

Generators Mounted on Platform at the Rear of the Mobile Sampling Vehicle



Surface Mobile Sampling Trip Planning

Playbook of sampling modules each with specific preplanned objectives

Trip route based on

- Set of specific sampling modules for major trip objectives
- Travel on paved roads to minimize dust
- Travel on roads with low traffic density to minimize impact of local mobile sources
- Forecast wind directions and wind speeds
- Forecast ozone concentrations
- Locations and time of trips based on model predictions of high Ozone, VOC and NO_x concentrations

Surface Mobile Monitoring Trips

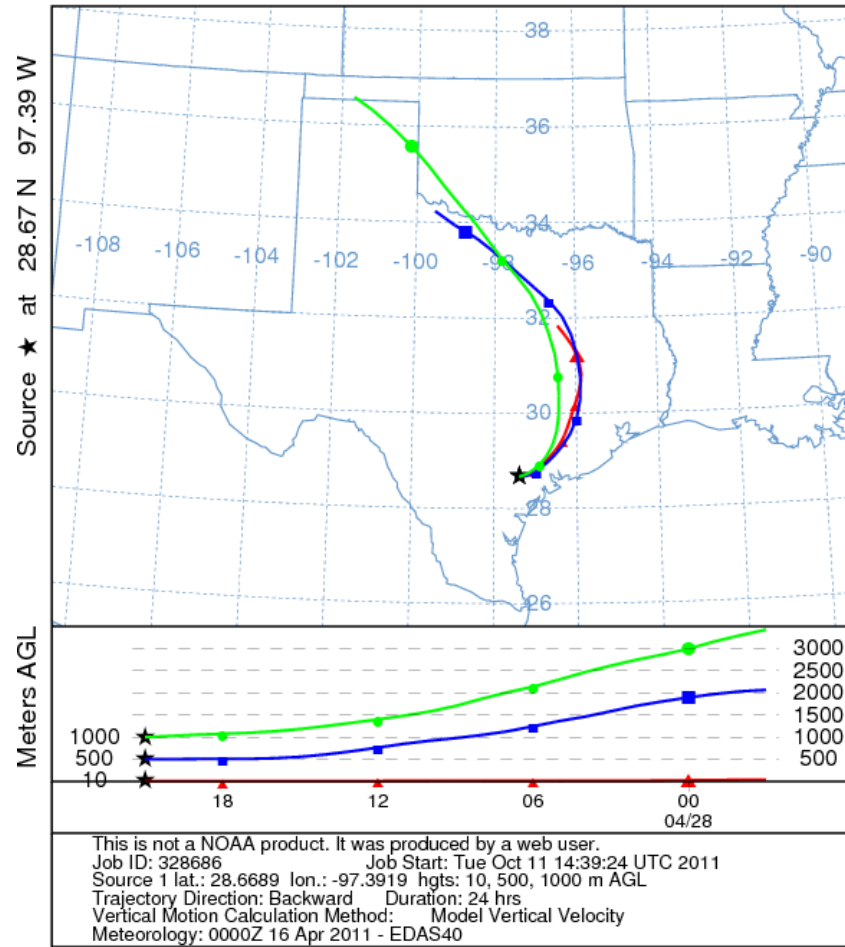
<u>Date of Trip</u>	<u>Time for Trip</u>	<u>Maximum 1 hour ozone Concentration, ppb</u>		
		Inez	CAMS87	Coletto
Apr 28, 2011	08:15 to 20:26	64	60	68
May 4, 2011	08:11 to 20:02	58	57	62
Sep 7, 2011	10:00 to 20:38	80	79	85
Sep 9, 2011	10:23 to 20:46	72	79	77

Surface Mobile Sampling for 2011

- For 2011 the focus was on the transport into the Victoria area of ozone and ozone precursors
- All trips were planned when elevated concentrations of ozone were forecast

