West Virginia Department of Environmental Protection
Comments on EPA's Proposed
Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS

The *Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS* (CSAPR Update) proposal significantly reduces the ozone season NO_x budgets for numerous states in the eastern United States, including West Virginia, making them much more stringent than the existing CSAPR budgets. The proposed 2017 ozone season budget of 13,390 tons for West Virginia is 42.5% below the current 2017 budget of 23,291 tons and a 47% decrease from the 2016 budget of 25,283 tons. The proposed 2017 new source set-aside of 268 tons is 77% below the current 2017 set-aside of 1,165 tons and a 78.8% decrease from the 2016 set-aside of 1,264 tons. In addition, the proposed 2017 variability limit of 2,821 tons is 42.5% below the current variability limit of 4,891 tons.

The EPA acknowledged in the preamble that these significant reductions will have minimal effect on ozone concentrations and the ability of an area to attain the standard. In fact, EPA cites the example of the Harford County Maryland receptor where it found that even at a cost threshold of $1,300 per ton the residual design value at the site (after implementation of the proposal) would exceed the 2008 ozone NAAQS with an average design value of 80.6 ppb and a maximum design value of 83.3 ppb. 80 Fed. Reg. 75735. However, EPA has already made the determination that the Baltimore, Maryland area (which includes the Harford County monitor) attained the 2008 ozone NAAQS, 80 Fed. Reg. 30941, June 1, 2015, without the implementation of this proposal.

The fact EPA modeling predicted that an area will not be able to attain the 2008 ozone NAAQS with the implementation of the proposal, that EPA has already found to be in attainment with the standard is a strong indication that EPA's modeling is seriously flawed.

The EPA's promulgation of this proposed rule is unwarranted and unnecessary. WVDEP has identified the following issues with the proposal and requests that EPA withdraw the proposal. If EPA decides to re-propose the rule, it should be based on the most recent air quality data and improved modeling inputs and allow for a comment period before finalizing the rule.

Issue 1: The $1,300 per ton of NO_x reduction criteria does not represent the actual NOx reductions that are available at West Virginia EGUs.

Comment 1: Some West Virginia EGUS are optimally operating their NOx reduction controls and should be assigned a $0 cost reduction criterion. Others West Virginia EGUs are partially operating their controls and should be assigned the $500 cost reduction criterion. Some, but not many, West Virginia EGUs might appropriately be assigned the $1,300 cost reduction criterion. EPA's use of the $1,300 criterion for all EGUs results in it vastly overestimating the NOx reductions available in West Virginia. EPA has the data necessary to determine which cost reduction criterion should be assigned to each EGU. If EPA has any difficulty making this determination, state and local regulatory agencies are available to assist it in making accurate cost reduction criterion determinations. EPA's blanket use of an improper $1,300 cost reduction

criterion for all EGUs is arbitrary and capricious. EPA should have assigned the readily available accurate cost reduction criteria to EGUs in its modeling for this rule.

Issue 2: EPA's calculation of a 2017 emission budget using factors that have no rational relationship to one another.

Comment 2: EPA has no rationale for basing its 2017 emission budget upon a calculation that mixes 2014 actual heat input data with a projected 2018 emission rate. EPA's TSD explains that the 2017 emission budget is based upon the lower of the emission budget calculated from: (1) the projected 2018 heat input and the projected 2018 emissions; and (2) the 2014 actual heat input and the projected 2018 emission rate. While the first of these calculations consistently uses projected 2018 values, and 2018 values may reasonably approximate 2017 conditions, the second calculation mixes 2014 actual values with 2018 projected values which have absolutely no relationship to one another. The latter calculation is introduced solely for purposes of producing a lower emission budget result without any logic or rationale supporting it. The establishment of a 2017 emission budget based upon this latter calculation is arbitrary and capricious.

Issue 3: The proposed rule is not based upon the same data upon which the final rule will be based.

Comment 3: As discussed in EPA's preamble, 80 Fed. Reg. 75720, data revisions made by states to both the 2011 NEI emission data and in response to a Notice of Data Availability, 80 Fed. Reg. 46271, were not used in the proposed rule's emission calculations. Due to EPA's failure to use the most recent quality assured data, EPA's proposed budgets are fatally flawed and states and other stakeholders are denied the opportunity to comment on a valid rule proposal. EPA has stated it will remedy this shortcoming by using the updated data when promulgating the final rule. However, use of the most accurate data is something EPA must do in a proposed rule. Again, commenters must have the opportunity to address a valid proposal in the first instance, not at the final rule stage when there is no opportunity to correct any errors. EPA has acknowledged that its final rule will be based upon a completely different data set than its proposed rule. This procedure fails to comply with section 307 of the Clean Air Act. WVDEP requests that EPA withdraw the proposal. If EPA decides to re-propose the rule, it should base it on the most recent air quality data and improved modeling inputs and allow for a comment period before finalizing the rule.

Issue 4: Lack of impact on downwind receptors from implementation of the proposal.

Comment 4: As stated in the rule's preamble, 80 Fed. Reg. 75737, and supporting documentation, the effects on downwind receptors is minimal. The predicted effect on downwind receptor ozone concentration due to implementation of the proposed rule only has minor impact on the ability of these receptors to comply with the 2008 ozone NAAQS. Even if West Virginia shut down every EGU, the effect on downwind receptor ozone concentration would still not be enough for these

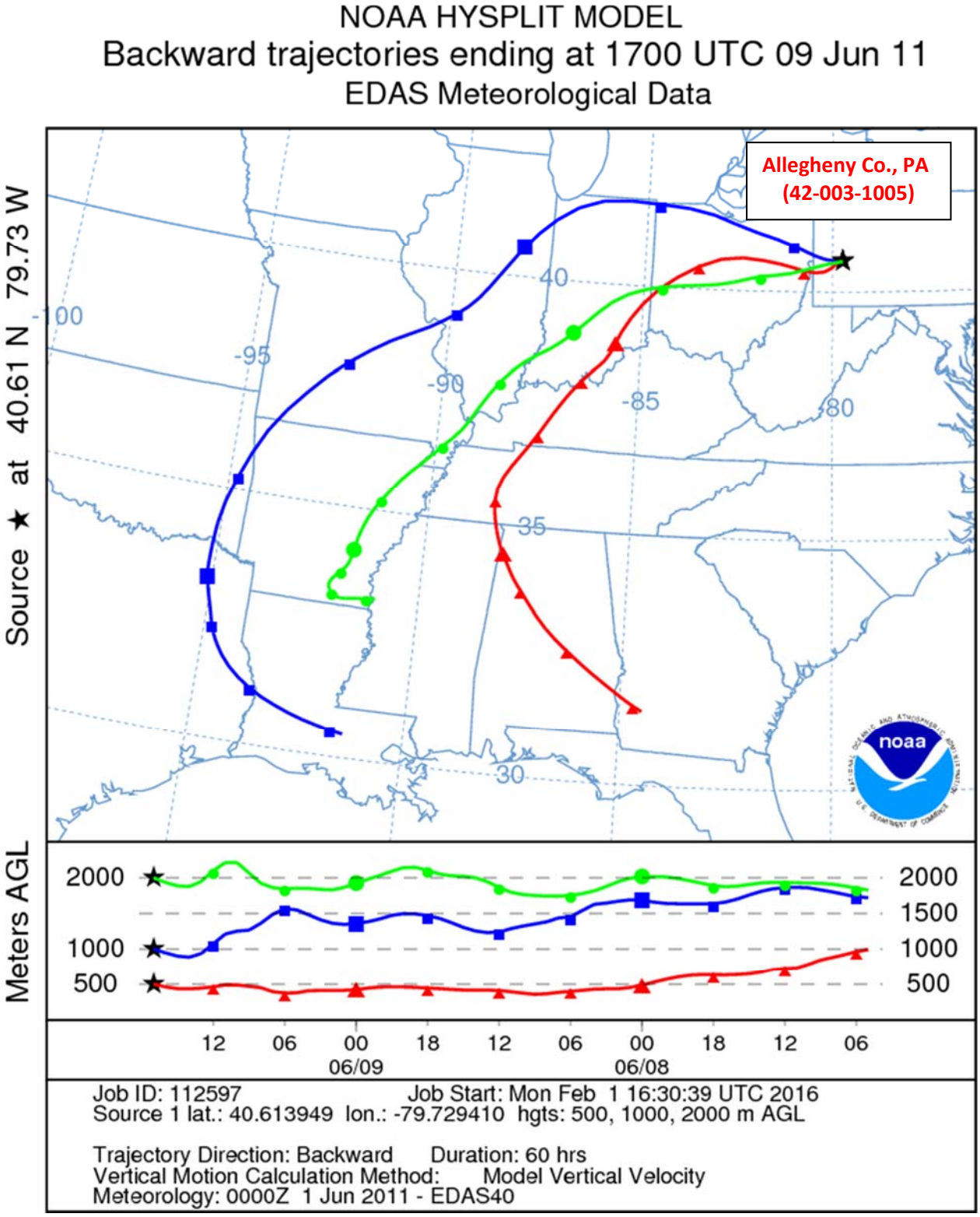
receptors to comply with the ozone standard. Therefore, it appears these receptor's inability to comply with the NAAQS is a local issue rather than an ozone transport issue. If West Virginia EGUs cannot impact downwind attainment, the WVDEP must question the propriety of requiring good neighbor SIP provisions for West Virginia.

