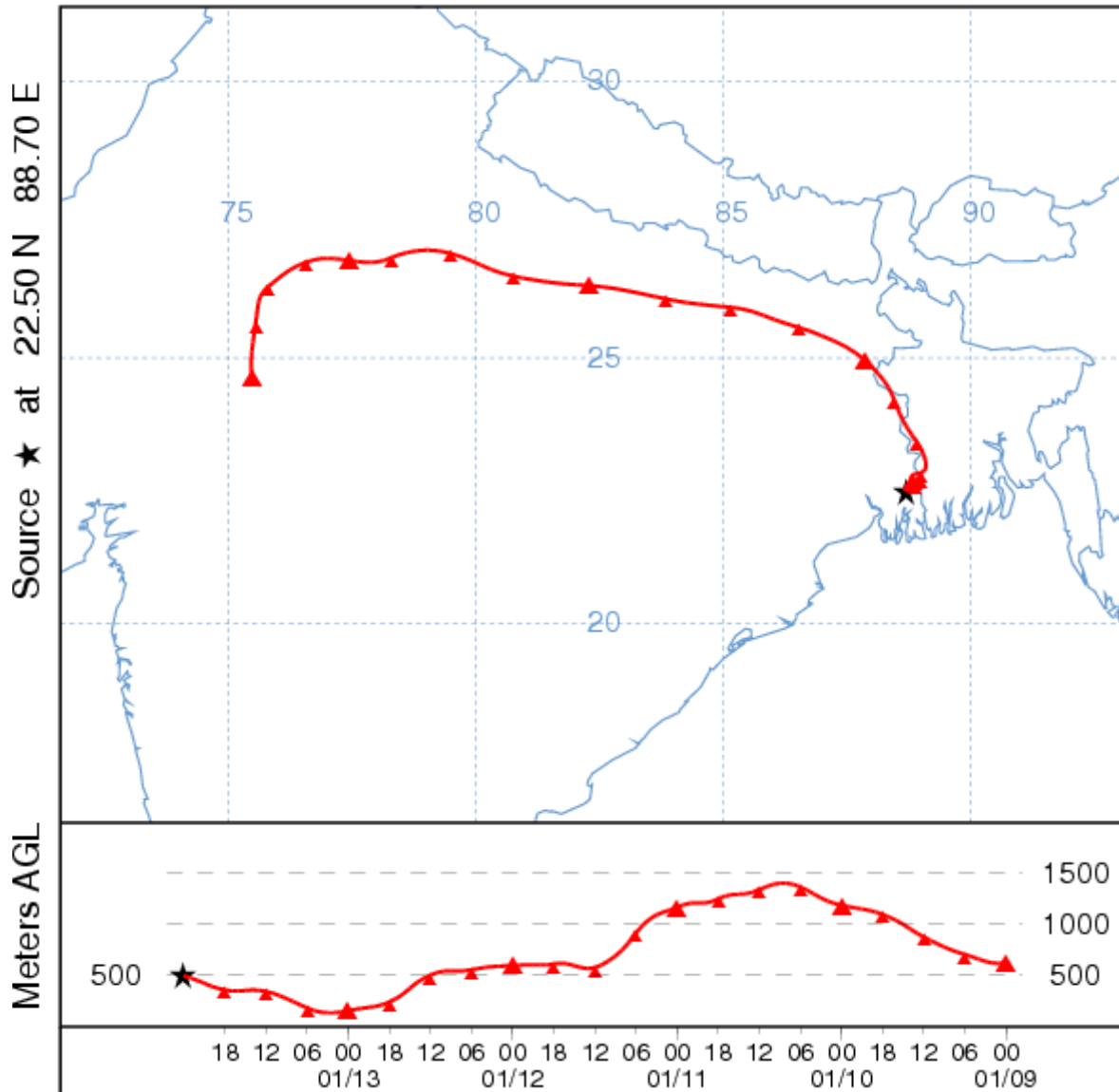


Trajectory Analysis for India

□ MONITORING ACTIVITIES

- **Location:** Port Canning, Sunderban
Located in South 24 Paraganas district of West Bengal, bordering Bangladesh on the Western bank of Matla river of Sunderban delta.
- **Commenced from:** September 2004
- **Parameters:** SO₂, NO₂, RSPM
- **Frequency:** Thrice a week

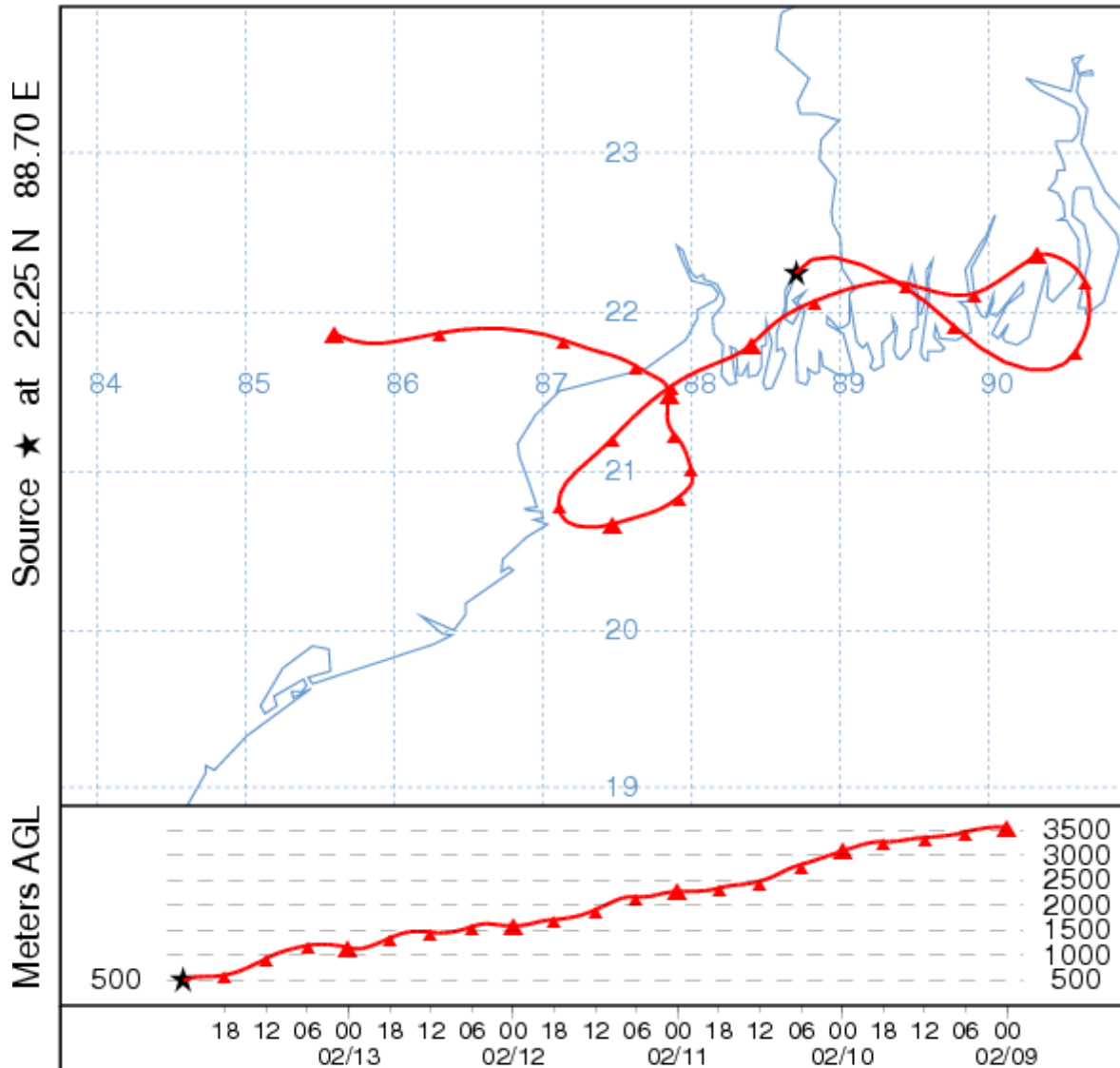
NOAA HYSPLIT MODEL
Backward trajectory ending at 00 UTC 14 Jan 07
GDAS Meteorological Data



