

There are people on the internet promoting a conspiracy theory about a hidden Russian plot that finally led to the shoot down of MH-17. Let's have a look at the claims and evidence:

<http://ukraineatwar.blogspot.nl/2015/09/suncalcing-buk-and-vostok-transport-to.html>

Wednesday, September 2, 2015

Suncalcing the BUK and Vostok transport to Snizhne July 17th 2014

Part 3

If you missed part one: <http://docdro.id/ks8nPLh>

If you missed part two: <http://t.co/hQlBgkrwrT>

Addendum part 2:

One nice and critical thinker just gave me a hint regarding a failure:



Michael Kobs lie - look on height of REAL Volvo FH 13 6x4 with Sleeper cab (look on mirrors, how shaft top situated on cab top and flat roof of cab).
Im delete all sizes but left only height on picture.

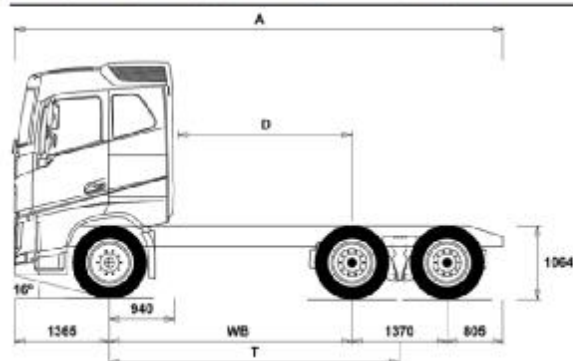
And he was perfectly right because obviously Volvo not just changed the design of the FH13 6x4 but seemingly also the heights.

MODEL RANGE

Volvo Trucks. Driving Progress



FH13 HA 6x4 Tractor Air Ride FH 64 T3HA



So let's redo the calculation of part 2 for the old version of the Volvo FH13:

10:00h

false height: $3,49\text{m} \cdot \cot(\text{BOGENMASS}(49^\circ)) = 3,04\text{m}$

right height: $3,31\text{m} \cdot \cot(\text{BOGENMASS}(49^\circ)) = 2,87\text{m}$

11:00h

false height: $3,49\text{m} \cdot \cot(\text{BOGENMASS}(57^\circ)) = 2,27\text{m}$

right height: $3,31\text{m} \cdot \cot(\text{BOGENMASS}(57^\circ)) = 2,15\text{m}$

So the changed height of the cabin accounts for 12-17 cm regarding the length of the shadow across the street. That's about the width of the white strip on the street and changes almost nothing regarding to part 2.

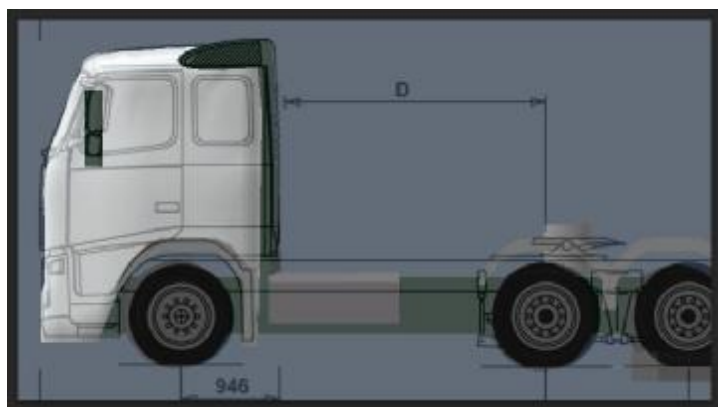
Nevertheless I have to thank for the hint because it changes something regarding the Paris Match model.

Since the shape and angle of the shadow fitted almost perfectly I had to double-check the height of the BUK given by the catalog:

Specifications	
Armament	Altitude missile
4 missiles 9M38 / 9M38M1	20 to 22,000 m
Country users	Engagement range
Belarus, Finland, Russia, Syria, Ukraine, Serbia.	32 to 35,000 m maximum
Launching weight	Warhead
685 kg	70 kg HE fragmentation
Missile speed	Radar
850 m/s	Flat Box-B
Crew	Dimensions on road
3 soldiers	Length, 9,96 m; Width, 3,31 m; Height, 3,8 m

I found out that the height of the BUK refers to the handrail and the missiles are actually 20cm lower. Since the cabin is 19cm lower too it will change nothing at all because it doesn't matter. Resizing the model will not change the relation between height of the vehicle and length of the shadow. It will neither change the angle of the pole shadow nor the angle of the white line nor the angel of kerb.

Nevertheless I will redo the model just because it looks better.



Let's start:

Zuhres-video

The SBU had released a video of the BUK near Zuhres (as well as screenshots from unreleased video of other vehicles of the Vostok convoy):

The big pole in the middle of the shot gives a clear shadow:



It's a bit of a mystery since there is no clear shadow in the entire image. The red line hides the alleged shadow in both views. So where is it?



Once again we see a little embankment along that path that hides the lower part of the little wooden shed. The grass on the other side of the embankment looks a little darker or maybe greener just like the slanted strip on this side of the embankment. That "shadow" would be about 3times wider than the pole. So no, this is not a shadow.

It's (almost) parallel to the path next to it. (The path is at a slope, but since the shadow goes alongside the path, we can still just project this line onto the map without correction.) Suncalc gives a time somewhat more than 11:30:



The time reported back then was 11:40, what thus turns out to match with the suncalc time.

That's fine even without a shadow but at one spot in the image there is indeed a distinct shadow. Right in front of the door the shadow of the plants is cast onto the path.



That shadow is very interesting indeed because the sun shines through the leafs and leaves some sunspots on the ground. These plants are growing right at the corner of the facade. Since the sun shines from the right and is blocked by the corner the dark edge in that dotted shadow should be the shadow of the corner.

It would be very interesting what that shadow brings up using suncalc.

On a larger scale that shadow is confirmed by the dark areas below the treetops. All these soft shadows are apparently displaced towards the street.



So if – hypothetically – these dark areas are indeed shadows then the video was take at about 12:30 according to suncalc. That's of course completely impossible because Wowihay far from Donbass reported the BUK already in Torez at 12:08. So what is it if not a shadow? Maybe there is a little hint. The wind in the video appears to blow from south to north.

Calculated speed of the loader

Google maps gives a distance from the Motel-location of 36,7 kms. It means if they left from the Motel at 10:45, they arrived at Zuhres after 55 minutes, the average speed was 40 kms/h. With this speed it would take them 18 minutes to travel the 12 kms to get out of range of the satellite and they would be out of range at 11:03.

We can do a similar calculation if they would depart 5 minutes later and so on:

departure	at Zuhres	36,7 kms Speed	12 kms minutes to travel out of sat. Range	time out of sat.range
	11:40			
10:45	0:55	40	18	11:03
10:50	0:50	44	16	11:06
10:55	0:45	49	15	11:10
11:00	0:40	55	13	11:13
11:05	0:35	63	11	11:16
11:10	0:30	73	10	11:20

This shows that if the BUK would have left at 10:55 (AND if would not have driven much faster during this first part – 40 tons through the streets of the city) it couldn't have escaped the satellite. But leaving at 10:50 it would. An average speed of 44 kms per hour does not seem completely impossible for the loader, but it is on the high side. **Indeed.**

scenario 1: the BUK-loader would have to drive an average speed of 40-45 kms/h, which might be too high for such a heavy transport.

scenario 2: no problemo; time enough even at low average speed. (but debunked)

scenario 3...5: ...

That last entry shows that if the BUK was hidden at the Vostok base and had immediately left after the satellite was taken, it had to drive with an amazing 73 kms/h average to arrive at Zuhres at 11:40. That seems to be too much.

Therefore we should exclude the option that the BUK is somewhere hidden on the satellite. We must conclude that it was already out of range when that image was taken.

