

BAY AREA MODELING

Status of District's Modeling Work

Modeling Advisory Committee Meeting
June 10, 2003

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Status of District's Work

- Data preparation
- Examining the causes of underestimation of ozone

Status of District's Work

Data preparation

- Preparation of meteorological data (July 28-August 2, 2000)
- Preparation of air quality data (July 30-August 2, 2000)
- Preparation of aircraft data (July 30-August 2, 2000)

Status of District's Work

Examining the causes of underestimation of ozone
(July 31, 2000)

- ENVIRON (about 78 ppb ozone in Livermore)
- UCR (about 105 ppb ozone in Livermore using CBM-IV and 110 ppb using SAPRC)
- Observed ozone in Livermore (116 ppb, 123 ppb, and 126 ppb at 2 pm, 3 pm, and 4 pm, respectively)

Status of District's Work

ENVIRON

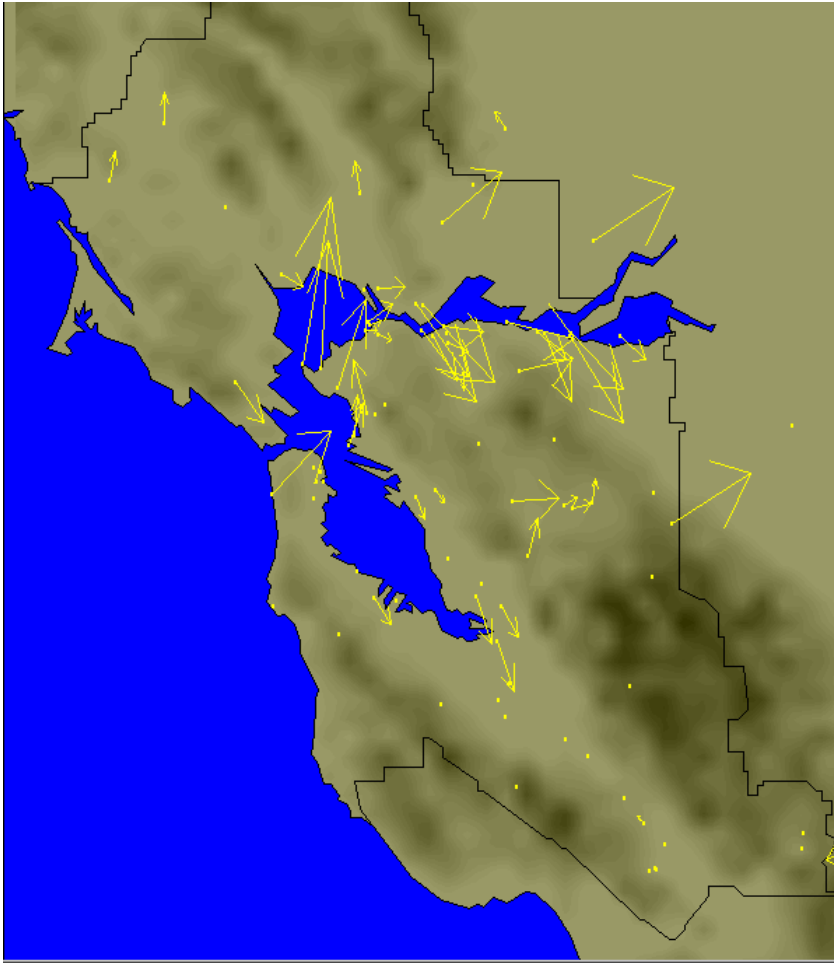
- RAMS
- CAMx
- Processes EI directly
- Clean B.C.