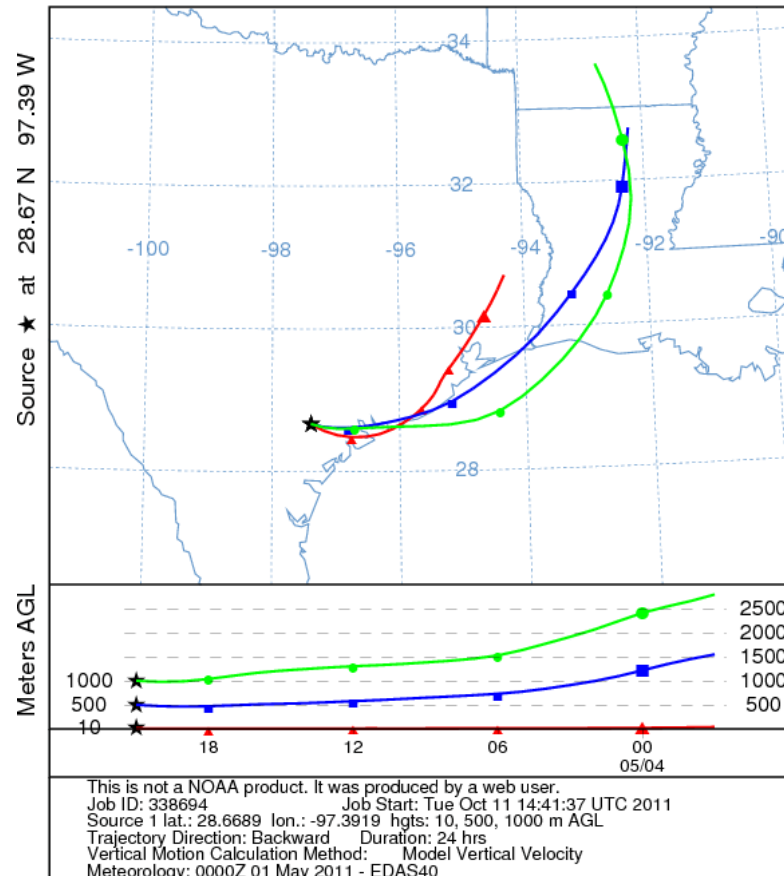
HYSPLIT Trip 1 Trajectory for April 28, 2011.

NOAA HYSPLIT MODEL
Backward trajectories ending at 2100 UTC 28 Apr 11
EDAS Meteorological Data