Issue 5: Impact on downwind receptors.

Comment 5: The rule's air modeling results allege West Virginia's EGUs are impacting downwind receptors (air monitoring sites). The proposal identifies fourteen downwind receptors (two nonattainment and twelve maintenance) that may be influenced by emissions from West Virginia. To determine what impact West Virginia EGUs are having on these receptors, WVDEP looked at each receptor's fourth highest ozone concentration in 2011. EPA's technical supporting documents indicate the 2011 summer meteorological conditions were conducive to ozone formation, and 2011 meteorological data was used in the 2017 forecast modeling, therefore, 2011 was selected for analyzing West Virginia's influence on the fourth highest ozone concentration at these receptors.

The 2011 ozone concentration date and receptor's longitude and latitude were used as inputs to the National Oceanic and Atmospheric Administration's (NOAA) Hybrid Single Particle Lagrangian Integrated Trajectory Model (HYSPLIT). This model is used to show wind trajectories that reach a particular point at a particular point in time, using known meteorological data. West Virginia ran the HYSPLIT model for each receptor to determine the backward wind trajectory from that receptor preceding its fourth high ozone concentration for 2011. Each trajectory was run for the 60 hours preceding the day of the receptor's measured fourth high ozone concentration. In each receptor model run, HYSPLIT shows the wind patterns were such that West Virginia EGU emissions would have not been contributing to those downwind receptor's ozone concentrations. A copy of the HYSPLIT trajectories are attached.

These modeling results show emissions from West Virginia EGUs have minimal impact on the identified downwind receptors. This real world information further demonstrates that elevated ozone concentrations at each receptor are most likely caused by local emission sources.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(42-003-1005)
Source ★ at 40.61 N 79.73 W
-100
-95
-90
-85
-80
40
35
30
noaa
Meters AGL
2000
1000
500
2000
1500
1000
500
12
06
00
18
12
06
00
18
12
06
06/09
06/08
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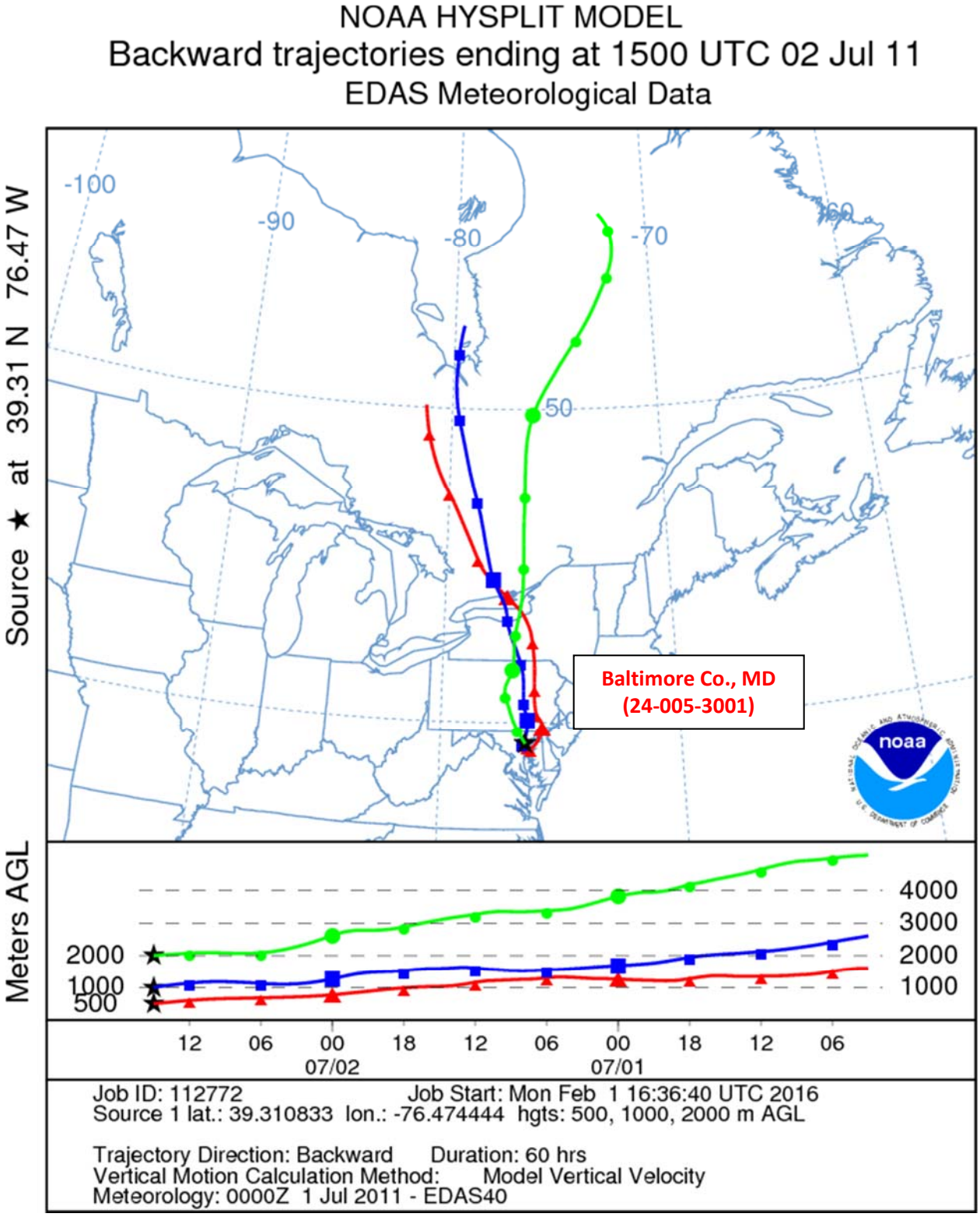
Vertical Motion Calculation Method: Model Vertical Velocity
Meteorology: 0000Z 1 Jun 2011 - EDAS40


