The Burning Road to Mariupol

Attacks from Russia during the Novoazovsk Offensive of August 2014

A Bellingcat Investigation
by Sean Case, Klement Anders, Aric Toler, Eliot Higgins
The Burning Road to Mariupol
Attacks from Russia during the Novoazovs’k Offensive of August 2014
A bellängcat Investigation
by Sean Case, Klement Anders, Aric Toler, Eliot Higgins

Cover photo credits (counterclockwise):1, 2) image from authors, 3) from hub³.ua, 23 August 2014, photo by Alex Makulsky, 4) from Mariupol News 23 August 2014, photo by Nikolay Ryabchenko, 5) from photojournalist Petr Shelomovskiy 26 August 2014, 6) from photo uploaded by @tombreadley to Twitter 25 August 2014, 7) still from video CONVOY-2 uploaded on 10 September 2014 by Press TV News, 8) still from Al Jazeera report video from 5 September 2014, 9) photo uploaded to VKontakte on 26 August 2014, 10) still from video 23-3 uploaded to Youtube on 23 August 2014 by Ира Типичная, with additions from the authors, 11) from video 23-2 uploaded to Youtube on 23 August 2014 by Sergei Vaganov.
# Table of Contents

Summary ........................................................................................................................................... 2
Introduction ........................................................................................................................................ 5

Artillery attacks east of Novoazovs'k, July / August 2014 ................................................................. 9
   A. MLRS attack on Kholodne from Russia, morning of 23 August 2014 ........................................ 9
      Determining the type and location of the artillery fire ............................................................... 9
      Confirming the firing position, trajectory and attack site position .............................................. 11
      Confirming the location, scale, and time of the MLRS attack .................................................. 14
      Confirming the time of the attack ............................................................................................... 14
   B. Further artillery shelling on Kholodne from Russia, morning of 23 August 2014 ..................... 16
      Video of the attack in progress ................................................................................................. 16
      Video of the launch site in Russia ............................................................................................. 17
      Continuing artillery attacks ........................................................................................................ 20
   C. Mortar shelling of Novoazovs'k border crossing point 25 July to 24 August 2014 ................. 21
      Determining the type of mortar and the origin of the mortar fire ............................................... 23
   D. MLRS attacks and artillery shelling of Ukrainian army checkpoints on road to Novoazovs'k from the border area: 21 July 2014 or 23 – 26 August 2014 ................................................. 24
      Satellite imagery analysis of artillery craters and their trajectory ............................................... 26
      Geolocation and trajectory analysis of crater photos from journalists ....................................... 29
   E. Armored assault from Russia on the Novoazovs'k area, morning of 25 August 2014 ............ 31

Shelling of Novoazovs'k 26 August 2014 .......................................................................................... 35
   F. MLRS attack on Sedovo – Novoazovs'k road and southeast Novoazovs'k, morning of 26 August 2014 ......................................................................................................................... 36
   G. Bread factory northeast Novoazovs'k artillery strike, morning of 26 August 2014 ............... 39
   H. Northwest Novoazovs'k artillery strike, afternoon of 26 August 2014 .................................... 40

The capture of Novoazovs'k and aftermath .................................................................................... 43
   I. T-72 sightings and 2s19 Msta-S sightings from Russia in Novoazovs'k, 27 August 2014 – November 2014 ......................................................................................................................... 44
      T-72B number 127 / 005 ............................................................................................................. 46
      T-72B number 004 ..................................................................................................................... 48
      T-72B number 002 ..................................................................................................................... 51
      Further T-72B tanks sighted in the area of Novoazovs'k ............................................................ 52
      2s19 Msta-S sighted in Russia and in Ukraine ............................................................................ 53
      Summary ................................................................................................................................. 54

Conclusions ....................................................................................................................................... 55
Acknowledgments .............................................................................................................................. 56
Appendix ........................................................................................................................................... 57
Summary

We present evidence from social media and satellite imagery showing that artillery attacks and armored vehicles sighted in the area of Novoazovs’k in July / August 2014 came from Russia (summarized in Figure 1 and Table 1). Two artillery attacks on 23 August 2014 came from Russian territory, and two T-72Bs and one 2S19 Msta-S sighted in Novoazovs’k after its capture were transported from Russia. The report also provides analysis of several other attacks in the Novoazovs’k area during July / August 2014, all with some evidence suggesting Russian involvement.

Figure 1. Summary of artillery attacks in the Novoazovs’k region, from 21 July to 26 August 2014. Red solid lines indicate the trajectory of artillery fire that has been matched to a firing point found from satellite or social media evidence. Orange lines indicate a trajectory estimated from photo or video at the attack site – the firing point is unknown. The green line indicates the movement of attacking forces after advancing across the border on 25 August 2014.

On 23 August 2014, Multiple Launch Rocket System (MLRS) and other artillery fired from Russian territory struck a Ukrainian military base close to the town of Kholodne; more than 30 kilometers from the nearest position of the Russian-armed separatist forces within Ukraine (attack A, Table 1). After this, another artillery system within Russia struck the same position (attack B). Two Ukrainian checkpoints on the road from Novoazovs’k border crossing point (BCP) to Novoazovs’k town were attacked by MLRS fire from a firing position less than one kilometer from the Russian border, with visible tracks leading back to a crossing point into Russian territory, and/or from a position within Russia (attack D).

On 25 August 2014, satellite imagery evidence supports media reports and witness testimony that Russian-armed separatist forces crossed into Ukraine through a crossing

---

2 primarily from Yandex maps satellite imagery from 31 August 2014, Google Earth satellite imagery from October 2014 and TerraServer satellite imagery from 2014 - 2015
point (visible on satellite imagery) north of Novoazovs’k BCP, and attacked Ukrainian forces to the east of the town of Novoazovs’k (attack E). On 25-26 August 2014, videos and photos show the aftermath of MLRS and artillery shelling of roads, houses, a cemetery, a bread factory and a hospital as Russian-armed separatist forces fought to take control of Novoazovs’k (attack F – H). Following the capture of Novoazovs’k on 27 August 2014, T-72Bs and 2s19 Msta-S were sighted in Novoazovs’k. Two of these T-72Bs and one 2s19 Msta-S were earlier sighted inside Russia, demonstrating the Russian origin of these vehicles.

The attacks discussed in this report are summarized in Table 1.

