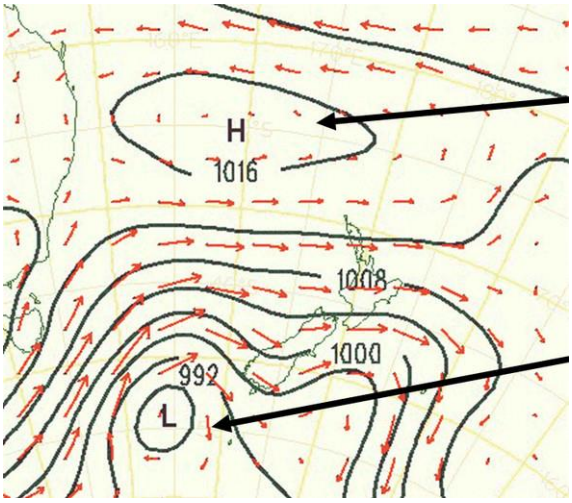
THE IMPOSSIBLE LAUNCH SITE BY MICHAEL KOBS

Part 2: How to calculate a correct wind speed

The first part can be found here: http://docdro.id/v3yuaj5

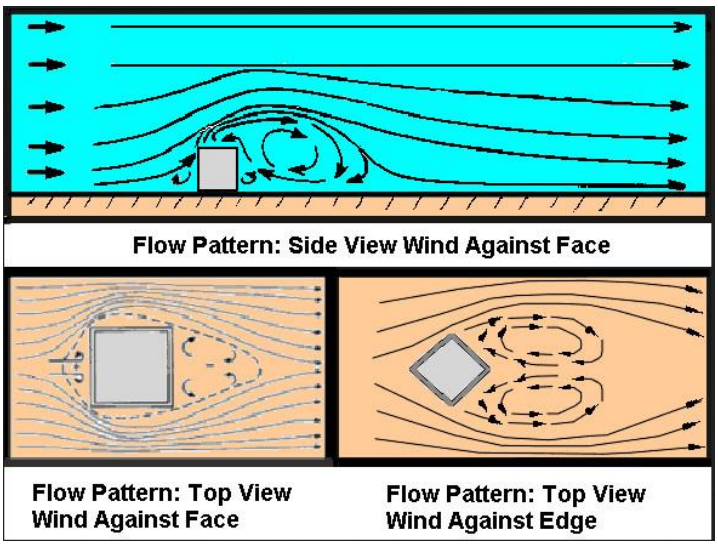
Fact 1: wind doesn't change drastically over a distance of 25km

In a flat terrain is wind almost the same for large areas especially at altitudes of 100 meters or more above hills, buildings or trees. For example, the wind as part of the weather over an area like New Zealand (1500km from North to South) changes only slightly regarding its direction and/or speed.



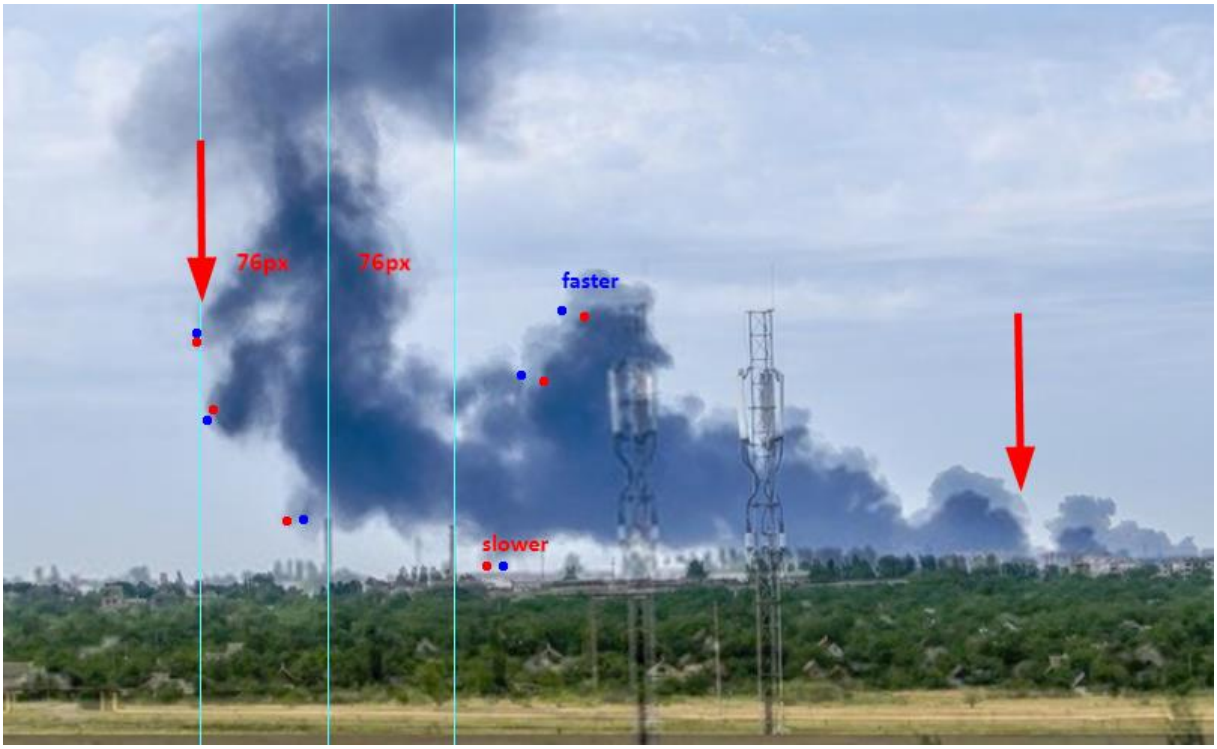
Therefore, the same wind speed and wind direction can be assumed for an area of about 25km x 25km.

