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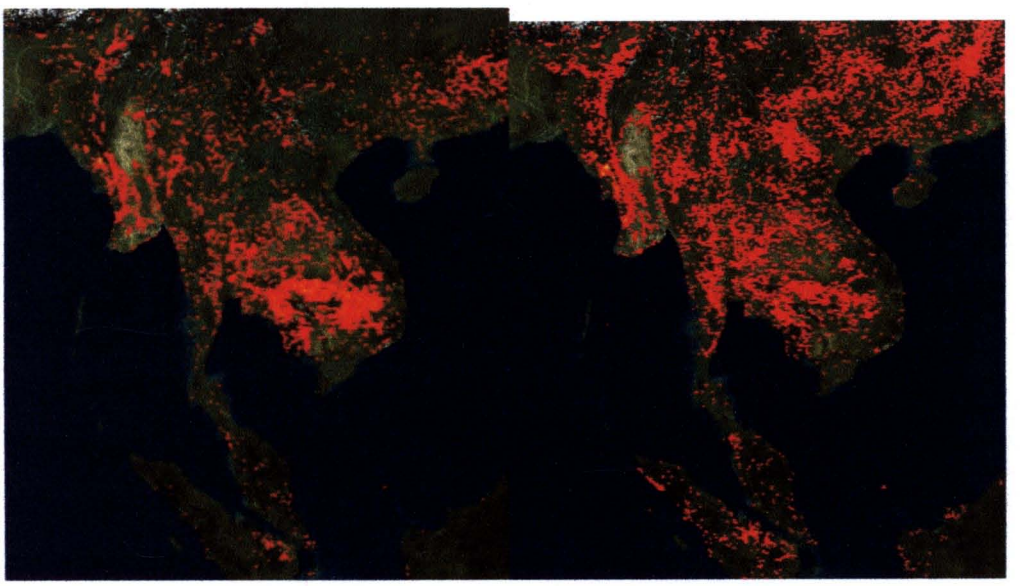
APPENDICES

APPENDIX A

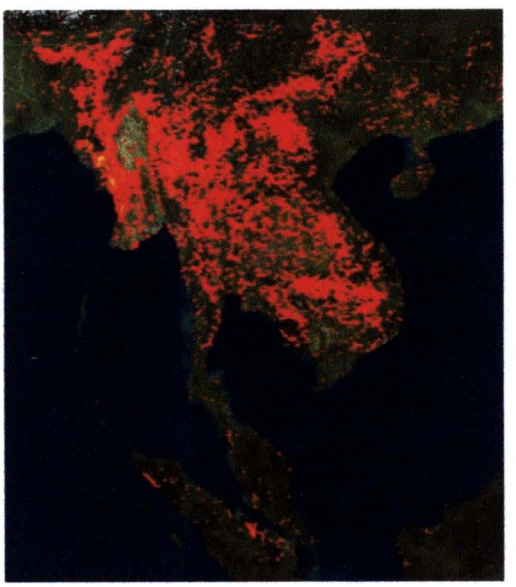
Fire count maps, displaying the active burning hot spots, were derived from MODIS (Moderate Resolution Imaging Spectroradiometer) satellite images over a 10-day period.

