

Mobile column observations of NO₂ and VOCs

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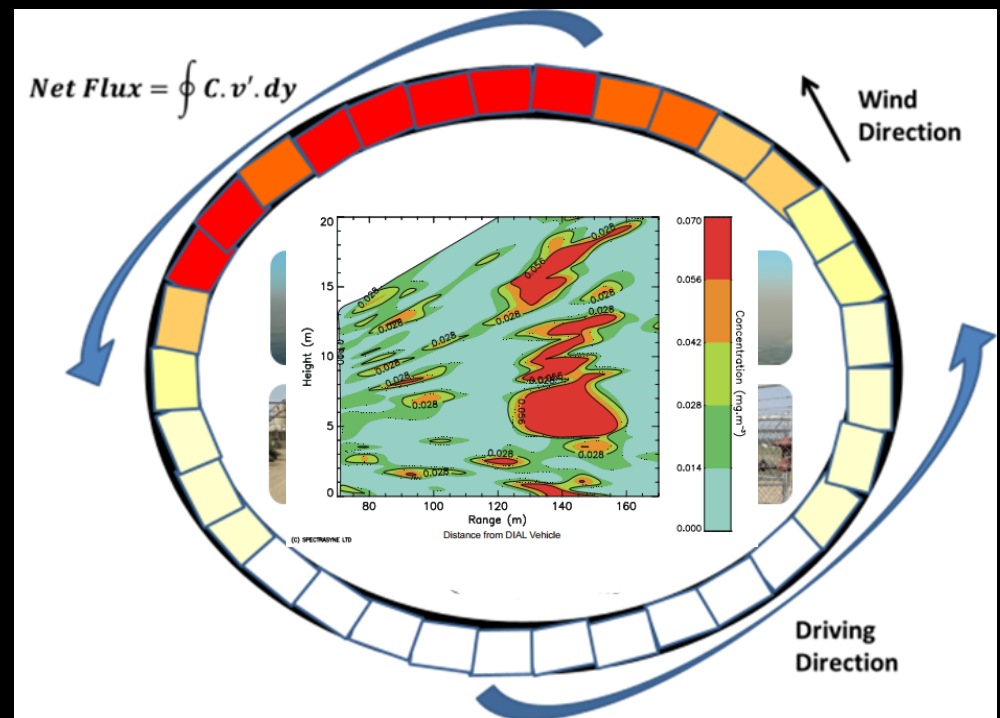
Owen Cooper, Ravan Ahmadov – NOAA/ESRL

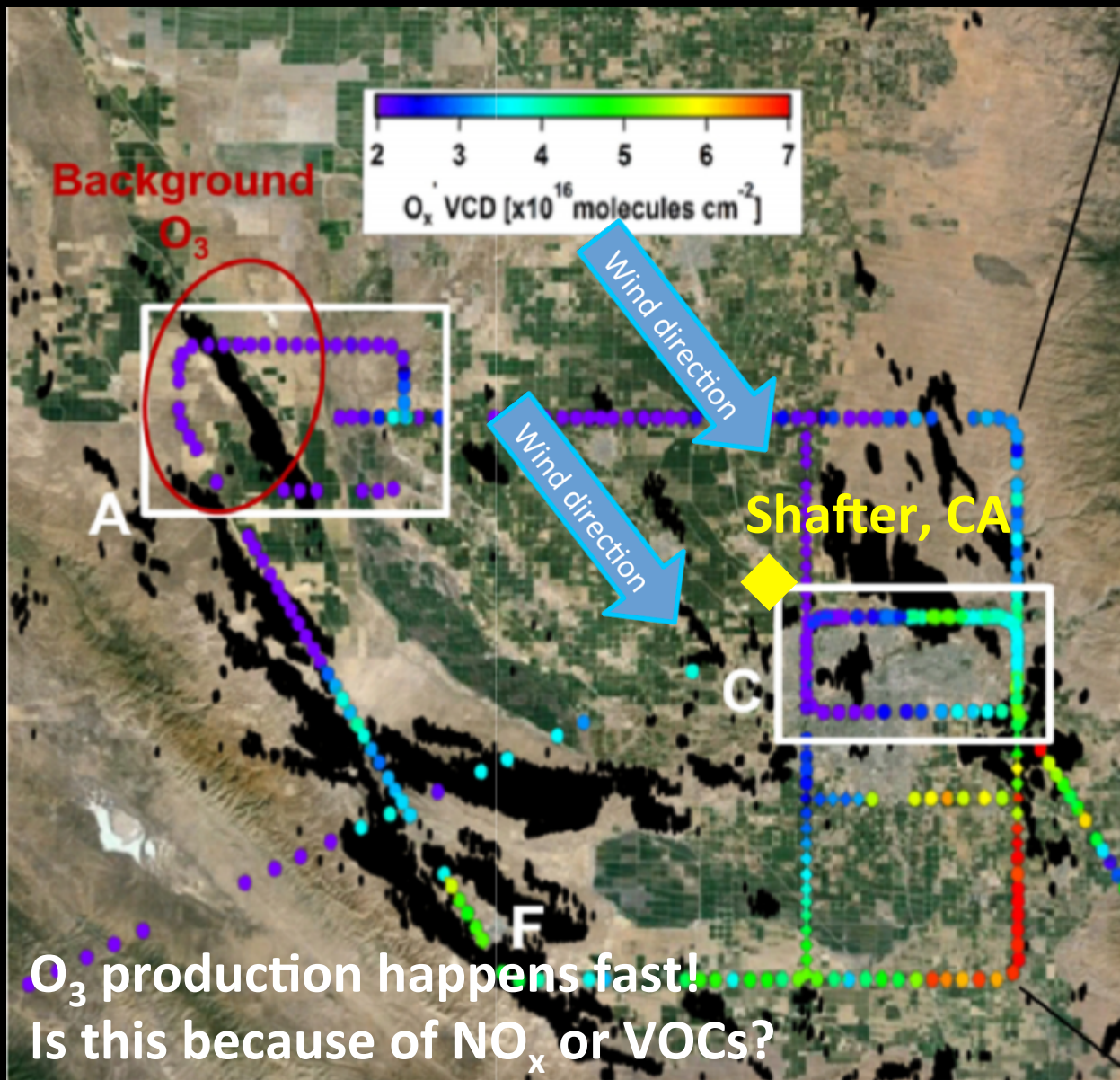
Objective:

