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# Global gridded $NO_x$ emissions using TROPOMI observations

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**Content of this file:**

- **Texts S1 to S7**
- **Figures S1 to S7**
- **Tables S1 to S2**
- **References**

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**S1. Map of $NO_x$ lifetime determined by OH reaction and evaluated with CAMS data**

The $NO_x$ lifetime, evaluated from the reaction with OH only, is calculated as $\tau = 1/(k_{OH+NO2}(T)\cdot[OH])$ where $k_{OH+NO2}$ is given by Burkholder et al. (2020) and varies with temperature. Figure S1 shows the mean value for this lifetime at the global scale for winter (January, February, December) and summer (June, July, August) months in 2022. Temperature and OH concentrations are taken from CAMS data. As mentioned in Section 4.2, the lifetime does not account for other chemical processes, leading to biased estimations in regions where other $NO_x$ sinks are no longer negligible, as it is the case in forested areas and polar regions.

**S2. Wildfire emissions in Democratic Republic of Congo**

Wildfires account for around 15% of global $NO_x$ emissions (Denman et al., 2007), and are particularly important in grassland and savanna regions such as the Sahel, the Amazon, northern Australia, and the Congo Basin. In the latter region, they contribute to a significant part of the total $NO_x$ budget. While large fires can be observed from space (Jin et al., 2021), smaller and diffuse fires remain challenging to detect. Using our flux-divergence method, we study $NO_x$ emissions from wildfires in the rainforest of the Democratic Republic of Congo. Figure S2 displays estimated emissions for the four seasons in 2022. High emissions are estimated during summer (JJA), often exceeding 2 Pmolecules.cm$^{-2}$.h$^{-1}$, but lower values are estimated during the rest of the year, inconsistent with autumn (SON) emissions which are known to be significant (Mebust, 2013). This probable underestimation may stem from the difficulty in detecting smaller fires occurring outside peak fire seasons, as noted in previous studies (Ramo et al., 2021; Khairoun et al., 2024). It must also be noted that emissions estimates in this region bear high uncertainties, due to potential biases in OH concentrations from CAMS, and the neglect of other $NO_x$ sinks, which can be important here. Note that since wildfire emissions are highly variable from a year to the other, comparing emissions derived from TROPOMI observations with a bottom-up inventory such as EDGAR is of little use since the two estimates concern different years.

**S3. Statistical distribution of point source and diffuse source clusters**

All $NO_x$ sources were cataloged on the basis of their averaged emissions for 2022. A source is defined as a cluster of at least 3 contiguous pixels above the value of 2 Pmolecules.cm$^{-2}$.h$^{-1}$. It is then classified as "point" or "diffuse" according to the number of pixels in the detected cluster, point sources being the clusters comprising 3 to 9 pixels, and diffuse sources those with 10 pixels or more. We detected 436 point sources and 323 diffuse sources. Figure S3 shows the distribution of these two types of emitters on the basis of their total emissions and their number of constitutive pixels. For point sources, we also evaluate if the constitutive pixel emissions are distributed as expected by a diffusion model, i.e. using a 2D-Gaussian curve.

**S4. Spatial distribution of point sources and diffuse sources**

All detected sources, defined as clusters according to Text S3, are displayed for seven regions on Figure S4 and classified as point or diffuse sources. The seven domains correspond to those used in Figure 3.

**S5. Assessment of the threshold influence on the number of identified clusters**

In this study, the detection of sources has been performed on the basis of the identification of clusters made of contiguous pixels with emissions higher than 2 Pmolecules.cm$^{-2}$.h$^{-1}$ (~37 kg.h$^{-1}$ at 60°N/60°S to ~74 kg.h$^{-1}$ at the equator). This threshold remains arbitrary, and the effect of using another threshold must be investigated. Figure S5 compares the detection of sources using thresholds of 2 Pmolecules.cm$^{-2}$.h$^{-1}$ and 3 Pmolecules.cm$^{-2}$.h$^{-1}$, in eastern China, which is the region with the higher concentration of $NO_x$ emissions. In particular, the Beijing mega-cluster, with a size of 2,623 pixels (with the first threshold), is broken down into 31 smaller clusters (12 diffuse sources and 19 point sources) when increasing the threshold to 3 Pmolecules.cm$^{-2}$.h$^{-1}$. These new clusters represent better urban sprawling around the various megacities and industrial facilities in Eastern China. In the same region, three point sources disappear when performing this threshold change.

**S6. Misrepresentation of annual emissions for emitters with low observation densities**

For a given emitter, the absence of high-quality observations over a long period prevents the estimation of monthly emissions. If the actual variability of its activity is high, then missing a part of the year makes the

corresponding annual total unrepresentative of the actual annual emission. In the absence of knowledge of the annual emissions profile, this effect cannot be corrected. Figure S6 shows $NO_x$ emissions for the two largest Russian cities, Moscow and Saint Petersburg, and compares them with EDGAR estimates. Emissions are calculated as the sum of pixels higher than 0.2 Pmolecules.cm$^{-2}$.h$^{-1}$ in a domain of 30×30 pixels around the city center (note that the calculation of this sum suits the comparison with bottom-up estimates here; it differs from the method used for calculating total emissions in Table S1 and Table S2 based on cluster detection). In January, February and December, no high-quality observation was taken above the cities, hence the absence of monthly estimates. It is also the case for some pixels in the domain in March and November. For these cities, the annual emissions therefore do not take into account the winter months, when emissions are particularly high according to the annual profile in EDGAR, and under-represent the contribution of March and November. In the absence of other uncertainties, which are discussed in Section 4, the total budget for these emitters might therefore be underestimated. This situation is typical of countries where high emissions occur while the observation density is the lowest.

**S7. Monitoring of a power plant**

To illustrate the ability of our method to monitor an emitter, we study the activity of the Zaporizhia thermal coal power plant (not to be confused with the adjacent nuclear power plant) in the city of Enerhodar, Ukraine. This power plant has a high capacity (2850 MW), and operational changes have been well-documented in the context of the conflict between Ukrainian and Russian forces: following the outbreak of the conflict on February 24th and the capture of Enerhodar by Russian forces on March 3rd, the plant ceased operations due to coal shortages, as announced by the mayor on May 5th (`https://www.gem.wiki/Zaporizhia_power_station`). No further status updates were available until August 25th. On this day, the nearby nuclear plant lost its grid connection. To maintain the cooling of the nuclear reactors and avoid a radiological accident, the thermal power plant was restarted with fuel and connected to the nuclear facility via a backup line (`https://www.heidi.news/climat/la-centrale-de-zaporijjia-est-deconnectee-du-reseau-electrique`). In November, the Russian press reported that the plant would be used for reserve power supply, but no official statement from DTEK Energy, the owner of the plant, confirmed this affirmation. Using TROPOMI observations, tracking the activity of the thermal power plant over time is possible, but daily estimations are highly challenging due to noise, preventing the use of daily Gaussian fits like in Figure 7. However, it is possible to distinguish between active and inactive periods, the two situations differing by orders of magnitude for powerful emitters. Here, we analyzed the sum of emissions in the 25 pixels centered around the power plant. This includes the Enerhodar city centre, with a population of approximately 54,000 inhabitants (in 2019). It excludes a steel plant 28 km away, although an incorrect estimate of the transport term could shift emissions from this facility into the 25 pixels concerned. Figure S7 presents the time series of the Zaporizhia thermal coal power plant, excluding days for which more than half of the 25 pixels are not observed with high-quality data. A level of residual emissions, corresponding to a hypothetical situation where all the pixels concerned are equal to 0.2 Pmolcules.cm$^{-2}$.h$^{-1}$, is also displayed to separate the orders of magnitude for $NO_x$ emissions. Emissions frequently exceeded 1.0 t.h$^{-1}$ before May 5th, but dropped significantly afterwards, except for August 25th, the exact day when the plant was restarted. These trends align with reported events and illustrate the tracking potential of the flux-divergence scheme. However, uncertainties in the estimated emissions remain due to low observation densities in January. The interpretation of observed trends is also limited by the insufficient knowledge of plant activity in autumn. Emissions after May 5th, though low, exceed expected noise levels, suggesting some ongoing activity, that can be attributed to traffic and residential emissions, or even the nearby steel plant.

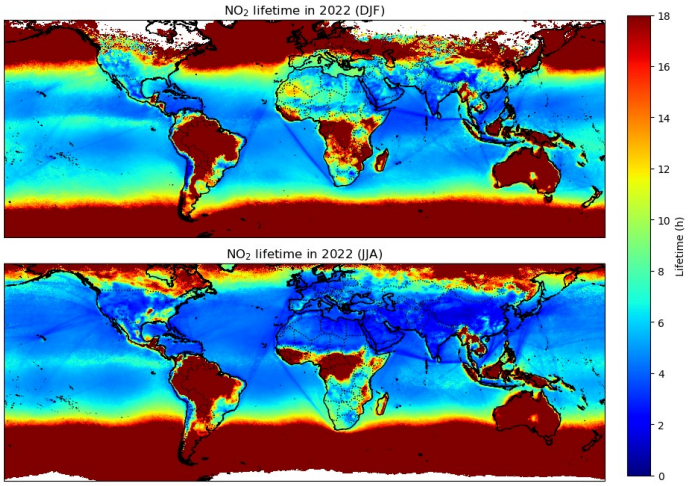


Figure S1 - Mean daytime $NO_x$ lifetimes calculated according to Burkholder et al. (2020) for winter months (DJF, top) and summer months (JJA, bottom) in 2022.

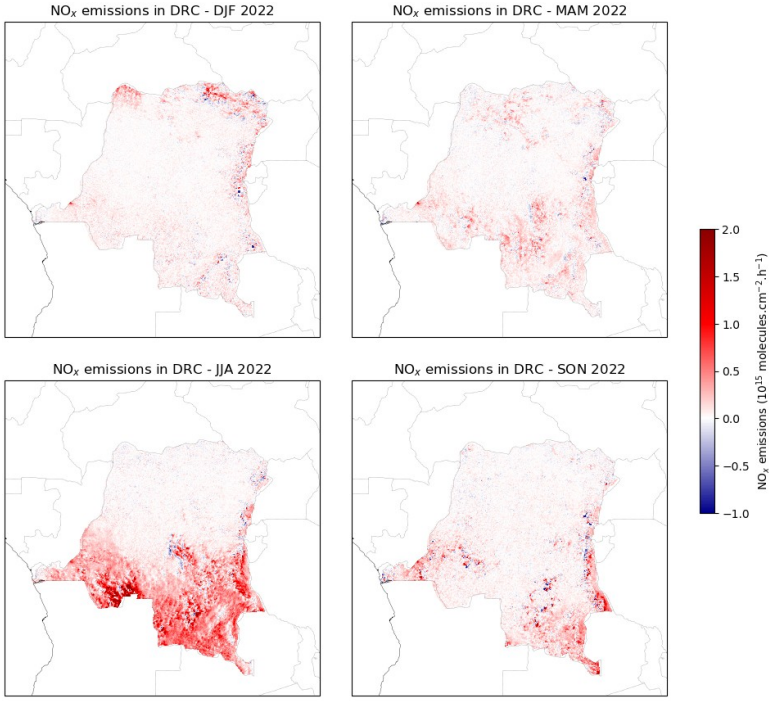


Figure S2 - TROPOMI-derived mean daytime $NO_x$ emission rates by period in 2022 for the Democratic Republic of Congo estimated with the flux-divergence method, showing high fire emissions during the summer period.

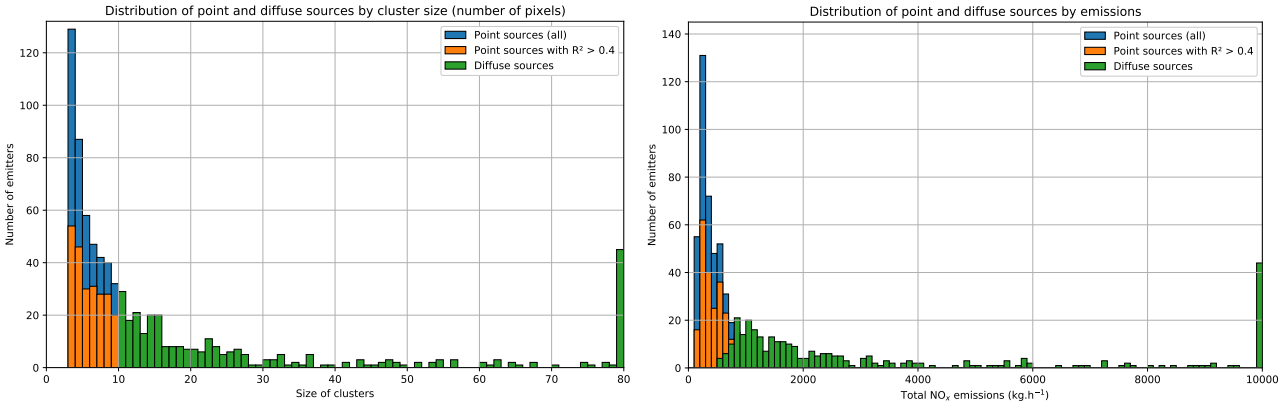


Figure S3 - Distribution of emitters by cluster size (right) and total emissions (left), with a disinction between diffuse sources (10 pixels or more, in green) and point sources (between 3 and 9 pixels, in blue). Point sources with a Gaussian behaviour (2D Gaussian fit with $R^2 > 0.4$) are diplayed in orange.