<table>
<thead>
<tr>
<th>Attack name</th>
<th>Date</th>
<th>Source of fire</th>
<th>Evidence</th>
<th>Page discussed</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. MLRS attack on Kholodne</td>
<td>23 August 2014</td>
<td>Russia</td>
<td>Video of rocket launch. Video of Kholodne under attack. Firing point and attack craters located on satellite images.</td>
<td>Page 9</td>
</tr>
<tr>
<td>B. Self-propelled artillery shelling of Kholodne</td>
<td>23 August 2014</td>
<td>Russia</td>
<td>Video of artillery firing site. Video of Kholodne under attack. Firing point located on satellite images.</td>
<td>Page 16</td>
</tr>
<tr>
<td>C. Mortar shelling of Novoazovs’k border crossing point</td>
<td>25 July – 24 August 2014</td>
<td>Russia (unconfirmed)</td>
<td>Potential firing site located on satellite images. Witness reports.</td>
<td>Page 21</td>
</tr>
<tr>
<td>D. MLRS and artillery shelling of checkpoints on road to Novoazovs’k</td>
<td>21 July, 23 – 27 August</td>
<td>Inside Ukraine, Within 1 kilometer of Russian border</td>
<td>Firing site located, and vehicle tracks leading back to Russia. A second potential firing position identified in Russia. Artillery trajectories determined from photos taken at attack sites. Crater trajectory analysis of satellite imagery at attack site.</td>
<td>Page 24</td>
</tr>
<tr>
<td>E. Armored assault from Russia on Novoazovs’k area</td>
<td>25 August 2014</td>
<td>Crossed border from Russia between Markyne and Shcherbak, advanced on Novoazovs’k</td>
<td>Witness reports. Border crossing point, route of vehicle convoy and subsequent battle identified on satellite images.</td>
<td>Page 31</td>
</tr>
<tr>
<td>F. MLRS attack on Sedovo – Novoazovs’k road</td>
<td>26 August 2014 morning</td>
<td>Ukraine or Russia northeast of Novoazovs’k – unknown</td>
<td>Videos / photos of the attack site shortly after the attack. Crater trajectories analyzed from photos / video.</td>
<td>Page 36</td>
</tr>
<tr>
<td>G. Bread factory northeast Novoazovs’k artillery strike</td>
<td>26 August 2014 morning</td>
<td>Ukraine or Russia northeast of Novoazovs’k – unknown</td>
<td>Videos / photos of the attack site during and shortly after the attack. Crater trajectories analyzed from photos / video.</td>
<td>Page 39</td>
</tr>
<tr>
<td>Attack name</td>
<td>Date</td>
<td>Source of fire</td>
<td>Evidence</td>
<td>Page discussed</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>--------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>H. Northwest Novoazovs'k artillery strike</td>
<td>26 August 2014 afternoon</td>
<td>Ukraine – northeast of Novoazovs'k in are southeast of Rozy Lyuksemburh</td>
<td>Videos / photos of the attack site during and shortly after the attack. Crater trajectories analyzed from satellite images. Potential firing point located.</td>
<td>40</td>
</tr>
<tr>
<td>I. Presence of 2 x T-72Bs and 1 x 2s19 Msta-S from Russia inside Ukraine</td>
<td>27 August to early September</td>
<td>NA</td>
<td>Videos and photos of convoys in Russia with matching vehicles sighted in Ukraine</td>
<td>44</td>
</tr>
</tbody>
</table>
**Introduction**

*NOTE: a timeline of the events, and links to all the videos considered in this report are provided at the end of the document (Table 6, Table 7).*

In mid-August 2014, Ukrainian armed forces had pushed back the Russian-armed separatist forces to the areas close to the cities of Donetsk and Luhansk. Until this time, the area of the Donetsk region close to Novoazov’sk and Mariupol, overlooking the Sea of Azov, had been spared the worst of the fighting. Before 23 August 2014, Ukrainian forces had sporadically come under artillery fire (on 21 July, 25 July, 21 August); however, there were no clear signs of forces massing in the area at the time to threaten a large-scale attack (Figure 2).

This changed on the morning of 23 August 2014, with large-scale and frequent artillery attacks on Ukrainian positions close to Novoazovs’k border crossing point (BCP), which continued over the next few days. By the morning of 25 August 2014, it was clear that towns along the Azov coast were now targets of the Russian-armed separatist forces.

---

3 It should be noted that during this time, the nearest ‘separatist’ military positions in Ukraine were at least 30 km away: [http://www.reuters.com/article/2014/08/26/us-ukraine-crisis-novoazovsk-exclusive-idUSKBN0GQ19U20140826](http://www.reuters.com/article/2014/08/26/us-ukraine-crisis-novoazovsk-exclusive-idUSKBN0GQ19U20140826)


6 [http://24tv.ua/ukrayina/teroristi_masovo_obstrilyuyut_ukrayinskih_prikordonnikiv_foto/n468570](http://24tv.ua/ukrayina/teroristi_masovo_obstrilyuyut_ukrayinskih_prikordonnikiv_foto/n468570) [https://archive.is/ETRZe](https://archive.is/ETRZe)


The Ukrainian armed forces on the Azov coast came under sustained MLRS fire and mortar attack on the morning of 23 August 2014. According to Ukrainian media sources, between 4:00 and 5:00 am\(^9\), and from 6:00 to 6:25 am Novoazov’sk BCP came under mortar attack (attack C)\(^11\), and between 4:00 am and 6:00 am Ukrainian forces close to the BCP came under MLRS attack\(^12\) (attack A). Afterwards, both areas were attacked again by mortars and howitzers\(^13\) (attack B), and nearby checkpoints were attacked by MLRS fire during the day\(^14\) (attack D). Several media and Ukrainian official sources reported on these attacks\(^15\)\(^16\)\(^17\).

---

9 http://www.rnbo.gov.ua/en/

10 All times in this report are Eastern European Summer Time (EEST, UTC + 3 hours) unless otherwise noted.

11 http://www.mariupolnews.com.ua/descr/48347

12 https://www.youtube.com/watch?v=1hCA8LDWJPY backup: https://www.youtube.com/watch?v=bmqbu3UpZw

13 http://hubs.com.ua/discussions/gradyi-buki.html

14 http://uacrisis.org/ua/8255-rnbo-40

15 http://hubs.com.ua/discussions/gradyi-buki.html

16 http://uacrisis.org/8244-rnbo-39

17 http://www.dialog.ua/news/14501_1408791547
The BCP was attacked again on 24 August 2014\(^{18}\). On the morning of 25 August, it was reported by Ukrainian forces that a significant number of armored military vehicles had crossed the border and was advancing on Ukrainian positions close to Novoazovs’k\(^{19,20}\). Journalists and local residents widely reported further shelling of the town of Novoazovs’k on 26 August\(^ {21}\). By 27 August 2014, Russian-armed separatist forces captured Novoazovs’k\(^ {22}\). In the week that followed, Russian-armed separatists further pushed back Ukrainian forces, and took every town along the Azov coast on the road to Mariupol, including Bezimenne and Shyrokyne, before threatening the major port city itself. The ceasefire agreement signed in Minsk on 5 September possibly saved the city from this fate\(^ {23}\).

