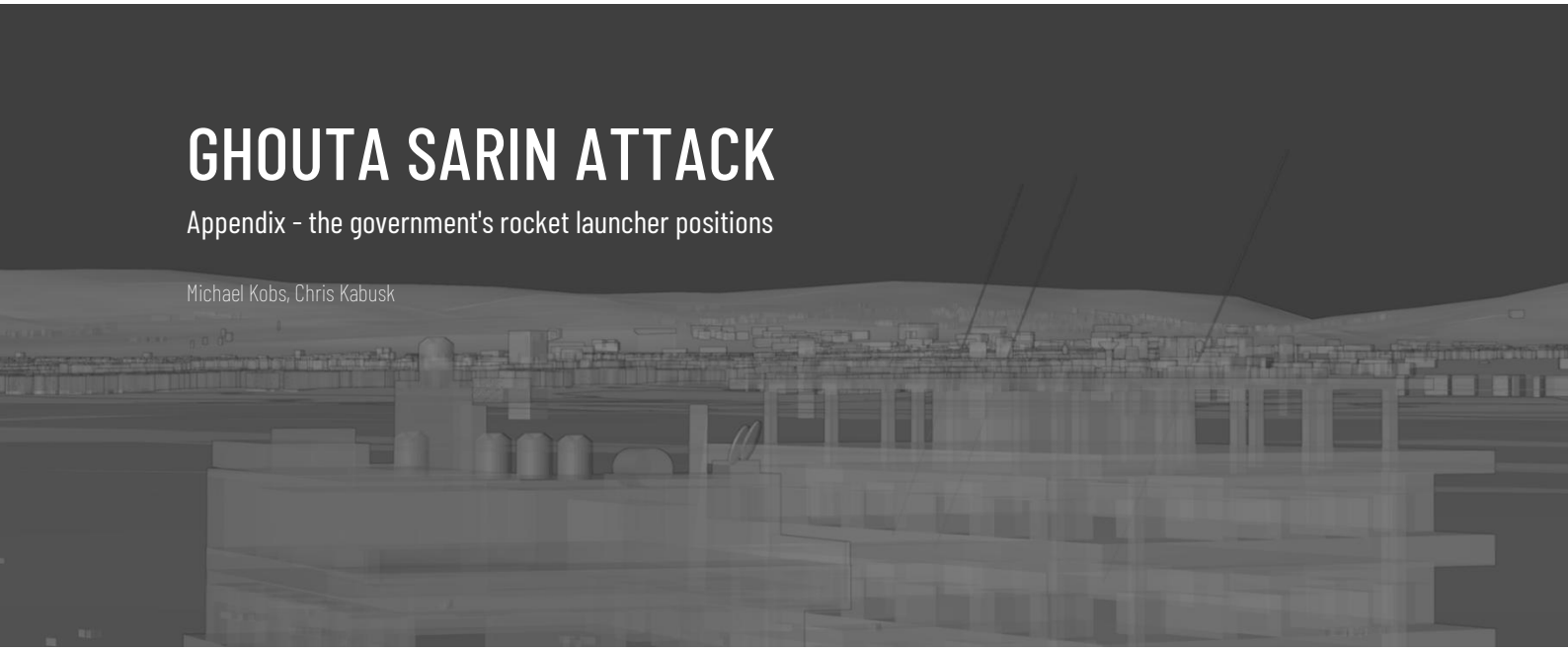
GHOUTA SARIN ATTACK

Appendix - the government's rocket launcher positions

Michael Kobs, Chris Kabusk



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Capital Shield

The sarin attack on Ghouta in the early morning of August 21, 2013, resulted in international condemnation and isolation of the Assad regime. Ironically, Assad's government had urgently requested the UN to conduct on-site investigations into a chemical weapons attack on government troops. When UN investigators arrived in Syria in the summer of 2013, the opposition blocked access to the site of the chemical attack, fired on the UN investigators, and prevented on-site investigations. The UN delegation was only able to interview victims in hospitals and concluded that the opposition had used sarin.[1]

UN's Del Ponte says evidence Syria rebels 'used sarin'

6 May 2013

BBC

Carla Del Ponte: "I was a little bit stupefied by the first indication of the use of nerve gas by the opposition"

The BBC article reflects the tense situation in which UN investigators were supposed to find the truth.

„However, a member of the main Syrian opposition alliance, the National Coalition, denied rebel fighters had done so. "The claim is unsupported," Molham al-Droubi told the Reuters news agency. "There is no objective evidence." US officials also said Washington had no information to suggest Syrian rebels had the capability or intention to use Sarin. Last week, the US and UK have said their own investigations suggest government forces have used chemical weapons. British Defence Secretary Philip Hammond said the evidence was quite compelling, but that it would need to be incontrovertible before the case for an international response could be made at the UN. On Monday, Russian foreign ministry spokesman Alexander Lukashevich said it was deeply concerned by "signs that world public opinion is being prepared for possible military intervention" in Syria."

Nothing about the alleged "independent investigations" by the US and UK has ever been disclosed. Instead, it can be assumed that the UN investigators were under enormous pressure. In this situation, the largest sarin attack since the Iran-Iraq War took place practically outside the hotel windows of the UN investigators, who – hindered in their investigations by the opposition – had to kill time in Damascus.

The timing coincided with a second event. Damascus was under severe pressure, mainly from fighters trained in Jordan who had gathered in Ghouta with the clear mission of taking Damascus.[2] On August 20, the Assad government launched its counteroffensive, dubbed "Capital Shield."

L'Orient Le Jour wrote on August 27, 2013:

"Lebanon and the entire region are now holding their breath... awaiting Western strikes in Syria and, above all, their results and consequences. ..."

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[1] https://www.bbc.com/news/world-middle-east-22424188

[2] https://www.lorientlejour.com/article/830086/-le-8-mars-croit-en-limminence-dune-frappe-occidentale-en-syrie.html

This first sentence alludes to the US's intention to respond to the sarin attack with military retaliation. The US Navy was ready to go until Obama called off the attack at the last minute after his security advisor had to tell him in private that the evidence of the Assad government's responsibility was not a "slam dunk." This phrase had previously been used for the false evidence of WMDs in Iraq. Obama apparently wanted to avoid the scandal and canceled the military intervention at the last minute. This put him under severe pressure from the regime change lobby, because on the one hand, Obama did not enforce his "red line" as promised, and on the other hand, the PR slogan "Assad gassed his children" was used.

L'Orient Le Jour went on to write: "... For the past five months, a force of approximately 5,000 men has been formed and trained in Jordan, under the supervision of Emir Salman (the British press has also reported on this), with the aim of assisting the famous "Islam Brigade" (made up of 25,000 soldiers commanded by Colonel Zahran Alloush), stationed in the Ghouta region and which had not yet managed to make any breakthrough towards the capital, despite the help of Jabhat Fath al-Assima, affiliated with the al-Nusra Front, which is based in Jobar, an area which opens the way to Jordan.

Having learned of these preparations, the regime launched a preemptive operation in Ghouta last Wednesday, successfully occupying the Abbasid towers overlooking the capital and the Jobar region. This operation, dubbed "The Shield of the Capital," saw the army deploy five armored units. Had it been completed, it would have secured another strategic victory for the regime's forces, pacifying the entire region stretching from the capital to Jordan and Lebanon, passing through Zabadani and Qaboun, and reaching almost as far as the Ersal district.

Those within the March 8 Alliance are convinced that the chemical weapons affair was launched immediately to force the regime to halt its offensive, thus allowing opposition forces to regroup and reorganize."