UCR

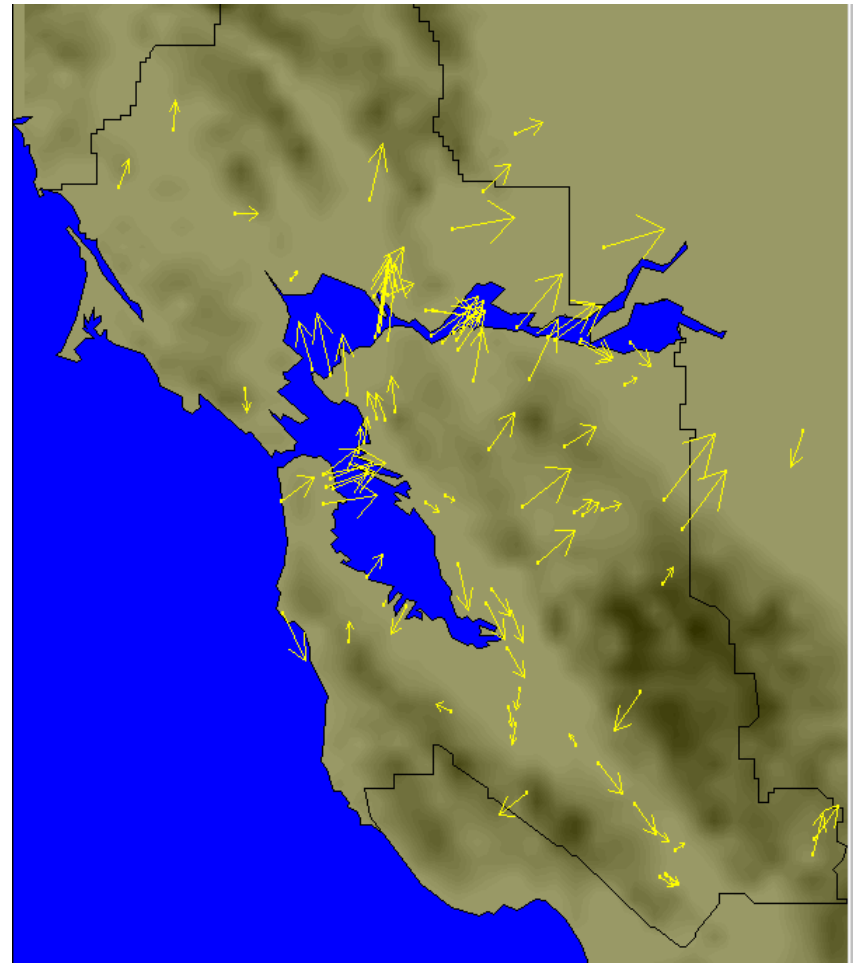
- MM5
- CAMx
- Processes EI for SAQM then CAMx
- Modified SARMAP B.C.

Status of District's Work

- Ran ENVIRON's CAMx with MM5
- Ran UCR's CAMx with ENVIRON's photolysis rate file
- Ran UCR's CAMx with ENVIRON's land use file
- Ran UCR's CAMx with PPM advection scheme
- Compared ENVIRON's EI against UCR's EI
- Compared MM5 against surface wind observations