Actual speed of the loader in the video

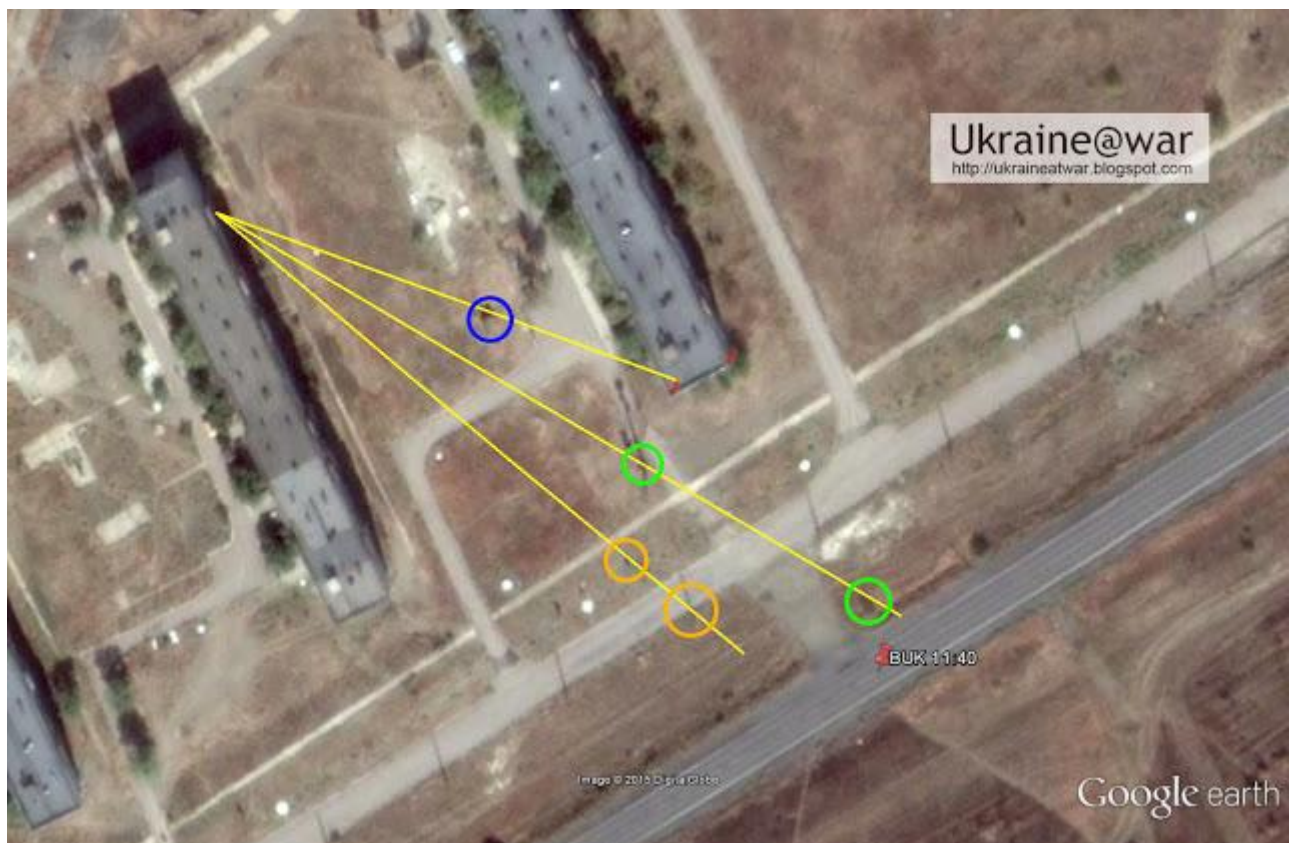
This is the first frame the Zuhres video starts with:



As can be seen, the right line of the apartment building exactly continues down along the left side of the blue shed (red line):



This will help us to determine the exact location of the cameraman. Basically this one line is already enough, because we know the person is filming from another apartment building through a window. All we have to do is to draw that line (exactly) on a map and see where it ends up. But to confirm whether we are right or not, we'll check the green bush right of the big pole (green circle) and the small pole almost in line with the bigger one behind it (orange circle) too:



It is tempting to start the first point at the exact corner of the apartment building. But since this satellite image is taken at an angle, the top does not give the exact position of the building on the map. The BOTTOM does though. So we have to correct the starting point with the same amount and angle of the other side of the building (because we can clearly see it there). This is indicated by the small red line.

To prevent errors like this one should find a satellite image taken EXACTLY from 90 degrees above.

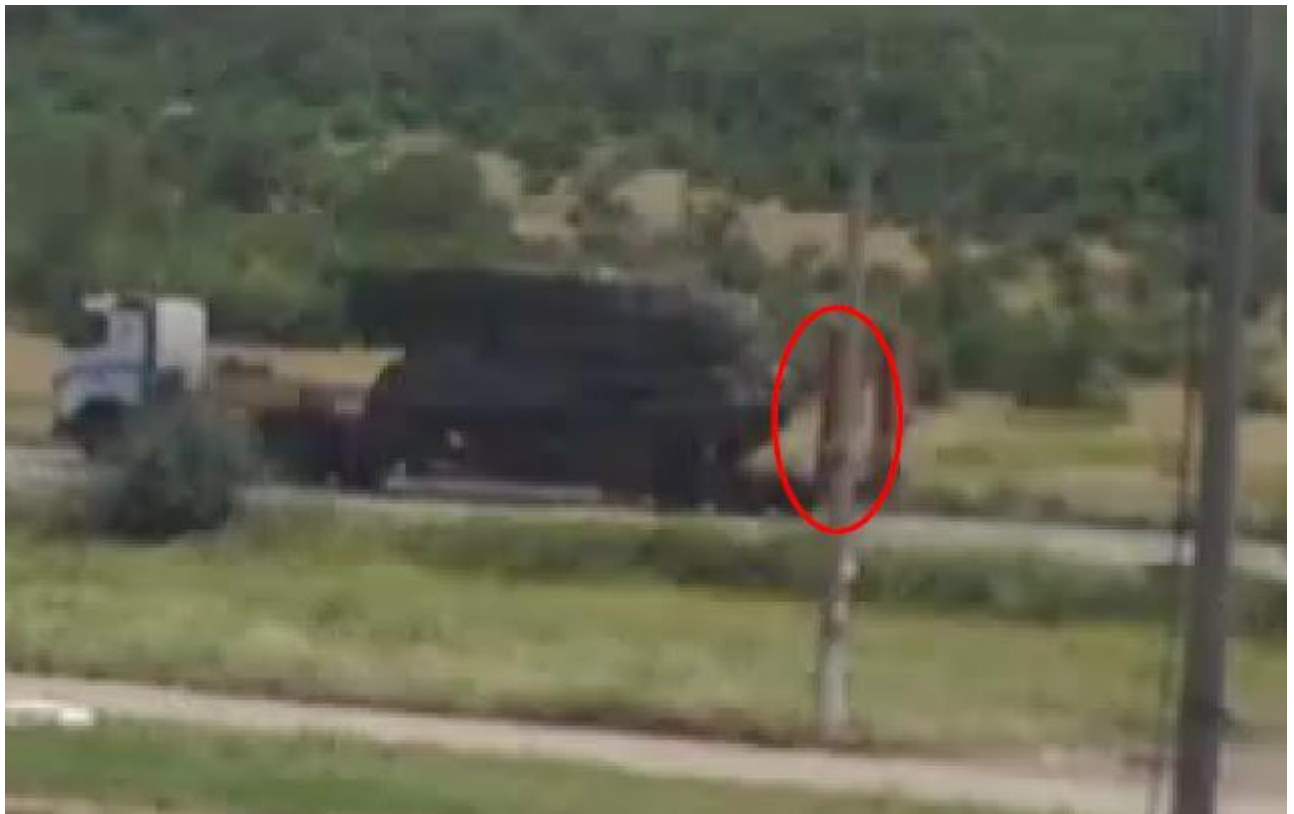
Next we extend that line along the left side of the blue building (blue circle) until it hits (again the bottom!) of the other apartment building. THAT's the position of the cameraman. From there we draw the other two verification lines.

One goes through the big pole (small green circle) and we can see that the bush further on is on the right side of it (larger green circle).

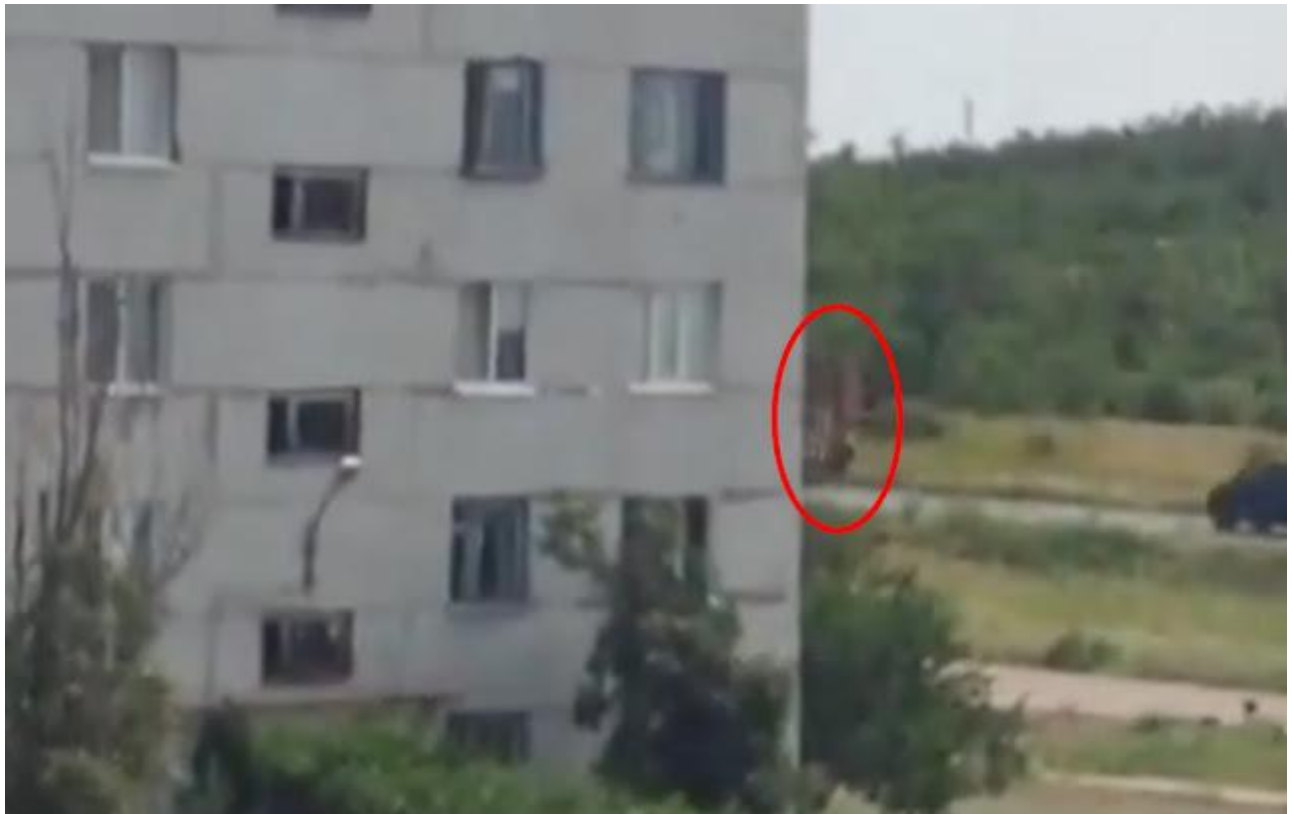
The other one goes through the larger pole (larger orange circle) and we can see that the smaller pole in front of it is a little bit on the right side of the line.