The sarin attack the day after Operation Capital Shield began ended the counteroffensive and froze the situation in Ghouta for the next five years. The UN investigators dropped the case they had been called in to investigate. Instead, they investigated the attack that took place practically outside their hotel window. As we demonstrated in our report "Ghouta Sarin Attack - Review of open source evidence,"[3] the UN report contained an angle error of 30°, which cannot be excused as a measurement error. This incorrect angle, together with an exaggerated range, was then used by media outlets and human rights groups such as Al Jazeera and HRW to attribute responsibility for the sarin attack to a specific military base and to accuse the Syrian government. Under the pressure thus created, UN investigator Del Ponte also withdrew her earlier assessment. However, as we also showed in our report, everything described so far is based on assumptions and even falsifications. In a further report on the 10th anniversary of the attack, we also proved that in 2013, the opposition was trained in the use of chemical weapons, knew the storage locations, and in at least one case also captured large quantities of chemicals."[4]

So what happened that night? On August 20, Liwa al Islam shot down a helicopter over Ghouta.[5]

[3] https://www.michaelkobs.de/Papers/Ghouta_Sarin_Attack_2013_open_source_evidence.pdf
[4] https://www.michaelkobs.de/Papers/Ghouta_Sarin_Attack_10_years_after.pdf
[5] https://www.youtube.com/watch?v=h6Y5xX0mtIc

On the night of August 21, the Syrian army planned an attempt to break through with tanks on the highway between Zamalka and Jobar. They hoped to cut off the smaller Jobar, dominated by Al Nusra, from the rest of Ghouta, dominated by Liwa al Islam, in order to regain control piece by piece.

The video is no longer available on YouTube, but the accompanying text in Google Translate said the following:

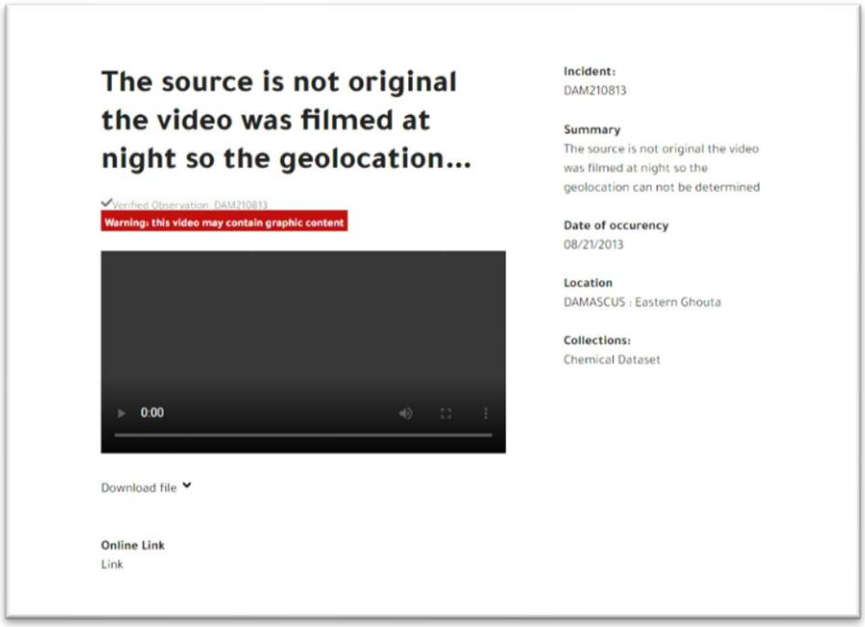
> Orient News | Destruction of the regime's mechanisms on the southern lane and cutting off all supplies
>
> The rebels continue to target the military vehicles destined to support the regime's remaining barriers on the southern corridor in Damascus, where the rebels managed to destroy dozens of tanks and armored vehicles during the past few days to prevent the regime from advancing and controlling the most strategic points on the corridor, which separates the Jobar neighborhood and the cities and towns of Eastern Ghouta. More in the Context Our correspondent Yaman Al-Sayed reports
>
> Yaman El-Sayed - Orient News - Southern Highway

Whether the attempt took place or was successful is not confirmed by sources. What is certain, however, is that it was a night of chaos and that the Syrian army had not waited until August 20 to position rocket launchers and fire on opposition areas. However, three videos were uploaded during the night, claiming to show the launch of sarin missiles. In this respect, these videos and their evidential value are of utmost importance for this attack.

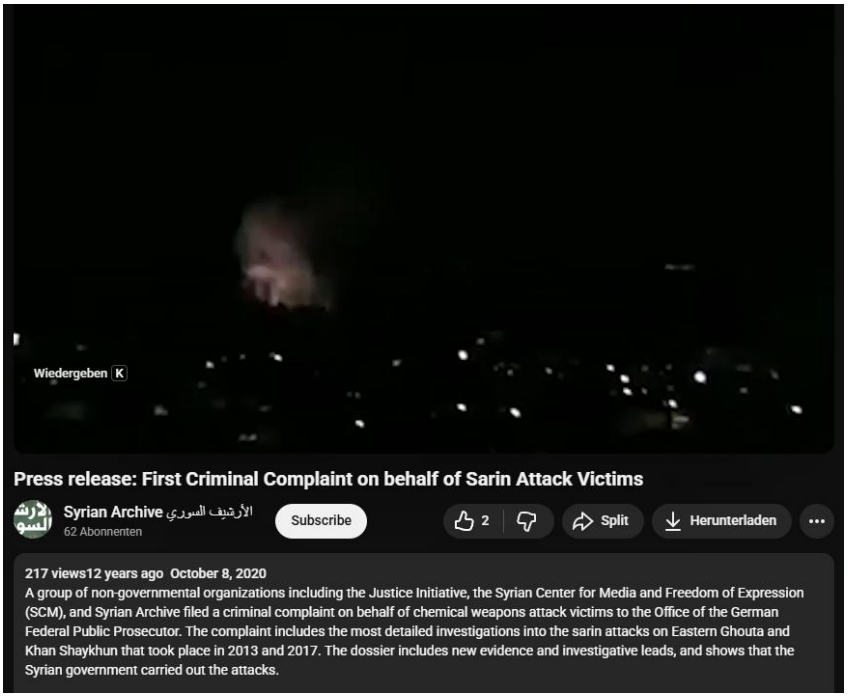
The Amer Mosa Video

https://www.youtube.com/watch?v=GUGrW-SjjbU

The video was uploaded to YouTube on the morning of August 21, 2013, at 04:09:55 EEST. The title reads "The moment missiles loaded with chemical warheads were launched at Zamalka and Ain Tarma." The video contains few clues. The Syrian Archive listed the video as "Incident DAM210813" and wrote "The source is not original; the video was filmed at night, so the geolocation cannot be determined."



Nevertheless, the Syrian Archive used this video to open their video entitled "Press release: First Criminal Complaint on behalf of Sarin Attack Victims."[6]

