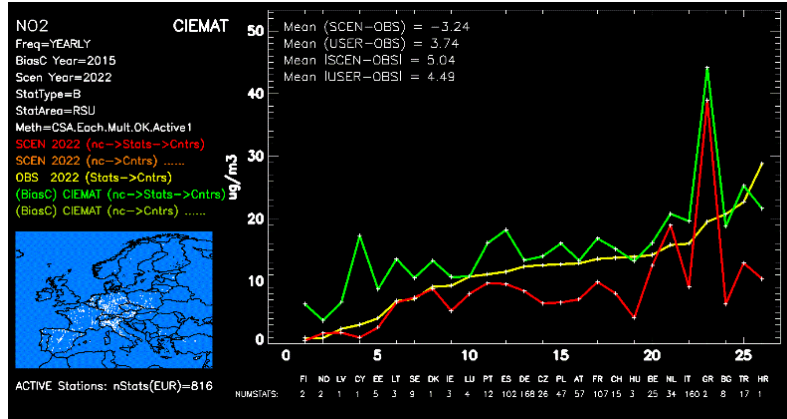


PM2.5 ALL CIEMAT, CHMI, BSC, METNO

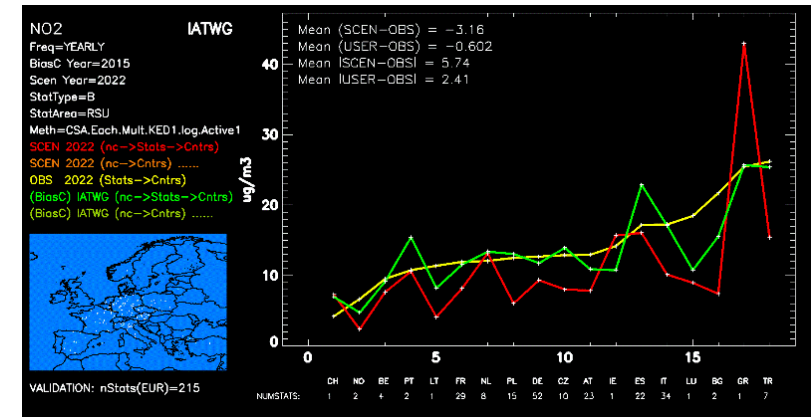
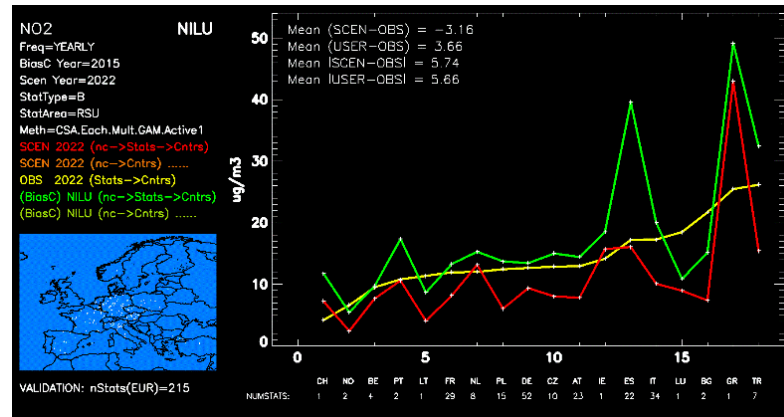
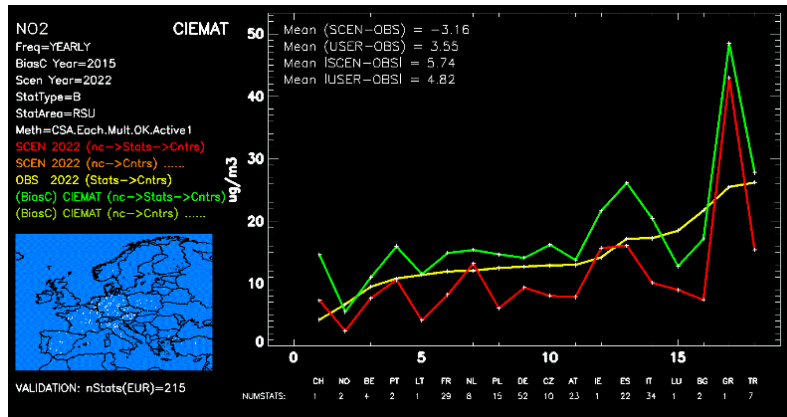


NO2 CIEMAT, NILU, IATWG

NILU1 stations

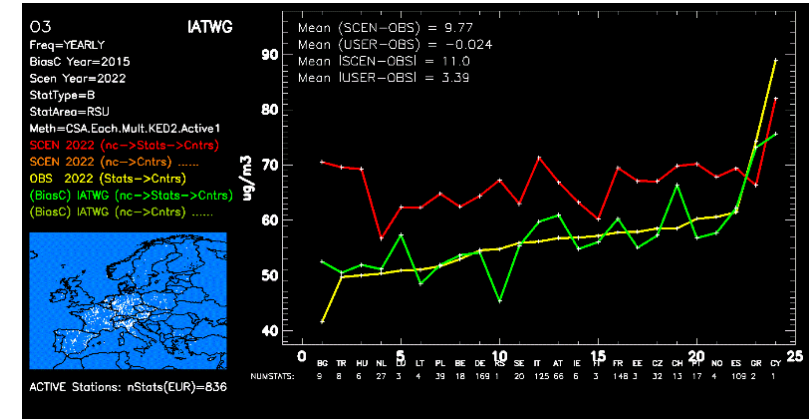
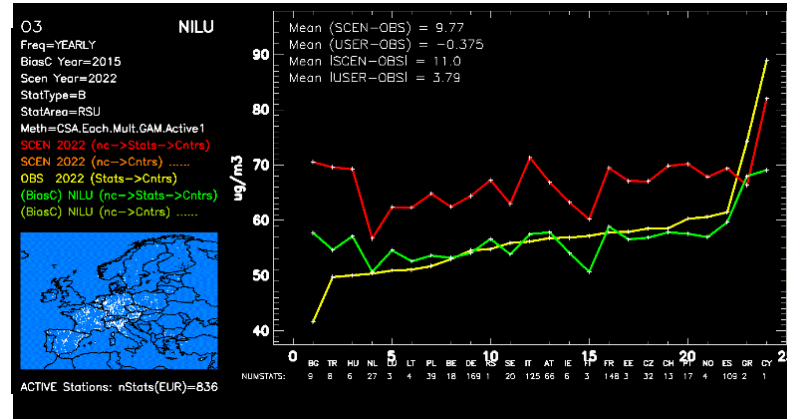
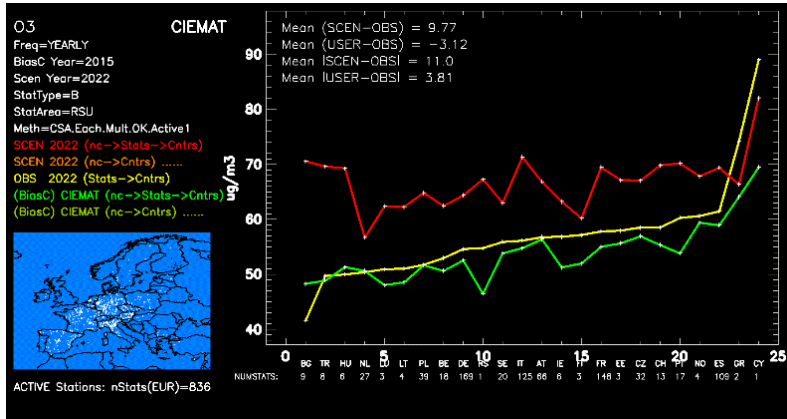