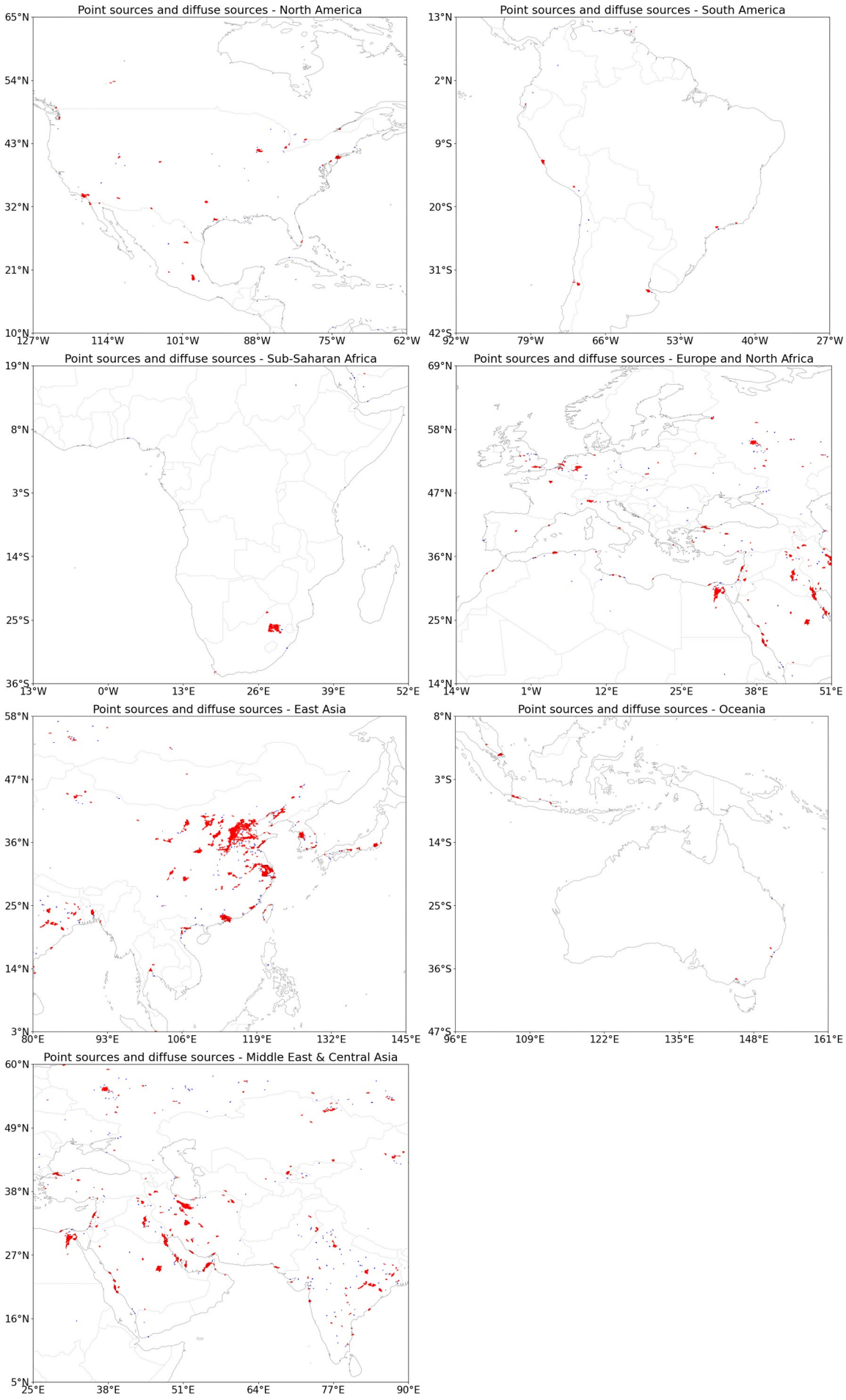


Figure S4 - Distribution of detected point sources (blue) and diffuse sources (red) in North America, South America, Sub-Saharan Africa, Europe and North Africa, East Asia, Oceania, Middle East and Central Asia.

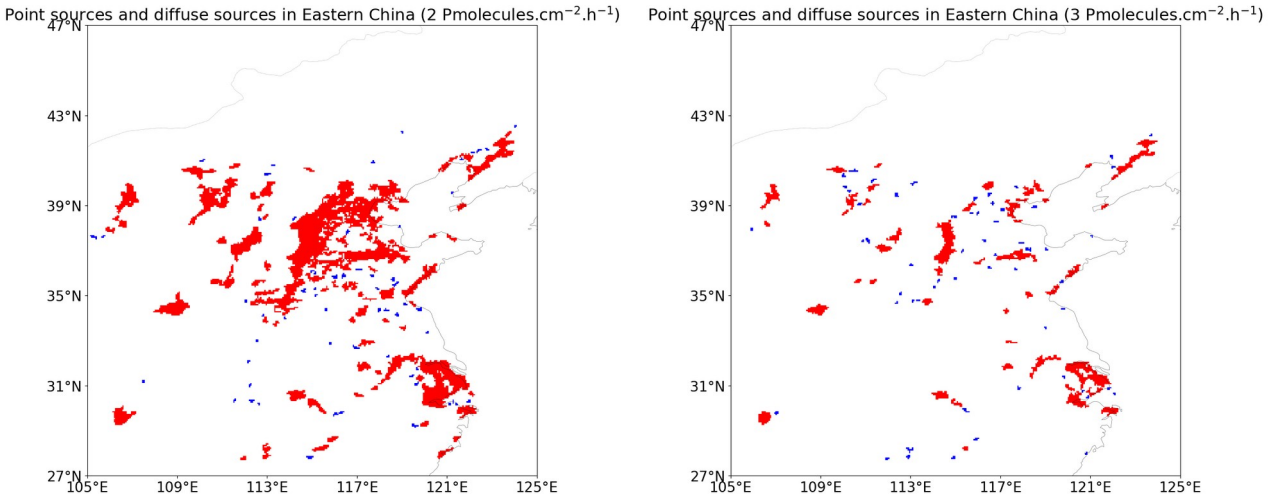


Figure S5 - Distribution of detcted point sources (blue) and diffuse sources (red) in Eastern China (around Beijing) with cluster detection thresholds of $2\times10^{15}$ molecules.cm$^{-2}$.h$^{-1}$ and (left) and $3\times10^{15}$ molecules.cm$^{-2}$.h$^{-1}$ (right).

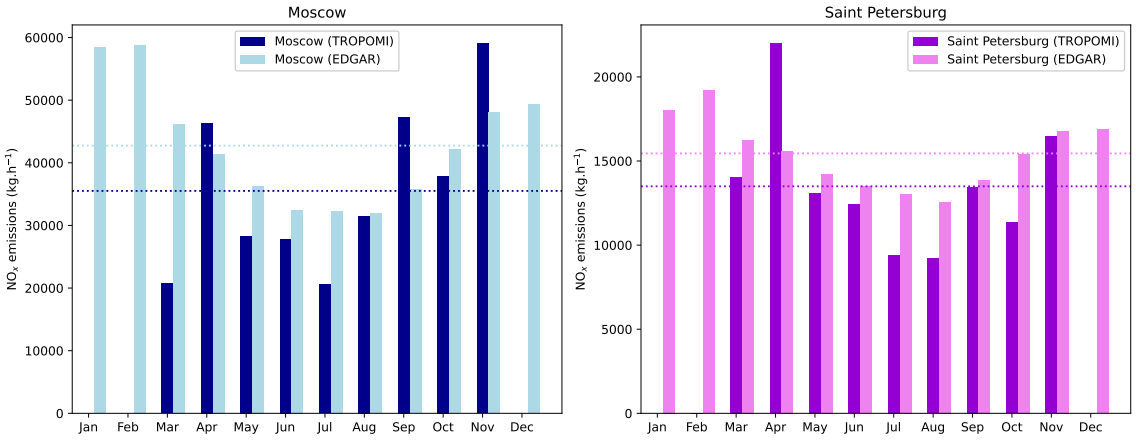


Figure S6 - Comparison between monthly $NO_x$ emissions in EDGARv6.1 and TROPOMI-based estimates in the two largest Russian cities: Moscow (left) and Saint Petersburg (right). Dotted horizontal lines indicate annual estimates calculated averaging daily pixel values and excluding NaNs.

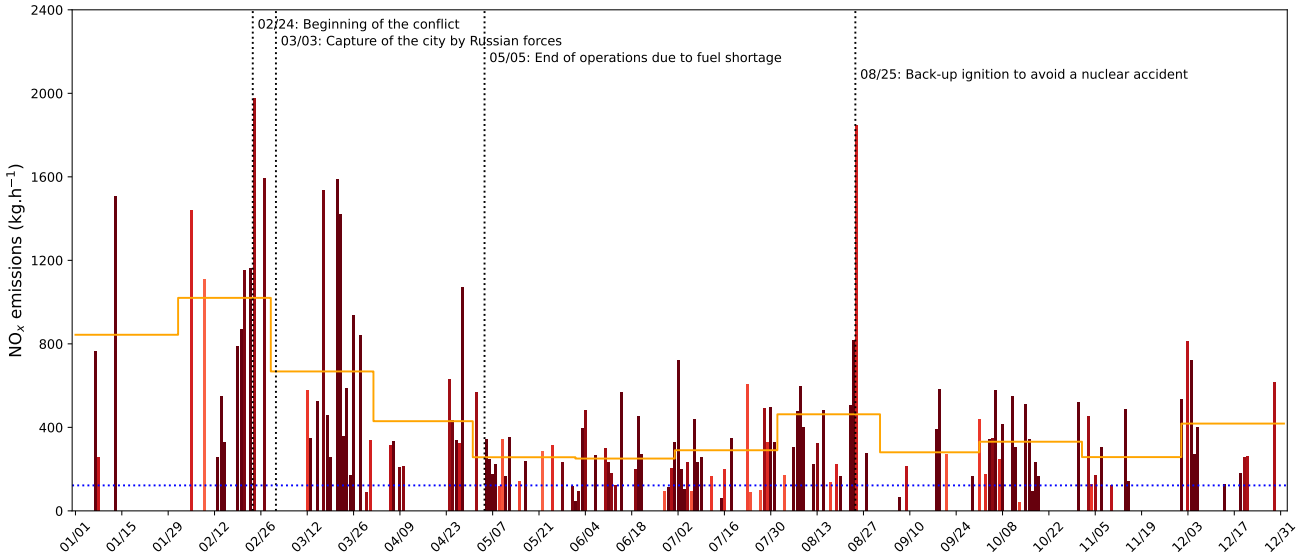


Figure S7 - Time series of estimated $NO_x$ emissions in 2022 for the 25 pixels around the Zaporizhzhia thermal power plant in Enerhodar, Ukraine (47.5069°N, 34.6262°E). Days for which all 25 pixels correspond to high-quality observations are displayed in dark red. Days for which some of those pixels have low-quality observations are shown in light red, except when more than half of the pixels are concerned, in which case the estimate is not shown. Monthly averages, based on that filtering, are displayed in orange. The horizontal blue line indicates the hypothetical situation where all 25 pixels have emissions equal to the threshold used to differentiate residual emissions and low emissions. The main events concerning the activity of the power plant are indicated with vertical dotted lines.

| Cluster size | Mean latitude (°N) | Mean longitude (°E) | Mean emission density (Pmolecules.cm$^{-2}$.h$^{-1}$) | Total emissions (kg.h$^{-1}$) | Corresponding emitter | Type |
|---|---|---|---|---|---|---|
| 2623 | 37,617 | 116,030 | 2,818 | 217886 | Beijing, China | URB |
| 836 | 31,283 | 120,354 | 3,771 | 100211 | Shanghai, China | URB |
| 443 | 35,557 | 51,321 | 6,939 | 93047 | Tehran, Iran | URB |
| 554 | -26,407 | 28,738 | 4,217 | 77788 | Gauteng mining sites, South Africa | MIN |
| 417 | 22,796 | 113,626 | 3,691 | 52783 | Shenzhen & Hong-Kong, China | URB |
| 364 | 29,648 | 31,129 | 4,064 | 47842 | Cairo & Beni Suef, Egypt | URB |
| 302 | 29,585 | 47,872 | 4,496 | 43947 | Kuwait City, Kuwait | URB |
| 171 | 24,650 | 46,791 | 5,708 | 33011 | Riyadh, Saudi Arabia | URB |
| 198 | 32,775 | 44,301 | 5,223 | 32365 | Baghdad, Iraq | URB |
| 255 | 41,124 | 123,005 | 4,281 | 30604 | Anshan, China | URB |
| 347 | 39,339 | 110,659 | 2,933 | 29305 | Ordos mining sites, China | MIN |
| 169 | 25,316 | 55,348 | 4,790 | 27227 | Dubai, United Arab Emirates | URB |
| 193 | 37,251 | 126,822 | 4,425 | 25296 | Seoul, South Korea | URB |
| 157 | 32,583 | 51,602 | 4,796 | 23615 | Ispahan, Iran | URB |
| 124 | 21,112 | 39,313 | 4,886 | 21027 | Jeddah, Saudi Arabia | URB |
| 220 | 37,320 | 112,088 | 3,131 | 20389 | Shanxi, China | URB |
| 177 | 55,706 | 37,508 | 5,121 | 19019 | Moscow, Russia | URB |
| 101 | 24,120 | 82,744 | 5,461 | 18729 | Uttar Pradesh & Madhya Pradesh mining sites, India | MIN |
| 158 | 39,327 | 106,809 | 4,116 | 18724 | Wuhai & Hainan industrial zones, China | IND |
| 83 | -12,183 | -76,853 | 6,101 | 18408 | Lima, Peru | URB |
| 134 | 26,433 | 49,848 | 3,959 | 17676 | Damman industrial zone, Saudi Arabia | IND |
| 114 | 19,651 | -99,158 | 4,401 | 17581 | Mexico City, Mexico | URB |
| 177 | 34,486 | 108,865 | 3,187 | 17296 | Xi’an, China | URB |
| 106 | 23,823 | 90,386 | 4,664 | 16828 | Dacca, Bangladesh | URB |
| 159 | 33,929 | -117,994 | 3,331 | 16349 | Los Angeles, United States | URB |
| 146 | 35,696 | 119,820 | 3,539 | 15615 | Zhuhai, China | URB |
| 127 | 21,814 | 83,656 | 3,543 | 15540 | Odisha mining sites & MSP steel, India | MIN |
| 127 | 41,006 | 29,141 | 4,329 | 15441 | Istanbul, Türkiye | URB |
| 122 | 29,651 | 106,557 | 3,578 | 14118 | Chongqing, China | URB |
| 102 | 35,545 | 139,754 | 4,465 | 13787 | Tokyo, Japan | URB |
| 173 | 51,264 | 6,995 | 3,323 | 13394 | Ruhr, Germany (and correspnding coal mining region) | URB |
| 120 | 40,574 | -73,941 | 3,816 | 12948 | New-York City, United States | URB |
| 85 | 25,334 | 51,462 | 4,277 | 12229 | Doha, Qatar | URB |
| 104 | 30,104 | 32,257 | 3,574 | 11963 | Steel plant (unknown name) & Suez, Egypt | STI |
| 77 | 1,278 | 103,863 | 4,033 | 11549 | Singapore, Singapore | URB |
| 91 | 30,746 | 104,162 | 3,967 | 11545 | Chengdu, China | URB |
| 90 | 33,926 | 35,534 | 4,116 | 11436 | Beyrouth, Lebanon | URB |
| 78 | 21,023 | 106,815 | 4,188 | 11345 | Haïphong, Vietnam | URB |
| 103 | 28,744 | 77,173 | 3,357 | 11281 | Delhi, India | URB |
| 92 | 40,507 | 109,935 | 4,105 | 10686 | Baotou, China | URB |
| 92 | -6,075 | 106,528 | 3,126 | 10636 | Jakarta, Indonesia | URB |
| 77 | 29,888 | 121,862 | 4,111 | 10212 | Ningbo, China | URB |
| 89 | 24,649 | 118,246 | 3,331 | 10026 | Xiamen, China | URB |
| 98 | 52,147 | 76,728 | 4,427 | 9915 | Aluminium plants, Kazakhstan | OTH |
| 75 | 41,220 | 69,114 | 4,534 | 9514 | Tachkent, Uzbekistan | URB |
| 74 | 22,127 | 82,554 | 3,698 | 9431 | Atal Bihari Vajpayee Thermal Power Station, India | TPP |
| 65 | -34,617 | -58,551 | 4,616 | 9181 | Bueno Aires, Argentina | URB |
| 74 | 30,578 | 114,323 | 3,850 | 9129 | Wuhan, China | URB |
| 111 | 36,310 | 103,660 | 2,705 | 9005 | Lanzhou, China | URB |
| 101 | 41,748 | -87,636 | 3,198 | 8968 | Chicago, United States | URB |

