9th Air Quality IPR Technical Meeting-online

Day 2 – Wednesday, 10 November 2021 (on B-G and H-K dataflows), 9.00-12.15

H-K submission review and updates (Luca Liberti, EEA)

- Review on H-K: legislative background and reporting process.
- Study on the linking between attainment and H-K data flows show that were some linking processes were not in place. More simplified links were implemented in 2020, so that all the links are resolved in the same reporting year. The only exception for having the same reporting year is related to the linkage between J and K.
- Reporting is strictly required only after air quality standard exceedance is observed for the first time: air quality zone, pollutant and protection target, environmental objective and metric should point to the first year stated in attainment.
- In 2019 only 59 Attainments in 10 countries were exceeding for the first time mostly O_3. Exceedances for $PM_{2.5}$, PM_{10}, SO_2, BaP were also reported.
- Not need report if:no new air quality plans are put in place; old air quality plan already reported in previous years.
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- When reporting H-K, a full package of submission including H, I, K, J is expected. Since 2020 we expect H-K submissions to be made in a single envelope, with a single file, for each dataflow. A new submission of the same dataflow cancels the previous one. The submission should follow the following sequence: H, I, K and J.
- Resubmissions of updates or corrections should be made in the same reporting year and not at reporting time, e.g., reporting time: 2021, reporting cycle B-G: 2020 and H-K: 2019. It should contain corrected and not corrected entities.
- Changes in plans or measures happening after the submission should be reported in the same reporting year where the plans or measures were reported. In general, this could require a full H-K submission
- Measure without air quality plans: the recommendation is to report measures connected to "dummy" source apportionment.
- Source apportionment to O_3: the recommendation is to provide 'empty' Source Apportionments.
- On using PaPErs: the recommendation is to keep "deduction assessments" section empty and specify as adjustmentType either none applied non applicable or fully corrected; "station used" should be the exceeding SPOs.

Overview of September 2021 submissions (Joana Soares, ETC/ATNI; Artur Gsella, EEA)

- Re-submission period shows that few countries have submitted data, showing a successful 2021 September's submission. A new country also has submitted during this period.
- In the data monitor viewer, there are some blockers due to a bug in CDR, resubmission on the 4th and 5th of November, but the submissions were force released by EEA/ETC. One resubmission on models was lately released by EEA/ETC.
- There are some remaining issues on the different dataflows, mostly on C. G dataflow will probably suffer the largest reshape in QC in the future and G14b and G89 becoming blockers instead of warnings.
- Data viewers presented: data for 2020 are currently available throughout the different viewers.

Preliminary B-C submission (Jaume Targa, ETC/ATNI)

- There is a need to comply with the Ambient Air Quality Directive, thus B and C preliminary need to be submitted.
- B-C preliminary is a crucial tool for the European Commission and for the reporters. For the reporters it can serve as an exercise to check if the monitoring network is in place, and if it is adequate for the pollutants and population in place and if more modelling is needed. Examples of usability of these data flows: early warning if need of the 5-yr assessment classification, identify key stations, identify zones that require extra monitoring.
- The same sequence rules apply to delivery of preliminary B and preliminary C data flows: first B then C. QA on preliminary C will be done on the basis of the information of the latest D/D1b delivered.
- D preliminary does not exist, so no need to submit, unless there were some changes in the metadata. D1a or D1b should be up-to-date, they can be submitted whenever changes are in place.
- The deadline for H-K and B and C preliminary are the 31st of December. The EEA pledges that the data is reported by the 17th of December to make sure EEA/ETC to give full support.

Questions/comments:
M.D.(PL): there might be an issue submitting by the 17th of December.
- There will be support but EEA/ETC cannot promise a speedy and full support after this date due to the season specificities.

Outlier detection (Michel Houssiau, consultant)

- The outlier detection tool removes the outliers (real or erroneous measurement) and allows a better visualization of the data, as outliers tend to impair the visualization. Details can be found at https://eeadmz1-cws-wp-air02.azurewebsites.net/index.php/users-corner/statistical-viewer/
- In the viewer, the statistics can be visualized using all the data or exclude the potential outliers; it is not automatically applied.
- The methodology has some constrains: the annual statistics requested, the diversity of stations included, data quality assurance is not on the EEA side, erroneous statistics (due to erroneous data), the data does not follow a normal distribution.
- The threshold to assess outliers is obtained by the double median absolute deviation (MAD) approach. This methodology is based on the calculation of two median absolute deviations. One for the values below the median and one for the values above the median. Only the upper one

is of interest in the present case. The statistics used is 'P1Y-day-max' for all pollutants except for O3 and CO for which 'P1Y-dx-max' was used.

- The final threshold is the maximum between the max double MAD threshold and the max 'P1Y-day-max' or max 'P1Y-dx-max' including the safety margin of 25.
- 65 Time series were flagged for the period between 2013 and 2020, so the number is quite low compare to the amount of time series reported in this time period.
- The methodology might be changed for a stricter approach on outliers detection.