Job ID: 391000 Job Start: Thu Jan 31 09:25:38 GMT 2008
Source 1 lat.: 22.5 lon.: 88.7 height: 500 m AGL

Trajectory Direction: Backward Duration: 120 hrs Meteo Data: GDAS1
Vertical Motion Calculation Method: Model Vertical Velocity
Produced with HYSPLIT from the NOAA ARL Website (<http://www.arl.noaa.gov/ready/>)

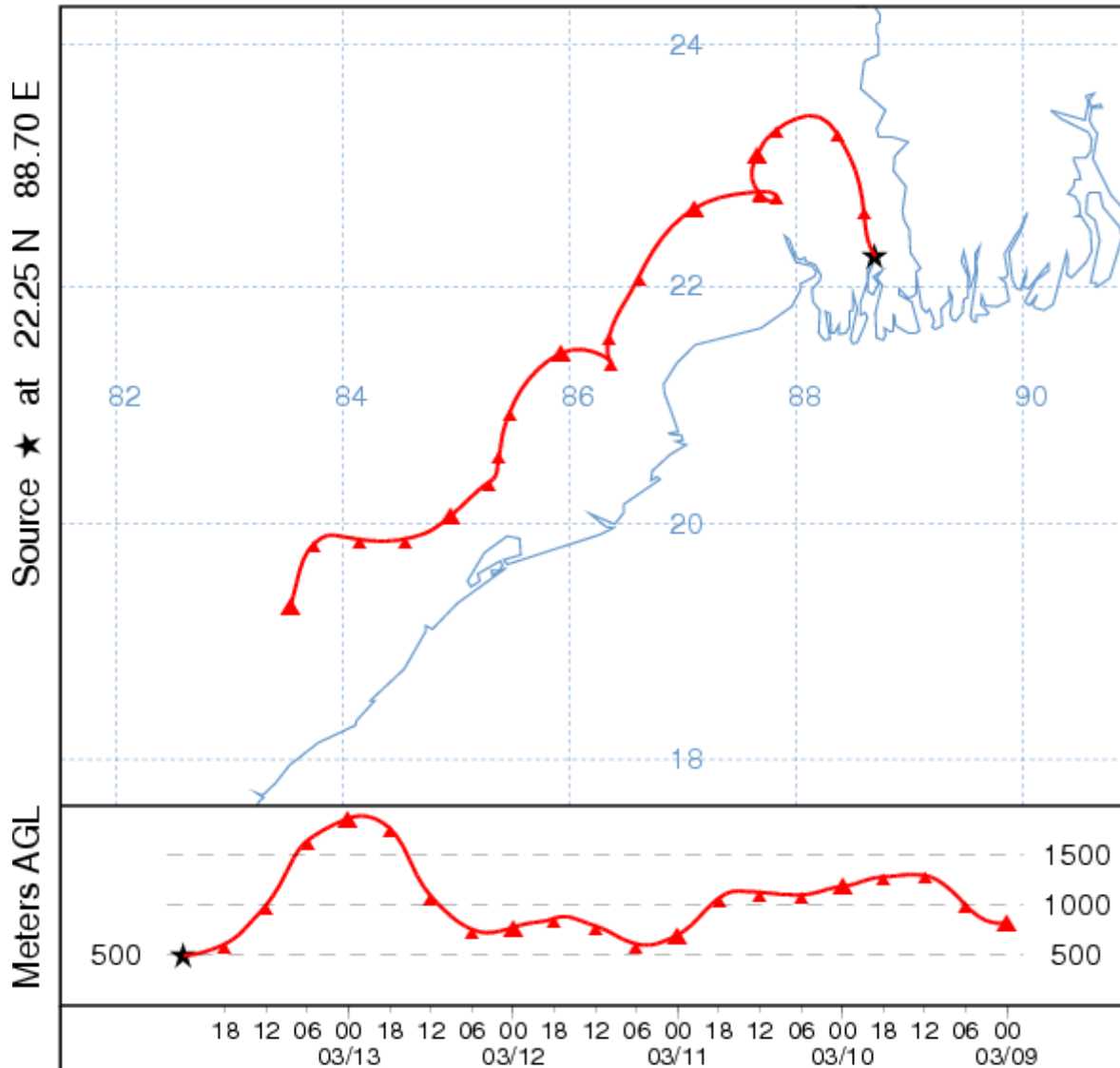
NOAA HYSPLIT MODEL
 Backward trajectory ending at 00 UTC 14 Feb 07
 GDAS Meteorological Data



Job ID: 391554 Job Start: Thu Jan 31 09:39:52 GMT 2008
 Source 1 lat.: 22.25 lon.: 88.7 height: 500 m AGL

Trajectory Direction: Backward Duration: 120 hrs Meteo Data: GDAS1
 Vertical Motion Calculation Method: Model Vertical Velocity
 Produced with HYSPLIT from the NOAA ARL Website (<http://www.arl.noaa.gov/readv/>)

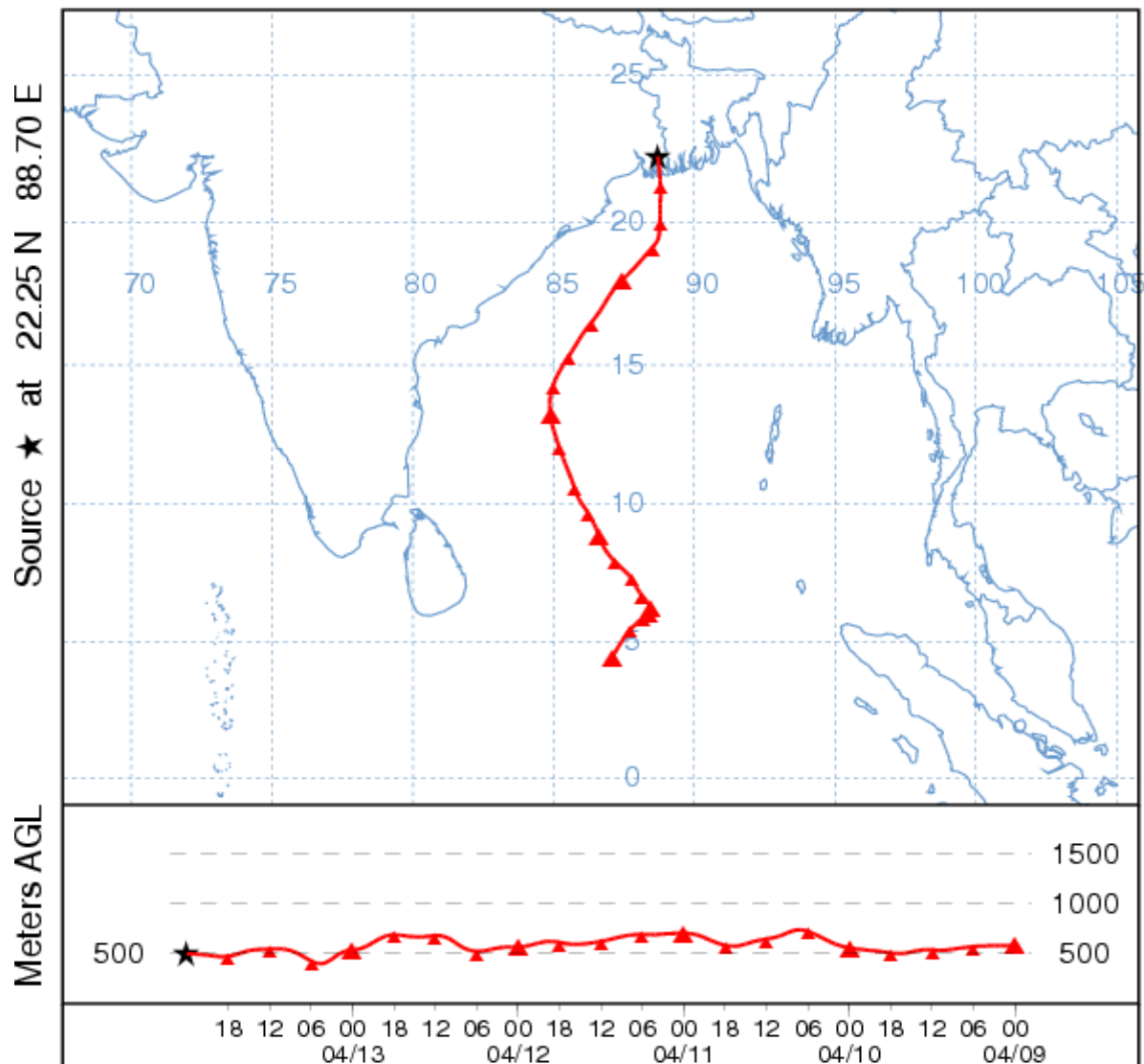
NOAA HYSPLIT MODEL
 Backward trajectory ending at 00 UTC 14 Mar 07
 GDAS Meteorological Data