NOAA HYSPLIT MODEL
Backward trajectories ending at 1500 UTC 02 Jul 11
EDAS Meteorological Data
Source ★ at 39.31 N 76.47 W
-100
-90
-80
-70
-60
50
Baltimore Co., MD
(24-005-3001)
noaa
Meters AGL
4000
3000
2000
1000
2000
1000
500
12
06
00
18
12
06
00
18
12
06
07/02
07/01
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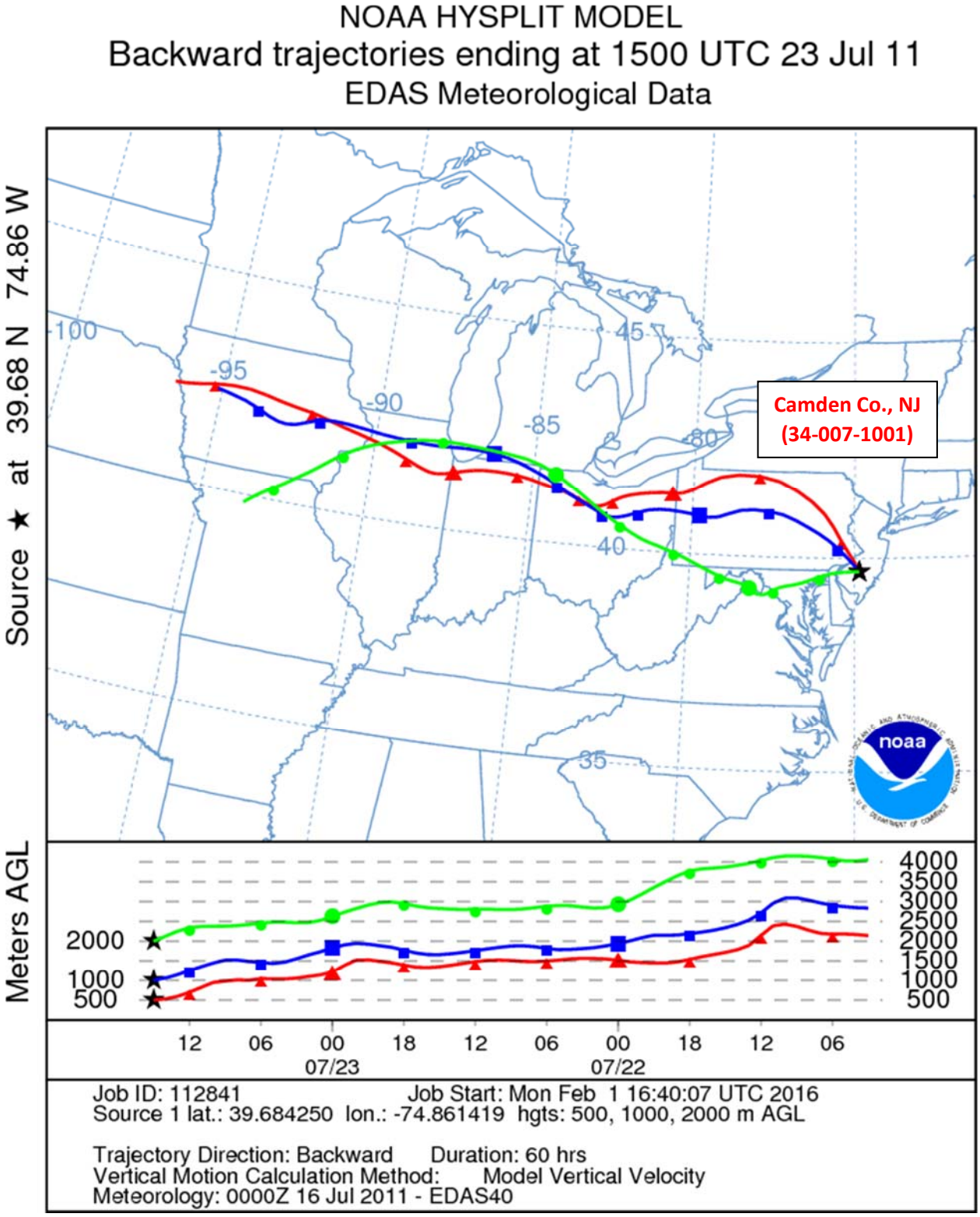
Meteorology: 0000Z 1 Jul 2011 - EDAS40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Backward trajectories ending at 1500 UTC 23 Jul 11
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(34-007-1001)
-100
-95
-90
-85
-80
45
40
35
noaa
Meters AGL
2000
1000
500
4000
3500
3000
2500
2000
1500
1000
500
12
06
00
18
12
06
00
18
12
06
07/23
07/22
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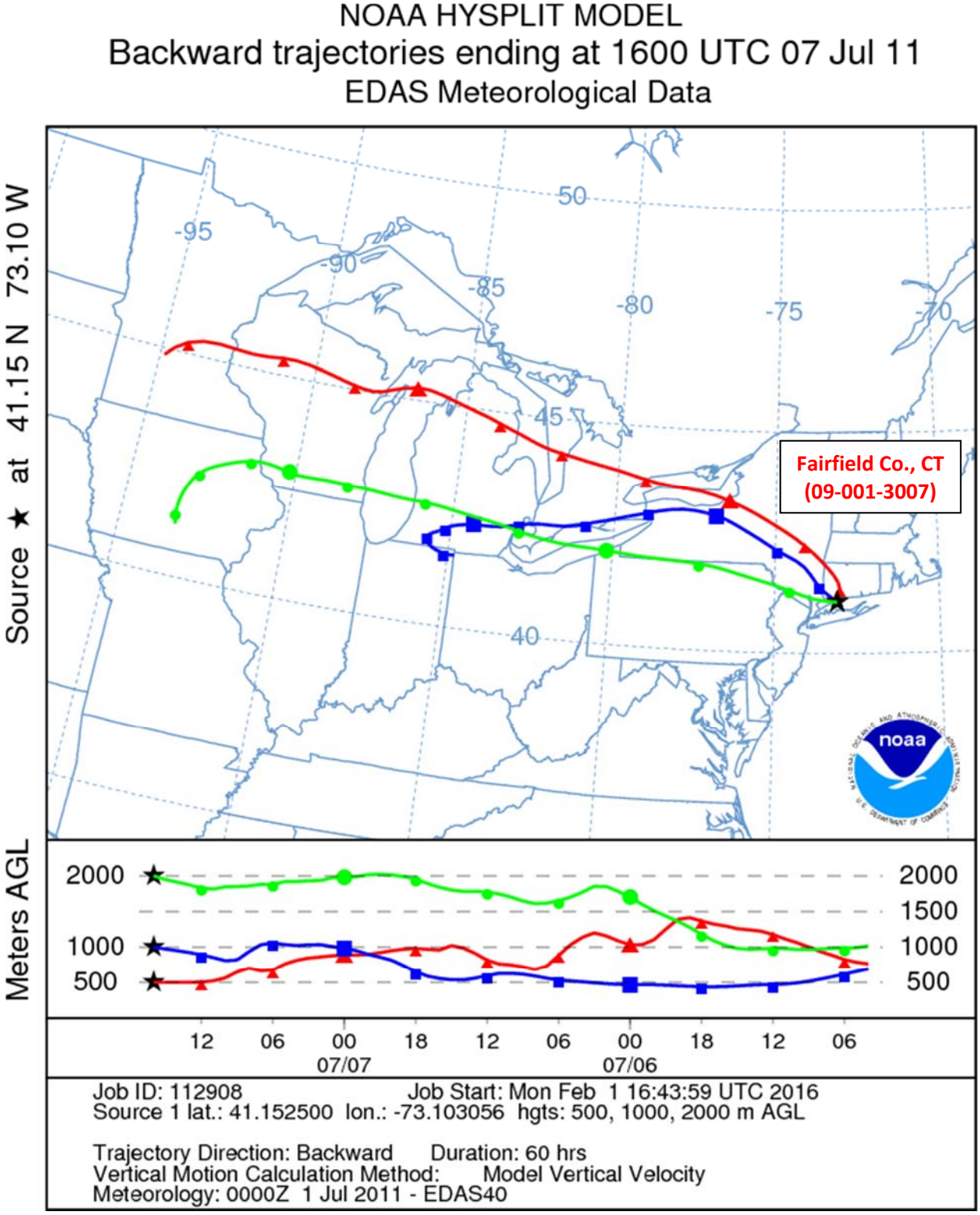
Vertical Motion Calculation Method: Model Vertical Velocity
Meteorology: 0000Z 16 Jul 2011 - EDAS40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Backward trajectories ending at 1600 UTC 07 Jul 11
EDAS Meteorological Data
Source ★ at 41.15 N 73.10 W
Fairfield Co., CT
(09-001-3007)
-95
-90
-85
-80
-75
-70
50
45
40
noaa
Meters AGL
2000
1000
500
2000
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500
12
06
00
18
12
06
00
18
12
06
07/07
07/06
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Source 1 lat.: 41.152500 lon.: -73.103056 hgts: 500, 1000, 2000 m AGL
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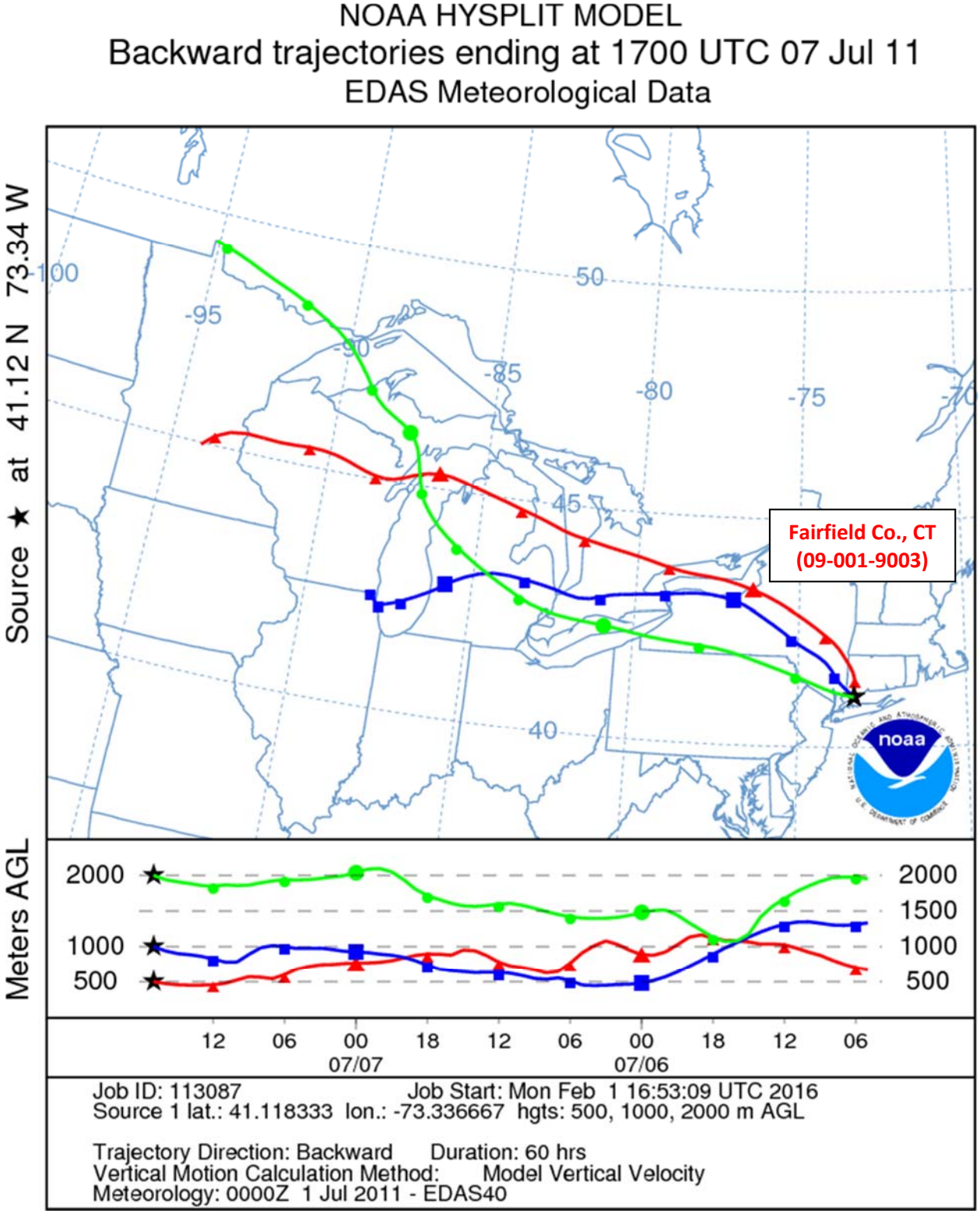
Vertical Motion Calculation Method: Model Vertical Velocity
Meteorology: 0000Z 1 Jul 2011 - EDAS40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Backward trajectories ending at 1700 UTC 07 Jul 11
EDAS Meteorological Data
Source ★ at 41.12 N 73.34 W
Fairfield Co., CT
(09-001-9003)
Meters AGL
2000
1000
500
2000
1500
1000
500
12 06 00 18 12 06 00 18 12 06
07/07
07/06
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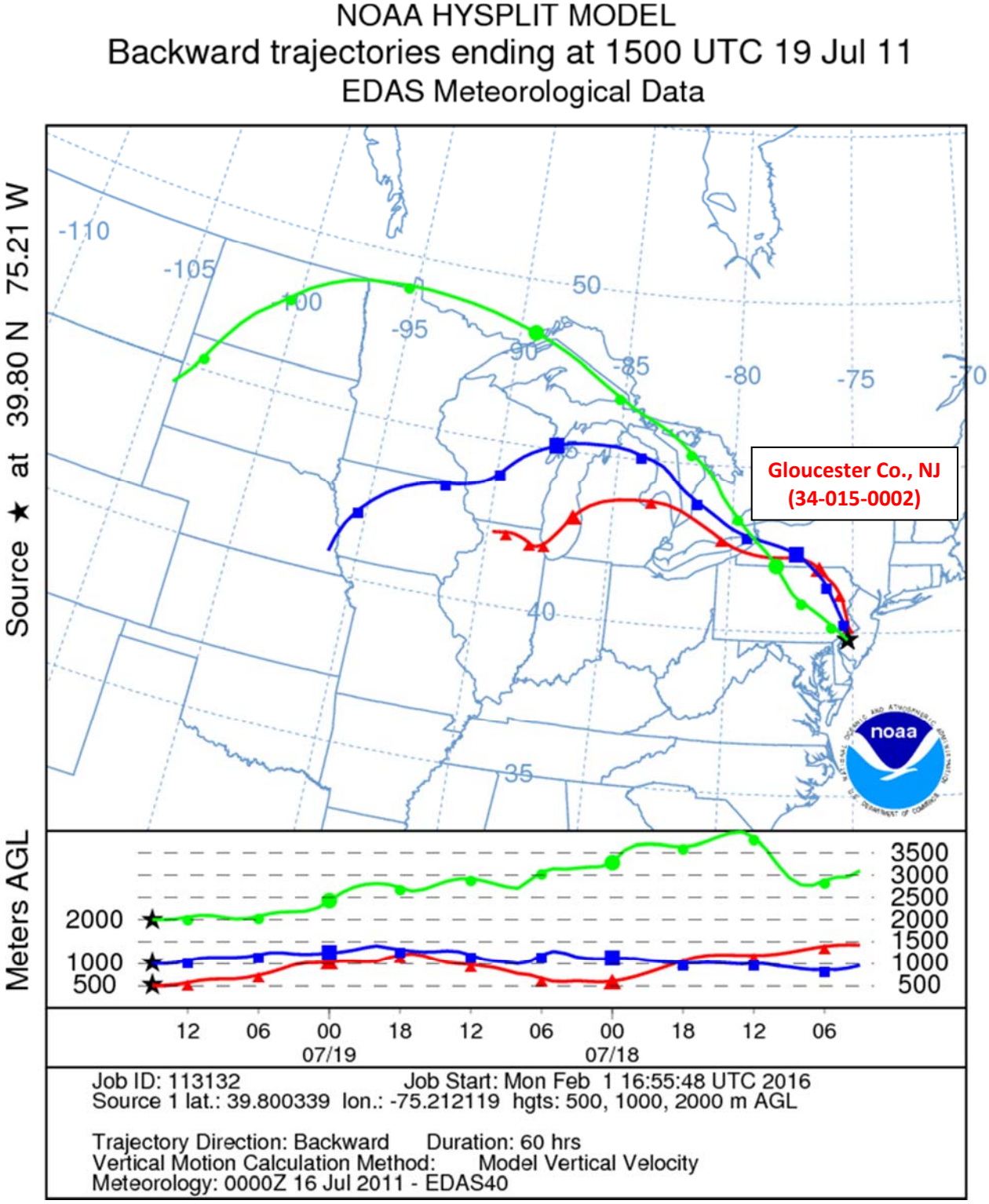
Vertical Motion Calculation Method: Model Vertical Velocity
Meteorology: 0000Z 1 Jul 2011 - EDAS40