Thus this confirms the cameraman position is correct.

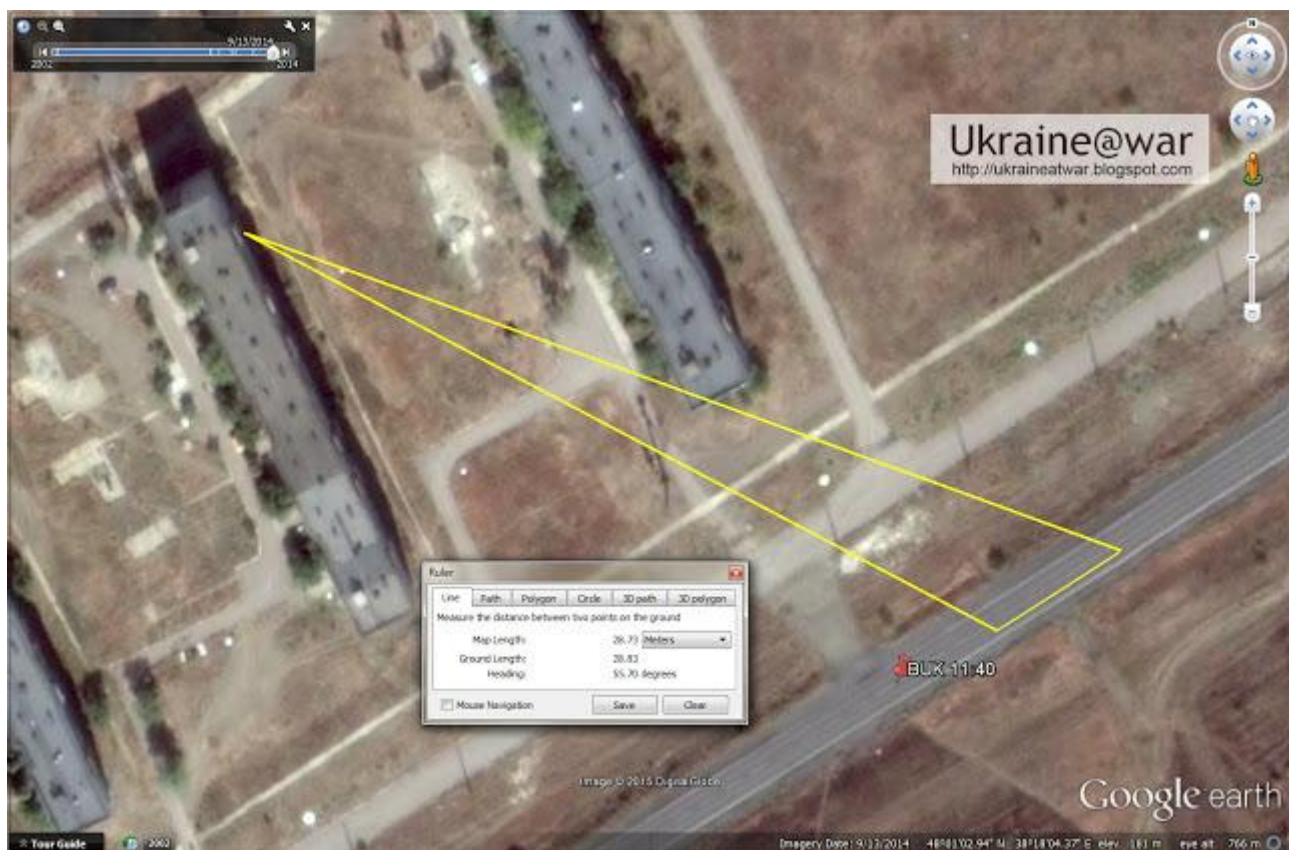
Note how in the first frame, the left ramp of the loader is exactly behind one of the poles:



125 frames later that left ramp disappears behind the apartment building:



Now we can draw two lines from the position of the cameraman that will match these two position of the loader on the road:



Again take care to draw the upper line through the BOTTOM of the building (extending the

previously drawn line is the easiest way to do that). With Google Earth we can now measure the distance between those two points: 28,73 meters.

The video I downloaded had 29 frames per seconds. This means the loader traveled some 29 meters in 4,3 seconds, which is at a speed of 24 kms/h.

So far the calculation is well done. One little point: The PAL or SECAM video systems use 25 frames per second. The American NTSC video system uses 29.97 frames per second. So the transport travelled 4,16 seconds and 25 km/h. However, since no one in a PAL-country would use an American NTSC video camera the framerate was converted.

Scenario 1: This calculated speed does not come near to the 40-45 kms/h average speed we calculated earlier. The only thing we can say about this is that at this point the loader is driving uphill and thus must have significantly slowed down here.

That's an interesting assumption but it wouldn't explain the shadows or the south wind.

Scenario 2: if the BUK-loader would have left the Motel-location at a similar time as the Vostok column, say 10:05, it would have had 1 hour and 35 minutes to travel the 36,7 kms to the Zuhres-location. The average speed would be 23 kms/h. Exactly what we see in the video too. (nice fit but debunked)

Scenario 3...5: ...

Time difference between Vostok truck and loader

The photo/screenshot from the Vostok truck shows a clear shadow at one of the poles (left bottom corner):



We can project this image in the larger area (white box):



And then extent a line along the shadow of the pole (white line).

Now the problem is that there is a slope on the field before the pole **and once again the alleged shadow-banana crosses a kind of beaten path that bows the shadow like a banana.** That makes it very difficult/impossible **indeed** to compare it with the lines of the field. But assuming that the roof of the shed is horizontal and even approximately pointing into the direction of the pole, we can extend a line from there (blue line). This blue line represents a line perpendicular to the path near the pole and by chance also happens to represent the 11:40 time.

Firstly, the buildings are not perpendicular to the street but the beaten path is parallel to the street. Since the blue shed is perpendicular to the building the blue line is also by chance parallel to little road in front of the building. Therefore it seems not to be unusual that the blue line is about parallel to the embankment along the path. So let's go back to the image with the yellow line of sight. The path along the embankment (false shadow) follows the direction of the little road and bows away after crossing the yellow line.



As can be seen, the white line is at an angle to the right of the blue line, meaning it was (a little bit) earlier. According to this calculation the truck might have passed this position somewhere between 10 and 30 minutes earlier than the loader.

But we don't know which part of the bowed shadow on a slanted path represents that direction. And since the alleged shadow in the video isn't a shadow at all, the only conclusion might be "we don't know".

But there is a little nice feature in the photo of the Ural truck: There is a shadow right below the truck casted on the almost flat and straight street.



One can easily see that the shadow is displaced towards the front of the Ural. Even the tip of the armor casts a shadow ahead of the truck. The white line ("a little earlier than the embankment") suggests that the sun shines a little bit from the front onto the Ural. The shadow below the Ural proves that the sun shines from behind. Even the steel plate on the rear confirms a much later time than 11:40. It's a pity that the BUK video (just like all the evidence) isn't good enough to decide if the shadow in front of the door is really a shadow or just dirt but the probability of a shadow is high.