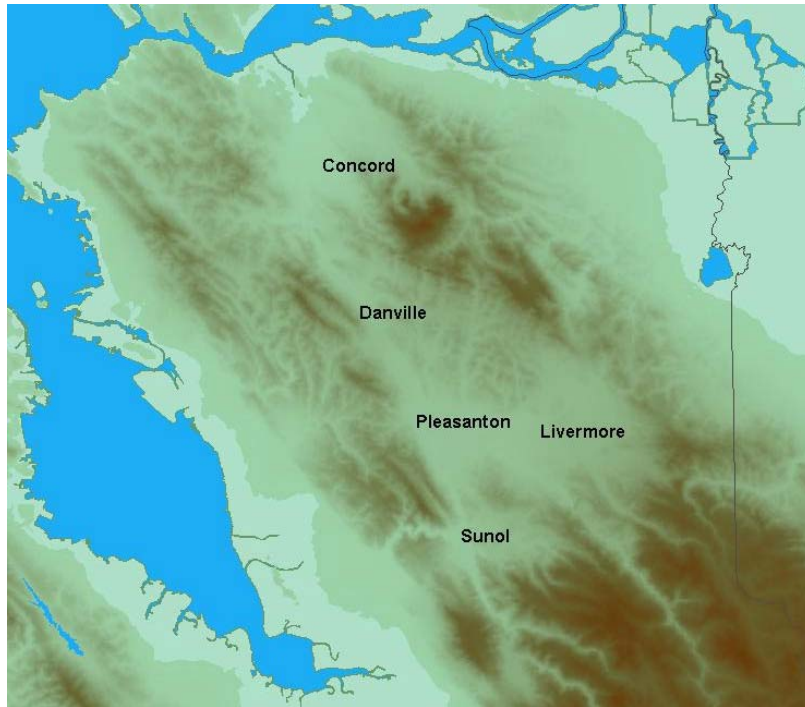


Observed winds

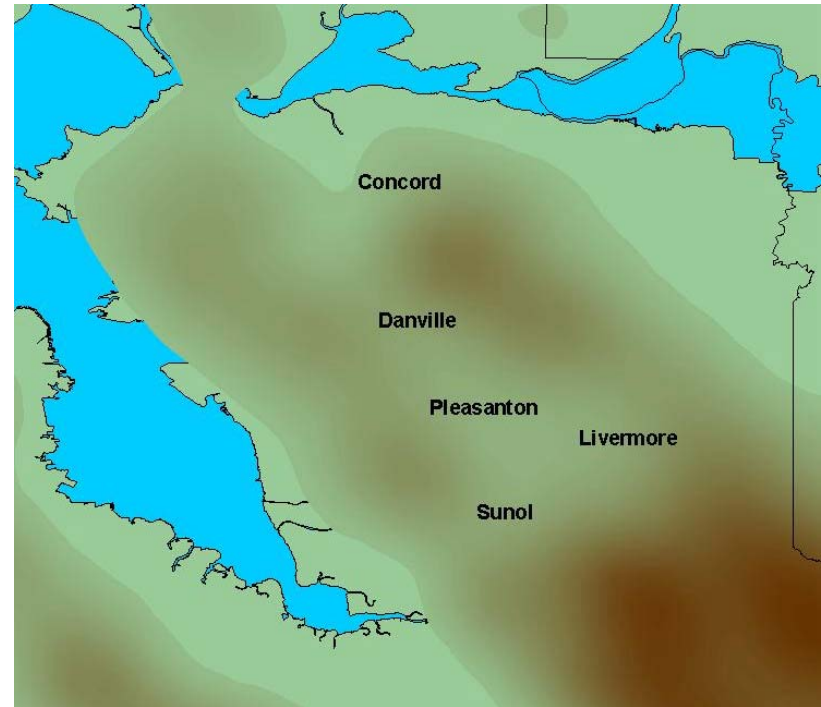


Simulated winds

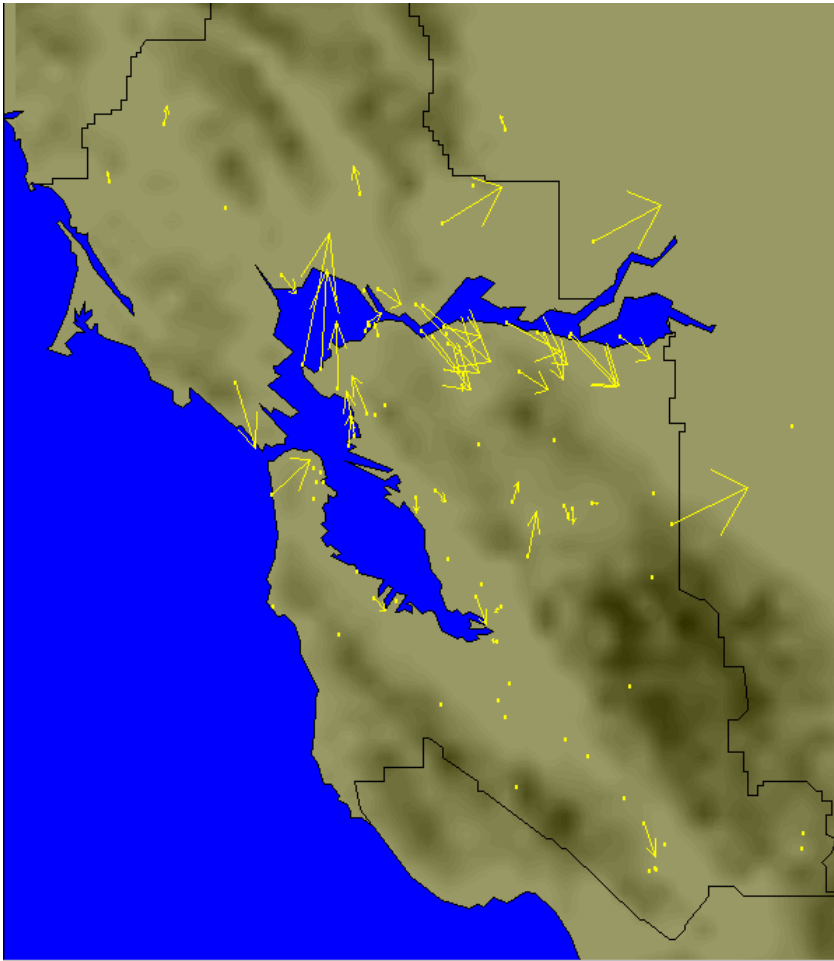
