Appendix A. Columbus-Baker Prescribed Fire Exceptional Events Plots
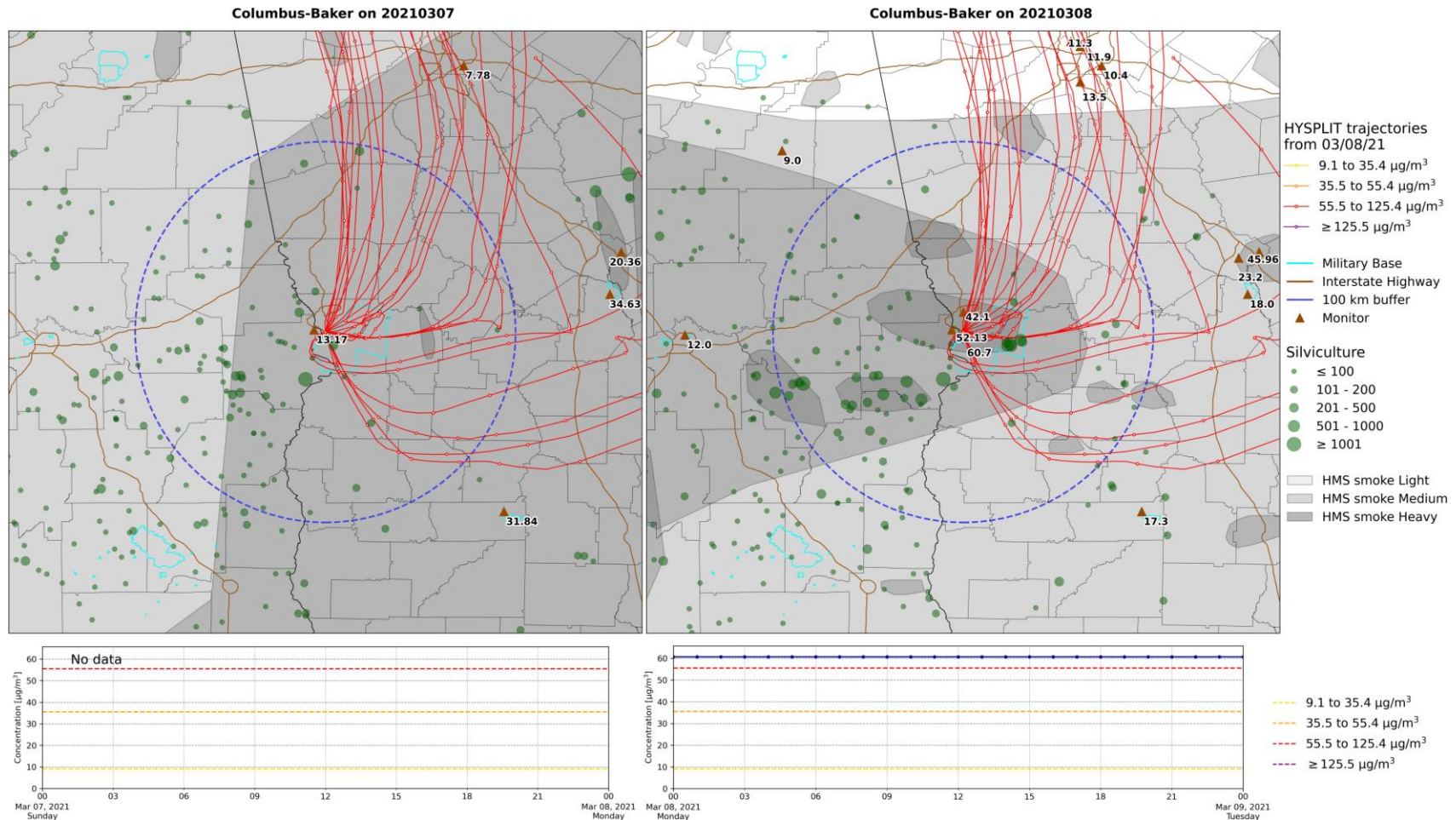

Figure 1A. The top left map contains burn permits issued, HMS smoke plumes, and 24-hour PM$_{2.5}$ concentrations at the Columbus-Baker PM$_{2.5}$ monitor on March 7, 2021. The top right map contains the same information for March 8, 2021. Both maps contain HYSPLIT back trajectories (released at 100 m, 24-hour duration) from the Columbus-Baker PM$_{2.5}$ monitor on March 8, 2023. HYSPLIT markers are spaced in 3-hour intervals. In the time series plots, the blue solid line shows calculated hourly values from daily observations from the FRM monitor. The dashed lines correspond to the AQI breakpoints for PM$_{2.5}$ concentrations.

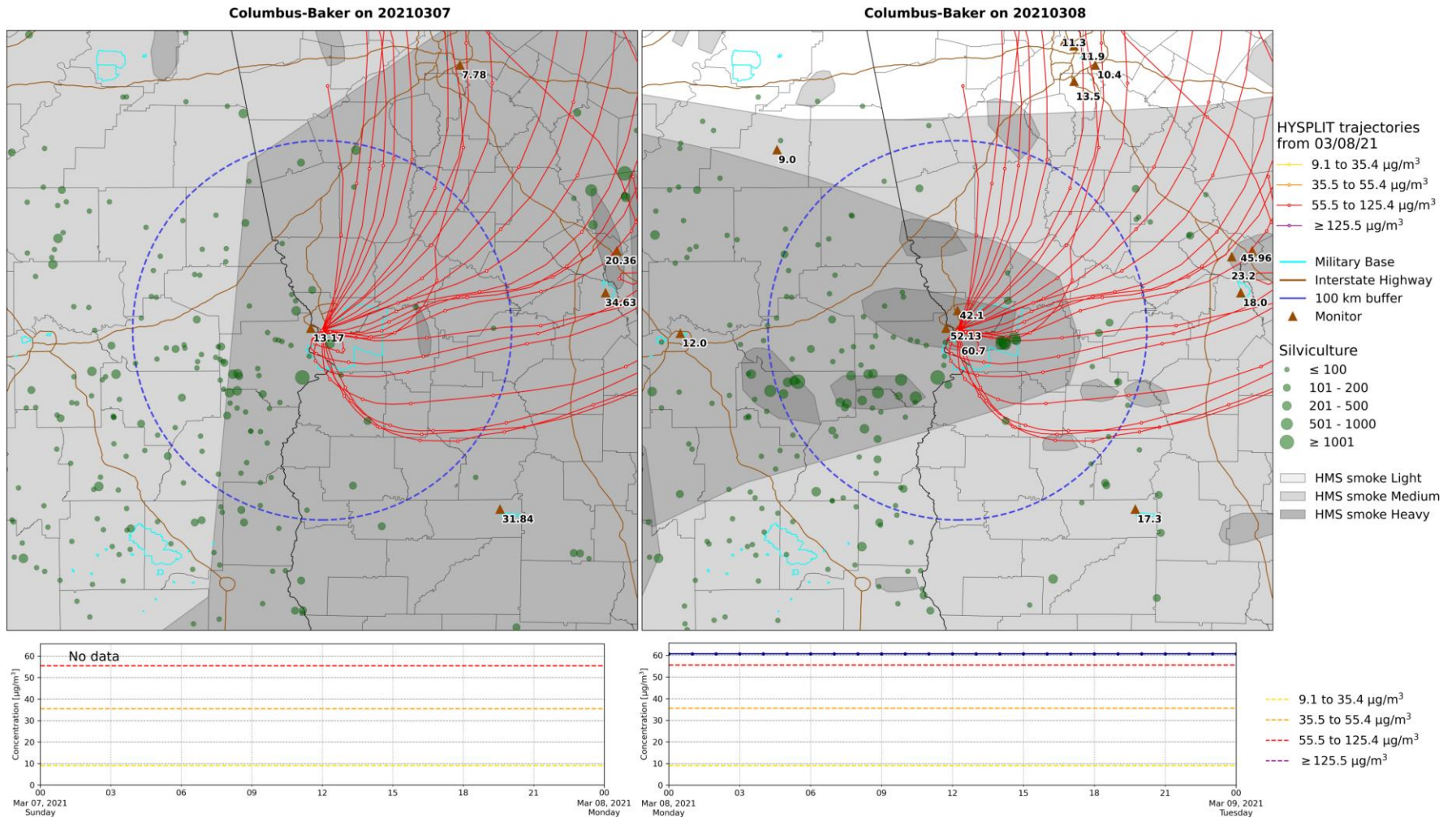**Figure 1B.** The same as Figure 1A except HYSPLIT back trajectories are released at 500 m from the Columbus-Baker PM$_{2.5}$ monitor.