February 2009



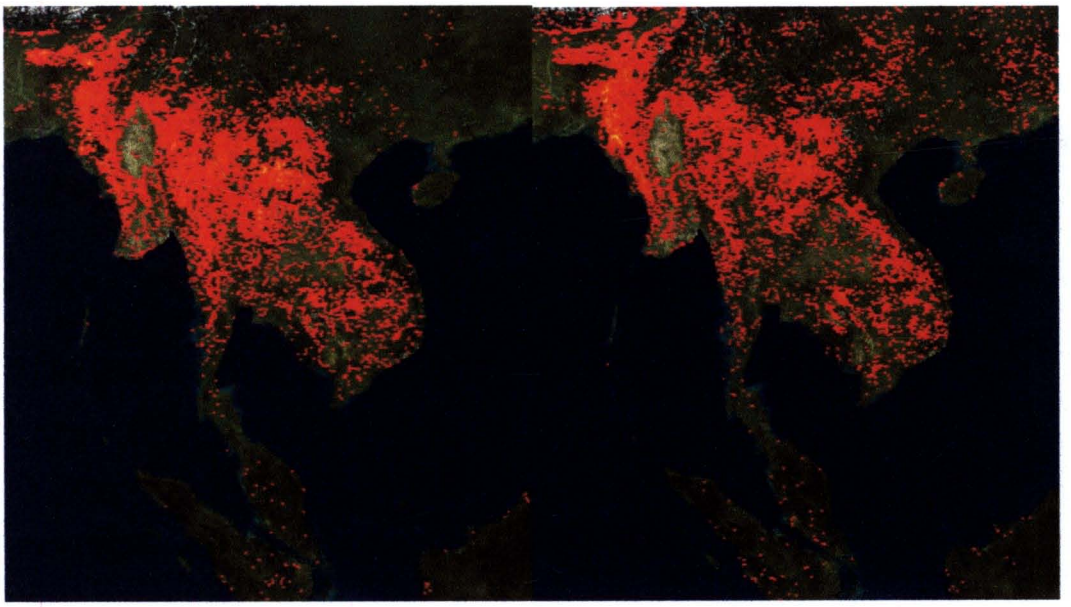
31 January – 9 February

10- 19 February



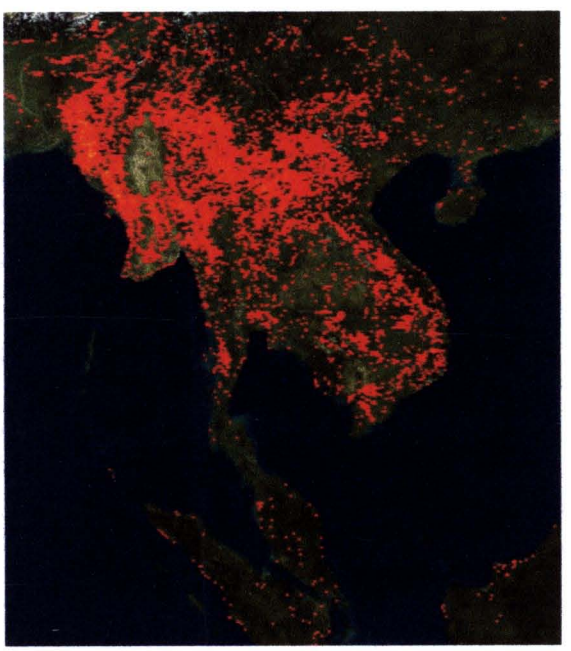
20 February – 1 March

March 2009



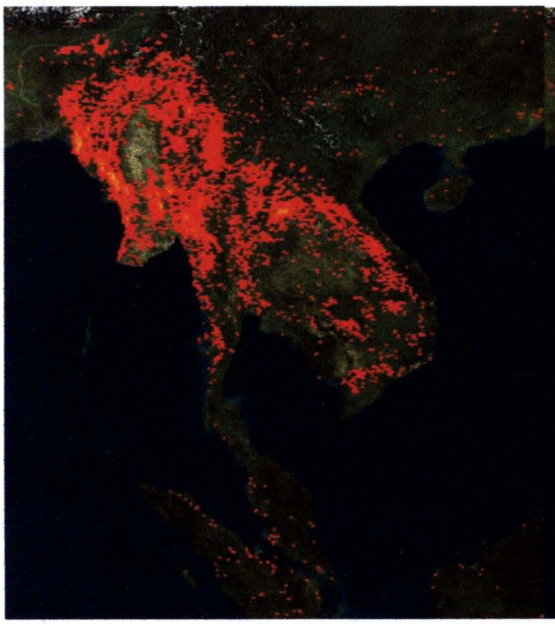
2-11 March

12-21 March

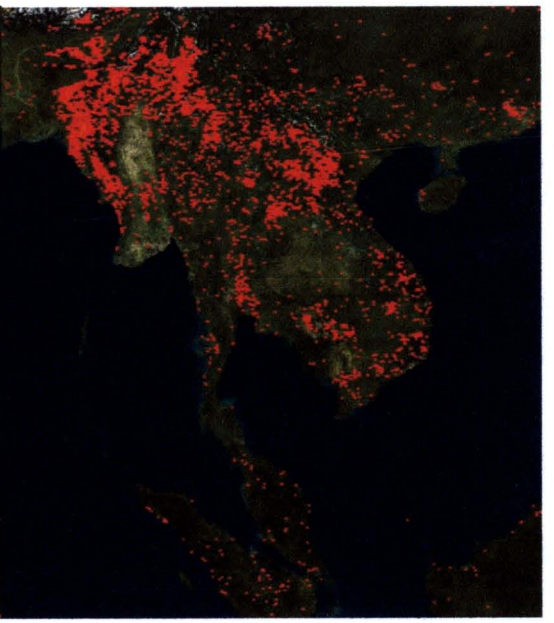


22-31 March

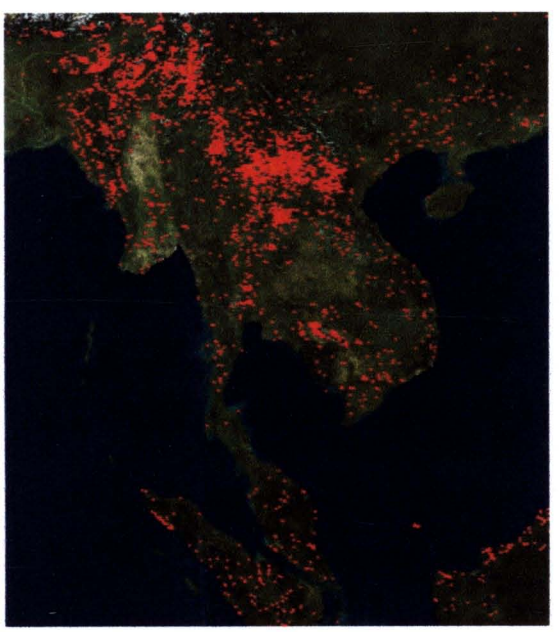
April 2009



1-10 April

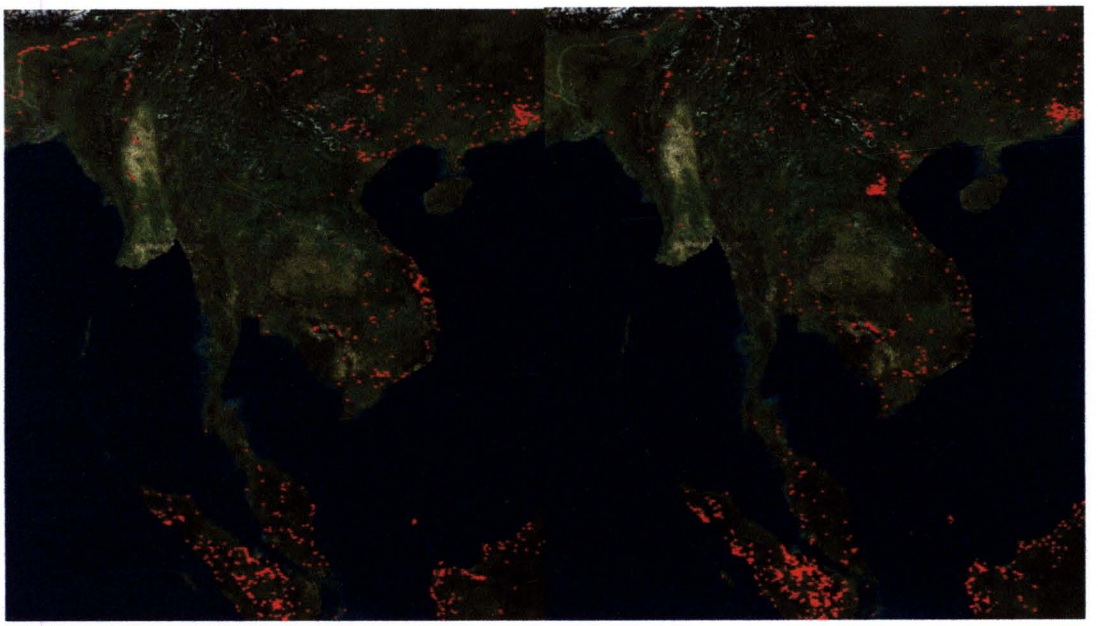


11-20 April



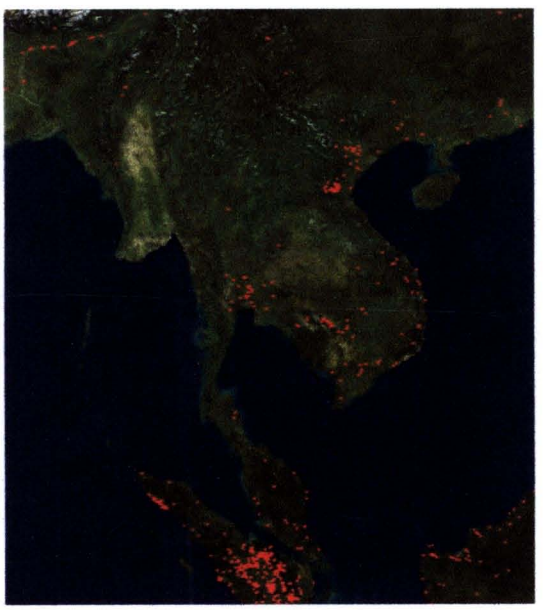
21-30 April

June 2009



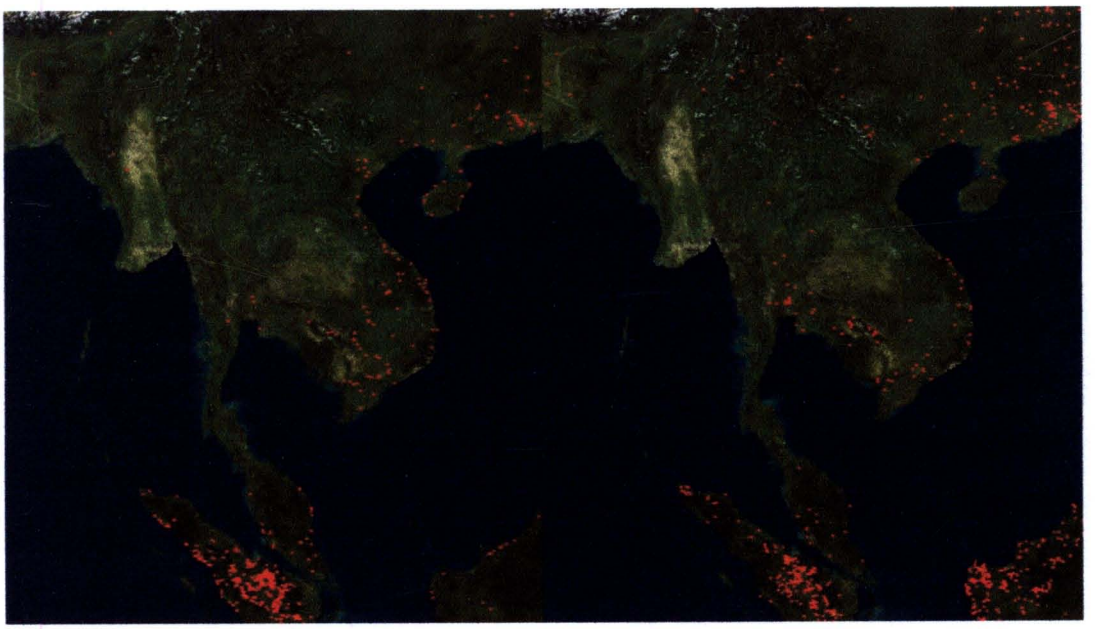
31 May – 9 June

10-19 June



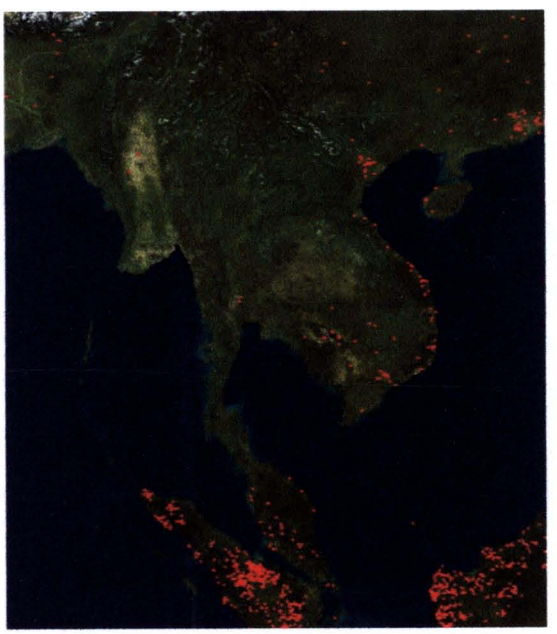
20-29 June

July 2009



30 June – 9 July

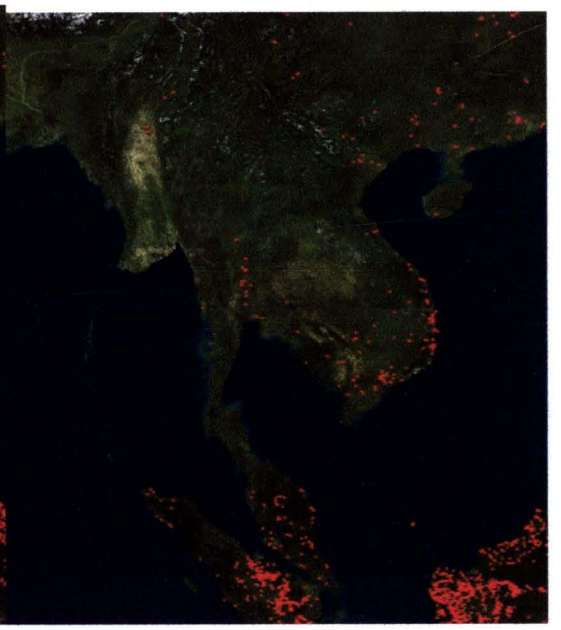
10-19 July



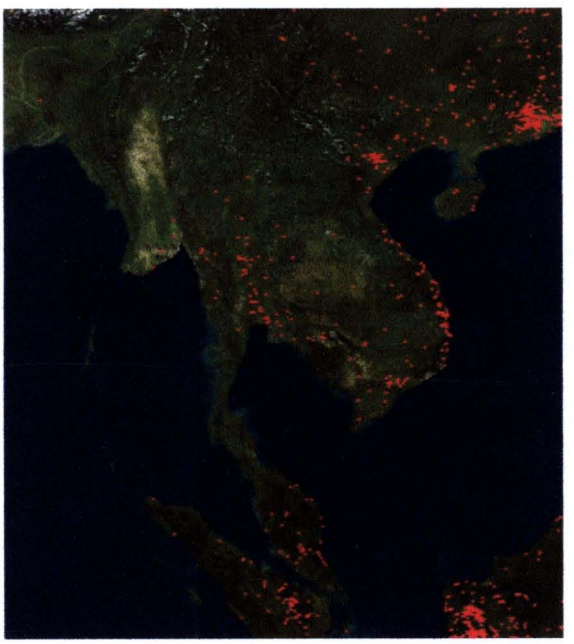
20-29 July

August 2009

30 July – 8 August



9-18 August

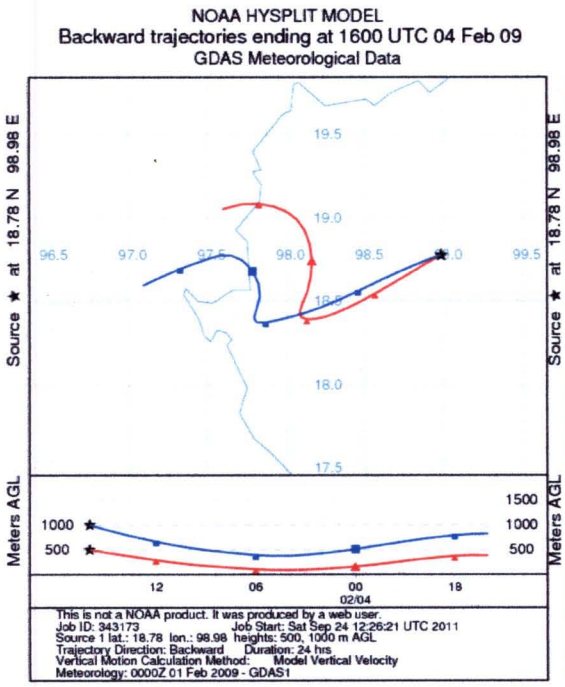


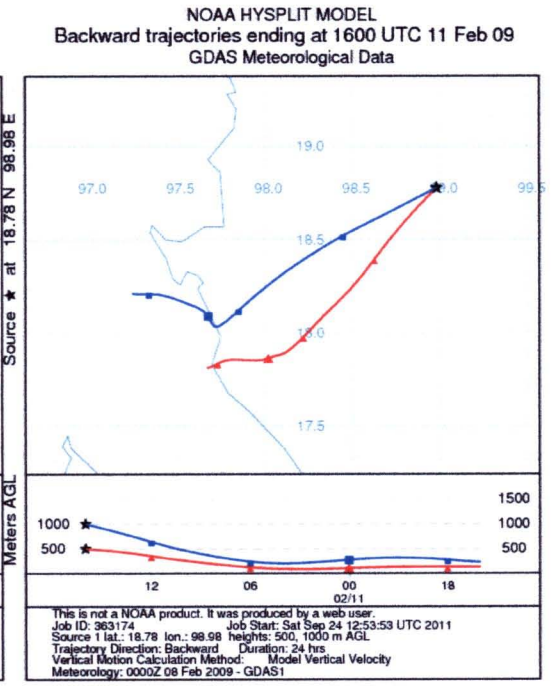
19-28 August

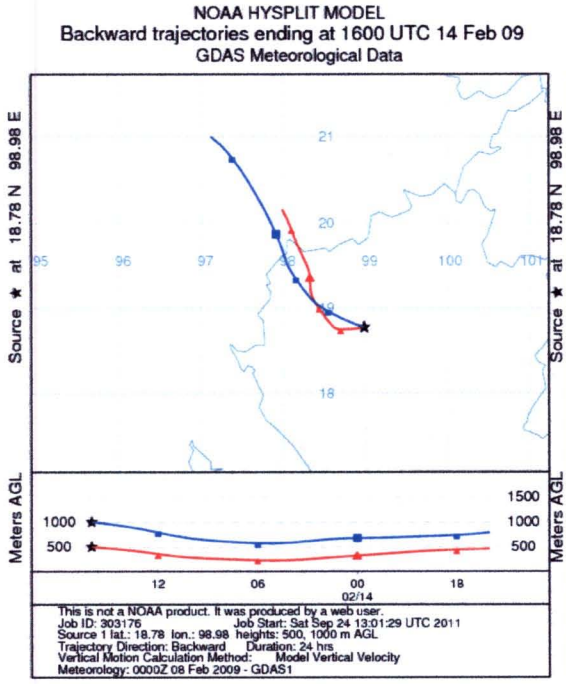
APPENDIX B

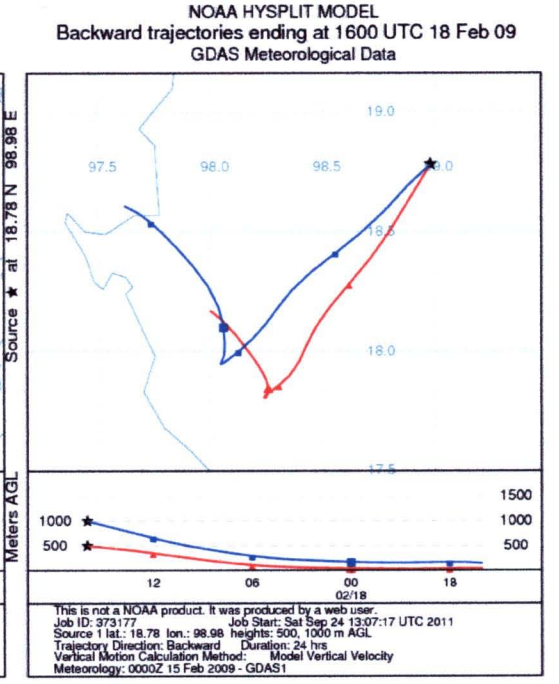
The 1-day backward air trajectories were obtained by the National Oceanic and Atmospheric Administration (NOAA) HYSPLIT Model