Scenario 1: the loader had been (or is) catching up with the rest of the convoy. Maybe the Vostok convoy had been waiting for the truck or they were driving very slowly. **Impossible for many reasons so far.**

Scenario 2: the BUK-loader is falling a little bit behind from the Vostok column or they had been driving a little bit behind all the time. **But maybe the Russians have some technology to become invisible or to jump in time, right?**

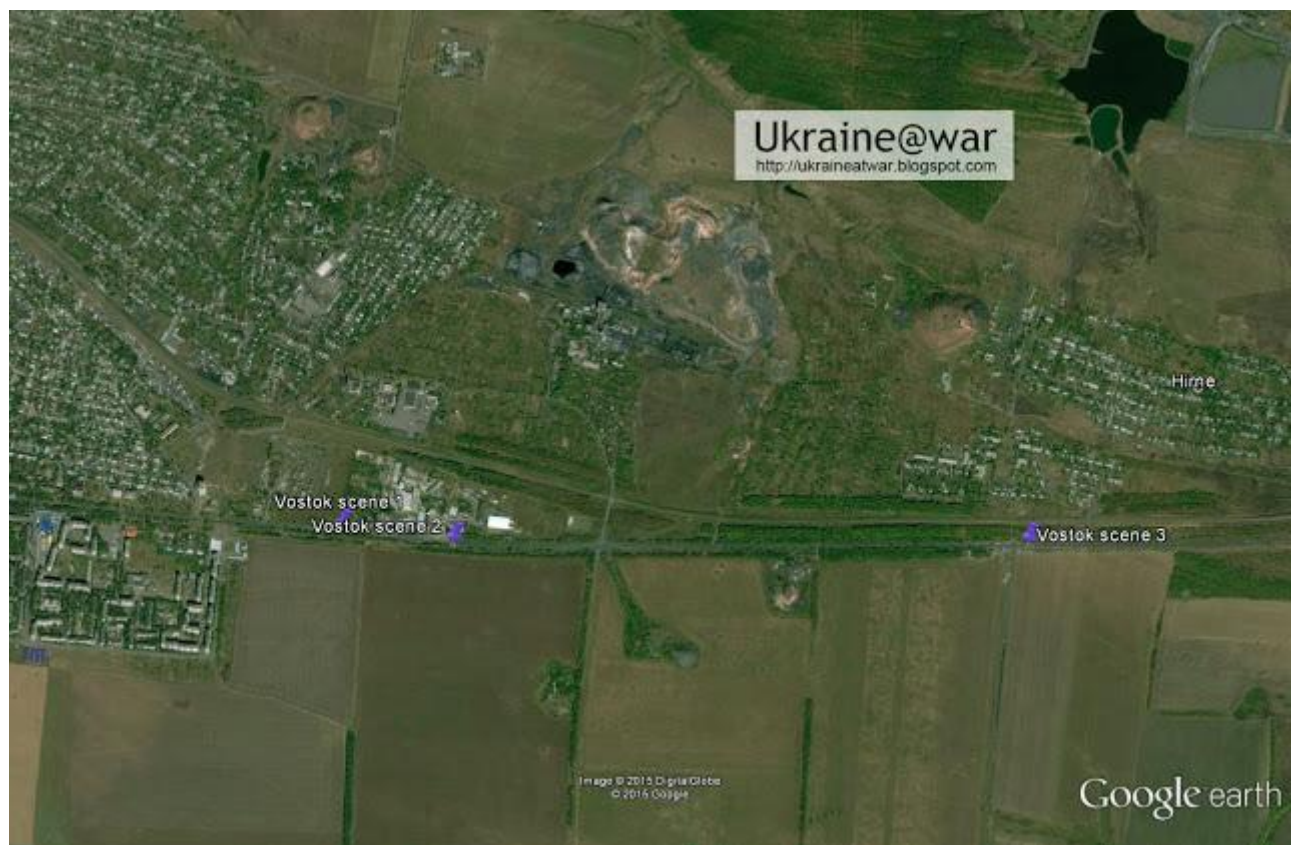
Scenarion 3 ... 5: ...

But there are more sources to prove the angle of the embankment...

Vostok at Shakhtarsk

The next video is recorded by Vostok itself and shows their convoy between Shakhtarsk and Hirne:

It is filmed at 3 locations:



1st location

Road with trees and a large building behind it:



It was filmed like this:



The shadows of the tank on the road almost seem to be perpendicular to the tank/road:



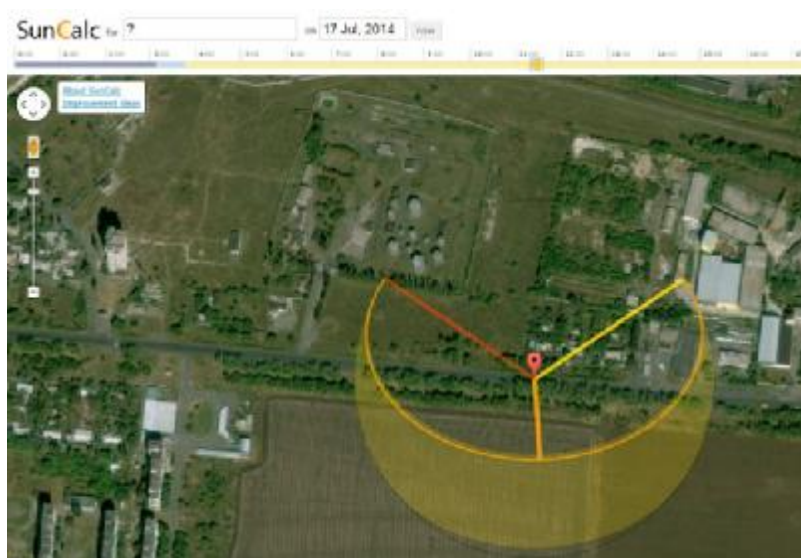
The shadows on the ERA (Explosive Responsive Armor) on the tank show that some light DOES fall on the front sides of them (large red circle):



but the left/back side has shadow (small red circle). The same accounts for the others (yellow ellipses). That means the light comes slightly from the front.

No, it means there is no direct sun light because it is cloudy already while the 12:08h BUK in Torez obviously cached the last sunbeams that day. Therefore the entire sky acts like a gigantic source of diffuse light from above. The shadows have no distinct edges but looking blurry from all sides of any light barrier that blocks any part of the bright sky.

So we can do a little more nonsense: On suncalc this corresponds with a local time of 12:25 or maybe a little bit less:



2nd location

The second scene is shot in front of this building:



...and as expected U@W do not mention the nice and distinct shadows below the canopy and the air conditions and even below the roof. So one has to ask why some kms down the road an embankment was calculated but this nice shadow was ignored?!

So the shadow below the canopy tells everyone without any doubt that the sun is exactly opposite to the building. Since we were told how to use Suncalc, let's simply do it (and don't forget to add one hour for the daylight saving time)! The building can be found at 48.032252° 38.513680° . And that's what we get:



It's about 12:45h EEST and a good moment to recall that SBU-contact Wowihay (who was far away from Donbass) reported the BUK in Torez at 12:08h and right in the minute a photo in front of the Furshet Market was shot.

It can be found here (red ellipse):



3rd location

The third scene is shot at the checkpoint



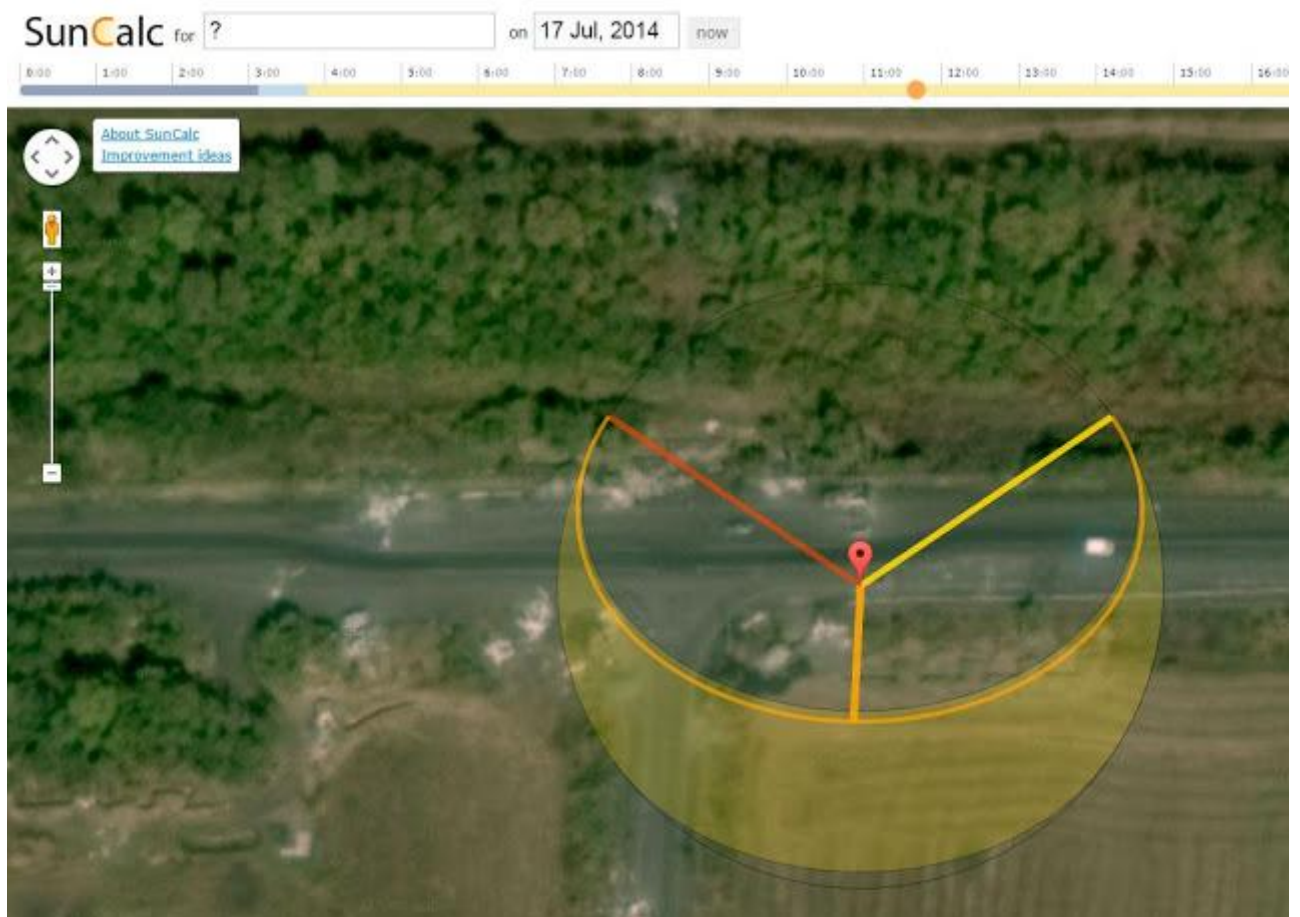
On the map:



This screenshot shows that the side of the stone we are looking at, is having/getting a shadow (in right half of red circle compared to very bright in left half).