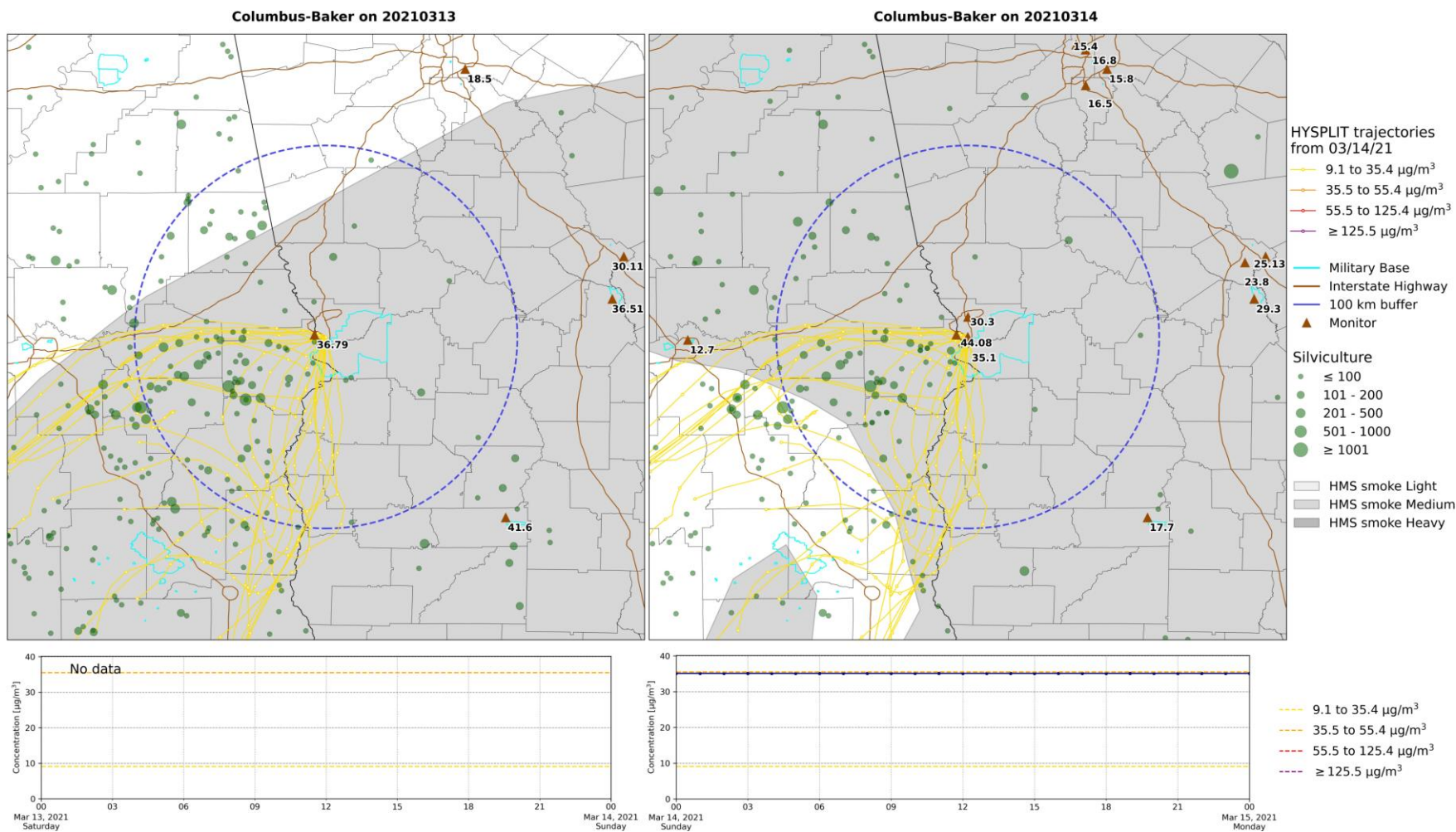
Figure 2A. The top left map contains burn permits issued, HMS smoke plumes, and 24-hour PM$_{2.5}$ concentrations at the Columbus-Baker PM$_{2.5}$ monitor on March 13, 2021. The top right map contains the same information for March 14, 2021. Both maps contain HYSPLIT back trajectories (released at 100 m, 24-hour duration) from the Columbus-Baker PM$_{2.5}$ monitor on March 14, 2023. HYSPLIT markers are spaced in 3-hour intervals. In the time series plots, the blue solid line shows calculated hourly values from daily observations from the FRM monitor. The dashed lines correspond to the AQI breakpoints for PM$_{2.5}$ concentrations.