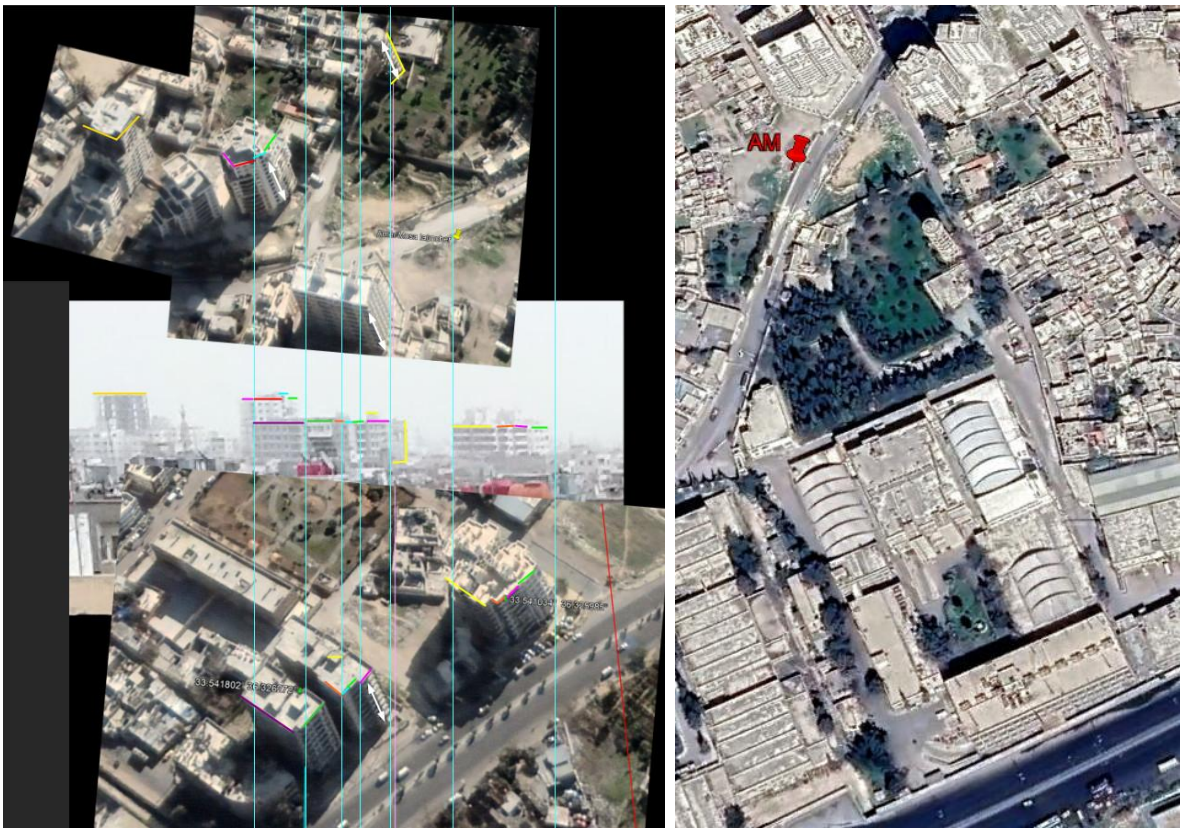


[6] https://www.youtube.com/watch?v=NTfbbI0f0i8

At second 5, the video shows the launch of a rocket with a burn time of about 2.5 seconds in the smoke from previous launches. Even though the illuminated smoke spreads the light widely, it remains limited on both sides, suggesting a gap between buildings in the foreground. Furthermore, a tall structure reminiscent of a typical water tower can be seen. In addition, illuminated reddish walls can be seen in the foreground on the right. Furthermore, the perspective of the city lights and the high horizon suggests an elevated view.

While reviewing numerous night videos of the armed conflict in Damascus, we also came across a group of activists who had published very similar videos on various platforms. The same reddish walls appeared repeatedly in these videos, so we were gradually able to create a panorama of the night lights.

Other videos from the same group helped us to assign individual groups of lights to specific buildings. These, in turn, led us to the camera's position (33.554175° 36.309241°) on the country road above HIAST using perspective lines. From there, it is easy to find a Google Earth photo of a school from almost the same perspective.



This photo shows the water tower we are looking for on the horizon, between the houses, as it can also be seen in the Amer Mosa video. The rocket launcher was therefore located at 33.539169° 36.328329° north of the industrial area. It fired over the water tower, which roughly corresponds to the direction of the sarin rockets. However, it was more than 3.5 km away from the impact sites of the sarin rockets.

As our example in the video for the first part of our Ghouta investigation shows, the range of these rockets is almost exactly 2 km. At the same time, the flight time to reach this distance is about 16 seconds.

So if this rocket launcher fires away from the Amer Mosa camera, the rocket would hit 16 seconds later. From the impact site, it is then 4.4 km back to the camera. This means that the sound of an explosion would reach the camera after another 12.8 seconds. That is 28.8 seconds. The rocket in the Amer Mosa video ignites at 5 seconds. This means that the sound of an explosion would reach the camera at 33.8 seconds. The Amer Mosa video ends at exactly 33 seconds.

Research on Amer Mosa also shows that the media activists of the opposition group who posted the video online filmed numerous night videos of this location over a long period of time, documenting explosions and rocket launches. They therefore had a large archive. In this respect, the Syrian Archive's description "The source is not original; the video was filmed at night, so the geolocation cannot be determined" takes on a whole new meaning.

The DC Pulsation Video

https://www.youtube.com/watch?v=l96_ul_lhGY

This video was uploaded with the logo of the group DC Pulsation at 2:38:09 EEST Syrian local time. The accompanying text says „More than 12 surface-to-surface missiles were launched from the area known as (Al-Assad Suburb) towards Eastern Ghouta after 2:00 AM. ... The Pulse of the Capital... Victory is achieved through the unity of the revolutionaries. Media Office of The Pulse of the Capital, Syrian Revolution Coordination in the Al-Midan neighborhood and surrounding areas".

The surprising thing about this text is that the start of the gas attack is almost unanimously assumed to have been at 2:30 a.m. local time. Just eight minutes later, DC Pulsation mentions the 12 rockets that were later found to be sarin rockets. However, loading a launcher must be done with a crane. This in turn means that a launcher must be reloaded six times, which takes some time. If loading and firing takes only 10 minutes, then the attack would have started at 1:30 a.m., or more likely at 12:30 a.m. However, there are no earlier posts on social media, and even the Syrian Association for the Defense of Human Rights (SADH), which has excellent connections within the opposition, writes the following day:

"This morning, Syrian government forces committed a horrific massacre against civilians in Eastern Ghouta, in the Damascus countryside. According to the latest statistics from medical centers, approximately 1,228 people were killed and more than 3,000 injured, including hundreds in critical condition. This morning, Syrian government forces targeted towns in Eastern Ghouta with missiles carrying chemical warheads during a fierce and concentrated barrage of 29 missiles (beginning at 2:45 AM). All of them landed in densely populated residential areas while civilians were sleeping."[7]

The video shows a rocket launch in the distance.

As with the Amer Mosa video, the group around DC Pulsation has also released a number of videos from the same perspective, which made it much easier to locate the camera.

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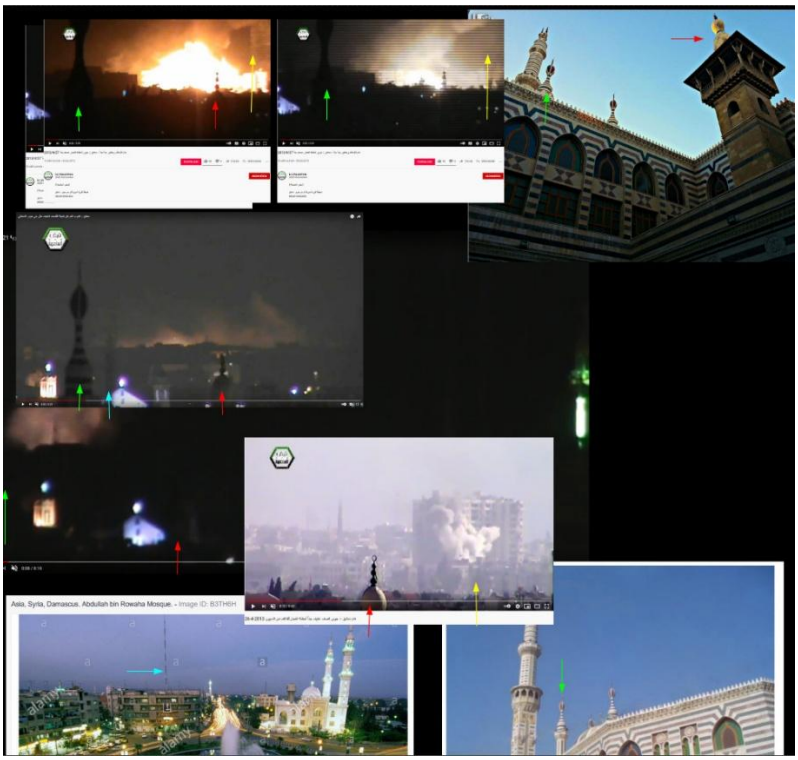
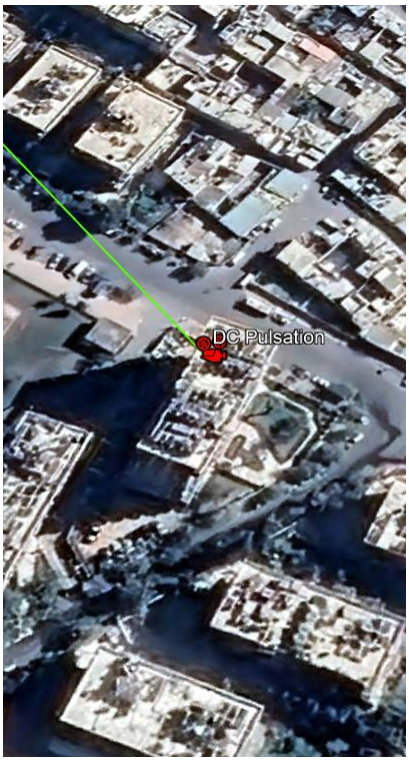
[7] https://www.asharqalarabi.org.uk/%D9%85%D9%86-%D8%A3%D8%AE%D8%A8%D8%A7%D8%B1-%D8%AD%D9%82%D9%88%D9%82-%D8%A7%D9%84%D8%A5%D9%86%D8%B3%D8%A7%D9%86-%D9%8A-%D8%B3%D9%88%D8%B1%D9%8A%D8%A9-22-08-2013_ad-id!4246.ks