Therefore the light comes slightly from the West. Suncalc gives a local time of 12:40 (or a bit later):



The distance from the Zuhres location to the first Vostok location is 16 kms. Assuming that

the truck passed Zuhres 10 minutes earlier than the loader (thus at 11:30), they traveled with an average speed of (16 kms in 55 minutes =) 17kms/hour. This is unlikely slow. The only good explanation for this is that they must have taken a break to prepare for the video they were going to shoot and thus stopped the convoy.

The second only explanation for this is that the embankment in Zuhres looks the same the whole day long and therefore the Zuhres timing is simply nonsense.

Scenario 1 (*already debunked*)/2

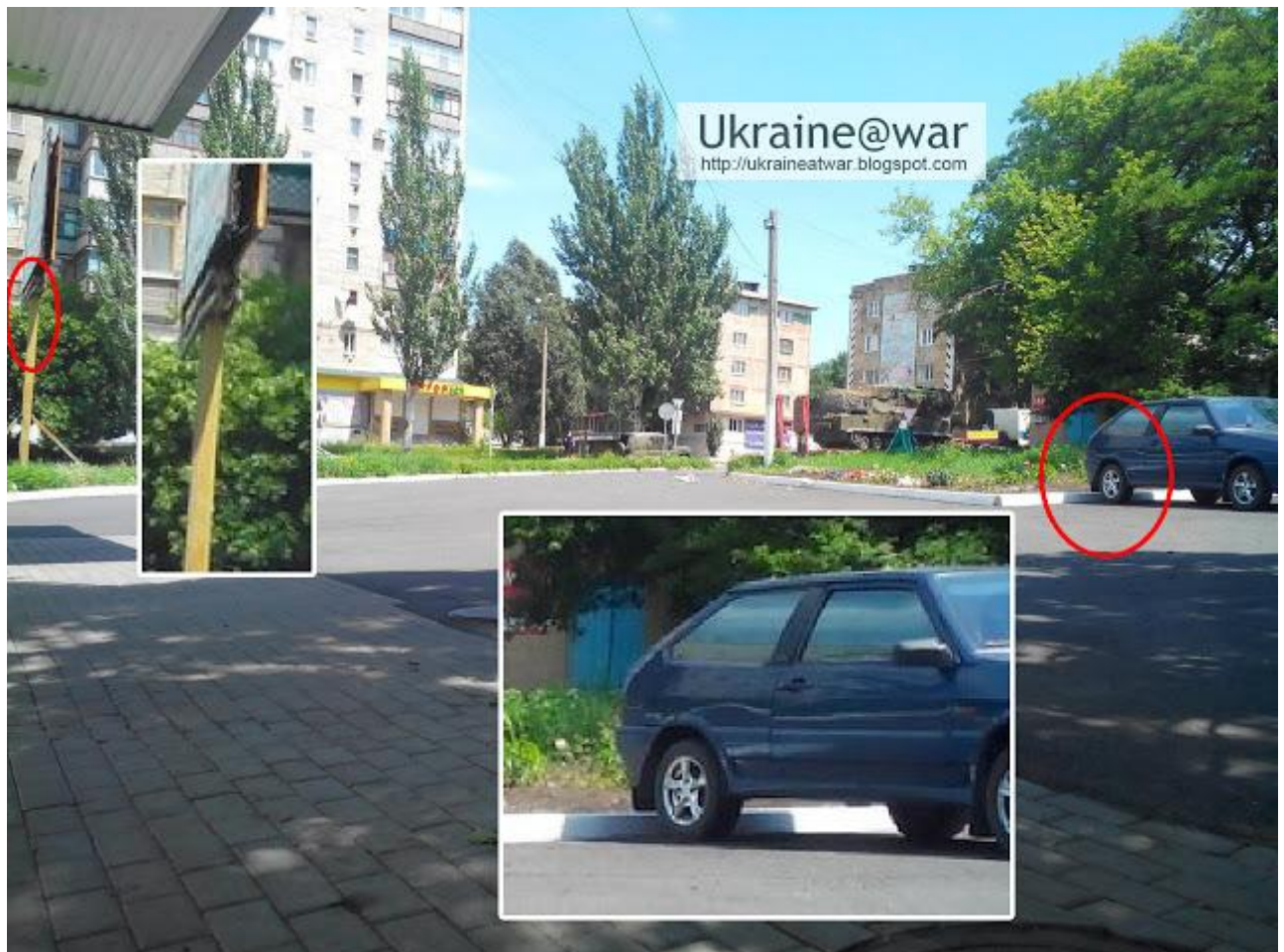
Meanwhile, even if the BUK was 10 minutes or more behind at Zuhres, it should therefore TOTALLY have been catching up with Vostok at this point!

But why was it not on the Vostok video? Either it must have been waiting behind them further down the road so Vostok could shoot their video. Or it even PASSED the convoy and drove UP FRONT of them.

Whatever the situation was, it seems they deliberately did not want to have the BUK on the Vostok video! In the end, no BUK means no BUK and TOTALLY wrong preconditions do not lead to the right results most of the time.

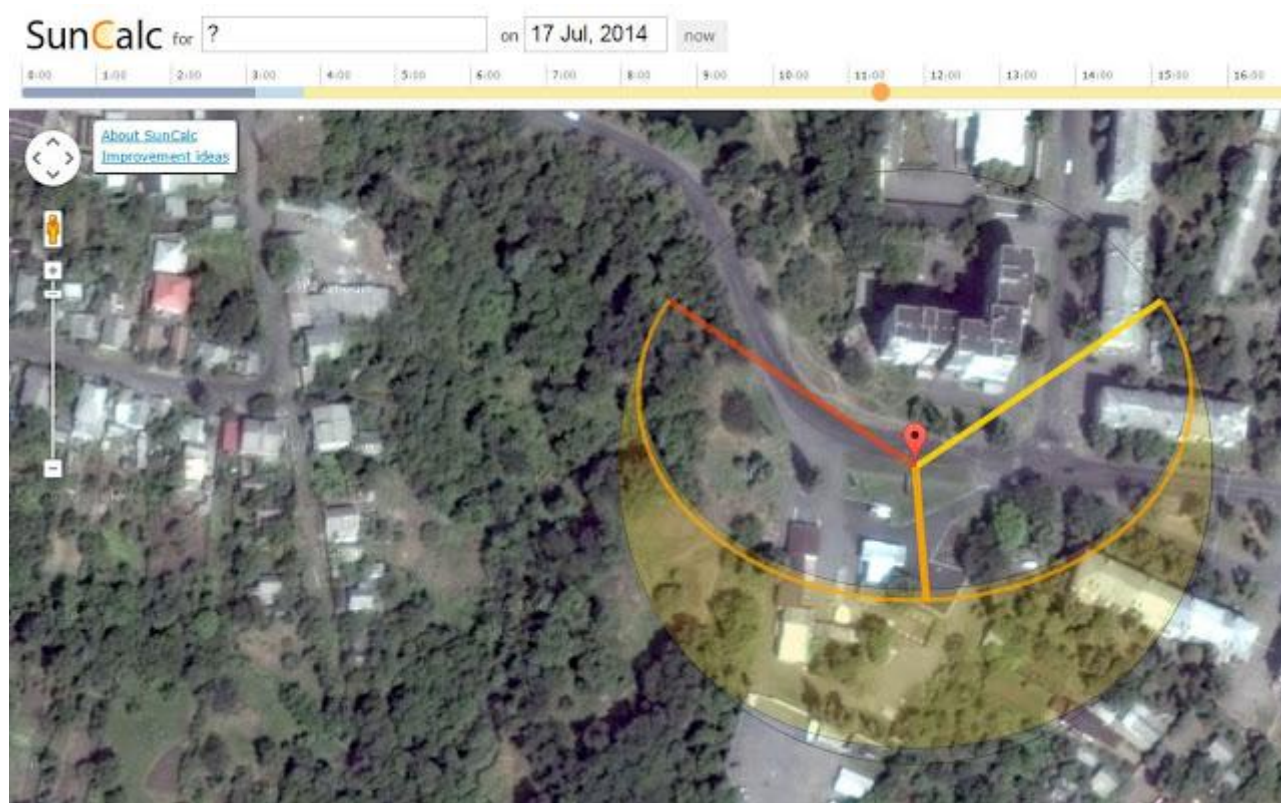
BUK photographed in Torez

When we look at the Torez photo:



we can see that the shadow on the billboard is at an angle, indicating sunlight hits the billboard from the right (left red ellipse). At the car on the right we can also see that the shadow is left from the car and thus the sunlight comes a little bit from the right side.