NOAA HYSPLIT MODEL
Backward trajectories ending at 1500 UTC 19 Jul 11
EDAS Meteorological Data
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Gloucester Co., NJ
(34-015-0002)
Meters AGL
3500
3000
2500
2000
1500
1000
500
2000
1000
500
12 06 00 18 12 06 00 18 12 06
07/19
07/18
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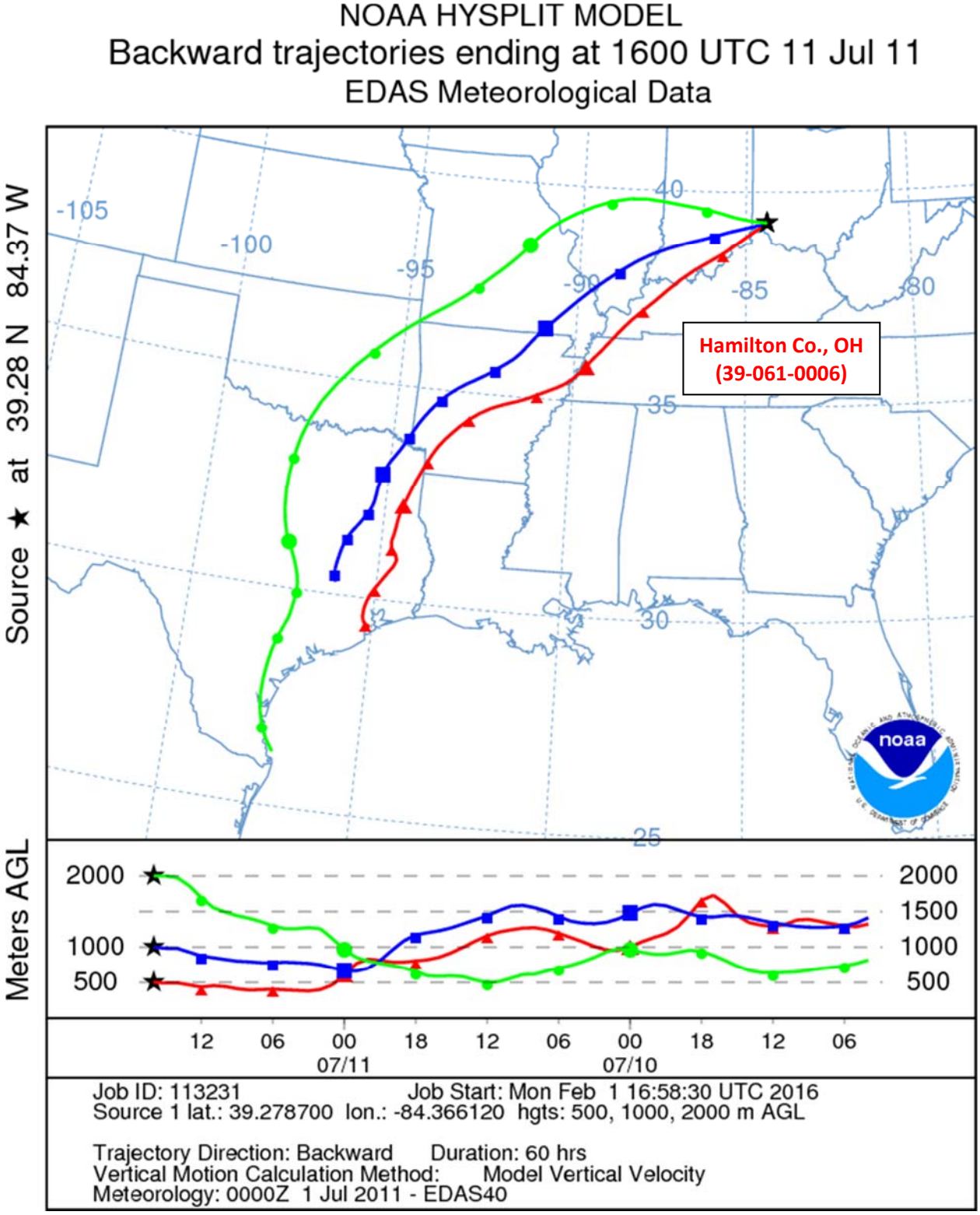
Source 1 lat.: 39.800339 lon.: -75.212119 hgts: 500, 1000, 2000 m AGL
Trajectory Direction: Backward Duration: 60 hrs
Vertical Motion Calculation Method: Model Vertical Velocity
Meteorology: 0000Z 16 Jul 2011 - EDAS40