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|---|---|---|---|---|---|---|
| 54 | 27,519 | 52,439 | 4,942 | 8807 | Asaluyeh petrochemical complex, Iran | OTH |
| 70 | 36,669 | 3,087 | 4,181 | 8734 | Algiers, Algeria | URB |
| 88 | 34,776 | 50,738 | 3,138 | 8442 | Qom, Iran | URB |
| 56 | 20,948 | 85,135 | 4,218 | 8207 | Anatapur mining sites & Kalikata Plant & JSPL, India | MIN |
| 51 | 24,862 | 67,199 | 4,703 | 8096 | Karachi, Pakistan | URB |
| 54 | 20,322 | 105,955 | 4,099 | 7723 | Ninh Bình industrial zone, Vietnam | IND |
| 64 | 36,283 | 59,521 | 3,992 | 7662 | Mechhed, Iran | URB |
| 92 | 35,677 | 111,139 | 2,745 | 7631 | Unidentified, China | UNK |
| 61 | -33,467 | -70,695 | 4,013 | 7596 | Santiago, Chile | URB |
| 56 | 23,576 | 87,271 | 3,822 | 7300 | Durgapur steel plant, India | STI |
| 67 | 31,412 | 74,116 | 3,401 | 7235 | Lahore, Pakistan | URB |
| 62 | 24,464 | 54,595 | 3,438 | 7221 | Abu Dhabi, United Arab Emirates | URB |
| 41 | 22,563 | 39,083 | 4,964 | 6992 | NOMAC AL Mourjan Electricit Company & Arabian Cement, Saudi Arabia | TPP |
| 90 | 44,016 | 87,604 | 2,850 | 6867 | Urumqi, China | URB |
| 62 | 35,240 | 129,041 | 3,569 | 6723 | Busan, South Korea | URB |
| 60 | 32,090 | 54,068 | 3,428 | 6486 | Yazd, Iran | URB |
| 84 | 51,493 | -0,074 | 3,063 | 5962 | London, United Kingdom | URB |
| 48 | 37,935 | 46,219 | 4,231 | 5960 | Tabriz, Iran | URB |
| 86 | 45,565 | 9,225 | 2,622 | 5876 | Milan, Italy | URB |
| 53 | 13,771 | 100,528 | 3,050 | 5842 | Bangkok, Thailand | URB |
| 56 | 30,141 | 115,162 | 3,227 | 5816 | Huangshi, China | URB |
| 43 | 27,198 | 56,246 | 4,085 | 5813 | Bandar Abbas, Iran | URB |
| 54 | 21,436 | 81,789 | 3,070 | 5740 | Raipur Energen Ltd, India | TPP |
| 46 | 29,503 | 52,546 | 3,723 | 5546 | Shiraz, Iran | URB |
| 64 | 51,899 | 75,632 | 3,751 | 5517 | Ekibastuz mining sites, Kazakhstan | MIN |
| 53 | 36,123 | 43,923 | 3,456 | 5505 | Erbil, Iraq | URB |
| 45 | 25,783 | -100,344 | 3,592 | 5413 | Monterrey, Mexico | URB |
| 51 | 34,681 | 135,231 | 3,409 | 5320 | Osaka, Japan | URB |
| 62 | 35,078 | 118,343 | 2,785 | 5260 | Linyi, China | URB |
| 44 | 31,976 | 36,001 | 3,662 | 5084 | Amman, Jordan | URB |
| 67 | 39,700 | 113,024 | 2,558 | 4907 | Unidentified, China | UNK |
| 48 | 29,776 | -95,268 | 3,137 | 4863 | Houston, United States | URB |
| 46 | 31,851 | 117,291 | 3,344 | 4861 | Hefei, China | URB |
| 60 | 51,909 | 4,264 | 3,505 | 4826 | Rotterdam, Netherlands | URB |
| 49 | 34,943 | 136,767 | 3,109 | 4647 | Nagoya, Japan | URB |
| 30 | 23,929 | 38,298 | 4,180 | 4265 | Yanbu 3 power plant, Saudi Arabia | TPP |
| 36 | 19,049 | 72,936 | 3,202 | 4053 | Mumbai, India | URB |
| 27 | 32,795 | 13,156 | 4,799 | 4052 | Tripoli, Libya | URB |
| 47 | 48,900 | 2,393 | 3,453 | 3972 | Paris, France | URB |
| 24 | -23,659 | 27,508 | 4,836 | 3952 | Grootegeluk mining sites, South Africa | MIN |
| 35 | 24,013 | 120,365 | 3,264 | 3883 | Changua, Taiwan/China | URB |
| 39 | 28,083 | 112,969 | 3,009 | 3853 | Changsha, China | URB |
| 23 | 26,121 | 50,583 | 5,014 | 3852 | Manama, Bahrain | URB |
| 34 | -23,568 | -46,636 | 3,267 | 3787 | Sao Paulo, Brazil | URB |
| 47 | 35,124 | 112,936 | 2,591 | 3707 | Qinyang, China | URB |
| 36 | 43,347 | 76,974 | 3,613 | 3518 | Almaty, Kazakhstan | URB |
| 36 | 39,934 | 32,835 | 3,416 | 3509 | Ankara, Türkiye | URB |
| 47 | 35,430 | 116,688 | 2,431 | 3464 | Jining, China | URB |
| 29 | 17,583 | 83,247 | 3,349 | 3445 | Visakhapatnam steel area, India | STI |
| 41 | 34,295 | 117,229 | 2,730 | 3440 | Gulou district, China | URB |
| 34 | 32,553 | -117,063 | 3,188 | 3399 | San Diego, United States & Tijuana, Mexico | URB |
| 43 | 32,818 | -96,851 | 2,427 | 3264 | Dallas, United States | URB |
| 32 | 31,135 | 29,865 | 3,193 | 3255 | Alexandria, Egypt | URB |

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|---|---|---|---|---|---|---|
| 26 | 34,046 | 49,671 | 3,950 | 3166 | Arak, Iran | URB |
| 43 | 35,783 | 115,110 | 2,416 | 3135 | Puyang, China | URB |
| 25 | 30,216 | 56,891 | 3,884 | 3123 | Cement plant (unknown name) & Kerman, Iran | CEM |
| 36 | 43,842 | 125,325 | 3,220 | 3113 | Changchun, China | URB |
| 39 | 59,922 | 30,345 | 4,268 | 3104 | Saint Petersburg, Russia | URB |
| 31 | 28,223 | 115,408 | 3,048 | 3097 | Unidentified, China | UNK |
| 21 | 22,204 | 91,751 | 4,249 | 3074 | Chittagong, Bangladesh | URB |
| 38 | 43,668 | -79,559 | 2,998 | 3066 | Toronto, Canada | URB |
| 32 | 37,477 | 45,244 | 3,211 | 3033 | Ourmia, Iran | URB |
| 33 | 28,020 | 120,865 | 2,594 | 2812 | Wenzhou, China | URB |
| 23 | 29,507 | 51,716 | 3,715 | 2767 | Unidentified, Iran | UNK |
| 32 | 32,910 | 117,412 | 2,739 | 2737 | Bengbu, China | URB |
| 23 | 34,825 | 127,743 | 3,857 | 2710 | Gwangyang port, China | POR |
| 24 | -16,529 | -71,469 | 3,144 | 2690 | Arequipa & Mining sites, Peru | MIN |
| 26 | 33,550 | -7,596 | 3,320 | 2676 | Casablanca, Morocco | URB |
| 18 | 22,319 | 69,771 | 4,315 | 2674 | Industrial area (unknown name), India | IND |
| 27 | 25,082 | 121,365 | 2,909 | 2647 | Taipei, Taiwan/China | URB |
| 22 | 13,213 | 80,332 | 3,303 | 2632 | Chennai, India | URB |
| 23 | 26,279 | 43,980 | 3,371 | 2587 | Buraydah, Saudi Arabia | URB |
| 25 | 38,171 | 106,591 | 3,529 | 2580 | Ningdongzhen industrial zone, China | IND |
| 26 | 39,248 | 119,002 | 3,410 | 2555 | Jingtang port, China | POR |
| 27 | 33,640 | 72,946 | 3,052 | 2553 | Islamabad, Pakistan | URB |
| 18 | 18,774 | 79,458 | 3,944 | 2501 | Mining sites & Power plant (unknown name), India | MIN |
| 22 | 14,662 | 101,000 | 3,152 | 2495 | Siam Cement, Thailand | CEM |
| 32 | 57,094 | 61,822 | 3,842 | 2485 | Mining sites (unknown name), Russia | MIN |
| 22 | -7,151 | 112,616 | 3,031 | 2461 | Surabaya, Indonesia | URB |
| 19 | 21,423 | 39,834 | 3,723 | 2450 | Mecca, Saudi Arabia | URB |
| 23 | 23,096 | 72,613 | 3,085 | 2428 | Ahmedabad, India | URB |
| 22 | 23,696 | 86,781 | 3,230 | 2421 | IISCO Steel Plant, India | STI |
| 30 | 40,719 | 120,898 | 2,812 | 2378 | Huludao, China | URB |
| 31 | 37,416 | 116,366 | 2,584 | 2367 | Dezhou, China | URB |
| 25 | 55,026 | 83,001 | 4,407 | 2352 | Novossibirsk, Russia | URB |
| 23 | 31,330 | 48,765 | 3,200 | 2340 | Ahwaz, Iran | URB |
| 36 | 53,861 | 87,252 | 2,940 | 2322 | Novokouznetsk industrial zone, Russia | IND |
| 15 | 15,202 | 76,669 | 4,296 | 2313 | KPCL Ozonisation plant & JSW cement plant, India | TPP |
| 32 | 41,154 | 121,898 | 2,561 | 2297 | Panjin, China | URB |
| 25 | 33,449 | -112,136 | 2,957 | 2295 | Phoenix, United States | URB |
| 20 | 21,222 | 79,200 | 3,274 | 2270 | Nagpur, India | URB |
| 22 | 32,551 | 14,361 | 3,287 | 2268 | Leptis Cement & Zliten Cement, Libya | CEM |
| 31 | 36,572 | 101,644 | 2,437 | 2258 | Xining, China | URB |
| 30 | 42,331 | -83,023 | 2,664 | 2200 | Detroit, United States | URB |
| 21 | 21,153 | 72,781 | 3,011 | 2194 | Surat, India | URB |
| 21 | 37,251 | 49,710 | 3,526 | 2194 | Rasht, Iran | URB |
| 20 | 24,722 | 74,656 | 3,238 | 2188 | Nuvoco Vistas Chittorgarh & JK Cement Works, India | CEM |
| 25 | 37,441 | 110,996 | 2,944 | 2175 | Lüliang, China | URB |
| 17 | 19,983 | 79,222 | 3,659 | 2174 | Maharashtra State Power Generation & Dhariwal Power Station, India | TPP |
| 22 | 38,949 | 121,645 | 3,316 | 2112 | Dalian, China | URB |
| 24 | 45,698 | 126,724 | 3,363 | 2099 | Harbin, China | URB |
| 15 | 11,556 | 79,498 | 3,820 | 2088 | Neyveli lignite mining sites, India | MIN |
| 27 | 40,654 | -112,015 | 2,665 | 2033 | Salt Lake City, United States | URB |
| 26 | 39,411 | 112,430 | 2,698 | 2016 | Shuozhou, China | URB |
| 15 | 30,456 | 49,110 | 4,111 | 1978 | Mahshahr industrial zone, Iran | IND |
| 15 | 29,102 | 55,323 | 3,991 | 1946 | Golgohar Sirjan mining sites, Iran | MIN |

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|---|---|---|---|---|---|---|
| 24 | 44,794 | 89,115 | 3,034 | 1923 | Gu'Erban Tonggute Shamo mining sites, China | MIN |
| 22 | 28,631 | 115,909 | 2,659 | 1910 | Nanchang, China | URB |
| 26 | 37,108 | 118,913 | 2,457 | 1895 | Haihua Group Power Plant, China | TPP |
| 14 | 24,518 | 56,571 | 3,979 | 1886 | Sohar power plant, Oman | TPP |
| 27 | 47,406 | -122,344 | 2,761 | 1877 | Seattle, United States | URB |
| 20 | 51,256 | 4,322 | 4,026 | 1876 | Antwerp, Belgium | URB |
| 18 | 31,684 | -106,389 | 3,281 | 1870 | El Paso, United States & Ciudad Juarez, Mexico | URB |
| 15 | 28,456 | 36,552 | 3,790 | 1860 | Tabuk, Saudi Arabia | URB |
| 25 | 35,569 | 112,566 | 2,455 | 1858 | Yangcheng power station, China | TPP |
| 23 | -37,819 | 145,001 | 2,679 | 1810 | Melbourne, Australia | URB |
| 23 | 36,314 | 113,012 | 2,618 | 1805 | Power plant (unknown name), China | TPP |
| 21 | 40,751 | 111,573 | 3,031 | 1794 | Hohhot, China | URB |
| 22 | 40,398 | -3,648 | 2,862 | 1785 | Madrid, Spain | URB |
| 26 | 51,279 | 3,849 | 2,931 | 1775 | Anvers port, Belgium | POR |
| 20 | 36,241 | 58,866 | 2,951 | 1771 | Nishapur, Iran | URB |
| 26 | 52,385 | 4,760 | 2,974 | 1757 | Amsterdam, The Netherlands | URB |
| 13 | 30,397 | 48,286 | 4,125 | 1722 | Khorramchahr & Abadan, Iran | URB |
| 22 | 39,892 | -75,207 | 2,735 | 1718 | Philadelphia, United States | URB |
| 17 | 22,531 | 88,259 | 2,933 | 1713 | Kolkatta, India | URB |
| 24 | 55,005 | 73,453 | 3,331 | 1707 | Omsk & CHP-5, Russia | TPP |
| 14 | 31,982 | 44,946 | 3,853 | 1702 | Diwaniya, Iraq | URB |
| 22 | 44,455 | 86,028 | 2,902 | 1696 | Shihezi, China | URB |
| 15 | 22,790 | 86,215 | 3,279 | 1687 | Jamshedpur urban and industrial region, India | IND |
| 19 | 31,988 | 34,863 | 2,807 | 1683 | Tel Aviv, Israel | URB |
| 28 | 50,266 | 19,063 | 2,480 | 1653 | Katowice, Poland | URB |
| 19 | 36,788 | 43,143 | 2,908 | 1646 | Unidentified, Iraq | UNK |
| 21 | 38,058 | 58,323 | 2,666 | 1640 | Ashgabat, Turkmenistan | URB |
| 17 | -32,439 | 150,991 | 3,032 | 1618 | Muswellbrook to Brok coal mining sites, Australia | MIN |
| 19 | 25,926 | -80,238 | 2,539 | 1614 | Miami, United States | URB |
| 15 | 36,806 | 10,223 | 3,612 | 1614 | Tunis, Tunisia | URB |
| 13 | 27,132 | 30,998 | 3,743 | 1611 | Asyut & Cemex Egypt, Egypt | CEM |
| 17 | -22,855 | -43,267 | 2,758 | 1607 | Rio de Janeiro, Brazil | URB |
| 15 | 34,510 | 133,823 | 3,410 | 1569 | Okayama, Japan | URB |
| 15 | 3,040 | 101,456 | 2,806 | 1563 | Kuala Lumpur, Malaysia | URB |
| 18 | 25,375 | 56,354 | 2,583 | 1563 | Fujairah Power Plant, United Arab Emirates | TPP |
| 11 | 32,111 | 20,088 | 4,501 | 1560 | Benghazi, Libya | URB |
| 18 | 34,351 | 47,212 | 2,784 | 1539 | Kermanshah, Iran | URB |
| 21 | 51,683 | 39,296 | 3,149 | 1526 | Voronej, Russia | URB |
| 12 | 17,635 | 44,354 | 3,581 | 1524 | Najran, Saudi Arabia | URB |
| 20 | 29,622 | 103,572 | 2,345 | 1517 | Leshan, China | URB |
| 19 | 29,301 | 120,015 | 2,461 | 1517 | Beiyuan, China | URB |
| 22 | 39,790 | -104,886 | 2,400 | 1509 | Denver, United States | URB |
| 15 | 25,431 | 85,881 | 2,992 | 1508 | Barauni thermal power station, India | TPP |
| 13 | 24,733 | 87,897 | 3,415 | 1500 | NTPC Farakka, India | TPP |
| 17 | 21,053 | 105,921 | 2,527 | 1492 | Hanoi, Vietnam | URB |
| 16 | -33,098 | -71,453 | 2,983 | 1486 | Valparaíso & Viña del Mar & Quilpué, Chile | URB |
| 16 | 39,828 | 98,313 | 3,207 | 1467 | Mining sites (unknown name), China | MIN |
| 18 | 31,333 | 119,802 | 2,559 | 1464 | Yixing & Dingshuzhen, China | URB |
| 19 | 40,896 | 14,304 | 2,729 | 1459 | Naples, Italy | URB |
| 14 | 25,246 | 87,268 | 3,093 | 1457 | Kahalgaon power station, India | TPP |
| 20 | 36,884 | 115,800 | 2,436 | 1450 | Power plant (unknown name), China | TPP |
| 20 | 37,913 | 106,025 | 2,468 | 1449 | Qingtongxia industrial zone & Wuzhong, China | IND |
| 17 | 37,553 | 121,211 | 2,827 | 1418 | Yantai, China | URB |

