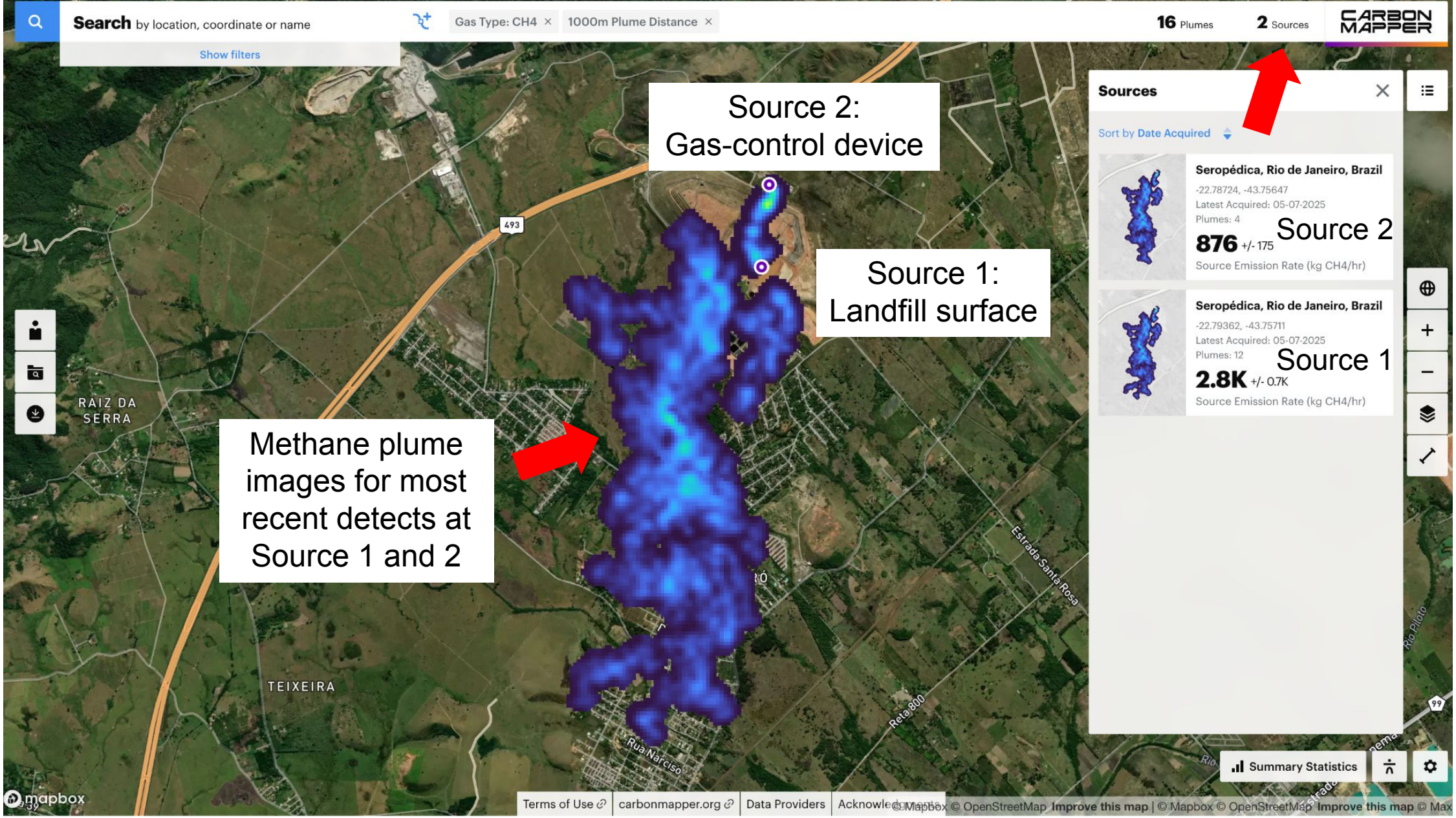