Validation stations

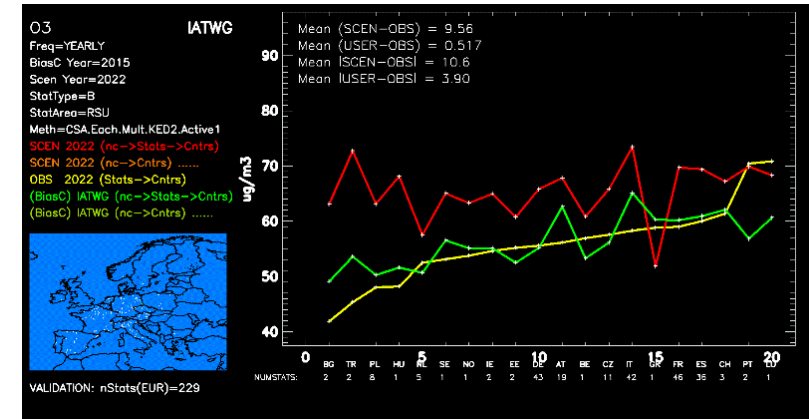
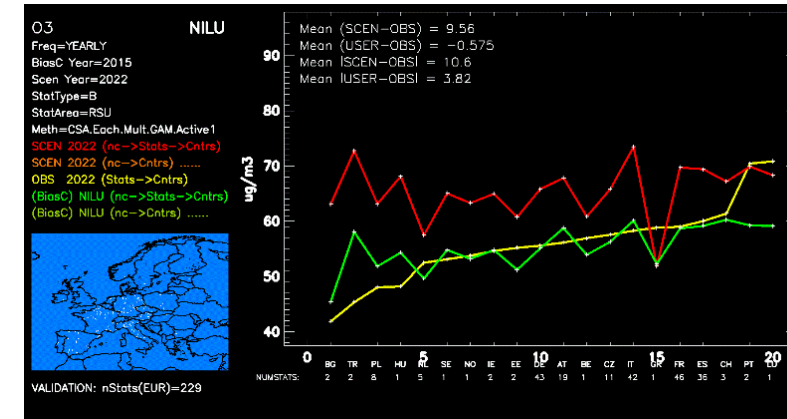
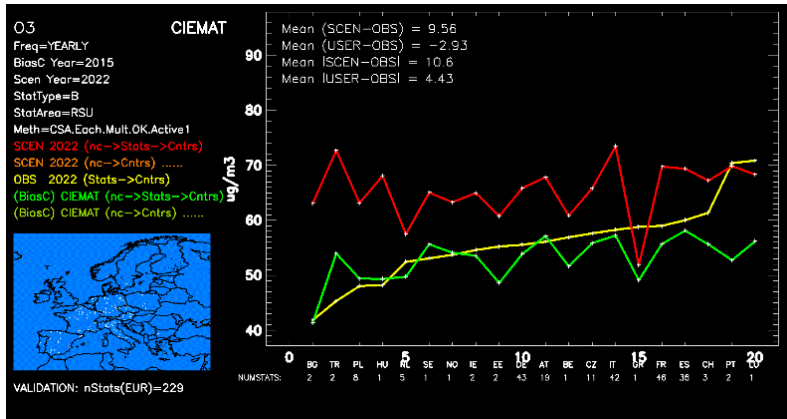


O3 CIEMAT, NILU, IATWG

NILU1 stations

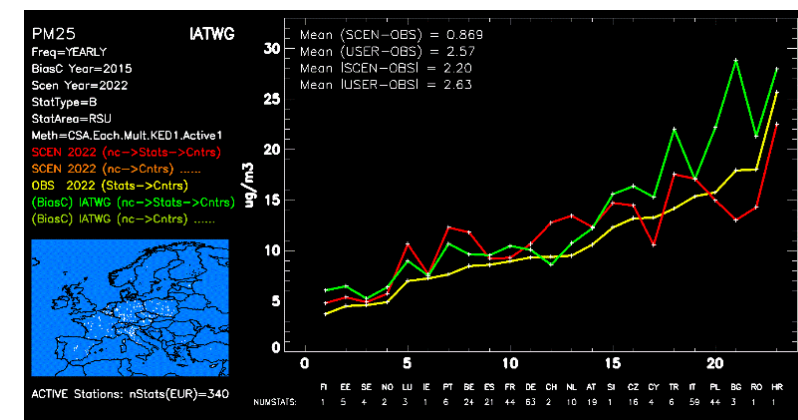
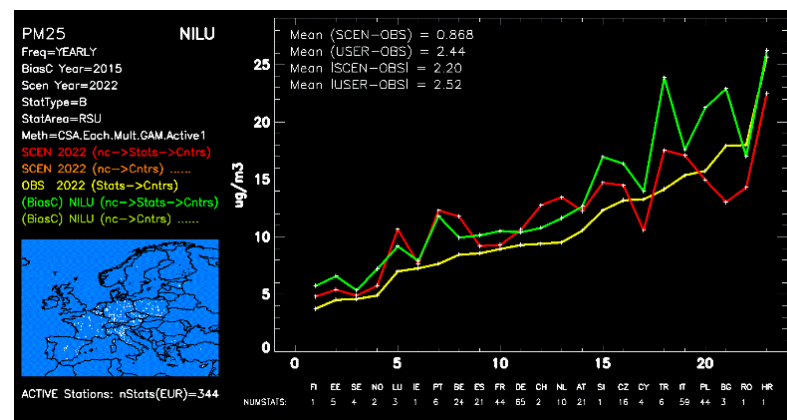
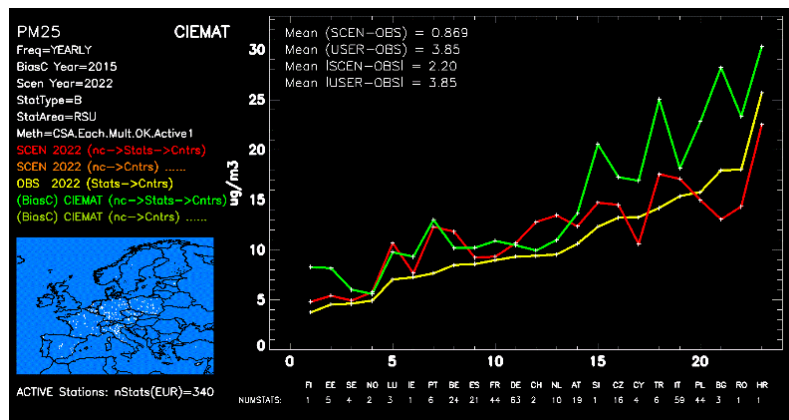


