

Pilot tests in Portugal

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Objective of the air quality campaigns

- Assess the ability of nanosensor prototypes developed in the framework of NanoSen-AQM project, to provide representative measurements of pollution in the atmosphere under real conditions, with an adequate level of uncertainty.

Environments in Portugal



- Évora: Rural environment

Medium-sized Portuguese city in the inner south of the country, with no relevant pollution sources other than vehicles and biomass burning from domestic heating. Its rural surroundings are well ventilated and no polluting industries exist in the area; therefore, Évora area is considered as a rural environment.

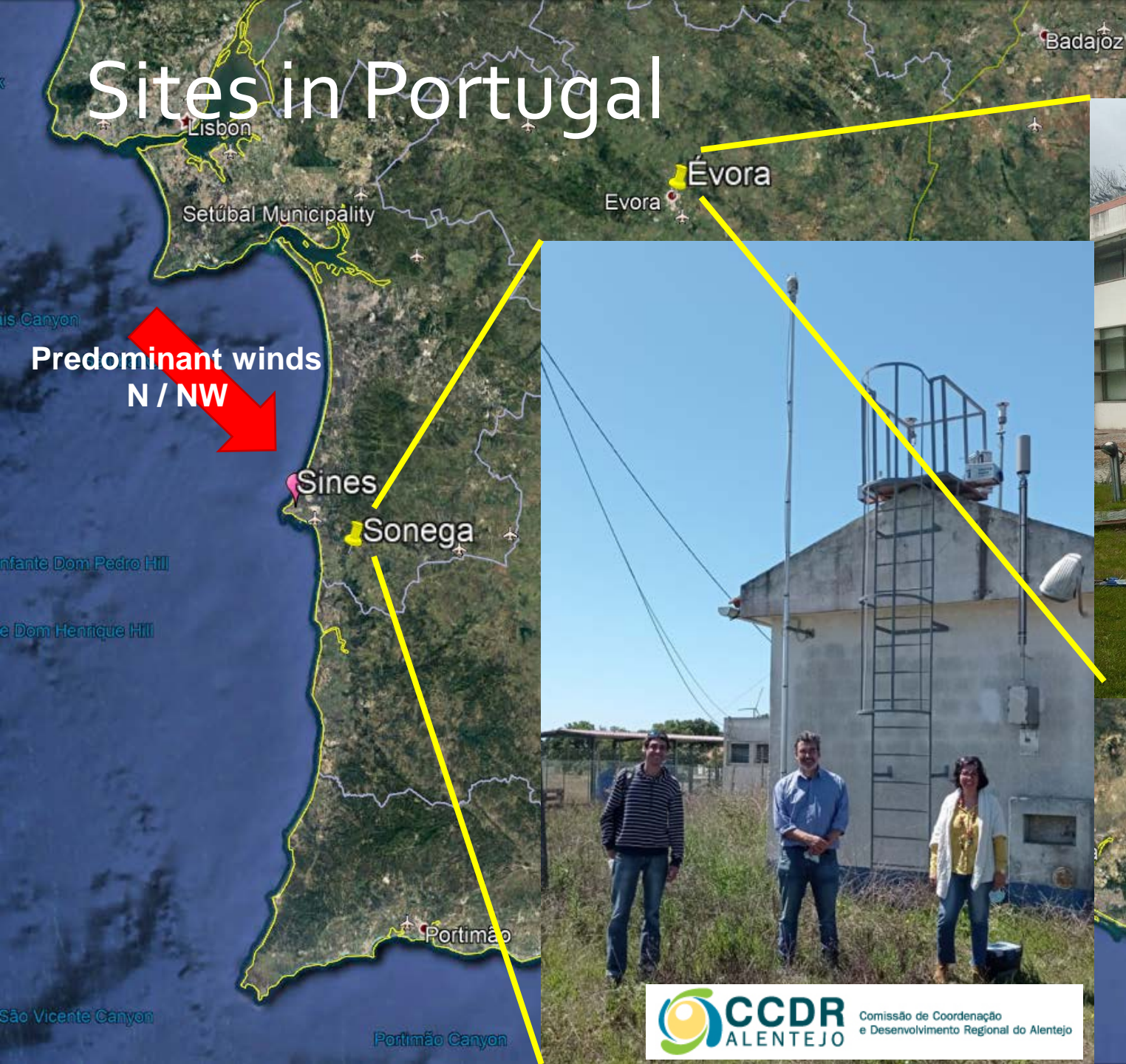


- Sines: Coastal/industrial environment

Small-sized Portuguese city in the southwestern coast, with the largest port area of the country, an open deep-water sea port leading the Portuguese port sector in the volume of cargo handled. Sines area is also one of the largest industrial regions of the country, where AQ control and management are a great concern; therefore, Sines area is considered as an industrial environment.

