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ENVIRONMENT DATA

EXAMPLE AIR QUALITY

LEGAL FRAMEWORK FOR AQ MONITORING, ASSESSMENT, REPORTING, AND MANAGEMENT

- **EU Directives** ([2008/50/EC](#), [2004/107/EC](#)) give basic requirements; [Commission Implementing Decision 2011/850/EU](#) detailed reporting requirements
- [INSPIRE](#) Directive ([2007/2/EC](#))
- Guidance documents [part I](#) (common understanding Commission and Member States) and [part II](#)
- Austrian **Ambient Air Quality Act** transposition in national legislation, more administrative details
- Austrian **Ordinance for air quality measurement**: technical details on:
 - Minimum number and location of monitoring sites per zone
 - information of the public, reporting
 - QA/QC

2011/850/EU – EXCHANGE OF INFORMATION

GOAL

- harmonize, improve annual reporting of Member States to Commission, EEA
- create an internet interface at EEA to improve access to data (air quality portal)
- provide up-to-date data
- provide data only once (shared environmental information service)

STRUCTURE

- provisions for establishing a data repository, encoding of information
- information to be made available
 - zones
 - assessment regime
 - methods
 - data (primary validated, up-to-date, valid)
 - attainment
 - plans

ADMINISTRATIVE RESPONSIBILITIES

- Umweltbundesamt
 - National background monitoring network
 - national reference laboratory for quality assurance
 - nation-wide information of the public
 - international data exchange, reporting
- Governments of 9 Federal Provinces
 - Operation of regional AQ monitoring network, incl. quality assurance
 - Information of the public in its territory
 - Air quality management (AQ plans and programmes)

AUSTRIAN AIR QUALITY MONITORING NETWORKS

- PM₁₀ (130 sites)
- PM_{2.5} (45 sites)
- NO₂, NO (150 sites)
- Ozone (105 sites)
- SO₂ (65 stations)
- CO (30 sites)
- Benzo(a)pyrene (30 sites)
- Benzene (20 sites; usually additional BTX compounds)
- Heavy metals: Pb, Cd, Ni, As (10 sites)