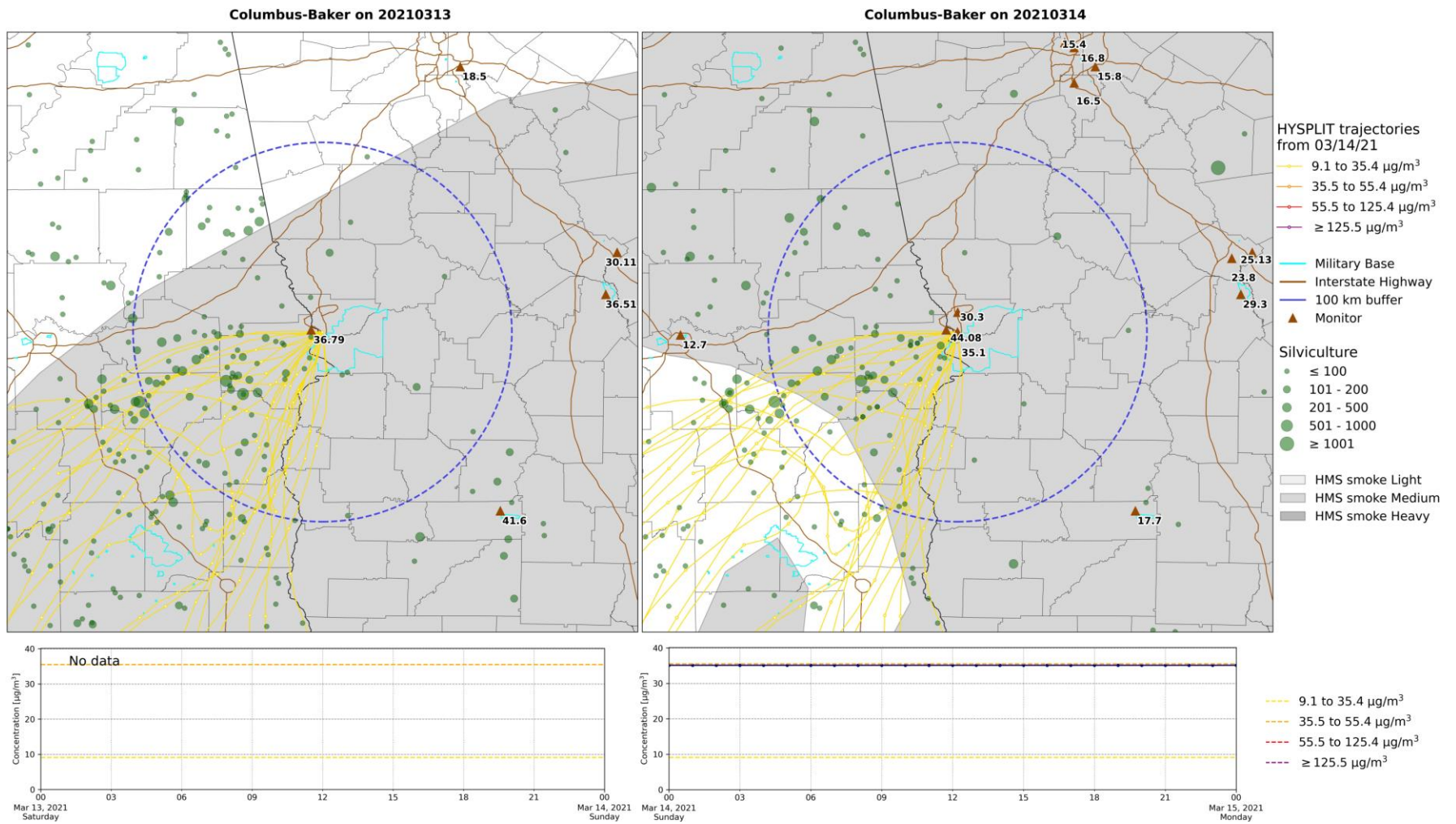**Figure 2B.** The same as Figure 2A except HYSPLIT back trajectories are released at 500 m from the Columbus-Baker PM$_{2.5}$ monitor.
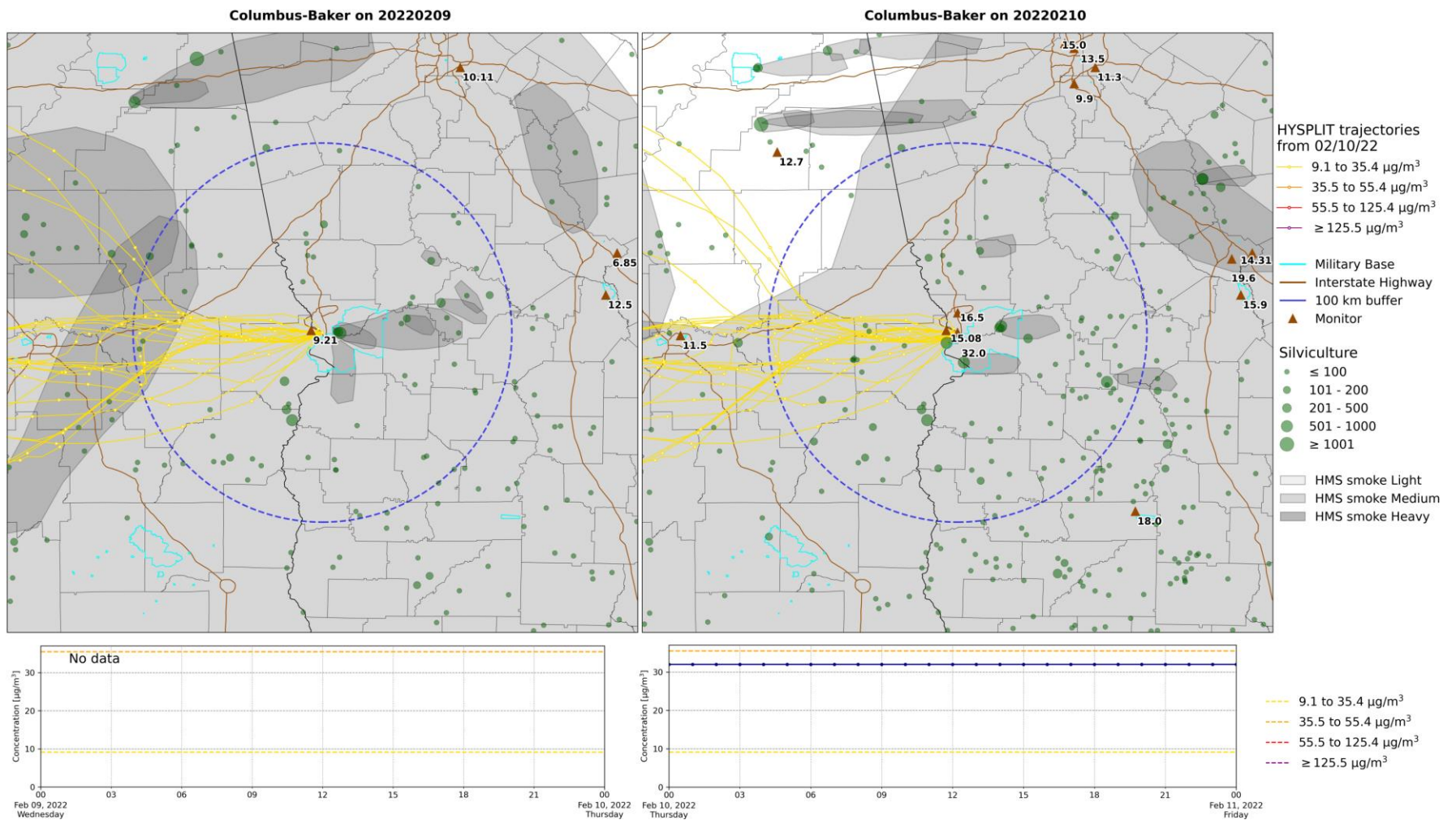
Figure 3A. The top left map contains burn permits issued, HMS smoke plumes, and 24-hour $PM_{2.5}$ concentrations at the Columbus-Baker $PM_{2.5}$ monitor on February 9, 2022. The top right map contains the same information for February 10, 2022. Both maps contain HYSPLIT back trajectories (released at 100 m, 24-hour duration) from the Columbus-Baker $PM_{2.5}$ monitor on February 10, 2022. HYSPLIT markers are spaced in 3-hour intervals. In the time series plots, the blue solid line shows calculated hourly values from daily observations from the FRM monitor. The dashed lines correspond to the AQI breakpoints for $PM_{2.5}$ concentrations.