Nevertheless, wind speed or direction close to obstacles might differ from the average speed and direction at higher altitudes or in areas without obstacles. The main reason for those differences are vortexes at the edges of structures as shown below.



Similar differences can be observed in the MH-17 smoke plume. The comparison of some characteristics of the shape of the smoke reveal a slightly different speed.

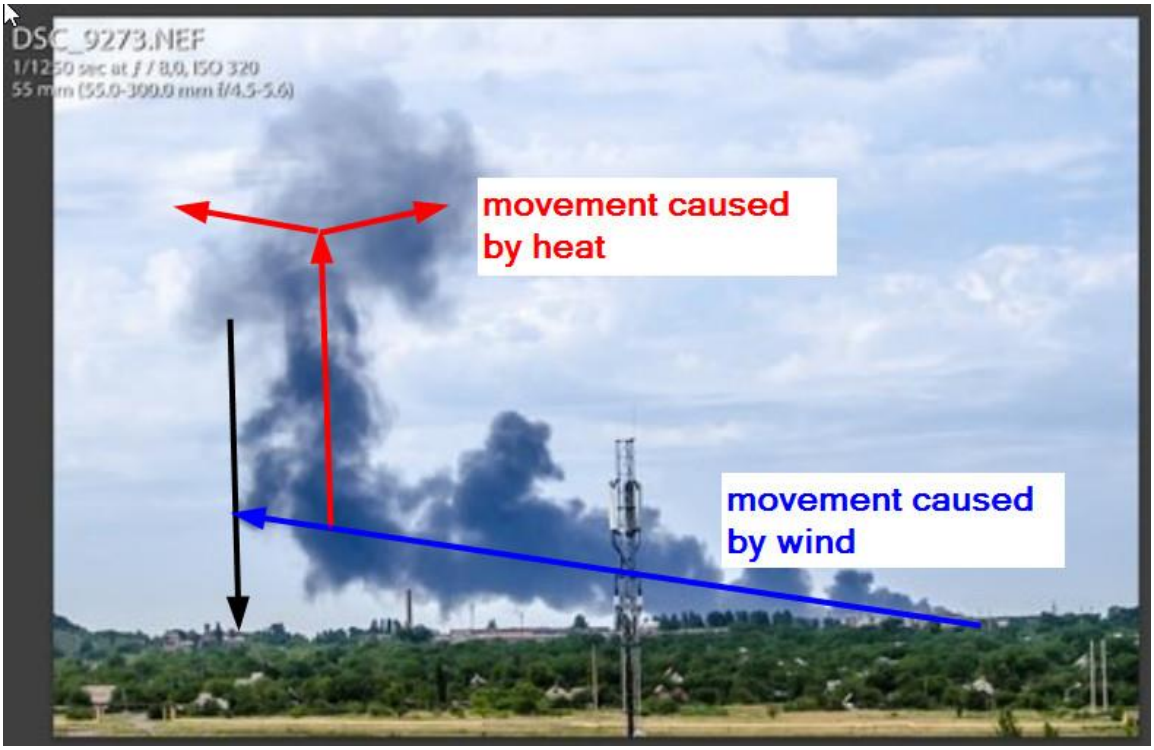
In a layered view for the best match of the plume in photo DSC_9267 and DSC_9273 the differences become visible.



Notice that the front below the mushroom matches as well as the gap on the right side much closer to the crash site. Hence, the matching points (red arrows) describe a very good average for the overall speed of the wind.
At the same time the displacement of the landscape below the plume already gives an impression of the travelled distance over ground. While the front of the plume in DSC_9267 (left blue guide line below the plume) reaches 76 pixels to the left of the chimney (middle blue guide line below the plume) the same spot at the smoke front reaches exactly twice that far in image DSC_9273. Therefore, the chimney in the DSC_9273 layer is also displaced 76 pixels to the right (right blue guide line below the plume).