number of stations dependent on pollutant levels

LOCATION OF AQ MONITORING STATIONS

Urban traffic



Urban background



Rural background



Urban industrial



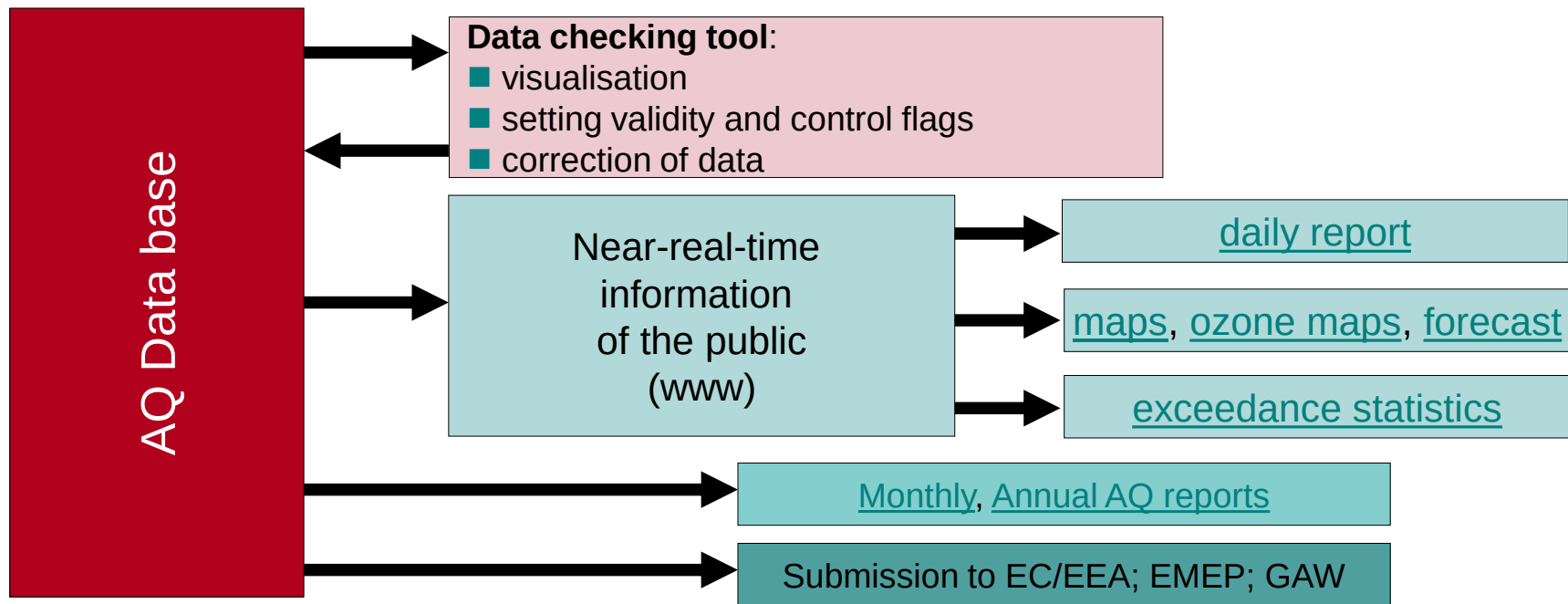
Rural traffic



Rural industrial



AQ DATA MANAGEMENT AND DISSEMINATION



Source: Umweltbundesamt

DATA REPORTING, INFORMATION OF THE PUBLIC IN AUSTRIA

- daily AQ reports
- information of the public about exceedances of limit, information or alert values
- monthly AQ reports
- annual AQ reports, and the submission of AQ data to international databases (reporting to EU, EEA, EMEP)

DAILY AIR QUALITY REPORT

Täglicher Luftgütebericht

11.11.2019

	NO2 HMW	NO2 TMW	PM10 TMW	SO2 HMW	SO2 TMW	CO MW8
Burgenland	<u>31</u>	<u>15</u>	<u>16</u>	<u>11</u>	<u>10</u>	<u>0.3</u>
Kärnten ohne Klagenfurt	<u>43</u>	<u>22</u>	<u>17</u>	<u>36</u>	<u>4</u>	<u>0.2</u>
Klagenfurt	<u>47</u>	<u>22</u>	<u>13</u>	<u>2</u>	<u>2</u>	<u>0.5</u>
Niederösterreich ohne St. Pölten	<u>52</u>	<u>25</u>	<u>23</u>	<u>7</u>	<u>5</u>	<u>0.3</u>
St. Pölten	<u>36</u>	<u>23</u>	<u>23</u>	<u>6</u>	<u>5</u>	-
Oberösterreich ohne Ballungsraum Linz	<u>57</u>	<u>27</u>	<u>21</u>	<u>4</u>	<u>3</u>	<u>0.5</u>
Ballungsraum Linz	<u>44</u>	<u>30</u>	<u>25</u>	<u>16</u>	<u>5</u>	<u>0.8</u>
Land Salzburg ohne Stadt Salzburg	<u>74</u>	<u>37</u>	<u>24</u>	<u>7</u>	<u>5</u>	<u>0.5</u>
Stadt Salzburg	<u>50</u>	<u>31</u>	<u>21</u>	<u>3</u>	<u>2</u>	<u>0.4</u>
Steiermark ohne Ballungsraum Graz	<u>38</u>	<u>23</u>	<u>21</u>	<u>14</u>	<u>7</u>	<u>0.6</u>
Ballungsraum Graz	<u>49</u>	<u>36</u>	<u>27</u>	<u>4</u>	<u>3</u>	<u>0.6</u>
Tirol ohne Innsbruck	<u>89</u>	<u>51</u>	<u>20</u>	<u>12</u>	<u>2</u>	<u>0.6</u>
Innsbruck	<u>65</u>	<u>41</u>	<u>17</u>	<u>4</u>	<u>2</u>	<u>0.5</u>
Vorarlberg	<u>87</u>	<u>38</u>	<u>19</u>	/	/	<u>0.6</u>
Wien	<u>85</u>	<u>40</u>	<u>20</u>	<u>6</u>	<u>2</u>	<u>0.5</u>