February 2009

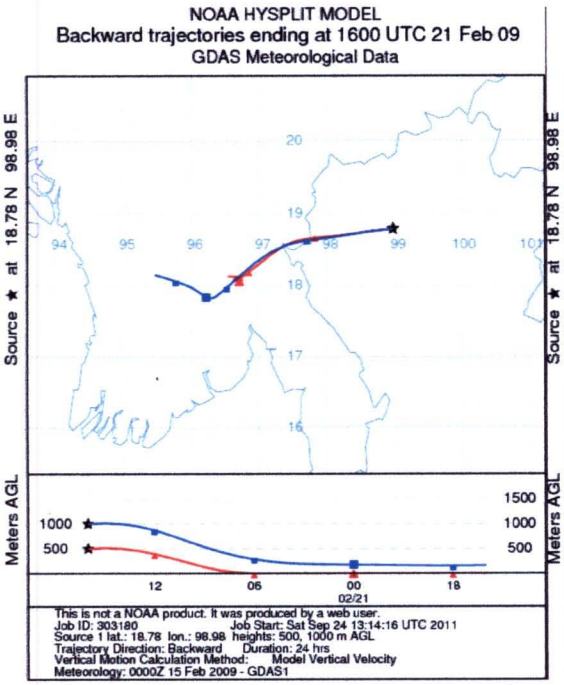


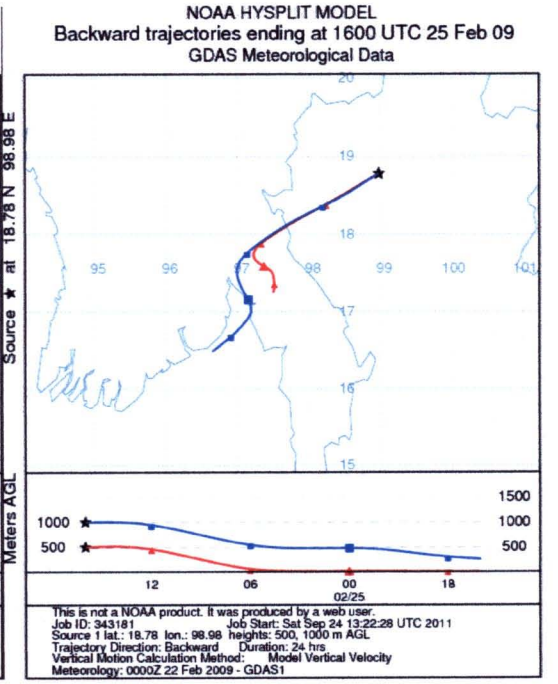


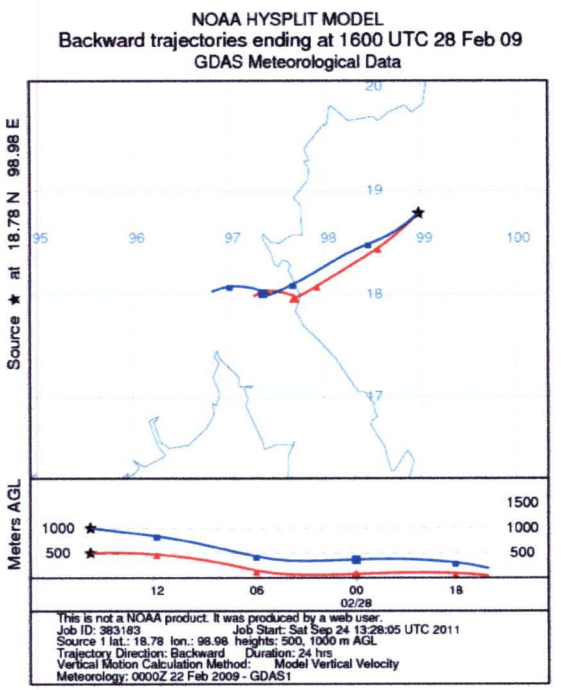




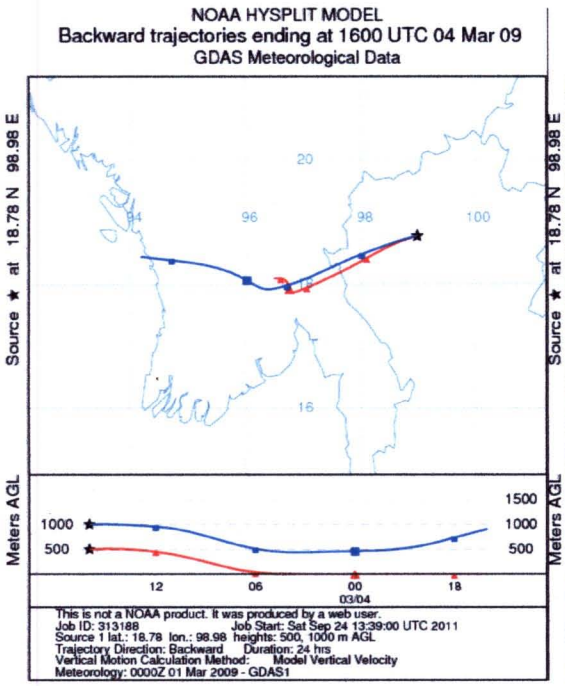
February 2009 (continued)







March 2009


NOAA HYSPLIT MODEL
Backward trajectories ending at 1600 UTC 04 Mar 09
GDAS Meteorological Data
Source ★ at 18.78 N 98.98 E
Meters AGL
1500
1000
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00
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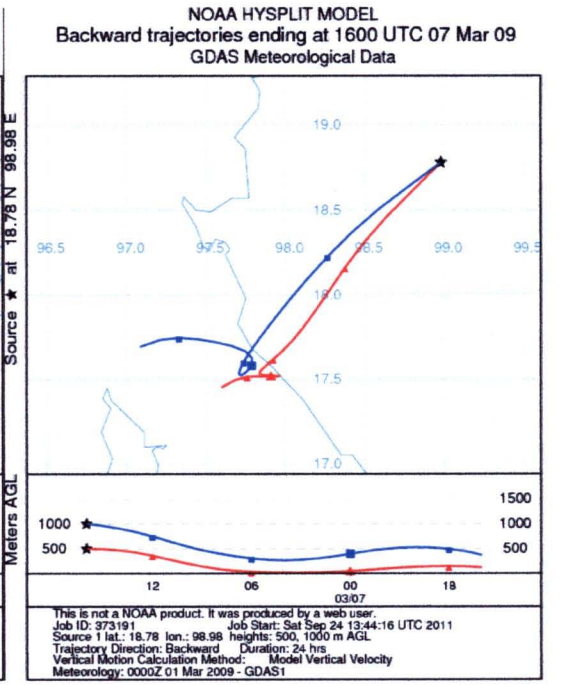
03/04
This is not a NOAA product. It was produced by a web user.
Job ID: 313188 Job Start: Sat Sep 24 13:39:00 UTC 2011
Source 1 lat.: 18.78 lon.: 98.98 heights: 500, 1000 m AGL
Trajectory Direction: Backward Duration: 24 hrs
Vertical Motion Calculation Method: Model Vertical Velocity
Meteorology: 0000Z 01 Mar 2009 - GDAS1


NOAA HYSPLIT MODEL
Backward trajectories ending at 1600 UTC 07 Mar 09
GDAS Meteorological Data
Source ★ at 18.78 N 98.98 E
Meters AGL
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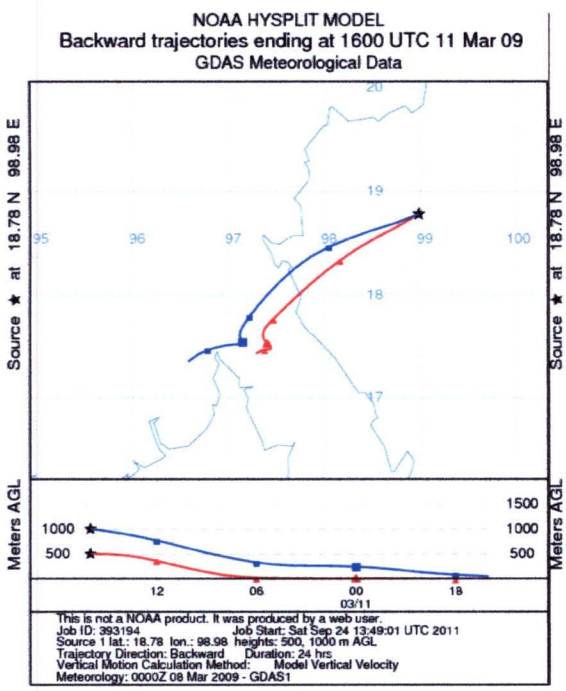
This is not a NOAA product. It was produced by a web user.
Job ID: 373191 Job Start: Sat Sep 24 13:44:16 UTC 2011
Source 1 lat.: 18.78 lon.: 98.98 heights: 500, 1000 m AGL
Trajectory Direction: Backward Duration: 24 hrs
Vertical Motion Calculation Method: Model Vertical Velocity
Meteorology: 0000Z 01 Mar 2009 - GDAS1


NOAA HYSPLIT MODEL
Backward trajectories ending at 1600 UTC 11 Mar 09
GDAS Meteorological Data
Source ★ at 18.78 N 98.98 E
Meters AGL
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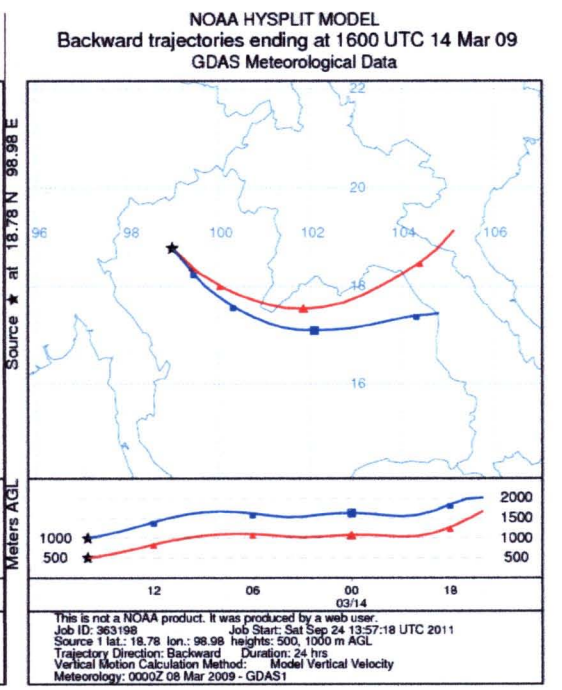
Trajectory Direction: Backward Duration: 24 hrs
Vertical Motion Calculation Method: Model Vertical Velocity
Meteorology: 0000Z 08 Mar 2009 - GDAS1


NOAA HYSPLIT MODEL
Backward trajectories ending at 1600 UTC 14 Mar 09
GDAS Meteorological Data
Source ★ at 18.78 N 98.98 E
Meters AGL
2000
1500
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12
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03/14
This is not a NOAA product. It was produced by a web user.
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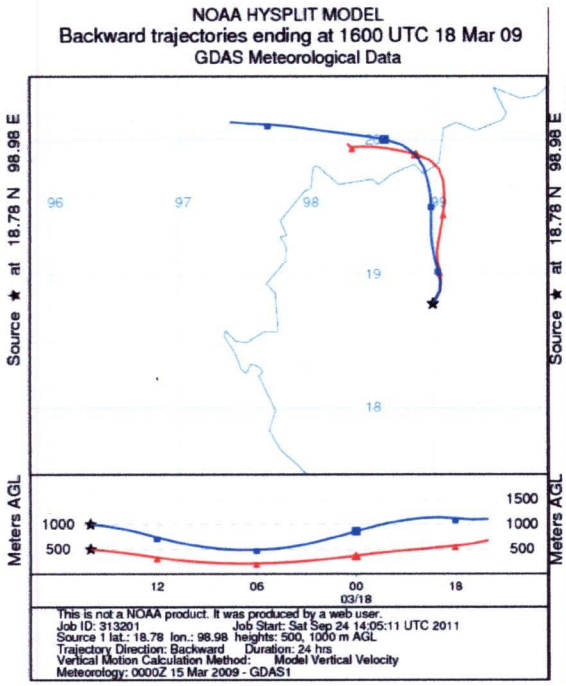
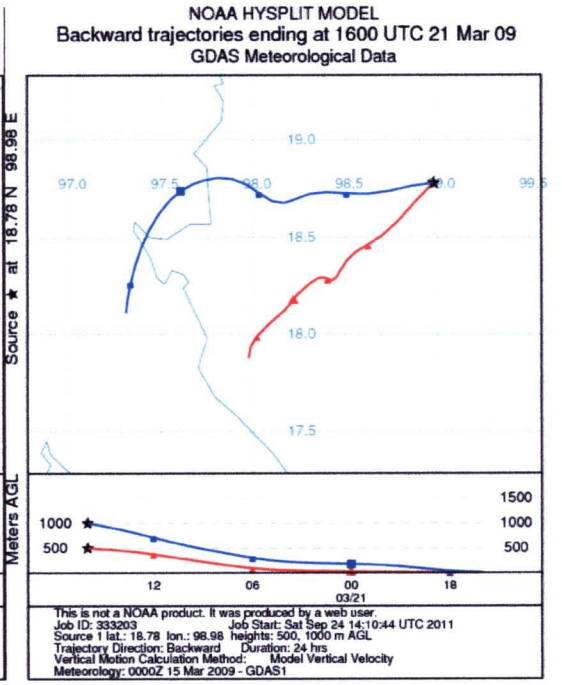
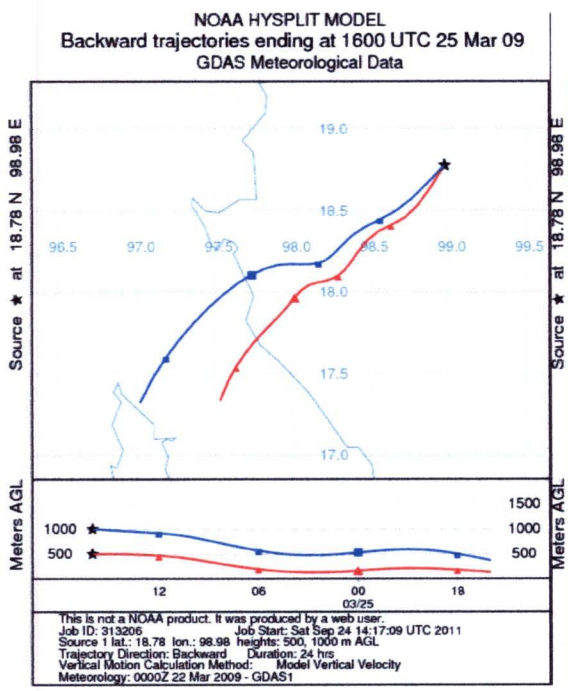
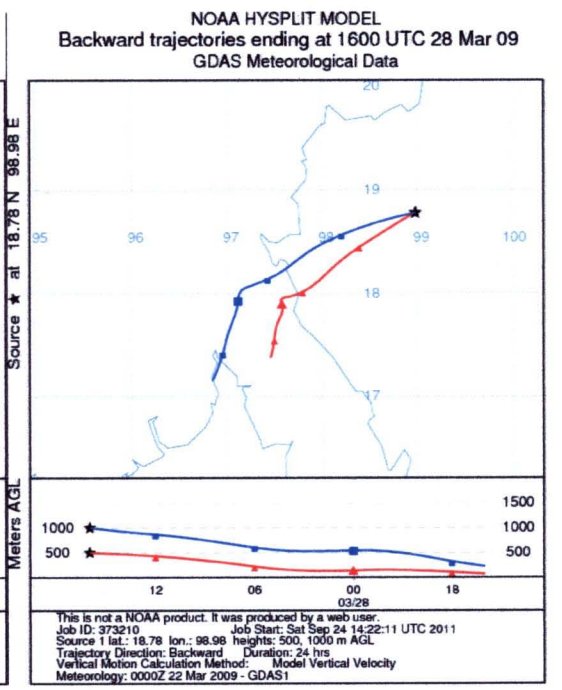
Vertical Motion Calculation Method: Model Vertical Velocity
Meteorology: 0000Z 08 Mar 2009 - GDAS1