Fact 2: The MH-17 smoke plume has two different parts

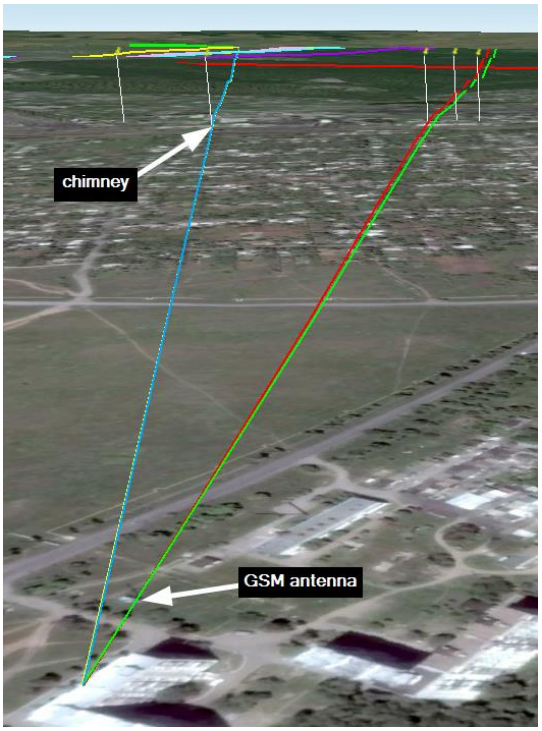
The first part is the mushrooming cloud caused by the explosion of the kerosene immediately after the impact on the ground. That mushroom grew with the rising fireball within just a few seconds. The shape of the mushroom was recognizable for several minutes. While the fireball went up the growing mushroom already drifted with the wind.[1] The fast rising part of the plume stayed connected to the slow rising smoke from the burning debris and left a kink in the overall shape of the plume.



[1] https://www.youtube.com/watch?v=XY8As8vcu8o

Fact 3: close reference points result in large failure

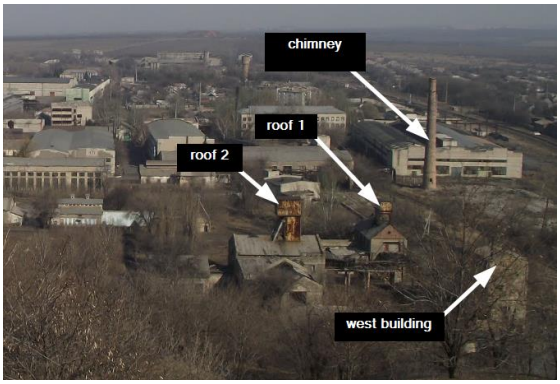
Known reference points in the landscape are necessary to calculate the movement of the plume over ground. These reference point should be at almost the same distance and as far as possible.
For example, the GSM antenna in the foreground is useless as a reference because a very small change of the camera position will result in a huge failure at the distance of the plume.

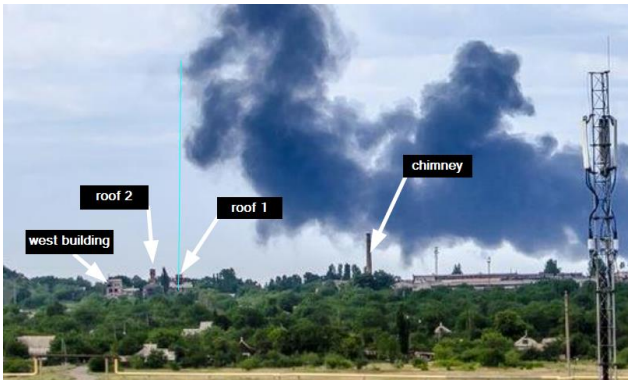


The line of sight would rotate around the GSM antenna like a very long clock hand. The sideways change of the camera position to the left for only 35 centimeters (green line) will result in a failure of about 50 meters in the distance of the plume (red lines).
The same camera movement and a reference point like the chimney would result in a failure of 3.5 meters (blue and yellow line).
Hence, even a combination of GSM antenna and chimney still would result in a failure of more than 45 meters while a second reference point at the same distance like the chimney wouldn't increase the failure.