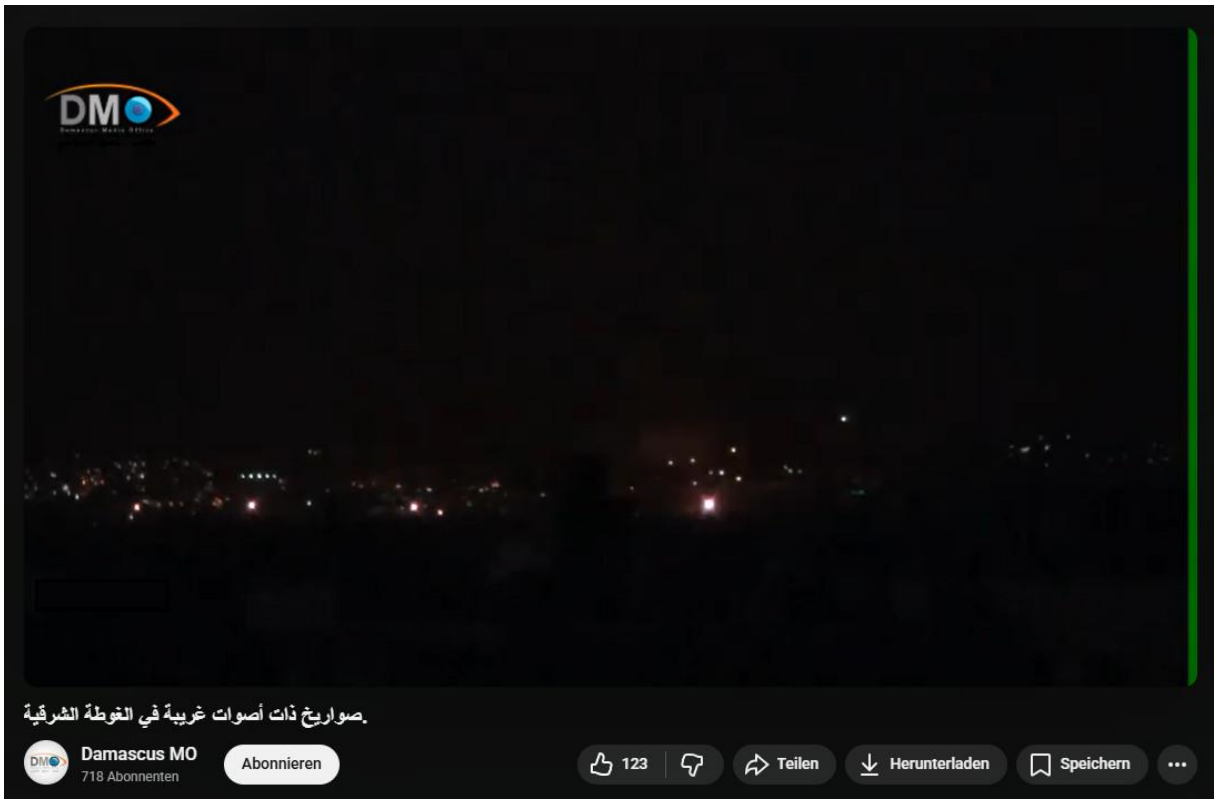
The Mangak Mosque (33.493672°, 36.297707°) stands out in the foreground, in front of the white façade of St. Mary's Greek Orthodox Cathedral (33.510030°, 36.311760°) and the brownish tower of the Armenian Catholic Diocese (33.513076°, 36.313749°). The line of sight places the camera on the roof of a high-rise building (33.489969°, 36.294704°) near Mahayni Hospital.

When the rocket launches, a box-like building with a short, thick antenna or power pole can be seen in front of the illuminated smoke. This is undoubtedly a factory building (33.530844°, 36.328407°) near the bus station. The line of sight leads to the northern edge of the industrial area, although it is not possible to tell from this video alone how far behind this pole the rocket launch pad was located.

The DMO Video

https://www.youtube.com/watch?v=_gLsKrB2PV8

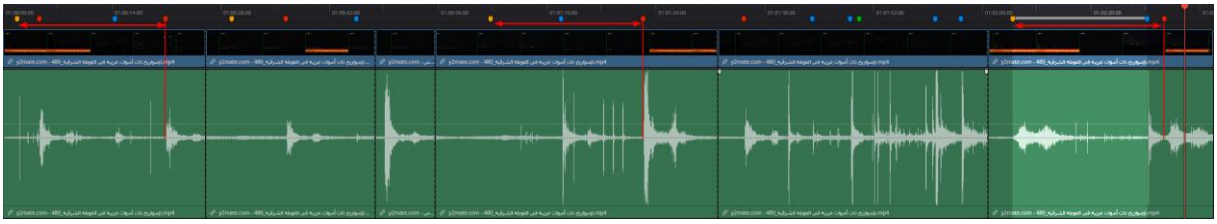
This video was uploaded to YouTube at 4:13:52 p.m. EEST local time. The accompanying text reads: "The Assad regime attacked Eastern Ghouta with chemical weapons, and on the night of the chemical attack, the Damascus Media Office filmed and recorded strange rockets that were seen for the first time and made unusual noises. More than 7 rockets were observed, some of which we are broadcasting in this recording."