Job ID: 391629 Job Start: Thu Jan 31 09:42:15 GMT 2008
 Source 1 lat.: 22.25 lon.: 88.7 height: 500 m AGL

Trajectory Direction: Backward Duration: 120 hrs Meteo Data: GDAS1
 Vertical Motion Calculation Method: Model Vertical Velocity
 Produced with HYSPLIT from the NOAA ARL Website (<http://www.arl.noaa.gov/readv/>)

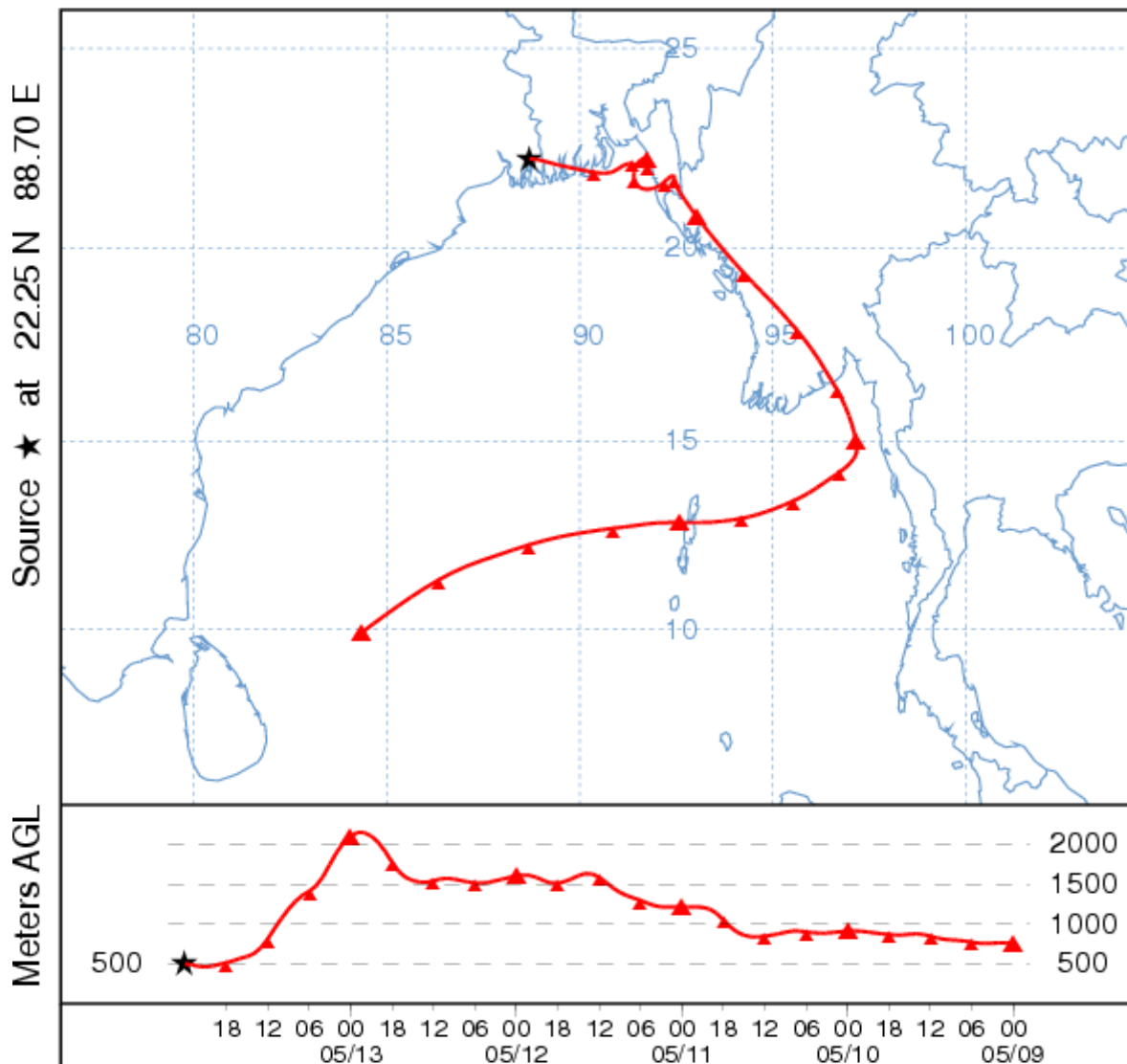
NOAA HYSPLIT MODEL
Backward trajectory ending at 00 UTC 14 Apr 07
GDAS Meteorological Data



Job ID: 391670 Job Start: Thu Jan 31 09:45:05 GMT 2008
Source 1 lat.: 22.25 lon.: 88.7 height: 500 m AGL

Trajectory Direction: Backward Duration: 120 hrs Meteo Data: GDAS1
Vertical Motion Calculation Method: Model Vertical Velocity
Produced with HYSPLIT from the NOAA ARL Website (<http://www.arl.noaa.gov/readv/>)

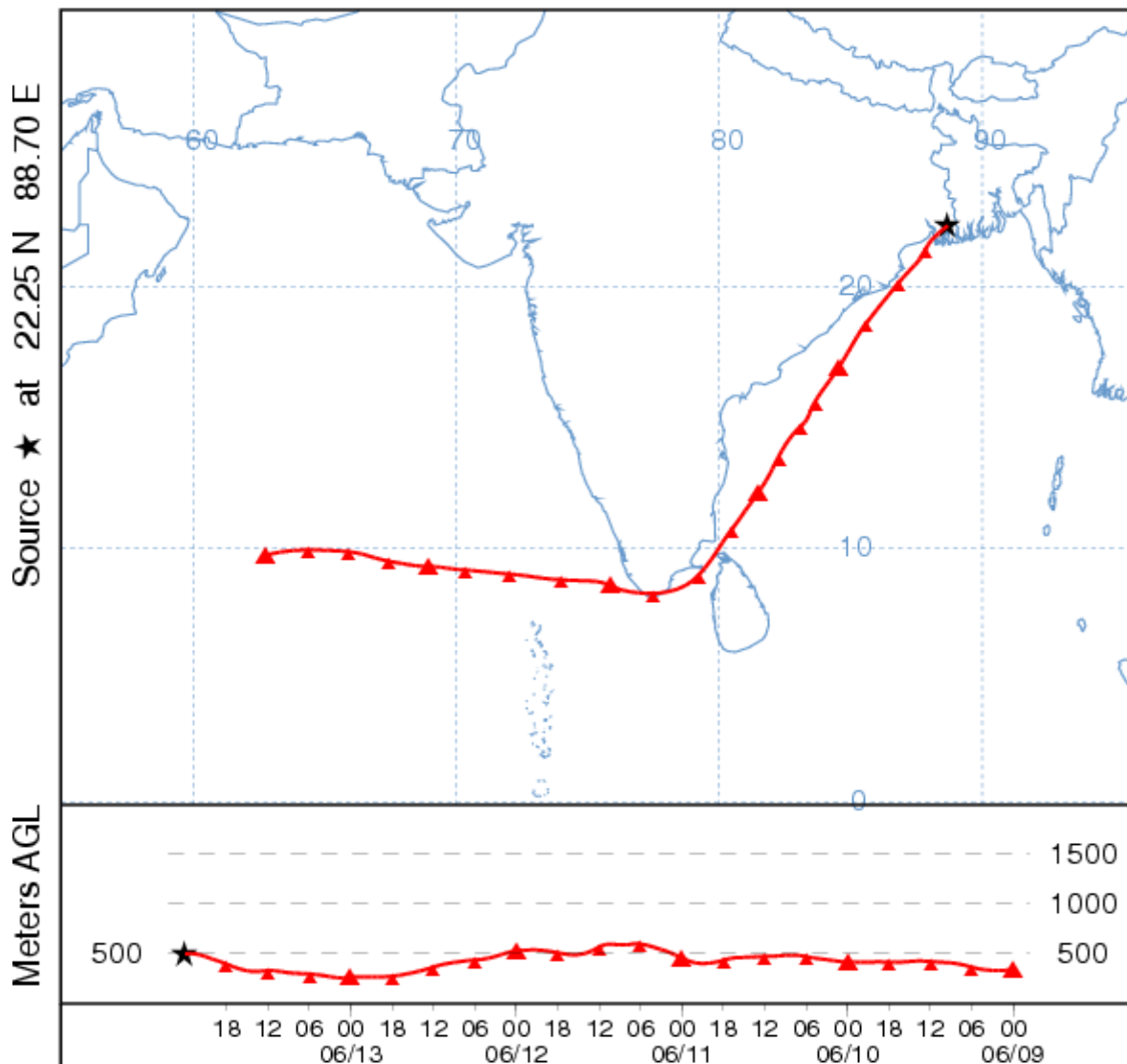
NOAA HYSPLIT MODEL
Backward trajectory ending at 00 UTC 14 May 07
GDAS Meteorological Data