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|---|---|---|---|---|---|---|
| 15 | 37,356 | 57,969 | 3,185 | 1413 | Shirvan & Shirvan Combine Cycle Power Plant, Iran | TPP |
| 13 | 40,416 | 49,868 | 3,807 | 1402 | Baku, Azerbaijan | URB |
| 16 | 33,984 | 51,512 | 2,839 | 1401 | Kashan, Iran | URB |
| 15 | 16,806 | 79,923 | 2,610 | 1394 | Maha Cement Mellacheruvu & Rain Cements & Sagar Cements, India | CEM |
| 11 | 16,327 | 77,361 | 3,518 | 1382 | ARV Cement society office & KPCL & Yermarus station, India | CEM |
| 18 | 49,986 | 73,156 | 3,088 | 1330 | ArcelorMittal Temirtau JSC, Kazakhstan | STI |
| 14 | 38,022 | 23,634 | 3,201 | 1314 | Athens, Greece | URB |
| 14 | 35,866 | 128,616 | 3,100 | 1309 | Daegu, South Korea | URB |
| 11 | 22,548 | 120,327 | 3,461 | 1308 | Kaohsiung, Taiwan/China | URB |
| 18 | 41,403 | 2,115 | 2,596 | 1305 | Barcelone, Spain | URB |
| 14 | 33,862 | 130,888 | 2,992 | 1294 | Kitakyūshū, Japan | URB |
| 12 | 20,641 | -103,354 | 3,071 | 1283 | Guadalajara, Mexico | URB |
| 13 | 35,906 | 140,656 | 3,247 | 1272 | Kashima port, Japan | POR |
| 16 | 53,563 | 49,438 | 3,573 | 1264 | Togliatti, Russia | URB |
| 14 | 31,469 | 104,750 | 2,801 | 1244 | Mianyang, China | URB |
| 13 | 33,478 | 36,281 | 3,069 | 1238 | Damascus, Syria | URB |
| 11 | 24,378 | 88,116 | 3,315 | 1236 | Sagardighi Thermal Power Project & Sonar Bangla Cement, India | TPP |
| 15 | 36,615 | 127,285 | 2,745 | 1230 | Sejong, South Korea | URB |
| 16 | 55,188 | 61,438 | 3,590 | 1221 | Tcheliabinsk, Russia | URB |
| 11 | 14,327 | 80,179 | 3,076 | 1220 | Sri Damodaram Sanjeevaiah power plant, India | TPP |
| 14 | 35,777 | -0,290 | 2,870 | 1214 | Oran industrial zone, Algeria | IND |
| 15 | -33,960 | 18,560 | 2,623 | 1214 | Cape Town, South Africa | URB |
| 15 | 28,648 | 121,423 | 2,457 | 1204 | Taizhou, China | URB |
| 12 | 32,609 | -115,432 | 3,178 | 1195 | Mexicali, Mexico | URB |
| 12 | 30,896 | 117,807 | 3,078 | 1180 | Xian de Tongling industrial zone, China | IND |
| 14 | 42,978 | 90,121 | 3,077 | 1173 | Power plant (unknown name), China | TPP |
| 14 | 39,205 | -76,607 | 2,903 | 1172 | Baltimore, United States | URB |
| 14 | 53,223 | 76,629 | 3,723 | 1161 | Unidentified, Kazakhstan | UNK |
| 15 | 30,581 | 117,069 | 2,412 | 1159 | Anqing, China | URB |
| 12 | 39,599 | 126,318 | 3,367 | 1158 | Beichanghua Power Station, North Korea | TPP |
| 10 | 14,688 | 78,481 | 3,161 | 1138 | Zuari Cement Rayalasema & Zuari Thermal Plant, India | CEM |
| 12 | 36,328 | 43,177 | 3,148 | 1133 | Mosul, Iraq | URB |
| 12 | 23,552 | 58,281 | 2,757 | 1128 | Muscat, Oman | URB |
| 14 | 54,607 | 39,817 | 3,729 | 1125 | Riazan, Russia | URB |
| 14 | 52,594 | 39,629 | 3,551 | 1123 | Lipetsk urban and industrial zone, Russia | IND |
| 15 | 42,348 | 69,635 | 2,724 | 1123 | Chimkent, Kazakhstan | URB |
| 10 | 27,769 | 111,950 | 3,384 | 1114 | Loudi, China | URB |
| 16 | 45,500 | -73,609 | 2,652 | 1107 | Montreal, Canada | URB |
| 13 | 51,565 | 46,046 | 3,665 | 1102 | Saratov, Russia | URB |
| 12 | 40,188 | 44,542 | 3,193 | 1089 | Yerevan, Armenia | URB |
| 11 | 37,469 | 129,128 | 3,324 | 1080 | Ssangyong C&E Cement Donghae & Eastern Metal Donghae, South Korea | CEM |
| 19 | 55,308 | 38,488 | 2,678 | 1078 | Unidentified, Russia | UNK |
| 13 | 36,156 | 117,704 | 2,755 | 1076 | Gangsheng & Laiwu, China | URB |
| 10 | -2,156 | -79,894 | 2,879 | 1070 | Guayaquil, Equator | URB |
| 16 | 37,578 | 117,574 | 2,256 | 1065 | Yangxin County, China | URB |
| 15 | 33,910 | 116,798 | 2,293 | 1062 | Huaibei, China | URB |
| 14 | 36,554 | 52,714 | 2,522 | 1056 | Babol, Iran | URB |
| 13 | -33,892 | 151,103 | 2,626 | 1054 | Sydney, Australia | URB |
| 11 | 38,486 | 27,162 | 3,242 | 1039 | Izmir, Türkiye | URB |
| 14 | 30,763 | 30,830 | 2,282 | 1022 | Unidentified, Egypt | UNK |
| 14 | 42,853 | -82,411 | 2,671 | 1020 | Point Edward, Canada & Port Huron, United States | URB |
| 17 | 59,131 | 38,006 | 3,137 | 1019 | Tcherepovets industrial zone, Russia | IND |
| 10 | 10,463 | -61,519 | 2,760 | 1010 | Chaguanas, Trinidad and Tobago | URB |

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|---|---|---|---|---|---|---|
| 10 | -7,719 | 113,563 | 2,739 | 1010 | PLTU Paiton, Indonesia | TPP |
| 11 | 36,736 | 36,168 | 3,078 | 1010 | Industrial zone (unknown name), Türkiye | IND |
| 17 | 53,796 | -112,932 | 2,696 | 1007 | Edmonton & Nutrien Redwater Fertilizer, Canada | OTH |
| 10 | 33,063 | -8,656 | 3,218 | 1004 | Chemical and coal complex, Morocco | OTH |
| 10 | 24,450 | 39,613 | 2,962 | 1003 | Medina, Saudi Arabia | URB |
| 10 | -6,456 | 110,763 | 2,712 | 1003 | PLTU Tanjungjati, Indonesia | TPP |
| 13 | 40,425 | 71,743 | 2,673 | 984 | Marguilan & Ferghana, Uzbekistan | URB |
| 10 | 38,369 | 36,981 | 3,367 | 982 | Afşin Elbistan Termik Santrali & mining sites, Türkiye | TPP |
| 12 | 36,844 | 53,234 | 2,743 | 980 | Neka power plant, Iran | TPP |
| 12 | 42,167 | 123,729 | 2,940 | 973 | Tieling, China | URB |
| 10 | 32,456 | 34,938 | 3,043 | 956 | Orot Rabin Power Plant, Israel | TPP |
| 12 | 31,594 | 117,958 | 2,506 | 953 | Woniu, China | URB |
| 15 | 53,535 | 9,965 | 2,867 | 951 | Hamburg, Germany | URB |
| 12 | 33,906 | 112,932 | 2,533 | 938 | Shilong industrial zone, China | IND |
| 11 | 30,634 | 122,094 | 2,662 | 938 | Xiaoyang island port, China | POR |
| 13 | 37,642 | 120,373 | 2,415 | 925 | Longkou, China | URB |
| 11 | 23,452 | 116,696 | 2,458 | 923 | Chaozhou, China | URB |
| 10 | 40,144 | 65,300 | 3,219 | 916 | Navoi & mining sites, Uzbekistan | MIN |
| 15 | 54,385 | 86,310 | 2,796 | 909 | Bachatsky mining sites, Russia | MIN |
| 13 | 41,060 | 121,262 | 2,478 | 904 | Jinzhou, China | URB |
| 16 | 56,258 | 44,016 | 2,714 | 898 | Nijni Novgorod, Russia | URB |
| 12 | 35,052 | 117,172 | 2,436 | 890 | Tengzhou, China | URB |
| 11 | 33,565 | 119,060 | 2,610 | 890 | Huai’an, China | URB |
| 12 | 38,745 | 26,896 | 2,549 | 888 | Çakmaklı & Izmir, Türkiye | URB |
| 12 | 45,083 | 39,052 | 2,804 | 884 | Krasnodar, Russia | URB |
| 11 | 35,412 | 44,310 | 2,618 | 873 | Kirkouk, Iraq | URB |
| 14 | 38,906 | 112,701 | 2,154 | 873 | Power plant (unknown name), China | TPP |
| 14 | 49,237 | -122,969 | 2,555 | 869 | Vancouver, Canada | URB |
| 10 | 35,375 | 47,031 | 2,783 | 844 | Sanandaj & Qolyan Iran Power Plant, Iran | TPP |
| 10 | 30,356 | 30,556 | 2,630 | 844 | Steel area (unknown name), Egypt | STI |
| 13 | 40,599 | 114,877 | 2,291 | 841 | Xian de Xuanhua industrial zone, China | IND |
| 12 | 38,427 | 106,318 | 2,404 | 841 | Yinchuan, China | URB |
| 10 | 24,975 | 102,781 | 2,463 | 831 | Kunming, China | URB |
| 12 | 40,901 | 69,625 | 2,456 | 829 | Ohangaran & Almalyk mining and metallurgical combine, Uzbekistan | MIN |
| 11 | 35,276 | 115,571 | 2,480 | 829 | Heze, China | URB |
| 10 | 47,888 | 106,838 | 3,302 | 824 | Oulan-Bator, Mongolia | URB |
| 10 | 36,894 | 34,800 | 2,763 | 822 | Mersin & Tarse, Türkiye | URB |
| 12 | 51,193 | 71,563 | 2,933 | 821 | Astana & AO Astana Tets-2, Kazakhstan | TPP |
| 10 | 34,631 | 119,481 | 2,676 | 819 | Lianyun industrial zone, China | IND |
| 12 | 34,844 | 117,552 | 2,227 | 816 | Shizhong, China | URB |
| 10 | 33,894 | 118,275 | 2,622 | 810 | Suqian, China | URB |
| 11 | 40,253 | 29,003 | 2,534 | 792 | Bursa, Türkiye | URB |
| 11 | 53,241 | 77,571 | 3,205 | 785 | Unidentified, Kazakhstan/Russia | UNK |
| 14 | 53,393 | -2,839 | 2,493 | 775 | Liverpool, United Kingdom | URB |
| 11 | 35,503 | 116,014 | 2,282 | 761 | Unidentified, China | UNK |
| 12 | 53,276 | 50,313 | 2,840 | 759 | Samara, Russia | URB |
| 10 | 30,456 | 76,638 | 2,357 | 756 | Rajpura & Ambala, India | URB |
| 10 | 33,750 | 113,406 | 2,376 | 735 | Weidong, China | URB |
| 14 | 54,058 | 86,585 | 2,392 | 732 | Krasnobrodsky to Kisseliovsk mining sites, Russia | MIN |
| 10 | 37,400 | 118,538 | 2,420 | 716 | Dongying, China | URB |
| 10 | 51,269 | 37,750 | 3,013 | 702 | Mining sites (unknown name), Russia | MIN |
| 11 | 37,713 | 117,298 | 2,145 | 695 | Unidentified, China | UNK |
| 10 | 52,488 | 103,938 | 3,043 | 690 | Angarsk industrial zone, Russia | IND |

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|---|---|---|---|---|---|---|
| 12 | 53,443 | -2,229 | 2,532 | 674 | Manchester, United Kingdom | URB |
| 10 | 38,500 | 112,938 | 2,308 | 672 | Xian de Dingxiang, China | URB |
| 11 | 53,514 | -113,474 | 2,643 | 644 | Edmonton, Canada | URB |
| 10 | 53,800 | 27,456 | 2,777 | 610 | Minsk, Belarus | URB |
| 10 | 52,206 | 21,000 | 2,628 | 600 | Warsaw, Poland | URB |
| 10 | 45,481 | 10,250 | 2,275 | 593 | Brescia, Italy | URB |
| 10 | 56,000 | 93,000 | 2,820 | 587 | Krasnoïarsk, Russia | URB |
| 10 | 52,481 | -1,906 | 2,494 | 565 | Birmingham, United Kingdom | URB |