Sites in Portugal

Predominant winds
N / NW







Sensor collocation

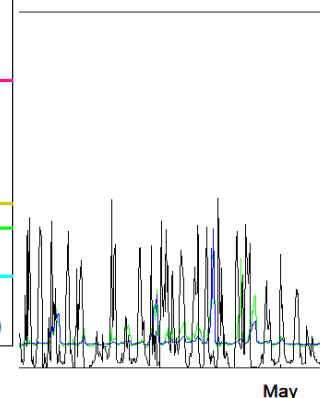
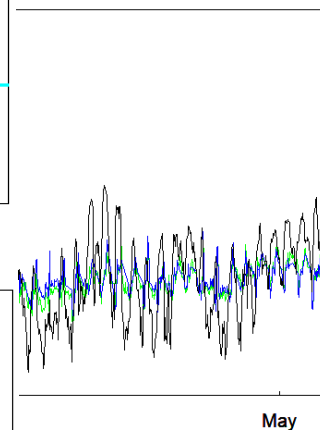
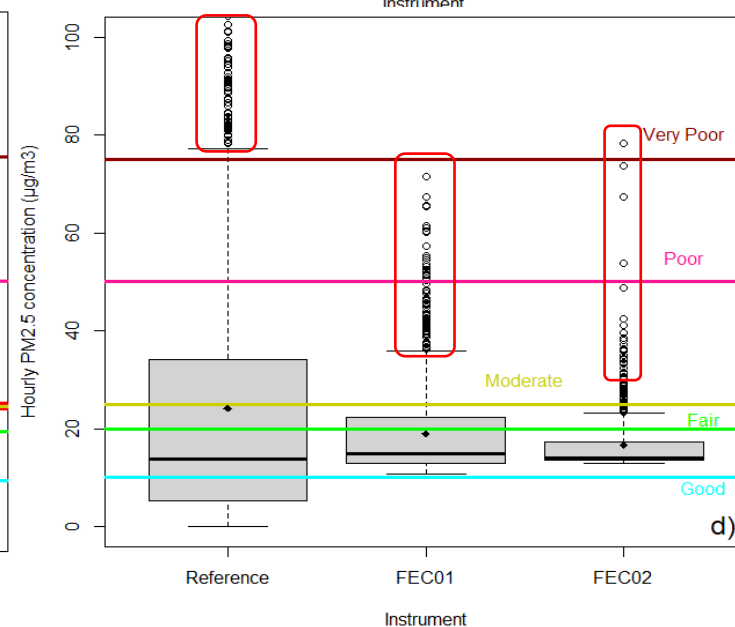
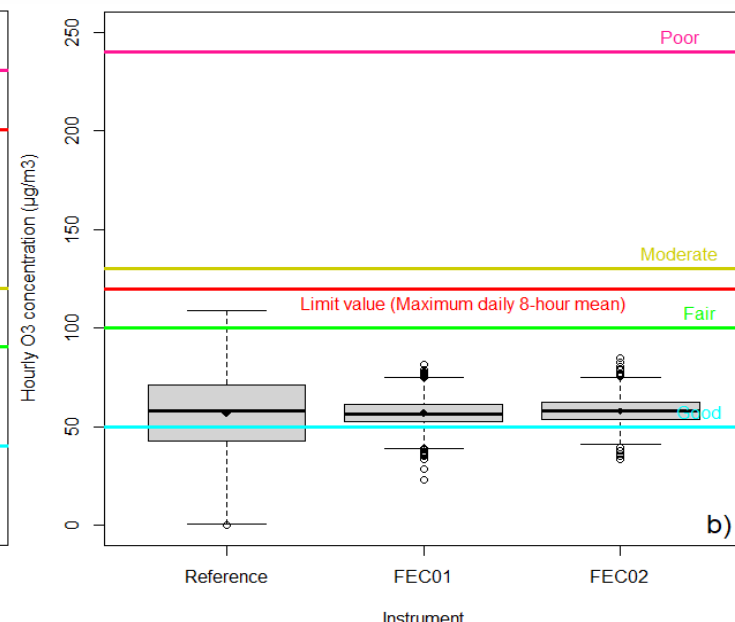
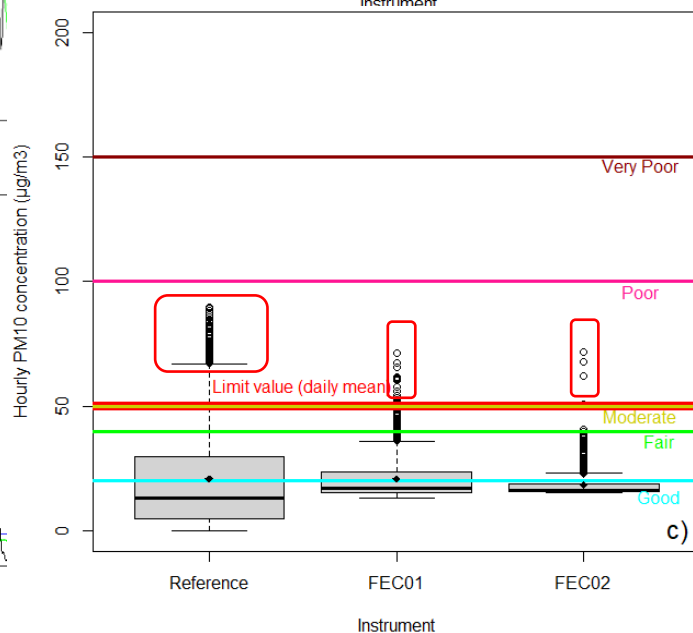
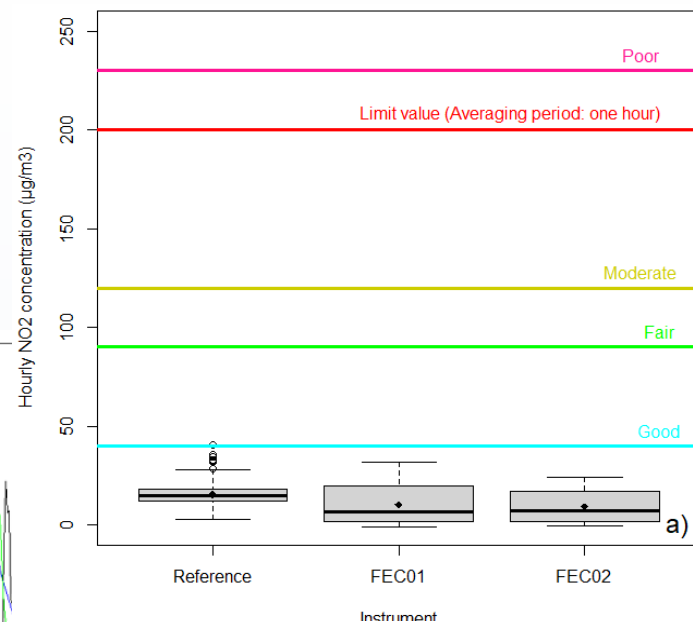
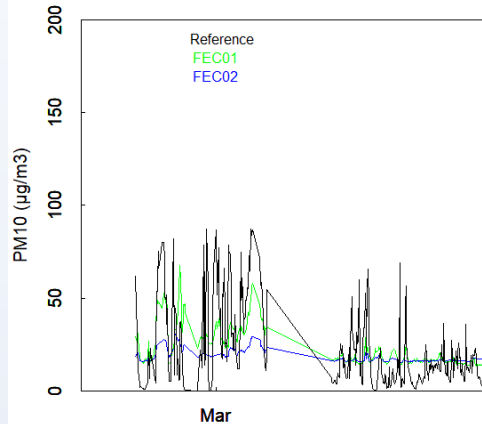
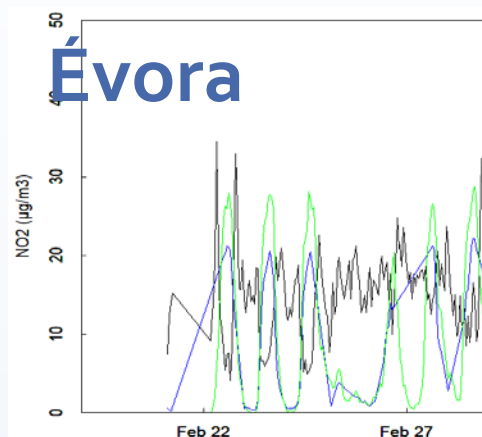
- The nanosensors were collocated in order to sample the same air as the reference unit. Sensors and reference monitors were within 10 m of each other in all cases, and the inlets were at about the same height. Care was taken to verify that the movement of air around the sensor was not blocked or hindered by any other structure or device.