Job ID: 391712 Job Start: Thu Jan 31 09:46:50 GMT 2008
Source 1 lat.: 22.25 lon.: 88.7 height: 500 m AGL

Trajectory Direction: Backward Duration: 120 hrs Meteo Data: GDAS1
Vertical Motion Calculation Method: Model Vertical Velocity
Produced with HYSPLIT from the NOAA ARL Website (<http://www.arl.noaa.gov/readv/>)

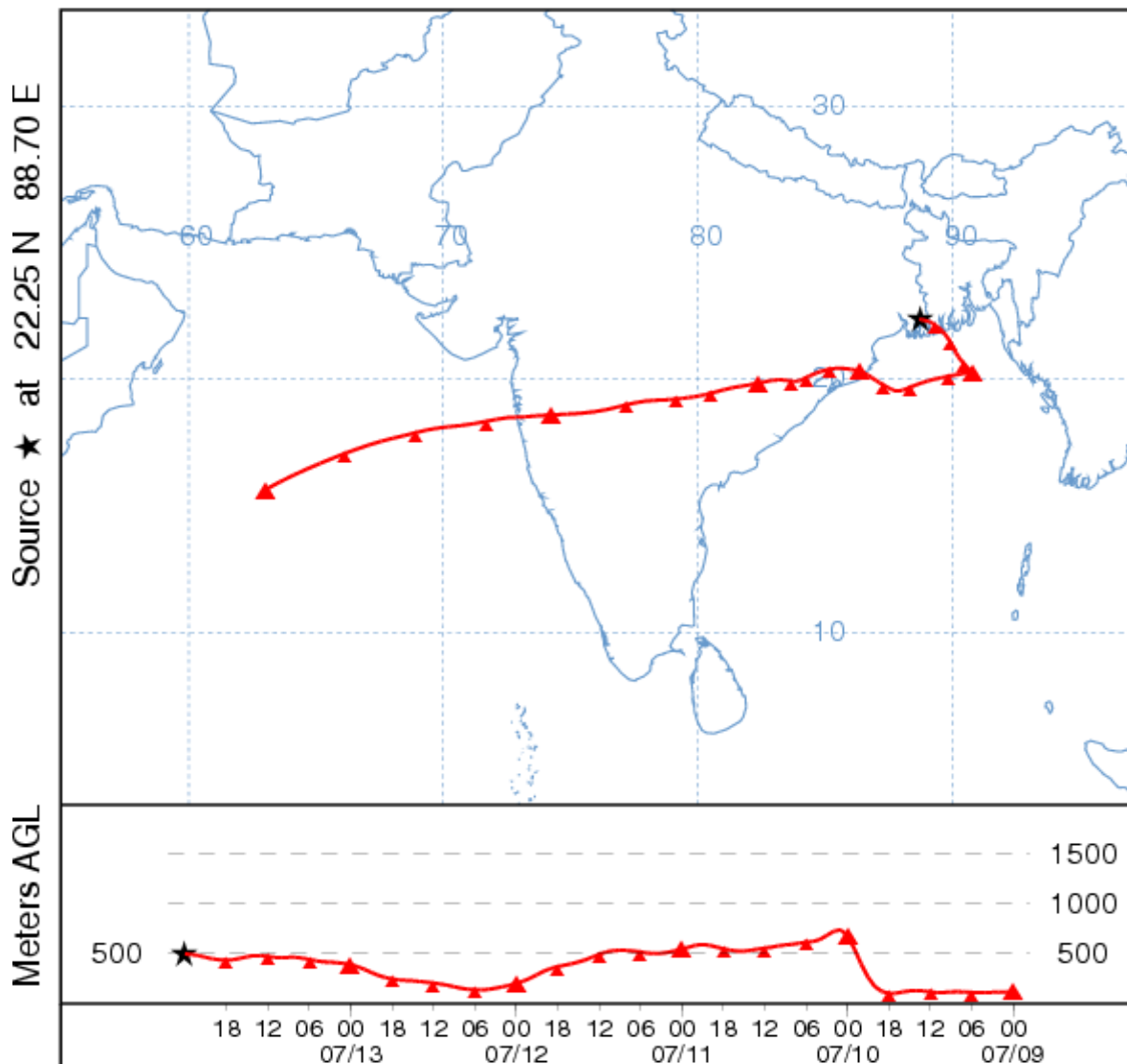
NOAA HYSPLIT MODEL
Backward trajectory ending at 00 UTC 14 Jun 07
GDAS Meteorological Data



Job ID: 391799 Job Start: Thu Jan 31 09:49:24 GMT 2008
Source 1 lat.: 22.25 lon.: 88.7 height: 500 m AGL

Trajectory Direction: Backward Duration: 120 hrs Meteo Data: GDAS1
Vertical Motion Calculation Method: Model Vertical Velocity
Produced with HYSPLIT from the NOAA ARL Website (<http://www.arl.noaa.gov/readv/>)