Reference points

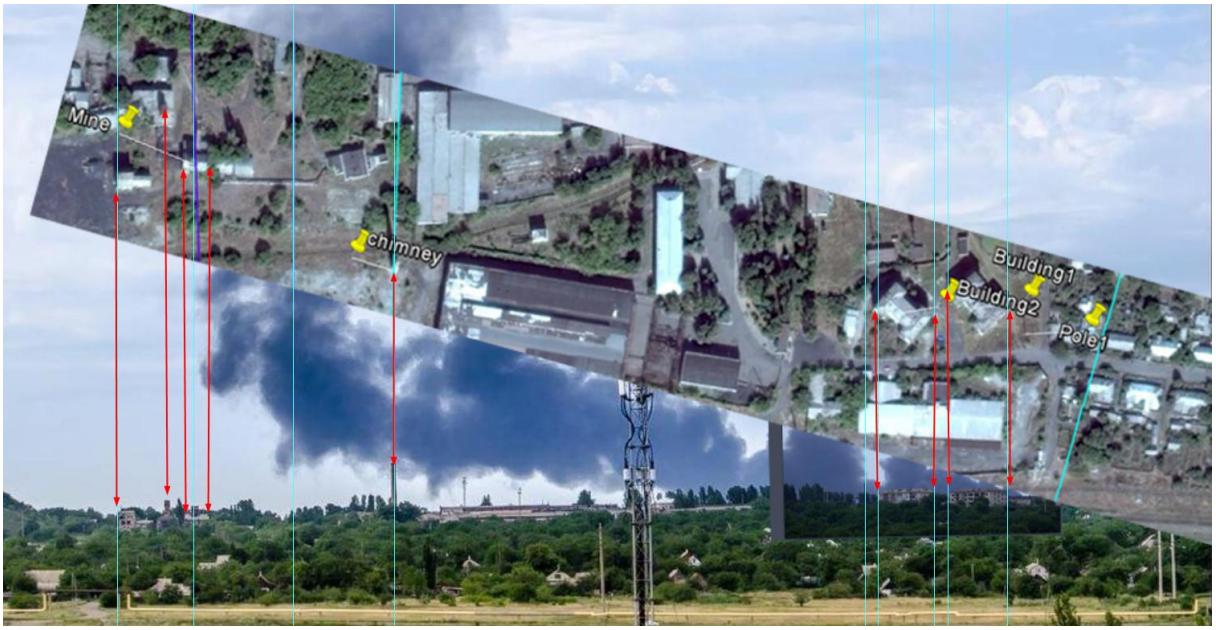
The best reference points we could find for this task are in fact the already mentioned chimney and the roof (roof 1) of a building at the mine area west of it.





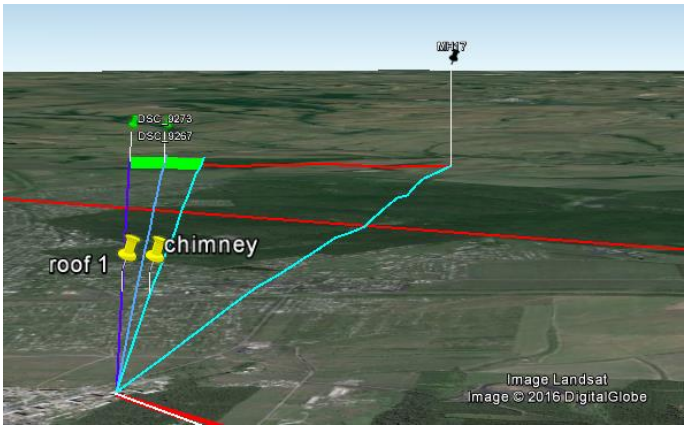
The most usable feature of "roof 1" as a reference point is the fact that the smoke front in image DSC_9273 is exactly above the cube on that roof. The related smoke front defines the average speed of the wind / plume as shown earlier. It was also shown that in image DSC_9267 the same spot in the smoke reached exactly the half distance between chimney and roof 1.

In a next step these reference points need to be transferred into Google Earth as shown below:

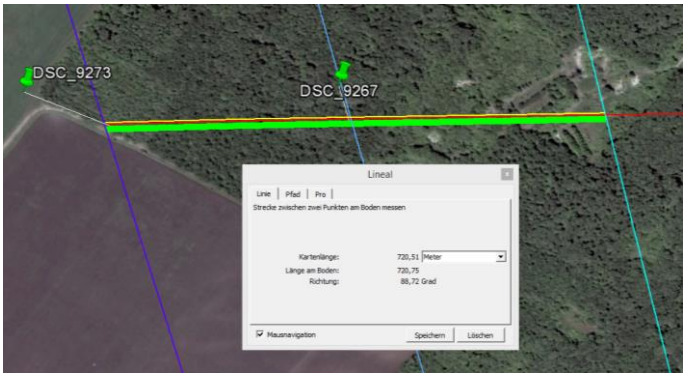


With the help of these reference points the lines of sight can be extended into the distance of the smoke plume.