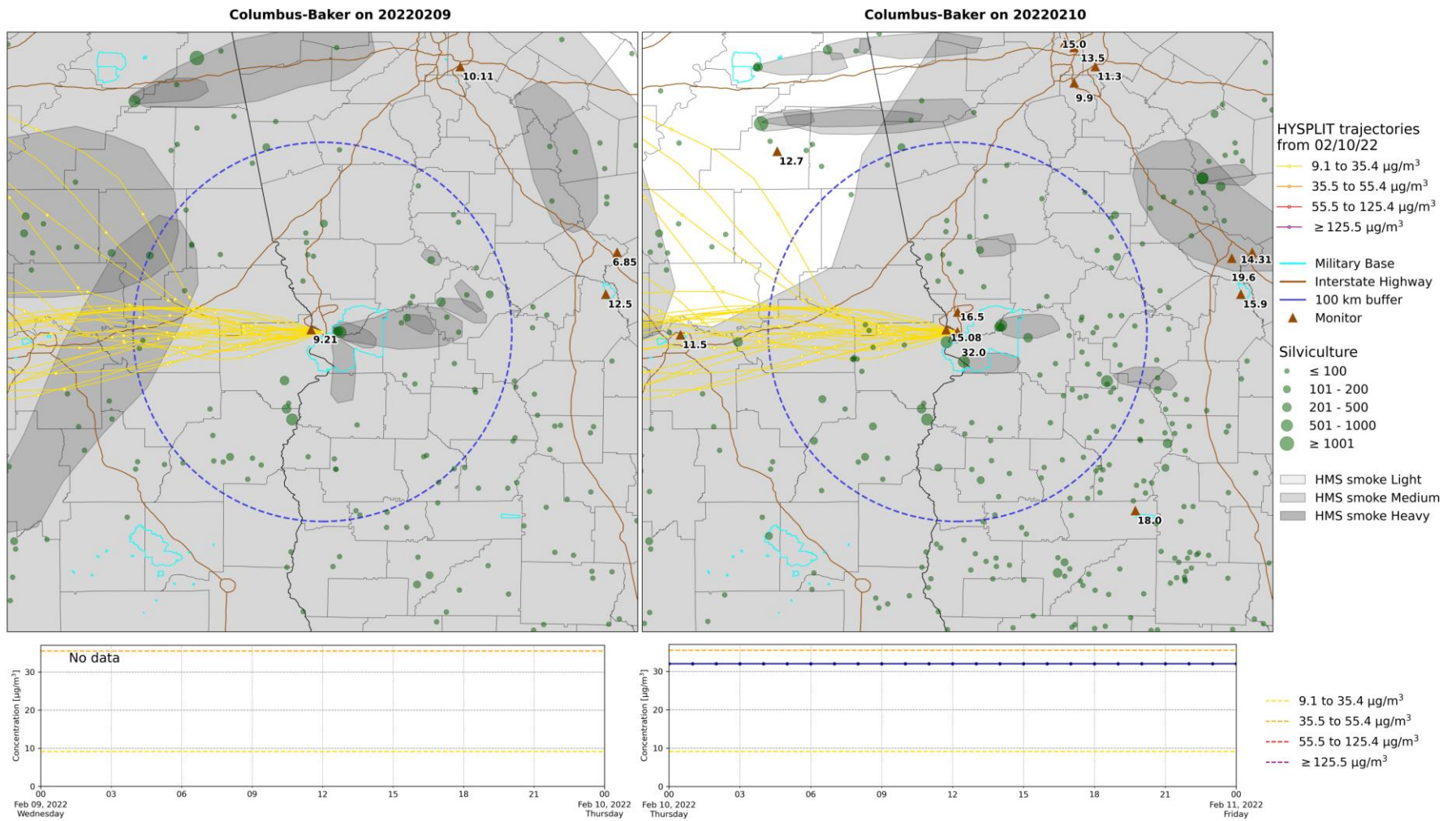
Figure 3B. The same as Figure 3A except HYSPLIT back trajectories are released at 500 m from the Columbus-Baker PM$_{2.5}$ monitor.
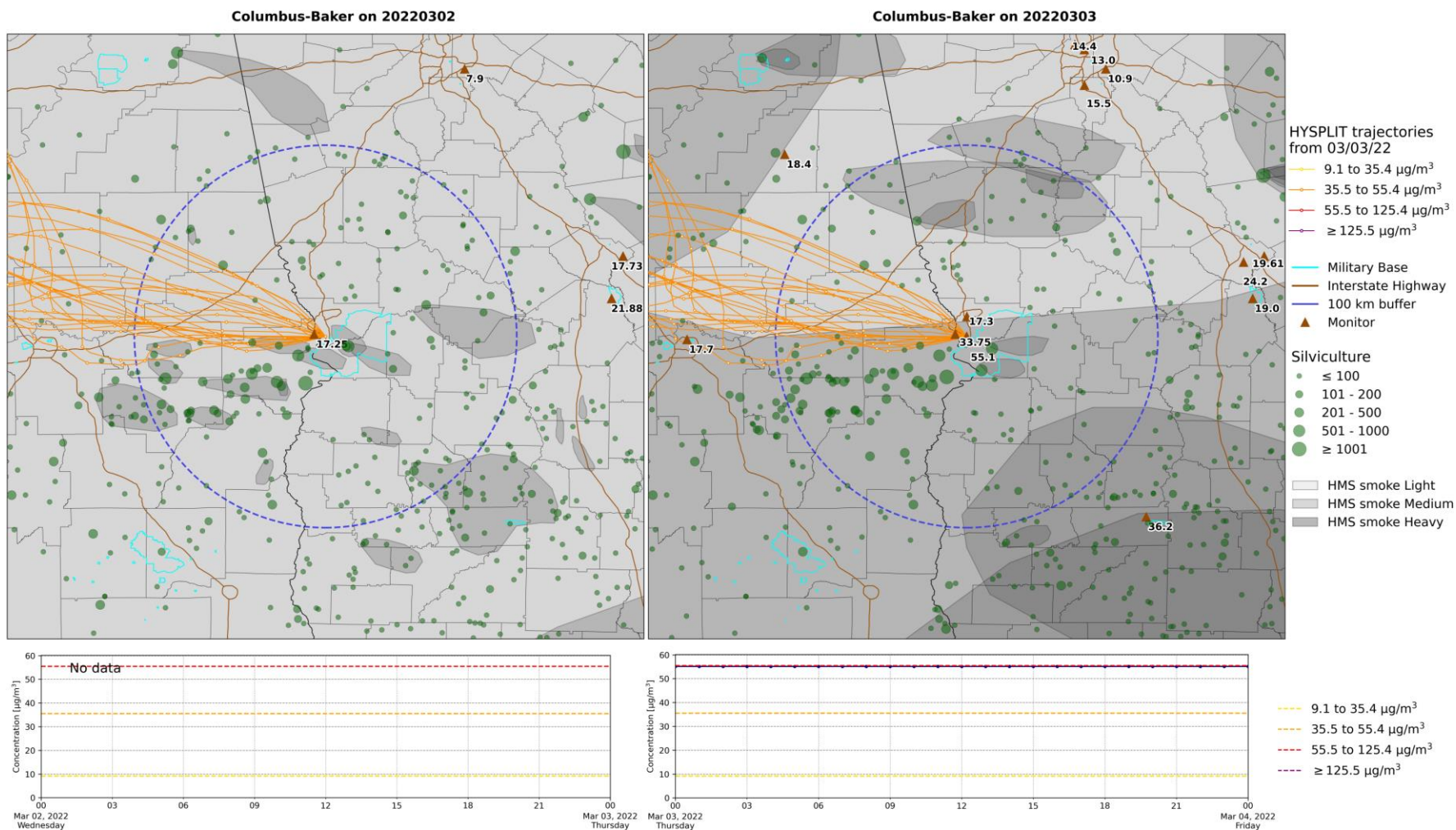
Figure 4A. The top left map contains burn permits issued, HMS smoke plumes, and 24-hour PM2.5 concentrations at the Columbus-Baker PM2.5 monitor on March 2, 2022. The top right map contains the same information for March 3, 2022. Both maps contain HYSPLIT back trajectories (released at 100 m, 24-hour duration) from the Columbus-Baker PM2.5 monitor on March 3, 2022. HYSPLIT markers are spaced in 3-hour intervals. In the time series plots, the blue solid line shows calculated hourly values from daily observations from the FRM monitor. The dashed lines correspond to the AQI breakpoints for PM2.5 concentrations.