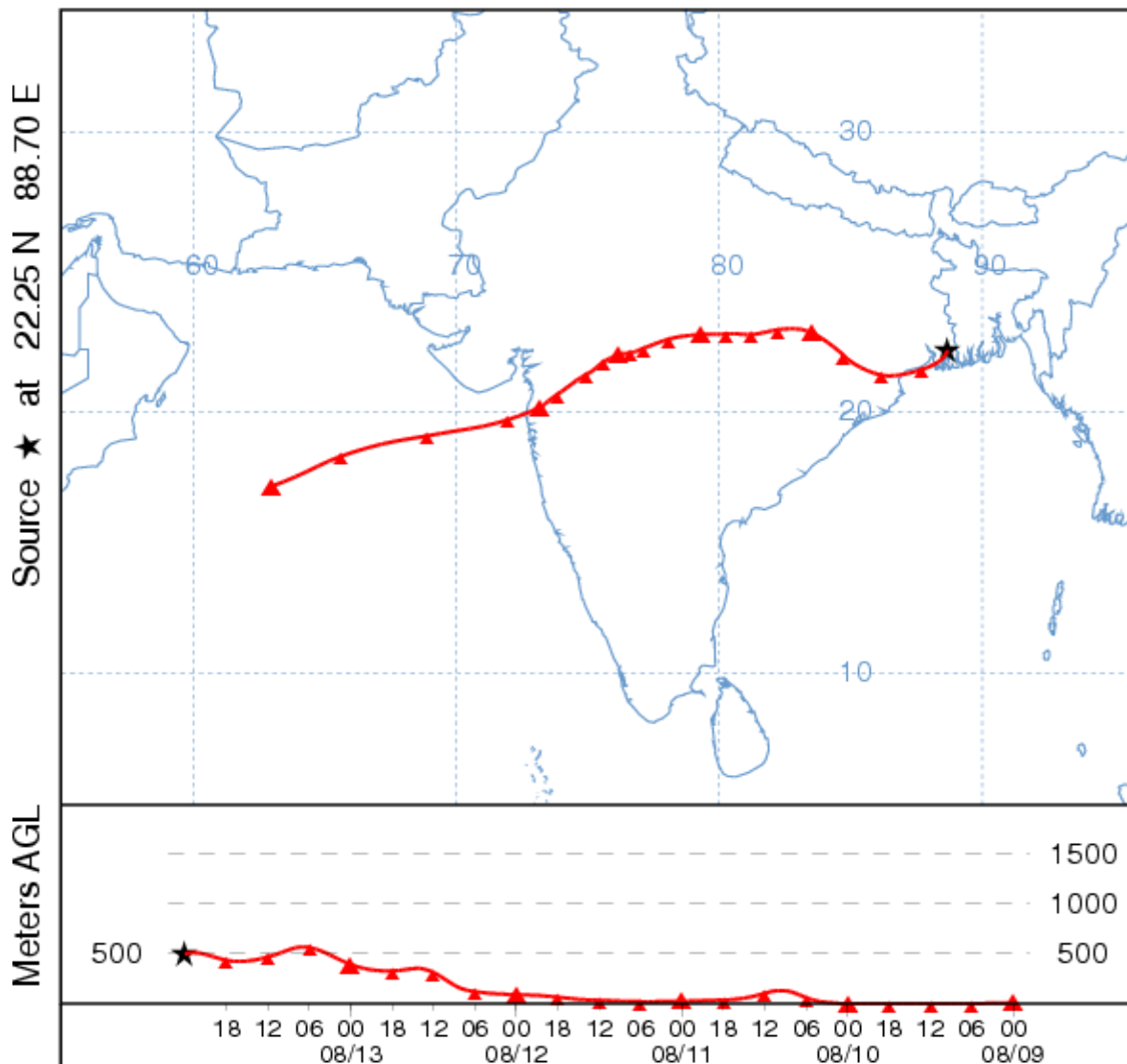
NOAA HYSPLIT MODEL
Backward trajectory ending at 00 UTC 14 Jul 07
GDAS Meteorological Data



Job ID: 391886 Job Start: Thu Jan 31 09:51:19 GMT 2008
Source 1 lat.: 22.25 lon.: 88.7 height: 500 m AGL

Trajectory Direction: Backward Duration: 120 hrs Meteo Data: GDAS1
Vertical Motion Calculation Method: Model Vertical Velocity
Produced with HYSPLIT from the NOAA ARL Website (<http://www.arl.noaa.gov/readv/>)

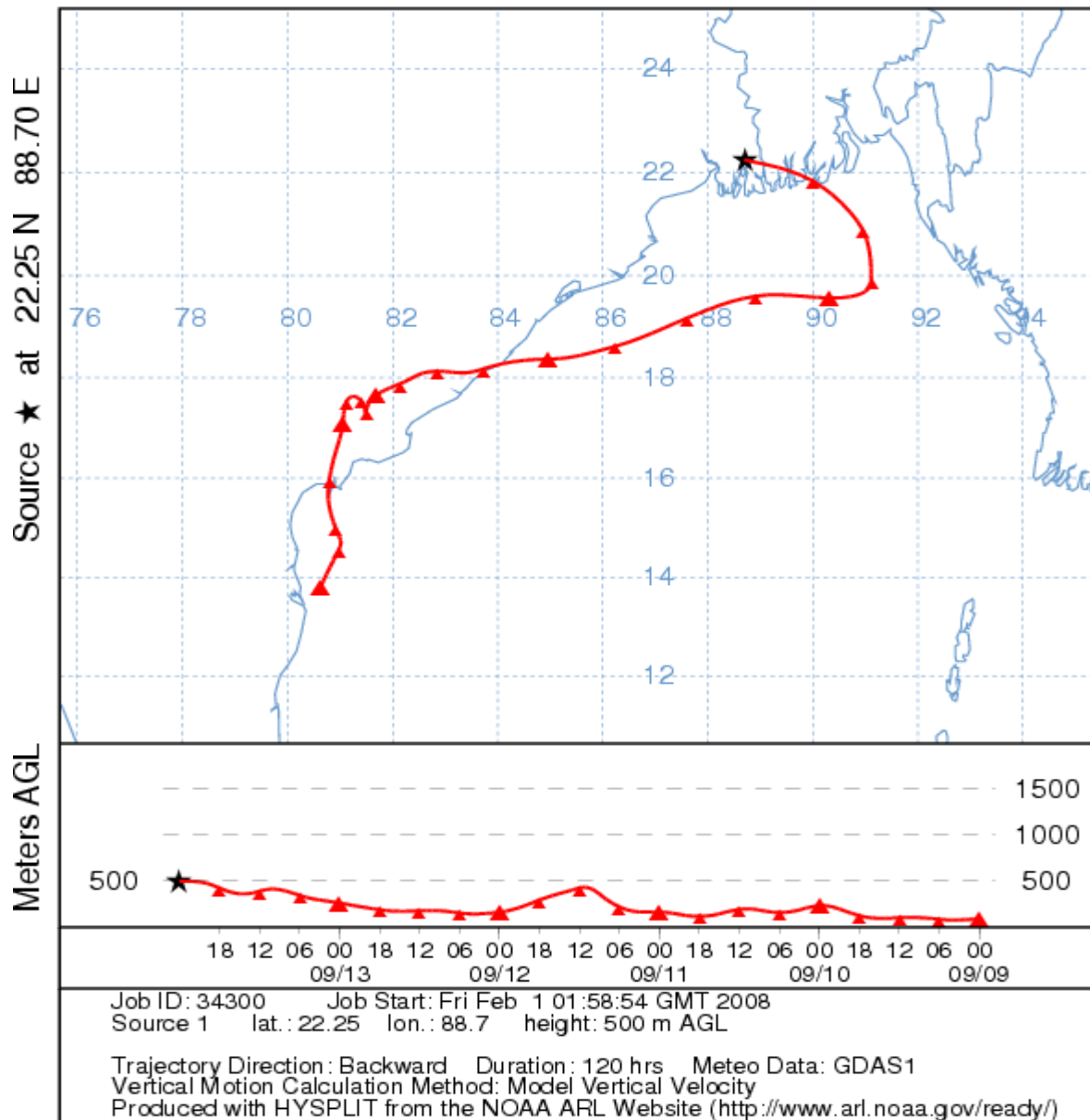
NOAA HYSPLIT MODEL
Backward trajectory ending at 00 UTC 14 Aug 07
GDAS Meteorological Data