July 31, 2000 0100 PST



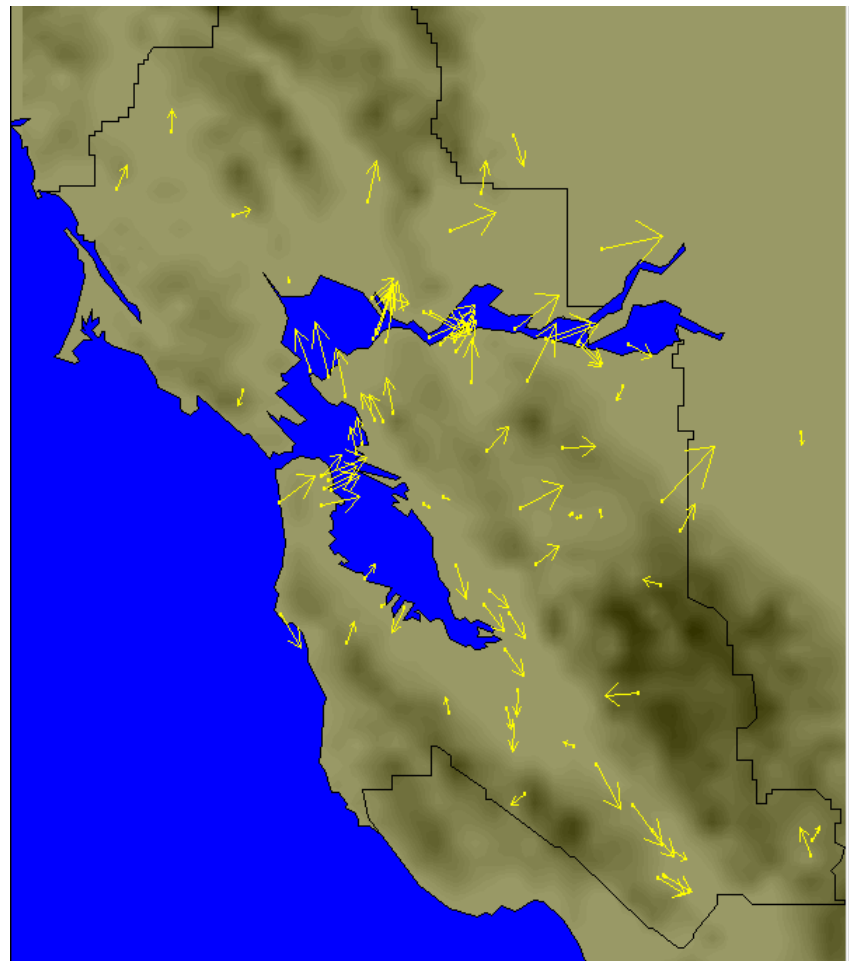
300 m horizontal resolution



4 km horizontal resolution
(used in MM5)