March 2009 (continued)

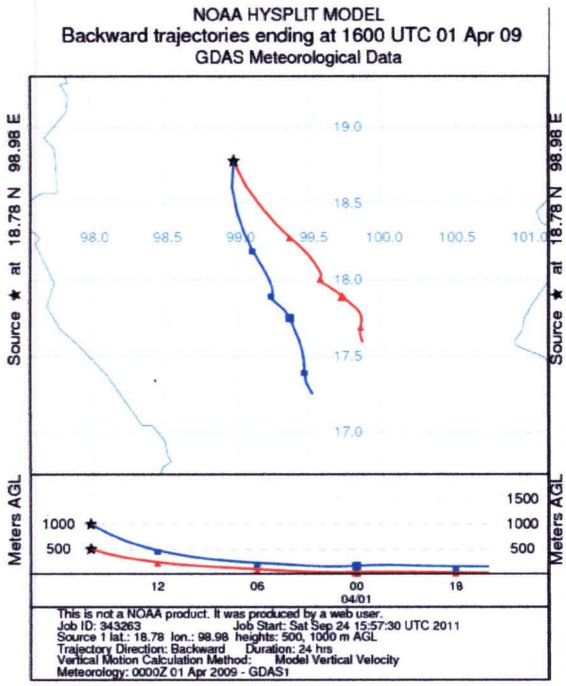


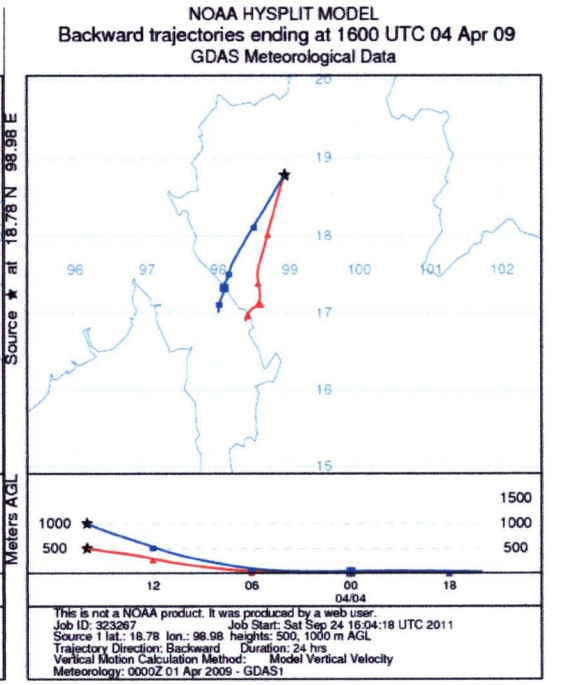


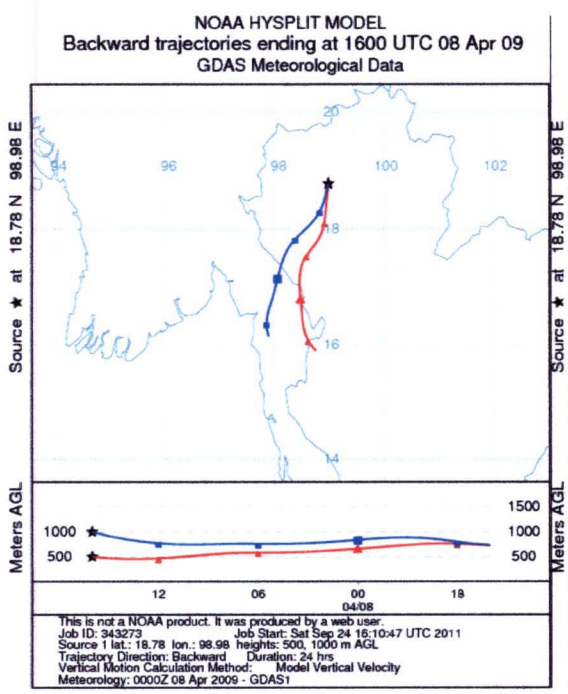


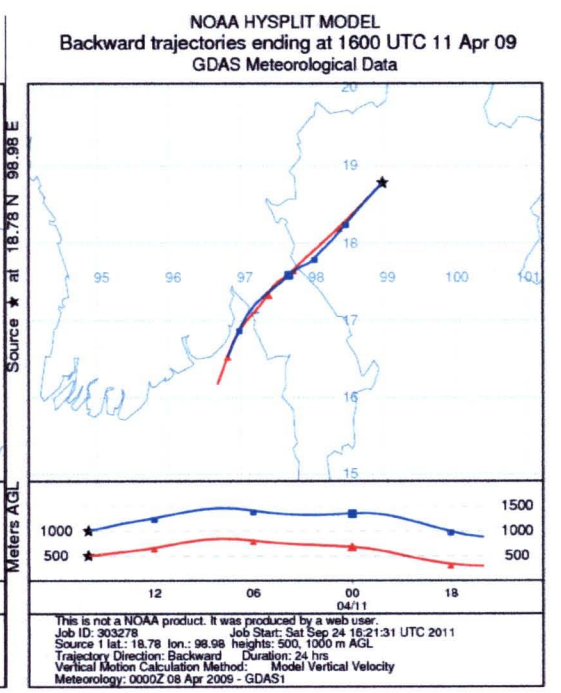


April 2009









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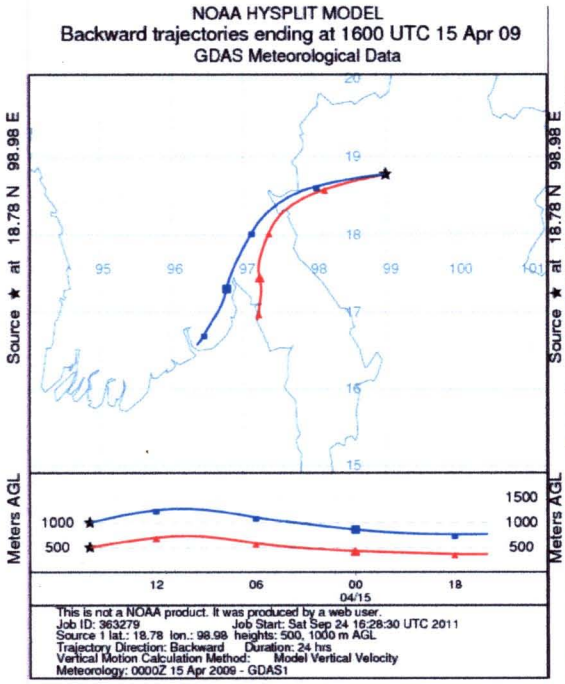
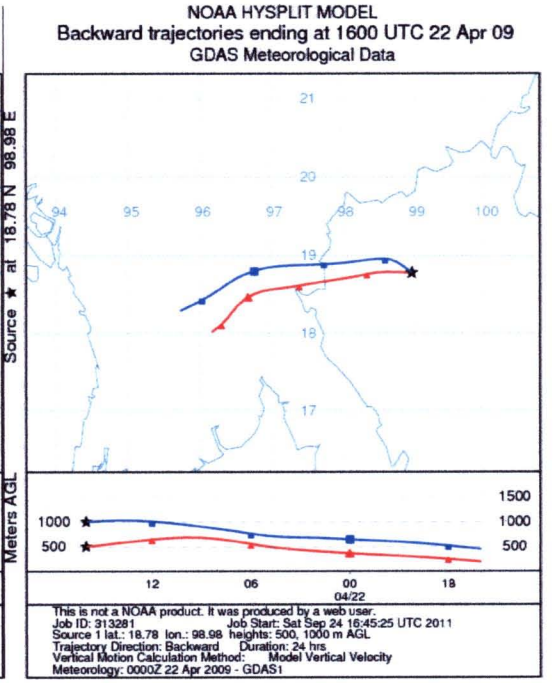
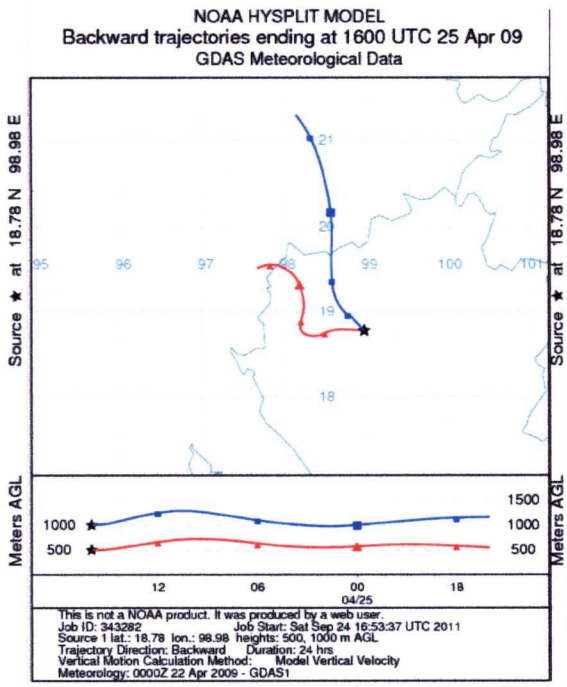

NOAA HYSPLIT MODEL
Backward trajectories ending at 1600 UTC 15 Apr 09
GDAS Meteorological Data
Source ★ at 18.78 N 98.98 E
Meters AGL
1500
1000
500
12
06
00
18
04/15
This is not a NOAA product. It was produced by a web user.
Job ID: 363279 Job Start: Sat Sep 24 16:28:30 UTC 2011
Source 1 lat.: 18.78 lon.: 98.98 heights: 500, 1000 m AGL
Trajectory Direction: Backward Duration: 24 hrs
Vertical Motion Calculation Method: Model Vertical Velocity
Meteorology: 0000Z 15 Apr 2009 - GDAS1


NOAA HYSPLIT MODEL
Backward trajectories ending at 1600 UTC 22 Apr 09
GDAS Meteorological Data
Source ★ at 18.78 N 98.98 E
Meters AGL
1500
1000
500
12
06
00
18
04/22
This is not a NOAA product. It was produced by a web user.
Job ID: 313281 Job Start: Sat Sep 24 16:45:25 UTC 2011
Source 1 lat.: 18.78 lon.: 98.98 heights: 500, 1000 m AGL
Trajectory Direction: Backward Duration: 24 hrs
Vertical Motion Calculation Method: Model Vertical Velocity
Meteorology: 0000Z 22 Apr 2009 - GDAS1


NOAA HYSPLIT MODEL
Backward trajectories ending at 1600 UTC 25 Apr 09
GDAS Meteorological Data
Source ★ at 18.78 N 98.98 E
Meters AGL
1500
1000
500
12
06
00
18
04/25
This is not a NOAA product. It was produced by a web user.
Job ID: 343282 Job Start: Sat Sep 24 16:53:37 UTC 2011
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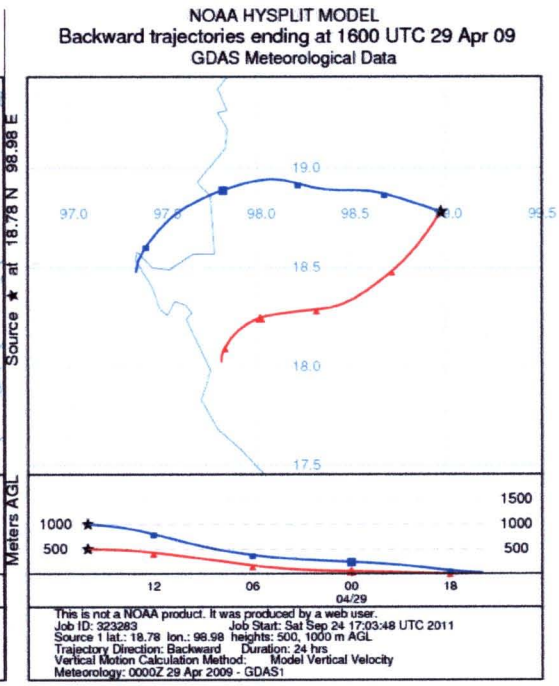
Trajectory Direction: Backward Duration: 24 hrs
Vertical Motion Calculation Method: Model Vertical Velocity
Meteorology: 0000Z 22 Apr 2009 - GDAS1


