



GEO Observations for AQ applications in the Western U.S.
August 5-7, 2025, CIRA, Fort Collins, CO

Case Study Presentation

In this exercise, you will analyze an air quality event of interest to you as a team. The goal is to use relevant NASA data and resources (e.g., TEMPO and other remote sensing data) presented in this training, as well as any other data you wish to add for comparison (e.g., AQ monitors). Conceptually, think of this as a story using images and data to reinforce the points you want to make. You will have an hour and a half to prepare your case study. Following the afternoon break, you will make a presentation and use other tools as needed to present your case study to everyone. Plan on 5 minutes for your presentation, so that we can accommodate each group.

Conducting the Case Study

1. Find a group of 3-5 people to work with on your case study.
2. Choose an air quality event or topic of interest to your group. Examples include:
 - a. Look at a wildfire event (e.g., [July 2024 Western Canadian Fires](#), [January 2025 Palisades Fire](#), [June 2025 New Mexico Fires](#)), track smoke plumes, and look for ozone precursors.
 - b. Map and compare NO₂ patterns in a city at different times of day. [Here is an example of a map created using TROPOMI at a single time of day.](#)
 - c. Compare satellite products to in-situ measurements at monitors. Examine how spatial and temporal trends compare between satellite and in-situ data.
 - d. If you have access to air quality models or forecasts, compare them to remote sensing observations to evaluate their accuracy.
3. Identify the data visualization and analysis resources you wish to use for this case study. You can make use of any and all course materials (including instructors) to identify suitable resources. Refer to the resources summary document for a complete list of what was covered.
4. Once you have identified the topic and resources, begin assembling the data you will use. It will be more efficient to divide this task among the



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people in your group. We suggest that in this step and the next, you write the information in a shared document as a guide for your presentation.

5. Organize the information you have gathered so that it can be presented using your platform(s) of choice and practice telling your story. You can use the provided slide template, or create your own. The presentation should:
 - a. Describe of the topic or event you are investigating
 - b. Identify the time and region you considered
 - c. List the data sets and visualization tools you used
 - d. Summarize your analysis and the conclusions you drew
 - e. Discuss your experience of which datasets and tools worked well and what you struggled with
6. Give your presentation. Select one ~~victim~~ person to make the presentation, or you can have several people take turns each presenting one piece. Aim for about 5 minutes; this will leave time for all groups to present, as well as time for Q&A and open discussion.