NOAA HYSPLIT MODEL
Backward trajectories ending at 1600 UTC 11 Jul 11
EDAS Meteorological Data
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Hamilton Co., OH
(39-061-0006)
-105
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-95
-90
-85
-80
40
35
30
25
noaa
Meters AGL
2000
1000
500
2000
1500
1000
500
12
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18
12
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12
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07/11
07/10
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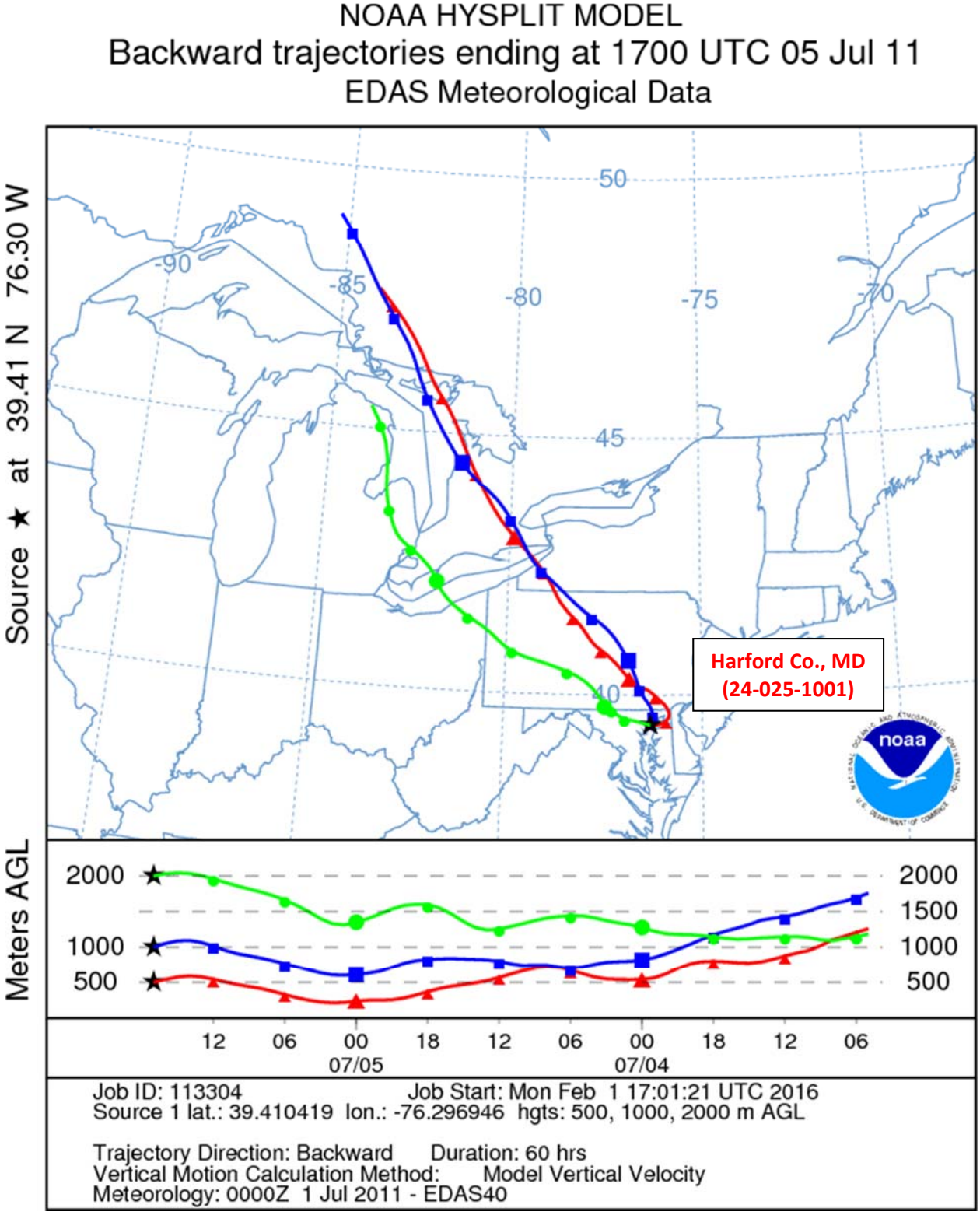
Meteorology: 0000Z 1 Jul 2011 - EDAS40