When we put Suncalc accordingly, we get a local time of 12:25:



This is consistent with the time reported in some tweets:

 **Хуевый Торез** @WowihaY · 17 Jul 2014
БУК едет через #торез на #снежное #Стоптерроп

Translated from Russian by  bing [Wrong translation?](#)

BEECH rides through #торез the #снежное #Стоптерроп

RETWEETS 275 FAVORITES 53



12:16 PM - 17 Jul 2014 · Details

But of course SUB-contact-man Wowihay (who was far away from Donbass) reported the BUK in Torez again and again starting at 12:07:



Don't forget to add 10 hours for the difference of the pacific time and EEST.

At 12:16 @Wowihay tweets that a BUK is driving through Torez in the direction of Snizhne. Do note that this is BEFORE MH17 was taken down and thus before anybody knew it was a passenger plane and thus before Russia/DNR tried to blame Ukraine for doing this.

It was even before the Ukraine blamed Russia for doing it with tons of faked evidence.



At 12:26 @MOR2537 tweets a similar message. It seems this "12-10" should be understood as the time 12:10. It can't mean anything else actually. **Right, Roman from Donezk (according to his account information) probably just repeated what others tweeted before. So is it right that both reported the BUK before it actually reached Torez? At least he people all around that Furshet and gas station said they saw no BUK there. Wowihay (far from Donbass) saw it? ...or heard about it just a little to early? But let's stay with Suncal for a moment. The sun at 12:25 shines almost parallel to the billboard and should cast a long long shadow down the pole.**



So how is it possible to prove the reported time of 12:07 to be wrong? Of course it is a complex relation of a lot of angles. So the best way is to rebuild the scene in a 3D model. The result is somewhat surprising:



(Of course U@W knew that result.) So obviously the BUK was reported just in time in Torez while the Vostok tanks needed additional 45 minutes to reach Schachtarsk. The blue canopy in the model simulates the angle of the building in Schachtarsk and it will takes a while until that shadow is vertical and the tanks will passing that point. In other words, the BUK is now about 1 hour ahead of the tanks.

These times mean that the loader had PASSED the Vostok convoy before they started to film it and was waiting here in Torez while they were filming. That's a nice idea to save the narration but at this place is a toy store and other business. No one saw the BUK.

Vostok filmed by RT
RT filmed the Rostov convoy that day:

From [this location](#):



And this video had been taken in the car behind it:

The shadows are less profound in these videos, making it much more difficult to find an exact time.

This screenshot shows that the light clearly comes from the left and the shadows of tank and car are projected to the right. But at what angle exactly?



If the light would exactly come perpendicular to the road, that would correspond with a local time of 13:15:



I have the impression that the light comes a little bit more from behind than from the front. To be safe we should maybe say that the time was somewhere between 12:30 and 13:30.

So the tanks left Schachtarsk at almost exactly 12:45h ... just to be safe. And Anna Reschtanenko reported 3 tanks at VK¹ 13:14h EEST while Lisa Avetisyan reported 3 tanks in Torez at Twitter² 13:16h EEST. Lisa even filmed the tanks and uploaded it on YouTube. So even if Bellingcat and friends try to sell Annas VK message as "BUK sighting" it is non. She and her friends debated over an hour about what's going on in Torez right at that time, about 3 tanks and some alarm and so on. No word about a BUK whatsoever. And finally no BUK means no BUK.

Green truck following Vostok

A green truck can be seen behind the white van, as well in the Vostok video as in the RT-video.



Thus it seems the Vostok convoy traveled the 9 kms from one to the other location (meanwhile passing the place where the loader was parked) without stopping. This would be a 10 to 20 minutes drive with an average speed between 25 and 50 kms per hour. Because Vostok filmed their last scene about 12:40 or a bit later, they could have passed the RT-car between 12:50 and 13:00.

¹ https://web.archive.org/web/20141110053620/http://vk.com/wall-70279965_83186?reply=83547

² <https://twitter.com/LisaAvetisyan/status/489715200657219585>

Without any doubt Vostok passed Schachtarsk at 12:45 +/- 5 minutes. The same tanks passed the roadblock and were seen, heard, reported and filmed in Torez at about 13:15h.

A BUK on a trailer allegedly was shot on photo in Torez at 12:07 and was exclusively reported from anywhere but from Torez while the tanks indeed passed Torez without a BUK and almost one hour later.

What's about Khmuryis order to go with the Vostok tanks?

What about the big terrorist convoy?



AP-journalists in Snizhne

In [this article](#) AP-journalist Pete Leonard reports about the BUK his colleagues had seen there:

Valery Sakharov, a 64-year-old retired miner, pointed out the spot where he saw the missile launcher.

"The Buk was parked on Karapetyan Street at midday, but later it left, I don't know where," he said. "Look — it even left marks on the asphalt."

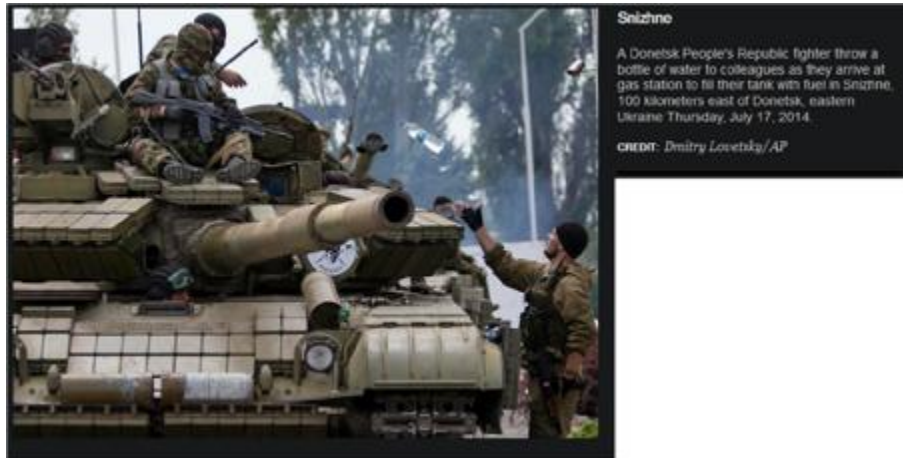
Even before the plane was downed, the AP had reported on the presence of the missile launcher in the town July 17.

Here is what that dispatch said: "An Associated Press reporter on Thursday saw seven rebel-owned tanks parked at a gas station outside the eastern Ukrainian town of Snizhne. In the town, he also observed a Buk missile system, which can fire missiles up to an altitude of 22,000 meters (72,000 feet)."

AP journalists saw the Buk moving through town at 1 05 p.m. The vehicle, which carried four 18-foot (5.5-meter) missiles, was in a convoy with two civilian cars.

The convoy stopped. A man in sand-colored camouflage without identifying insignia — different from the green camouflage the rebels normally wear — approached the journalists. The man wanted to make sure they had not recorded any images of the missile launcher. Satisfied that they hadn't, the convoy moved on.

Of course, AP-journalist Pete Leonard writes about that in the 3rd person because he didn't see a BUK with his own eyes. The AP-journalist behind the BUK-story most probably is Dmytri Lovetski who obviously was allowed to take a photo of the Oplot tanks outside of the city at the Lexus gas station where the 3 Vostok tanks joined the 4 Oplot tanks on their way towards Saur Mogila.



So he is the one who obviously saw the 7 tanks outside of Snizhne. He is also the one who shot a lot of well-known photos at the crash side and even the famous photos of the airstrike aftermath on July 15 in the center of Snizhne after a jetfighter fired 3 missiles into that building.



Of course, Kiev blames Russian jetfighters to shoot at the ethnic Russians in Snizhne. Does it make any sense?

The crucial question is, why is there no interview with AP-journalist Dmytri Lovetski about his observations that day in Snizhne? He could speak or write in first person saying "I saw..."

Summarizing:

1. Seven tanks were parked at the gas station;
2. at 1:05 the BUK was driving through Snizhne;

3. then it was parked at Karapetyan street;
4. before it drove to it's final destination.

So we have a BUK and we have tanks and there is not a single trace of the big terrorist convoy Tymchuk and Euromaidan invented. All times refute that allegation.

DEBUNKED

There are two gas stations in Snizhne on the route from Donetsk (yellow areas):



Google Earth shows that there is a blockpost there, with extensive trenches behind it and lots of space to park tanks and unload the BUK. Maybe they used the third abandoned gas station area (at the left) for this.

7 tanks is more then the 3 tanks we've seen in the Vostok convoy. These other four seem to be (arriving?) Oplot tanks who where later heading for Donetsk.

Journalists having lunch?

Wikimapia shows there are three restaurants in Snizhne:



The bottom one is exactly on the spot where the BUK was photographed and where retired miner Sakharov said it was parked: on Karapetyan street (red mark).

So it seems obvious to conclude the journalists were having lunch there when the BUK drove by and parked (almost) in front of them (but it could have happened in one of the other restaurants too of course). One of the guards seeing the journalists makes sure they didn't film it.

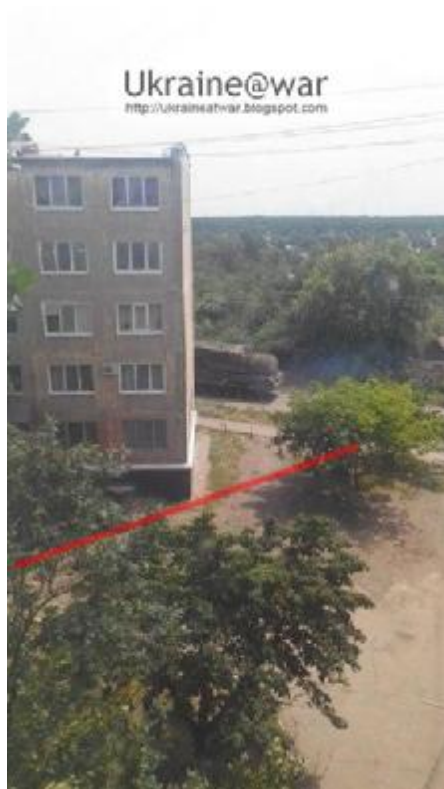
Take note: THEY DIDN'T WANT THE BUK TO BE FILMED!!