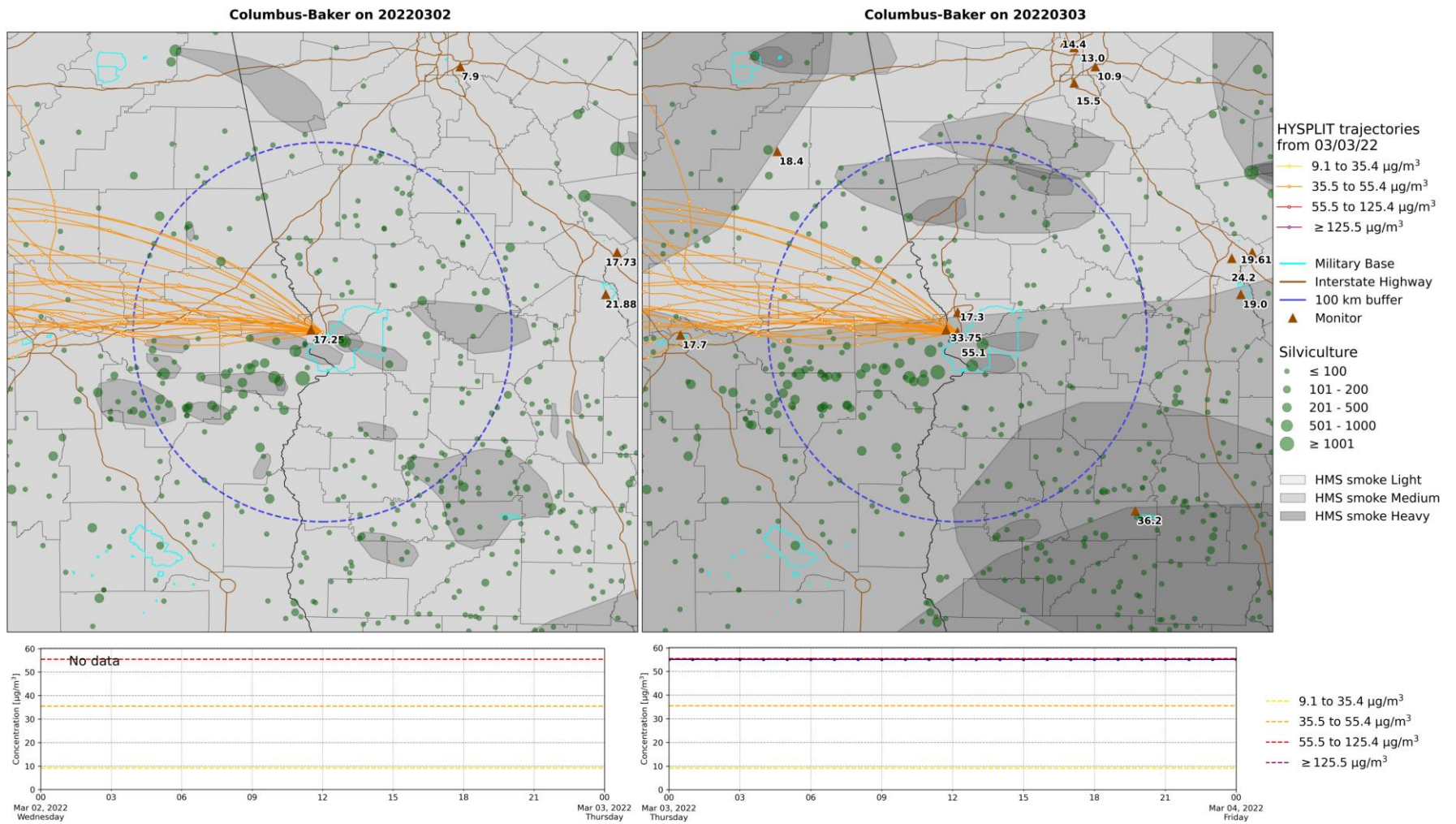
Figure 4B. The same as Figure 4A except HYSPLIT back trajectories are released at 500 m from the Columbus-Baker PM$_{2.5}$ monitor.
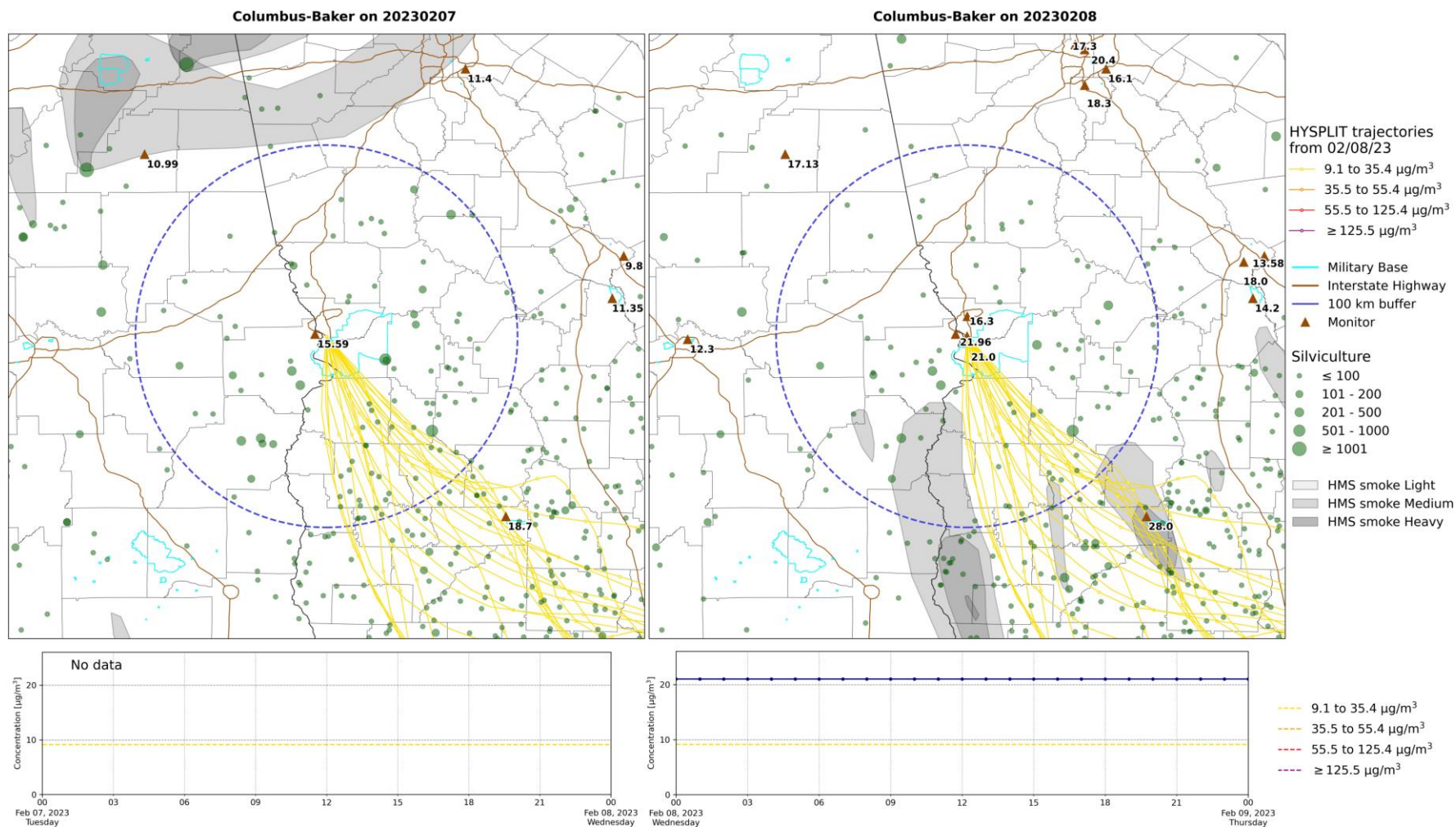
Figure 5A. The top left map contains burn permits issued, HMS smoke plumes, and 24-hour PM$_{2.5}$ concentrations at the Columbus-Baker PM$_{2.5}$ monitor on February 7, 2023. The top right map contains the same information for February 8, 2023. Both maps contain HYSPLIT back trajectories (released at 100 m, 24-hour duration) from the Columbus-Baker PM$_{2.5}$ monitor on February 8, 2023. HYSPLIT markers are spaced in 3-hour intervals. In the time series plots, the blue solid line shows calculated hourly values from daily observations from the FRM monitor. The dashed lines correspond to the AQI breakpoints for PM$_{2.5}$ concentrations.