Specifications of the campaigns

Site location	Évora Coordinates: 38°34'04.1"N 7°54'41.30"W Altitude: 291 m			
Project sensors	FEC01 and FEC02			
AQM platform	Reference mobile unit  UNIVERSIDADE DE ÉVORA			
Time frame	19 February 2021 – 4 May 2021			
Meteorological data monitored	Air temperature - T (°C)		Relative humidity – RH (%)	
Pollutants monitored	O ₃	NO ₂	PM ₁₀	PM _{2,5}

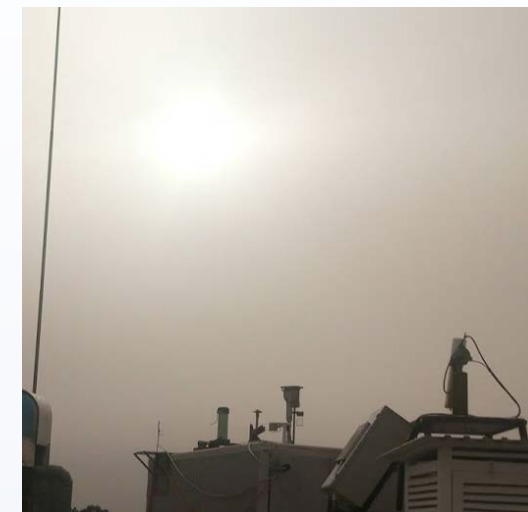
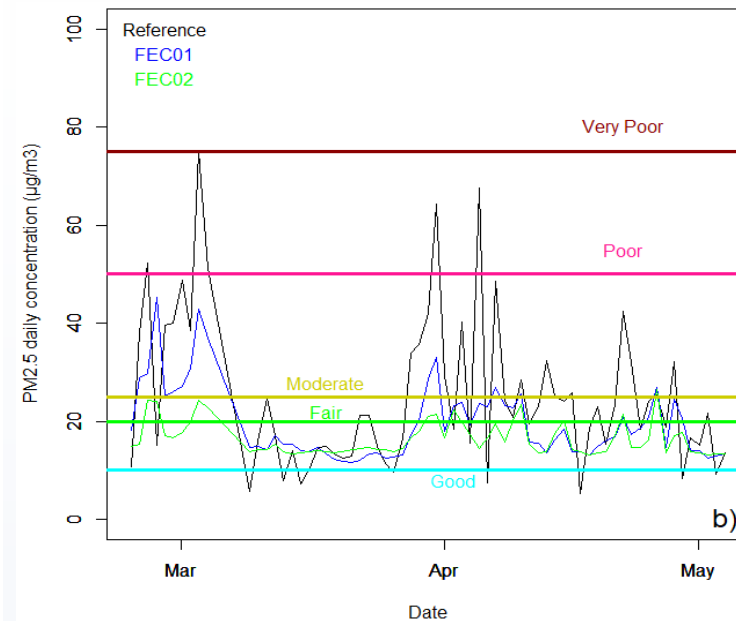
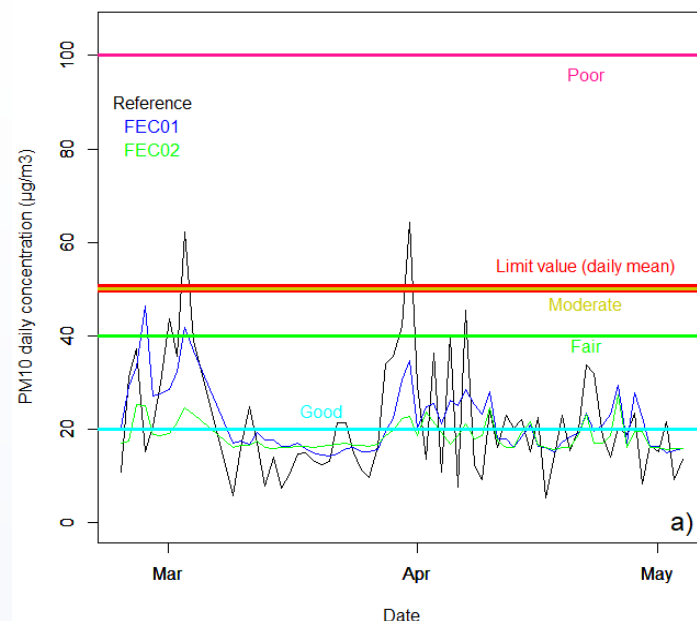
Site location	Sonega - Sines Coordinates: 37° 52', 0" N 08° 43 '0" W Altitude: 195 m			
Project sensors	FEC01 and FEC02			
AQM platform	Reference station  CCDR ALENTEJO Comissão de Coordenação e Desenvolvimento Regional do Alentejo			
Time frame	6 May 2021 – 30 June 2021			
Meteorological data monitored	Air temperature - T (°C)		Relative humidity – RH (%)	
Pollutants monitored	O ₃	NO ₂	PM ₁₀	PM _{2,5}