Validation stations

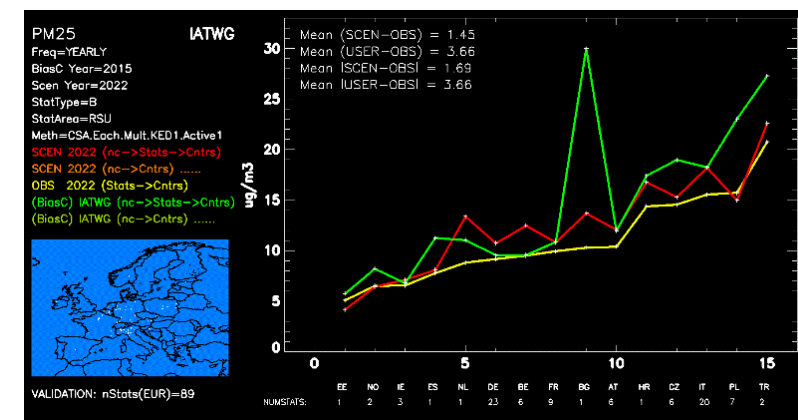
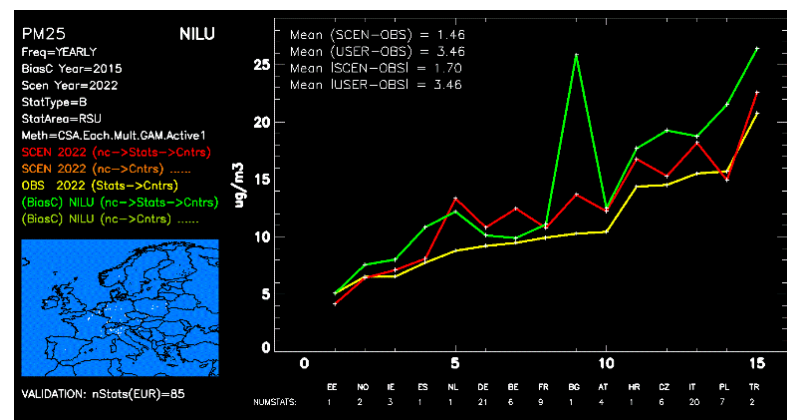
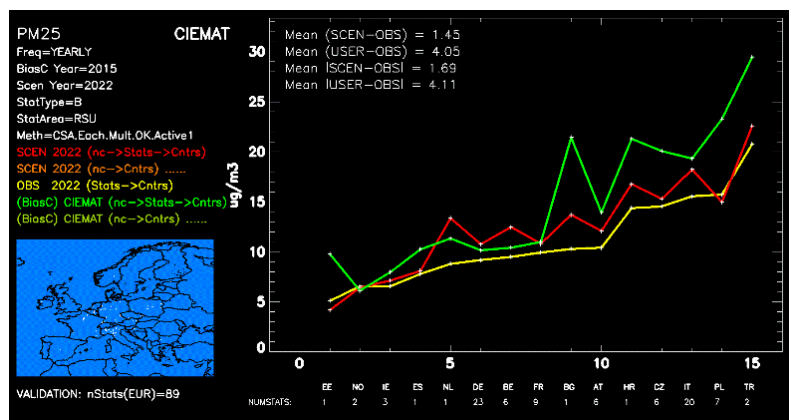


PM2.5 CIEMAT, NILU, IATWG

NILU1 stations



Validation stations



| B RSU | ALL Stations | S - O | U - O | S - O (W) | U - O (W) |
|-------|--------------|-------|-------|-----------|-----------|
| NO2 | CIEMAT | 5.07 | 4.31 | 4.64 | 3.00 |
| | CHMI | 5.07 | 2.51 | 4.64 | 1.52 |
| | BSC | 5.07 | 1.73 | 4.64 | 1.56 |
| | METNO | 5.07 | 2.35 | 4.64 | 2.47 |
| O3 | CIEMAT | 10.8 | 3.93 | 11.02 | 2.21 |
| | CHMI | 10.8 | 2.82 | 11.02 | 1.53 |
| | BSC | 10.8 | 1.96 | 11.02 | 0.86 |
| | METNO | 10.8 | 2.16 | 11.02 | 0.93 |
| PM2.5 | CIEMAT | 1.95 | 3.95 | 1.56 | 3.08 |
| | CHMI | 1.95 | 2.15 | 1.56 | 1.79 |
| | BSC | 1.95 | 2.82 | 1.56 | 2.31 |
| | METNO | 1.95 | 2.71 | 1.56 | 2.21 |

S - O = mean |Scen - Obs| over Cntrs
U - O = mean |User - Obs| over Cntrs

| B RSU | NILU1 | S - O | U - O | S - O (Val) | U - O (Val) |
|-------|--------|-------|-------|-------------|-------------|
| NO2 | CIEMET | 5.04 | 4.49 | 5.74 | 4.82 |
| | NILU | 5.04 | 3.51 | 5.74 | 5.66 |
| | IATWG | 5.04 | 1.72 | 5.74 | 2.41 |
| O3 | CIEMET | 11.2 | 3.81 | 10.57 | 4.43 |
| | NILU | 11.2 | 3.79 | 10.57 | 3.82 |
| | IATWG | 11.2 | 1.72 | 10.57 | 3.89 |
| PM2.5 | CIEMET | 2.2 | 3.83 | 1.69 | 4.11 |
| | NILU | 2.2 | 2.52 | 1.69 | 3.46 |
| | IATWG | 2.2 | 2.63 | 1.69 | 3.66 |