- Remotely quantify fugitive emissions of oil and natural gas (O&NG) operations and urban emissions in northeastern Colorado

Status:

- *ESRL mobile labs proved difficult to equip with sun roof*





*New York Times,
1 July 2013*

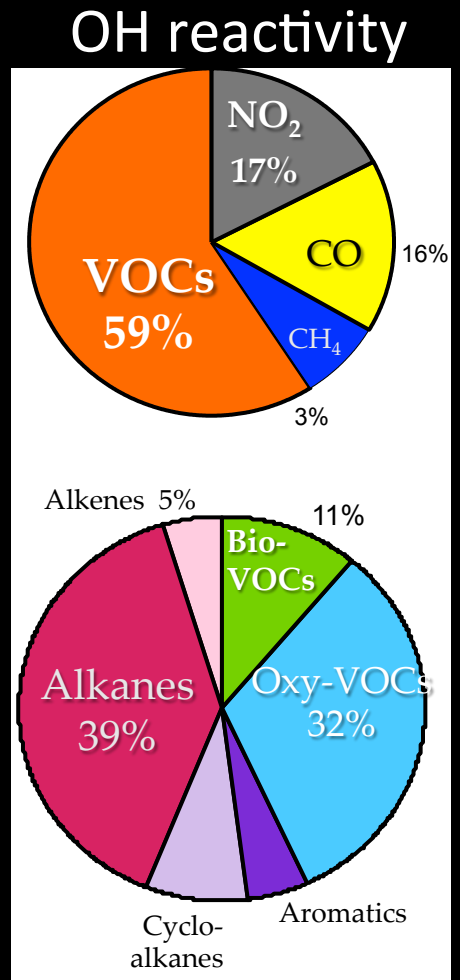
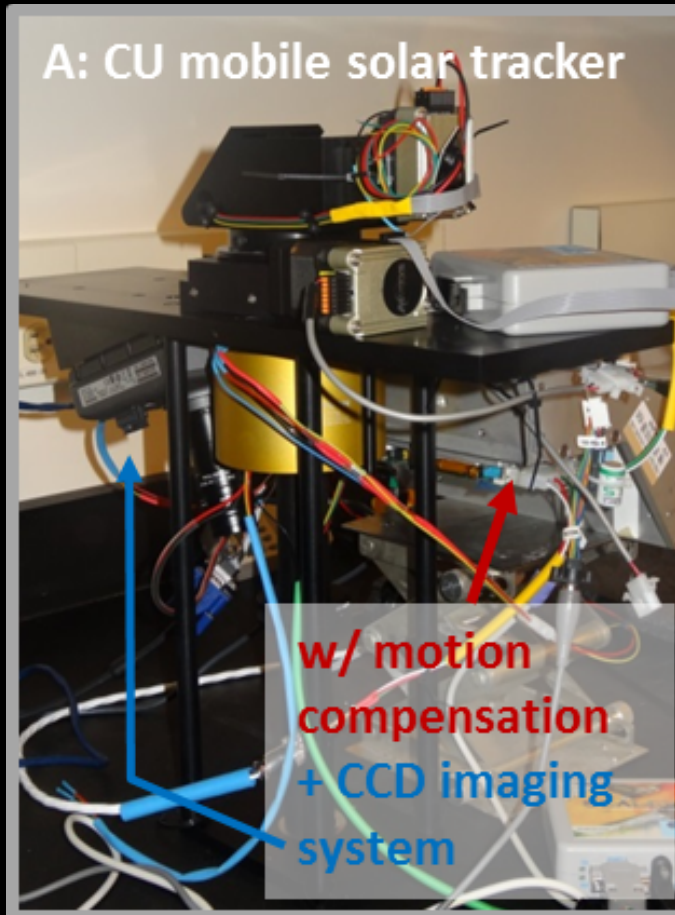
*'Fracking tests ties
between CA 'Oil &
Ag' Interests'*

*'...as CA's total oil
production has
declined slightly
since 2010, the
output of the **North
Shafter oil field** and
the number of wells
have risen by more
than 50 percent.'*

Baidar et al., 2013, *British Journal Environment and Climate Change*, 3(4): 566-586

Combining Active and Passive Airborne Remote Sensing to Quantify NO_2 and O_3 Production near Bakersfield, CA.