It means they didn't want Vostok or RT to film the BUK either. Maybe they did that anyways, but just didn't publish it. It is a good explanation of why the BUK is not on the (Russian made) Vostok videos.

It's more a kind of a strange excuse for not seeing the BUK on any video but the SBU releases. Only a disturbed mind needs to add a "Russian made" to the sentence above. Any child can handle a video camera and so pro-Russian Ukrainians can.

After Torez the BUK-loader drove AHEAD of Vostok...

And so on...
fast forward...



Suncalc gives a local time of something between 13:15-13:30:

Hence, at the same time the Vostok tanks were reported, seen, tweeted and filmed in Torez. What a mess!



It indeed means the BUK had been parked there for some time (10 to 20 minutes), just as retired miner Sakharov had said.

Now we come to the most important observation! Take a deep breath and sit down!

Ukraine@war writes the following (and by the way the same stupid idea was propagandized by Bellingcat):

Driving towards Pervomaiske

This screenshot shows a pretty clear shadow of one of the poles near the street:



The problem is: no other pole casts a similar long shadow and that very special "shadow" apparently extends to the opposite side of the pole. Is it an embankment again?

The most similar "shadow" is right in the foreground behind the BUK. The problem here: there is no pole.



So obviously the thin line across the street is just a cable running in the foreground of the street to the pole left of it. Even the BUK casts no shadow to the left. The only BUK shadow is behind of that vehicle.

Look at the fir tree right next to the BUK. The tip of the tree casts a shadow almost exactly down the road but in the opposite direction.



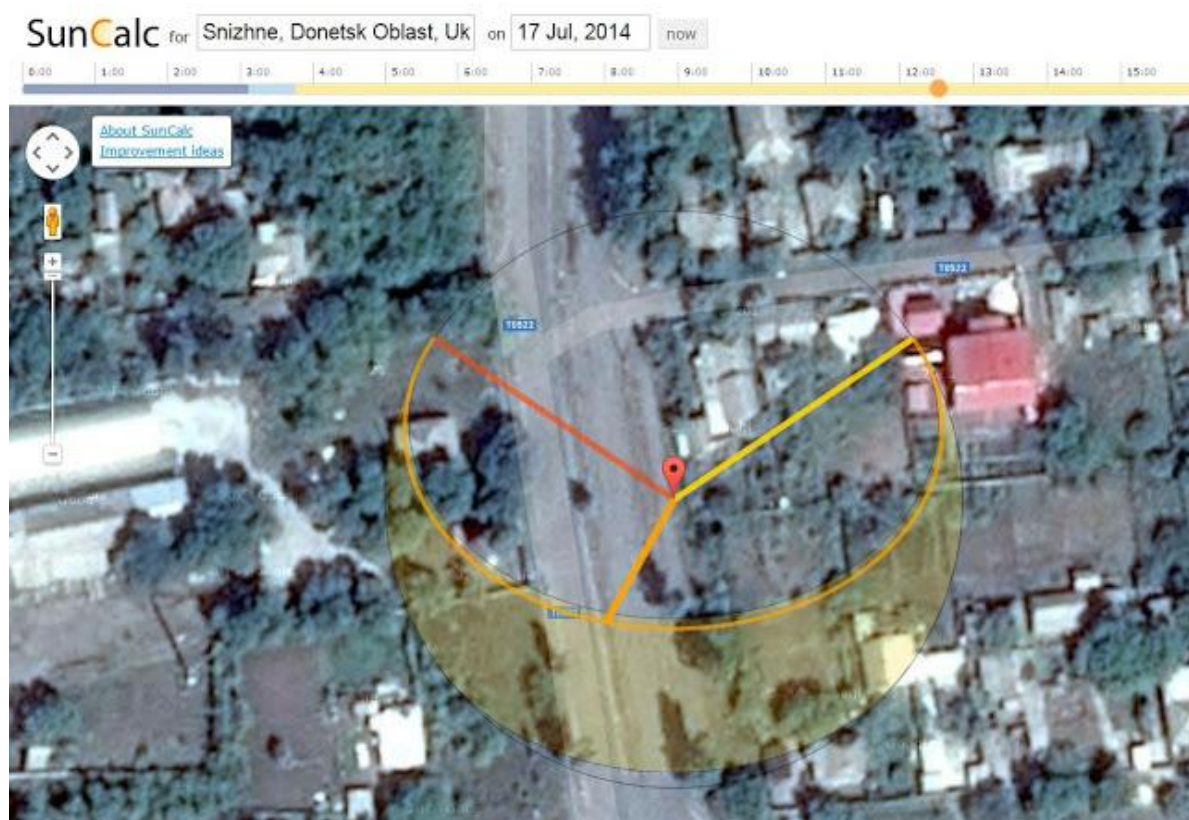
Even the trees above the book show the same pattern. The trunks of the trees are standing on the south edge of the shadow of their treetops.



U@W writes:

Tricky thing is the road goes up there, meaning the real angle (shadow created on a flat area) should be slightly more horizontal in this screenshot.

Projected in SunCalc:



It gives a local time of something in the neighborhood of 13:30.

Wow, now the Vostok tanks almost made it to Snizhne, right? But what if the shadows in the satellite image pointing almost in the right direction? U@W has a conclusion backing up the Bellingcat "findings":

It means it (BUK) did not stay long on its parking spot after the previous photo was taken.

So what is the right shadow here? Let's have a look at the houses in the foreground:





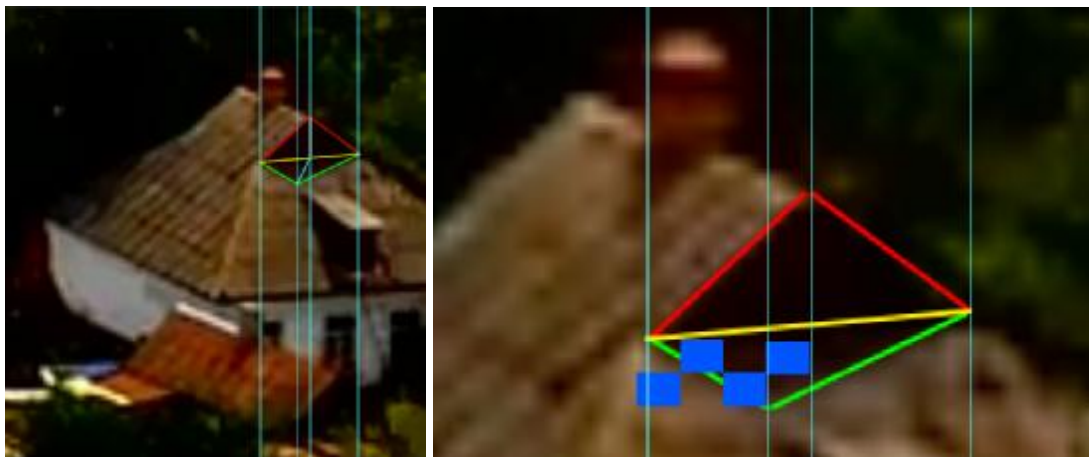
One important feature is the strange shape of the shadow. It seems that some sunlight shines onto the roof below the black cuboid.



Finally we have an additional feature for a more precise time estimate:



The sideways displacement of the tip of the shadow depends mostly on the angle of the house but not that much on the slant of the roof.



Without the need of a scaled real world model the lower tip of the shadow should be displaced a little more than $1/8$ of the width of the triangle but finally there are a lot characteristics which all together will give a good estimate of the actual time.

We need some data:

The front of the house is turned about 35° from north towards west. In contrast the street with the BUK and the fir tree leads almost exactly from north to south.