Table S1 - List of diffuse sources with the number of pixels within the corresponding cluster, the mean latitude and longitude, the mean emission density within cluster and the total daily $NO_x$ emissions using the flux-divergence method. The corresponding emitter is identified, as well the sector probably accounting for the majority of the emissions within the emitter (nine categories are considered: urban (URB), mining (MIN), iron and steel (STI), cement (CEM), power generation (TPP), port (POR), mixed (IND), other (OTH) and unknown sector (UNK)).

| **Latitude (°N)** | **Longitude (°E)** | $R^2$ | **Total cluster emissions (kg.h$^{-1}$)** | **Emissions – Gaussian fit (kg.h$^{-1}$)** | **Cluster size** | **Country** | **Name of most possible emitters** | **Main sector** |
|---|---|---|---|---|---|---|---|---|
| 31,969 | 11,141 | 0,929 | 1196,4 | 839,7 | 8 | Libya | Hawamid Gas Power Plant | TPP |
| 31,706 | 6,056 | 0,925 | 930,9 | 356,1 | 5 | Algeria | Hassi Messaoud Oil field | OTH |
| 27,188 | 60,500 | 0,912 | 1140,1 | 440,6 | 4 | Iran | Iranshahr | TPP |
| 29,164 | 74,023 | 0,905 | 1090,1 | 959,6 | 8 | India | Suratgarh Super Critical Unit-7&8 | TPP |
| 24,711 | 84,102 | 0,904 | 1353,4 | 806,8 | 8 | India | Nabi Nagar | TPP |
| 12,977 | 77,602 | 0,902 | 1498,4 | 804,7 | 8 | India | Bangalore | URB |
| 15,606 | 32,506 | 0,9 | 1310,4 | 463,5 | 5 | Sudan | Khartoum | URB |
| 25,148 | 75,836 | 0,898 | 1169,6 | 931,7 | 8 | India | Kota Super Thermal Power Station | TPP |
| 12,862 | 44,978 | 0,886 | 1437,2 | 853,7 | 7 | Yemen | President PP (Petromasila) & Shaykh Uthman urban area | TPP |
| 17,448 | 78,448 | 0,885 | 1134 | 237,9 | 3 | India | Hyperabad | URB |
| 29,500 | 60,813 | 0,885 | 815,1 | 384,6 | 4 | Iran | Zahedan power station & Zahedan urban area | TPP |
| 26,573 | 12,677 | 0,882 | 617,3 | 261,8 | 3 | Libya | Ubari | TPP |
| 16,500 | 75,844 | 0,876 | 956,6 | 628,2 | 6 | India | NTPC Kudgi | TPP |
| 32,344 | 15,109 | 0,876 | 1186 | 683,6 | 8 | Libya | Libyan Iron Steel Company | STI |
| 27,469 | 41,719 | 0,874 | 1321,1 | 837,8 | 7 | Saudi Arabia | GCB Hail PP-2 & Hail urban area | TPP |
| 23,292 | 81,042 | 0,872 | 1013,5 | 613,3 | 6 | India | Sanjay Gandhi | TPP |
| 24,385 | 109,378 | 0,863 | 1506,7 | 994,5 | 9 | China | Liuzhu industrial zone | IND |
| 53,378 | 83,670 | 0,857 | 1098,4 | 606,4 | 9 | Russia | Barnaul | URB |
| 24,375 | 85,563 | 0,856 | 744,8 | 402,3 | 4 | India | Koderma | TPP |
| 28,677 | -106,073 | 0,854 | 827 | 217,1 | 3 | Mexico | Chihuaha | URB |
| 44,433 | 26,112 | 0,852 | 1269,5 | 530,1 | 7 | Romania | Bucarest | URB |
| 25,500 | 78,750 | 0,851 | 589,6 | 331,8 | 4 | India | Parichha | TPP |
| 26,254 | 74,201 | 0,846 | 1005,9 | 795,2 | 7 | India | Shree Cement Limited | CEM |
| 32,302 | 70,760 | 0,841 | 491,2 | 237 | 3 | Pakistan | Lucky Cement Limited Pezu Plant | CEM |
| 26,555 | 101,703 | 0,838 | 1530,5 | 707 | 8 | China | Panzhihua industrial zone | IND |
| 15,356 | 44,231 | 0,836 | 1083 | 457,9 | 5 | Yemen | Sanaa | URB |
| 30,694 | 33,794 | 0,83 | 907,6 | 476 | 5 | Egypt | Al-Aarish & Sinai White Cement | CEM |
| 6,469 | 3,406 | 0,827 | 1560,9 | 725,5 | 7 | Nigeria | Lagos | URB |
| 37,938 | 32,500 | 0,825 | 901,5 | 355,3 | 4 | Türkiye | Konya | URB |
| 31,188 | 107,500 | 0,818 | 754,6 | 341,6 | 4 | China | Dazhou | URB |
| 38,692 | 35,513 | 0,815 | 1026 | 526,6 | 7 | Türkiye | Kayseri | URB |
| 21,047 | 75,844 | 0,813 | 778,5 | 377,3 | 4 | India | Bhusawal | TPP |
| 6,948 | 79,885 | 0,813 | 796,3 | 224 | 3 | Sri Lanka | Kelanitissa Power Station & Colombo | TPP |
| 39,201 | -111,031 | 0,813 | 1235,1 | 556 | 7 | United States | PacifiCorp Hunter | TPP |
| 25,578 | -103,430 | 0,809 | 1630,3 | 729,2 | 8 | Mexico | Torréon & Met-Mex Peñoles | OTH |
| 22,094 | 76,531 | 0,806 | 812,3 | 269,6 | 3 | India | Shree Singaji | TPP |

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|---|---|---|---|---|---|---|---|---|
| 40,115 | 31,698 | 0,805 | 785,2 | 215,9 | 3 | Türkiye | Çayırhan | TPP |
| 34,438 | 60,344 | 0,803 | 836,3 | 292,8 | 4 | Iran | Sangan industrial zone | IND |
| 22,135 | -100,927 | 0,799 | 1088,7 | 266,7 | 3 | Mexico | San Luis Potosí | URB |
| 36,135 | -115,135 | 0,799 | 1519,6 | 439,7 | 6 | United States | Las Vegas | URB |
| 25,888 | 81,344 | 0,798 | 814,4 | 730,8 | 7 | India | Feroze Gandhi Unchahar | TPP |
| 22,809 | 70,899 | 0,797 | 1406,1 | 816,7 | 9 | India | Lakhdhirpur & Mahendranagar & Sardar Nagar | URB |
| -22,302 | -68,892 | 0,794 | 1549,1 | 811,8 | 9 | Chile | Chuquicamata chemical complex | IND |
| 51,219 | 58,344 | 0,792 | 803,8 | 160,1 | 3 | Russia | Novotroïtsk industrial zone | IND |
| -20,119 | 57,481 | 0,791 | 1136,8 | 544,3 | 5 | Mauritius | Fort George Thermal Power Station & Port Louis | TPP |
| 47,461 | 19,086 | 0,789 | 1065,5 | 474 | 8 | Hungary | Budapest | URB |
| 41,869 | 12,481 | 0,786 | 1207,5 | 302,5 | 5 | Italy | Rome | URB |
| -2,813 | 122,188 | 0,783 | 1207,3 | 471,9 | 4 | Indonesia | Dexin Steel Indonesia | STI |
| 31,019 | 46,194 | 0,782 | 1060,8 | 525,4 | 5 | Iraq | Nassiriya | URB |
| 42,885 | 74,563 | 0,779 | 1123,9 | 410 | 6 | Kyrgyzstan | Bichkek | URB |
| 38,774 | -9,226 | 0,779 | 1464 | 684,8 | 9 | Portugal | Lisbon | URB |
| 53,453 | 59,125 | 0,778 | 1122,2 | 584,1 | 8 | Russia | Magnitogorsk urban and industrial zone | IND |
| 24,106 | 52,681 | 0,776 | 1290,4 | 556,4 | 5 | United Arab Emirates | Al Ruways Industrial City | IND |
| 21,549 | 109,522 | 0,772 | 1079,9 | 722,7 | 7 | China | Tieshangang industrial zone | IND |
| 11,769 | 77,819 | 0,772 | 967,2 | 582,7 | 5 | India | Mettur 1&2 | TPP |
| 31,240 | 37,427 | 0,769 | 667,7 | 224,6 | 3 | Saudi Arabia | Al Qurayyat | TPP |
| 11,313 | 108,781 | 0,769 | 920,6 | 343,8 | 4 | Vietnam | Nhà Máy Nhiệt Điện Vĩnh Tân 2 | TPP |
| 14,635 | 121,080 | 0,765 | 1610,3 | 1090,3 | 9 | Philippines | Manila | URB |
| 59,677 | -158,365 | 0,764 | 330,6 | 141,6 | 3 | United States | Outlier - Empty area | OUT |
| 29,313 | 75,875 | 0,763 | 555,4 | 334,2 | 4 | India | Rajiv Gandhi - Residential Colony | TPP |
| 19,086 | -98,164 | 0,755 | 1415,8 | 778,8 | 8 | Mexico | Central Ciclo Combinado San Lorenzo & Puebla urban area | TPP |
| 24,177 | -110,302 | 0,754 | 567,6 | 233,5 | 3 | Mexico | La Paz | URB |
| 53,744 | 91,356 | 0,753 | 1023,4 | 254 | 5 | Russia | Abakanskiy Filial Sibirskaya Generiruyushchaya Kompaniya | TPP |
| 39,500 | -112,563 | 0,753 | 614,3 | 281,8 | 4 | United States | Intermountain Power Service Corporation | TPP |
| 18,047 | 106,453 | 0,753 | 690,8 | 374 | 4 | Vietnam | Xưởng Luyện Cốc | TPP |
| 51,819 | 55,144 | 0,752 | 986 | 274,2 | 5 | Russia | Orenburg | URB |
| 21,396 | 79,958 | 0,749 | 952,2 | 656 | 6 | India | Adani | TPP |
| 8,746 | 78,210 | 0,748 | 1377,5 | 866 | 7 | India | Tuticorin | TPP |
| 27,997 | 78,135 | 0,747 | 912,9 | 815,1 | 9 | India | Kasimpur Power House Colony | TPP |
| 28,500 | -100,688 | 0,747 | 999,8 | 473,4 | 4 | Mexico | Central Termoeléctrica Carbón I & II, José López Portillo | TPP |
| 41,198 | -95,865 | 0,747 | 855,7 | 182 | 3 | United States | Omaha & Mid American Energy Walter Scott Jr. Energy Center | URB |
| 37,519 | 61,819 | 0,744 | 1043 | 395,5 | 5 | Turkmenistan | Mary-3 | TPP |
| 39,094 | -94,594 | 0,743 | 1061,3 | 225 | 3 | United States | Kansas City | URB |
| 56,823 | 60,583 | 0,738 | 1091,5 | 320,4 | 6 | Russia | Iekaterinbourg | URB |
| 36,531 | -89,531 | 0,738 | 681,9 | 237,2 | 3 | United States | New Madrid Steam | TPP |
| -29,851 | 30,962 | 0,737 | 1461,8 | 740,9 | 9 | South Africa | Durban | URB |
| -23,813 | 151,219 | 0,736 | 1042,3 | 537,5 | 6 | Australia | RG Tanna Coal Terminal | OTH |
| 27,819 | 79,919 | 0,733 | 743,3 | 508,7 | 5 | India | Roza | TPP |
| 19,337 | 105,802 | 0,733 | 1571,5 | 1058,6 | 9 | Vietnam | Nhà Máy Xi Măng Nghi Sơn | TPP |
| 36,131 | 1,269 | 0,73 | 839,4 | 383,3 | 5 | Algeria | Cimenterie Chlef ECDE | CEM |
| 27,531 | -99,531 | 0,73 | 771,4 | 206,5 | 3 | Mexico | Laredo | URB |
| -20,256 | -40,269 | 0,729 | 925,3 | 476,5 | 5 | Brazil | Harsco Environmental (ArcelorMittal) | STI |
| -23,181 | -70,394 | 0,724 | 918,8 | 603,4 | 5 | Chile | Thermal Complex Mejillones Engie | TPP |
| 55,375 | 86,063 | 0,724 | 843,9 | 555,5 | 8 | Russia | Kemerovskaya GRES | TPP |
| 18,510 | -69,885 | 0,723 | 1056,1 | 285,5 | 3 | Dominican Republic | Santo Domingo | URB |
| 11,000 | -74,813 | 0,719 | 635,7 | 327,4 | 4 | Colombia | Barranquilla | URB |
| 22,375 | 73,125 | 0,719 | 810,1 | 669,7 | 6 | India | Petro Chemical Complex INA | IND |
| -24,260 | -69,073 | 0,716 | 1206,2 | 303,7 | 3 | Chile | BHP Mina & Estación Zaldivar mining site | MIN |
| 57,115 | 65,625 | 0,715 | 622,7 | 316,2 | 6 | Russia | Tuymen urban and industral zone | IND |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 28,460 | 76,388 | 0,709 | 731 | 690,4 | 7 | India | Jhajjar | TPP |
| 24,750 | 89,375 | 0,708 | 675,3 | 353,5 | 4 | Bangladesh | Outlier - Inconsistent emissions | OUT |
| 26,576 | 82,621 | 0,708 | 780,8 | 685,2 | 7 | India | L&T Power Batching Plant | TPP |
| 14,710 | -17,406 | 0,708 | 1360,2 | 685,8 | 7 | Senegal | Dakar | URB |
| 22,875 | 73,375 | 0,707 | 1226,5 | 1009,2 | 8 | India | Wanakbori | TPP |
| 36,198 | 37,135 | 0,707 | 408,3 | 235,2 | 3 | Syria | Alep | URB |
| 23,844 | 53,625 | 0,706 | 705,7 | 366,5 | 4 | United Arab Emirates | GASCO Habshan industrial zone | IND |
| 52,115 | 47,427 | 0,701 | 414,1 | 211 | 3 | Russia | Heidelberg Cement Volga | CEM |
| 43,344 | 45,750 | 0,694 | 939,3 | 242,8 | 4 | Russia | Power station (unknown name) & Groznyï urban area | TPP |
| -28,448 | -49,010 | 0,693 | 607 | 275,7 | 3 | Brazil | Jorge Lacerda | TPP |
| 39,885 | 48,948 | 0,692 | 473 | 216,5 | 3 | Azerbaijan | Cənub Elektrik Stansiyası | TPP |
| 10,615 | -66,948 | 0,691 | 1184 | 557,4 | 6 | Venezuela | Caracas | URB |
| 31,531 | 83,031 | 0,689 | 764,4 | 224,1 | 3 | China | Outlier - Empty area | OUT |
| 33,427 | 52,552 | 0,688 | 921 | 275,2 | 3 | Iran | Zaverh Admin bulding PP | TPP |
| 50,422 | 30,547 | 0,688 | 1007,2 | 236,8 | 4 | Ukraine | Kiev | URB |
| 39,694 | 66,919 | 0,685 | 1160,8 | 345 | 5 | Uzbekistan | Samarcande | URB |
| 41,823 | 81,802 | 0,681 | 659,7 | 187,7 | 3 | China | Industrial facility (unknown name) | OTH |
| 48,422 | 135,109 | 0,681 | 1073,9 | 227,8 | 4 | Russia | Dnipro | URB |
| 16,899 | 42,635 | 0,681 | 1278 | 1102,9 | 9 | Saudi Arabia | Jizan | URB |
| 21,641 | 108,398 | 0,678 | 1544,2 | 980,4 | 8 | China | Fangchenggang Port | OTH |
| 45,563 | -122,625 | 0,678 | 1061,9 | 336,7 | 6 | United States | Portland | URB |
| 42,156 | 25,969 | 0,677 | 1030,7 | 189,9 | 3 | Bulgaria | Central Contour Global Maritsa East 3 | TPP |
| 51,573 | 39,552 | 0,677 | 2046,9 | 155,2 | 3 | Russia | Voronej | URB |
| 53,356 | -6,294 | 0,674 | 856,7 | 257,6 | 5 | Ireland | Dublin | URB |
| 42,250 | 26,125 | 0,673 | 1051,3 | 279,5 | 4 | Bulgaria | TPP Marista East 2 | TPP |
| 37,019 | 128,319 | 0,673 | 1319,7 | 577 | 5 | South Korea | Sungshin Yanghoe Danyang Factories | CEM |
| 40,922 | 117,719 | 0,672 | 902,3 | 294,5 | 4 | China | Chengde industrial zone | IND |
| 42,344 | -71,063 | 0,672 | 922 | 562,6 | 8 | United States | Boston | URB |
| 24,619 | 77,044 | 0,671 | 941,1 | 517,2 | 5 | India | Chhabra | TPP |
| 39,740 | -86,177 | 0,671 | 1029,5 | 201,4 | 3 | United States | Indianapolis | URB |
| 4,135 | 100,635 | 0,669 | 753,9 | 296,3 | 3 | Malaysia | Manjung | TPP |
| 49,500 | 8,469 | 0,668 | 881,2 | 396,1 | 6 | Germany | Manheim | URB |
| 35,760 | 43,271 | 0,668 | 665,5 | 500,1 | 6 | Iraq | Qayyarah Power station | TPP |
| 41,188 | -8,625 | 0,668 | 848,5 | 256,2 | 4 | Portugal | Porto | URB |
| 39,183 | 27,576 | 0,666 | 925,7 | 587,8 | 7 | Türkiye | Soma | TPP |
| 16,594 | 80,549 | 0,663 | 940,6 | 766,1 | 7 | India | Vijayawada | TPP |
| 36,333 | 6,583 | 0,661 | 828,7 | 422,7 | 6 | Algeria | Constantine | URB |
| 30,448 | 70,990 | 0,661 | 574 | 515,9 | 6 | Pakistan | Kot Adu | URB |
| 33,635 | -84,427 | 0,656 | 1025,9 | 224,9 | 3 | United States | Atlanta | URB |
| 22,188 | 84,844 | 0,653 | 884 | 590,5 | 6 | India | Rourkela Steel Plant Area | STI |
| 27,125 | 78,375 | 0,653 | 472 | 350,7 | 4 | India | Firozabad | URB |
| -38,246 | 146,603 | 0,646 | 951,5 | 610,2 | 7 | Australia | Loy Yang A & B | TPP |
| 37,063 | 27,875 | 0,644 | 690,7 | 296 | 4 | Türkiye | Teknokon Industry Kemerköy | TPP |
| 56,246 | 90,451 | 0,643 | 703,2 | 446,1 | 7 | Russia | Achinskiy Tsement & Achinsk Alumina Refinery | CEM |
| 61,313 | 73,531 | 0,642 | 773,8 | 525,8 | 8 | Russia | Surgut | URB |
| 55,594 | 65,125 | 0,639 | 356,6 | 302 | 4 | Russia | Outlier - Empty area | OUT |
| 12,712 | 101,177 | 0,639 | 1315 | 991 | 9 | Thailand | Maptaphut industrial zone | IND |
| 57,438 | 41,156 | 0,638 | 736,8 | 494,1 | 6 | Russia | Kostroma | TPP |
| 24,250 | 113,406 | 0,637 | 744,3 | 572,6 | 6 | China | Yingde industrial zone | IND |
| 45,102 | 7,734 | 0,637 | 1219,2 | 544,7 | 8 | Italy | Turin | URB |
| 62,744 | 81,181 | 0,636 | 791,8 | 257,3 | 5 | Russia | Outlier - Empty area | OUT |
| 41,504 | 31,924 | 0,634 | 906,7 | 441,1 | 7 | Türkiye | Catalagzi | TPP |
| 30,198 | -93,323 | 0,633 | 613,9 | 284,7 | 3 | United States | Prien Lake industrial zone | IND |