NOAA HYSPLIT MODEL
Backward trajectories ending at 1600 UTC 29 Apr 09
GDAS Meteorological Data
Source ★ at 18.78 N 98.98 E
Meters AGL
1500
1000
500
12
06
00
18
04/29
This is not a NOAA product. It was produced by a web user.
Job ID: 323283 Job Start: Sat Sep 24 17:03:48 UTC 2011
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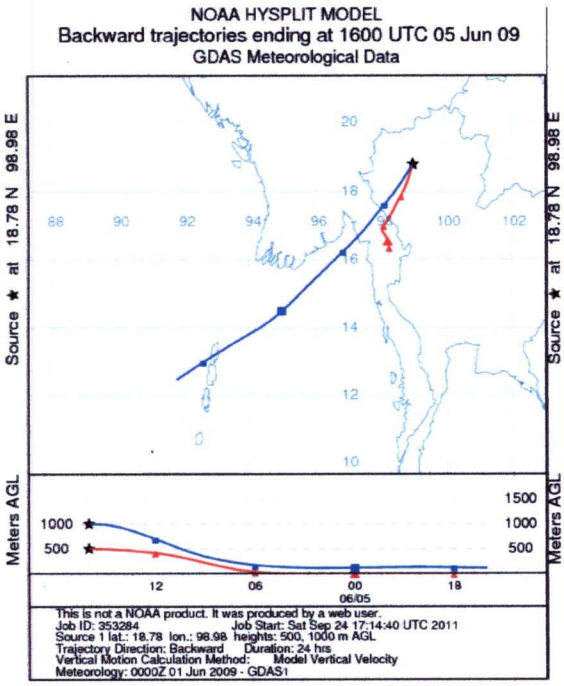
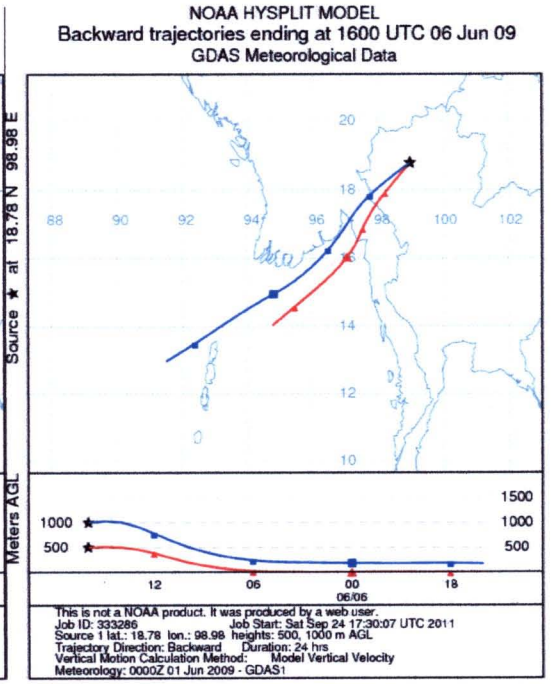
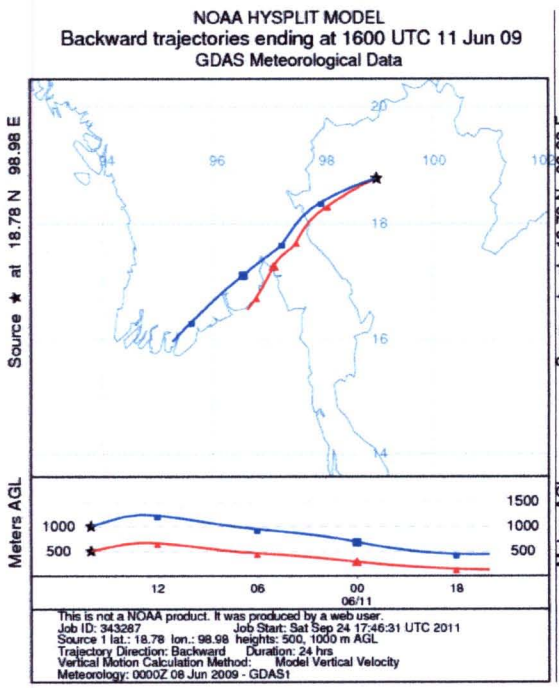
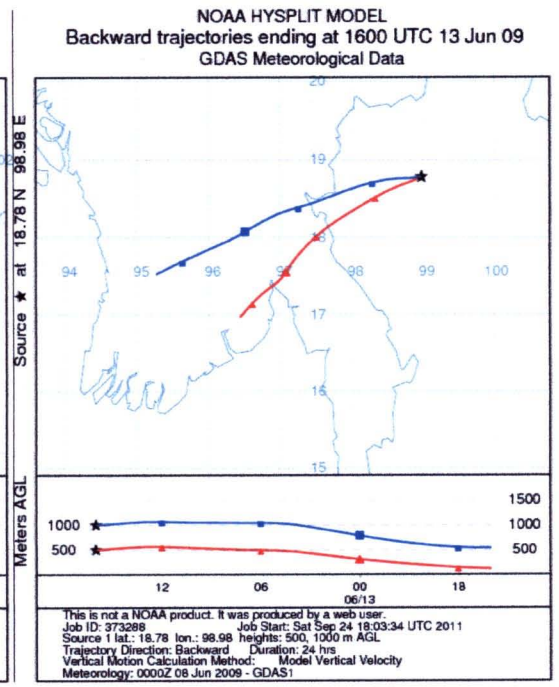
Trajectory Direction: Backward Duration: 24 hrs
Vertical Motion Calculation Method: Model Vertical Velocity
Meteorology: 0000Z 29 Apr 2009 - GDAS1









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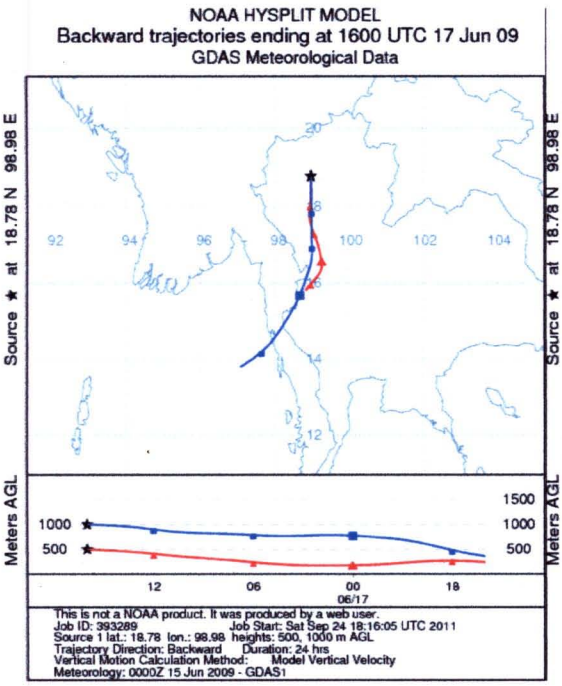
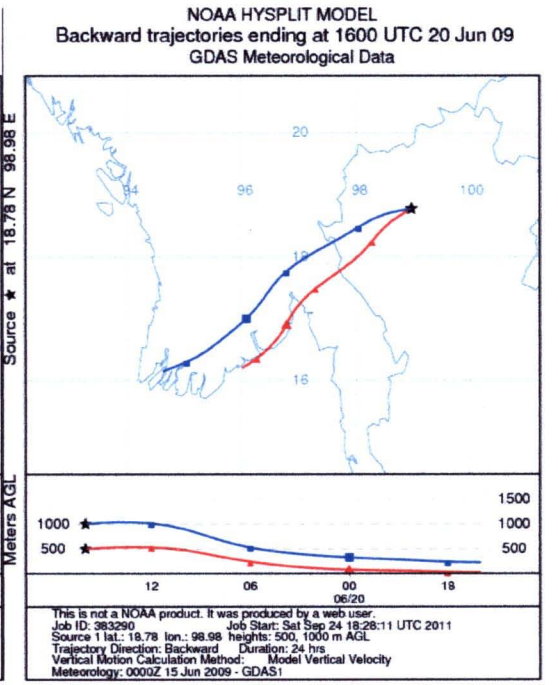
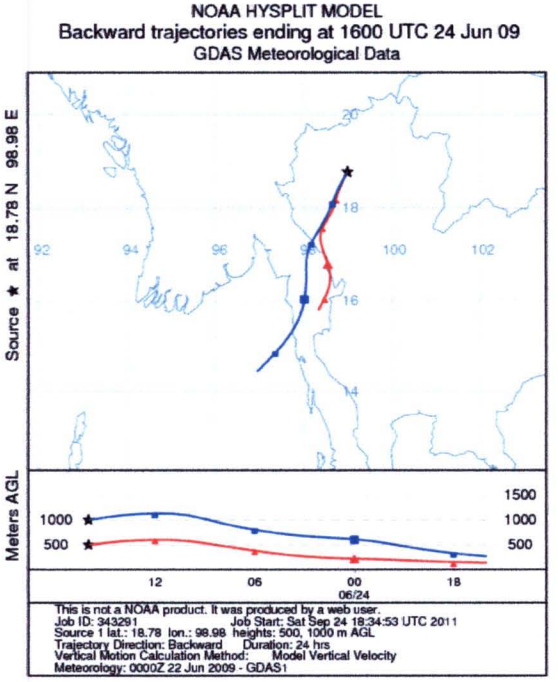
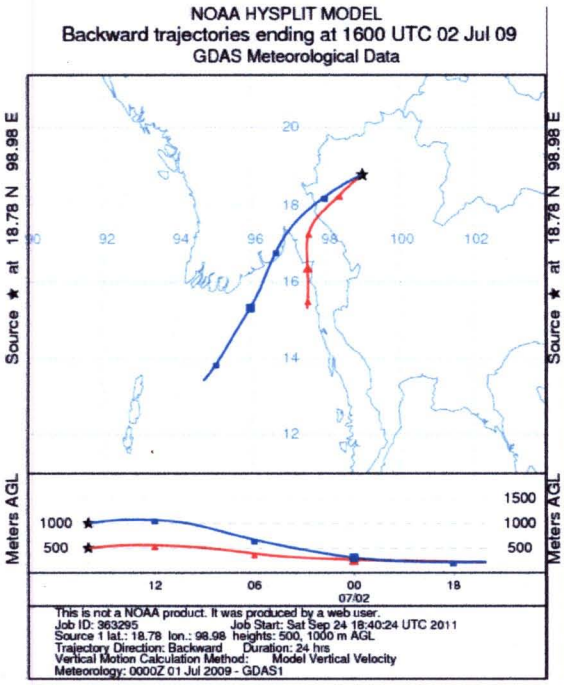
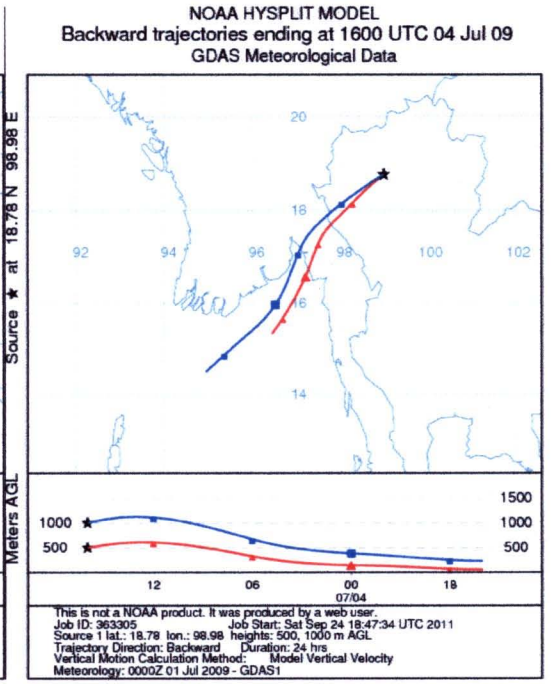
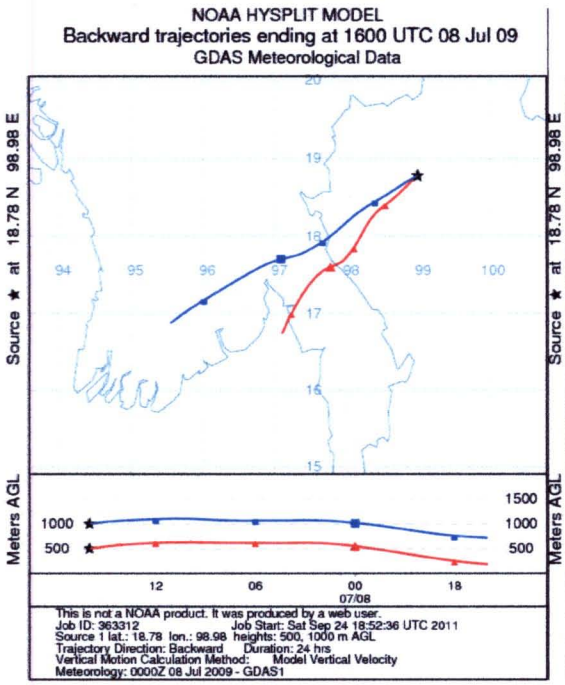