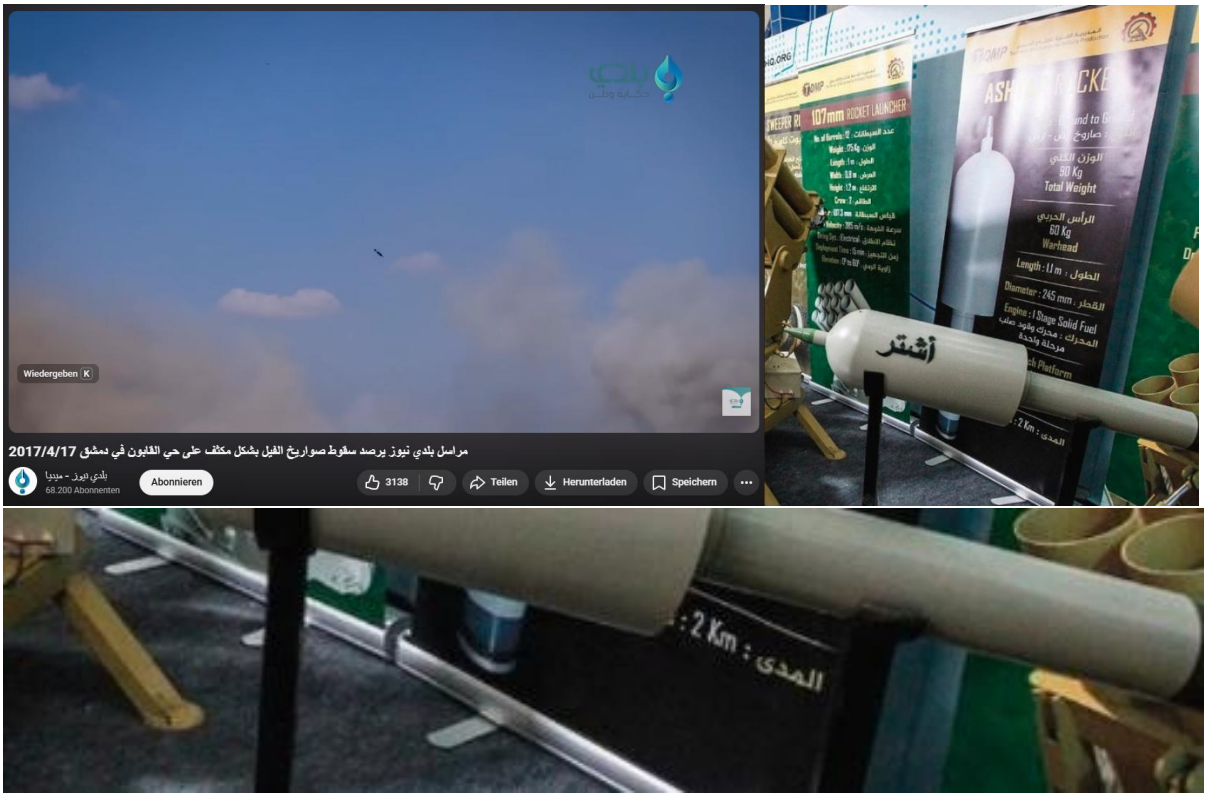
This video consists of at least six partially cross-faded parts and shows four rocket launches. The first three have a burn time of about one second. A total of six launches can be heard, the first five of which make the peculiar sound described in the accompanying text. Only the last rocket launch has a burn time of 2.5 seconds, which corresponds to the type of Volcano rocket used to fire the sarin.

However, as with the Amer Mosa video, this last part is cut off too early, so that a possible explosion sound could not reach the camera.

The time lag of approximately 19.8 seconds between the visible rocket launch and the corresponding sound is repeated three times. It can therefore be said with some certainty that this launcher is approximately 6,800 meters away from the camera. More precisely, there are two launchers at the same location, firing two different types of rockets.



The howling sound, which is described as novel in the accompanying text, is undoubtedly related to a burn time of one second, i.e., not the type of rocket used to fire sarin. It is most likely the smaller "Volcano" type, which is based on a 107mm rocket motor. Iran manufactures these rockets in series as 245 mm caliber, and videos show this type with the howling sound in use.[8]



The Iranian manufacturer states that this missile has a range of 2 km. This means it has the same range as the medium Volcano type based on a GRAD motor. However, it can be completely ruled out as a sarin missile, as no missiles of this type were found at the impact sites.

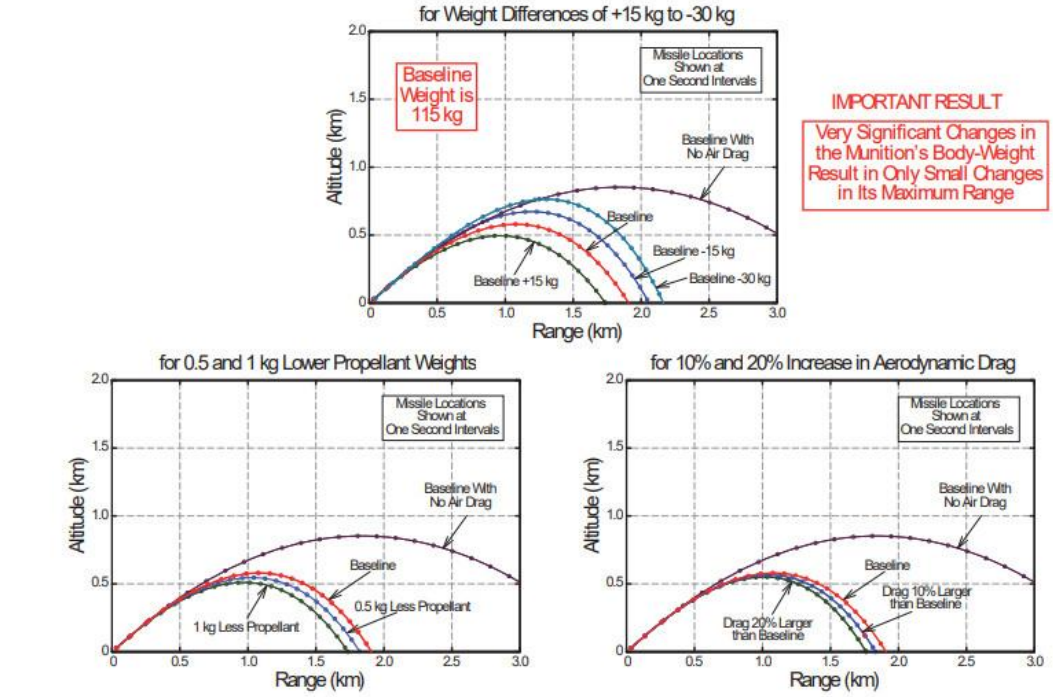
At this point, we would like to refer explicitly to the analysis by weapons experts Lloyd and Postol, which remains undisputed to this day and calculated a range of 2 km for the sarin type of Volcano missile. As mentioned above, this range is confirmed by videos known today, while the 2013 calculation was based solely on the analysis of the debris from that unknown weapon. However, it is also important to understand what the two experts clarified in red and under the heading "IMPORTANT RESULT." Even a significant change in weight has little effect on the range. They calculated greater ranges of 2.5 km for high-performance fuels or conical tips. Nothing of the sort was found at the sarin impact sites.

Why is it important to understand this? Because to this day, the community of "Assad gassed his children" propagandists is leaving no stone unturned in its efforts to twist the facts of that night to suit its desired outcome. To this day, they like to talk about a range of "actually up to 2.5 ... or 3" kilometers, which is simply false.

Even the head of the UN investigators got flustered at a press conference in 2013 when he was asked about this and began to stammer that no one knew what these rockets were filled with, how heavy they were, and so on... *"It all depends. But 2km are a fair guess."*

We know what these rockets were filled with, and variations in weight have little effect on range. That is what the red frame means.

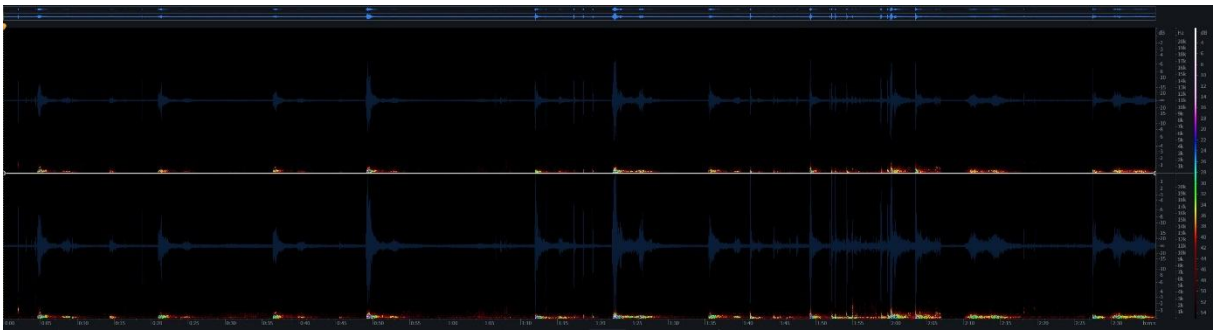
[8] https://www.youtube.com/watch?v=NIvvzIIX9t0



If the small Volcano variant with its 107 mm motor flies against the same gravity, covers the same ballistic curve, and ultimately achieves the same range, then it can be assumed that it also requires a flight time of 16 seconds.