| | | | | |
|----------------|-------|------|-------|------|
| NO2 | | | | |
| B RSU: | | | | |
| CIEMAT | 5.07 | 4.31 | | |
| CHMI | 5.07 | 2.51 | | |
| BSC | 5.07 | 1.73 | | |
| METNO | 5.07 | 2.35 | | |
| B RSU Active1: | | | | |
| CIEMET | 5.04 | 4.49 | 5.74 | 4.82 |
| NILU | 5.04 | 3.51 | 5.74 | 5.66 |
| IATWG | 5.04 | 1.72 | 5.74 | 2.41 |
| O3 | | | | |
| B RSU: | | | | |
| CIEMAT | 10.8 | 3.93 | | |
| CHMI | 10.8 | 2.82 | | |
| BSC | 10.8 | 1.96 | | |
| METNO | 10.8 | 2.16 | | |
| B RSU Active1: | | | | |
| CIEMET | 11.01 | 3.81 | 10.57 | 4.43 |
| NILU | 11.01 | 3.79 | 10.57 | 3.82 |
| IATWG | 11.01 | 1.72 | 10.57 | 3.89 |
| PM25 | | | | |
| B RSU: | | | | |
| CIEMAT | 1.95 | 3.95 | | |
| CHMI | 1.95 | 2.15 | | |
| BSC | 1.95 | 2.82 | | |
| METNO | 1.95 | 2.71 | | |
| B RSU Active1: | | | | |
| CIEMET | 2.2 | 3.83 | 1.69 | 4.11 |
| NILU | 2.2 | 2.52 | 1.69 | 3.46 |
| IATWG | 2.2 | 2.63 | 1.69 | 3.66 |

Not shown:

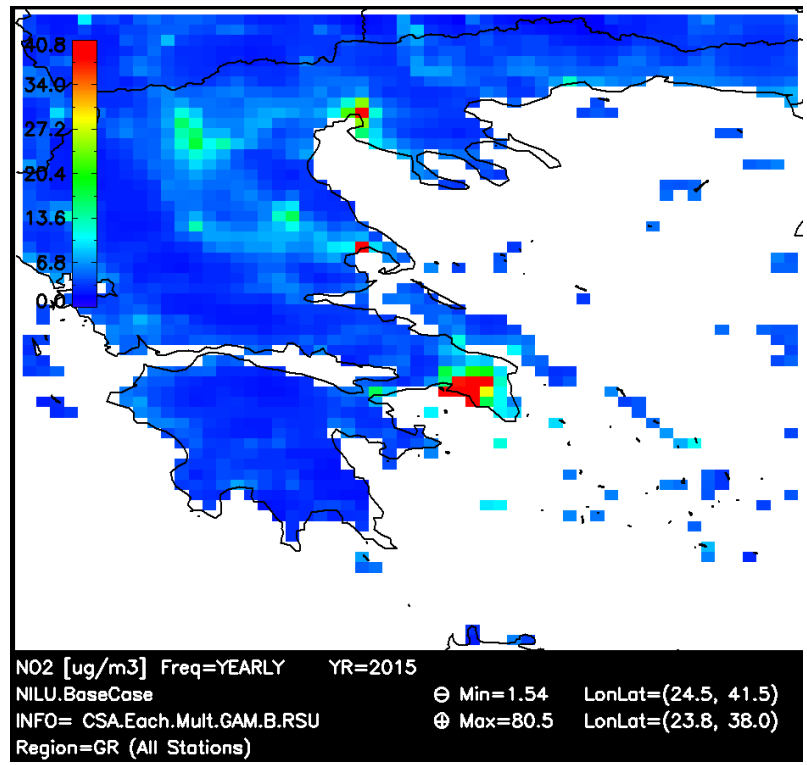
- **Results year 2023, 2024**
- **Different selections BIT+RSU (for example, BI+RSU, B+SU, B+R, ...)**
- **Bilinear Interpolation vs Cell values**
- **csv files provided with values at the station sites (Lina)**
- **Various methods provided**
- **NKUA, IVU (BIT+RSU): similar results, same pb for PM2.5**

Remark:

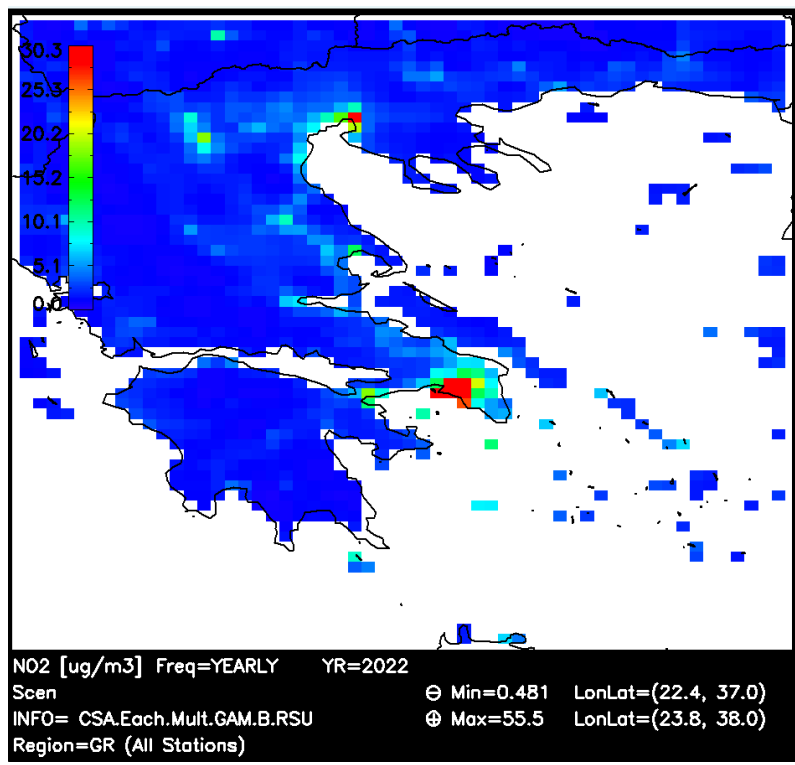
- **After the standardization (which took some time), there were only a few days available for me to review the submitted results.**
- **So please do not see these slides as preliminary results, but rather as a proposal for the full analysis of all the results (where all the applied different Bias Correction methods will be considered).**