Results

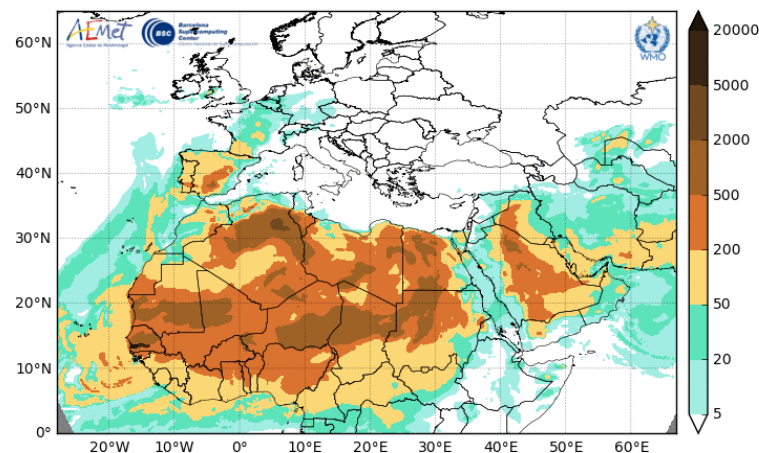


Results

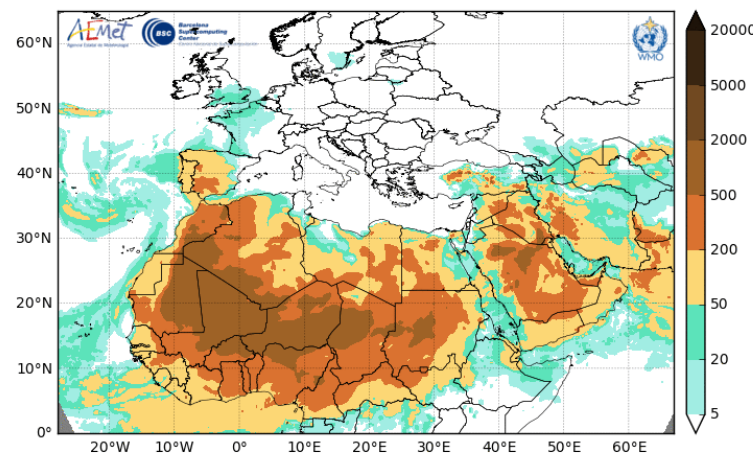
Évora



Barcelona Dust Forecast Center - <http://dust.aemet.es/>
 NMMB-MONARCH Res:0.1°x0.1° Dust Surface Conc. (µg/m³)
 Run: 12h 03 MAR 2021 Valid: 15h 03 MAR 2021 (H+03)