This report aims to investigate the claims of Russian involvement in the attacks leading up to and during the assault on Novoazovs’k during 23 – 27 August 2014. The report will first analyze open source evidence to determine the source of artillery fire on Ukrainian units in the Novoazovs’k area during this period. A previous report has shown that artillery was fired from Russian territory on multiple occasions close to other areas of the border\(^ {24}\). However, in the area of Novoazovs’k in late August 2014, Russian officials have denied that artillery attacks came from Russian territory\(^ {25}\).

\(^{18}\) [http://uacrisis.org/ua/8255-rnbo-40](http://uacrisis.org/ua/8255-rnbo-40)  

\(^{19}\) [https://www.youtube.com/watch?v=HkrUQM62CCE](https://www.youtube.com/watch?v=HkrUQM62CCE)

[https://archive.is/z9bIZ](https://archive.is/z9bIZ)

\(^{21}\) See ‘Shelling of Novoazovs’k 26 August 2014’, page 32


\(^{23}\) [https://www.theguardian.com/world/2014/sep/05/ukraine-ceasefire-east-minsk-peace-talks](https://www.theguardian.com/world/2014/sep/05/ukraine-ceasefire-east-minsk-peace-talks)  

[https://archive.is/g21SF](https://archive.is/g21SF)

Videos, photos, and satellite imagery evidence (Figure 3) allow us to identify the target, trajectory and source of several artillery attacks that took place in the area between 21 July and 27 August 2014. This report concludes that on multiple occasions, artillery attacks came from Russian territory, or from areas just next to the border.

The report also investigates the origin of T-72B armored main battle tanks (MBTs) and howitzers that were filmed or photographed close to Novoazovs’k after the town was taken. Building on previous work, we show that two T-72B tanks and one 2S19 Msta-S 152-mm self-propelled howitzer was transferred from Russia to Ukraine in late summer 2014.


27 Note: all of the satellite imagery evidence considered here came from publicly-available images provided by Google Earth / Digital Globe (October 2014), Yandex maps (31 August 2014), and TerraServer preview images (2014 – 2015). All of these mapping services use a WGS-1984 world projection, and so the latitude and longitudes given in this report are convertible between each service.


Artillery attacks east of Novoazovs’k, July / August 2014

Figure 4. Artillery attacks in the Novoazovs’k region, 23-25 August 2014. Red solid lines indicate the trajectory of artillery fire that has been matched to a firing point found from satellite or social media evidence. Orange lines indicate a trajectory estimated from photo or video at the attack site – the firing point is unknown. The green line indicates the proposed direction of armored forces after advancing across the border.

A. MLRS attack on Kholodne from Russia, morning of 23 August 2014

On the morning of 23 August 2014 at around 4:50 am, a Ukrainian army camp close to the village of Kholodne was attacked by a barrage of MLRS rockets. Multiple videos of the event prove that this attack came from Russia.

Determining the type and location of the artillery fire

Video 23-1\textsuperscript{32} was filmed within Ukraine on 23 August 2014, within two kilometers of the Russian border at Novoazovs’k BCP. The video shows nine rockets being fired within the first six seconds of the video; it is very likely that there were additional rockets fired before the start of the video, which prompted the local to start filming.

The video begins from the approximate location of 47.158348, 38.210027, with the person shooting the video driving along the M14 to the east between Novoazovs’k and Novoazovs’k.

32 https://www.youtube.com/watch?v=r7zabXxF_bE backup: https://www.youtube.com/watch?v=RulO66G8npA
BCP. The sky is red towards the direction that the camera is facing, suggesting that the video was filmed in the early morning.

![Geolocation of Video 23-1 at 00:01 (47.158380, 38.210218). The yellow lines indicate the left and right extent of the camera view. The red line indicates the view directly towards the Grad fire.](image)

Figure 5. Geolocation of Video 23-1 at 00:01 (47.158380, 38.210218). The yellow lines indicate the left and right extent of the camera view. The red line indicates the view directly towards the Grad fire.

The position of the trees in between the camera and the Grad fire enable us to determine that the fire comes from the northeast, towards the Russian border (Figure 5). Other clues in the video give us an indication of the range. The last visible rocket fire occurs at 6.07 seconds into the video. By calculating the average time that each rocket is visible on screen (0.62 seconds), we estimate that the final visible rocket was fired at 5.45 seconds into the video. From 21 seconds, when the car stops, we can hear the regular sounds of 8 rocket launches from 25 to 30 seconds. The last time that we hear a rocket launch is at 29.9 seconds, a sound which we assumed was that of the final visible rocket being fired.

The time difference between seeing the last rocket launch and hearing the last rocket launch is therefore ~24.5 seconds. Calculating from the speed of sound (approximately 340 meters per second[^33]) we estimate that the location of fire is 8.3 km away[^34]. Using Google Earth, we can extrapolate this distance from the position the cameraman was standing at.

[^33]: All of the case studies considered in this report involve altitudes of less than 70 meters above sea level, so we have assumed the speed of sound at sea level for our analysis (340 meters per second). Further variations due to temperature and air pressure were assumed to be negligible.

[^34]: The blogger “Dajey Petros” (Ukraine @ War) also attempted this analysis, which matches closely to the findings of this analysis: [http://ukraineatwar.blogspot.dk/2014/08/russia-shelling-ukrainian-village-from.html](http://ukraineatwar.blogspot.dk/2014/08/russia-shelling-ukrainian-village-from.html)
the time of the last blast sound (the end of video position) to estimate firing position for this MLRS fire (Figure 6).

Figure 6. The estimated firing point of the 23 August 2014 MLRS attack on Kholodne from audio analysis of video 23-1, next to the images of the scorch marks at the firing point position found on Yandex maps (image date 08-31-2014, position: 47.210984, 38.300544, also visible on Google Earth 10/11/2014 image). Focus image of scorch marks from Klement Anders

The approximate firing point based on analysis of the video is several kilometers inside Russia. The evidence from Video 23-1 leaves no doubt that this rocket attack came from Russia. Using further video evidence, below we can also determine the target and timing of the attack.