High peak in Greece

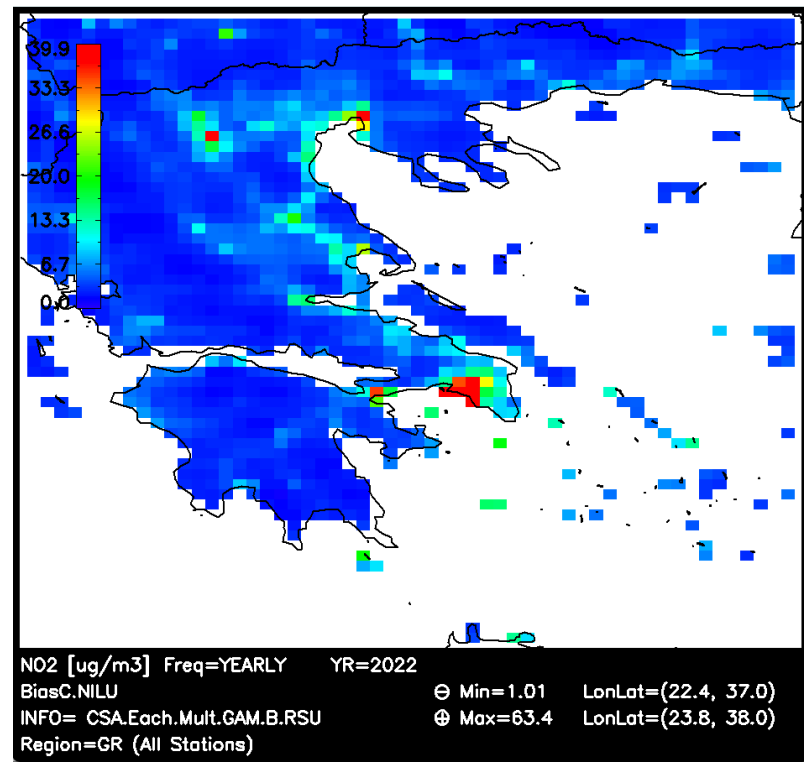
| BIASC | NILU | NO2 | 15 -> 2022 | | | | | | | | |
|-------|------|---------|------------|-------|-------|-------|----------|-----------|-------|-----------|--|
| | | | StatID | OBS | VALs | Fact | Mean OBS | Mean VALS | NILU | Mean NILU | |
| GR | 2015 | 5 stats | GR0027A | 23.93 | | | | | | | |
| | | | GR0028A | 28.36 | 51.92 | 0.546 | 22.48 | 56.89 | | | |
| | | | GR0031A | 27.9 | 64.26 | 0.434 | | | | | |
| | | | GR0039A | 11.18 | 49.50 | 0.226 | | | | | |
| | | | GR0045A | 6.98 | | | | | | | |
| | 2022 | 3 stata | GR0028A | 25.47 | 42.98 | | 21.5 | 42.27 | 49.14 | 47.63 | |
| | | | GR0031A | 27.84 | 56.13 | | | | 59.46 | | |
| | | | GR0039A | 11.19 | 27.7 | | | | 34.29 | | |



BaseCase 2015

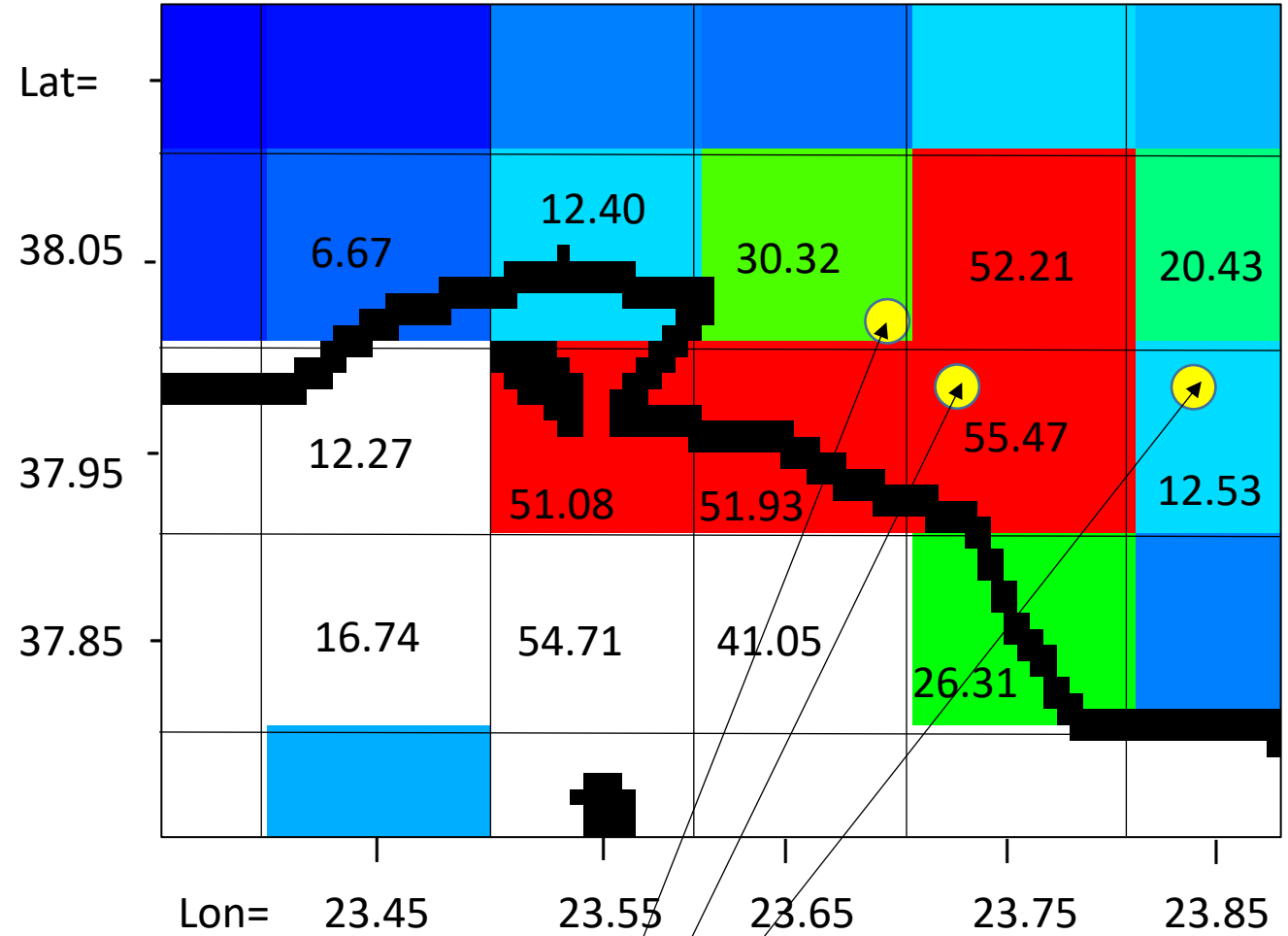
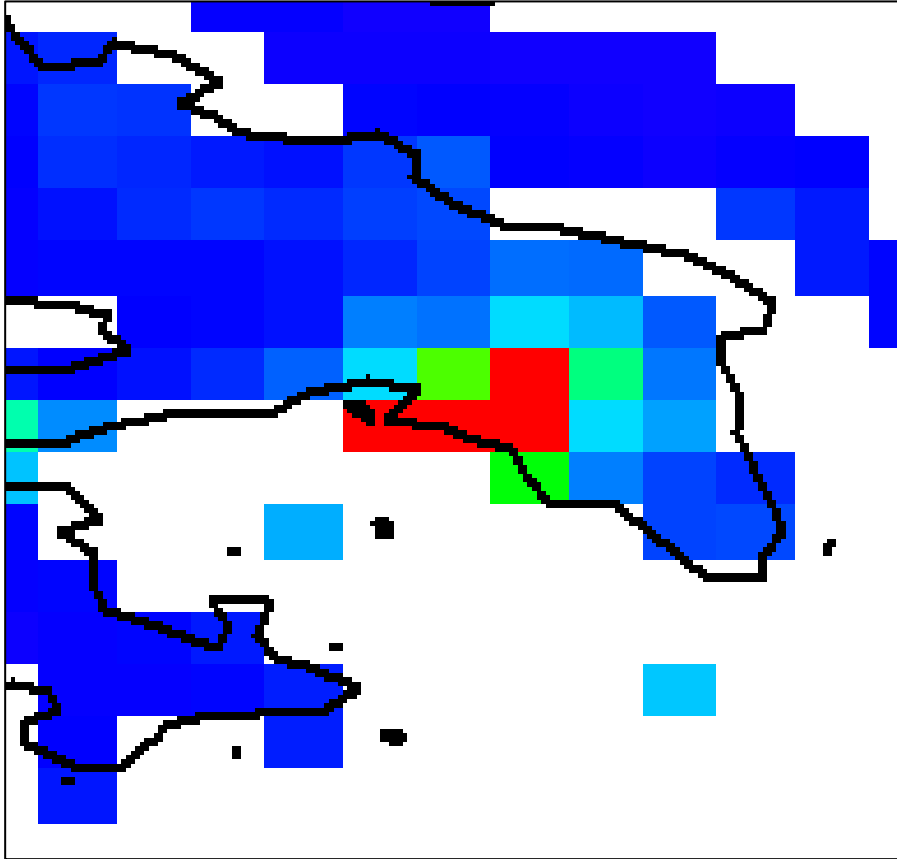