Tools for outlier/episode detection on UTD (Jaume Targa, ETC/ATNI)
- Reminder on up-to-date (UTD) data: make sure having regular updates, remove errors and outliers, fill in data gaps.
- EEA-ETC/ATNI have developed viewers for monitoring UTD to identify anomalies: outliers vs episodes. The methodology is based on cross-comparing the data statistically for the sampling point in question and neighbouring ones.
- Useful tool for the reporter to check possible issues with the data.
- Viewer at the moment available at https://tableau.discomap.eea.europa.eu/t/Aironline/views/Airquality_E2a_monitoring, but will be added to the reporter's corner at the new AQ portal.

Questions/comments:
L. M. (FR): will be documentation on the outlier detection tool and UTD outlier/episode
- The outlier tool has the information available at the statistical viewer. For the UTD documentation and scripts will be made available.

Satellite observations to support air quality assessment in Finland (Iolanda Ialongo, FMI)
- TROPOspheric Monitoring Instrument (TROPOMI) provides the best data on concentrations of atmospheric gases (e.g., NO_2, SO_2, CO, CH_4), stratospheric O_3, UV-radiation, aerosols and clouds.
- Measurents based on 1 to 3 overpasses a day across Finland. Measurements are scarcer in winter due to lack of sunlight.
- Annual mean fields of NO_2 and CO over Finland based on satellite data are used to support air quality monitoring. The maps can be used to: identify concentration gradients and possible emissions sources (less for CO). For NO2, satellite data is used to estimate surface concentration by correlating satelite and in-situ data; estimate a correction factor for observations. For CO, the estimation is not as precise as NO2, so uncertainty is added for the estimation.
- Model-based conversion between satellite columns and surface concentrations is under development.

Questions/comments:
Luca Liberti (EEA): has Finland reported data based on the methodology presented? And there will be a bias due to timing of the passage of satellite and winter/summertime differences.
- Yes, it has been used for reporting. Satellite is not to substitute in-situ data it is to be used as a complementary tool. It is a way to firstly and foremost to check the status of the current monitoring network and to complement in-situ data. One must bear in mind the time the data is available for and the type of information we can get from satellites.

Luca Liberti (EEA): this is important specially to check the necessity of measurements in more remote areas.

Reporting PM correction factor (Jaume Targa, ETC/ATNI)

- EEA/ETC has no clear idea how different countries on the correction of PM. Most of the documentation on this provided by countries via link in D is pointing to broken links, empty information, etc. Also, if you are providing raw data or already corrected

Questions/comments:

S. F. (DE): this is an important topic but from the reporter's perspective, this can be hard because the information might not be available from the different monitoring networks in the country at all or too late for reporting.

M, J. (SE): there is a difference between the monitors, they can come already corrected or not; if not we will correct. We can add this to the reporting if needed.

F. F. (BE) automatic monitors: calibration applied based on equivalence campaigns. Only calibrated data are reported. Calibration factors can change over time: more recent equivalence campaigns, change of monitor type (teom, fag, fidas, ...). For UTD: same correction factors are uses as for the annual reporting. Suggestion: PMref = a * PM + b. It could be an option to report a and b (E1a?)

K. K. (FI): PM UTD data is corrected

M. N. (MT): The correction factor changes throughout the year and the information on correction factor might not be available as speedy as desired.

R. S. (NL): NL reports calibrated data, every year we look at the calibration and we take the average of 3 years, so there is a single factor for all the stations. It's unknown where to report.

- At the moment there not a specific place where to describe the correction factor. But EEA/ETC is envisioning 2 options: report with metadata or reporting with data. Reporting with metadata it is easier to do but possibility not able to accommodate changes over time and might be difficult to distinguish between E1a and Ea2. Reporting with data harder to keep track of the adjustment factor used.
- The possible ways to report the adjustment factor to be discussed, in particular reporting it via the data.

S. F. (DE): does the factor really needs to be known? How this is information will be used? What is important to know if it is raw or calibrated.

M. J. (SE): the relevance is where to know the data in hands. In Sweden the data is available per year. For some data is a single factor but for other is per record. Probably reporting via E is best than D. We ask for correction factors (where relevant) in the following format *0.98 + 2.25.

F. F. (BE): Personally, I find it a bit strange not to use calibration factors for UTD data (?) but also why EEA needs to have this information.

M. B. (PL): the data provided is corrected but there are different monitoring networks and instruments, thus is might not be straightforward to get information on adjustment factors to report. Is it necessary to report those?

Conclusions and closure of the meeting

To remember:

- Deadline for submissions: 31st of December;
- The new AQ portal is up and running;
- The survey on correction factor will be disseminated;
- The ETC/ATNI will come to its end this year, a new ETC on Environment and health will follow. The team for the e-Reporting is the same: EEA, 4sfera and NILU.