We already have shown that the wind direction was almost exactly East (see Part 1 / Fact 1)[2].



Therefore, the intersections of the lines of sight (roof 1, chimney) with a line from the main debris field to the West will give the actual position of the smoke front that serves as the best spot for an estimation of the average wind speed.



The distance between the intersections of the chimney-line (bright blue) and the roof1-line (violet) with the wind direction from the main debris field gives a length of 720 meters.
As shown above, the front of the plume travelled exactly the half of that distance.
So we get 360 meters of average smoke “displacement” between image DSC_9267 and image DSC_9273.

[2] The impossible launch spot

Time and wind speed

After one year of instantly asking for the timecode of image DSC_9273 and finally the intercession of Marcel van den Berg the photographer delivered the timecodes of the plume photos as follows:

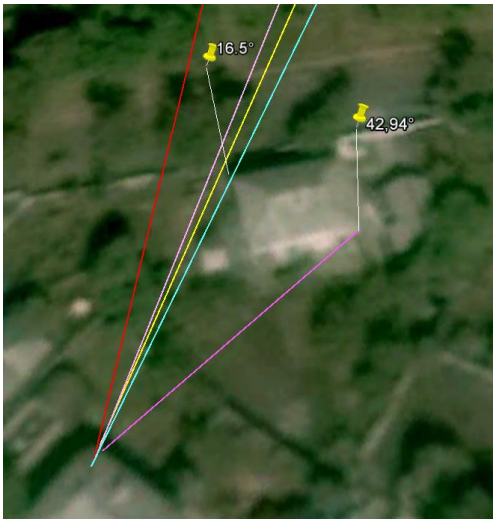
1e foto van rook van crash: 16:30:06
2e foto van rook van crash: 16:30:11
3e foto van rook van crash: 16:30:15
4e foto van rook van crash: 16:30:24
5e foto van rook van crash: 16:30:29
6e foto van rook van crash: 16:30:31
7e foto van rook van crash: 16:30:37

The 1st plume photo is image DSC_9267. The 7th plume photo is DSC_9273.
According to the timecodes the time difference between both shots is 31 seconds.
The given distance of 360 meters for the average plume movement during the time of 31 seconds results in a wind speed of

360 m / 31 s = <u>11.6 m/s</u>

Verification

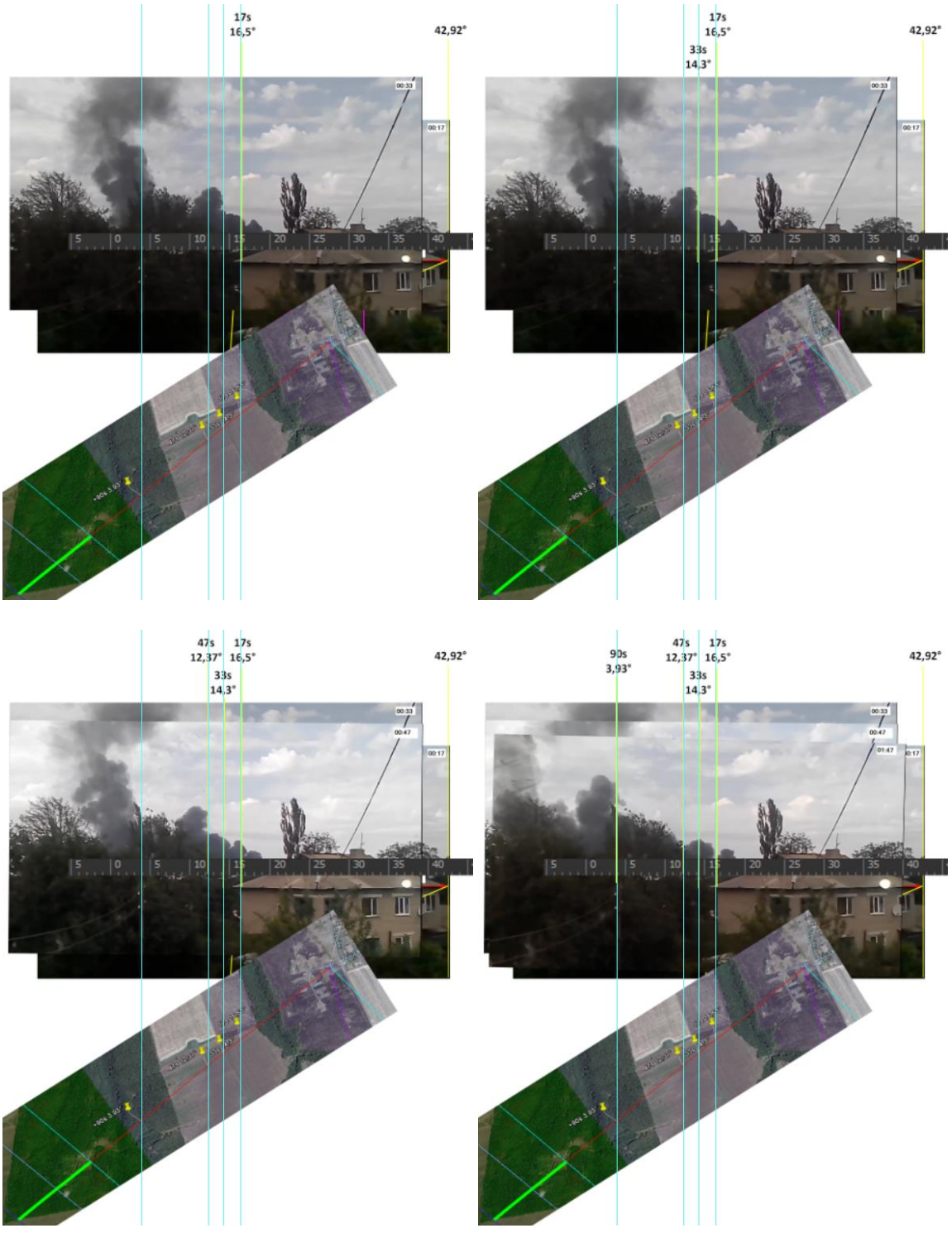
The video "Последствия падения самолета над Грабово 17 июля 2014 в 16:30"[3] shows a long sequence of the rising smoke plume. The location of the camera is correctly given as 48.097447°, 38.608410°.
The only reference in this video is the roof of the opposite building. Since this roof is very close to the camera we used the angle given by the width of the roof for the calculation of the wind speed. The line of sight to the right corner of the roof has an angle of 42.9° while the left corner point in a direction of 16.5°. The width of the roof describes an angel of 27.4°. This angle was used to calibrate a scale for the angle change as seen from the position of the camera.