SCEN 2022



BIASC NILU 2022

SCEN 2022



GR0028A (23.69, 38.02)

→ Scen2022= 42.98

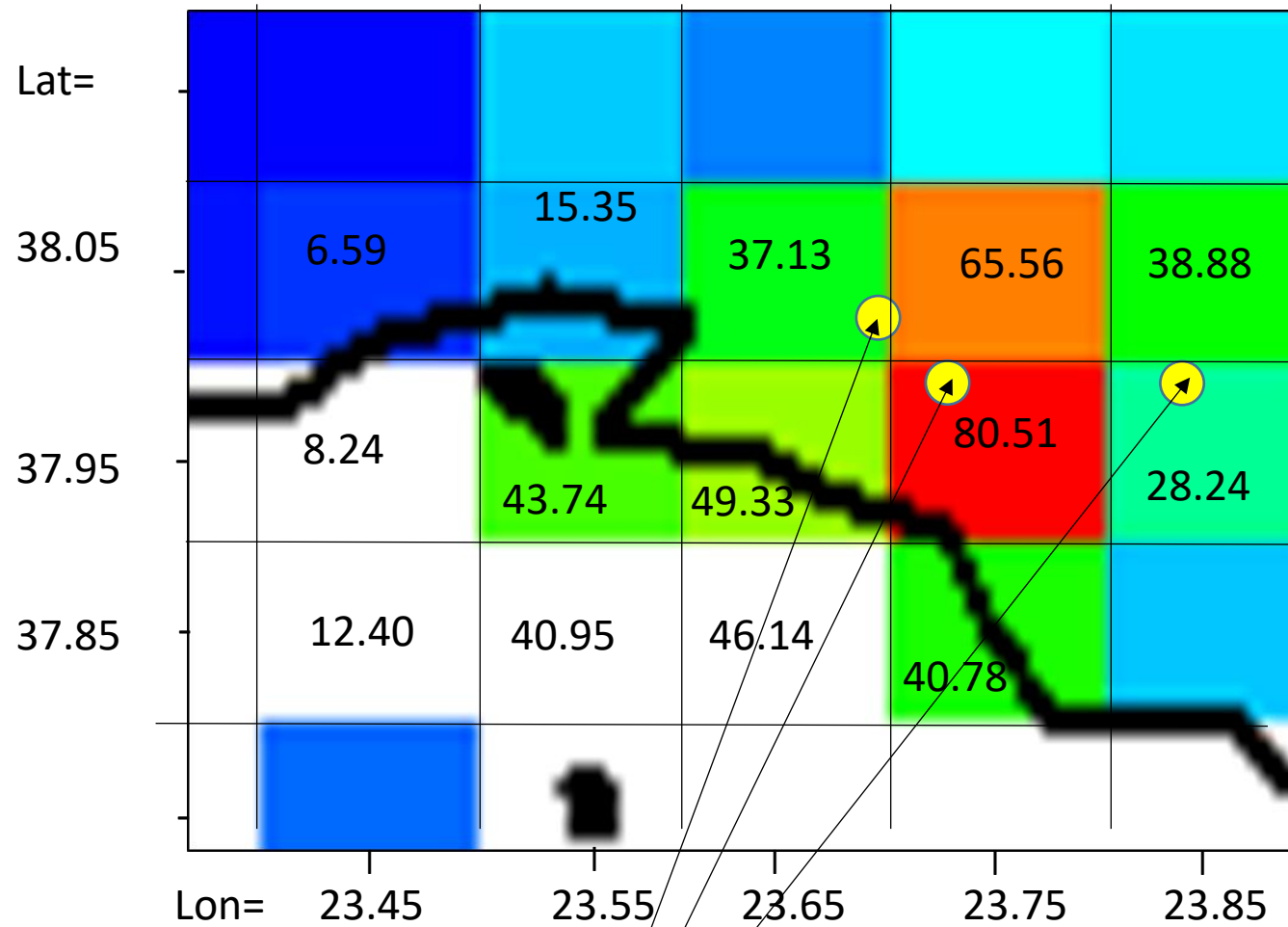
GR0031A (23.71, 37.93)

→ Scen2022= 56.13

GR0039A (23.82, 38.00)

→ Scen2022= 27.70

BASECASE 2015



GR0028A (23.69, 38.02)

→ BaseCase= 51.92

GR0031A (23.71, 37.93)