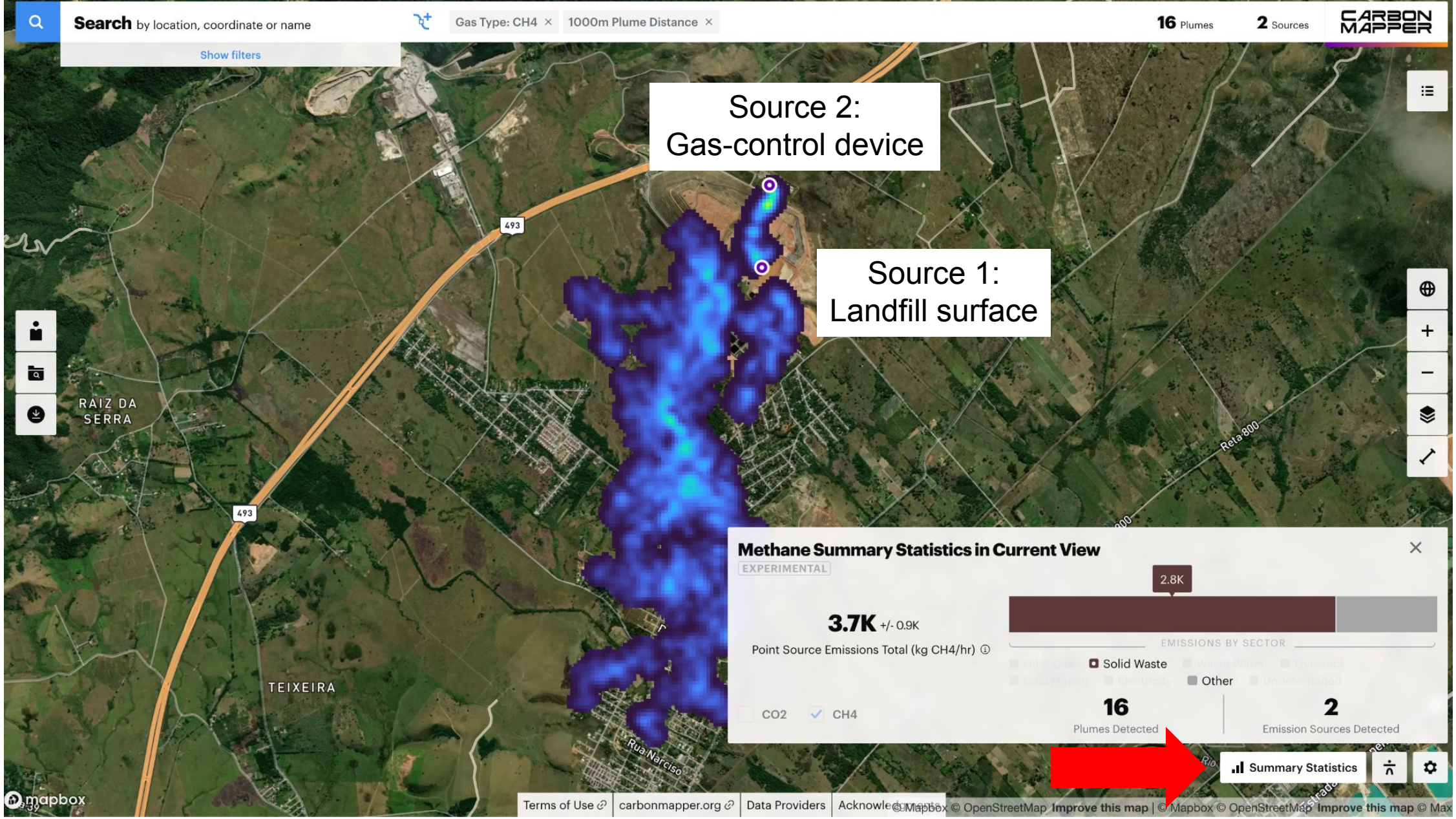
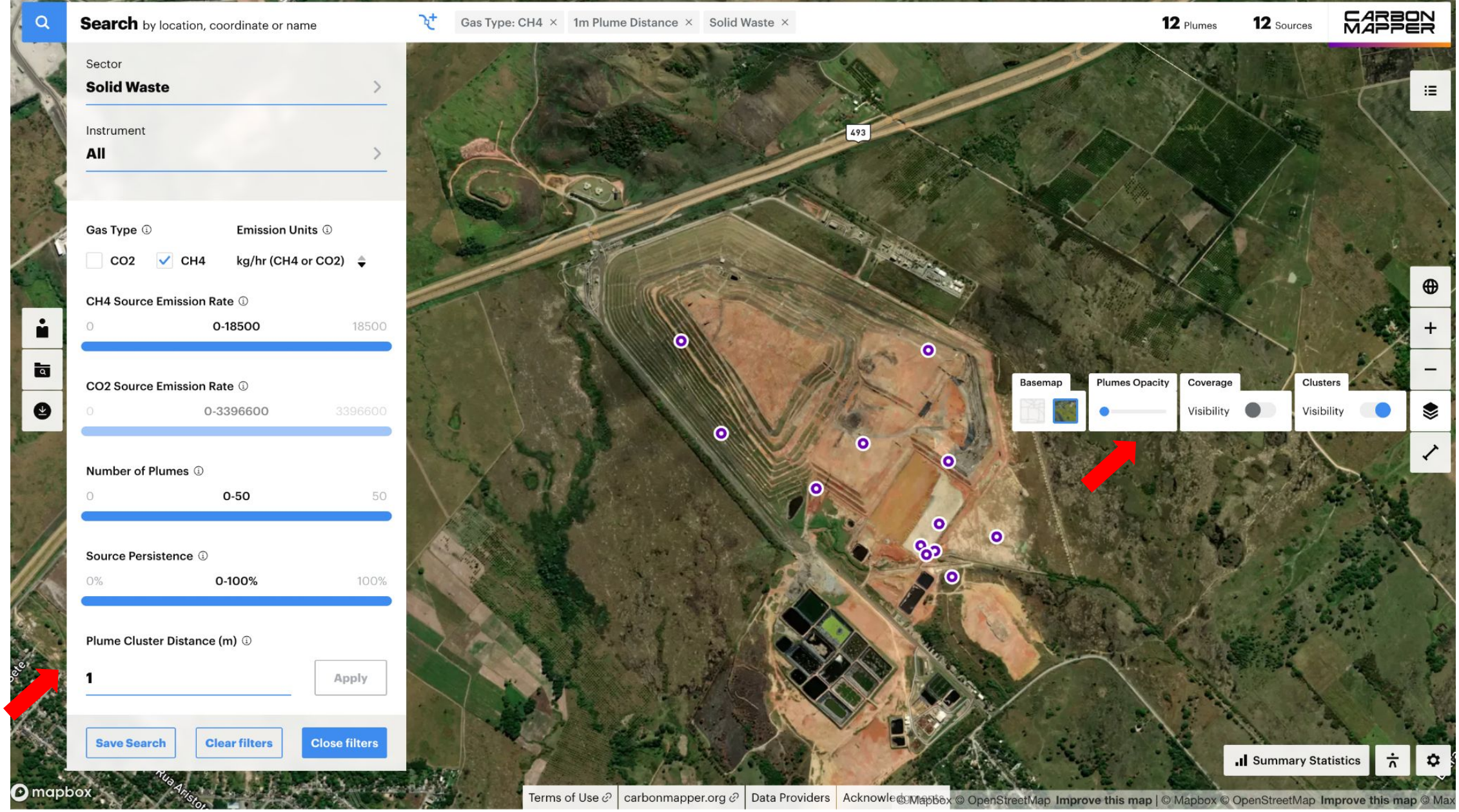
What am I seeing in the data portal at a landfill?