NOAA HYSPLIT MODEL
Backward trajectories ending at 1700 UTC 05 Jul 11
EDAS Meteorological Data
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noaa
Meters AGL
2000
1000
500
12 06 00 18 12 06 00 18 12 06
07/05
07/04
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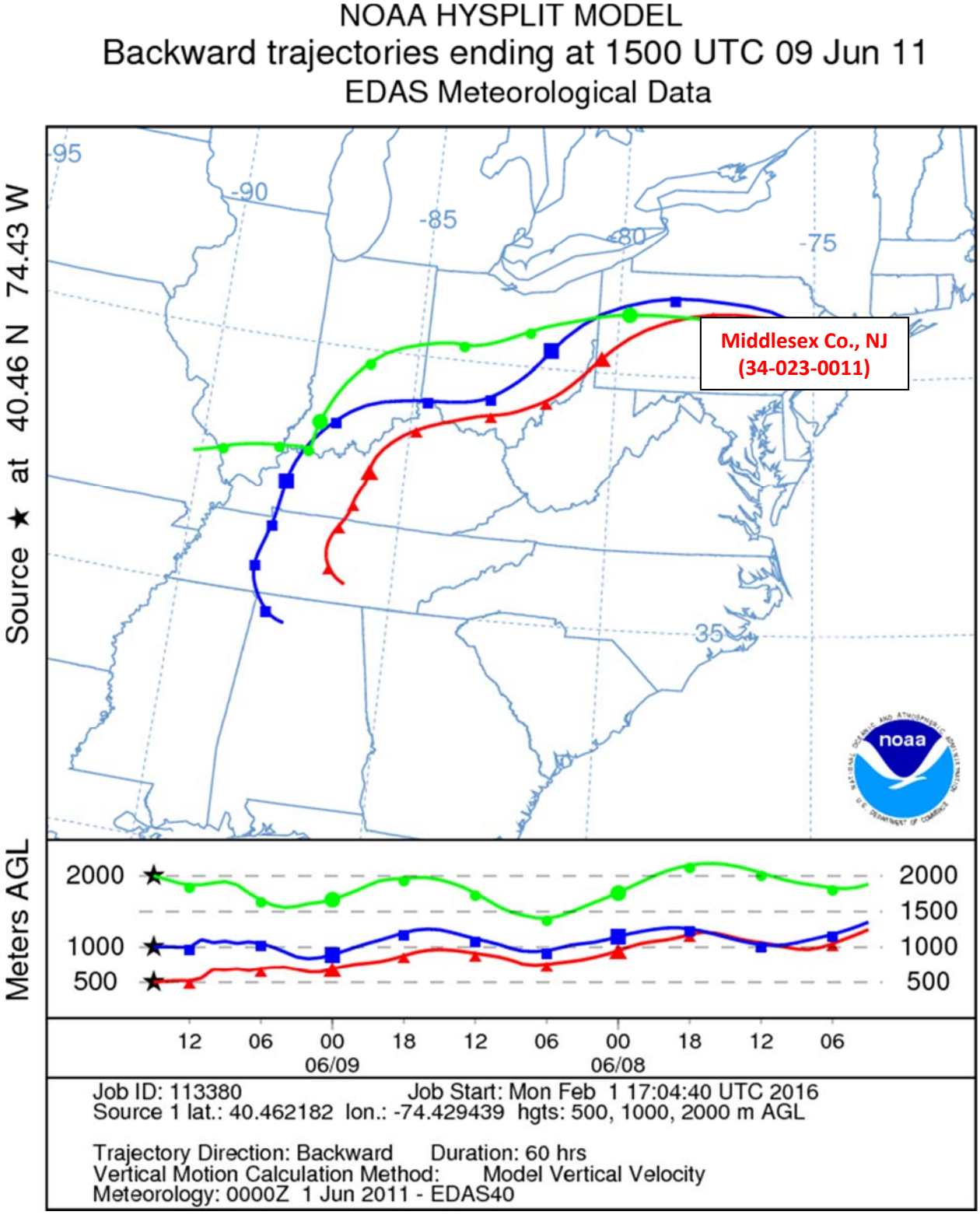
Vertical Motion Calculation Method: Model Vertical Velocity
Meteorology: 0000Z 1 Jul 2011 - EDAS40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EDAS Meteorological Data
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(34-023-0011)
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-90
-85
-80
-75
35
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Meters AGL
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1000
500
2000
1500
1000
500
12
06
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18
12
06
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18
12
06
06/09
06/08
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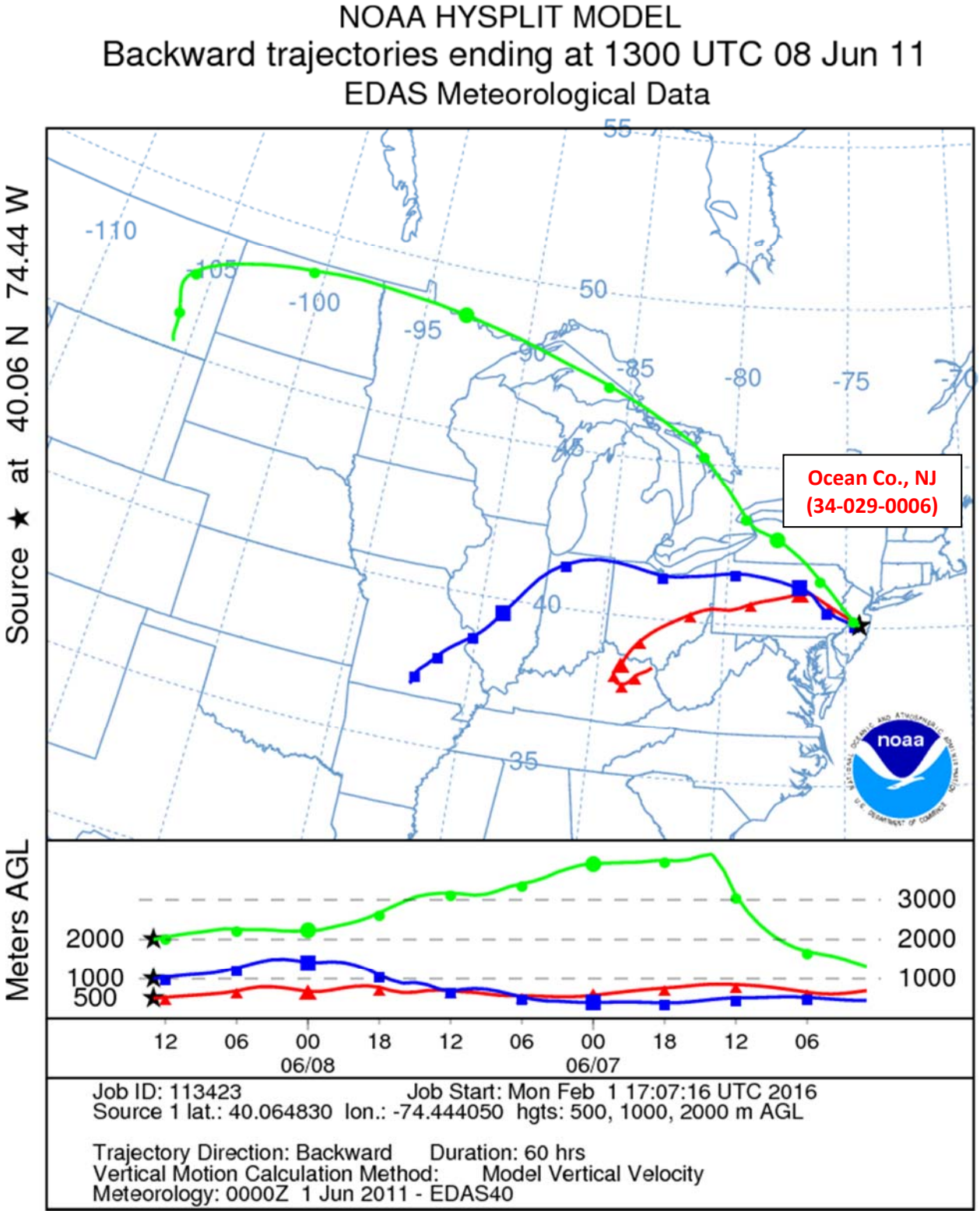
Vertical Motion Calculation Method: Model Vertical Velocity
Meteorology: 0000Z 1 Jun 2011 - EDAS40