**Confirming the firing position, trajectory and attack site position**

Imagery from Yandex maps of the area was updated in 31 August 201435 (a Russian internet company; Yandex.ru is one of the most the most popular websites in Russia) show both the site attacked by rocket fire on 23 August as well as the position from which the rockets were fired.

Less than one kilometer east from the firing position predicted from video 23-1 are two clear scorch marks in a field (at 47.210984, 38.300544, Figure 6), 54 meters above sea level with an elevation profile that drops down to Kholodne (elevation 12 meters) approximately 13 kilometers away.

---

35 Satellite imagery in the area considered in this report is also available on Google Earth on 11 October 2014.
The scorch marks clearly face towards the southwest. It has been shown in previous reports that MLRS systems leave scorch marks in fields that point towards the target point\textsuperscript{36}. By extending linearly from the direction the scorch marks are facing, we find that the trajectory passes very close to the crater field at the Ukrainian army camp at Kholodne (Figure 7).

Analyzing Yandex maps satellite imagery in the area next to Kholodne (imagery date 31 August 2014) clearly shows an artillery attack site with at 19 visible artillery craters (Figure 7). The craters were not clear enough to be analyzed to determine the trajectory using crater analysis techniques.

The craters were at least 3 meters in diameter, suggesting the use of at least 122-mm munitions\textsuperscript{37}. Considering Russian MLRS systems, the BM-21 Grad launcher fires 122-mm rockets, and can carry a payload of up to 40 rockets, and has a range of 20 km. A BM-27 Uragan fires 220-mm rockets and has a range of 34 km and can carry up to 16 rockets, while a BM-30 Smerch fires 300-mm rockets, has a range of 70 km and can carry up to 12 rockets. From the available evidence, we could not determine with certainty the type of MLRS system was used in this attack.

\textsuperscript{36} https://www.bellingcat.com/news/uk-and-europe/2015/02/17/origin-of-artillery-attacks/
https://archive.is/g215F

\textsuperscript{37} http://www.winterwar.com/Weapons/artyinfo.htm
Table 2. The artillery craters identified at the Kholodne Ukrainian army base from Yandex satellite imagery taken in 31 August 2014 (close to 47.109397, 38.211529).

<table>
<thead>
<tr>
<th>Area</th>
<th>Number of craters identified</th>
<th>Number of craters clear enough to determine trajectory</th>
<th>Results</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ukrainian army base southwest of Kholodne</td>
<td>23</td>
<td>17 (not clear enough for precise trajectory analysis)</td>
<td>17 from northeast</td>
<td>Figure 7</td>
</tr>
</tbody>
</table>

Additional evidence regarding the attack location is provided in Video 23-2\(^{38}\). This video shows some of the damage from the attacks of that morning, and interviews with Ukrainian soldiers.

![Google Earth Image](https://www.youtube.com/watch?v=1hCA8LDWJPY)

Figure 8. Image of the Kholodne Ukrainian army base at 55 seconds into video 23-2\(^{38}\) on top of the 10/11/2014 Google Earth image (47.109521, 38.211557).

The first part of the video shows burnt ground, and damaged equipment and vehicles. These first 1 minute and 16 seconds appear to have been filmed at the Ukrainian military base next to Kholodne. At 55 seconds we see a large square trench in which beds and furniture are stored, which can be located in the area close to 47.109521, 38.211557.

\(^{38}\) [https://www.youtube.com/watch?v=1hCA8LDWJPY](https://www.youtube.com/watch?v=1hCA8LDWJPY) backup: [https://www.youtube.com/watch?v=bmqbu3IjpZw](https://www.youtube.com/watch?v=bmqbu3IjpZw)
Confirming the location, scale, and time of the MLRS attack

Video 23-3\textsuperscript{40} shows the attack on the Kholodne army base as it is happening. In the video, nine explosions are visible between 0.5 and 7 seconds in. 23 blasts are heard in 14 seconds (Which may include secondary explosions and not primary rocket impacts). By comparing the time between the last visible flash (6.7s) and the last blast impact sound (14.1s), the distance between the camera position and explosion can be estimated to be 2.5 kilometers. Using the landscape features and buildings shown in the video, the filming position was geolocated to the position shown in Figure 9 (47.101406, 38.180351).

![Figure 9. Geolocation of video 23-3, filmed from 47.101406, 38.180351. The green lines indicate the left and right extent of the camera view. The TerraServer preview image (top left of the figure) shows the copse of trees in which the video was likely filmed.](image)

The sky in video 23-3 is red, which suggests that the video was filmed early in the morning; however, it does not confirm the exact filming time. We need further evidence to confirm the exact time of the attack.

Confirming the time of the attack

Video 23-4\textsuperscript{41} is filmed completely in the dark, but gives us a time and location of an artillery attack in the area. We can hear a woman’s voice followed by a number of explosions in the distance. She identifies the time and location of the video by saying the following:

\begin{verbatim}
40 https://www.youtube.com/watch?v=SnRqBD0Bz9s backup: https://www.youtube.com/watch?v=RqaHVnVcJs
41 https://www.youtube.com/watch?v=NOdGQgqJmwy backup: https://www.youtube.com/watch?v=tato8DW7gis
\end{verbatim}

14
“Sedovo...4:50am... the date is the 24...23, yes 23rd of August”

Shortly after she finishes speaking, we hear a number of explosions that begin just after 27 seconds into the video. A number of explosions are heard in quick succession, the timings of which are compared with video 23-3 (Table 3).

<table>
<thead>
<tr>
<th>Video number</th>
<th>23-3</th>
<th>23-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time during which explosions are audible (s)</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>Number of audible explosions</td>
<td>23</td>
<td>20</td>
</tr>
</tbody>
</table>

In both Video 23-3 and 23-4 there is a similar long interval of 20+ explosions, indicating that it is very likely both videos were recording the same artillery attack event (no other artillery strike of a similar intensity was reported in the area at the time). Therefore, we can say that it was almost certain that both videos were filmed at the same time, and we can confirm that the MLRS attack on Kholodne occurred at around 4:50 am on 23 August 2014.

Further confirmation that an MLRS attack on Kholodne occurred on the morning of 23 August 2014 can be gained from VKontakte group discussions. Figure 10 shows examples of comments from VK users about the attack on the same day.