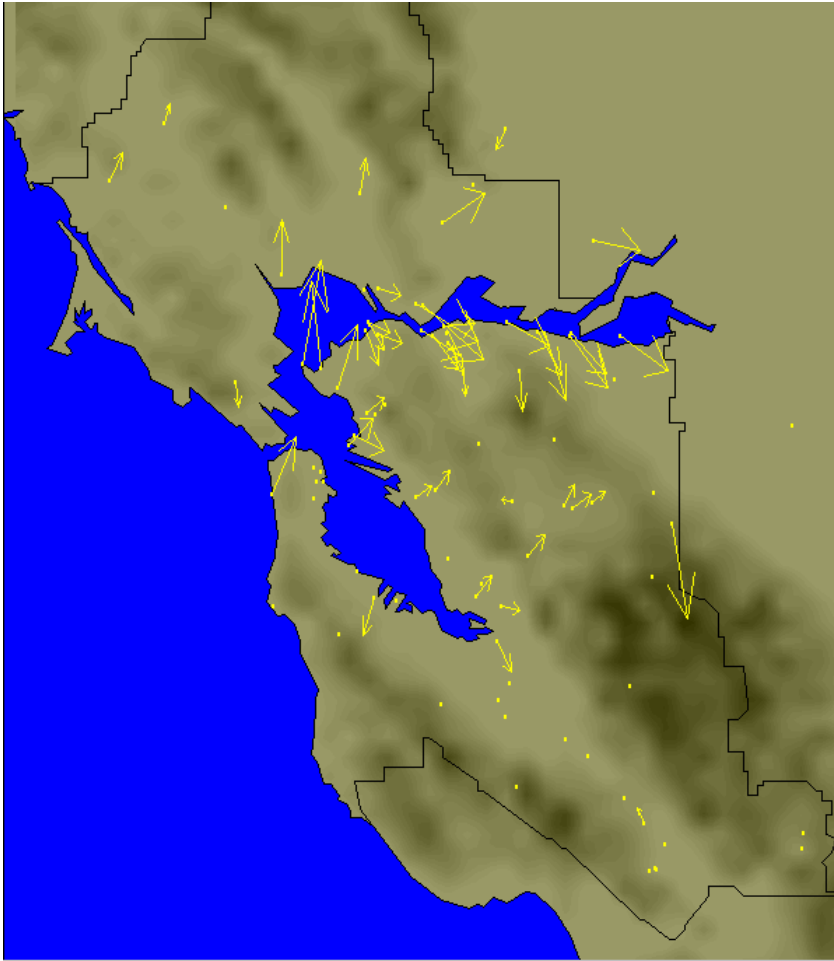


Observed winds

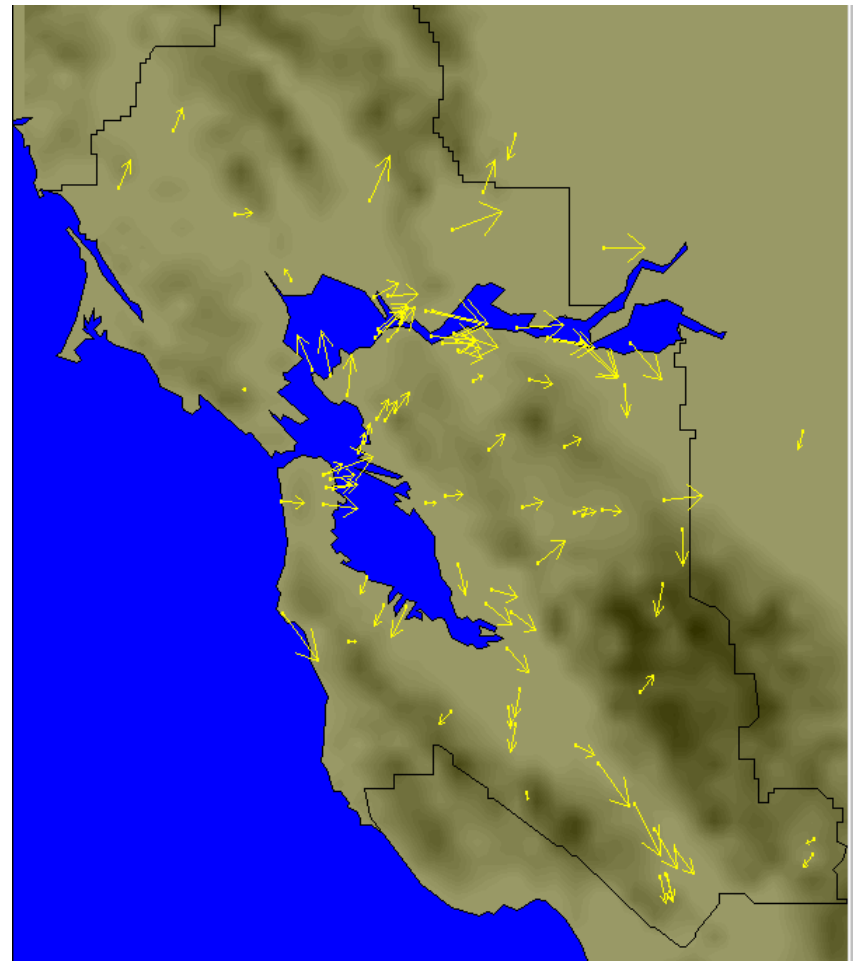


Simulated winds

July 31, 2000 0500 PST

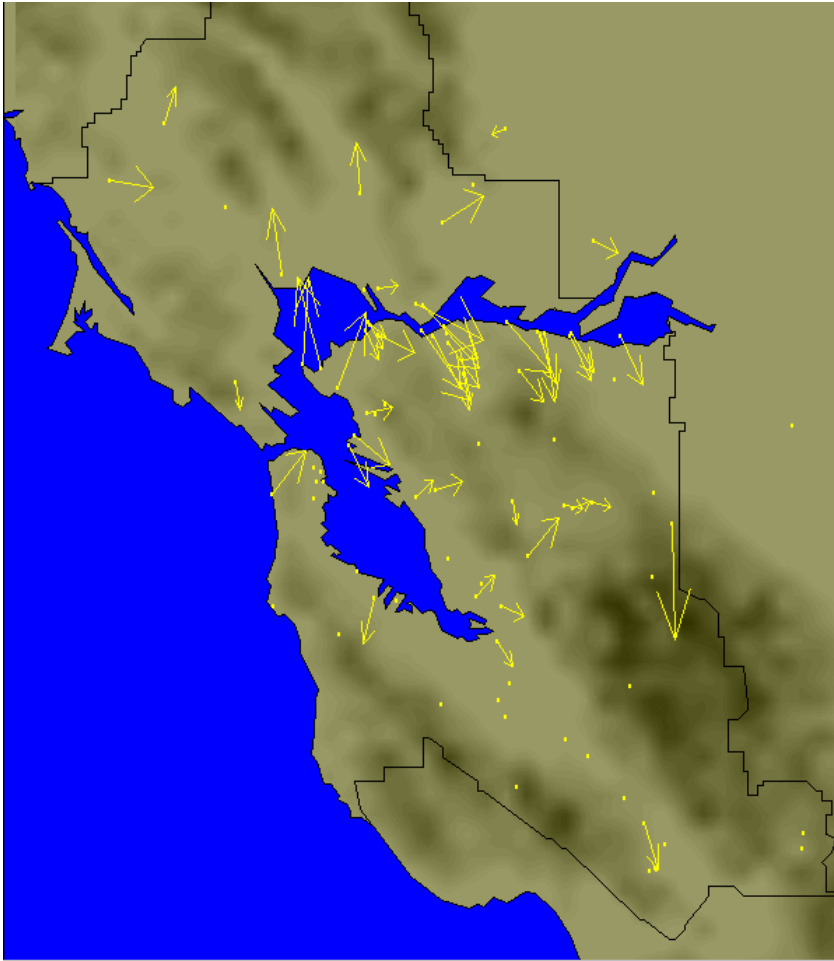


Observed winds

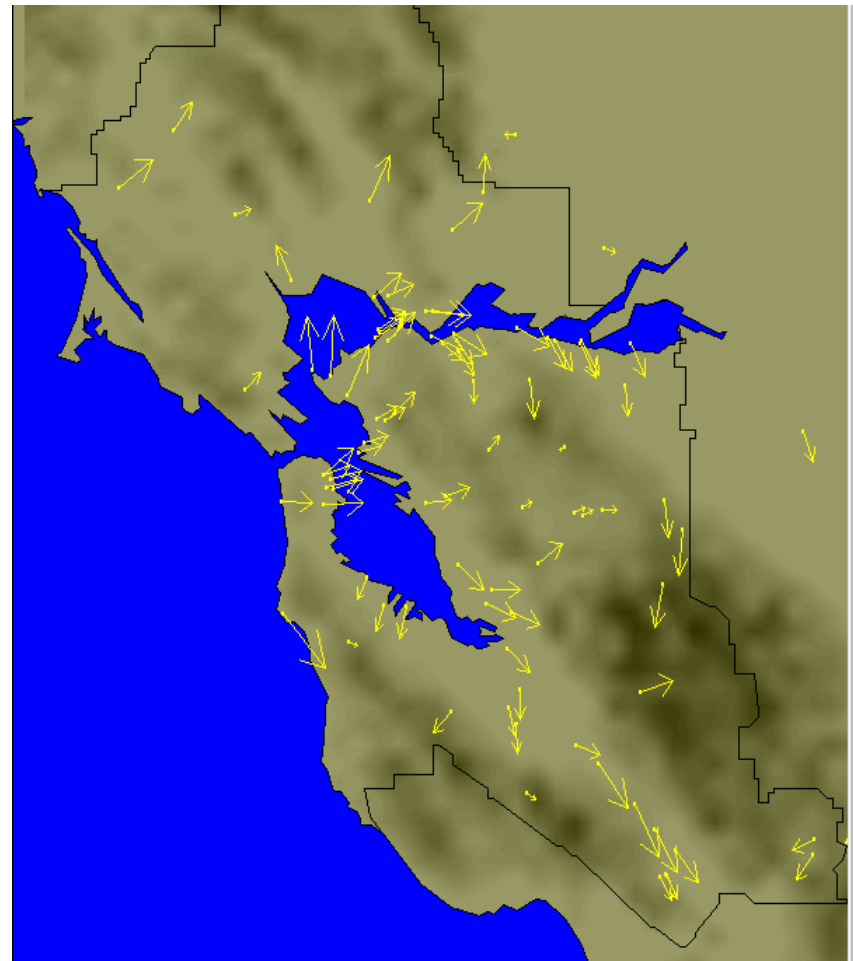