16.01.2019

	NO2 HMW	NO2 TMW	PM10 TMW	SO2 HMW	SO2 TMW	CO MW8
Burgenland	<u>73</u>	<u>22</u>	<u>18</u>	<u>171</u>	<u>94</u>	<u>0.7</u>
Kärnten ohne Klagenfurt	<u>94</u>	<u>62</u>	<u>74</u>	<u>22</u>	<u>4</u>	-
Klagenfurt	<u>94</u>	<u>53</u>	<u>40</u>	<u>3</u>	<u>2</u>	<u>0.8</u>
Niederösterreich ohne St. Pölten	<u>107</u>	<u>35</u>	<u>28</u>	<u>8</u>	<u>7</u>	<u>0.5</u>
St. Pölten	<u>67</u>	<u>32</u>	<u>15</u>	<u>4</u>	<u>4</u>	<u>0.4</u>
Oberösterreich ohne Ballungsraum Linz	<u>106</u>	<u>45</u>	<u>19</u>	<u>5</u>	<u>3</u>	<u>0.6</u>
Ballungsraum Linz	<u>102</u>	<u>47</u>	<u>35</u>	<u>46</u>	<u>11</u>	<u>1.4</u>
Land Salzburg ohne Stadt Salzburg	<u>111</u>	<u>68</u>	<u>29</u>	<u>11</u>	<u>5</u>	<u>0.5</u>
Stadt Salzburg	<u>98</u>	<u>58</u>	<u>12</u>	<u>3</u>	<u>2</u>	<u>0.4</u>
Steiermark ohne Ballungsraum Graz	<u>85</u>	<u>56</u>	<u>56</u>	<u>57</u>	<u>27</u>	<u>0.5</u>
Ballungsraum Graz	<u>181</u>	<u>105</u>	<u>82</u>	<u>13</u>	<u>8</u>	<u>2.1</u>
Tirol ohne Innsbruck	<u>143</u>	<u>93</u>	<u>26</u>	<u>2</u>	<u>1</u>	<u>1.1</u>
Innsbruck	<u>125</u>	<u>79</u>	<u>26</u>	<u>5</u>	<u>3</u>	<u>0.7</u>
Vorarlberg	<u>130</u>	<u>76</u>	<u>17</u>	/	/	<u>0.6</u>
Wien	<u>109</u>	<u>43</u>	<u>18</u>	<u>7</u>	<u>6</u>	<u>0.6</u>

EXCEEDANCE STATISTICS

Überschreitungsstatistik

» [Ozon](#) » [Stickstoffdioxid](#) **Feinstaub (PM10)**
» [Reihung nach Gebieten](#)

Überschreitungen Feinstaub (PM10)
1.1.2019 bis 11.11.2019

Feinstaub (PM10) Tagesmittelwert		
Messstelle	Messmethode	Anzahl Tage > 50 µg/m³
St Graz Don Bosco	grav./kont.	<u>12</u>
St Graz Süd Tiergartenweg	grav./kont.	<u>12</u>
OÖ Linz Römerberg B139	grav./kont.	<u>9</u>
OÖ Linz Stadtpark, Noßbergerstraße	grav./kont.	<u>8</u>