---

42 https://www.youtube.com/watch?v=SnRqBDQz9s backup: https://www.youtube.com/watch?v=BqaHUVnVcJs

43 https://www.youtube.com/watch?v=NQdQqgnJmww backup: https://www.youtube.com/watch?v=tato8DW7gis
B. Further artillery shelling on Kholodne from Russia, morning of 23 August 2014

Later in the morning of 23 August 2014 (after 4:40am), there were further artillery attacks from Russia on the Ukrainian military base at Kholodne. Due to the longer spacing between shots (around 20 seconds), these artillery attacks were most likely not conducted with MLRS fire. Analysis of videos from the event suggests that self-propelled artillery may have been used in this attack.

Video of the attack in progress

In video 23-545 we see thick smoke in the distance and can hear several explosions. Smoke is visible from the start of the video, and only four sporadic blasts can be heard, which suggests that the weapon used is not MLRS artillery, and is more likely mortars or howitzers.

The video was filmed from 47.082537, 38.175397 (Figure 11), a geolocation that was based on the distinctive landscape features (the promenade, distant outcrop of land, and position of tree line). The only visible explosion in the video (at 60 seconds in) occurs almost 12

---

44 https://vk.com/wall-55653790?day=23082014&q=%D0%A1%D0%95%D0%92%D0%9E
45 https://www.youtube.com/watch?v=6yJN5lvW6DQ backup: https://www.youtube.com/watch?v=OTTSHu_jwIM
seconds before the next loud blast sound, which suggests a distance of around 4 kilometers from camera to explosion, and matches the distance to the attack site next to Kholodne.

By comparing the position of the sun with known sunrise and sunset times using SunCalc, the time that the video was taken was estimated to be just after sunrise, after 4:40 am on 23 August at this location\(^\text{46}\).

**Video of the launch site in Russia**

Video 23-6 is made of two parts (23-6a\(^\text{47}\), 23-6b\(^\text{48}\)). Both videos are filmed next to the sea towards a cliff edge, from the approximate position 47.119943, 38.230202 (Figure 12, however the exact location was not determined). The videos take place early in the morning, as the sky is red, so we can assume it is a short time after the earlier videos we have considered for attack A (i.e. videos 23-1, 23-3, 23-5).

When the cameraman zooms in, three large objects can be seen (positioned at approximately 47.125404, 38.253428). It was not possible to identify these objects from the video alone. From satellite imagery from Yandex and TerraServer (Figure 12), at least one, and possibly two, of these objects appears to be a building. During the video, the

\(^\text{46}\) [http://suncalc.net](http://suncalc.net)

\(^\text{47}\) [https://www.youtube.com/watch?v=xc-EIPnEMSw](https://www.youtube.com/watch?v=xc-EIPnEMSw) backup: [https://www.youtube.com/watch?v=CnrrA4GGj8w](https://www.youtube.com/watch?v=CnrrA4GGj8w)

\(^\text{48}\) [https://www.youtube.com/watch?v=ZYBBU7qy8o](https://www.youtube.com/watch?v=ZYBBU7qy8o) backup: [https://www.youtube.com/watch?v=zBxfgpVluQ0](https://www.youtube.com/watch?v=zBxfgpVluQ0)
cameraman says that he can see a Kamaz truck, which may explain the presence of a third object. However, the resolution of the camera was too low to confirm the identity of these objects.

Figure 12. Geolocation of video 23-6 filmed from approximately 47.119943, 38.230202 and looking towards a firing point at 47.125404, 38.253428 inside Russia. The green lines indicate the left and right extent of the camera view. The top satellite image was taken from Google Earth (Digital Globe satellite images); the bottom right satellite image was taken from Yandex maps from an image 31 August 2015.

The loud percussive sounds heard in video 23-6b suggested that a weapon was fired close to the camera position. Twice in video 23-6b we hear a bang, followed by a whistling sound a few seconds later that fades out after several seconds, followed by another loud bang a few seconds later, which we assumed to be the impact of the artillery fire. The difference in timing we hear between the firing and impact of the artillery fire on these two instances were 9.3 and 9.6 seconds. Taking into account the relative positions of the camera, attack
site and launch site, these were equivalent to a real flight time of 9.7 and 10.1 seconds respectively.

The characteristics of the sound support the cameraman’s assertion that a weapon was being fired from Russia. A loud whistle heard for several seconds suggests that the round was travelling very close to the cameraman. The loud bang heard 5-6 seconds after this is more than adequate for the round to travel into Ukrainian territory, to the Kholodne Ukrainian army base, or beyond.

The check these assumptions, we compared the timing of the firing and impact using NASA’s ‘HitModeler’ tool, a free trajectory calculation tool that takes into account the dimensions of the projectile as well as air resistance. Taking into account the position of the camera and suspected firing positions (Figure 12), several weapons systems were tested using several assumptions about known artillery shell characteristics (122-mm howitzer, 152-mm howitzer, mortar, 2s9 NONA 120-mm artillery shells). The 2s9 NONA 120-mm self-propelled mortar firing artillery shells was found to fit most closely to the sounds heard in the video.

49 It was assumed that the target of the fire was the Ukrainian army base at Kholodne, approximately 1.7 km from the camera position, and the firing position was approximately 1.85 km in front of the camera position. The direct distance from the firing position to the attack site was approximately 3.5 km.


51 https://www.grc.nasa.gov/www/k-12/freesoftware_page.htm. Minor modification to the Java code was required to allow for heavier and faster projectiles than the program was originally designed for.

52 In this analysis, it was assumed that the weapon being fired was a 2s9 NONA firing 120-mm artillery shells, which had a muzzle velocity of 367 m / s, weight of 17.3 kg, and the shells had a drag co-efficient of 0.15. Based on values from the following sources: https://web.archive.org/web/20150906014953/http://www.military-today.com/artillery/2s9_nonas.htm https://web.archive.org/web/20140312223935/http://www.armyrecognition.com/russia_russian_army_vehicles_system_artillery_uk/2s9_nonas_so-120_120mm_self-propelled_mortar_carrier_system_technical_data_sheet_pictures_video.html
Figure 13. 120-mm self-propelled gun 2S9 ‘Nona’ in Saint-Petersburg Artillery museum. Wikicommons. This is the weapons system suspected of having been used in the artillery attack from Russia on 23 August 2014 (attack B).