Instrumentation



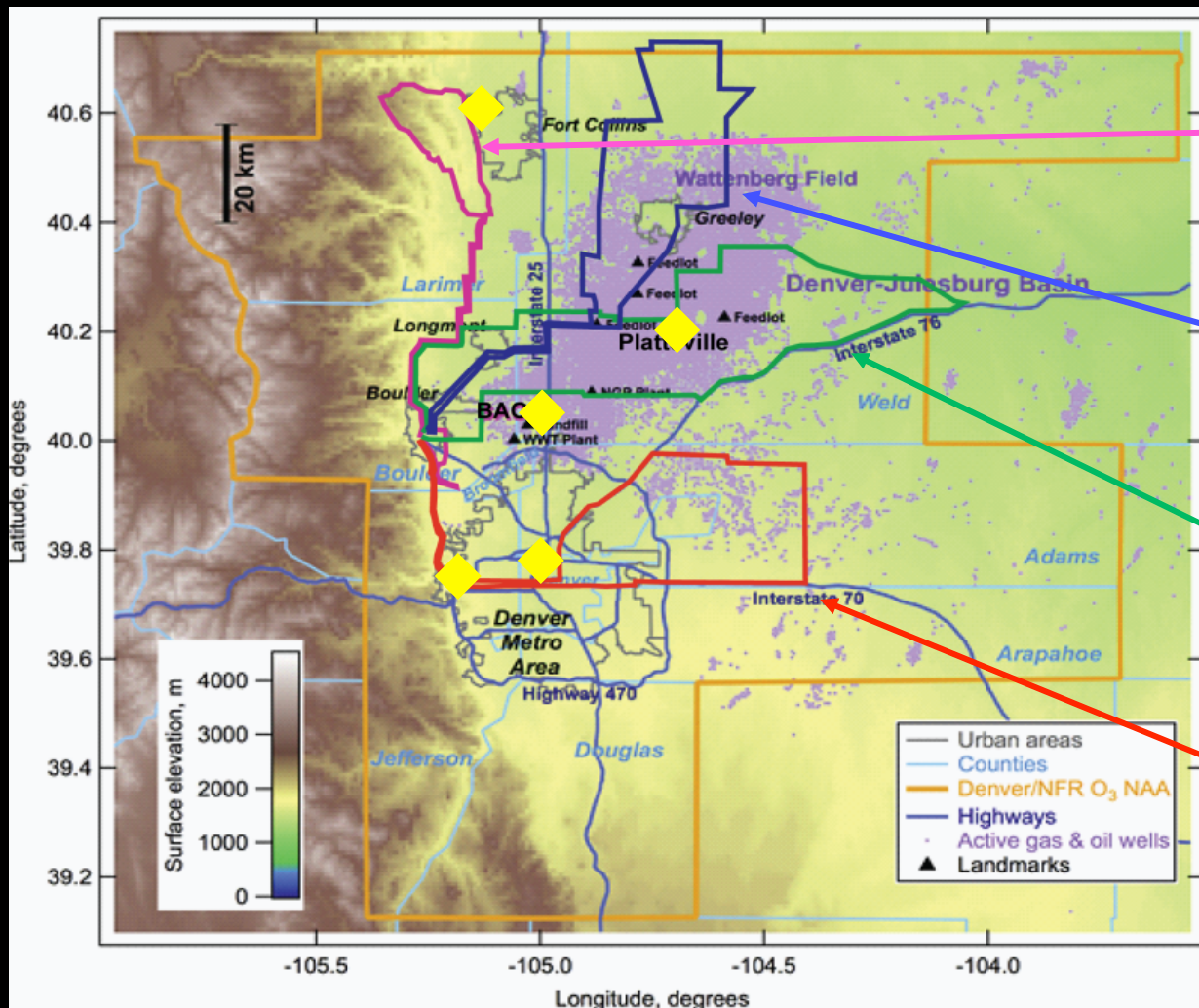
UV-vis: NO₂, OVOC

IR -- ?: NO, CO, alkanes, NH₃ ?

OH reactivity
→ VOCs

Gillman et al., 2012, AGU

Best use: Regional column perspective



Foothills Circuit –
Goal: O&NG emissions
and upslope flows

Wattenberg field Circuit -
Goal: Emissions from
O&NG fields

Julesburg Basin Circuit -
Goal: O&NG emissions
and upslope flows.

Denver Metro Circuit -
Goal: Urban emissions
and upslope flows.

Coordination: P3 and C-130 aircraft spirals
Other mobile labs