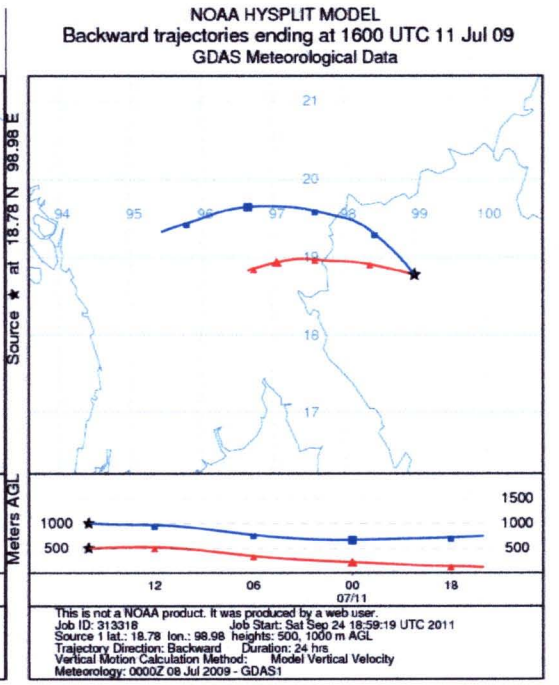




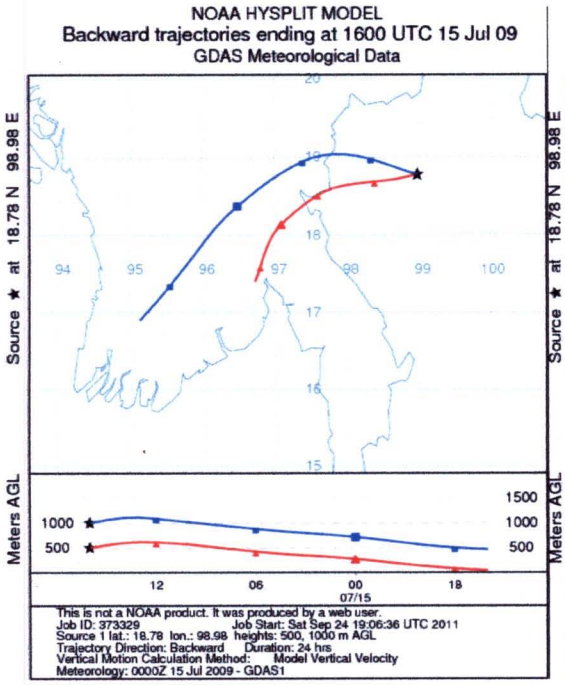


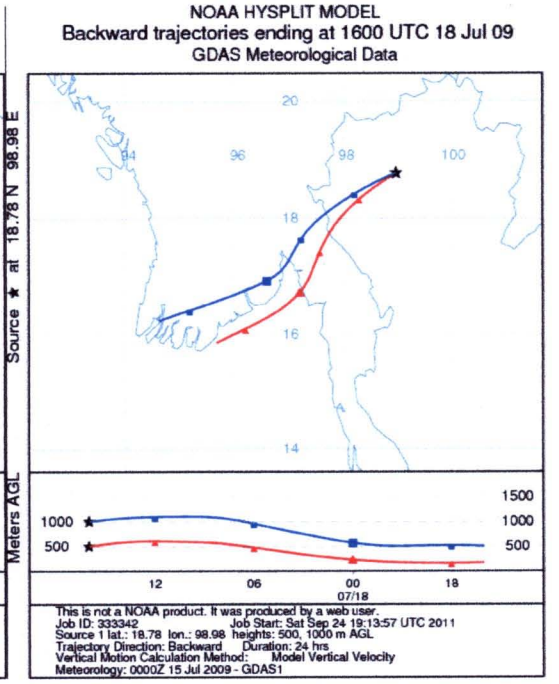


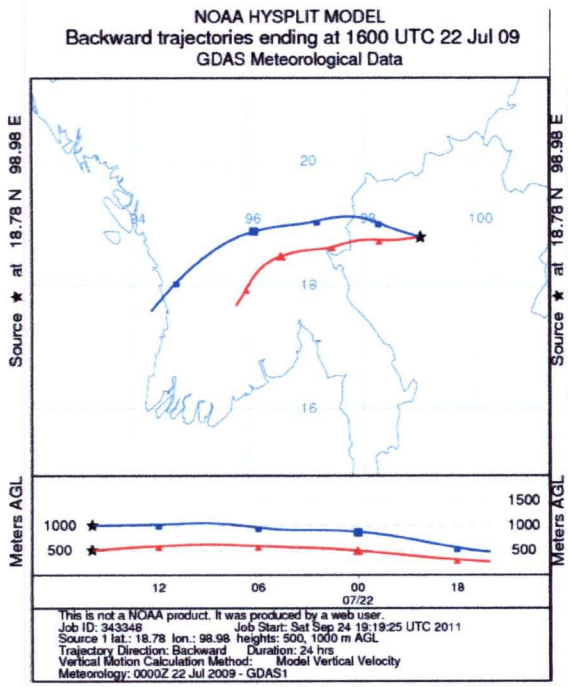


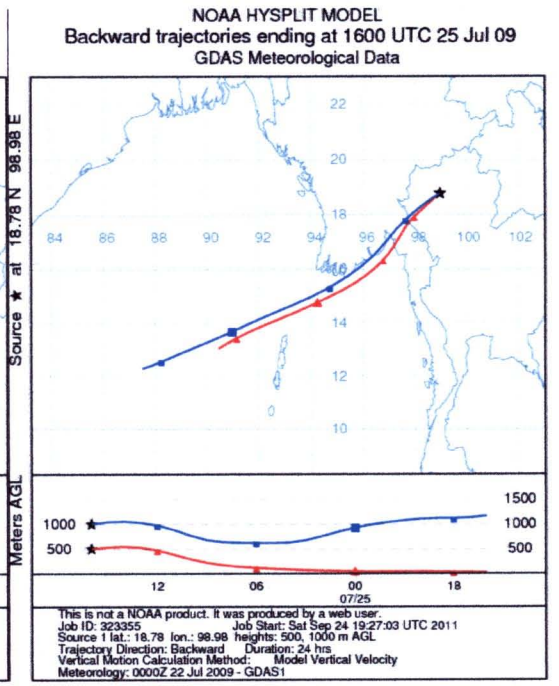


July 2009 (continued)

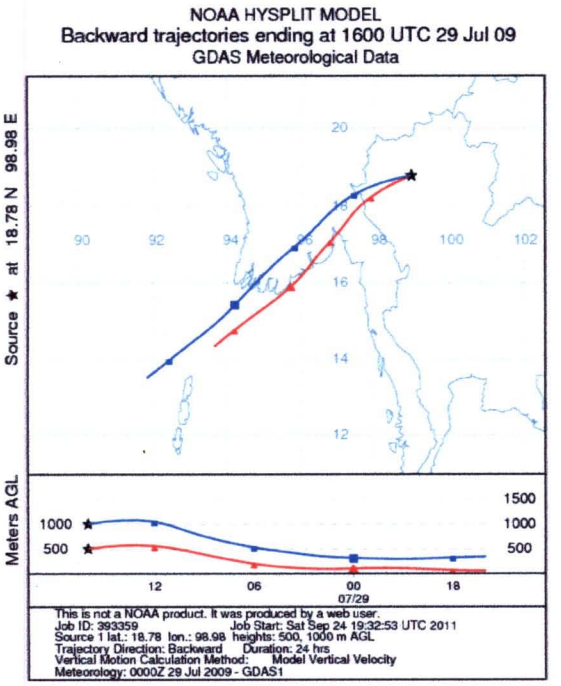




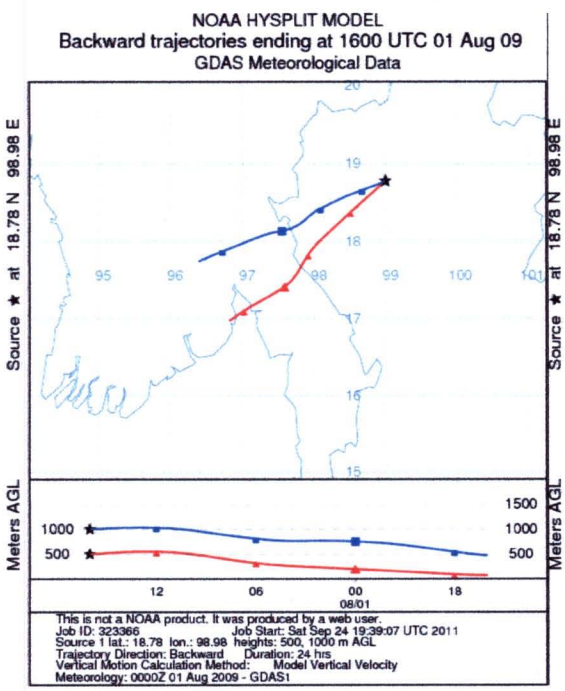


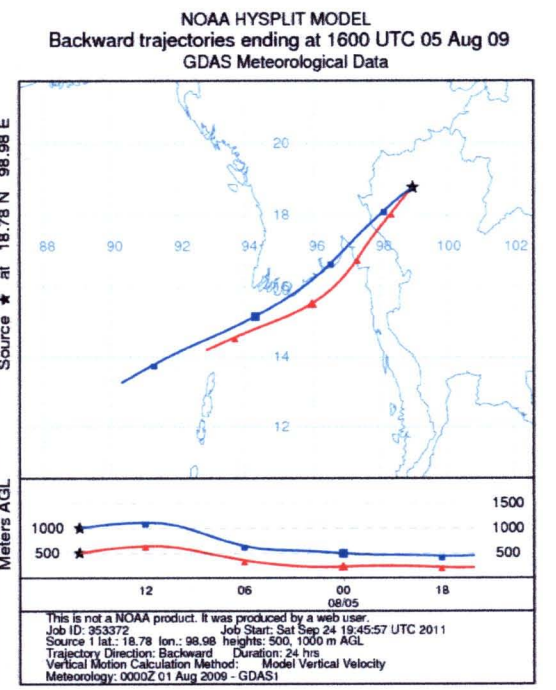


July 2009 (continued)



August 2009





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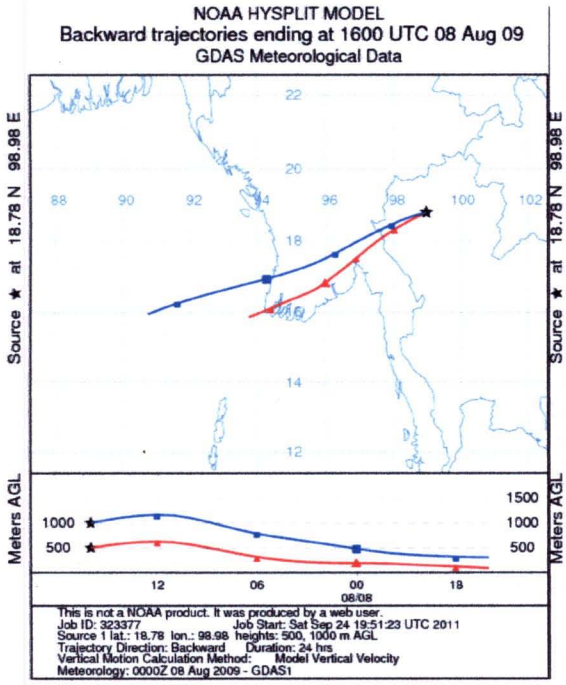

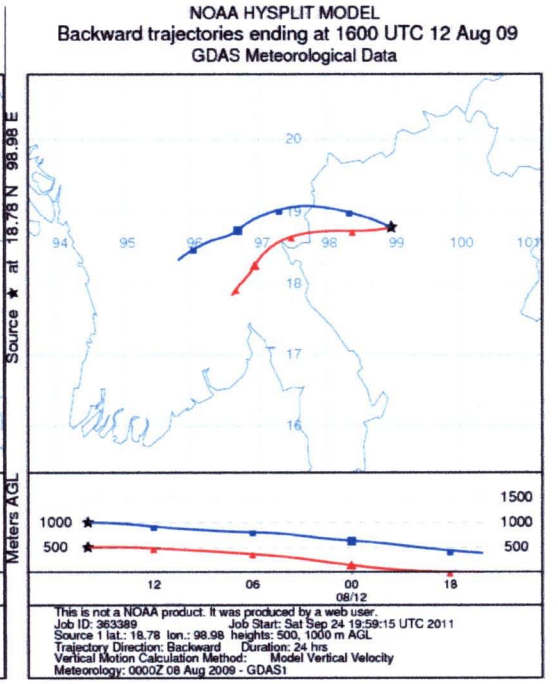

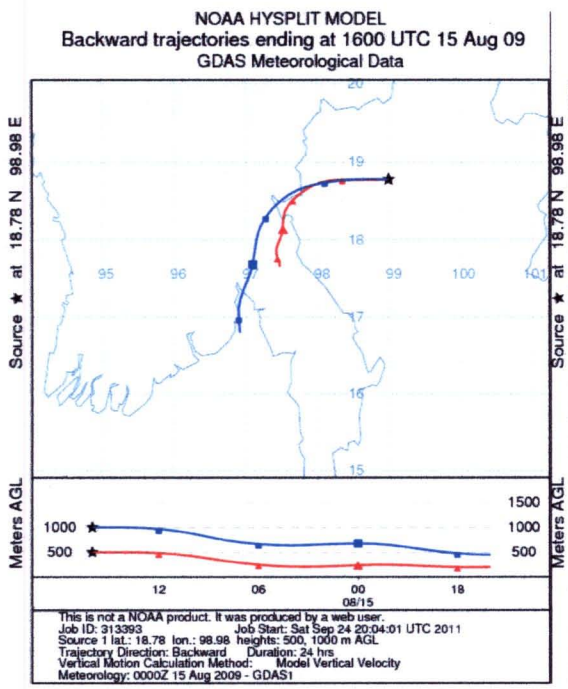

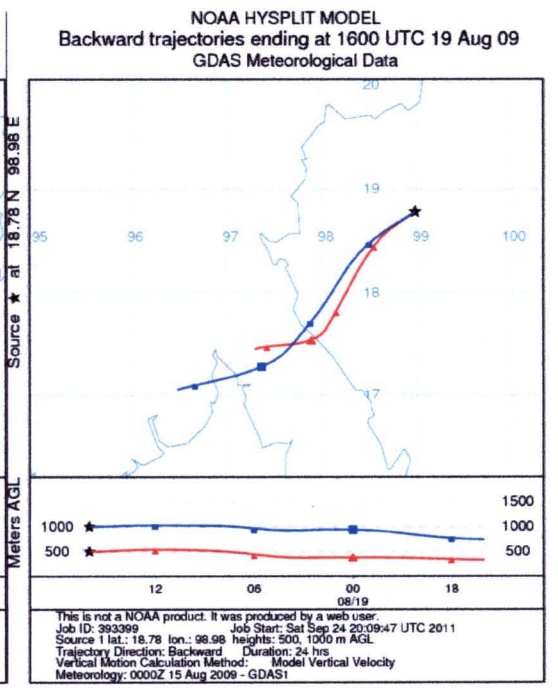

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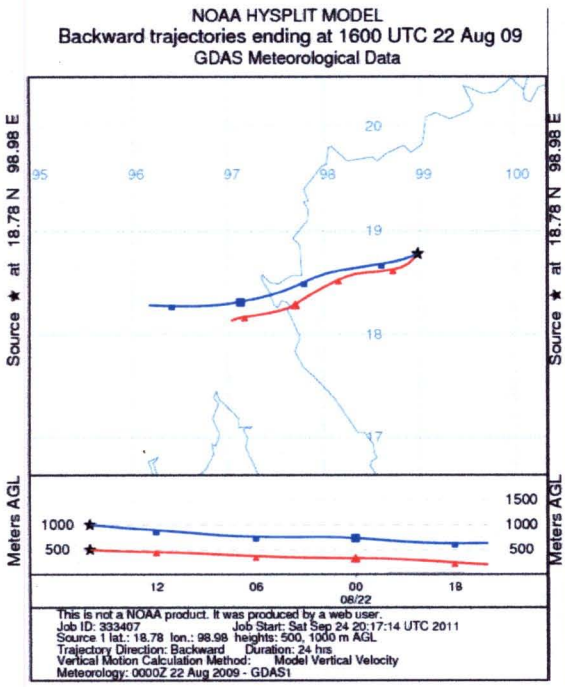