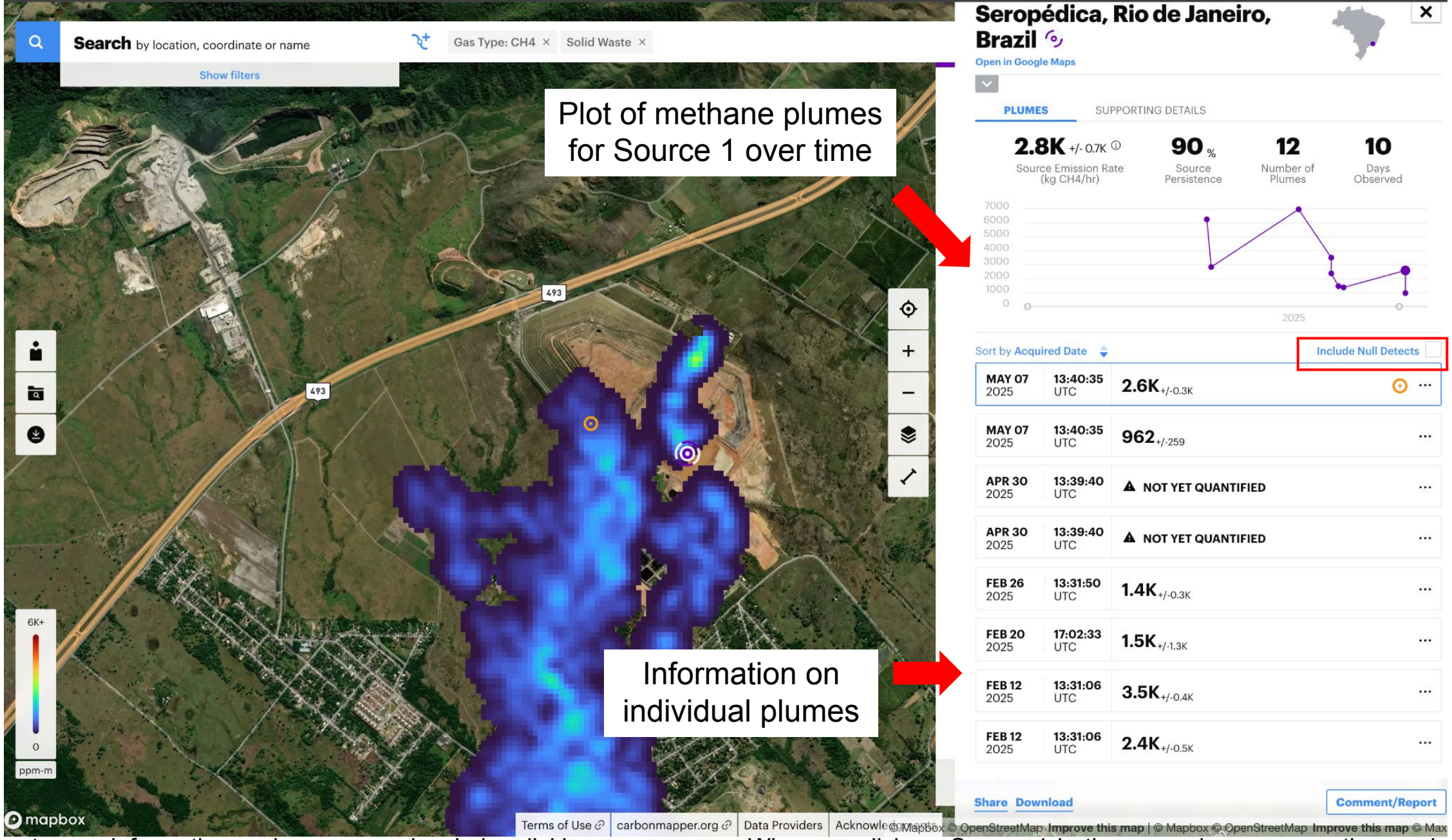
You will see methane emission “sources” at the landfill. Methane plumes that are being generated by the same emission process (e.g., same sector and close together) are grouped together as a source. In this example, we see in the top right corner that there are 2 sources at this site, and these 2 sources have 16 detected plumes between the 2 of them. Source 1 is from the landfill surface (Sector: Solid Waste) with an average emission rate of 2,800 kg/h while Source 2 is from a gas-control device (Sector: Other) with an average emission rate of 876 kg/h. The plume images are also shown for the most recent detects at each source.