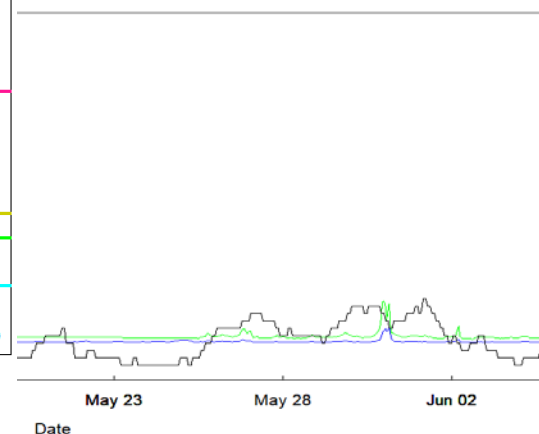
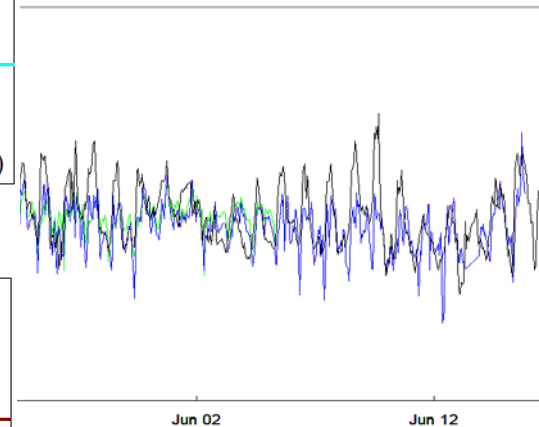
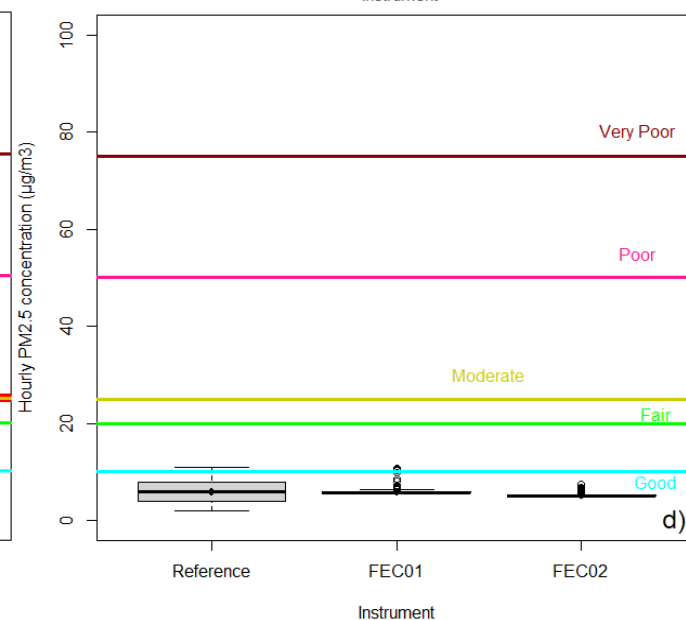
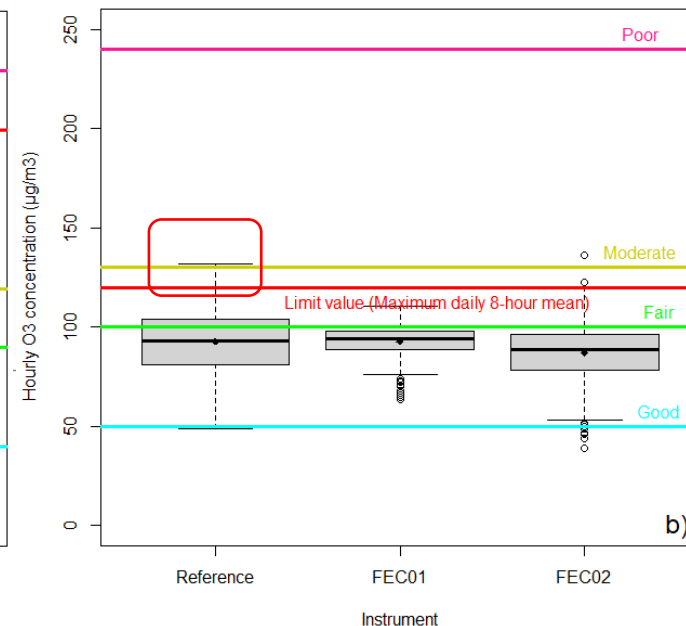