This video frame is second 00:17 in the video. The unique feature of this frame is a characteristic shape of the smoke right above the left corner of the roof.

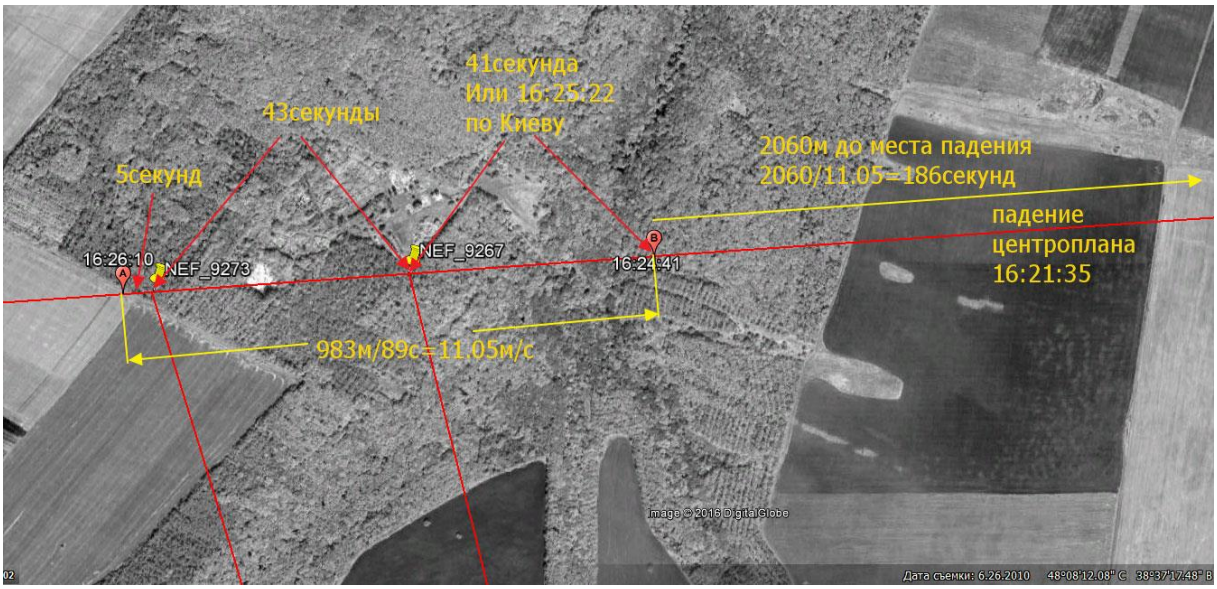
[3] https://www.youtube.com/watch?v=f5IlklgvcYs

The intersection of the line of sight and the wind direction from the main debris field gives the point “17s” and has an angle of 16.5°.
The movement of the plume was verified for four frames (17 sec, 33 sec, 47 sec, 90 sec).