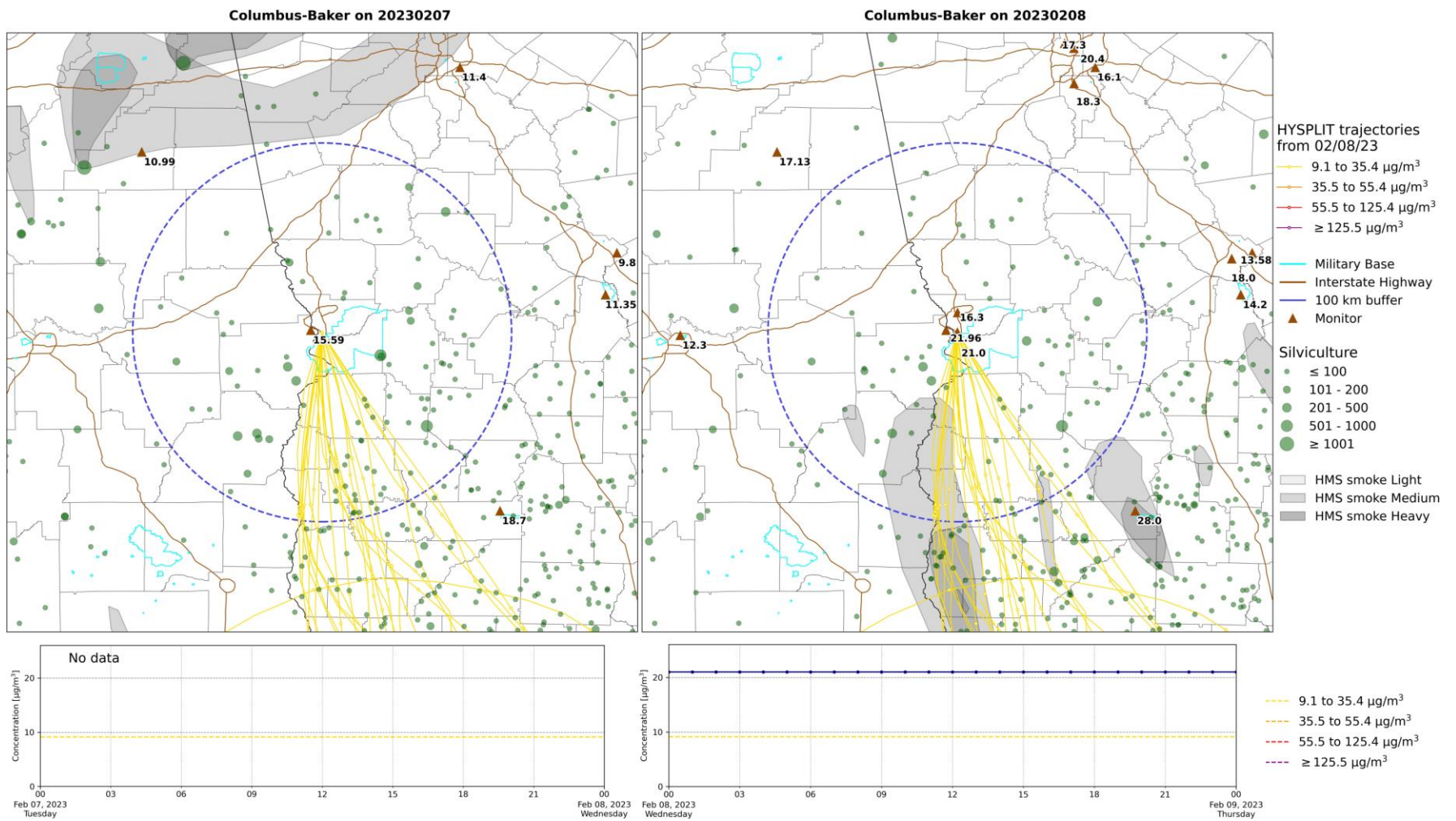
Figure 5B. The same as Figure 5A except HYSPLIT back trajectories are released at 500 m from the Columbus-Baker PM$_{2.5}$ monitor.