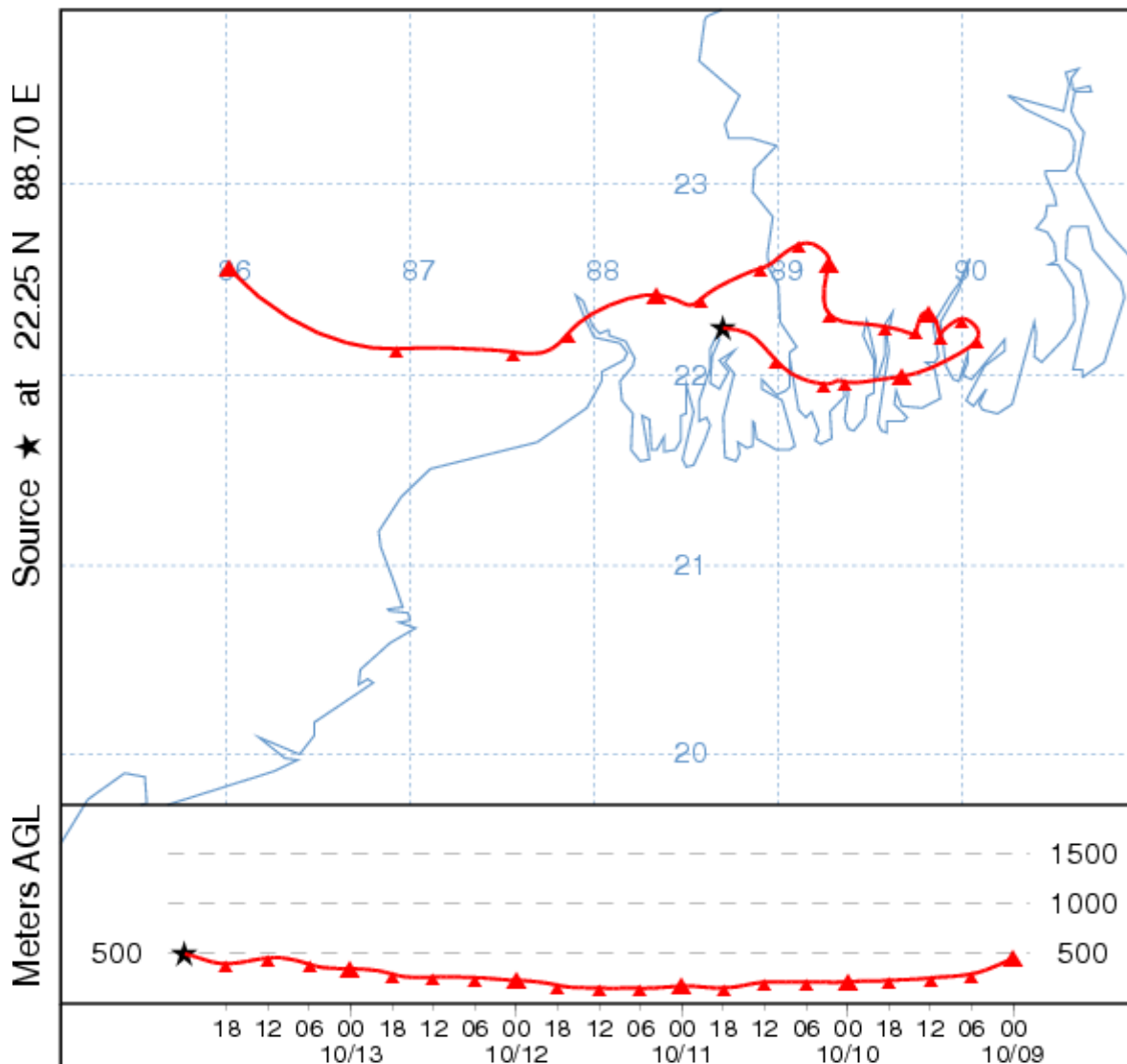
Job ID: 391957 Job Start: Thu Jan 31 09:53:29 GMT 2008
Source 1 lat.: 22.25 lon.: 88.7 height: 500 m AGL

Trajectory Direction: Backward Duration: 120 hrs Meteo Data: GDAS1
Vertical Motion Calculation Method: Model Vertical Velocity
Produced with HYSPLIT from the NOAA ARL Website (<http://www.arl.noaa.gov/ready/>)

NOAA HYSPLIT MODEL
 Backward trajectory ending at 00 UTC 14 Sep 07
 GDAS Meteorological Data



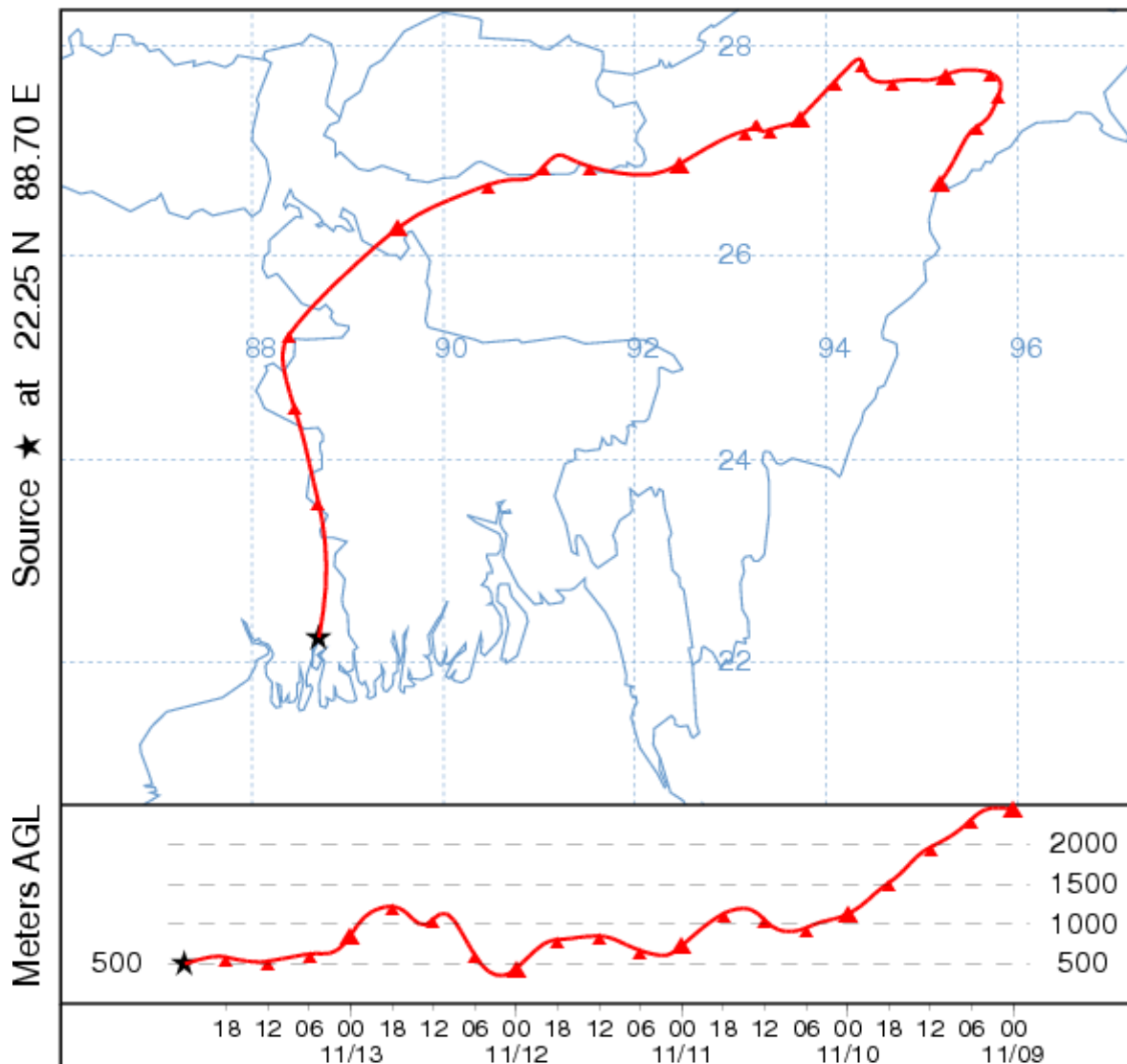
NOAA HYSPLIT MODEL
 Backward trajectory ending at 00 UTC 14 Oct 07
 GDAS Meteorological Data



Job ID: 34371 Job Start: Fri Feb 1 02:01:44 GMT 2008
 Source 1 lat.: 22.25 lon.: 88.7 height: 500 m AGL

Trajectory Direction: Backward Duration: 120 hrs Meteo Data: GDAS1
 Vertical Motion Calculation Method: Model Vertical Velocity
 Produced with HYSPLIT from the NOAA ARL Website (<http://www.arl.noaa.gov/readv/>)