Compared to the 9.7 and 10.1 second flight time from the video, the NASA hit modeler predicted a 10.7 second flight time from the suspected firing point to the middle of the Ukrainian army base at Kholodne using 120-mm 2s9 NONA artillery shells. Variations in the strike point of the artillery shells of just couple of hundred meters could account for this discrepancy. It is also worth considering that the towed version of the 120-mm NONA cannon (the 2B-16) could have been used; however the muzzle velocities for this weapon were slightly different to that of the 2s9 and the model did not fit the explosion timings in the video as well as the 2s9. Finally, the 120-mm 2s9 NONA has been sighted in use during the conflict in Ukraine. We consider that a NONA artillery system, and most likely the 2s9 NONA, was used to shell the Ukrainian Kholodne base in this instance.

**Continuing artillery attacks**

Video 23-7 supports the evidence that artillery attacks were taking place in the Sedovo area in the day of 23 August. Although nothing is directly seen in this video, two bangs are heard suggestive of artillery shell impacts. The sky is completely blue, which suggests at least that the artillery attacks continued into the day, likely later than the attacks shown in videos 23-5 and 23-6a-b.

---


56 [http://www.enemyforces.net/artillery/nonak.htm](http://www.enemyforces.net/artillery/nonak.htm)


58 E.g. [https://youtu.be/UvMle636LIs?t=5m25s](https://youtu.be/UvMle636LIs?t=5m25s)

59 [https://www.youtube.com/watch?v=4-7DbcYtXVA](https://www.youtube.com/watch?v=4-7DbcYtXVA) backup: [https://www.youtube.com/watch?v=U0aitW57M7k](https://www.youtube.com/watch?v=U0aitW57M7k)
C. Mortar shelling of Novoazovs’k border crossing point 25 July to 24 August 2014

Numerous news reports from July and August 2014 reported that the Novoazovs’k BCP was attacked by artillery fire on 25 July, 21 August, 23 August, and 24 August, after which time the BCP was closed. According to the reports, in each of the four cases at least some of the fire came from mortars.

Part of video 23-2 is filmed at the Ukrainian side of the Novoazovs’k BCP, which gives us insights into the extent of the damage and the weapons used to attack the BCP. Extensive damage to the roof of buildings at the BCP is shown (particularly at 1:49 in the video), damage which is also visible on Yandex maps close to 47.159586, 38.234528, especially the buildings and fields on the south side of the BCP (Figure 14).

---

58 http://24tv.ua/ukrayina/teroristi_masovo_obstrilyuyut_ukrayinskih_prikordonnikiv_foto/n468570
59 https://archive.is/ETRZe
Figure 14. Evidence of the mortar attack on Novoazov’sk BCP from Yandex maps (47.159586, 38.234528). Reports indicate that this BCP was attacked by mortar fire on 25 July, 21 August, 23 August and 24 August. Photos come from the following sources: a) from hub.s.ua article64 23 Aug 2014, photo by Алексей Макульский (Alex Makulsky) b) from video 23-2, c) from Mariupol News article65 23 Aug 2014, photo by Николаем Рябченко (Nikolay Ryabchenko) d) from Facebook post66 on 23 Aug 2014 by Konstantin Batozsky, e) image of a Russian 82 mm mortar shell replica (image reproduced with permission from Inert Products LLC67)

The Yandex satellite images at Novoazov’sk BCP (from 31 August 2014) do not show us artillery craters that are clear enough to analyze to determine the trajectory of fire; the 82-mm craters are too small and the 0.5 m resolution satellite image is too poorly-defined. So we cannot confirm with certainty the source of the fire towards the BCP. Also, the presence of artillery craters from attacks on at least four different occasions (25 July, 21 August, 23

64 http://hubs.ua/discussions/gradyi-buki-19221.html

65 http://www.mariupolnews.com.ua/descr/48361


67 http://www.inertproducts.com/
August, and 24 August) makes it impossible to be sure which crater came from which direction on which day. However, by analyzing mortar fragments from the BCP on 23 August 2014, and looking at satellite images of the area within 4 km of the BCP, we were able to identify the caliber of mortar used and a possible firing position.

**Determining the type of mortar and the origin of the mortar fire**

Video 23-2 shows the tail end of shell at 2:10, which is also visible in photos from several other sources (Figure 14). Comparing to other images of Russian mortar shells (particularly noting the hole positions on the tail) we found it most likely belonged to an 82-mm mortar shell\(^{68}\) (Figure 14).

The Russian-armed separatist armed forces have been seen to use the 2B14 Podnos 82-mm mortar in videos during the conflict\(^ {69}\), a mortar that has a maximum range of around 4 km\(^ {70}\). A mortar position in the area was identified in a previous Bellingcat report\(^ {71}\) at 47.141012, 38.242545 (Figure 15), inside Russia, and which is in range of Novoazovs’k BCP (2.1 km), and features a small yet distinctive hole in the ground that may have been used to hold a baseplate (used to aid the stability of the 2B14 Podnos 82-mm mortar frame as shown in this video\(^ {17}\)). Also visible are vehicle tracks leading off the field. Although not conclusive, the evidence suggests that it is possible that at least on one occasion between 25 July and 24 August, this firing position was used to fire mortars at Novoazovs’k from inside Russia.

Unconfirmed witness testimony suggests that mortars were fired at Novoazovs’k BCP on 25 July from two locations on the Ukrainian border, and one inside Russia\(^ {72}\). However, we have no further evidence to support this claim or identify further firing point locations.

---

\(^{68}\) Page B-8 of the 1990 version of the US army field manual ‘6-121 - Tactics, Techniques, and Procedures for Field Artillery Target Acquisition’ shows a detailed diagram of a Russian 82-mm mortar shell [http://library.enlistment.us/field-manuals/series-1/FM6_121/APPB.PDF](http://library.enlistment.us/field-manuals/series-1/FM6_121/APPB.PDF)

\(^{69}\) [https://www.youtube.com/watch?v=MeAN7j99BkE](https://www.youtube.com/watch?v=MeAN7j99BkE)


\(^{71}\) Russia’s Path(s) to War [https://www.bellingcat.com/wp-content/uploads/2015/09/russia_s_path_s_to_war.pdf](https://www.bellingcat.com/wp-content/uploads/2015/09/russia_s_path_s_to_war.pdf)

\(^{72}\) [https://durdom.in.ua/uk/main/article_print/article_id/23235.phtml](https://durdom.in.ua/uk/main/article_print/article_id/23235.phtml)