NOAA HYSPLIT MODEL
Backward trajectories ending at 1300 UTC 08 Jun 11
EDAS Meteorological Data
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Ocean Co., NJ
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Meters AGL
3000
2000
1000
500
12 06 00 18 12 06 00 18 12 06
06/08
06/07
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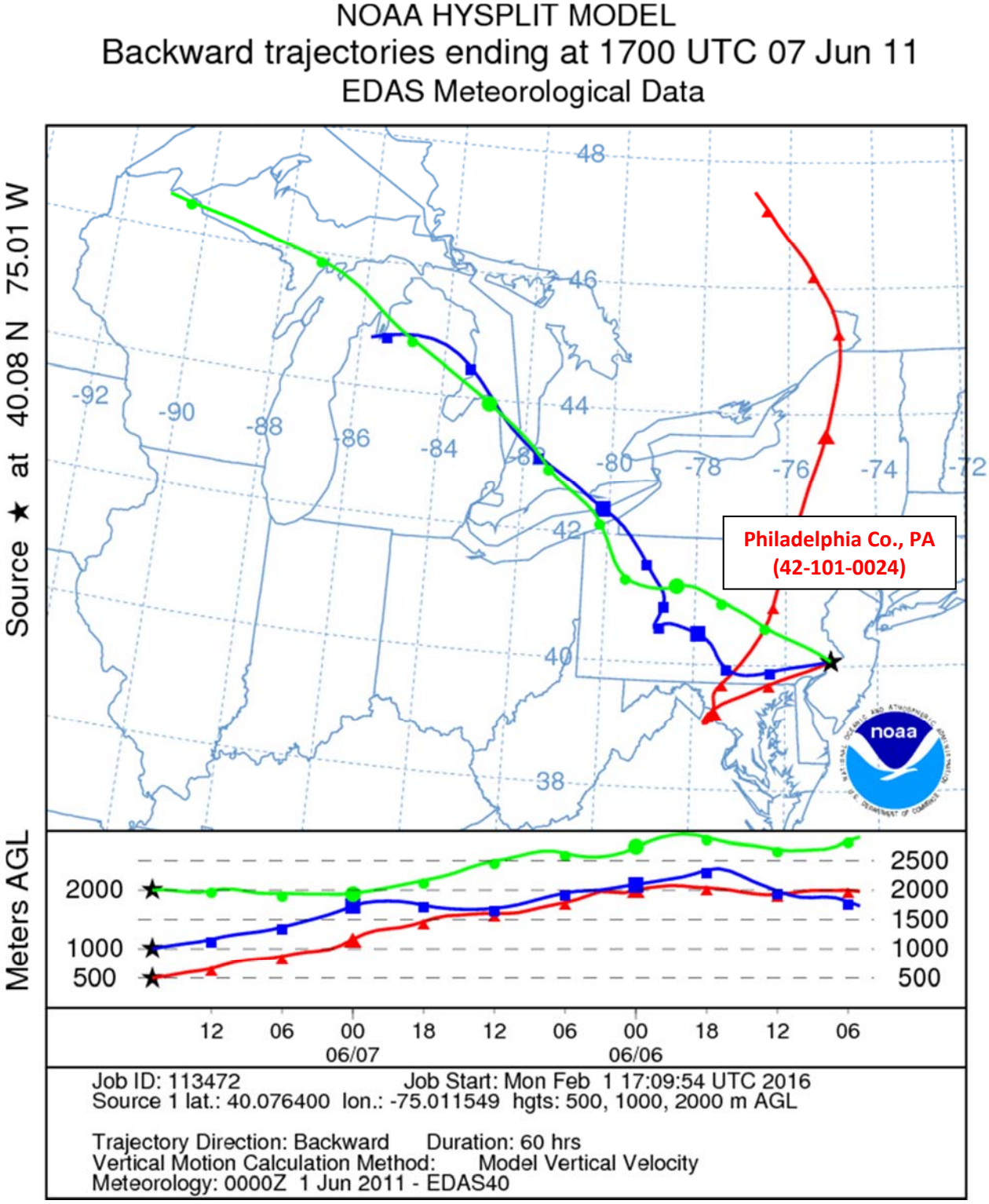
Meteorology: 0000Z 1 Jun 2011 - EDAS40


NOAA HYSPLIT MODEL
Backward trajectories ending at 1700 UTC 07 Jun 11
EDAS Meteorological Data
Source ★ at 40.08 N 75.01 W
Meters AGL
Philadelphia Co., PA
(42-101-0024)
noaa
2500
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12 06 00 18 12 06 00 18 12 06
06/07
06/06
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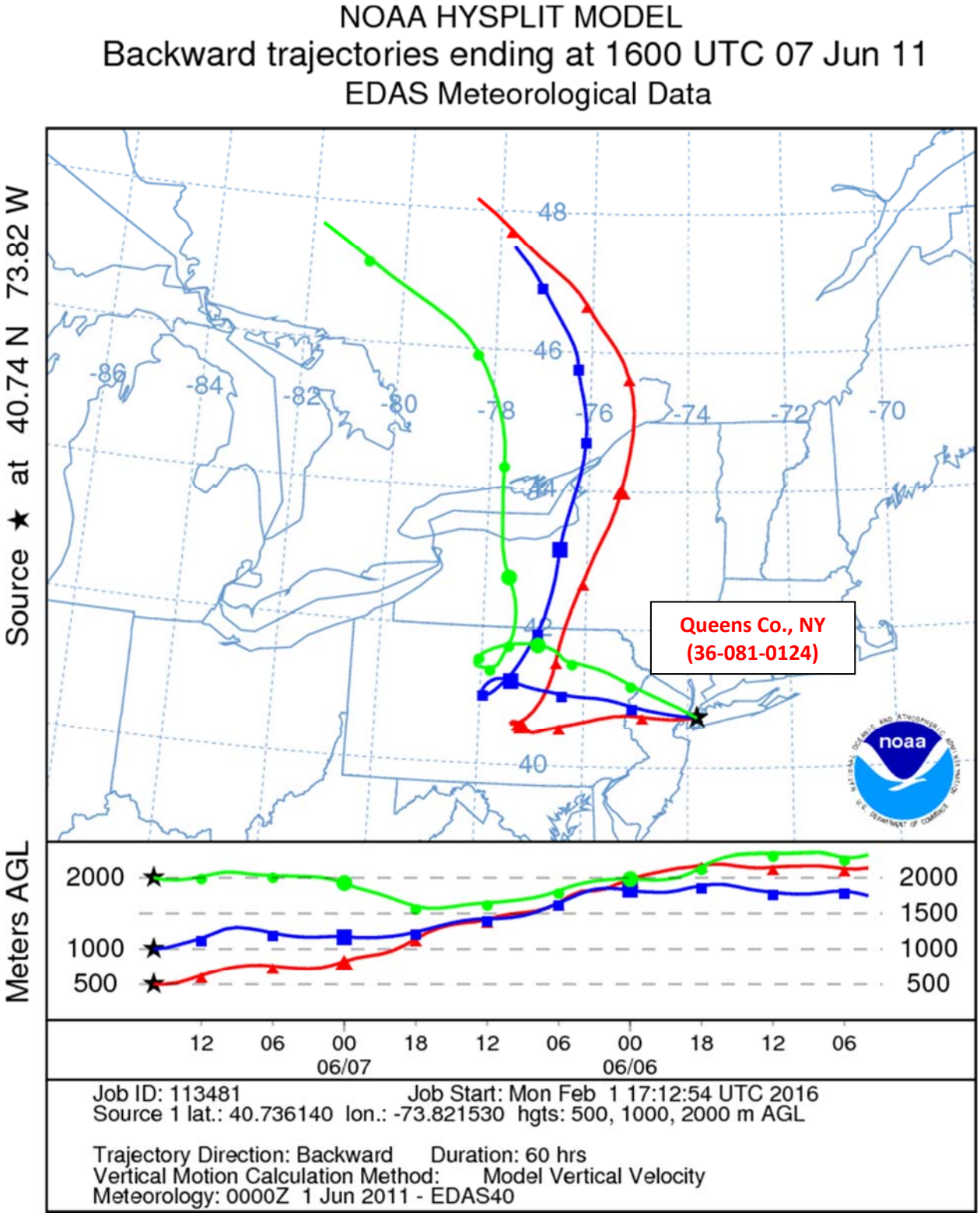
Vertical Motion Calculation Method: Model Vertical Velocity
Meteorology: 0000Z 1 Jun 2011 - EDAS40