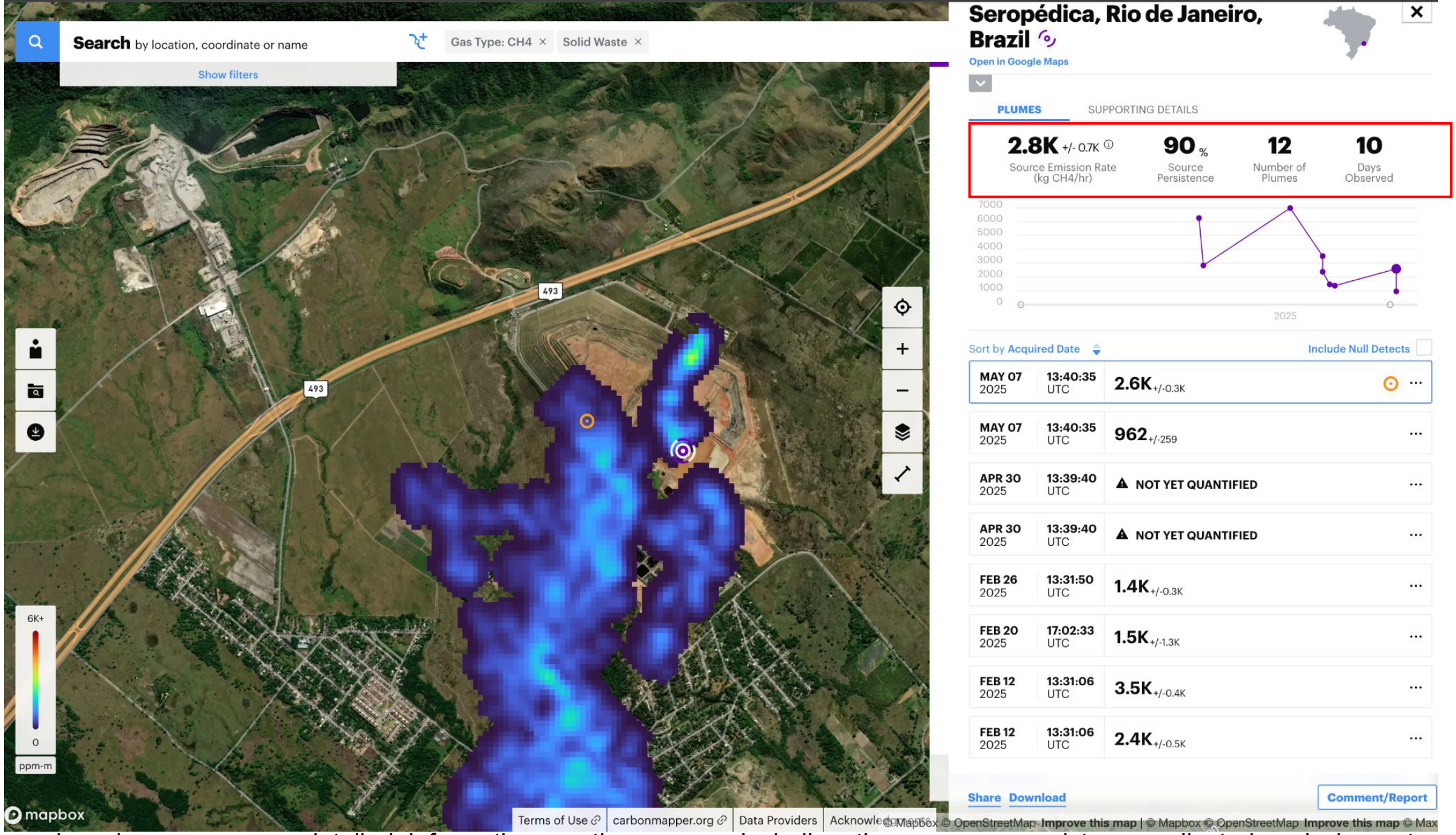
By clicking the “Summary Statistics” button, you can see the contribution of each source to total emissions within your current view. In the example, Source 1 and Source 2 together have an estimated point source emission rate of 3,700 kg/h (we also show uncertainty next to the emission rates).