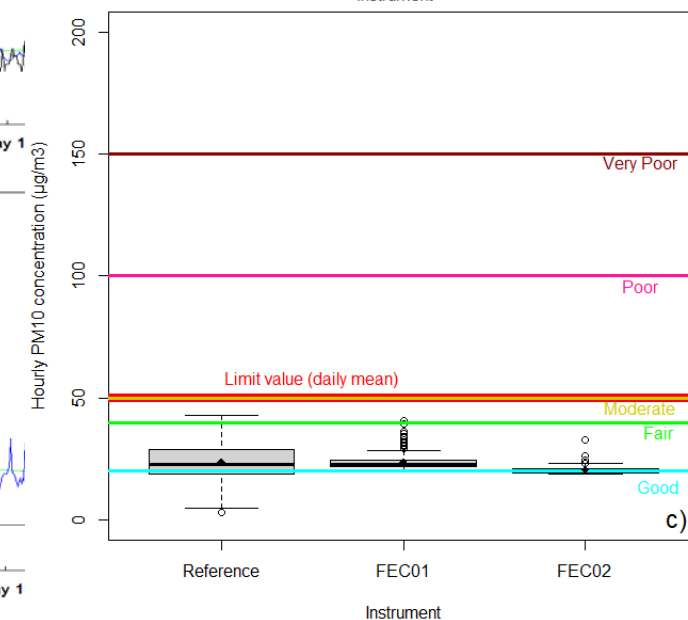
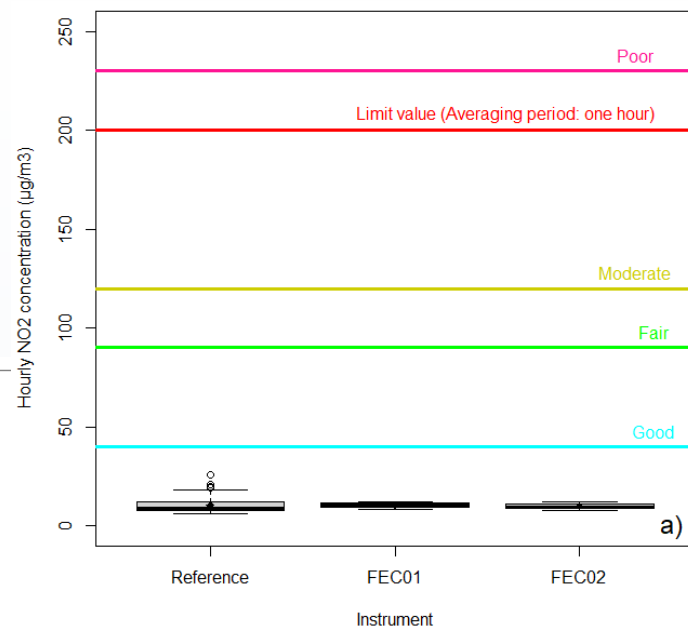
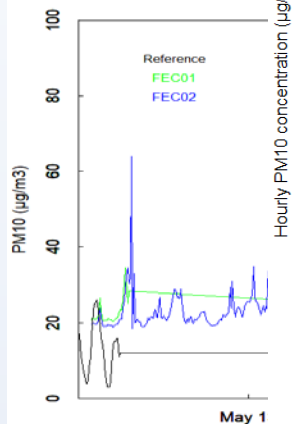
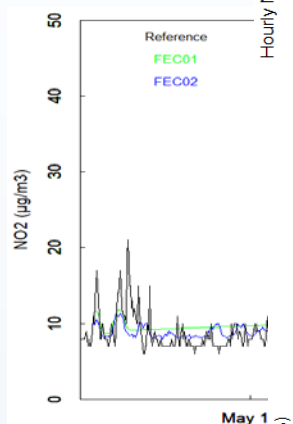