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|---|---|---|---|---|---|---|---|---|
| 21,203 | 73,547 | 0,626 | 867,2 | 402,7 | 4 | India | Ukai | TPP |
| 53,365 | -114,323 | 0,625 | 606,3 | 150,5 | 3 | Canada | Capital Power - Genesee | TPP |
| 52,500 | 13,375 | 0,619 | 1107,4 | 223,7 | 4 | Germany | Berlin | URB |
| 15,606 | -88,006 | 0,618 | 682 | 489,1 | 5 | Honduras | San Pedro Sula | URB |
| 39,469 | -0,406 | 0,617 | 1096,3 | 243,1 | 3 | Spain | Valencia | URB |
| -17,250 | -70,594 | 0,614 | 1376,8 | 534,3 | 6 | Peru | Toquepala mining site | MIN |
| 23,365 | 111,010 | 0,61 | 658,9 | 258,4 | 3 | China | Guangxi Hongjun Ceramics | OTH |
| 57,922 | 56,172 | 0,61 | 638,9 | 197,6 | 4 | Russia | CHPP 9 | TPP |
| 10,828 | 106,656 | 0,606 | 1130,6 | 316,5 | 4 | Vietnam | Ho Chi Minh Ville | URB |
| 51,281 | 19,344 | 0,602 | 795,4 | 685,8 | 9 | Poland | Bełchatów | TPP |
| 45,448 | 12,250 | 0,601 | 794,3 | 408,5 | 6 | Italy | Edison Marghera Levante CCGT Power Plant | TPP |
| 22,828 | 108,328 | 0,6 | 1196 | 691,5 | 8 | China | Nanning | URB |
| 23,719 | 86,115 | 0,599 | 1098,4 | 1052,7 | 9 | India | Chandrapura | TPP |
| -22,885 | -69,323 | 0,594 | 1232,8 | 273,7 | 3 | Chile | Sierra Gorda mining site & Planta Molibdeno | MIN |
| 40,281 | 49,656 | 0,587 | 1857,5 | 186,9 | 3 | Azerbaijan | AzMeCo | IND |
| 23,131 | -82,394 | 0,582 | 811,1 | 502,6 | 5 | Cuba | La Havane | URB |
| 37,802 | -122,313 | 0,581 | 1184,7 | 462,7 | 6 | United States | San Francisco & Oakland | URB |
| 32,073 | 112,177 | 0,578 | 886,6 | 225,5 | 3 | China | Xiangyang | URB |
| 43,692 | 95,013 | 0,572 | 903,6 | 619,5 | 7 | China | Power station (unknown name) | TPP |
| 44,756 | 37,769 | 0,57 | 1142,3 | 356,9 | 5 | Russia | Novorossiisk | URB |
| 20,948 | 86,073 | 0,568 | 669,6 | 311,1 | 3 | India | MBF Plant (Visa Special Steel Unlimited) | STI |
| 48,177 | 16,427 | 0,565 | 635,9 | 165,3 | 3 | Austria | Vienna | URB |
| 35,385 | -119,052 | 0,563 | 974,3 | 202,5 | 3 | United States | Bakersfield | URB |
| 53,802 | 74,083 | 0,557 | 708,7 | 356,9 | 6 | Russia | Outlier - Empty area | OUT |
| 31,844 | 47,141 | 0,555 | 891,8 | 373,9 | 4 | Iraq | Maysan power station & Al-Amara urban area | TPP |
| 28,688 | 53,563 | 0,554 | 839,5 | 326,6 | 4 | Iran | Jahrom | TPP |
| 31,664 | 73,211 | 0,554 | 1099 | 639,9 | 8 | Pakistan | PACHEM Global Pvt. Ltd | STI |
| 57,606 | 39,869 | 0,552 | 545,9 | 325,6 | 5 | Russia | Yaroslavl CHP-2 | TPP |
| 31,451 | 73,094 | 0,551 | 1178 | 546,1 | 7 | Pakistan | Faisalabad | URB |
| 54,359 | 18,656 | 0,548 | 562,1 | 212 | 4 | Poland | Wybrzeze (Gdansk/Gdynia) CHP Power Plant & Gdansk port | TPP |
| -33,129 | 151,576 | 0,539 | 1262 | 620,3 | 7 | Australia | Vales Point | TPP |
| 35,567 | 45,388 | 0,537 | 1289,6 | 691,9 | 7 | Iraq | Sulaymaniyah | URB |
| 34,063 | 131,813 | 0,534 | 594 | 313,9 | 4 | Japan | Tokuyama Higashi | TPP |
| 17,667 | 42,167 | 0,534 | 923,5 | 623,4 | 6 | Saudi Arabia | Shuqaiq Steam Power Plant | TPP |
| 30,875 | 75,875 | 0,531 | 507,8 | 341 | 4 | India | Ludhiana | URB |
| 35,188 | 126,813 | 0,531 | 854,8 | 276,2 | 4 | South Korea | Gwangju | URB |
| 17,131 | 77,206 | 0,529 | 852,8 | 399,3 | 5 | India | Thermal Power Plant Unit 4 Ultratech Cement | CEM |
| 55,806 | 49,169 | 0,527 | 1038,8 | 294,1 | 5 | Russia | Kazan 3 | TPP |
| 50,094 | 8,625 | 0,525 | 950,1 | 501,8 | 8 | Germany | Frankfurt | URB |
| 42,260 | 119,010 | 0,521 | 751,3 | 201,8 | 3 | China | Honghan industrial zone | IND |
| 25,164 | 81,664 | 0,52 | 830,6 | 771,6 | 8 | India | Bara Thermal Power Station + Ultratech grinding unit | TPP |
| 45,047 | -83,266 | 0,52 | 611 | 311,4 | 4 | United States | Holcim Alpena Cement Plant | CEM |
| 43,438 | 4,875 | 0,519 | 520,1 | 241,3 | 4 | France | ArcelorMittal PCD4 FOS SUR MER | STI |
| 36,996 | 35,362 | 0,516 | 747,6 | 480,5 | 7 | Türkiye | Adana | URB |
| 43,955 | 126,503 | 0,515 | 1062,6 | 544,7 | 9 | China | Jilin indutrial zone | IND |
| 50,031 | 8,344 | 0,507 | 912,3 | 155,4 | 3 | Germany | Mainz | URB |
| 36,958 | 54,844 | 0,505 | 1106 | 520,3 | 6 | Iran | Ali Abad Gas Turbine Power Plant | TPP |
| 57,094 | 84,385 | 0,504 | 394,4 | 552,1 | 9 | Russia | Outlier - Empty area | OUT |
| 38,635 | -90,198 | 0,502 | 927,4 | 195,5 | 3 | United States | Saint Louis | URB |
| 29,938 | -90,125 | 0,497 | 879,3 | 278,3 | 4 | United States | New Orleans | URB |
| 39,000 | 125,719 | 0,493 | 654,8 | 533,4 | 6 | North Korea | Pyongyang | TPP |
| 54,142 | 37,580 | 0,492 | 1013,9 | 634,9 | 9 | Russia | Pao Kosogorskiy Metallurgicheskiy Zavod | STI |
| 37,205 | 37,267 | 0,492 | 1163,1 | 632,3 | 9 | Türkiye | Gazantiep | URB |

