FAIRMODE CT8.2
Exceedance situation indicators

Review of the methodologies used in Italy

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- ▶ air quality monitoring and management in Italy is a responsibility of the 19 regions and the 2 autonomous provinces
- ▶ regional environmental agencies (ARPA or APPA) provide technical support to the regional and local decision makers
- ▶ in 2020 a survey was carried out among the regional/provincial environmental agencies, to establish
    - ▶ how many use the models,
    - ▶ how they integrate the results with the measurements,
    - ▶ how they define the indicators required in case of exceedances.

- ▶ 15 out of 21 Italian environmental agencies use AQ models
- ▶ 13 for forecasting, 12 for annual assessment, 7 for daily assessment, 7 for scenario analysis, 2 for source apportionment
- ▶ e-reporting: 8 agencies use models for AQ zones definition, 8 for AQ assessment, 9 to estimate the extent of the exceeding areas
- ▶ spatial resolution from 2 m up to 5 km
- ▶ some agencies use AQM direct output (6), some use data fusion (9), some of them use both
- ▶ AQMs used for: NO_x (8), PM10 (8), PM2.5 (7), O_3 (7), CO (7), SO_2 (7), C_6H_6 (6), heavy metals (3), B(a)P (2)

- ▶ 8 Italian agencies use AQMs for **AQ assessment**
- ▶ **above upper assessment threshold**: 7 out of 8 use AQMs beside measurements (mandatory)
- ▶ **between upper and lower assessment threshold**: 7 out of 8 use AQMs beside measurements (mandatory)
- ▶ **below lower assessment threshold**: 3 agencies use both models and measurements for every pollutant, 2 use models only, 3 use different approaches depending on the pollutant

▶ **spatial criteria** to define if a zone exceeds the limit: at least one cell exceeds (6); the average of the cells included in the zone exceeds (1)

▶ **conflicts model-measurement**: what if AQM detects an exceedance in a cell where measurements are available, and measurements are below the limit? according to all the agencies, the measurements prevail

▶ **missing measurements**: what if AQM detects an exceedance in cells where measurements are not available? 6 agencies carry out measurement campaigns, the data of which prevail over the model; 2 agencies don't carry out any campaign, AQM prevails