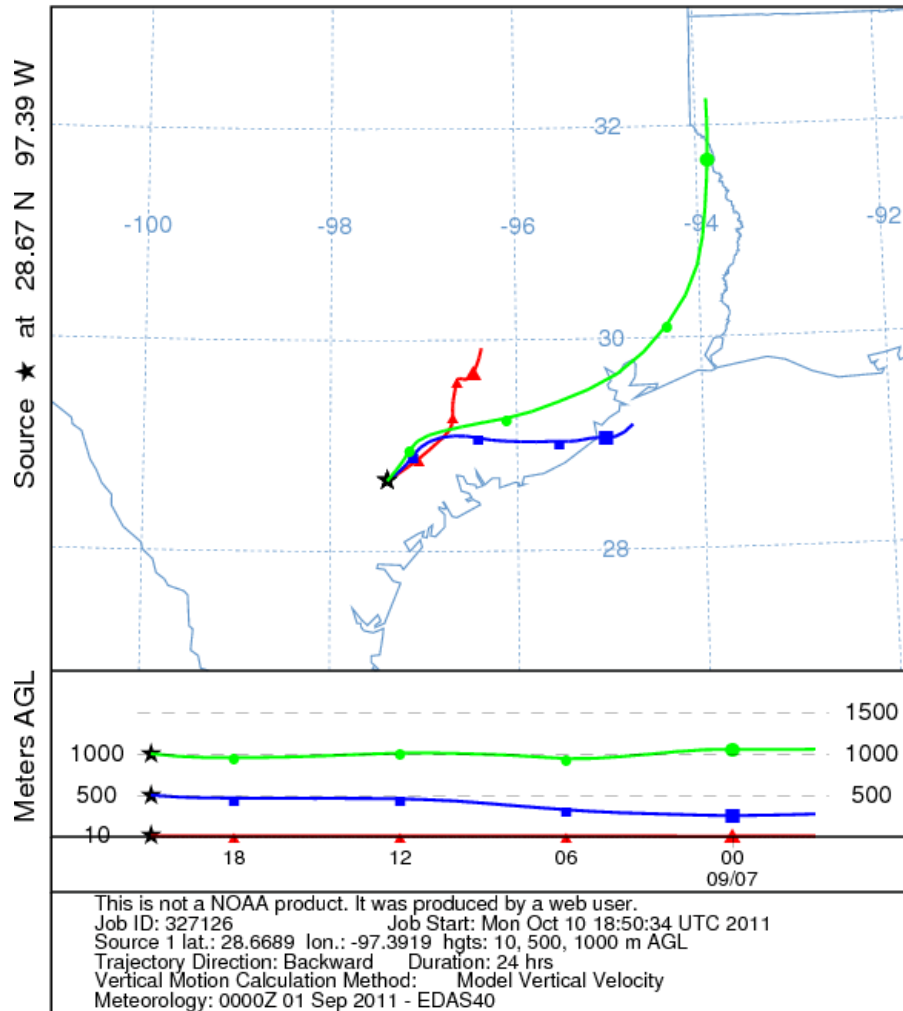
HYSPLIT Trip 1 Trajectory for May 4, 2011.

NOAA HYSPLIT MODEL
Backward trajectories ending at 2100 UTC 04 May 11
EDAS Meteorological Data



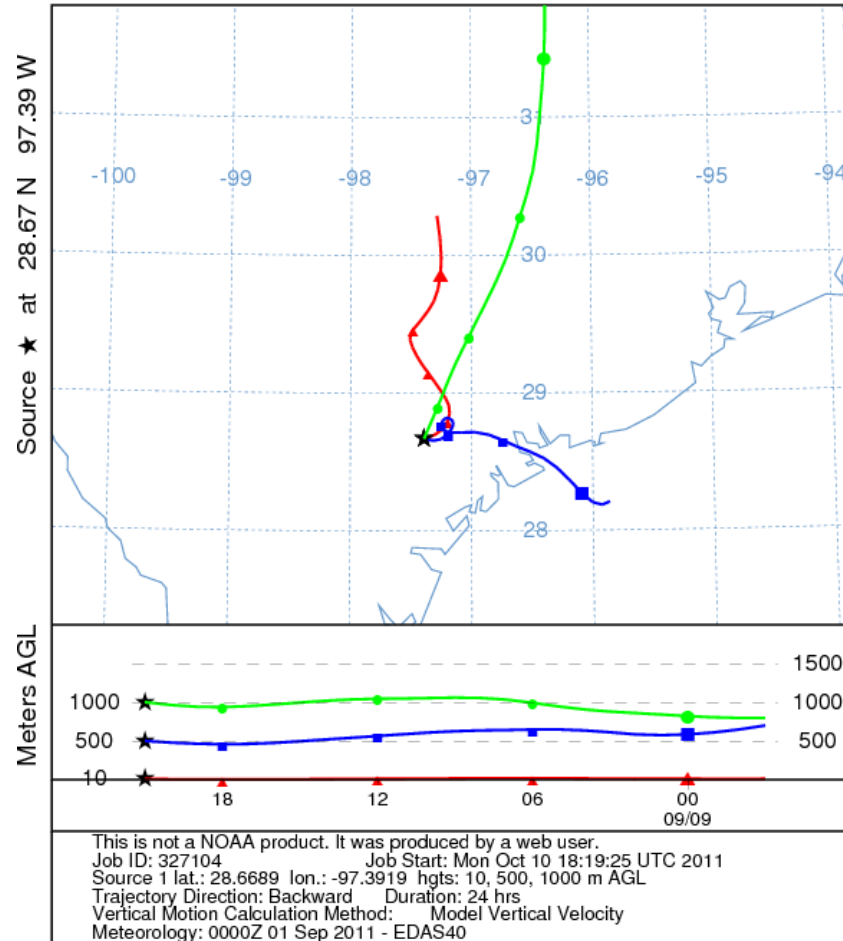
HYSPLIT Trip 3 Trajectory for Sep 7, 2011.