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|---|---|---|---|---|---|---|---|---|
| 33,271 | 131,646 | 0,49 | 694,2 | 660,7 | 6 | Japan | Nippon Steel Corporation Oita Works | STI |
| 40,258 | 69,016 | 0,49 | 1003,8 | 573,4 | 8 | Uzbekistan | Syrdarinskaya Power Station | TPP |
| 24,135 | 81,927 | 0,488 | 733,7 | 284,1 | 3 | India | Jaypee Nigrie | TPP |
| 24,885 | 89,990 | 0,487 | 484,4 | 241,7 | 3 | Bangladesh | United Jamalpur | TPP |
| 26,615 | 106,677 | 0,483 | 1011,3 | 206,2 | 3 | China | Guiyang industrial zone | IND |
| -6,802 | 111,927 | 0,482 | 745,2 | 242,3 | 3 | Indonesia | Indonesia Semen Tuban | CEM |
| 48,427 | 35,052 | 0,481 | 523,6 | 166,1 | 3 | Ukraine | Dnipro | URB |
| 51,438 | 14,594 | 0,478 | 413,9 | 402,3 | 6 | Germany | Boxberg | TPP |
| 30,323 | 112,313 | 0,476 | 663,1 | 523,1 | 6 | China | Jingzhou | URB |
| 34,773 | 48,539 | 0,475 | 993 | 755,2 | 8 | Iran | Hamadan | URB |
| 26,799 | 119,790 | 0,474 | 896 | 836,7 | 7 | China | Power station (unknown name) | TPP |
| 31,823 | 34,698 | 0,471 | 1493,7 | 206,7 | 3 | Israel | Eshkol | TPP |
| 27,820 | 114,906 | 0,468 | 1046,7 | 889,5 | 8 | China | Xinyu urban area and industrial zone | IND |
| 31,406 | 31,703 | 0,468 | 966,7 | 816,6 | 8 | Egypt | Damietta | URB |
| 51,198 | 12,365 | 0,468 | 331,1 | 157,1 | 3 | Germany | Lippendorf | TPP |
| 32,875 | 115,813 | 0,465 | 708,6 | 286,2 | 4 | China | Fuyang | URB |
| 53,612 | -0,183 | 0,465 | 785,2 | 383,4 | 7 | United Kingdom | VPI Immingham Power Station | TPP |
| 17,615 | 80,698 | 0,461 | 494,8 | 253,9 | 3 | India | Kothagudem Thermal Power Station VII stage | TPP |
| 43,313 | 5,375 | 0,455 | 479 | 258,8 | 4 | France | Marseille | URB |
| 40,573 | 49,615 | 0,454 | 2046,5 | 225,3 | 3 | Azerbaijan | Sumgait | URB |
| 44,806 | 20,456 | 0,454 | 944,2 | 303,5 | 5 | Serbia | Belgrade | URB |
| 31,688 | 47,250 | 0,453 | 914,6 | 278,1 | 4 | Iraq | Al-Amarah | TPP |
| 25,125 | 81,938 | 0,45 | 1155,9 | 379,3 | 4 | India | TPSC NPTC | TPP |
| 55,547 | 35,578 | 0,448 | 835,7 | 187,3 | 4 | Russia | Outlier - Inconsistent emissions | OUT |
| 51,022 | 2,290 | 0,444 | 531,2 | 437,9 | 7 | France | AcelorMittal Dunkerque | STI |
| 29,906 | 75,250 | 0,442 | 528 | 515,7 | 6 | India | Talwandi Sabo (Super Critical) | TPP |
| 37,609 | 105,289 | 0,441 | 1188,1 | 585,2 | 8 | China | Ningxia Iron and Steel Group No.3 Men | STI |
| 56,313 | 44,531 | 0,441 | 1360,1 | 356,9 | 6 | Russia | Outlier - Empty area | OUT |
| 40,740 | 72,302 | 0,438 | 972,4 | 630,8 | 9 | Uzbekistan | Reco Sement Zavodi | CEM |
| 53,569 | 49,894 | 0,431 | 1057,6 | 270 | 5 | Russia | Outlier - Empty area | OUT |
| 24,294 | 121,706 | 0,431 | 740,2 | 458,3 | 5 | Taiwan/China | Hoping power station & Taiwan Cement Company | TPP |
| 44,677 | 20,177 | 0,427 | 1020,4 | 219 | 3 | Serbia | Nikola Tesla | TPP |
| 53,927 | 79,510 | 0,423 | 697,7 | 181,6 | 3 | Russia | Outlier - Empty area | OUT |
| 41,058 | 71,576 | 0,422 | 727,8 | 449,5 | 7 | Uzbekistan | Namangan | URB |
| 23,667 | 116,604 | 0,418 | 1397,2 | 481,1 | 6 | China | Chaozhou | URB |
| 50,906 | -1,388 | 0,415 | 483,9 | 360,3 | 7 | United States | Southampton | URB |
| 51,365 | 3,233 | 0,414 | 809,8 | 546,5 | 9 | Belgium | Escaut (towards Antwerp port) | OTH |
| 47,227 | 39,727 | 0,41 | 851 | 533,5 | 8 | Russia | Rostov-on-Don | URB |
| 32,750 | 45,094 | 0,409 | 919,5 | 868,5 | 8 | Iraq | Wassit | TPP |
| 36,156 | -5,391 | 0,402 | 587,6 | 351,7 | 4 | Spain | Campo de Gibraltar PP & Algesiras & Gibraltar urban areas | TPP |
| 33,000 | 112,563 | 0,401 | 545,4 | 289,6 | 4 | China | Tongi | URB |
| 35,677 | -0,622 | 0,4 | 1586,6 | 780,5 | 9 | Algeria | Oran | URB |
| 34,375 | 115,625 | 0,396 | 534,8 | 275,2 | 4 | China | Shangqiu | URB |
| 50,563 | 13,781 | 0,388 | 710,8 | 216,3 | 4 | Czechia | Ele Chladící Věž | TPP |
| 30,344 | 111,563 | 0,383 | 1045,1 | 278,7 | 4 | China | Power station (unknown name) | TPP |
| 52,073 | 78,365 | 0,381 | 216,8 | 180,8 | 3 | Kazakhstan | Outlier - Empty area | OUT |
| 47,281 | 39,219 | 0,381 | 551,2 | 231,4 | 3 | Russia | Outlier - Inconsistent emissions | OUT |
| 45,469 | -85,625 | 0,38 | 447,7 | 285 | 4 | United States | Outlier - Empty area | OUT |
| 29,813 | 116,313 | 0,377 | 890,5 | 509,7 | 6 | China | Industrial zone (unknown name) | IND |
| 42,240 | -83,302 | 0,377 | 1519,7 | 172,9 | 3 | United States | Cliffs Steel | STI |
| 24,885 | 102,500 | 0,368 | 1349 | 535,5 | 6 | China | Yunnan industrial zone | IND |
| 29,760 | 104,510 | 0,367 | 491 | 231,8 | 3 | China | Cheng Yu Fan Tai Technology Co.Ltd. Manufacturing Factory | OTH |
| 22,058 | 88,112 | 0,367 | 716,4 | 755,4 | 7 | India | Haldia industrial zone | IND |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 53,948 | 79,677 | 0,366 | 680,5 | 161,5 | 3 | Russia | Outlier - Empty area | OUT |
| 30,198 | 71,490 | 0,365 | 350,1 | 208 | 3 | Pakistan | Multan | URB |
| 37,906 | 102,625 | 0,363 | 982,1 | 240 | 4 | China | Wuwei | URB |
| 29,227 | 119,570 | 0,357 | 896,1 | 678,2 | 8 | China | Xishansi mining site | MIN |
| 30,081 | 77,331 | 0,357 | 399,6 | 388,6 | 5 | India | Haryana Yamunanagar | TPP |
| 34,115 | 112,823 | 0,353 | 867,1 | 214,5 | 3 | China | Ruzhou industrial zone | IND |
| 42,750 | 88,656 | 0,353 | 1094,7 | 248,1 | 4 | China | Xingjiang Sunye Energy Chemical Engineering | OTH |
| 25,378 | 49,545 | 0,351 | 1228,7 | 805 | 9 | Saudi Arabia | Al Hufuf | URB |
| 55,823 | 41,740 | 0,345 | 253,4 | 136,6 | 3 | Russia | Outlier - Inconsistent emissions | OUT |
| 36,010 | 129,399 | 0,341 | 1055,6 | 944,8 | 9 | South Korea | Pohang Coal Port | IND |
| 41,344 | 122,156 | 0,338 | 1372,1 | 178,3 | 3 | China | Power station (unknown name) | TPP |
| 60,281 | 25,500 | 0,338 | 485 | 210 | 4 | Finland | Kilpilahti industrial zone | IND |
| 35,615 | 44,885 | 0,334 | 1079,6 | 251,9 | 3 | Iraq | Sulaymaniyah Power | TPP |
| 44,469 | -81,500 | 0,332 | 471,1 | 357,9 | 4 | Canada | Outlier - Empty area | OUT |
| 57,365 | -111,135 | 0,329 | 953,6 | 150 | 3 | Canada | Kearl mining site | MIN |
| 53,719 | 86,844 | 0,326 | 1594,1 | 171,2 | 3 | Russia | Kar'yer Razreza Berezovskiy mining site | MIN |
| 29,728 | 116,049 | 0,325 | 849,5 | 554,8 | 7 | China | Jinjipo industrial zone | IND |
| 41,490 | -83,365 | 0,323 | 939,4 | 185 | 3 | United States | Martin Marietta - Lime and Stone | CEM |
| 49,781 | 18,344 | 0,321 | 942,2 | 162,7 | 3 | Czechia | Ostrava industrial zone | IND |
| 52,256 | 104,206 | 0,321 | 1214 | 286,9 | 5 | Russia | Novo-Irkutskaya Tets | TPP |
| 35,125 | 48,875 | 0,316 | 813,9 | 563,1 | 6 | Iran | Mofatteh Power Plant & Vian Steel Complex | STI |
| 42,865 | 87,948 | 0,314 | 1039,9 | 211,6 | 3 | China | Industrial facility (unknown name) | OTH |
| 55,672 | 52,594 | 0,314 | 642,1 | 203,3 | 4 | Russia | Tem-Po, Naberezhnochelninskiy Zavod Metallokonstruktsiy | STI |
| 36,385 | 127,344 | 0,314 | 1488,7 | 750,4 | 9 | South Korea | Daejeon | URB |
| 36,516 | 52,344 | 0,311 | 956,4 | 276,2 | 4 | Iran | Amol | URB |
| 45,490 | 126,990 | 0,302 | 1681 | 172,1 | 3 | China | Acheng | URB |
| 36,727 | 49,461 | 0,3 | 708,4 | 667,3 | 8 | Iran | Khazar Cement Factory | CEM |
| 58,427 | -60,365 | 0,298 | 305,5 | 215,2 | 3 | NO-COUNTRY | Outlier - Empty area | OUT |
| 33,365 | 120,135 | 0,297 | 651,4 | 192,4 | 3 | China | Yancheng | URB |
| 51,073 | 1,677 | 0,296 | 766,3 | 153,6 | 3 | France | Channel (shipping) | OTH |
| 35,719 | 118,612 | 0,29 | 1061,7 | 499,3 | 7 | China | Xian de Yishui industrial zone | IND |
| 60,156 | 30,594 | 0,29 | 2153 | 457,4 | 7 | Russia | Outlier - Inconsistent emissions | OUT |
| 43,271 | 87,542 | 0,284 | 811,4 | 363,2 | 6 | China | Aketashi mining site | MIN |
| 31,490 | 34,448 | 0,281 | 785,1 | 202,8 | 3 | Palestine | Gaza | URB |
| 53,746 | 77,853 | 0,281 | 553,8 | 489,9 | 7 | Russia | Outlier - Empty area | OUT |
| 50,885 | 6,010 | 0,279 | 738,2 | 152,6 | 3 | Netherlands | Sibelco Benelux | CEM |
| 39,573 | 121,240 | 0,278 | 707,7 | 181,1 | 3 | China | Changxing Island Hengli | TPP |
| 36,865 | 54,427 | 0,275 | 847,7 | 197,8 | 3 | Iran | Gorgan | URB |
| 34,477 | 133,453 | 0,275 | 1383,6 | 762,3 | 8 | Japan | Setouchi Joint - LTD Fukuyama Joint Power | TPP |
| 41,656 | -83,469 | 0,275 | 868,1 | 195,4 | 3 | United States | Cleveland-Cliffs HBI | STI |
| 31,031 | 112,250 | 0,274 | 595 | 295,3 | 4 | China | Jigmen | URB |
| 53,747 | -1,615 | 0,273 | 820,6 | 466 | 9 | United Kingdom | Leeds | URB |
| 43,885 | 94,698 | 0,272 | 1132,6 | 193 | 3 | China | Yireng Leke mining site | MIN |
| 56,201 | 51,388 | 0,272 | 552,2 | 409,6 | 7 | Russia | Outlier - Inconsistent emissions | OUT |
| 21,694 | 72,606 | 0,271 | 458,8 | 461 | 5 | India | Lakhigam industrial zone | IND |
| 25,156 | 121,781 | 0,27 | 1224,6 | 233,4 | 3 | Taiwan/China | Concord Power | TPP |
| 57,031 | -111,531 | 0,268 | 913,3 | 131 | 3 | Canada | Syncrude ID station (oilsand) | OTH |
| 25,000 | 103,188 | 0,264 | 881,3 | 312,6 | 4 | China | Yiliang Jinzhu Cement | CEM |
| 34,391 | 119,773 | 0,264 | 570,3 | 687,3 | 8 | China | Guanhe river mouth industrial zone | IND |
| 40,823 | 30,385 | 0,258 | 796,8 | 179 | 3 | Türkiye | Enka Natural Gas Combined Cycle Power Plant | TPP |
| 51,828 | 14,469 | 0,25 | 284,8 | 236,9 | 4 | Germany | Jänschwalde | TPP |
| 30,677 | 76,740 | 0,247 | 904,7 | 209,8 | 3 | India | Mohali & Panchkula & Chandigarh | URB |
| 55,615 | 51,983 | 0,245 | 934,6 | 517,6 | 9 | Russia | Nijnekamsk urban and industral zone | IND |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 34,750 | 112,063 | 0,244 | 872,1 | 277,4 | 4 | China | Power station (unknown name) | TPP |
| 31,813 | 44,125 | 0,241 | 2165,2 | 264 | 4 | Iraq | KAR Cement Plant | CEM |
| 56,875 | 62,031 | 0,238 | 1793,2 | 202,9 | 4 | Russia | Slk Tsement | CEM |
| 40,781 | 113,281 | 0,237 | 998,6 | 220,3 | 3 | China | Power station (unknown name) | TPP |
| 31,313 | 76,906 | 0,236 | 599,5 | 425,5 | 6 | India | Ultratech Cement Baga | CEM |
| 58,260 | -60,427 | 0,234 | 409,7 | 156,2 | 3 | NO-COUNTRY | Outlier - Empty area | OUT |
| 52,948 | -1,198 | 0,233 | 619,2 | 149,8 | 3 | United Kingdom | Nottingham | URB |
| 30,250 | 75,188 | 0,229 | 292,9 | 318,5 | 4 | India | Guru Hargobind | TPP |
| 45,406 | 10,969 | 0,222 | 784 | 162,4 | 3 | Italy | Verona | URB |
| 33,083 | 131,854 | 0,218 | 805,9 | 450,4 | 6 | Japan | Tsukumi mining site & Tsukumi plant | MIN |
| 55,927 | 51,448 | 0,218 | 317,7 | 236,2 | 3 | Russia | Outlier - Empty area | OUT |
| 38,875 | -77,031 | 0,218 | 746,6 | 394,2 | 6 | United States | Washington DC | URB |
| 52,844 | -1,313 | 0,215 | 575,7 | 204,4 | 4 | United Kingdom | Ratcliffe-on-Soar | TPP |
| 25,667 | 49,479 | 0,212 | 564,3 | 675,3 | 6 | Saudi Arabia | Saudi Cement Company | CEM |
| 41,047 | 121,656 | 0,211 | 1281,4 | 248,6 | 4 | China | Industrial zone (unknown name) | IND |
| 47,438 | 40,156 | 0,207 | 393,6 | 370,7 | 6 | Russia | Rosatov AO Metallotorg | STI |
| 21,694 | 73,069 | 0,205 | 740,9 | 404,6 | 5 | India | Gujarat Narmada Valley Fertilizers & Chemicals Limited | IND |
| 31,802 | 35,198 | 0,204 | 908 | 216,7 | 3 | Israel | Jerusalem | URB |
| 44,635 | -81,302 | 0,2 | 285,1 | 219,5 | 3 | Canada | Outlier - Empty area | OUT |
| 25,219 | 118,969 | 0,198 | 753,6 | 775,2 | 9 | China | Meizhou Bay | OTH |
| 25,976 | 56,045 | 0,197 | 617,9 | 927 | 9 | United Arab Emirates | Union Cement Company | CEM |
| 32,695 | 116,945 | 0,192 | 569,2 | 596,6 | 8 | China | Power station (unknown name) | TPP |
| 26,024 | 119,455 | 0,19 | 852,1 | 715,5 | 9 | China | Fuzhou | URB |
| 54,047 | 38,156 | 0,19 | 582,1 | 210,6 | 4 | Russia | Novomoskovskaya Gres | TPP |
| 53,719 | -0,969 | 0,19 | 507,8 | 160,3 | 3 | United Kingdom | Drax | TPP |
| 53,927 | 39,198 | 0,189 | 456,3 | 145,5 | 3 | Russia | Outlier - Empty area | OUT |
| 47,806 | 38,019 | 0,188 | 532,5 | 337,8 | 5 | Ukraine | Starobesheve | TPP |
| 55,419 | 52,119 | 0,184 | 555,7 | 302,9 | 5 | Russia | Outlier - Empty area | OUT |
| 11,385 | 79,240 | 0,183 | 1379,3 | 246,7 | 3 | India | The Ramco Cements Ltd., PP | CEM |
| 36,594 | 53,031 | 0,183 | 967,1 | 252,1 | 3 | Iran | Sari | URB |
| 52,396 | 77,594 | 0,182 | 544,5 | 599,3 | 6 | Kazakhstan | Outlier - Empty area | OUT |
| 41,206 | -112,056 | 0,181 | 481,8 | 324,6 | 5 | United States | Outlier - Inconsistent emissions | OUT |
| 13,094 | 100,906 | 0,18 | 526,8 | 304,9 | 3 | Thailand | Thung Sukhla industrial zone | IND |
| 31,031 | 76,578 | 0,174 | 367,7 | 301,4 | 4 | India | Guru Gobind Singh | TPP |
| 48,063 | 38,260 | 0,173 | 381,9 | 400,2 | 6 | Ukraine | Zuivska | TPP |
| 40,198 | 49,490 | 0,172 | 1194,8 | 194,8 | 3 | Azerbaijan | Holcim Qaradağ Sement Zavodu | CEM |
| 40,383 | 113,008 | 0,17 | 604,4 | 600,1 | 8 | China | Fengzhen, Ulaan Chab industrial zone | IND |
| 35,625 | 53,469 | 0,167 | 333,5 | 270,1 | 4 | Iran | Qods | TPP |
| 25,734 | 119,523 | 0,162 | 481,7 | 604,7 | 8 | China | Industrial zone (unknown name) | IND |
| 54,240 | 38,885 | 0,162 | 227,1 | 170 | 3 | Russia | Serebryanskiy Tsementnyy Zavod | CEM |
| 38,052 | 118,885 | 0,16 | 182,3 | 195,2 | 3 | China | Dongying Haikerui Lin & Shandong Deyang Chemical Ind. | IND |
| 32,767 | 12,677 | 0,16 | 904,5 | 867,9 | 9 | Libya | Az Zawiyah Power Plant | TPP |
| 53,073 | 80,323 | 0,159 | 352,3 | 136,8 | 3 | Russia | Outlier - Empty area | OUT |
| 55,719 | 52,406 | 0,157 | 504,6 | 162,9 | 3 | Russia | Naberezhnochelninskaya Tets & Naberejnye Tchelny urban area | TPP |
| 23,760 | 86,385 | 0,152 | 965 | 232,5 | 3 | India | Kustore mining site | MIN |
| 55,760 | 51,802 | 0,152 | 826,5 | 169,8 | 3 | Russia | Outlier - Inconsistent emissions | OUT |
| 39,431 | 126,019 | 0,151 | 678,9 | 427,8 | 5 | North Korea | Sunchon Cement & South Pyongan Ore Processing Plant | CEM |
| 19,844 | 105,781 | 0,145 | 1668,5 | 235,1 | 3 | Vietnam | Than Hoa | URB |
| 18,688 | 73,000 | 0,137 | 1359,6 | 492,9 | 4 | India | JSW Cement + JSW Steel | CEM |
| 30,198 | 112,635 | 0,133 | 235 | 248,8 | 3 | China | Power station (unknown name) | TPP |
| 30,063 | 103,781 | 0,132 | 619,9 | 289,6 | 4 | China | Sichuan Guangxin Aluminium Industry | OTH |
| 34,146 | 118,792 | 0,132 | 230,7 | 400,3 | 6 | China | Mengxi | URB |
| 34,356 | 117,994 | 0,131 | 263,9 | 352,2 | 5 | China | Power station (unknown name) | TPP |