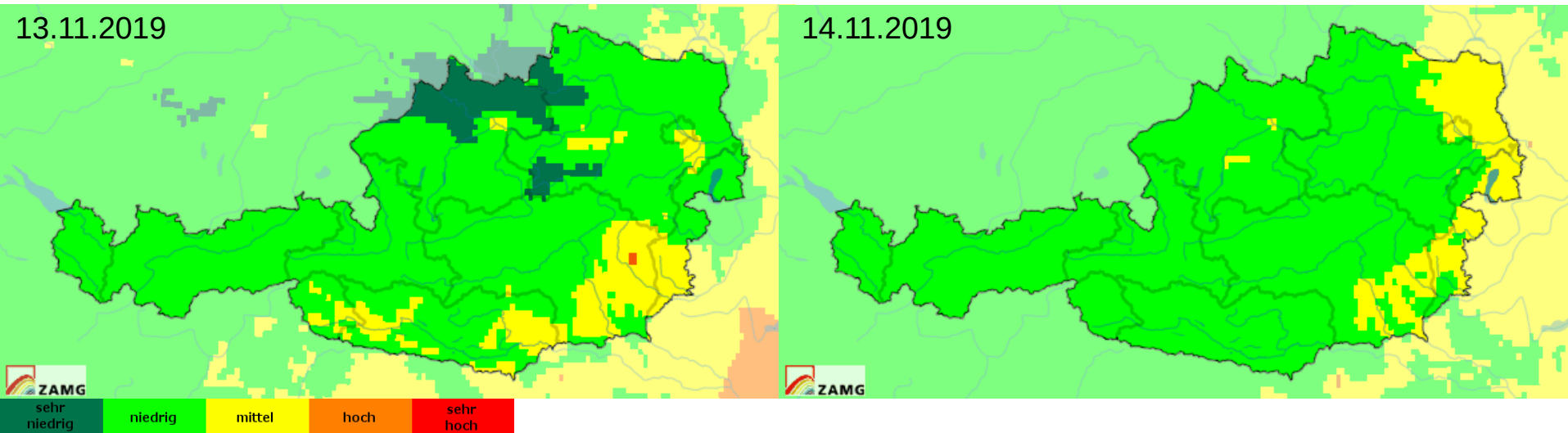
Überschreitungen 2018

» [Ozon](#) » [Stickstoffdioxid](#) **Feinstaub (PM10)**
» [Reihung nach Gebieten](#)

Überschreitungen Feinstaub (PM10)
1.1.2018 bis 31.12.2018

Feinstaub (PM10) Tagesmittelwert			
Messstelle	Messmethode	Anzahl Tage > 50 µg/m³	Werte vorhanden bis
St Graz Don Bosco	grav./kont.	39	31.12/- (93%)
St Graz Süd Tiergartenweg	grav./kont.	30	31.12/- (100%)
St Graz Ost Petersgasse	grav./kont.	26	31.12/- (99%)
B Kittsee	kont.	<u>20</u>	31.12 (98%)

AIR QUALITY FORECAST (PROVIDED BY ZAMG)