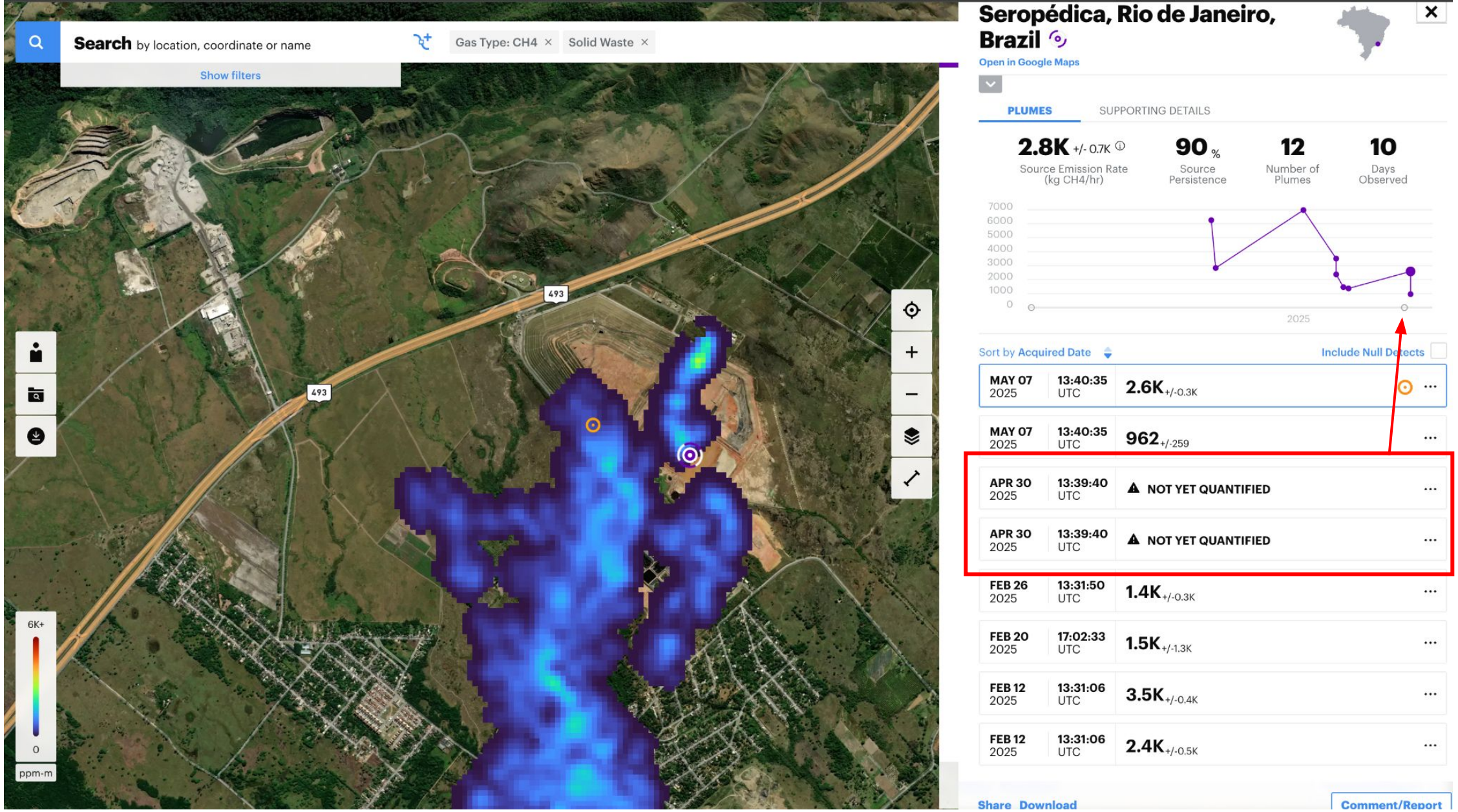
If we want to look at the locations of plume origins for Source 1, we can select the “Solid Waste” sector and lower the “Plume Cluster Distance” to 1 meter. It will also be helpful to turn off the plume image by decreasing the “Plume opacity”.