The angle change described by the movement of the smoke in relation to the house confirms the speed of 11.6 m/s at the distance of the plume from the debris main field to the West.

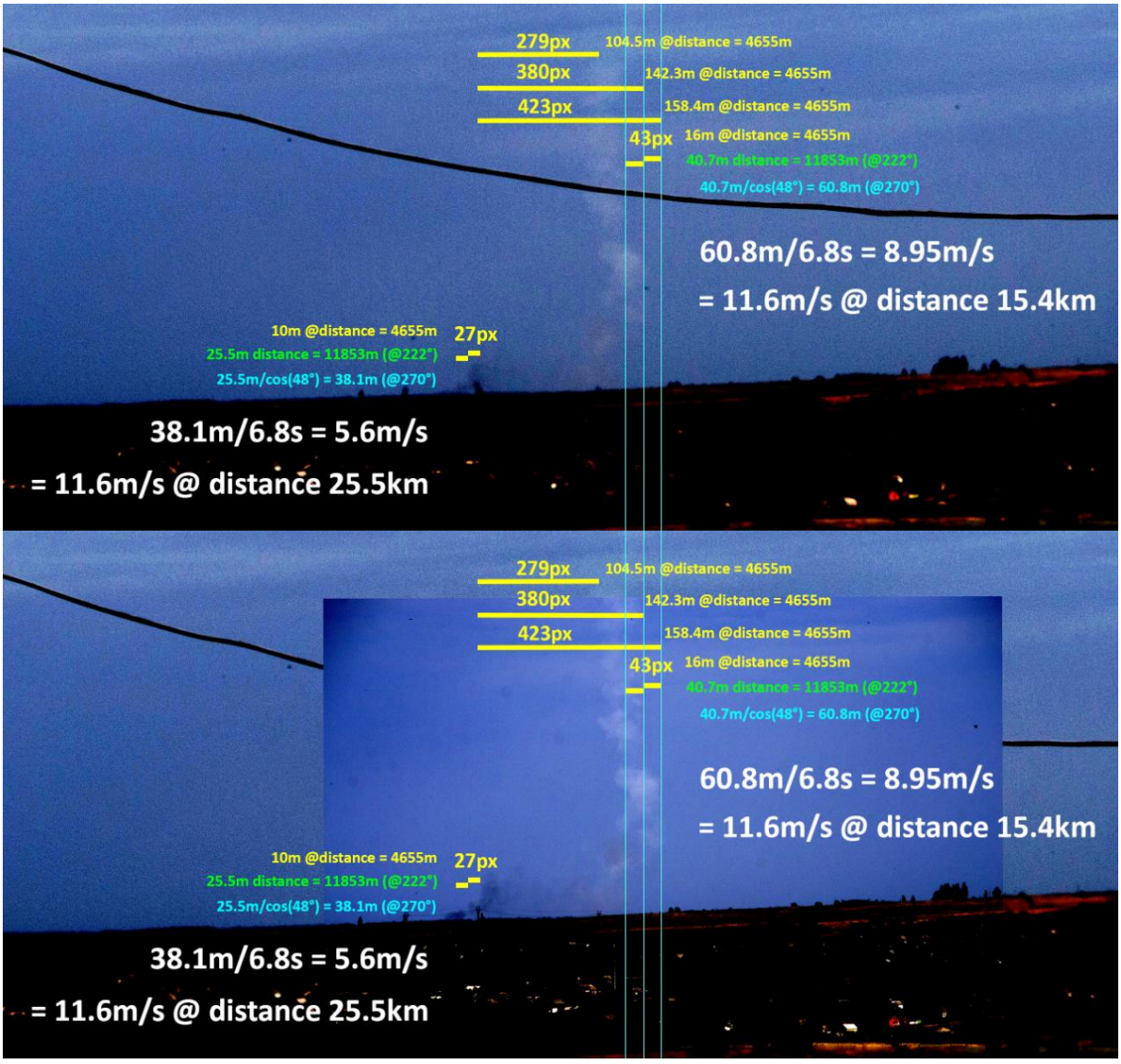
Another estimate of the wind speed was found on a Russian forum[4]. Without further description about how the speed was calculated they arrived at a slightly lower speed of 11.05 m/s.