This means that this rocket will strike at a distance of 4800m after 16 seconds from a distance of 6800m, as long as it flies directly towards the camera. The sound of an explosion would then take another 14 to 17.5 seconds to reach the camera. In other words, depending on the angle of fire, the sound of an impact reaches the camera at the earliest 30 seconds after the visible launch. The impact would be expected 10 to 13.5 seconds after the whistling sound. So why don't we hear an explosion?

A look at the audio track of this video reveals something truly astonishing. All of the energy in the sound is below 400Hz. The explosions are even below 100Hz. And yet we hear the roosters crowing, even though they cannot be seen in either the waveform or the spectrogram. The cameraman's footsteps and voice are clearly audible, but they too do not leave the usual streaks of their formants.

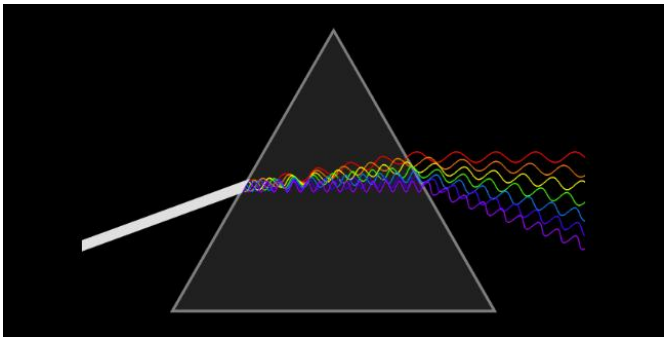


Apparently, several physical and technical phenomena play a decisive role here.

Firstly, the rocket's whistling sound occurs at altitudes of up to 1000 m, while the explosions always take place on the ground. The proximity to the ground, with buildings and plants, acts as an excellent low-pass filter that absorbs all high frequencies. The whine at an altitude of 1000 m is significantly less affected by this and can spread relatively unhindered

over 7 km. We literally only hear the proverbial "rumbling of war" from the explosions. And this is still intense enough to cause the waveform to swing fully.

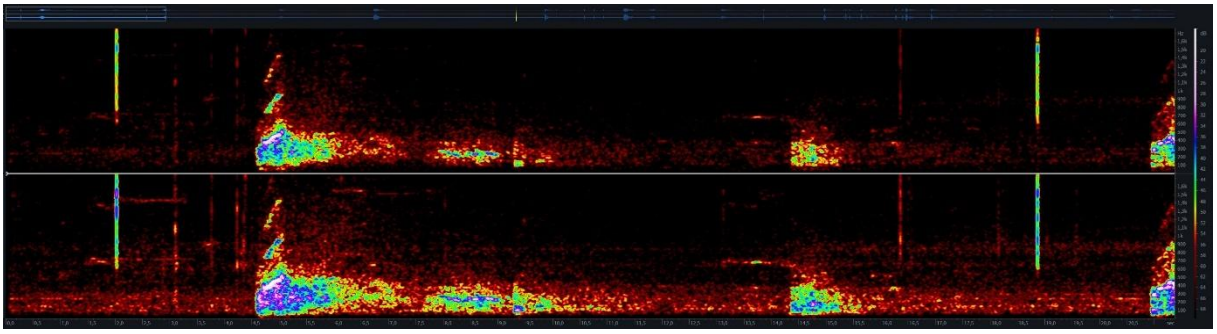
Secondly, at night, higher altitudes are warmer than at ground level. At the same time, the speed of sound is greater in warmer air. This bends the sound waves downwards towards the ground. This is also known as "refraction" of sound. However, low frequencies are refracted less than high frequencies. This means that the high frequencies of the explosions are bent towards the ground, which filters out high frequencies in particular, as described in the first point.



Thirdly, technical devices such as cameras, smartphones, etc. filter out low frequencies during recording because they do exactly what is obvious in the recording—they "steal" the entire amplitude height with frequencies that our ears can hardly hear.

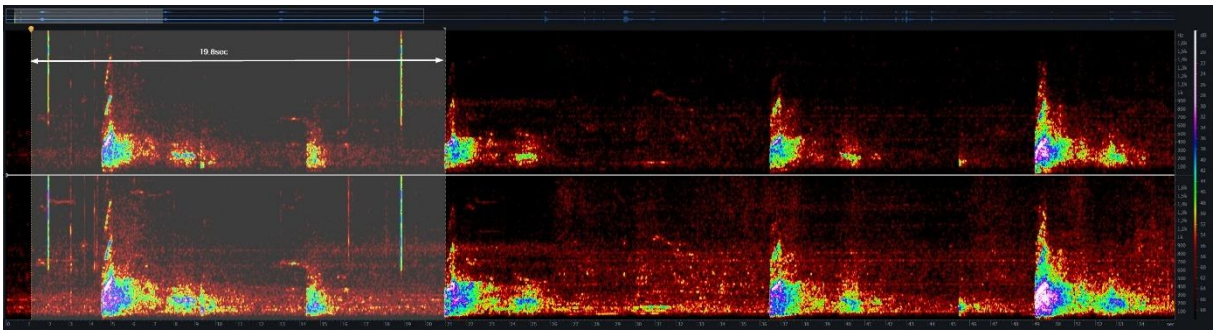
Let's take a closer look at the first few seconds of the DMO soundtrack below 1.5kHz!

At second 2 in the DMO video, the cameraman bumps into the camera (see image below). The quiet click leaves the expected vertical line. From second 4.5, we hear the howling of a rocket. The slanted lines show which frequencies are moving up in pitch. Presumably, the pitch is a function of speed. Below that is a roar between 0 and 400Hz. That's all that's left of the hissing of the engine. At 14.3 seconds, another roar follows with a straight vertical front.

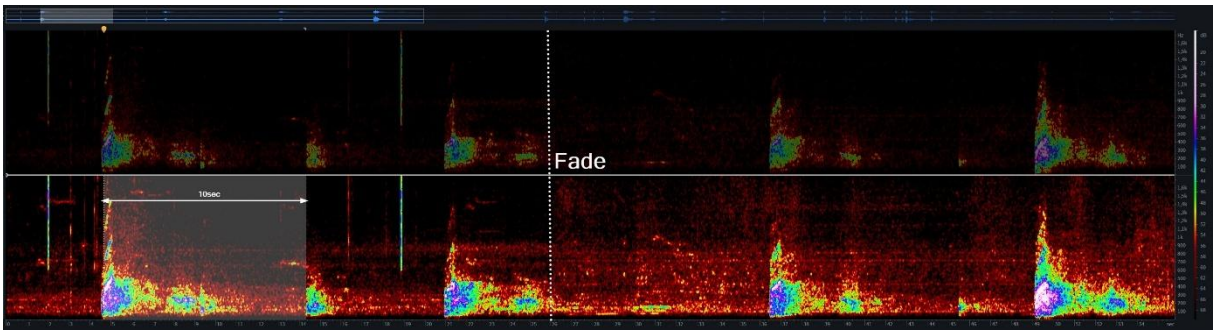


At second 1 in the video, a rocket launch can be seen, which is almost completely obscured by the banner. If the calculation above is correct, then the roar of this rocket should arrive at second 20.8. Its roar is actually cut off far to the right. The roar at 4.5 seconds therefore comes from a rocket that was launched before the video started. The sound of an explosion should nevertheless arrive 10 seconds later. The "rumbling of war" at 14.3 seconds is therefore almost certainly what remains of the explosion of the small Volcano variant between the houses 4.5 km away. It looks like an explosion and it sounds like an explosion, it's just quieter and duller than you would expect after the clearly audible howl.