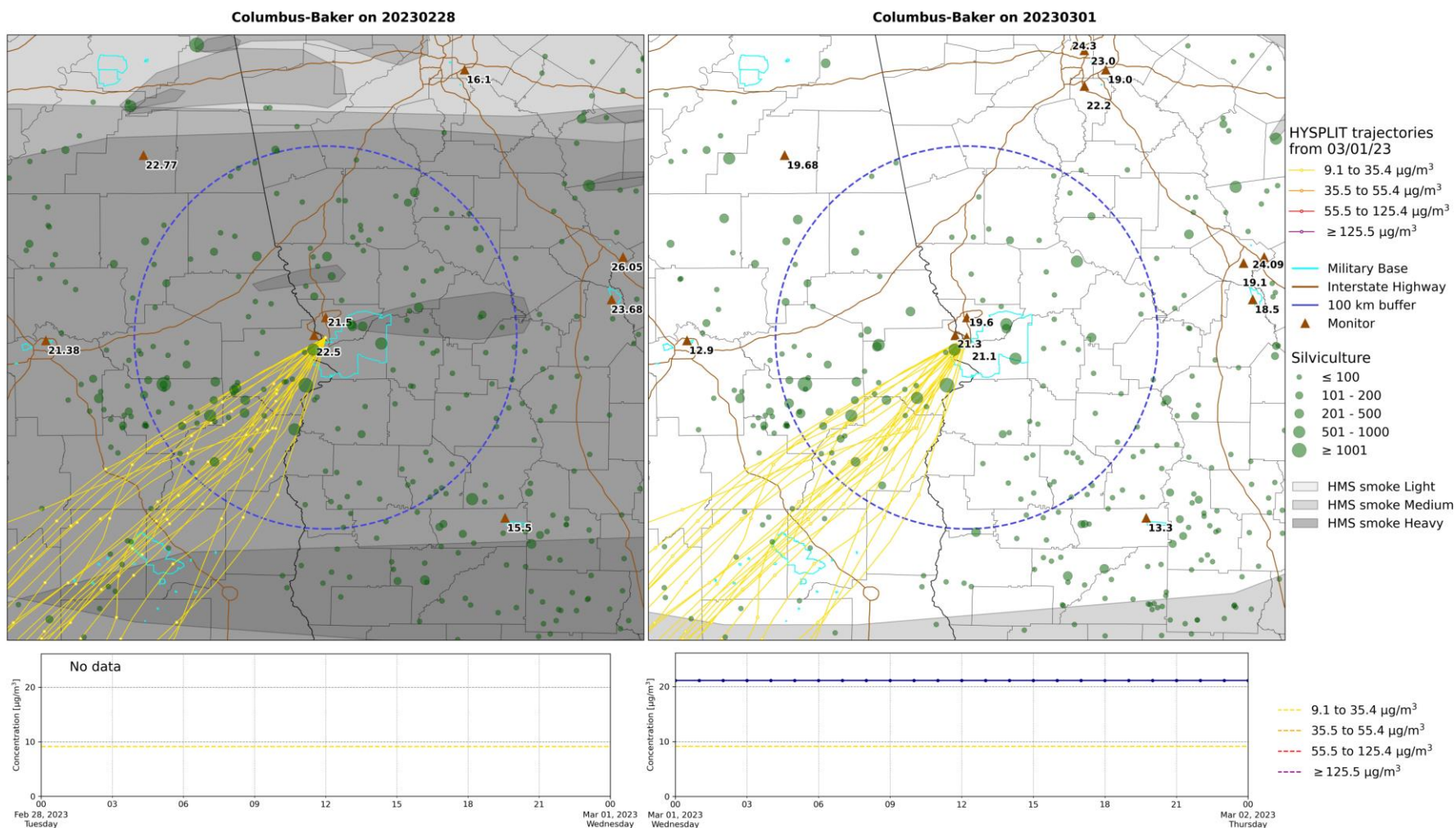
Figure 6A. The top left map contains burn permits issued, HMS smoke plumes, and 24-hour PM$_{2.5}$ concentrations at the Columbus-Baker PM$_{2.5}$ monitor on February 28, 2023. The top right map contains the same information for March 1, 2023. Both maps contain HYSPLIT back trajectories (released at 100 m, 24-hour duration) from the Columbus-Baker PM$_{2.5}$ monitor on March 1, 2023. HYSPLIT markers are spaced in 3-hour intervals. In the time series plots, the blue solid line shows calculated hourly values from daily observations from the FRM monitor. The dashed lines correspond to the AQI breakpoints for PM$_{2.5}$ concentrations.

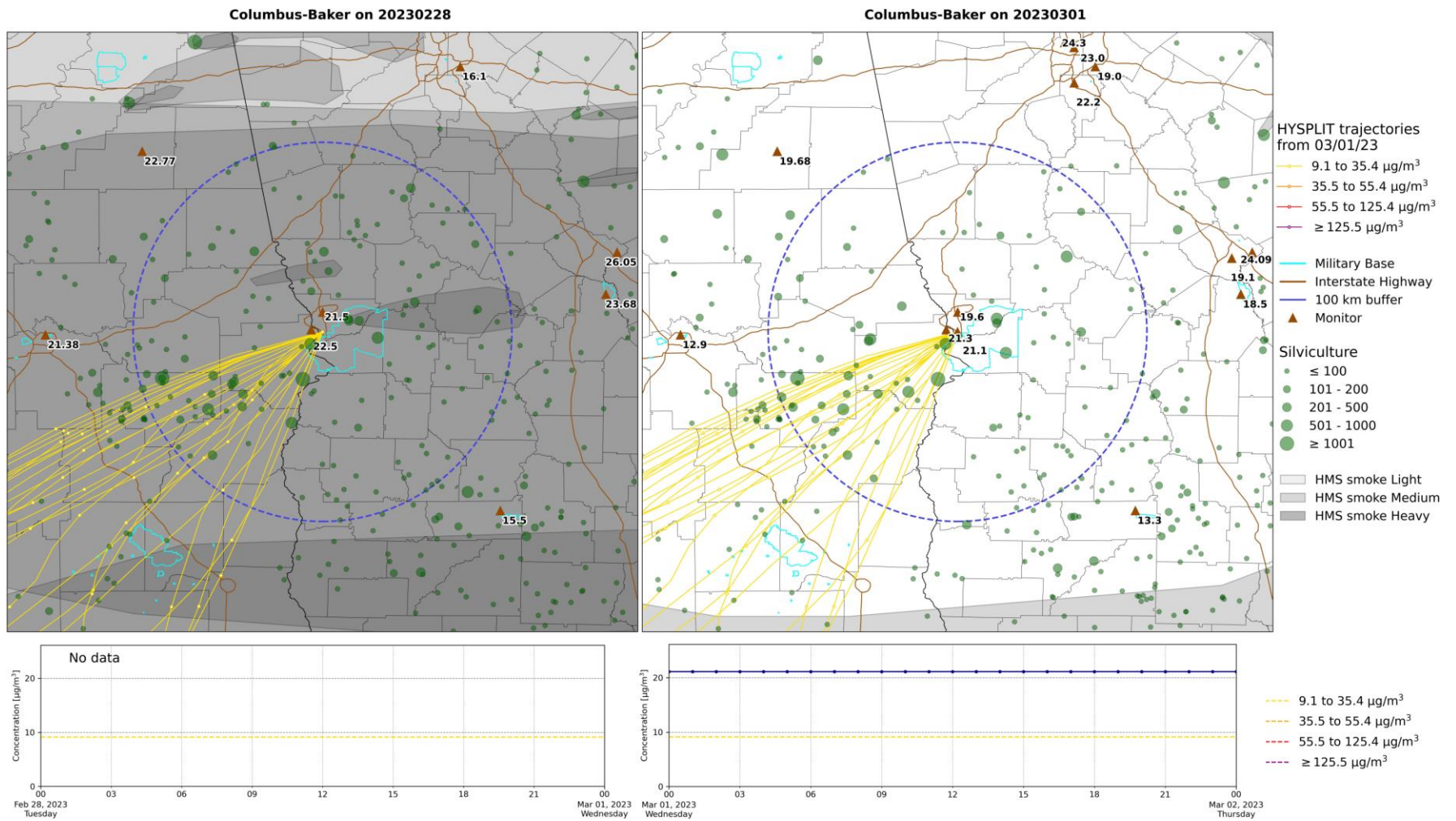**Figure 6B.** The same as Figure 6A except HYSPLIT back trajectories are released at 500 m from the Columbus-Baker PM$_{2.5}$ monitor.