D. MLRS attacks and artillery shelling of Ukrainian army checkpoints on road to Novoazovs’k from the border area: 21 July 2014 or 23 – 26 August 2014

The MLRS, self-propelled artillery, and mortar attacks of the morning of 23 August against Kholodne and Novoazovs’k BCP were not the only artillery attacks of the day. The Ukrainian National Security and Defense Council (NSDC) reported that at 11:10am, three Grad systems fired from the town of Maksimov destroyed a checkpoint near Novoazovs’k. Local VKontakte users also reported fire towards a checkpoint close to Novoazovs’k.73 Yandex map imagery from 31 August 2014 clearly shows the position of two Ukrainian army checkpoints at road junctions in between Novoazovs’k and the Novoazovs’k BCP close to 10 km to the east. In this report, the eastern-most checkpoint is called Checkpoint 1 (47.149172, 38.159002), while the checkpoint at a road junction next to Novoazovs’k is called Checkpoint 2 (47.136150, 38.121798). Recent Yandex maps updates have obscured many of the artillery craters at these checkpoints; however, the relevant images were saved before the Yandex maps update75.

74 https://web.archive.org/web/20151103204018/https://vk.com/wall-55653790?day=23082014&owners_only=0&q=%D0%A5%D0%BE%D0%BB%D0%BE%D0%B4%D0%BD%D0%BE%D0%B5
75 http://imgur.com/a/j3BRE
There are no videos of the reported MLRS attacks in this area on 23 August 2014. However, we can show from photo and satellite image evidence the targets of artillery attacks, the trajectory of the artillery fire, and a firing position.

![Image of soldiers with artillery](image)

Figure 16. A photo from Facebook purporting to show the remnants of a Grad rocket that was fired at a checkpoint near Novoazovs’k on 21 July 2014. The post was uploaded by Volodymyr Parasyuk on 22 July 2014. The attack was also reported in a tsn.ua news report. The rocket remains in the image were similar to the typical design of a 9M22U 122-mm rocket commonly used in a BM-21 Grad MLRS launcher (note the design of the stabilizing fins).

It should be noted that a checkpoint near Novoazovs’k was previously mentioned as the target of a Grad attack on 21 July 2014, with images of the alleged rocket fire on the checkpoint supporting this claim (Figure 16). A video report from tsn.ua also discusses the


77 https://www.youtube.com/watch?v=XN6p7Zd3vI0


attack\textsuperscript{80}. Also, videos from 25 – 27 August also seem to show artillery attacks on the area of Checkpoint 2 (25-1, 27-1, and 27-2). Therefore it cannot be determined that all of the artillery craters on satellite imagery discussed in the following section came from the attack on 23 August 2014, and some of them may have come from earlier or later attacks. However, regardless of the exact timing of the attacks, it is still possible to determine the source and trajectory of artillery fire on Checkpoint 1 and 2.

**Satellite imagery analysis of artillery craters and their trajectory**

Both Checkpoint 1 and Checkpoint 2 are surrounded by many artillery craters that were clear enough to conduct crater trajectory analysis (Table 4), and we were also able to locate the firing point next to the Russian border on satellite imagery (Figure 18).

![Satellite imagery evidence used to determine the trajectory of the artillery fire against these targets was taken from Yandex maps (31 August 2014 image, Figure 17, Table 4). Crater analysis techniques, described in a previous Bellingcat report, were used to determine the trajectory\textsuperscript{82}.](https://www.youtube.com/watch?v=XN6p7Zd3vI0)

---

\textsuperscript{80} [https://www.youtube.com/watch?v=XN6p7Zd3vI0](https://www.youtube.com/watch?v=XN6p7Zd3vI0)

\textsuperscript{81} [http://imgur.com/a/j3BRE](http://imgur.com/a/j3BRE)

\textsuperscript{82} based on the method described in the US Army Tactics, Techniques and Publications document ATTP 3-21.90 ‘Tactical Employment of Mortars’, 2011 available here:
Table 4. Details of the crater analysis at Checkpoint 1 and 2 and their approximate average trajectory (visualized in Figure 17).

<table>
<thead>
<tr>
<th>Area</th>
<th>Number of craters identified</th>
<th>Number of craters clear enough to determine trajectory</th>
<th>Results</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Checkpoint 1</td>
<td>74</td>
<td>39</td>
<td>29 from Northeast (1)</td>
<td>Figure 17 green</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5 from Northeast (2)</td>
<td>Figure 17 blue</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5 from Southeast</td>
<td>Figure 17 yellow</td>
</tr>
<tr>
<td>Checkpoint 2</td>
<td>36</td>
<td>19</td>
<td>19 from Northeast</td>
<td>Figure 17 red</td>
</tr>
</tbody>
</table>

The primary direction of the artillery attacks on the two checkpoints was from the northeast (Figure 17 green line, Table 4). We then searched the area on either side of the average artillery firing trajectory of all of the individual artillery craters analyses. 6.3 km northeast of checkpoint 1, we located three clear scorch marks in a field close to the Russian border at 47.180351, 38.228642 (Figure 18). By analyzing the directions that the scorch marks were facing, we found a close match between the facing of the scorch marks towards the position of the two checkpoints attacked by artillery fire (Figure 18).

Also following the average artillery firing trajectory for checkpoint 1 and 2 was a grouping of three scorch marks at 47.210830, 38.332340, inside Russia approximately 14.9 km from checkpoint 1 at an elevation of 54 m. However, we could not clearly determine the direction that the scorch marks were facing towards, and so we could not confirm the target of artillery fire from this position.

The location of these firing positions could not account for all of the craters identified at Checkpoint 1 (Table 4). The trajectory of five artillery craters pointed also to the northeast, to an area further north than the primary attack (the blue line on Figure 17). The average trajectory for these craters passes close to the villages of Markyne and Shcherbak, which was close to the area where a widely-reported armored assault across the border from Russia to Ukraine took place on 25 August 2014 (considered in more detail in this report on page 31, Armored assault from Russia on the Novoazovs’k area, morning of 25 August 2014). Satellite imagery in this area supports the reports that Russian-armed separatist forces crossed the border and fired on Ukrainian positions. So it is possible that these five artillery craters came from this attack.