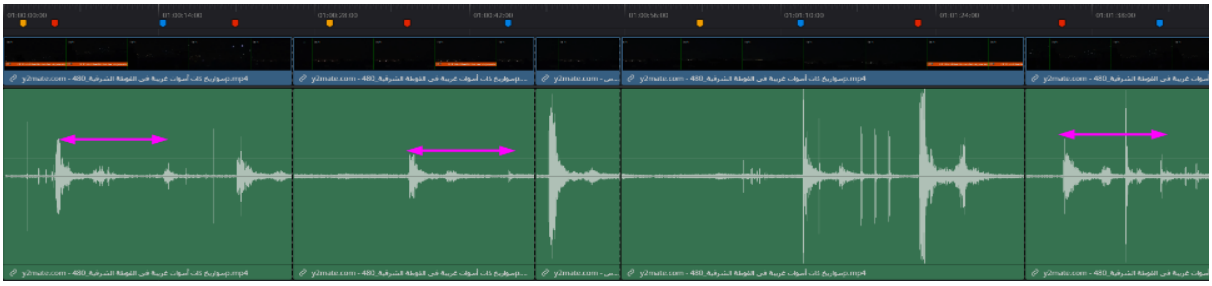
Let's zoom back a little. 19.8 seconds after the visible launch (obscured by the banner), we see the howl that belongs to this visible launch.



The question is why this howling is not followed by an explosion after another 10 seconds. The answer is very simple. The video fades into another video clip and the sequence repeats itself. At 36.4 seconds, we see the third howl, and at 45.4 seconds, the next roar, or rather what's left of the explosion.



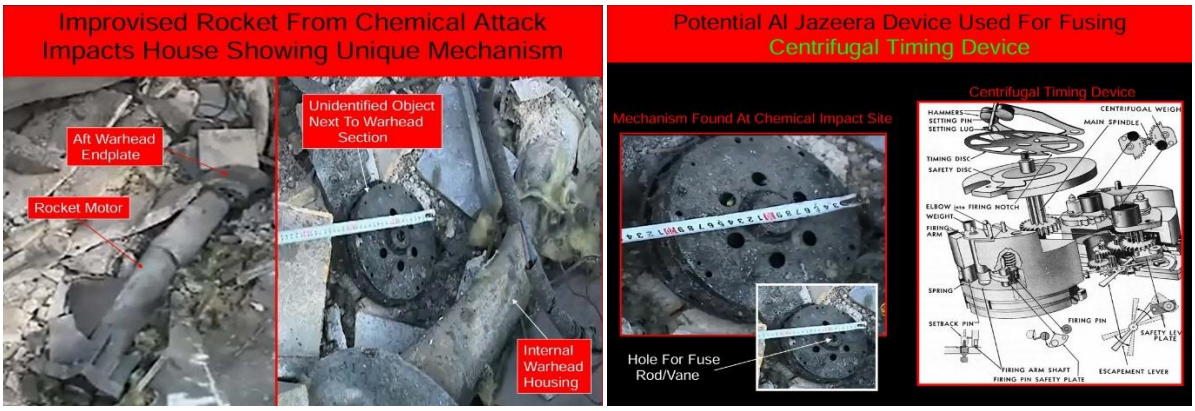
Now, one might object that this roar follows the howl only 9 seconds later. And that is exactly what happens when the rocket flies less than 2 km, as its ground speed is only 125 m/s on average. It is therefore traveling significantly slower toward the microphone than the howl of its launch. If it hits the ground earlier, then its explosion noise can follow the howl at the speed of sound earlier too and consequently arrive at the target at a shorter distance behind the howl. In return, the explosion noise is filtered by more urban area it has to cross. The fact is, the explosions of these rockets have been recorded. And this pattern repeats throughout the video.



In August 2015, Eliot Higgins wrote in Medium: "... we identified that the front of the munition was the remains of the warhead, and a small explosive charge was used to break open the casing that had been present before the munition detonated."[9]

Who is we? The idea of a small charge to blow up the wall of the volcano goes back to early analysis by Lloyd and Postol, who speculated on the significance of an "unidentified object" that Al Jazeera filmed next to the debris of one of these chemical volcanoes.

[9] https://medium.com/1st-draft/piecing-together-open-source-evidence-from-the-syrian-sarin-attacks-9027f0238857



However, as can be seen from the part, it neither exploded nor was it mechanically deformed in such a way that it could be clearly attributed to the front of this rocket. Debris and puddles suggest a purely mechanical burst on impact, as can be clearly seen, for example, around the crater of a liquid-filled Volcano in Darayya on January 4, 2013. (Apparently, this rocket was filled with a non-toxic slurry, as it was possible to approach it. A test?)

Let us nevertheless assume that we are wrong about everything so far and that we are actually seeing large sarin volcanoes with a range of 3 km in the DMO video, and that the "small" explosions are only small because they are small dispersal charges.

In this case, we would have to assume a flight time of about 24 seconds, the rocket would only strike 3,800 meters from the camera, the explosion sound of the small charge would only have to travel an additional 11 seconds to the camera, but it would not change the 19.8 seconds between the visible start and the audible howl.

This means that the sound of the small explosion would reach the camera at the earliest 15.2 seconds after the launch howl. It could only compensate for the 5 seconds of additional time difference if it flew the extra kilometer at a ground speed of Mach 1. It would be a fundamentally different rocket than the Volcanos seen in videos or the rockets found at the impact sites.

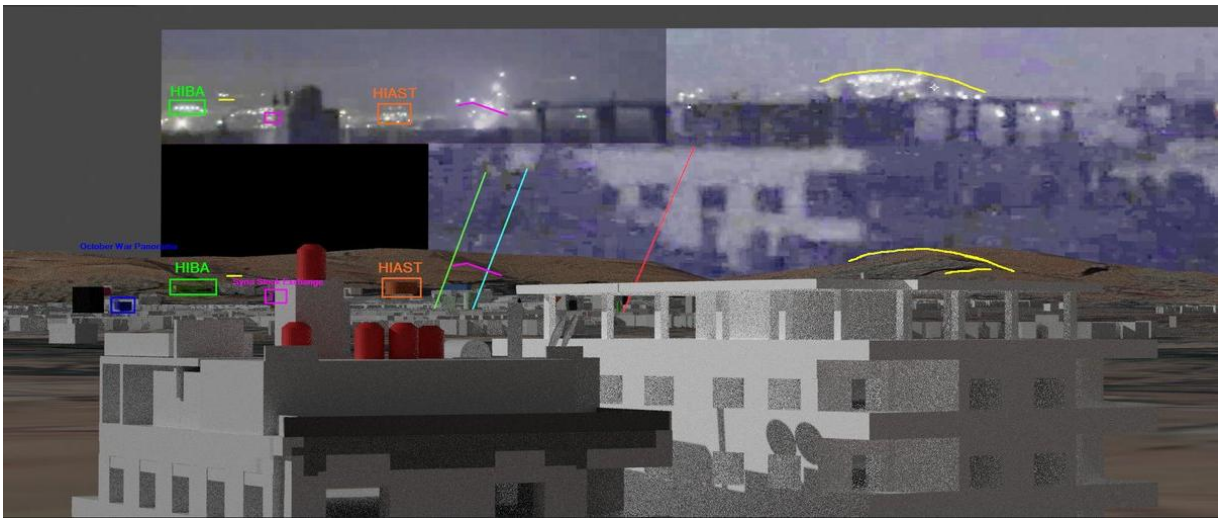
And this proves beyond any doubt that the DMO video shows rockets with a range of 2 km, which missed those sarin puddles by a good kilometer.

The argument—or let's call it proof—becomes easier to understand, of course, if you know the exact position of the camera and the exact position of the launcher. And for that, we once again had to decipher the lights in the dark night.

To pinpoint the exact location of the launcher, we first had to find a way to brighten the image without losing any details in the MPEG blocking. And what became visible was astonishing.