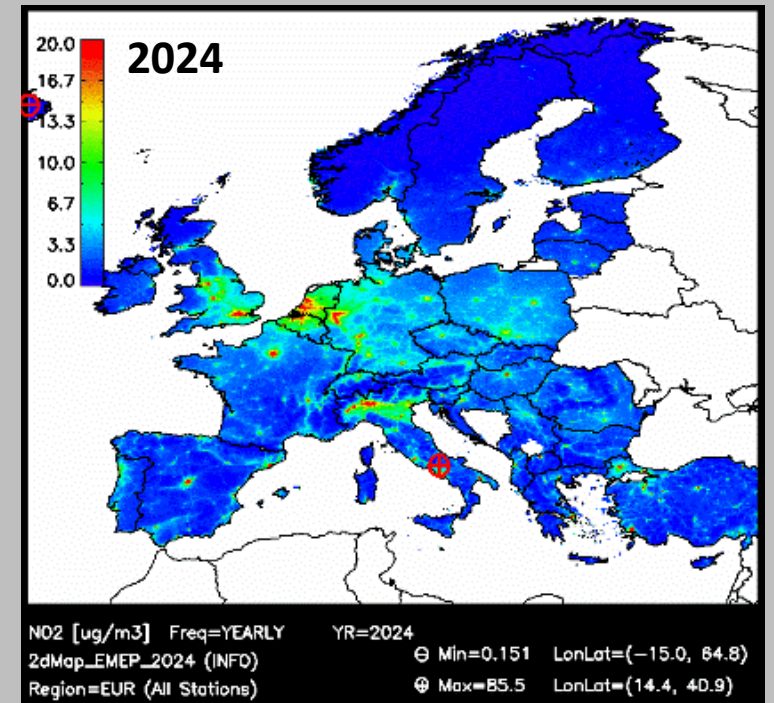
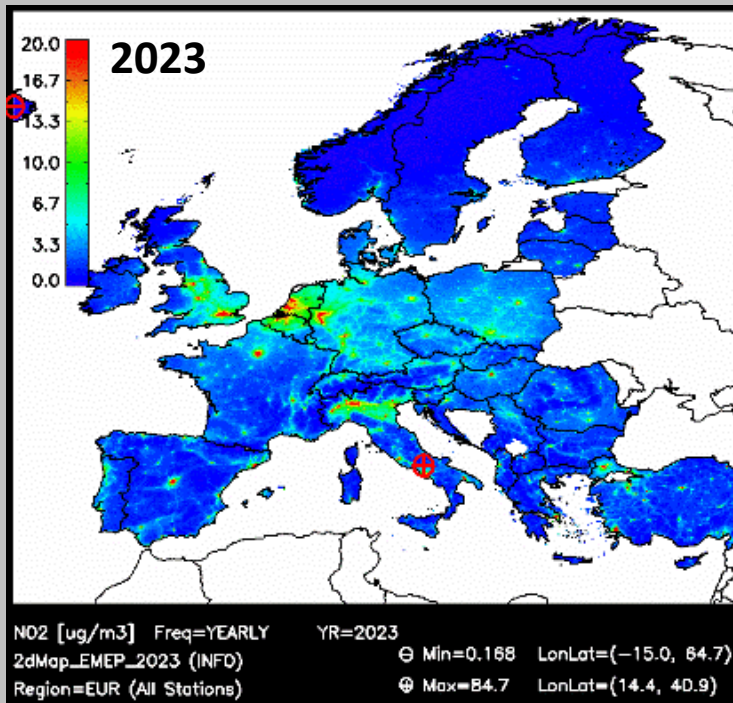
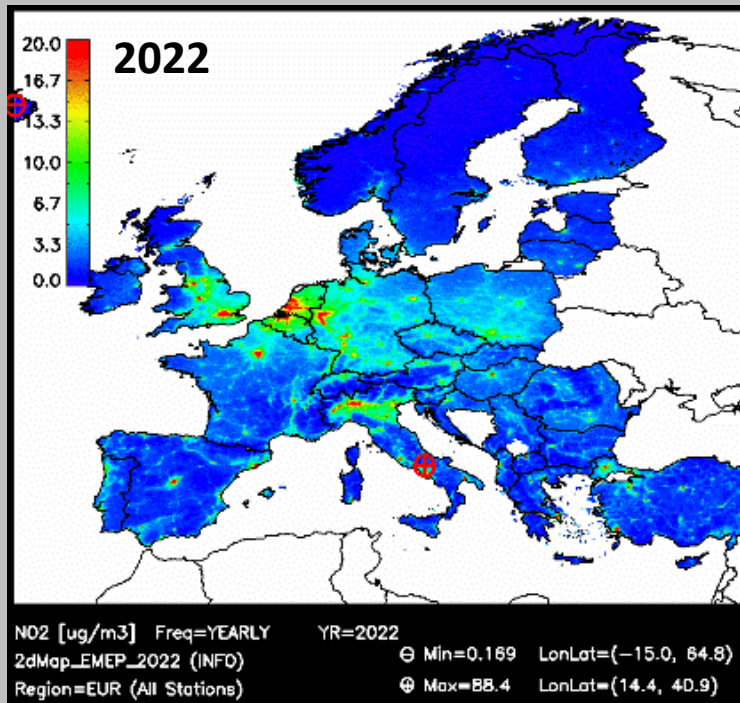
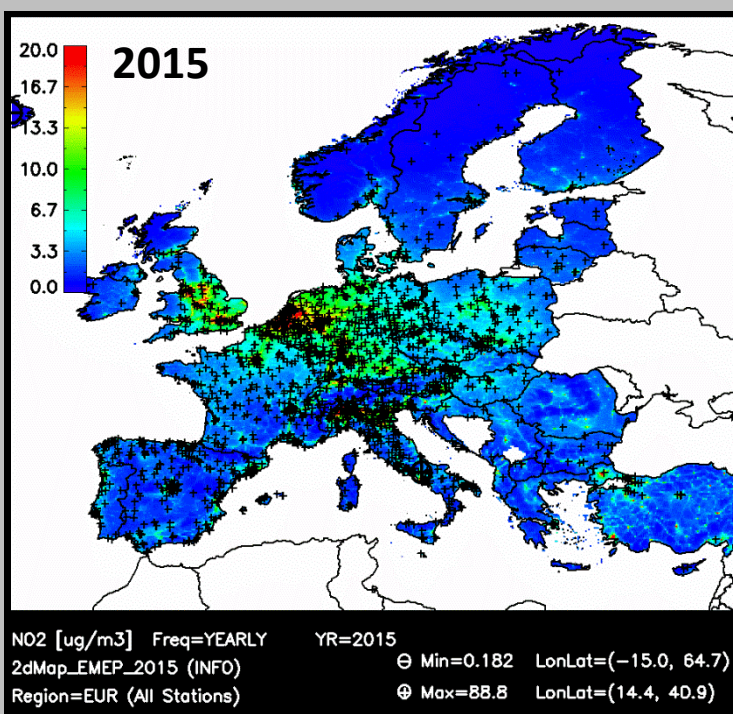
→ BaseCase = 64.26

GR0039A (23.82, 38.00)