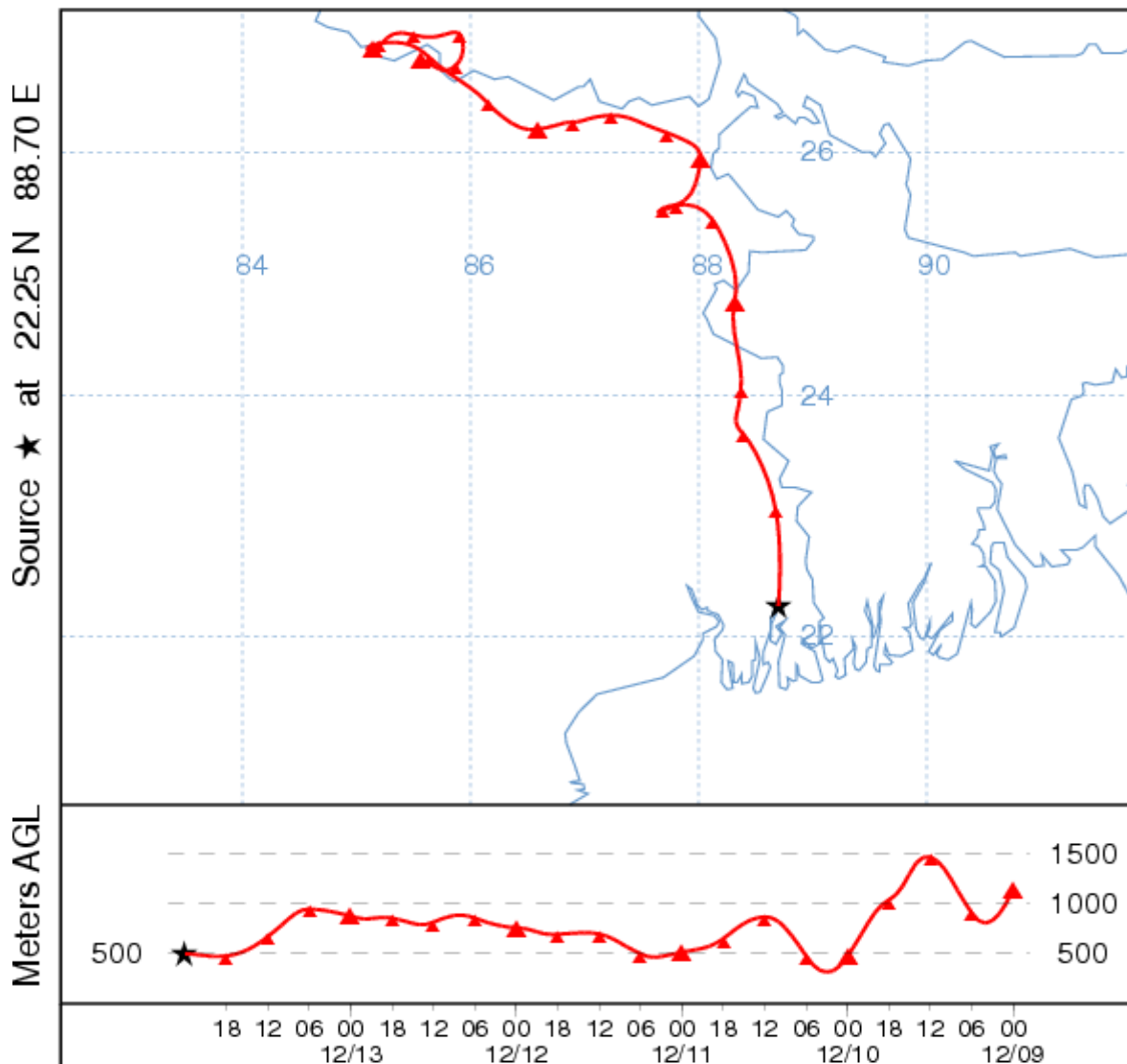
NOAA HYSPLIT MODEL
Backward trajectory ending at 00 UTC 14 Nov 07
GDAS Meteorological Data



Job ID: 34529 Job Start: Fri Feb 1 02:06:48 GMT 2008
Source 1 lat.: 22.25 lon.: 88.7 height: 500 m AGL

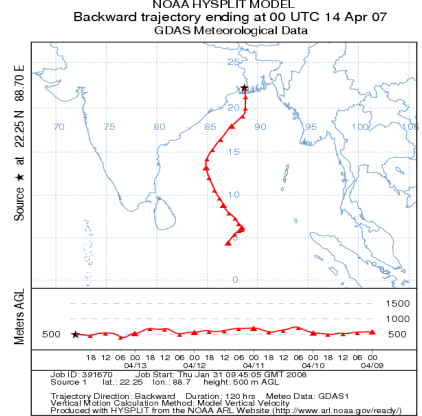
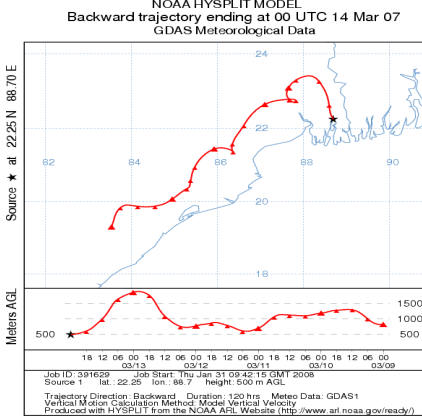
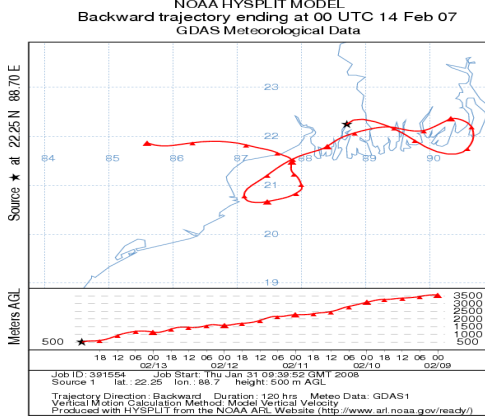
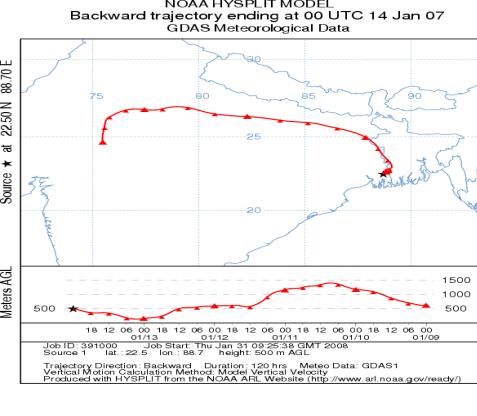
Trajectory Direction: Backward Duration: 120 hrs Meteo Data: GDAS1
Vertical Motion Calculation Method: Model Vertical Velocity
Produced with HYSPLIT from the NOAA ARL Website (<http://www.arl.noaa.gov/readv/>)

NOAA HYSPLIT MODEL
Backward trajectory ending at 00 UTC 14 Dec 07
GDAS Meteorological Data

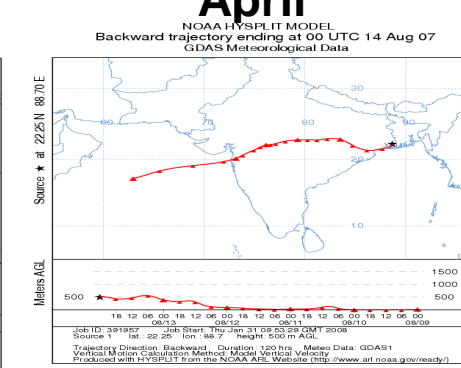
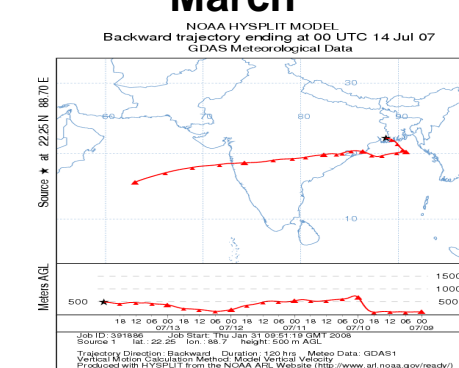
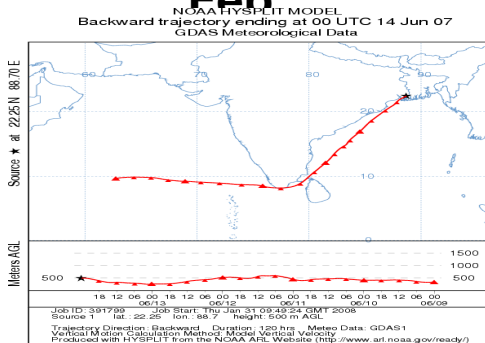
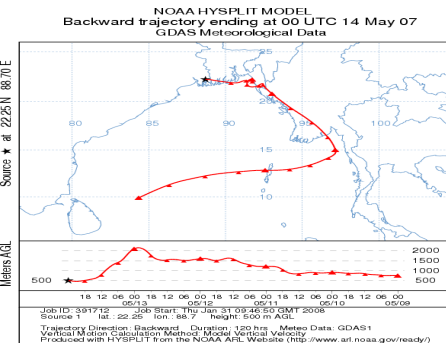