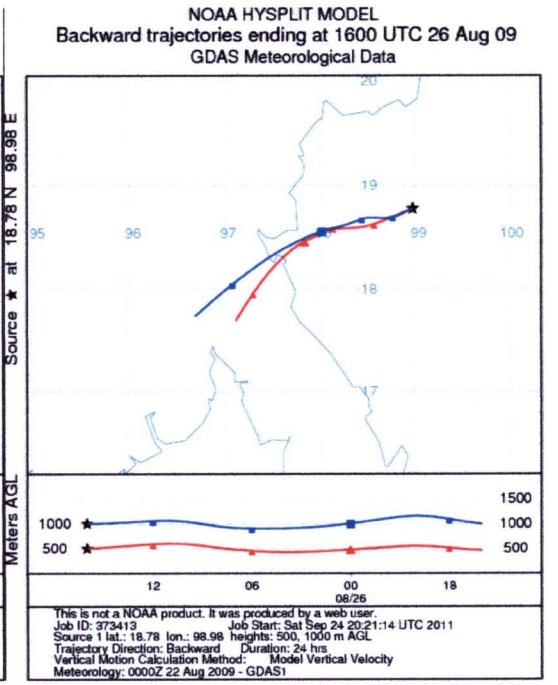

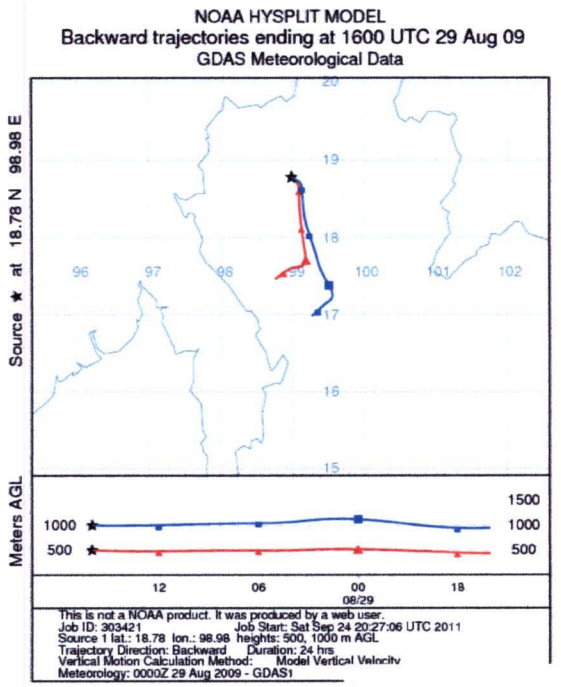

APPENDIX C

Particulate analysis

APPENDIX C

Particulate analysis

A-1 Calculation of sampler calibration (Airmetrics, 2001)

Where Q_{ind} = rotameter indicated flow rate, l/min

ΔH = transfer standard pressure, inches of water

Q_{act} = actual flow rate, l/min

$Q_{@std}$ = standard correction flow rate, l/min

Q_{calc} = calculated flow rate, l/min (from the linear regression)

Sampling site: Yupparaj Wittayalai School (YP)

Date: 4 April 2009 Time: 8.30

Ambient temperature: 297.15 K Ambient barometric pressure: 731.35 mmHg

Q_{ind} (lpm)	ΔH (inches of water)	Q_{act} (alpm)	$Q_{@std}$ (slpm)	Q_{calc} (slpm)	Different %
6.50	2.80	6.026	5.920	5.991	-0.58
6.00	2.35	5.516	5.419	5.535	0.33
5.50	1.98	5.059	4.970	5.078	0.38
5.00	1.64	4.599	4.518	4.621	0.49
4.50	1.36	4.183	4.110	4.165	-0.44
4.00	1.08	3.722	3.656	3.708	-0.36

A-2 Calculation of PM_{10} concentration ($\mu g\ m^{-3}$) (Airmetrics, 2001)

To calculate the PM_{10} concentration for a sample taken with the Mini volume air sampler, the volume of air that passed through the filter at ambient conditions must be calculated

1. Calculates the air flow rate at ambient conditions, Q_{act}, using equation 1. The slope, m_{vol}, and intercept, b_{vol}, of the sampler calibration are obtained from the calibration sheet in Table B-1

$$Q_{act} = (m_{flo})x \sqrt{\frac{\Delta H\ x\ T_{act}}{P_{act}}} + b_{flo} \quad (1)$$

Where Q_{act} = sampler flow rate at ambient condition, actual (l/min)

m_{vol} = slope of linear regression of sampler calibration at a site

b_{vol} = intercept of linear regression of sampler calibration at a site

T_{act} = ambient temperature, K

P_{act} = ambient barometric pressure, mmHg

T_{std} = standard temperature, 298 K

Pstd = standard pressure, 760 mmHg

2. Calculate the volume of air that passed through the filter during the sampling period at actual ambient conditions, V_{act} (m^3)

$$V_{act} = \frac{60_{min/hr} \times Q_{act} \times t_{hr}}{1000_{l/m^3}} \quad (2)$$

Where t_{hr} = sampling period, hr

3. To calculate the concentration of PM_{10}, divide the net mass gain of the filter by the volume of air that passed through the filter.

$$[PM]_{act} = \frac{M_{PM}}{V_{act}} \quad (3)$$

Where $[PM]_{act}$= PM_{10} concentration, μg m^{-3}

M_{PM} = Mass of particulate matter collected on the filter, μg

Sample calculation of PM_{10} concentration

Sample: 4 April 2009

Linear regression (from standard calibration): y= 5.7013x –0.0548 (r^2=0.9998)

T_{act} = 297.15 K P_{act} = 731.35 mmHg

1. To calculated the sampler flow rate at ambient condition, Q_{act} (l/min)

$$Q_{act} = 5.7013\ x\ \sqrt{\frac{1.98\ x\ 297.15}{731.35}} - 0.0548 = 5.0 \text{ l/min}$$

2. To calculate volume of air, V_{act} (m^3) in 24 hr

$$V_{act} = \frac{60_{min/hr} \times 5.0_{l/min} \times 24_{hr}}{1000_{l/m^3}} = 7.3 \text{ m}^3$$

3. To calculate PM_{10} concentration (μg m^{-3})

Pre-exposure weight = 144.764 mg; Post-exposure weight = 145.370 mg

$$[PM]_{act} = \frac{0.145370 - 0.144764}{7.3} = 82.5 \text{ μg m}^{-3}$$

A-3 Averaged 24 hr levels of PM_{10} concentration ($\mu g\ m^{-3}$) in ambient air of Chiang Mai City from February 2009

Sampling site: Yupparaj Wittayalai School

Barometric pressure: 731.35 mmHg Temperature: 297.15 K

Pump flow rate: 5.1 l/min Air volume: 7.3 m^3

Date	**4/2/2009**	**11/2/2009**	**14/2/2009**	**18/2/2009**	**21/2/2009**	**25/2/2009**	**28/2/2009**
Rain	No	No	No	No	No	No	No
Pre-exposure weight (mg)	144.764	145.614	145.482	144.516	146.045	145.671	145.127
Post-exposure weight (mg)	145.370	146.566	146.430	145.763	146.858	147.152	146.662
Exposure weight (mg)	0.606	0.952	0.948	1.247	0.813	1.481	1.535
PM_{10} content ($\mu g\ m^{-3}$)	82.5	129.6	129.1	169.8	110.7	201.7	209.0
Average PM_{10} content ($\mu g\ m^{-3}$)±SD	**147.5±47.3**						

A-4 Averaged 24 hr levels of PM_{10} concentration ($\mu g\ m^{-3}$) in ambient air of Chiang Mai City from March 2009

Sampling site: Yupparaj Wittayalai School

Barometric pressure: 731.35 mmHg Temperature: 301.65 K

Pump flow rate: 5.0 l/min Air volume: 7.2 m^3

Date	**4/3/2009**	**7/3/2009**	**14/3/2009**	**18/3/2009**	**21/3/2009**	**25/3/2009**	**28/3/2009**
Rain	No	No	No	Yes	No	No	No
Pre-exposure weight (mg)	145.339	146.141	145.863	145.686	144.496	143.385	144.440
Post-exposure weight (mg)	146.276	147.638	146.775	146.421	145.111	143.891	145.148
Exposure weight (mg)	0.937	1.497	0.912	0.735	0.615	0.506	0.708
PM_{10} content ($\mu g\ m^{-3}$)	130.1	207.9	126.7	102.1	85.4	70.3	98.3
Average PM_{10} content ($\mu g\ m^{-3}$)±SD	**117.3±45.2**						

A-5 Averaged 24 hr levels of PM_{10} concentration ($\mu g\ m^{-3}$) in ambient air of Chiang Mai City from April 2009

Sampling site: Yupparaj Wittayalai School

Barometric pressure: 731.35 mmHg Temperature: 302.15 K

Pump flow rate: 5.1 l/min Air volume: 7.3 m^3

Date	**1/4/2009**	**4/4/2009**	**8/4/2009**	**11/4/2009**	**15/4/2009**	**22/4/2009**	**25/4/2009**	**29/4/2009**
Rain	No	No	Yes	Yes	Yes	No	Yes	Yes
Pre-exposure weight (mg)	141.423	142.699	145.124	144.865	143.214	144.786	145.587	145.772
Post-exposure weight (mg)	141.778	143.519	145.690	145.276	143.619	145.411	146.079	146.087
Exposure weight (mg)	0.355	0.820	0.566	0.411	0.405	0.625	0.492	0.315
PM_{10} content ($\mu g\ m^{-3}$)	48.3	111.7	77.1	56.0	55.1	85.1	67.0	42.9
Average PM_{10} content ($\mu g\ m^{-3}$)±SD	**67.9±22.7**							

A-6 Averaged 24 hr levels of PM_{10} concentration ($\mu g\ m^{-3}$) in ambient air of Chiang Mai City from June 2009

Sampling site: Yupparaj Wittayalai School

Barometric pressure: 731.35 mmHg Temperature: 299.15 K

Pump flow rate: 5.1 l/min Air volume: 7.3 m^3

Date	**5/6/2009**	**6/6/2009**	**11/6/2009**	**13/6/2009**	**17/6/2009**	**20/6/2009**	**24/6/2009**
Rain	Yes	Yes	No	No	Yes	No	No
Pre-exposure weight (mg)	144.589	145.207	145.307	141.067	143.508	144.853	159.217
Post-exposure weight (mg)	144.855	145.474	145.660	141.327	143.855	145.068	159.485
Exposure weight (mg)	0.266	0.267	0.353	0.260	0.347	0.211	0.268
PM_{10} content ($\mu g\ m^{-3}$)	36.2	36.4	48.1	35.4	47.2	28.7	36.5
Average PM_{10} content ($\mu g\ m^{-3}$)±SD	**38.4±6.9**						

A-7 Averaged 24 hr levels of PM_{10} concentration ($\mu g\ m^{-3}$) in ambient air of Chiang Mai City from July 2009

Sampling site: Yupparaj Wittayalai School

Barometric pressure: 731.35 mmHg Temperature: 298.15 K

Pump flow rate: 5.2 l/min Air volume: 7.5 m^3

Date	**2/7/2009**	**4/7/2009**	**8/7/2009**	**11/7/2009**	**15/7/2009**	**18/7/2009**	**22/7/2009**	**25/7/2009**	**29/7/2009**
Rain	No	Yes	Yes	No	Yes	Yes	Yes	No	Yes
Pre-exposure weight (mg)	158.662	156.388	157.446	158.071	157.897	157.739	158.893	156.560	157.192
Post-exposure weight (mg)	158.927	156.644	157.763	158.478	158.375	158.017	159.213	156.784	157.572
Exposure weight (mg)	0.265	0.256	0.317	0.407	0.478	0.278	0.320	0.224	0.380
PM_{10} content ($\mu g\ m^{-3}$)	35.4	34.2	42.3	54.4	63.8	37.1	42.7	29.9	50.7
Average PM_{10} content ($\mu g\ m^{-3}$)±SD	**43.4±11.0**								

A-8 Averaged 24 hr levels of PM_{10} concentration ($\mu g\ m^{-3}$) in ambient air of Chiang Mai City from August 2009