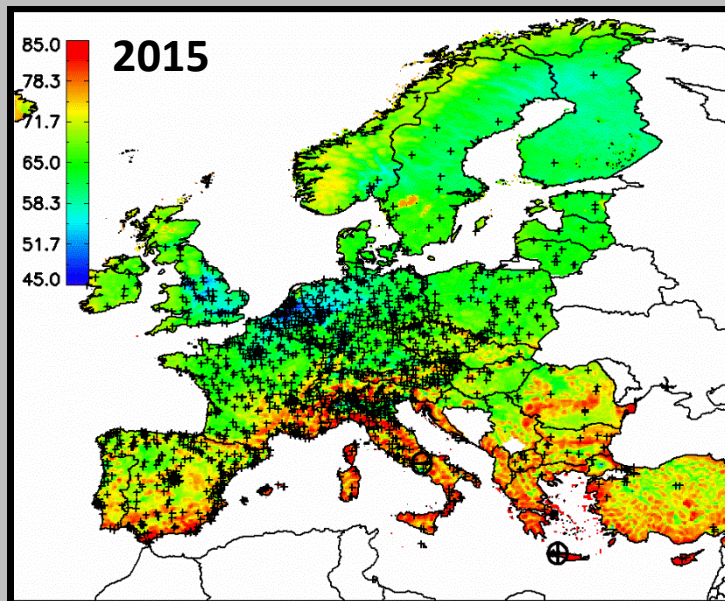
→ BaseCase = 49.50

EMEP INPUT

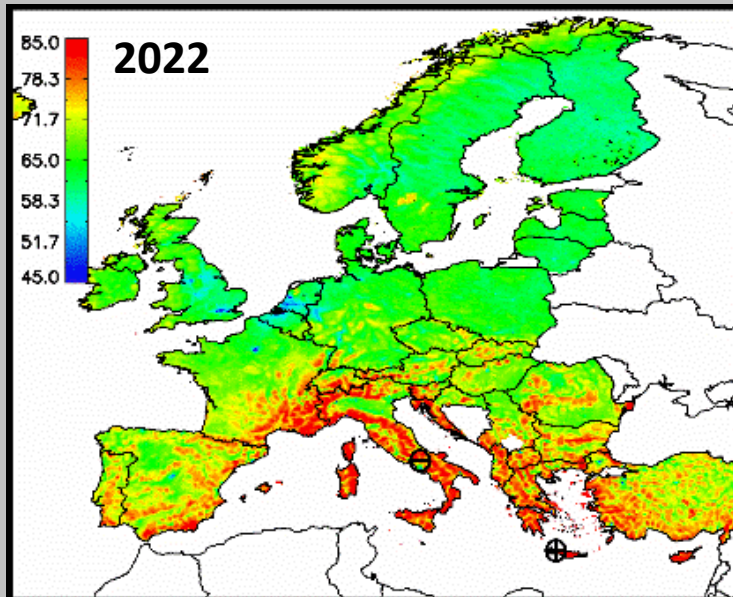
EMEP NO2



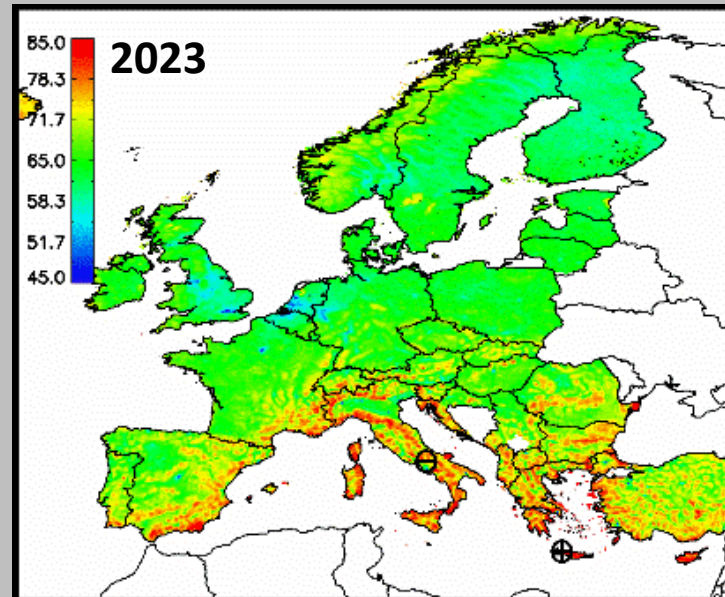
EMEP O3



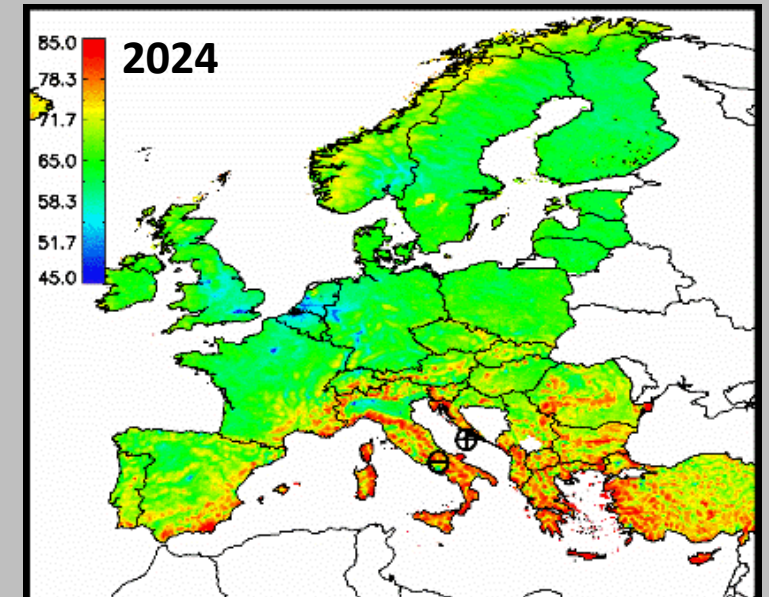
O3 [ug/m3] Freq=YEARLY YR=2015
2dMap_EMEP_2015 (INFO) ⊖ Min=10.1 LonLat=(14.4, 40.9)
Region=EUR (All Stations) ⊕ Max=103.0 LonLat=(24.2, 34.9)



O3 [ug/m3] Freq=YEARLY YR=2022
2dMap_EMEP_2022 (INFO) ⊖ Min=9.46 LonLat=(14.4, 40.9)
Region=EUR (All Stations) ⊕ Max=100.9 LonLat=(24.2, 34.9)



O3 [ug/m3] Freq=YEARLY YR=2023
2dMap_EMEP_2023 (INFO) ⊖ Min=9.37 LonLat=(14.4, 40.9)
Region=EUR (All Stations) ⊕ Max=99.5 LonLat=(24.2, 34.9)



O3 [ug/m3] Freq=YEARLY YR=2024
2dMap_EMEP_2024 (INFO) ⊖ Min=9.82 LonLat=(14.4, 40.9)
Region=EUR (All Stations) ⊕ Max=100.4 LonLat=(16.4, 42.4)

EMEP PM2.5