Sun:

Time EEST	Azimuth [°]	Elevation [°]
10:00	118,17	49,61
11:00	137,73	57,54
12:00	164,16	62,45
13:00	194,72	62,54
14:00	221,39	57,77
15:00	241,16	49,92
16:00	256,03	40,58

The result:
12:00h EEST



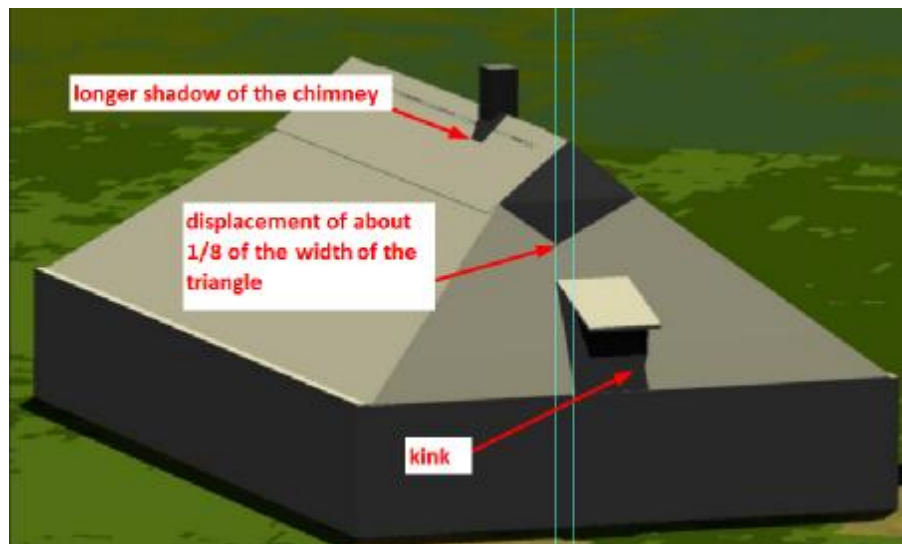
- half of the shadow of the treetop next to the street is on the street
- the tip of the fir tree points towards the camera
- the shadow triangle



12:30h EEST



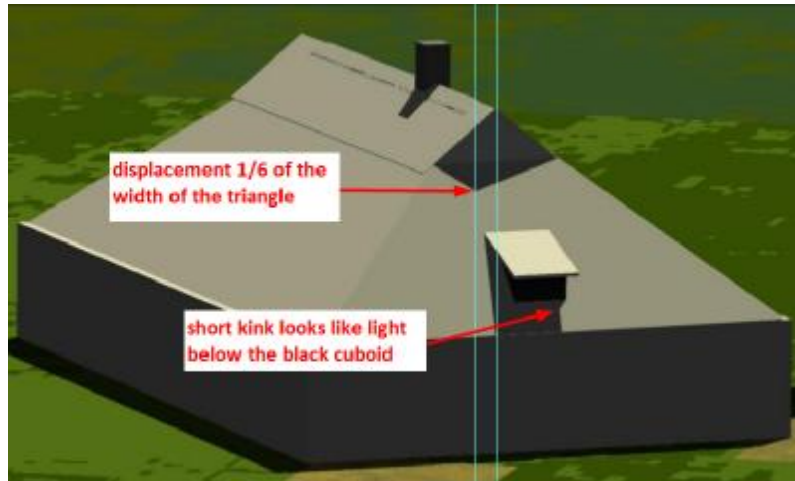
- shadow of the treetop still touches the street
- trunk of the tree on the south edge of the shadow
- the tip of the fir tree points down the road towards north
- the shadow triangle is displaced for about $\frac{1}{8}$ of the width of the triangle
- the shadow below the small roof starts to kink sideways



13:00h EEST



- Shadow of the treetop displaced away from the street
- Trunk of the tree on the south ... south west edge of the shadow
- The tip of the fir tree still points down the road but displaced from the centerline
- The shadow triangle is displaced for about $\frac{1}{6}$ of the width of the triangle
- The shadow below the small roof kinks sideways



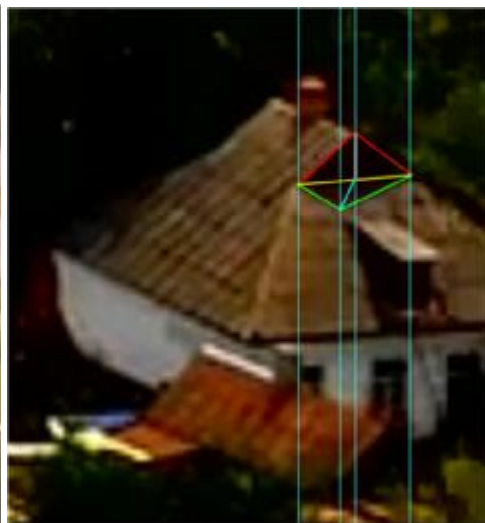
13:30 EEST



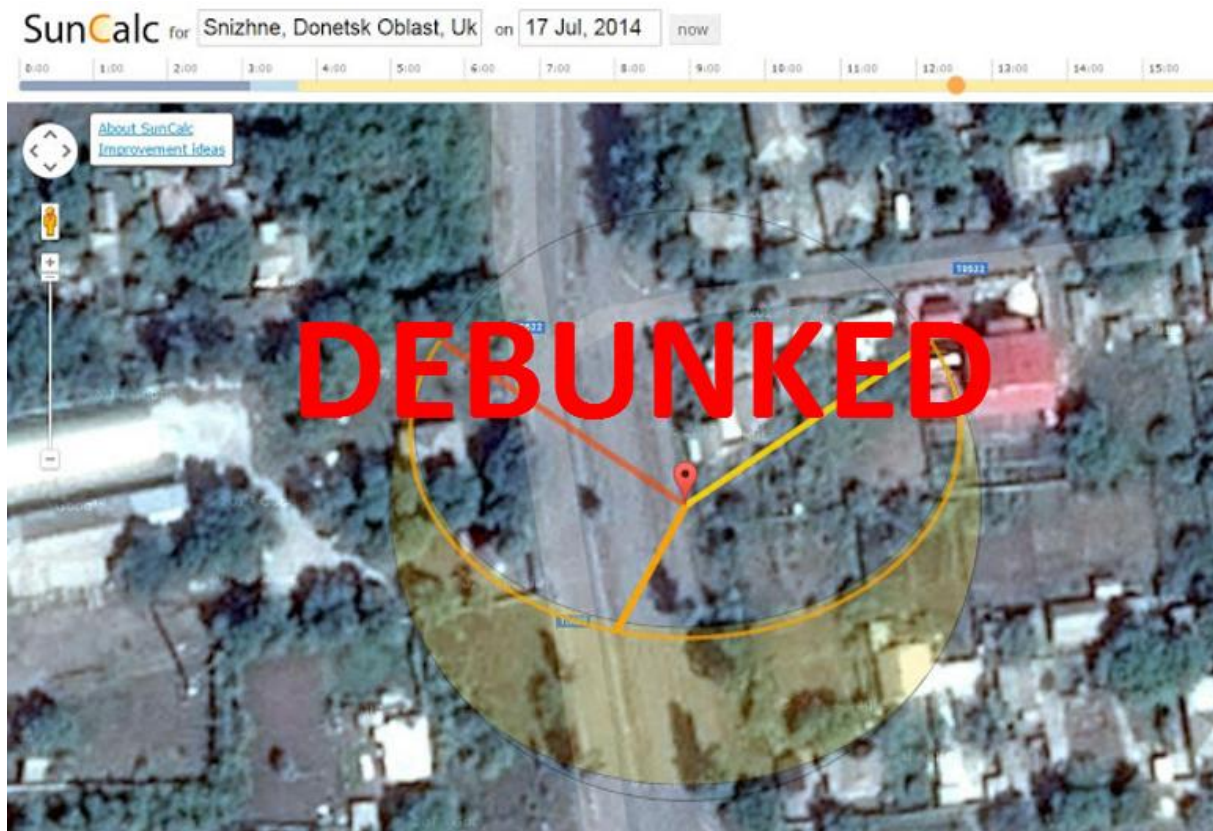
Obviously too late!

- The trunk of the tree is standing on the south west edge of the treetop shadow
- The triangular shadow almost disappeared and is displaced for about 2/6 of the width of the shadow.

In other words, these features...



...are prove that the video was filmed between 12:30h and 13:00h but close to 12:30h EEST.



So let's go fast forward to the conclusions of U@W:

Conclusions

Neither of the two scenarios can be completely excluded as impossible. But the "11:00" does seem to be more troublesome. Why did it wait for one hour, to rush towards the Vostok convoy, narrowly escaping the satellite with a stiff average speed for such a heavy transport and basically not travelling together with Vostok.

The "10:00"-scenario on the other hand fits a lot better. SunCalc seems to indicate this time; it left together with Vostok; with a convenient average speed; long out of range of the satellite. The only disadvantage: Paris Match must have reported the time wrong somehow.

In either scenario, with or without the Vostok convoy, the BUK-loader was still accompanied by two (Vostok) cars during the entire trip. **Vostok cars? Really?**

Even though Russian Trolls try to obscure and blur the events of that day and some things are not entirely clear, there is nothing really weird or odd here. If this story (a Russian BUK traveling from Donetsk to Snizhne to its launch-location) is invented and plugged by the Ukrainian SBU, the Russians can LEARN A LOT FROM THEM!!!

What does this conclusion tell about the author?

Every twist the Russian version takes turns out to be easily dismissed as fake, propaganda and lies. This (Ukrainian) story nevertheless is consistent right from the beginning. It never changed. It is still the same as it was on July 17th 2014. And so far none of the zillion attempts to discredit it have succeeded. Only the details become much more clear over

time, like in this blog. If this all is just a lie to blame Russia, the Ukrainian SBU can lie exponentially better than the Russian FSB!

Let me repeat it: "...easily dismissed as fake, propaganda and lies."

Or maybe it is just all simply true: the Russians shot down MH17 with their BUK...

Disclaimer: this is a reconstruction. Most times remain estimates. When more accurate data would come available, adjustments may be necessary. Some details we may never know. The big picture is nevertheless very clear.

If you see any errors or have additions or additional info, please contact me (best through twitter).

And that's what I will do. I'm very curious about the necessary adjustments.

One major adjustment is that either the BUK drove south then north and was seen by AP at 13:05 driving through Snizhne or the video was shot on a different day.

And while a BUK possibly maybe drove south that day the little Vostok convoy almost reached Torez.