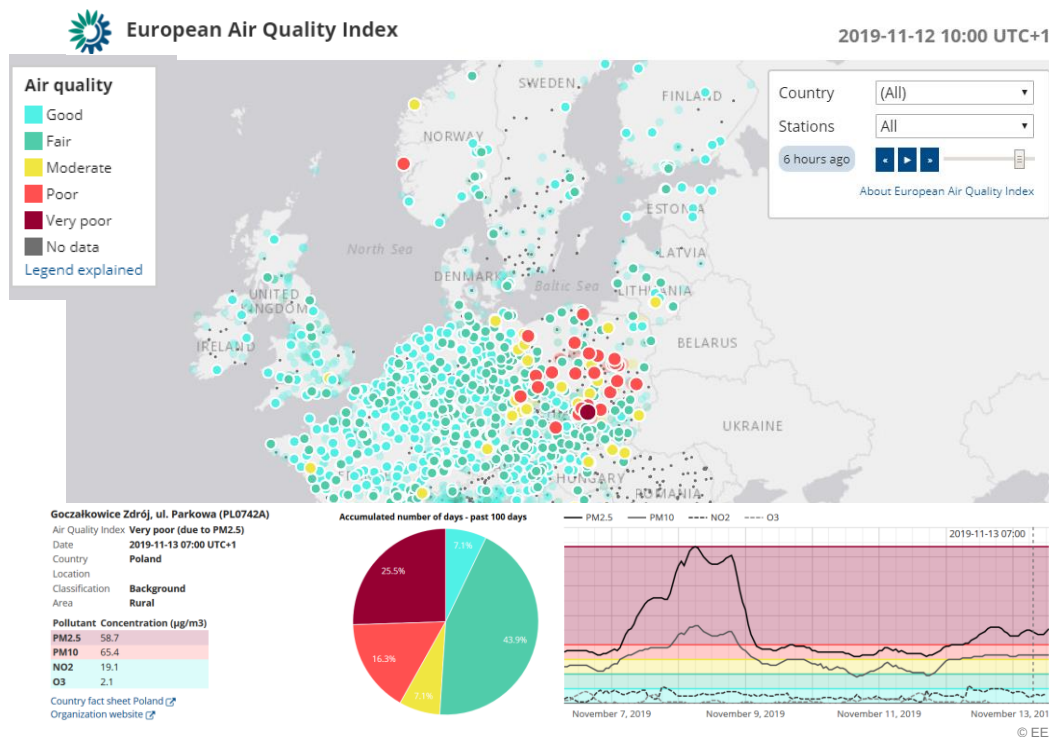


ON-LINE PUBLIC ACCESS TO UP-TO-DATE AIR QUALITY DATA

- Long-term experience in EU Member States to publish up-to-date air quality data on [www](#) (Austria started in 1996)
- Since about 2010 – Member States report [up-to-date air quality data](#) to the European Environment Agency (EEA)
- [European air quality portal](#) developed by EEA based on data submitted via Commission Implementing Decision 2011/850/EU mechanism
- November 2017 – Introduction of [European Air Quality Index](#) which allows comparable presentation of up-to-date air quality data from all European countries

EEA AIR QUALITY INDEX – FUNCTIONALITIES

- AQI for individual stations
 - metadata for each station
 - pie charts for past 100 days
 - times series
- Possibility to select:
 - individual countries / all countries
 - all stations / traffic / non-traffic
 - 0 – 47 hours time lag
- Available at [EEA website](https://www.eea.europa.eu/en/air-quality-index)



EEA AIR QUALITY INDEX

- Moderate to Poor:

→ Limit values, information threshold

→ highest value in concentration band triggers index level

Pollutant	Index level				
	(based on pollutant concentrations in $\mu\text{g}/\text{m}^3$)				
	Good	Fair	Moderate	Poor	Very poor
Particles less than 2.5 μm (PM _{2.5})	0-10	10-20	20-25	25-50	50-800
Particles less than 10 μm (PM ₁₀)	0-20	20-35	35-50	50-100	100-1200
Nitrogen dioxide (NO ₂)	0-40	40-100	100-200	200-400	400-1000
Ozone (O ₃)	0-80	80-120	120-180	180-240	240-600
Sulphur dioxide (SO ₂)	0-100	100-200	200-350	350-500	500-1250