Sampling site: Yupparaj Wittayalai School

Barometric pressure: 731.35 mmHg Temperature: 298.15 K

Pump flow rate: 5.1 l/min Air volume: 7.3 m^3

Date	**1/8/2009**	**5/8/2009**	**8/8/2009**	**12/8/2009**	**15/8/2009**	**19/8/2009**	**22/8/2009**	**26/8/2009**	**29/8/2009**
Rain	No	No	Yes	Yes	Yes	Yes	Yes	No	Yes
Pre-exposure weight (mg)	158.339	157.587	159.268	158.245	159.512	157.943	156.659	157.479	157.267
Post-exposure weight (mg)	158.628	158.041	159.698	158.571	160.009	158.182	156.992	157.797	157.561
Exposure weight (mg)	0.289	0.454	0.430	0.326	0.497	0.239	0.333	0.318	0.294
PM_{10} content ($\mu g\ m^{-3}$)	39.4	61.8	58.6	44.4	67.7	32.5	45.3	43.3	40.0
Average PM_{10} content ($\mu g\ m^{-3}$)±SD	**48.1±11.8**								

A-9 Averaged 24 hr levels of PM_{10} concentration ($\mu g\ m^{-3}$) in ambient air of Chiang Mai City from March 2009

Sampling site: Mae Hia Research Center

Barometric pressure: 730.28 mmHg Temperature: 305.15 K

Pump flow rate: 5.2 l/min Air volume: 7.5 m^3

Date	18/3/2009	21/3/2009	25/3/2009	28/3/2009
Rain	Yes	No	No	No
Pre-exposure weight (mg)	144.449	144.563	143.369	144.899
Post-exposure weight (mg)	144.761	144.990	143.656	145.267
Exposure weight (mg)	0.312	0.427	0.287	0.368
PM_{10} content ($\mu g\ m^{-3}$)	41.6	56.9	38.3	49.1
Average PM_{10} content ($\mu g\ m^{-3}$)±SD	**46.5±8.3**			

A-10 Averaged 24 hr levels of PM_{10} concentration ($\mu g\ m^{-3}$) in ambient air of Chiang Mai City from April 2009

Sampling site: Mae Hia Research Center

Barometric pressure: 730.28 mmHg Temperature: 307.15 K

Pump flow rate: 5.2 l/min Air volume: 7.5 m^3

Date	1/4/2009	4/4/2009	8/4/2009	11/4/2009	15/4/2009	22/4/2009	25/4/2009	29/4/2009
Rain	No	No	Yes	Yes	Yes	No	Yes	Yes
Pre-exposure weight (mg)	146.341	144.928	145.261	143.872	142.430	145.357	143.799	144.392
Post-exposure weight (mg)	146.802	145.614	145.661	144.102	142.547	145.798	144.215	144.504
Exposure weight (mg)	0.461	0.686	0.400	0.230	0.117	0.441	0.416	0.112
PM_{10} content ($\mu g\ m^{-3}$)	61.5	91.5	53.3	30.7	15.6	58.8	55.5	14.9
Average PM_{10} content ($\mu g\ m^{-3}$)±SD	**47.7±26.0**							

APPENDIX D

Twenty-four hour PM_{10} concentrations ($\mu g\ m^{-3}$) obtained from Taper Element Oscillating Microbalance (TEOM) (PCD) and mini volume air sampler (this study)

Month	TEOM	mini volume air sampler	Error
4/02/2009	70.8	82.5	11.7
11/02/2009	98.6	129.6	31.0
14/02/2009	109.3	129.1	19.8
18/02/2009	146.5	169.8	23.3
21/02/2009	95.6	110.7	15.1
25/02/2009	176.3	201.7	25.4
28/02/2009	191.8	209.0	17.2
Average±SD	**127.0±45.2**	**147.0±47.3**	**20.0**
4/03/2009	126.1	130.1	4.0
7/03/2009	208.0	207.9	-0.1
14/03/2009	97.9	126.7	28.8
18/03/2009	56.2	102.1	45.9
21/03/2009	54.7	85.4	30.7
25/03/2009	49.4	70.3	20.9
28/03/2009	87.4	98.3	10.9
Average±SD	**97.1±56.2**	**117.3±45.2**	**20.2**
1/04/2009	43.3	48.3	5.0
4/04/2009	103.0	111.7	8.7
8/04/2009	56.3	77.1	20.8
11/04/2009	41.7	56.0	14.3
15/04/2009	30.8	55.1	24.3
22/04/2009	85.5	85.1	-0.4
25/04/2009	60.1	67.0	6.9
29/04/2009	32.1	42.9	10.8
Average±SD	**56.6±25.8**	**67.9±22.7**	**11.3**

(Continued)

Time	TEOM	mini volume air sampler	Error
5/06/2009	14.7	36.2	21.5
6/06/2009	19.9	36.4	16.5
11/06/2009	31.5	48.1	16.6
13/06/2009	18.3	35.4	17.1
17/06/2009	21.2	47.2	26.0
20/06/2009	22.5	28.7	6.2
24/06/2009	23.0	36.5	13.5
Average±SD	**21.6±5.2**	**38.4±6.9**	**16.8**
2/07/2009	18.1	35.4	17.3
4/07/2009	16.0	34.2	18.2
8/07/2009	22.1	42.3	20.2
11/07/2009	35.6	54.4	18.8
15/07/2009	43.2	63.8	20.6
18/07/2009	16.2	37.1	20.9
22/07/2009	29.4	42.7	13.3
25/07/2009	19.8	29.9	10.1
29/07/2009	24.5	50.7	26.2
Average±SD	**25.0±9.4**	**43.4±11.0**	**18.4**
1/08/2009	24.7	39.4	14.7
5/08/2009	39.2	61.8	22.6
8/08/2009	42.4	58.6	16.2
12/08/2009	22.6	44.4	21.8
15/08/2009	42.6	67.7	25.1
19/08/2009	22.1	32.5	10.4
22/08/2009	17.6	45.3	27.7
26/08/2009	22.9	43.3	20.4
29/08/2009	27.8	40.0	12.2
Average±SD	**29.1±9.6**	**48.1±11.8**	**19.0**
Total	**56.6±48.5**	**74.2±48.1**	**17.6**

APPENDIX E

C-1 The value of PM_{10}, EC, pH, Na^+, NH_4^+, K^+, Ca^{2+} and Mg^{2+} at YP station during February-April (Dry season) and June-August (Wet season) 2009

Date	PM_{10} $\mu g\ m^{-3}$	EC $\mu S/m$	pH	Na^+ $\mu g\ m^{-3}$	NH_4^+ $\mu g\ m^{-3}$	K^+ $\mu g\ m^{-3}$	Ca^{2+} $\mu g\ m^{-3}$	Mg^{2+} $\mu g\ m^{-3}$
4/02/2009	82.5	14.3	5.55	0.99	1.30	1.28	3.79	0.14
11/02/2009	129.6	18.2	5.57	1.23	2.41	2.18	3.58	0.16
14/02/2009	129.1	17.1	5.50	1.14	2.31	2.00	2.73	0.18
18/02/2009	169.8	13.9	5.81	0.90	3.73	2.50	3.27	0.16
21/02/2009	110.7	14.7	5.73	1.01	2.43	2.20	1.75	0.10
25/02/2009	201.7	15.5	5.88	1.15	3.78	3.46	4.12	0.22
28/02/2009	209.0	10.4	5.60	1.36	4.12	3.29	3.82	0.20
4/03/2009	130.1	12.8	5.59	2.02	2.58	1.81	4.91	0.43
7/03/2009	207.9	21.6	5.56	1.79	4.00	3.25	4.26	0.33
14/03/2009	126.7	13.7	5.64	2.20	2.00	1.72	3.67	0.43
18/03/2009	102.1	16.0	5.66	2.02	1.96	1.07	5.60	0.33
21/03/2009	85.4	13.6	5.60	0.41	1.96	1.36	3.52	0.08
25/03/2009	70.3	11.4	5.75	0.32	1.39	0.64	3.45	0.39
28/03/2009	98.3	15.8	5.69	0.95	2.57	0.92	3.87	0.39
1/04/2009	48.3	8.6	6.09	1.51	0.91	0.74	2.02	0.25
4/04/2009	111.7	16.7	5.99	1.68	2.28	1.69	2.42	0.43
8/04/2009	77.1	12.7	5.97	1.86	1.71	1.06	2.34	0.44
11/04/2009	56.0	11.1	6.13	1.46	0.55	0.63	4.61	0.49
15/04/2009	55.1	10.3	6.24	0.50	0.26	0.57	4.22	0.43
22/04/2009	85.1	14.5	6.08	3.09	1.47	0.95	4.41	0.59
25/04/2009	67.0	11.7	6.10	2.25	0.84	0.71	2.15	0.56

(Continued)

Date	PM_{10} $\mu g\ m^{-3}$	EC $\mu S/m$	pH	Na^+ $\mu g\ m^{-3}$	NH_4^+ $\mu g\ m^{-3}$	K^+ $\mu g\ m^{-3}$	Ca^{2+} $\mu g\ m^{-3}$	Mg^{2+} $\mu g\ m^{-3}$
29/04/2009	42.9	7.2	6.23	1.50	0.37	0.59	1.51	0.51
5/06/2009	36.2	8.9	7.38	2.13	0.34	0.19	1.66	0.12
6/06/2009	36.4	9.7	7.60	2.25	0.48	0.19	2.93	0.19
11/06/2009	48.1	10.5	7.68	2.46	0.56	0.09	2.77	0.17
13/06/2009	35.4	8.8	7.80	2.14	0.43	0.17	2.15	0.13
17/06/2009	47.2	9.9	7.78	1.49	0.32	0.14	0.24	0.15
20/06/2009	28.7	10.0	7.87	2.48	0.52	0.46	2.16	0.16
24/06/2009	36.5	-	7.25	0.36	0.41	0.21	2.05	0.09
2/07/2009	35.4	6.3	7.50	0.68	0.46	0.44	2.24	0.19
4/07/2009	34.2	7.4	7.58	0.70	0.22	0.36	2.49	0.19
8/07/2009	42.3	-	7.56	0.69	0.25	0.48	2.78	0.18
11/07/2009	54.4	7.9	7.89	0.65	0.48	0.44	3.21	0.24
15/07/2009	63.8	11.3	7.45	0.97	0.22	0.50	5.17	0.27
18/07/2009	37.1	18.7	7.33	0.37	0.51	0.49	3.56	0.19
22/07/2009	42.7	-	7.17	0.75	0.41	0.42	5.14	0.24
25/07/2009	29.9	9.6	7.53	0.59	0.64	0.57	2.39	0.20
29/07/2009	50.7	8.3	7.40	1.00	0.26	0.50	2.83	0.25
1/08/2009	39.4	7.5	7.17	0.20	0.47	0.44	1.68	0.17
5/08/2009	61.8	12.0	6.78	1.24	0.59	0.68	2.64	0.27
8/08/2009	58.6	9.2	6.75	0.67	0.53	0.59	3.21	0.19
12/08/2009	44.4	7.1	6.96	0.34	0.45	0.38	2.08	0.15
15/08/2009	67.7	9.9	7.09	1.32	0.54	0.57	3.88	0.22
19/08/2009	32.5	6.7	6.60	0.38	0.46	0.36	2.14	0.17
22/08/2009	45.3	6.9	6.92	0.10	0.46	0.51	2.17	0.13
26/08/2009	43.3	6.8	6.81	0.23	0.45	0.40	2.10	0.13
29/08/2009	40.0	7.6	6.80	0.24	0.51	0.52	2.19	0.19

C-2 The value of PM_{10}, EC, pH, Na^+, NH_4^+, K^+, Ca^{2+} and Mg^{2+} at MH station during March-April (Dry season) 2009

Date	PM_{10} $\mu g\ m^{-3}$	EC $\mu S/m$	pH	Na^+ $\mu g\ m^{-3}$	NH_4^+ $\mu g\ m^{-3}$	K^+ $\mu g\ m^{-3}$	Ca^{2+} $\mu g\ m^{-3}$	Mg^{2+} $\mu g\ m^{-3}$
18/03/2009	71.7	8.4	6.52	1.98	0.85	0.83	1.14	0.34
21/03/2009	70.6	9.8	6.47	1.89	1.10	1.01	0.88	0.21
25/03/2009	38.5	4.7	6.50	1.16	0.97	0.76	0.94	0.21
28/03/2009	49.3	13.0	6.46	1.39	2.20	0.81	0.56	0.33
1/04/2009	61.6	13.7	5.87	2.66	1.09	1.16	0.70	0.42
4/04/2009	91.6	15.3	5.78	2.02	1.97	1.59	1.24	0.46
8/04/2009	53.4	13.5	5.82	1.88	1.78	1.01	0.86	0.41
11/04/2009	30.7	9.3	5.90	1.07	0.59	0.62	0.99	0.84
15/04/2009	15.6	7.9	6.04	1.02	0.21	0.35	0.94	0.44
22/04/2009	58.9	14.4	5.82	2.86	0.97	0.70	2.46	0.61
25/04/2009	55.6	13.0	5.87	2.02	1.02	0.66	1.70	1.00
29/04/2009	39.0	7.3	6.86	0.67	0.22	0.32	0.77	0.14

CURRICULUM VITAE

Name Mr. Piyaphong Somsap

Date of birth March 13, 1982

Education Background:

1994 – 2000 High School, Kampheangphetpittayakom, Kampheangphet

2001 – 2005 Bachelor of Science in Biology, Chiang Mai University, Chiang Mai, Thailand