Jan 21, 2013 Duration: 11:00 – 17:30 PST PI: Mark Zondlo, mzondlo@princeton.edu

Mobile platform for open-path sensors

We performed the first spatial mapping across the Central Valley with the open-path NH_3 and CO_2 sensors mounted on a vehicle.

Figure 1. Photo of on board sensors, 20130121

The mobile platform started from Porterville, CA and drove across the intensive dairy farm area. The driving route followed the NASA P3-B flight tracks to Huron.

NH_3 concentration on the road (not at the dairy farm itself) shows similar gradient to the dairy farm distribution. Enhanced NH_3 levels were observed near the intersection between Route 99 and 190. NH_3 spikes in the raw data are ~1000 ppbv. Automobile NH_3 emissions on road were traced by simultaneous CO_2 measurements. Concentrations decrease along the Hanford to Huron transect, with higher concentrations closer to Hanford and lower background concentration (<10 ppbv NH3) closer to Huron.

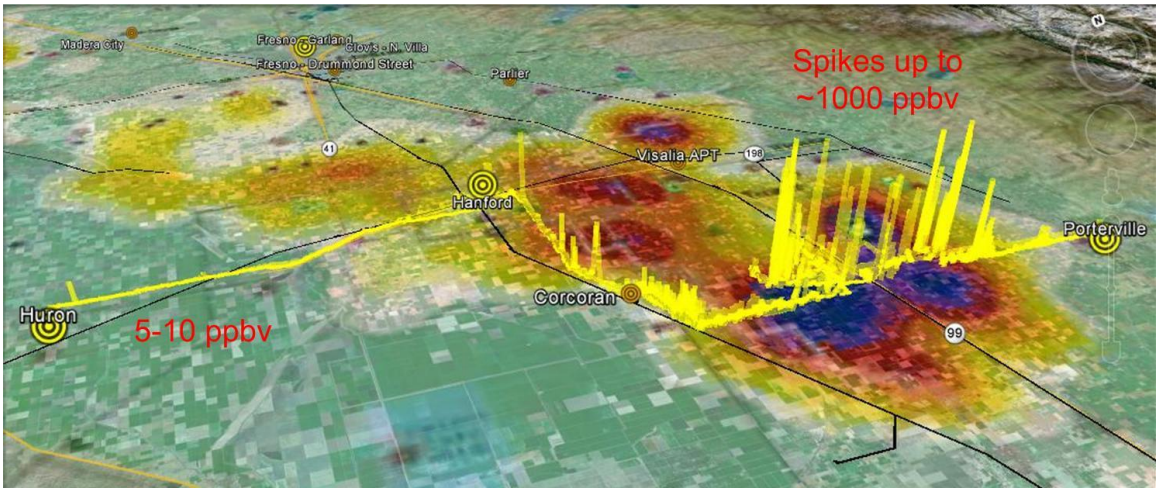

Figure 2. NH_3 levels and dairy farm distribution