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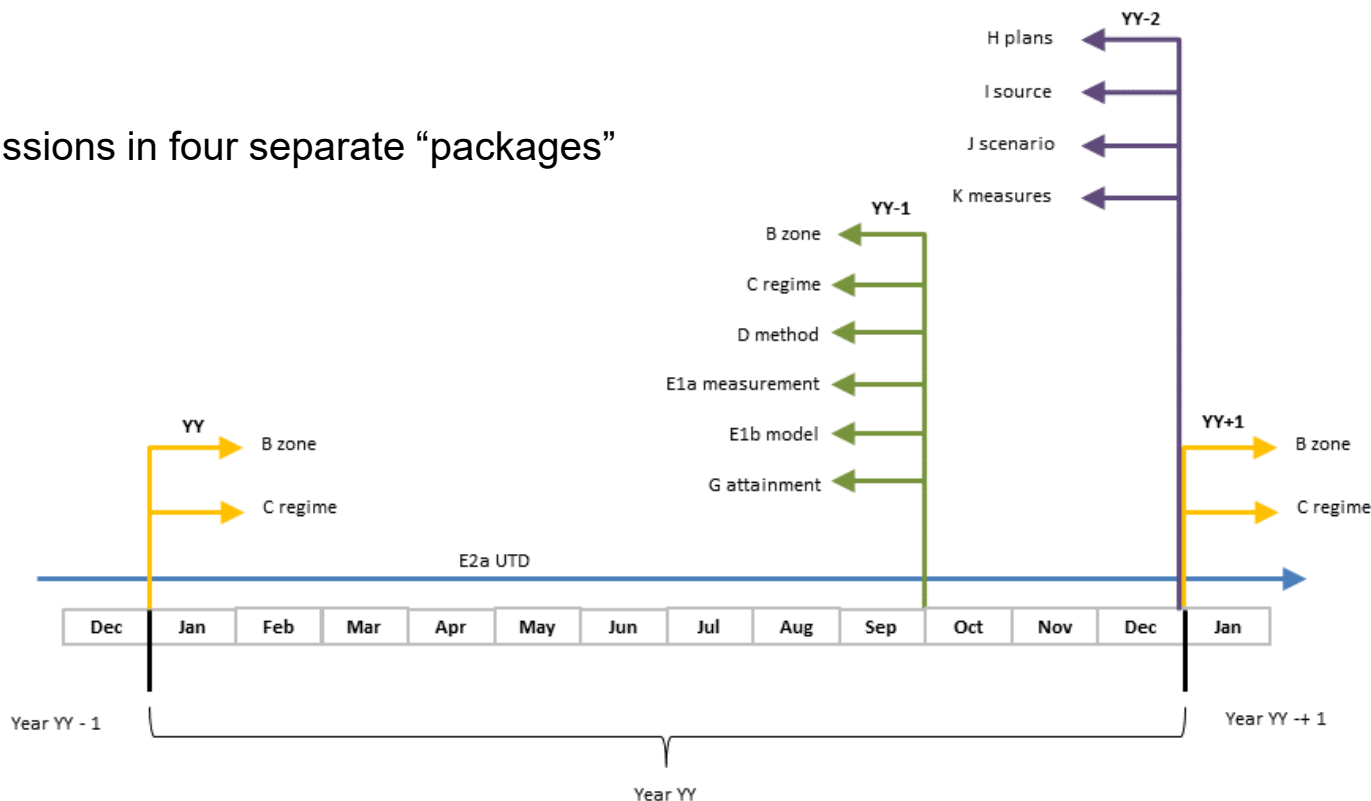


EUROPEAN AIR QUALITY PORTAL

- [Reporting](#) of AQ data (xml), extensive [data schema](#)
- [Toolbox](#) for e-reporting
- Data viewers
 - Statistics ([public](#), [expert](#))
 - [up-to-date data](#)
- [Attainment viewers](#)
- [Data download](#)
- [Country factsheets](#)