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|---|---|---|---|---|---|---|---|---|
| 38,419 | 114,206 | 0,127 | 1457,7 | 367,4 | 5 | China | Hebei industrial zone | IND |
| 34,356 | 118,306 | 0,124 | 292 | 344,4 | 5 | China | Xinyi | URB |
| 17,260 | 42,385 | 0,124 | 417,9 | 325,3 | 3 | Saudi Arabia | Jazan City for Primary and Downstream Industries | IND |
| 38,394 | 112,681 | 0,122 | 834,5 | 330,5 | 5 | China | Xinzhou | URB |
| 43,246 | -79,826 | 0,12 | 462,4 | 491,1 | 7 | Canada | Hamilton indutrial zone | IND |
| 46,094 | 127,313 | 0,12 | 382,6 | 222,5 | 4 | China | Outlier - Inconsistent emissions | OUT |
| 41,469 | -88,119 | 0,118 | 1020,2 | 365,6 | 5 | United States | Joliet 9 | TPP |
| 50,656 | 5,531 | 0,117 | 277,1 | 148,4 | 3 | Belgium | Liège | URB |
| 42,510 | 124,052 | 0,116 | 468 | 200,2 | 3 | China | Kaiyuan | URB |
| 22,942 | 120,201 | 0,115 | 594,9 | 564,7 | 7 | Taiwan/China | Tainan | URB |
| 22,808 | 69,549 | 0,114 | 836,8 | 666,1 | 7 | India | Adani Power Limited | TPP |
| 52,635 | -1,177 | 0,114 | 402,9 | 148,5 | 3 | United Kingdom | Leicester | URB |
| 41,948 | -87,260 | 0,113 | 1187,2 | 180,1 | 3 | United States | Outlier - Empty area | OUT |
| 31,016 | 31,313 | 0,112 | 278,4 | 618,8 | 8 | Egypt | Mansourah | URB |
| 22,406 | 87,875 | 0,112 | 346 | 376,8 | 4 | India | Kolaghat | TPP |
| 35,990 | 115,135 | 0,111 | 412,3 | 201,2 | 3 | China | Outlier - Inconsistent emissions | OUT |
| 55,141 | 38,078 | 0,108 | 390,6 | 505,4 | 8 | Russia | Outlier - Inconsistent emissions | OUT |
| 45,344 | 9,969 | 0,107 | 525,2 | 165,5 | 3 | Italy | Outlier - Inconsistent emissions | OUT |
| 22,000 | 113,188 | 0,106 | 488,9 | 352,2 | 4 | China | Power station (unknown name) | TPP |
| -23,913 | -46,365 | 0,105 | 758 | 783,5 | 9 | Brazil | Industrial zone (unknown name) | IND |
| 54,356 | 86,756 | 0,105 | 596,9 | 251,3 | 5 | Russia | Karakan mining site | MIN |
| -32,781 | -71,406 | 0,103 | 525 | 265,2 | 3 | Chile | AES Gener - Termoeléctrica Ventanas | TPP |
| 55,063 | 38,813 | 0,096 | 329,4 | 210,1 | 4 | Russia | Holcim Cement | CEM |
| 53,406 | -1,344 | 0,096 | 385,1 | 171,1 | 3 | United Kingdom | Shefield & Rotherham | URB |
| 35,881 | 117,669 | 0,092 | 474,1 | 320,5 | 5 | China | Qingyun industrial zone | IND |
| 37,625 | 105,719 | 0,091 | 508 | 271,1 | 4 | China | Ningxia Huaxia Spec. Steel Co. | STI |
| 35,010 | 115,177 | 0,087 | 148,7 | 220,6 | 3 | China | Zhuangzhaizhen industrial zone | IND |
| -26,642 | 30,108 | 0,086 | 719,5 | 1013,1 | 9 | South Africa | Eskom - Camden | TPP |
| 26,510 | 119,698 | 0,083 | 791,4 | 260,7 | 3 | China | Baogang Desheng Company | STI |
| 32,802 | 35,052 | 0,08 | 308,6 | 212,4 | 3 | Israel | Haifa | URB |
| 45,917 | 127,177 | 0,076 | 387,2 | 417,4 | 6 | China | Outlier - Inconsistent emissions | OUT |
| 34,619 | 119,144 | 0,072 | 207,5 | 343,1 | 5 | China | Lianyingang | URB |
| 31,431 | 119,444 | 0,069 | 382,2 | 378,9 | 5 | China | Lichengzhen | URB |
| 11,181 | 79,081 | 0,068 | 424,9 | 446,5 | 5 | India | Dalmia Cement | CEM |
| 20,281 | 78,969 | 0,065 | 372,5 | 293,5 | 3 | India | Sai Wardha | TPP |
| 36,156 | 117,094 | 0,062 | 260,5 | 357,2 | 5 | China | Tai’an | URB |
| 31,956 | 44,694 | 0,059 | 784,4 | 402,2 | 5 | Iraq | Diwaniyah | TPP |
| 37,266 | 127,391 | 0,059 | 1845,9 | 266 | 4 | South Korea | Icheon | URB |
| 35,828 | 116,023 | 0,057 | 150,9 | 535,1 | 8 | China | Outlier - Inconsistent emissions | OUT |
| 20,490 | 106,510 | 0,056 | 418,7 | 744,5 | 9 | Vietnam | Nhà Máy Nhiệt Diện Thái Bình 2 | TPP |
| 50,871 | 4,388 | 0,053 | 287,2 | 458 | 7 | Belgium | Bruxelles | URB |
| 31,083 | 119,656 | 0,049 | 808 | 455,6 | 6 | China | Huzhou Xinhuai S Cement Co. | CEM |
| 18,385 | 79,802 | 0,049 | 348,4 | 255 | 3 | India | Kakatiya | TPP |
| 25,656 | 50,719 | 0,047 | 489,1 | 237,4 | 3 | Bahrain | Outlier - Empty area | OUT |
| -34,881 | -57,956 | 0,044 | 411,9 | 453,7 | 5 | Argentina | La Plata | URB |
| 35,508 | 118,719 | 0,041 | 499,6 | 543,3 | 8 | China | Cement plant (unknown name) | CEM |
| 42,375 | -88,000 | 0,041 | 228,9 | 267,6 | 4 | United States | Waukegan & Gurnee | URB |
| 52,444 | 75,931 | 0,039 | 260 | 351,8 | 5 | Kazakhstan | Impossible to characterize | OTH |
| 56,406 | 37,344 | 0,039 | 178,2 | 246,2 | 5 | Russia | Outlier - Inconsistent emissions | OUT |
| 33,990 | 113,802 | 0,038 | 196,1 | 194,5 | 3 | China | Xuchang | URB |
| 23,585 | 113,103 | 0,036 | 1009,4 | 538,7 | 7 | China | Outlier - Inconsistent emissions | OUT |
| 24,063 | 91,000 | 0,035 | 346,3 | 371,5 | 4 | Bangladesh | Midland Power Plant & Ashuganj Fertilizer & Chemical | TPP |
| 54,219 | 39,469 | 0,035 | 221,9 | 145,1 | 3 | Russia | Outlier - Empty area | OUT |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 29,500 | -95,625 | 0,034 | 226,5 | 289,8 | 4 | United States | NRG Texas Power LLC | TPP |
| 31,740 | 119,677 | 0,033 | 673,6 | 232 | 3 | China | Industrial zone (unknown name) | IND |
| 29,859 | 52,766 | 0,03 | 395,1 | 343 | 4 | Iran | Ammonia plant & Shiraz Methanol Plant | OTH |
| 41,427 | 122,417 | 0,028 | 298,6 | 379,2 | 6 | China | Anshan Shunda Compound Fertilizer Chang | OTH |
| 52,604 | 76,594 | 0,028 | 344,5 | 416,8 | 6 | Kazakhstan | Outlier - Empty area | OUT |
| 52,052 | 7,052 | 0,026 | 113,4 | 148,2 | 3 | Germany | Outlier - Inconsistent emissions | OUT |
| 35,211 | 114,641 | 0,022 | 135,8 | 538,1 | 8 | China | Chengguan | URB |
| 54,192 | 87,138 | 0,021 | 141,7 | 349,8 | 7 | Russia | Taldinskiy mining site | MIN |
| 23,219 | 90,656 | 0,02 | 338,8 | 584,2 | 7 | Bangladesh | Desh Energy Chandpur | TPP |
| 35,875 | 116,398 | 0,02 | 136,9 | 543,3 | 8 | China | Rising Chemical Group | OTH |
| 27,156 | 49,144 | 0,02 | 369,6 | 398,5 | 5 | Saudi Arabia | Eastern Province Cement Company | CEM |
| 26,881 | 55,956 | 0,019 | 288,4 | 441,9 | 5 | Iran | Qeshm Cement Factory | CEM |
| 56,047 | 36,734 | 0,019 | 120 | 207 | 4 | Russia | Outlier - Inconsistent emissions | OUT |
| 32,302 | 118,385 | 0,017 | 192,9 | 242,8 | 3 | China | Chuzhou | URB |
| 30,306 | 121,981 | 0,016 | 211,4 | 513,3 | 5 | China | Dayushan island | OTH |
| 35,302 | 115,135 | 0,013 | 113,7 | 193,9 | 3 | China | Dongzhuang industrial zone | IND |
| 35,313 | 117,906 | 0,01 | 115,5 | 265,5 | 4 | China | Power station (unknown name) | TPP |
| 30,219 | 30,719 | 0,01 | 1724,6 | 208,4 | 3 | Egypt | Outlier - Inconsistent emissions | OUT |
| 36,948 | 127,427 | 0,009 | 157,8 | 266 | 3 | South Korea | Urban area (unknown name) | URB |
| 30,188 | 121,125 | 0,007 | 136,2 | 299 | 4 | China | Outlier - Inconsistent emissions | OUT |
| 30,281 | 121,281 | 0,006 | 122,5 | 210,7 | 3 | China | Cixi Ningbo industrial zone | IND |
| 40,994 | 110,131 | 0,004 | 168,9 | 361,7 | 5 | China | Baotou | TPP |
| 30,177 | 121,427 | 0,003 | 116,8 | 223,3 | 3 | China | Guanhaiweizhen | URB |
| 41,500 | 122,781 | 0,001 | 113,7 | 262,8 | 4 | China | Industrial zone (unknown name) | IND |
| 52,219 | 4,438 | 0,001 | 82,2 | 216,6 | 4 | Netherlands | Noordwijk | URB |
| 36,078 | 115,016 | 0 | 150 | 249,6 | 4 | China | Outlier - Inconsistent emissions | OUT |
| 33,750 | 44,625 | 0 | 115,6 | 284 | 4 | Iraq | Bakouba | URB |
| 37,817 | 116,576 | -0,002 | 135,6 | 440,9 | 7 | China | Outlier - Inconsistent emissions | OUT |
| 30,569 | 31,456 | -0,083 | 971 | 369,5 | 5 | Egypt | Zagazig | URB |

Table S2 - List of point sources with the number of pixels within the corresponding cluster, the mean latitude and longitude, the total daily $NO_x$ emissions using the flux-divergence method, the correponding emissions using a Gaussian fit and the value of the correlation coefficient for the fit. The corresponding emitter is identified, as well the sector probably accounting for the majority of the emissions within the emitter (seven categories are considered: urban (URB), mining (MIN), iron and steel (STI), cement (CEM), power generation (TPP), other (OTH) and different types of outliers (OUT)). The list is ordered by decreasing values of $R^2$.

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