[4] http://mh17.webtalk.ru/viewtopic.php?id=381&p=34

Speed and distance of the alleged missile trail

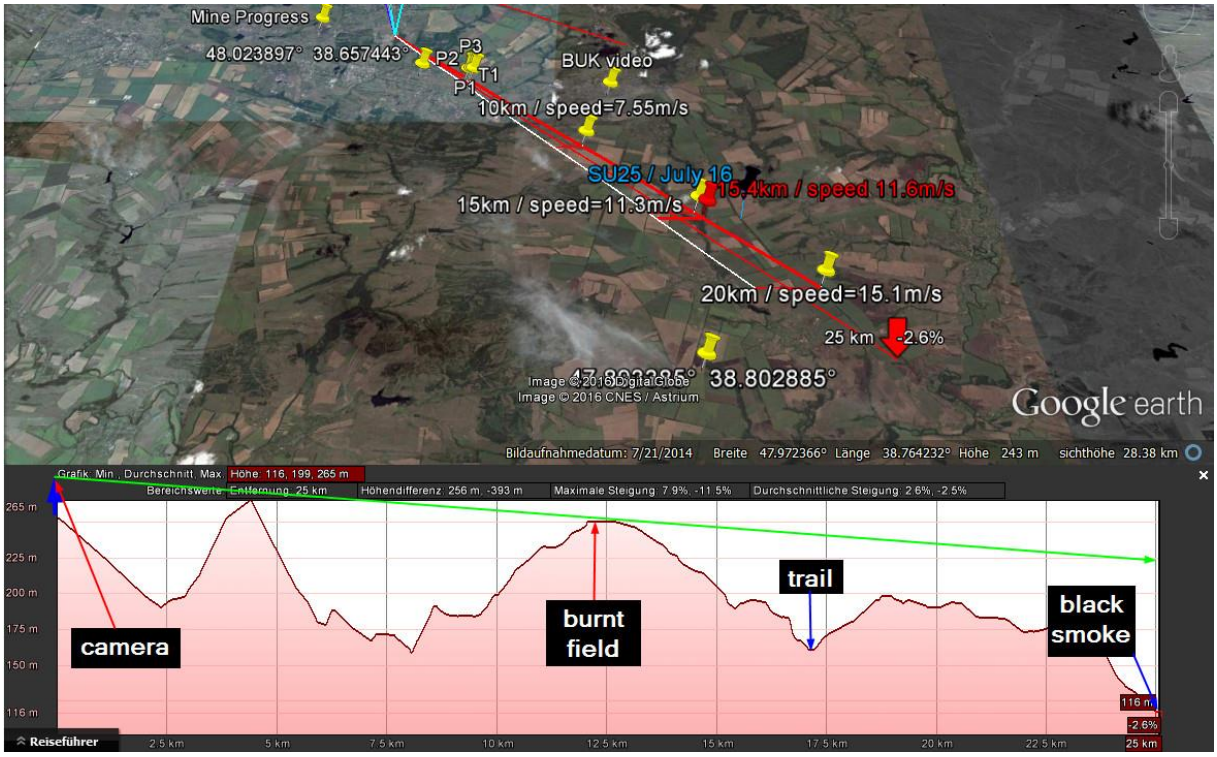
Assuming a wind speed of 11.6 m/s average for the entire area including the alleged launch site south of Snizhne the visible displacement of the white smoke column and the black smoke suggest a specific distance to the camera.



If that white column of smoke indeed was taken at an interval of 6.8 sec and travelled at the assumed wind speed in the known wind direction, then that column should have a distance of 15.4 kilometers to the camera.

The same method places the slower black smoke in a distance of 25.5 kilometers. Even the consideration of a slightly slower wind speed close to the ground would hardly place the black smoke in the foreground of the white smoke. The perfect alignment of the black smoke and the white trail appear as a coincidence of very small probability.

A missile trail in the distance of 15.4km would place the possible launch location in a valley close to another burnt area (unburnt on July 16th and burnt on July 20th) and very close to the spot, where a SU25 fighter jet was photographed by the Digital Globe satellite.
A lower launch spot would explain why the characteristic dirt cloud at the base of a BUK trail is missing in the famous image.



On the other hand, the black smoke would be originated in another valley behind the white trail and about 100 meters lower than the photographer could see from his balcony. Such a low origin of the black smoke however contradicts the appearance of the black smoke in the photos.

Displacement of the launch spot

The known wind speed of about 11.6 m/s plus the consideration of 35 sec missile flight time (min.) plus the consideration of about 130 sec fall time of the debris according to the Rostov radar data (see Part 1) shift the area for a possible launch spot towards East.
The most probable launch spot should be found close to the red pin in the following image:

Conclusion

An average wind speed of 11.6 m/s East is verifiable from different sources and is close to the wind speed of 11.00 m/s as reported/measured in Rostov on Don for 12:00 UTC.
This wind speed places the possible launch spot further away from the photographer and shifts the possible launch spot area to the East.
The slow speed and resulting distance appears very problematic and needs further analysis.