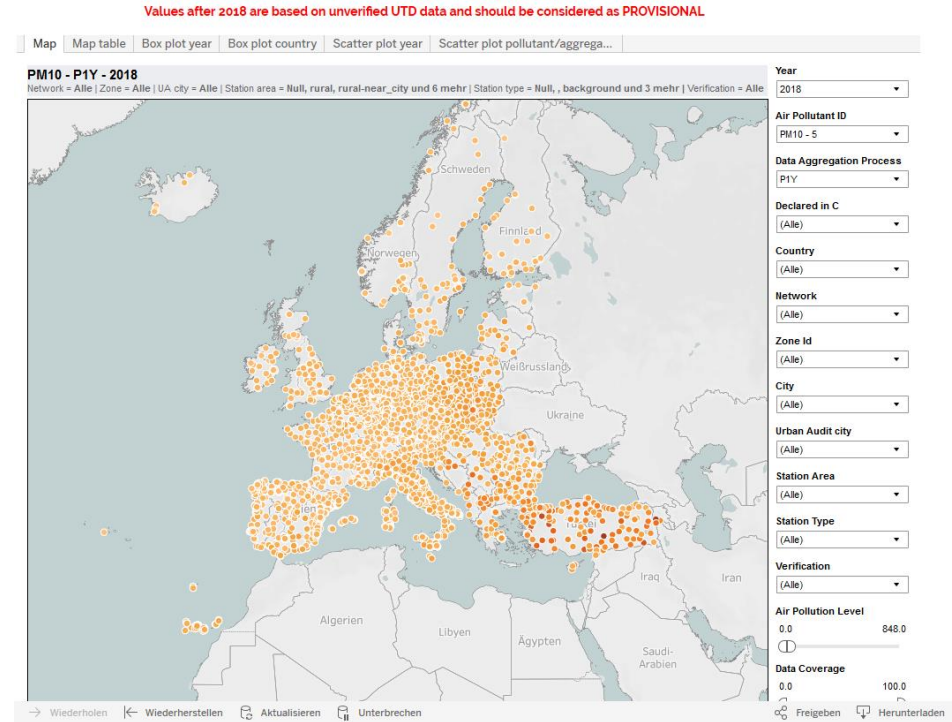
AQ REPORTING CYCLE

- Submissions in four separate “packages”



EXAMPLE DATA VIEWER – EXPERT

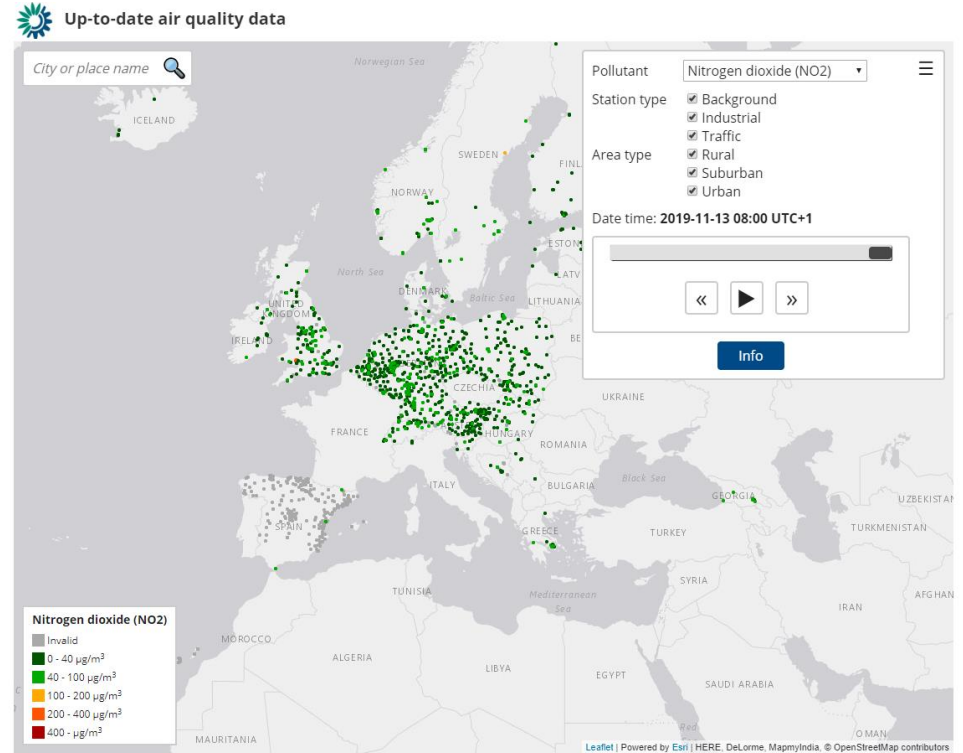
- for all reported pollutants
- data since 1969
- different statistics
- tables, (selective) data download