Barcelona Dust Forecast Center - <http://dust.aemet.es/>
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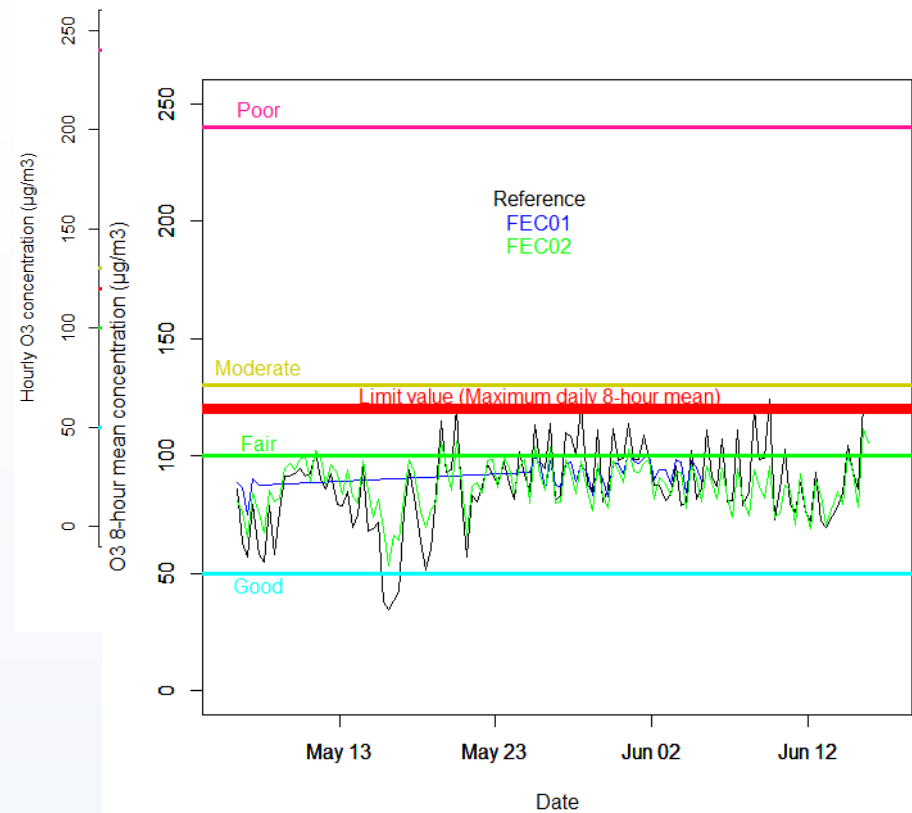
Results

Sines



Results

Sines





Start: 6 May 2021
 Sonega - Sines

Start: 19 February 2021
 Évora



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