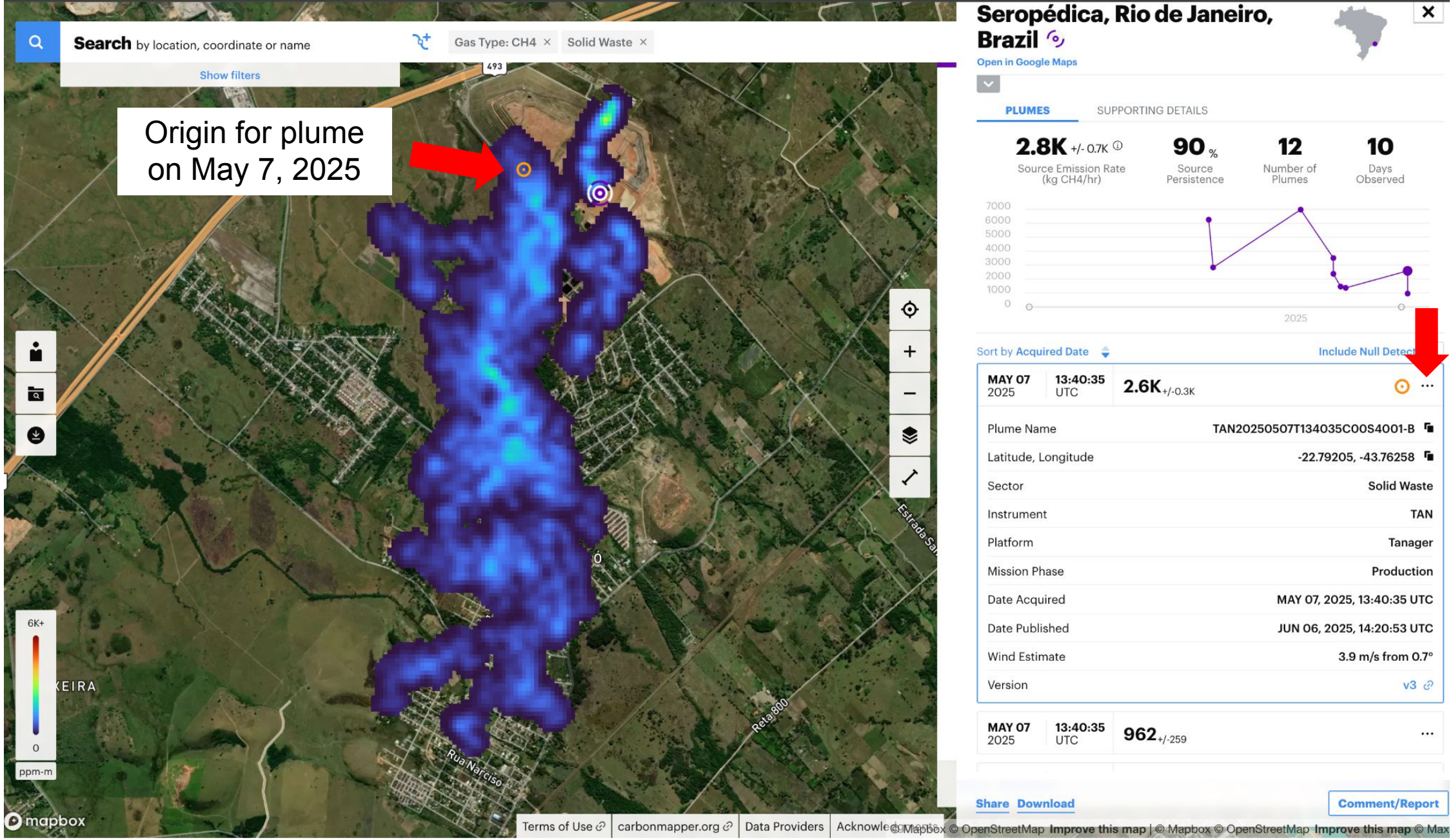
We can get more information and see more visuals by clicking on a source. When we click on Source 1 in the example, we see a time series plot of methane plume detections for that source and a list of individual plumes that you can click on for more information. There is also an option to include null detects in the time series if desired, though these are already incorporated in the source emission rate when we calculate persistence.