(c) EEA, <https://aqportal.discomap.eea.europa.eu/products/data-viewers/statistical-viewer-expert/>

EXAMPLE – UP-TO-DATE DATA

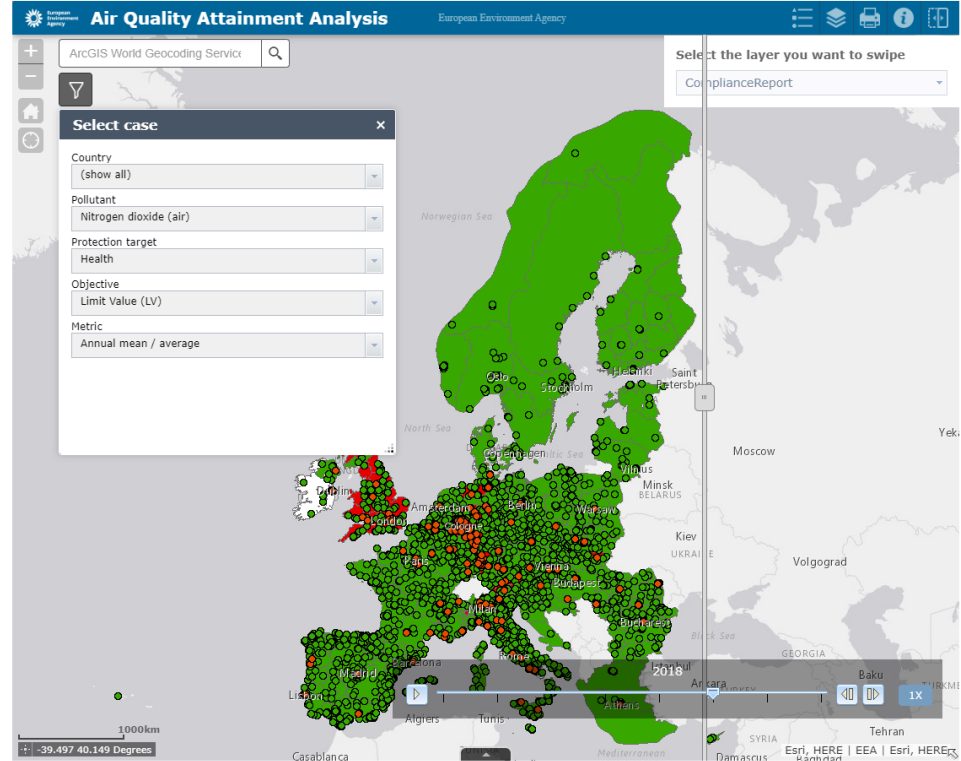
- 6 pollutants available
- last 10 days available
- usually available 2 to 5 hours after measurement
- non-validated data



(c) EEA, <https://aqportal.discomap.eea.europa.eu/products/data-viewers/utd-viewer/>

EXAMPLE – ATTAINMENT VIEWER

- all pollutants covered by Air Quality Directive and 4th Daughter Directive
- data since 2013
- official data and EEA assessment



© EEA, <https://aqportal.discomap.eea.europa.eu/products/attainment-viewers/attainment-map/>

CONTACT & INFORMATION

Johannes Mayer

+43-1-313 04/3240, johannes.mayer@umweltbundesamt.at

Christian Nagl

+43-1-313 04/5866, christian.nagl@umweltbundesamt.at

Umweltbundesamt
www.umweltbundesamt.at

Workshop zu Open Data und Public Sector Information (PSI)
Vienna • 14 November 2019