Simulated winds

July 31, 2000 0900 PST

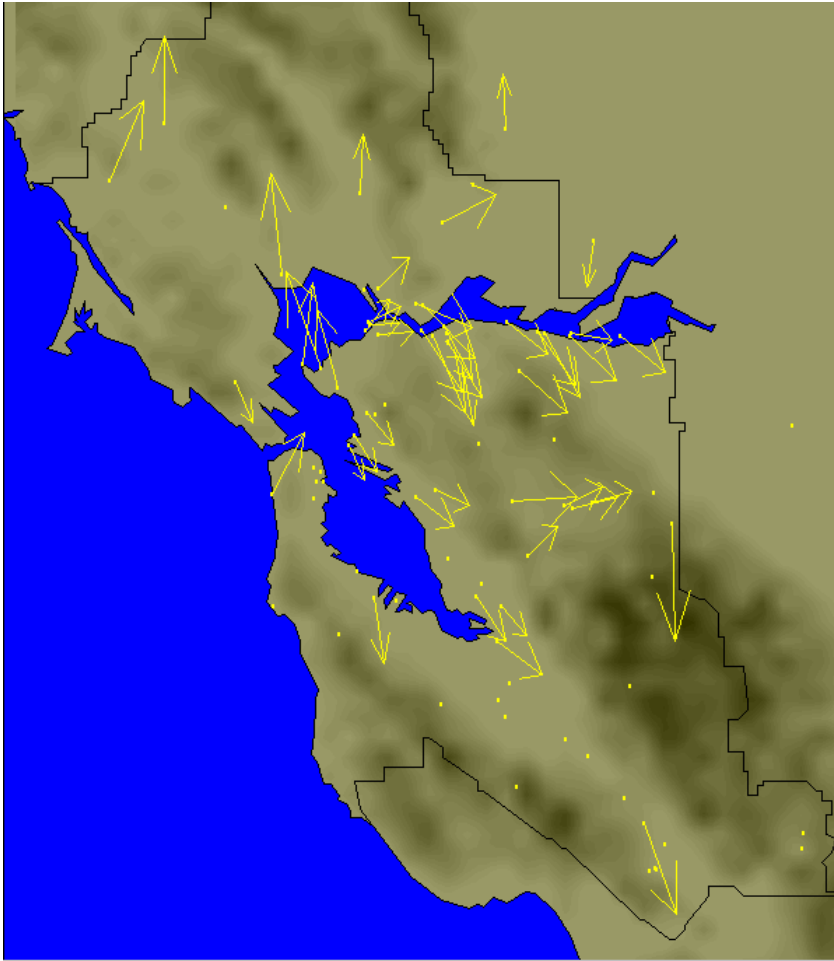


Observed winds

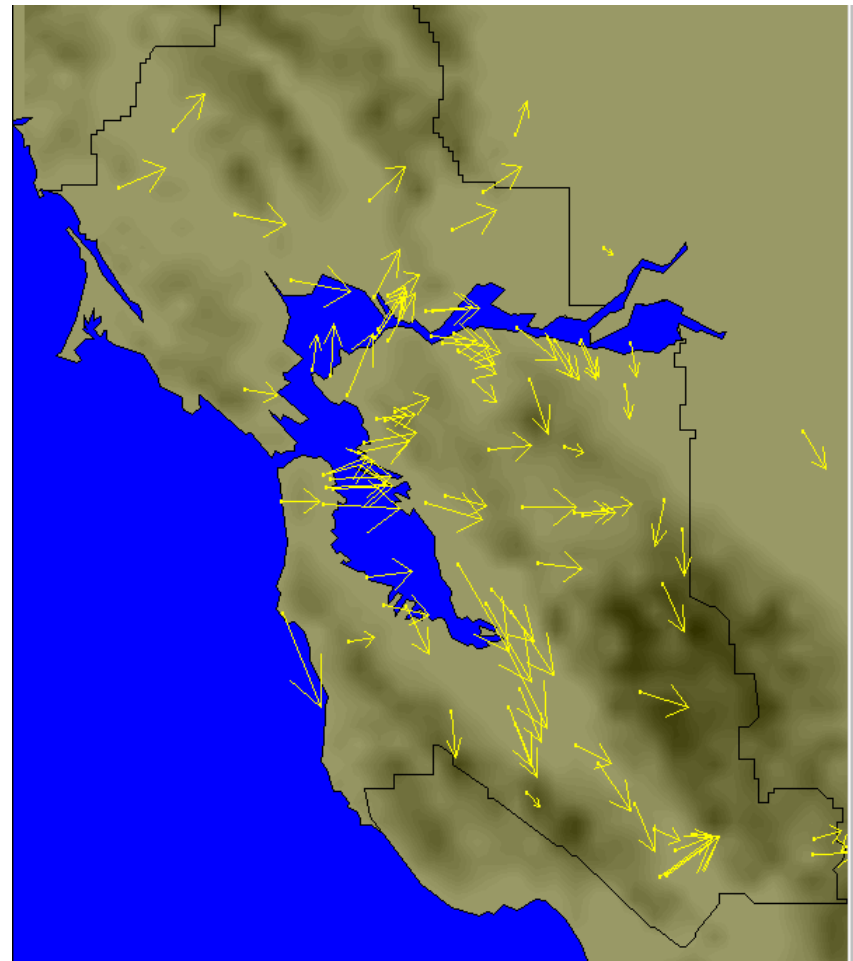


Simulated winds

July 31, 2000 1100 PST



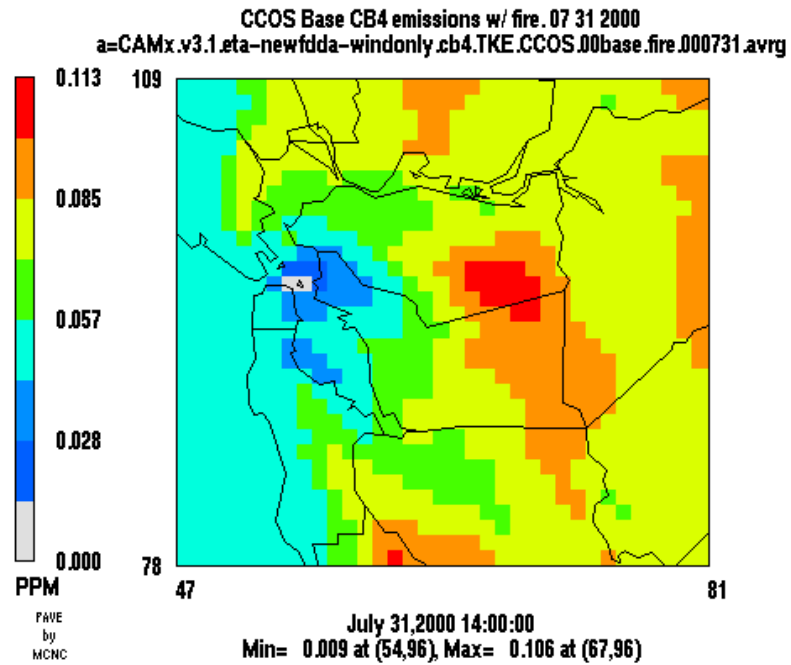
Observed winds