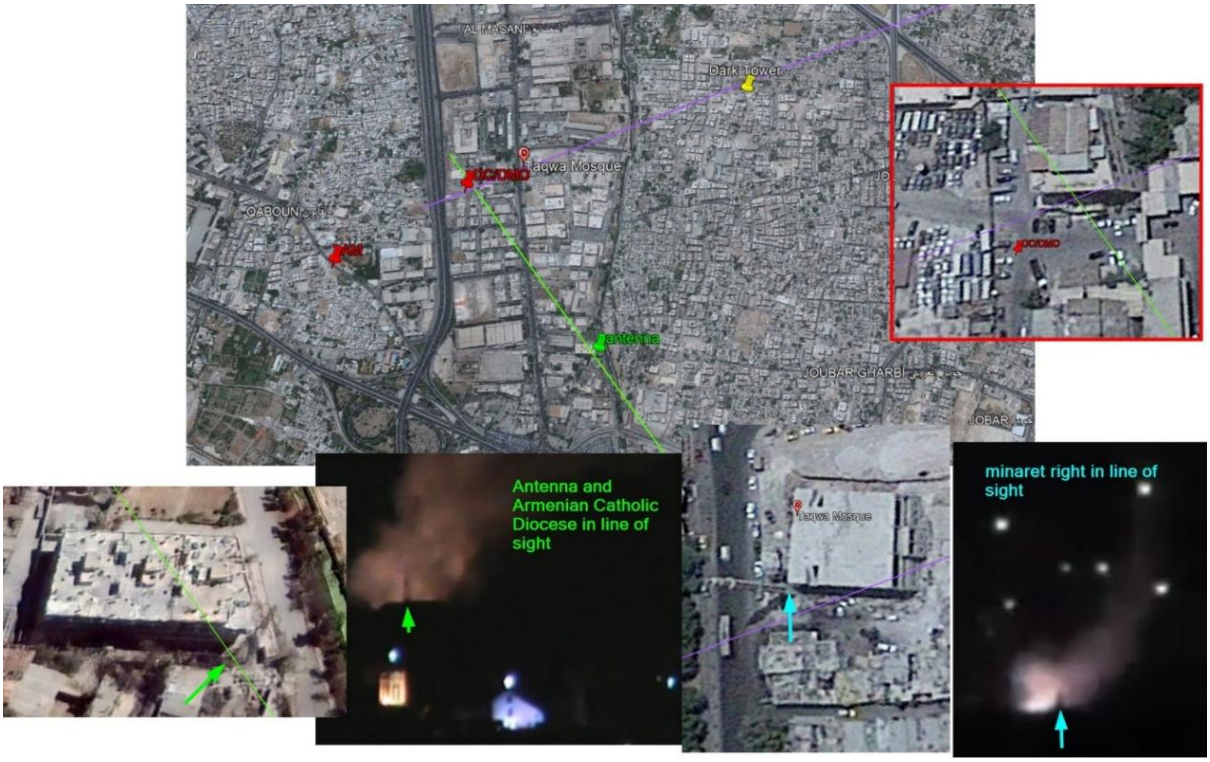
Using day videos from the same account, we were able to locate the roof in Al Malihah (33.490391°, 36.381376°) from which the video was taken.

With the help of a 3D model of Damascus, we were able to first identify the buildings visible on the horizon in the daytime images. Using the houses in the foreground, we were then able to determine how the camera position differed at night. The parallax effect of this shift then allowed us to link the lights at night to the correct locations.



A side effect of this effort is that the moon's shadow now reveals that this video was recorded around 4 a.m., which is consistent with the crowing of roosters in the soundtrack.

If we now establish the line of sight to the launcher, it is very likely that this is the same position from which a rocket ascended in the DC Pulsation video.



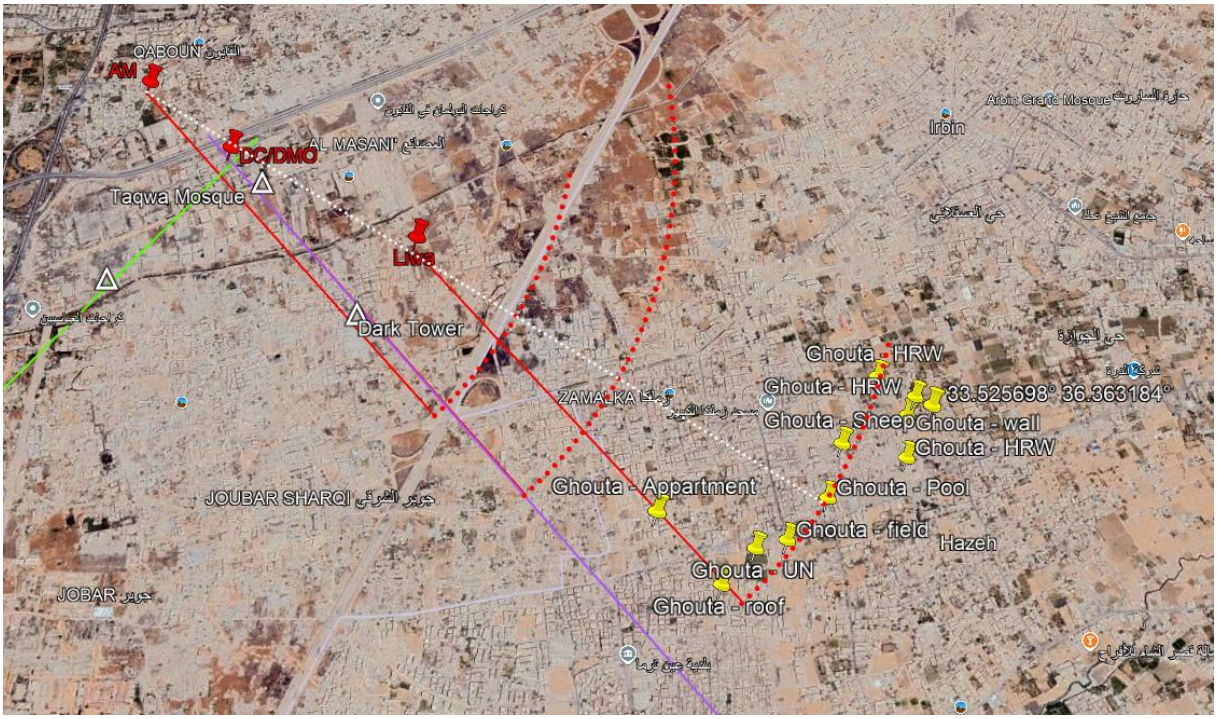
These launchers were located in a parking lot on the northern edge of the industrial area (33.536226°, 36.332496°) and were active from at least 2:30 (likely much earlier) to 4:00 a.m.

Additional reassurance is provided by the shadow of a minaret in the light of the illuminated smoke. It is the Taqwa Mosque (33.534930° 36.334279°) in the industrial area.

With the position confirmed, the calculation regarding the time delays in the soundtrack is also confirmed. And that, in turn, is proof. None of the rocket launches in these three videos are related to the sarin attack. The DMO video also proves that the Syrian army fired on positions 2km away from the launcher that night, which is the area of the highway where tanks attempted a breakthrough.

Final assessment

The arrangement of the three launchers paints a very interesting picture. All three launcher positions (Amer Mosa launcher, DC Pulsation/DMO launcher, Liwa al Islam launcher) are aligned with the impact sites of the sarin missiles. Both launcher positions of the Syrian army are perfectly chosen to support the planned breakthrough on the highway with artillery, with a range of 2 km. However, at a distance of 3-3.5 km, they are too far away from the sarin impacts. Added to this is the angle of the trajectory, which was described as reliable and justified in the UN report, but was then stated incorrectly by 30°. This angle of 136° would then be 6° incorrect, despite the best possible correction.



This means that two Syrian army launcher positions were documented that night, but they do not match the impact points of Volcano Sarin missiles with a known burn time and range.

It can also be noted that the Liwa al Islam field in Jobar is perfectly located for a false flag attack. From the victims' perspective, the missiles come from the same direction as the Syrian army's artillery in support of Operation Capital Shield. From Zamalka's perspective, there would be little difference.