NOAA HYSPLIT MODEL
Backward trajectories ending at 1600 UTC 07 Jun 11
EDAS Meteorological Data
Source ★ at 40.74 N 73.82 W
Meters AGL
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(36-081-0124)
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2000
1000
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12 06 00 18 12 06 00 18 12 06
06/07
06/06
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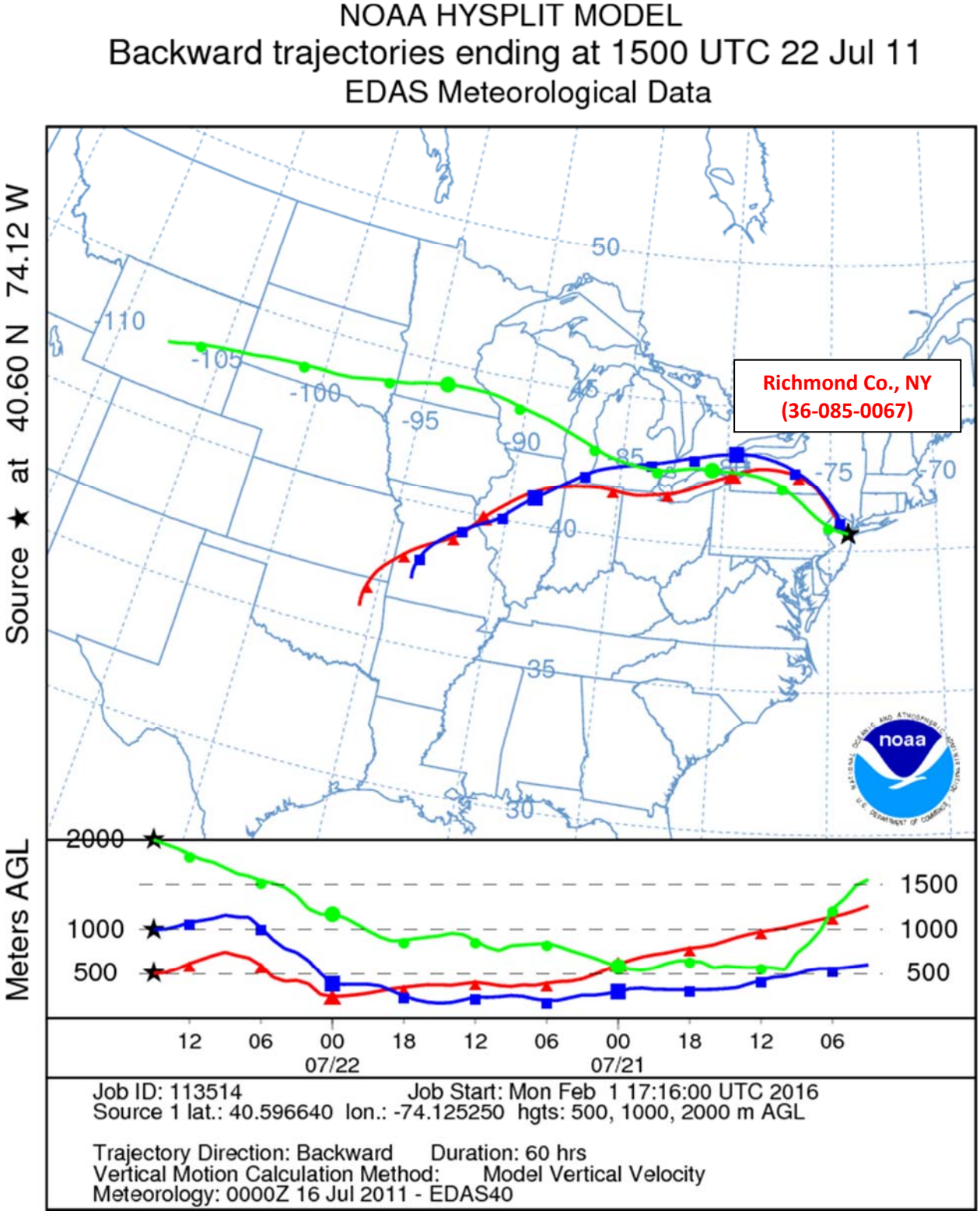
Meteorology: 0000Z 1 Jun 2011 - EDAS40


NOAA HYSPLIT MODEL
Backward trajectories ending at 1500 UTC 22 Jul 11
EDAS Meteorological Data
Source ★ at 40.60 N 74.12 W
Richmond Co., NY
(36-085-0067)
Meters AGL
2000
1000
500
1500
1000
500
12 06 00 18 12 06 00 18 12 06
07/22
07/21
Job ID: 113514 Job Start: Mon Feb 1 17:16:00 UTC 2016
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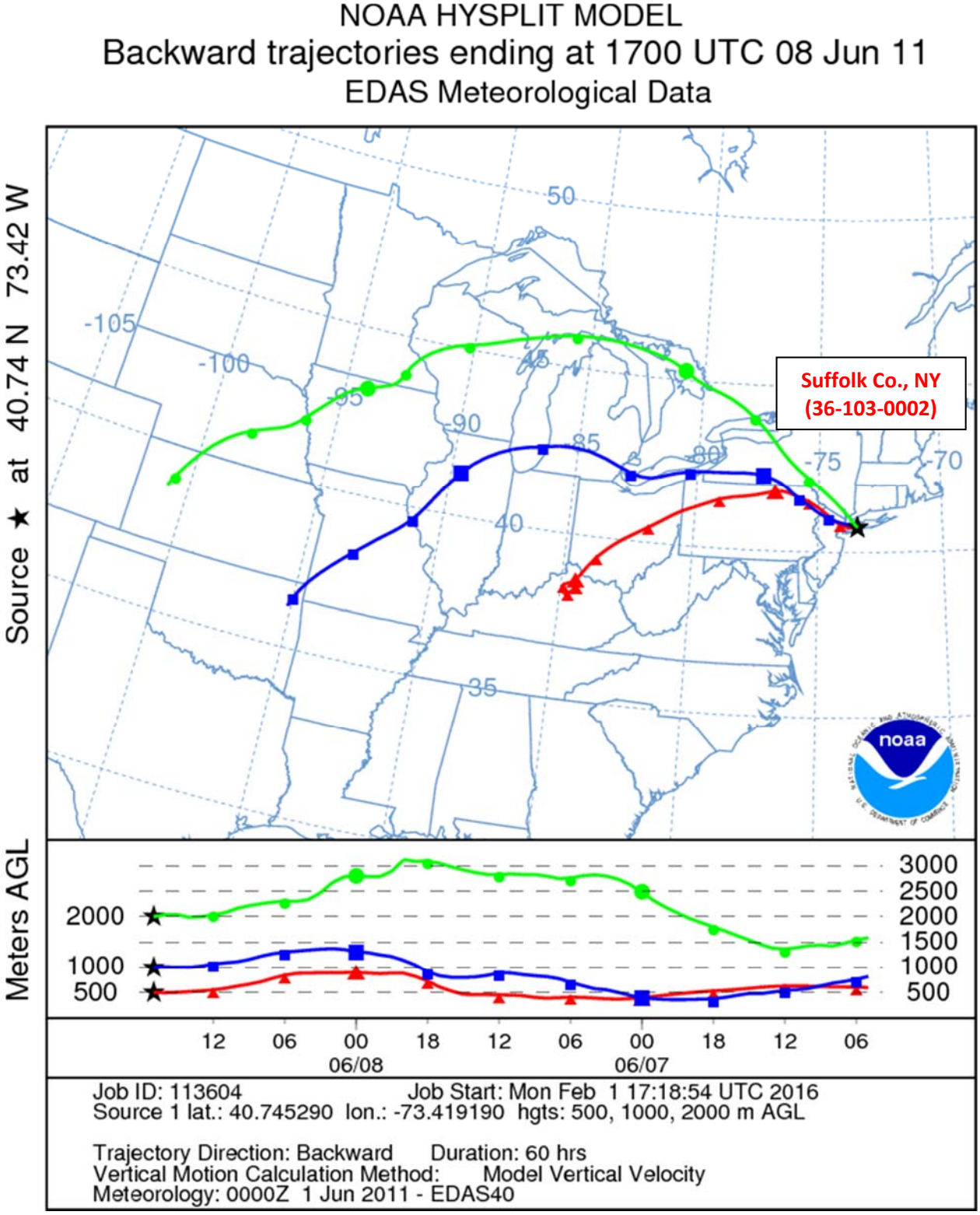
Meteorology: 0000Z 16 Jul 2011 - EDAS40


NOAA HYSPLIT MODEL
Backward trajectories ending at 1700 UTC 08 Jun 11
EDAS Meteorological Data
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Meters AGL
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2500
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1500
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06/08
06/07
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Trajectory Direction: Backward Duration: 60 hrs
Vertical Motion Calculation Method: Model Vertical Velocity
Meteorology: 0000Z 1 Jun 2011 - EDAS40