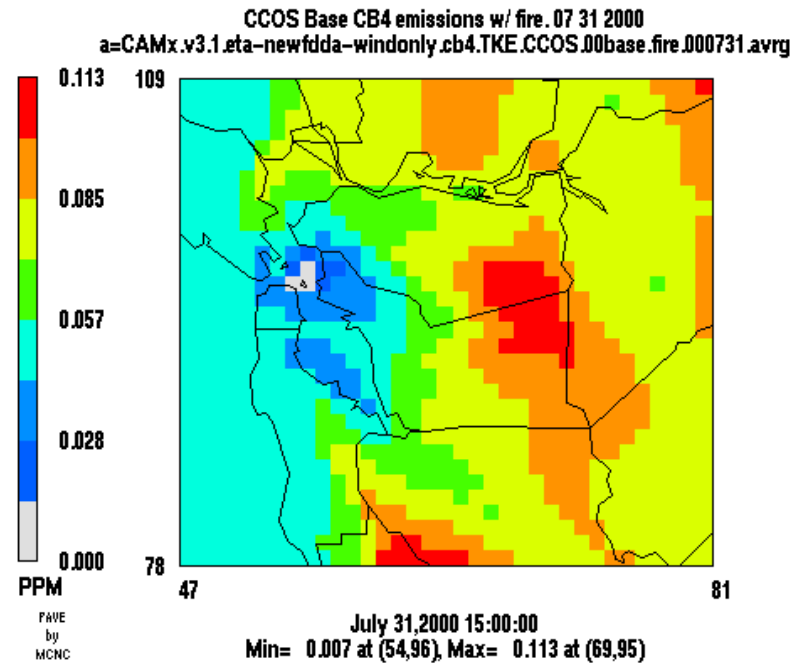
Simulated winds

July 31, 2000 1500 PST

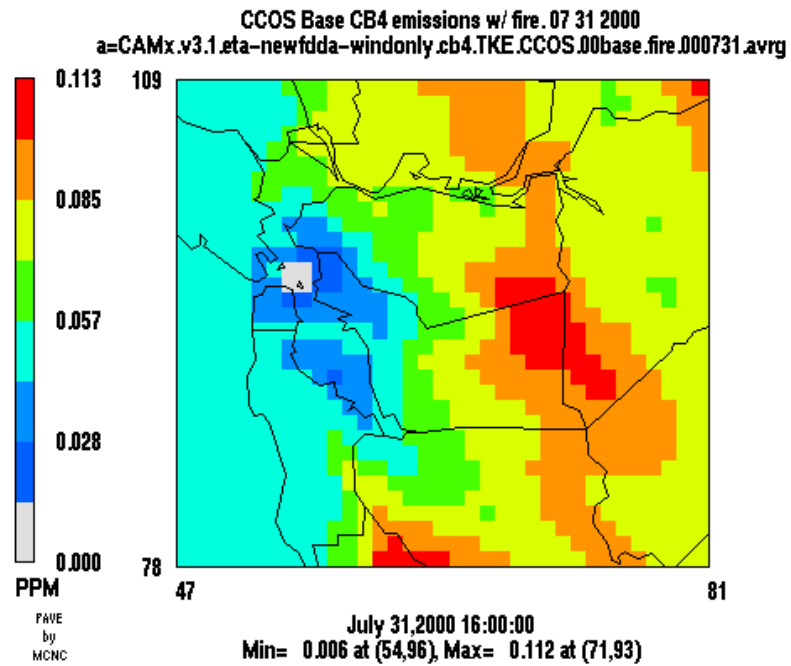
Layer 1 O3a



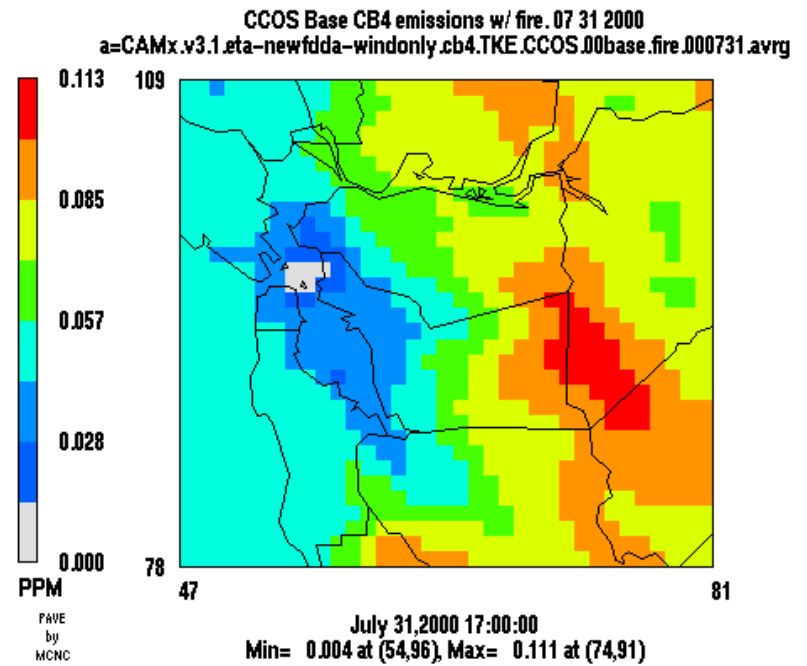
Layer 1 O3a



Layer 1 O3a



Layer 1 O3a



Status of District's Work

Conclusion

- MM5 is currently underestimating airflow along the 680 corridor
- Ozone is underestimated in Livermore but transport may be overestimated from the Delta region to downwind areas

Future Work

- Evaluate EI
- Conduct additional investigative simulations