NOAA HYSPLIT MODEL
Backward trajectories ending at 2100 UTC 07 Sep 11
EDAS Meteorological Data



HYSPLIT Trip 4 Trajectory for Sep 9, 2011.

NOAA HYSPLIT MODEL
Backward trajectories ending at 2100 UTC 09 Sep 11
EDAS Meteorological Data



Initial Findings

High concentrations of ozone upwind of the Victoria area

<u>Date</u>	<u>Transport conc</u>	<u>Max conc downwind</u>
April 28, 2011	60 ppb to 61 ppb	64 ppb
May 4, 2011	57 ppb to 60 ppb	65 ppb
Sep 7, 2011	70 ppb to 75 ppb	86 ppb
Sep 9, 2011	76 ppb to 82 ppb	84 ppb

Initial Findings

Many ozone plumes were measured. Initial identification, subject to change after final analysis, indicates ozone plumes from the following sources:

- Victoria urban area
- Formosa chemical plant
- Dow chemical plant
- INVISTA/DuPont chemical plant

Initial Findings

Victoria urban area ozone plume

<u>Date</u>	<u>Range</u>	<u>Increase</u>
April 28	61 ppb to 65 ppb	5 ppb
May 4	57 ppb to 65 ppb	8 ppb
Sep 7	76 ppb to 82 ppb	6 ppb
	76 ppb to 82 ppb	6 ppb
	78 ppb to 83 ppb	5 ppb
Sep 9	74 ppb to 81 ppb	7 ppb
	73 ppb to 81 ppb	8 ppb
	72 ppb to 80 ppb	8 ppb

Initial Findings

Dow plus INVISTA ozone plume

<u>Date</u>	<u>Range</u>	<u>Increase</u>
April 28	61 ppb to 64 ppb	3 ppb
May 4	58 ppb to 61 ppb	3 ppb

Initial Findings

Formosa ozone plume

<u>Date</u>	<u>Range</u>	<u>Increase</u>
Sep 7	74 ppb to 82 ppb	8 ppb
	74 ppb to 80 ppb	6 ppb
Sep 9	72 ppb to 78 ppb	6 ppb
	78 ppb to 82 ppb	4 ppb
	80 ppb to 84 ppb	4 ppb

Initial Findings

Formosa plus Dow ozone plume

<u>Date</u>	<u>Range</u>	<u>Increase</u>
Sep 7	76 ppb to 86 ppb	10 ppb
	74 ppb to 80 ppb	6 ppb
Sep 9	66 ppb to ppb 84	16 ppb
	72 ppb to 80 ppb	8 ppb

Initial Findings

Dow ozone plume

<u>Date</u>	<u>Range</u>	<u>Increase</u>
Sep 7	74 ppb to 80 ppb	6 ppb
	76 ppb to 86 ppb	10 ppb
Sep 9	76 ppb to 83 ppb	8 ppb

Initial Findings

INVISTA ozone plume

<u>Date</u>	<u>Range</u>	<u>Increase</u>
Sep 7	77 ppb to 84 ppb	7 ppb
	76 ppb to 82 ppb	6 ppb
	78 ppb to 86 ppb	8 ppb
Sep 9	74 ppb to 82 ppb	8 ppb
	68 ppb to 78 ppb	10 ppb
	72 ppb to 82 ppb	10 ppb

Questions?