Job ID: 34598 Job Start: Fri Feb 1 02:09:34 GMT 2008
Source 1 lat.: 22.25 lon.: 88.7 height: 500 m AGL

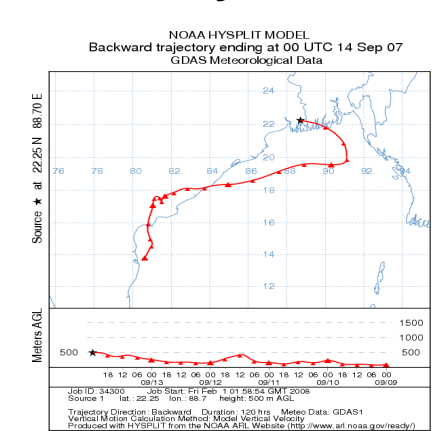
Trajectory Direction: Backward Duration: 120 hrs Meteo Data: GDAS1
Vertical Motion Calculation Method: Model Vertical Velocity
Produced with HYSPLIT from the NOAA ARL Website (<http://www.arl.noaa.gov/readv/>)



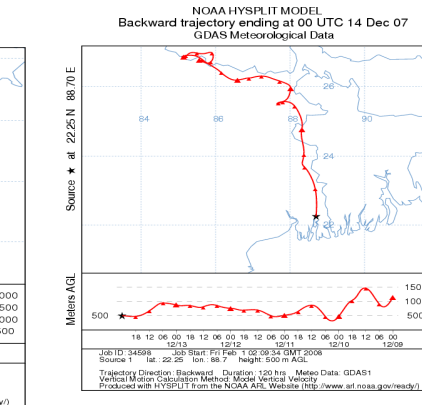
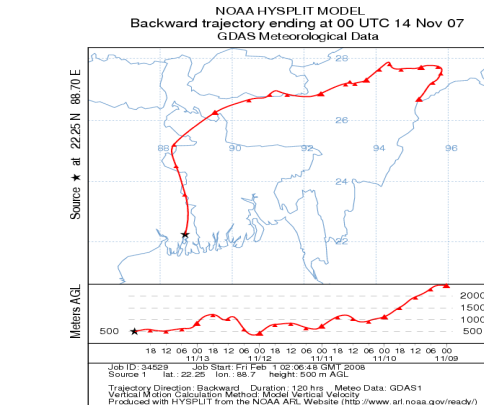
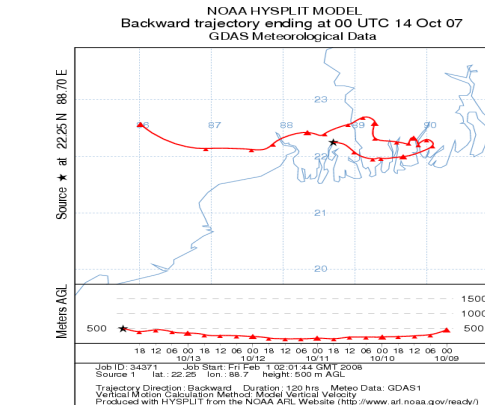
Jan



May



June

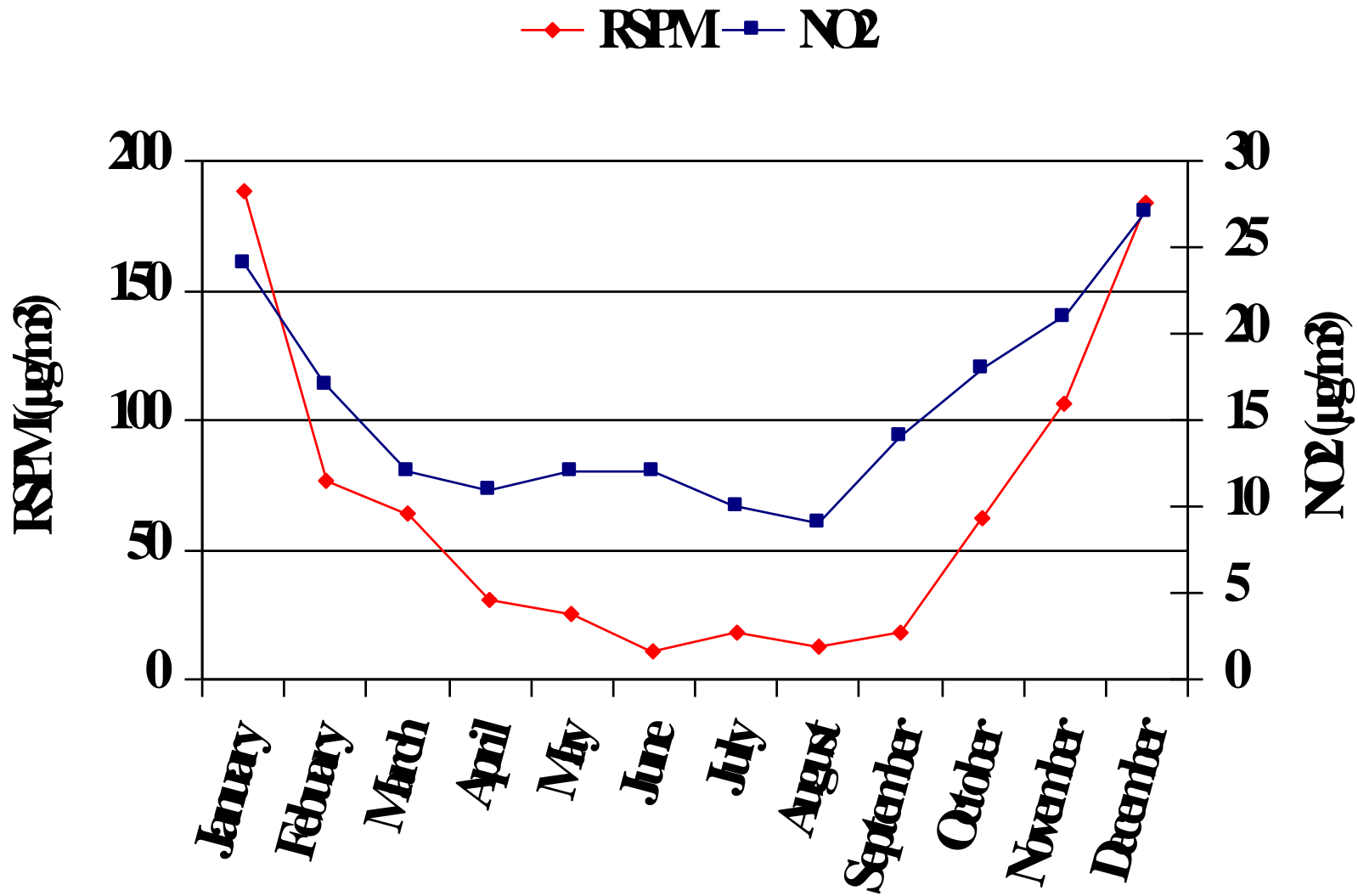


Sept.

Oct

Nov

Dec



Data of Sunderbans (Monthly Average during 2007)

Findings

- Air parcel is coming from land surface in Jan to March and Oct to Dec.
- Air parcel is coming from oceans during April to Sept
- Levels are lower during monsoons due to wet deposition and also air coming from oceans is cleaner
- Levels are higher during winter months as air is coming from land surface and mixing height is lower.