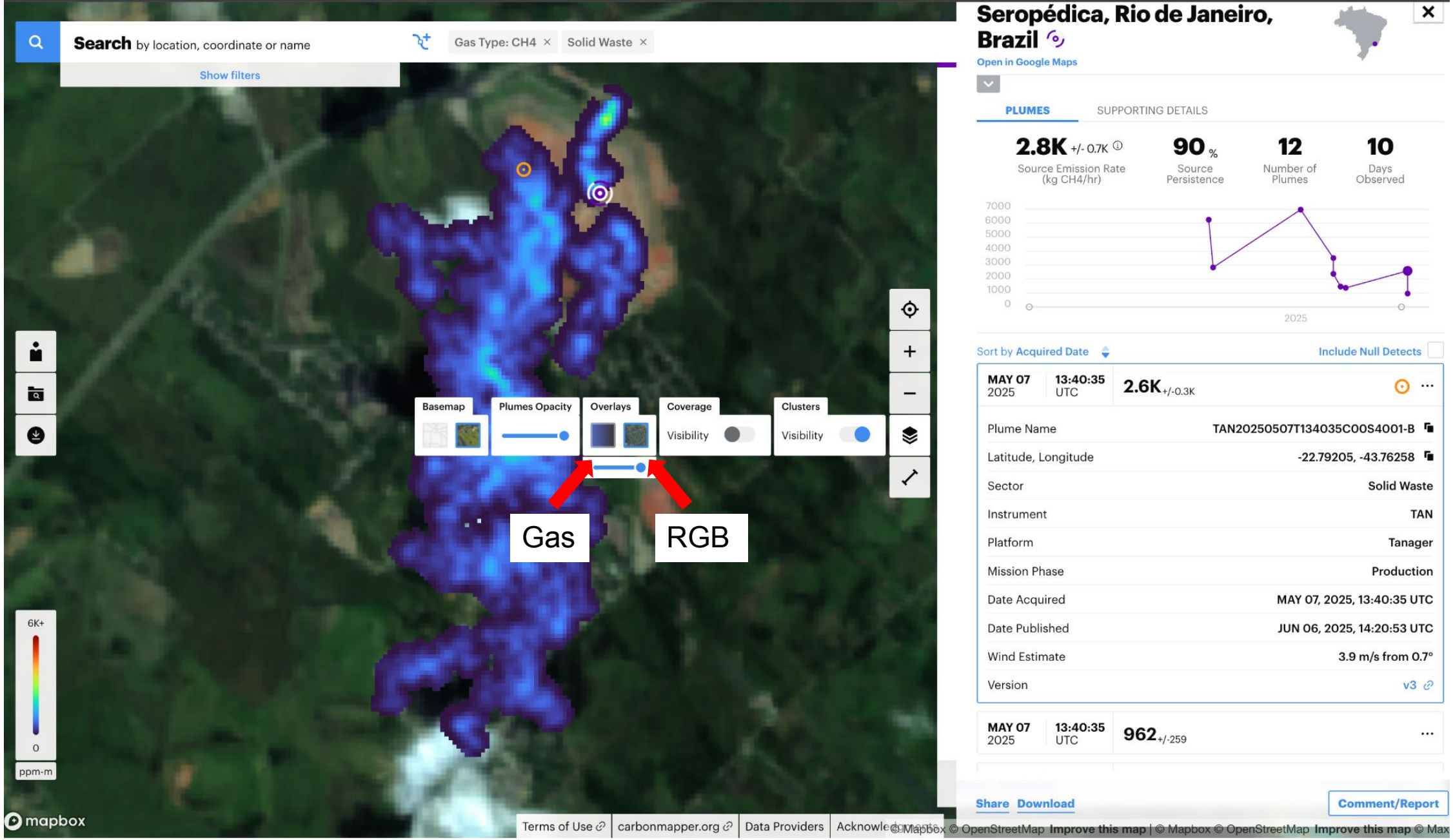
This view also shows us more detailed information on the source, including the average persistence adjusted emission rate, source persistence, number of plumes detected, and the number of days this source has been observed. If we want more information on the source, we can click on the “Supporting Details” tab.



For some plumes, you will see a message that says “not yet quantified”. These plumes do not currently have published emission rates and will show up as grey circles in the plot. Source 1 has a plume like this on April 30, 2025 at UTC 13:39:40. The emission rate may be hidden due to a quality issue like when a plume intersects a cloud preventing an accurate emission rate. We may also hide a plume emission rate if the plume overlaps with another plume at the landfill, preventing us from separately quantifying both plumes.



We can click on a particular plume to learn more about it. For the most recent plume in the example, we can see the location of the plume origin, the name of the plume (each plume has a unique identifying name), the sector, the instrument used to observe the plume and the corresponding platform name for that instrument, the date the plume was acquired and the date published, and the wind speed used to estimate the plume emission rate.



By clicking on the layers tab, we can also see what data layers are available for visualization of this plume. There is a “Gas” and “RGB” layer that allow you to see the raw methane retrieval (estimated enhancement – concentration above background – of methane) and visual imagery (collected at the same time and by the same instrument as the methane retrieval). Here we show the visual imagery on May 7, 2025.