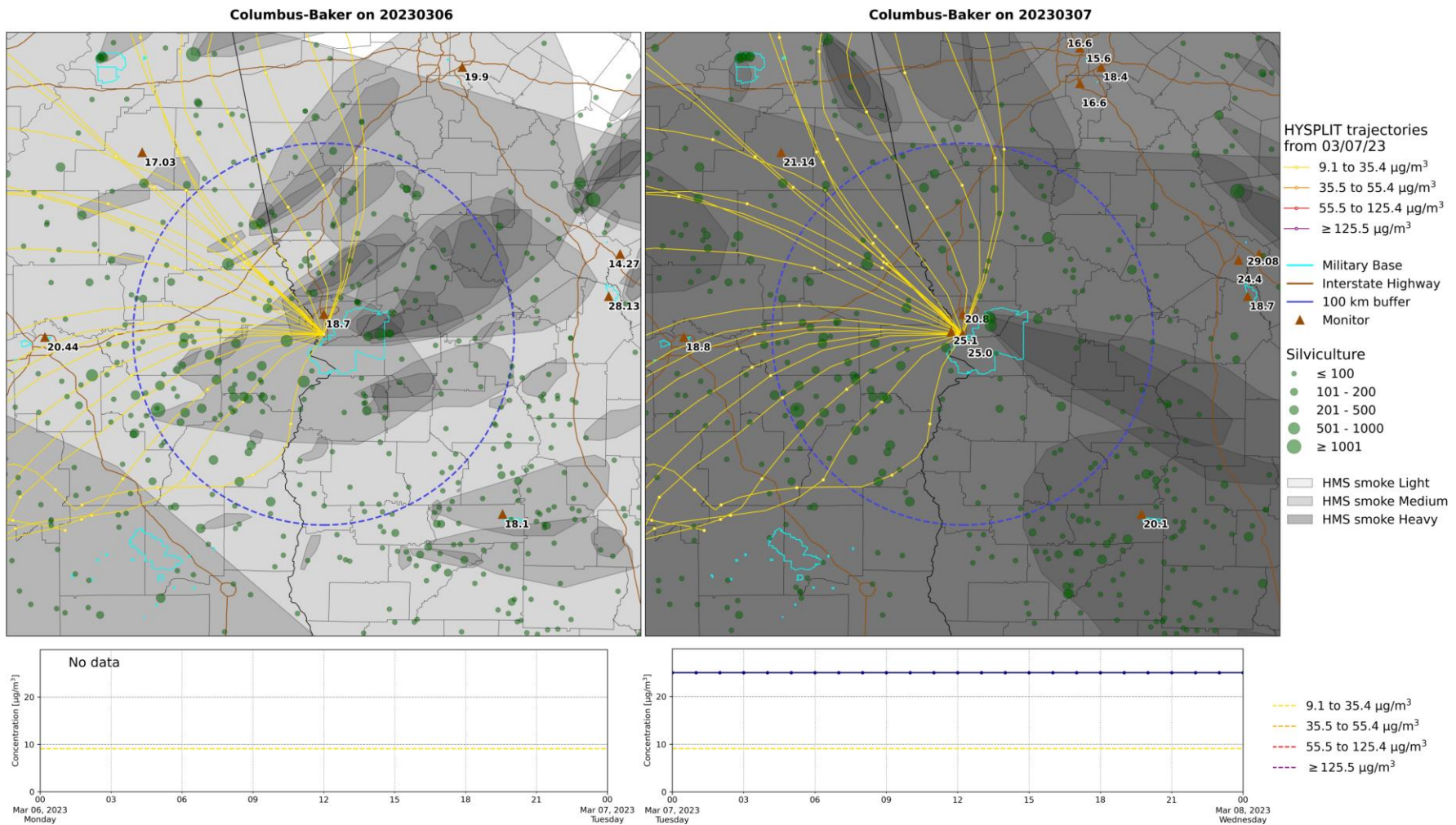
Figure 7A. The top left map contains burn permits issued, HMS smoke plumes, and 24-hour PM$_{2.5}$ concentrations at the Columbus-Baker PM$_{2.5}$ monitor on March 6, 2023. The top right map contains the same information for March 7, 2023. Both maps contain HYSPLIT back trajectories (released at 100 m, 24-hour duration) from the Columbus-Baker PM$_{2.5}$ monitor on March 7, 2023. HYSPLIT markers are spaced in 3-hour intervals. In the time series plots, the blue solid line shows calculated hourly values from daily observations from the FRM monitor. The dashed lines correspond to the AQI breakpoints for PM$_{2.5}$ concentrations.

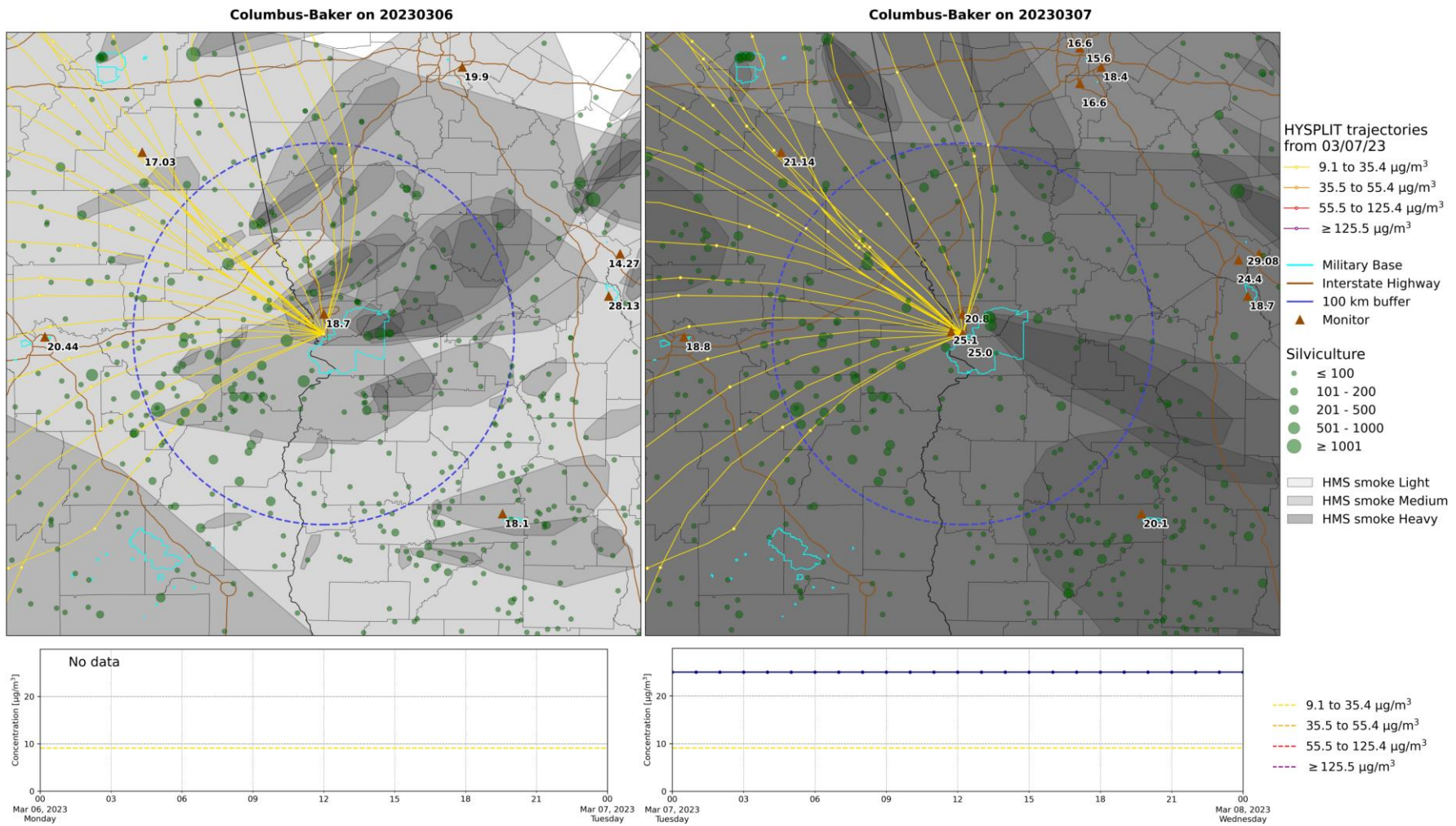**Figure 7B.** The same as Figure 7A except HYSPLIT back trajectories are released at 500 m from the Columbus-Baker PM$_{2.5}$ monitor.