Five more artillery craters indicated a trajectory from the southeast (the yellow line described in Figure 17 and Table 4). The average trajectory estimated for these craters crosses close to three dark scorch marks in a field that appear to be from the placement of vehicles or other large equipment, facing northwest at 47.127366, 38.231113 (Figure 19).
The three marks are placed very closely together and are approximately 5.5 meters in length and just under 2 m in width. Given the uncommon size of the traces, it is not possible to identify which vehicle or weapon caused this traces. Therefore we cannot conclude with certainty that this position (47.127366, 38.231113) was used to fire artillery from the border to Ukrainian positions, despite the close match between the facing of the ground markings and the trajectory of five artillery craters at Checkpoint 1.

**Geolocation and trajectory analysis of crater photos from journalists**

Further proof of the timing and trajectory of artillery attacks at Checkpoint 1 and 2 is provided in photos taken at the attack locations by journalists on 23 August and 25 August 2014.

Photos at Checkpoint 1 on 23 August by national and local journalists show a bus destroyed by artillery fire[^4] [^5] (Figure 20). In some of the photos, artillery craters are visible, which are clear enough to determine that the trajectory of fire from the northeast.

[^3]: [http://i.imgur.com/xIlR3Ta.png](http://i.imgur.com/xIlR3Ta.png)
From this evidence we can conclude that Checkpoint 1 was attacked by artillery fire from the northeast before the evening of 23 August.

A photo at Checkpoint 2 on 25 August from Reuters journalists (Figure 21) shows an artillery crater that also indicates a trajectory of fire from the northeast. This crater is also visible on Yandex maps imagery from 31 August (the image was recently replaced, but the original was saved in an online album).
Both the photos of artillery craters from Figure 20 and Figure 21 support the crater analysis findings that the artillery attacks came from the northeast. They also prove that artillery attacks from this direction occurred on or before 23 August 2014 at Checkpoint 1, and on or before 25 August 2014 at Checkpoint 2.

E. Armored assault from Russia on the Novoazovs’k area, morning of 25 August 2014

Numerous media sources reported an invasion of armored forces from Russia to Ukraine close to the Novoazovs’k road on the morning of 25 August. The occurrence of a battle at this time is confirmed in Video 25-1, filmed on this same morning, and which shows a number of smoke plumes appearing on the east side of Novoazovs’k town at a time between 8 and 9 am (based on the shadows visible in the video).

References:
94 https://www.youtube.com/watch?v=hgrSb8G57cI
95 https://www.youtube.com/watch?v=DYiNi5o8J6E backup: https://www.youtube.com/watch?v=N8Bqfe4pWO8
96 http://suncalc.net
Figure 22. Geolocation of video 25-1\textsuperscript{97}. The camera position is at 47.118605, 38.105728. The solid red lines show the approximate directions in which smoke plumes are visible at different times in the video. The shadows visible during the video suggest that it was filmed between 8 and 9 am.

Also, photos of an artillery crater inside Novoazovs'k from the morning of 25 August 2014\textsuperscript{98} (Figure 23) supports reports that artillery fire was coming from the northeast (in the direction of Shcherbak / Markyne) on this day. These photos also show that artillery fire was striking residential areas of Novoazovs'k on this day, and a video filmed the next day (video 26-8\textsuperscript{99}) proves that damage was caused to a house on the street from the artillery fire.

\textsuperscript{97} https://www.youtube.com/watch?v=DY-iN5o8J6E  backup: https://www.youtube.com/watch?v=N8Bqfe4pWO8
\textsuperscript{98} https://web.archive.org/web/20151103203632/https:/twitter.com/tombreadley/status/503871368417792000
\textsuperscript{99} https://www.youtube.com/watch?v=pW0MJ7cSgYs  backup: https://www.youtube.com/watch?v=8KTJewGKCNQ
The consensus of witnesses to the scene and Ukrainian media sources are that sometime during the early morning of 25 August, armored forces crossed from Russia at a position between Markyne and Shcherbak in Ukraine. Once having crossed the border, the invading forces advanced towards Rozy Lyuksemburh and Novoazovs’k, firing at locations to the north and northeast of Novoazovs’k. These forces were pushed back, possibly with the aid of the Ukrainian air force\(^\text{102}\), and for the rest of the day the Russian-armed separatist forces were positioned in the area north of Markyne, reportedly as far as Rozy Lyuksemburh (47.205065, 38.133176).

The satellite imagery evidence supports this version of events (summarized in Figure 24); the route across the border has been saved in an online album as some of the Yandex maps satellite imagery was replaced during the production of this report\(^\text{103}\). Vehicle tracks are visible that are not present in earlier satellite images from 2013 (Google Earth), or earlier in

\(^\text{100}\) [https://twitter.com/tombreadley/status/503871368417792000](https://twitter.com/tombreadley/status/503871368417792000)  

\(^\text{101}\) [https://www.youtube.com/watch?v=pW0MJ7cS3yY](https://www.youtube.com/watch?v=pW0MJ7cS3yY) backup: [https://www.youtube.com/watch?v=8KTJewGKCNO](https://www.youtube.com/watch?v=8KTJewGKCNO)

[https://archive.is/z9blZ](https://archive.is/z9blZ)

\(^\text{103}\) [http://imgur.com/a/uaqdi](http://imgur.com/a/uaqdi)
2014 (TerraServer) crossing the border and advancing into Ukraine\textsuperscript{104} (Figure 24). Vehicle tracks between two fields are clearly visible at (47.201334, 38.235991). Vehicle tracks are clearly visible on the route to Markyne (e.g. through a field here: 47.207845, 38.233703). In a field just southwest of Shcherbak (47.208460, 38.215091), south to Markyne, a large number of vehicle tracks are visible alongside small craters that indicate return fire from Ukrainian forces (but which were too small for a trajectory to be geolocated).

The advance to positions close to Rozy Lyuksemburh can also be identified by the presence of a large number of vehicle tracks and what could be temporary structures in a field just east of the town at 47.204002, 38.130701 (recently visible in Yandex maps a satellite image from 31 August, but since replaced, Google Earth shows some evidence of this in an 11 October 2014 image\textsuperscript{106}).

Russian media sources at the time suggested that ‘separatist’ forces attacked Novoazovs’k from the north\textsuperscript{107}. However, there is no open source evidence to support the idea that Russian-armed separatist forces attacked the area from further north than Shcherbak.

\textsuperscript{104} http://imgur.com/a/uaqdi for the album of Yandex maps satellite images described in this paragraph

\textsuperscript{105} http://imgur.com/a/uaqdi the Yandex maps satellite images described in this image and more showing areas around Markyne and Shcherbak where there is evidence of vehicle movement.

\textsuperscript{106} http://i.imgur.com/mijZGKb.jpg

\textsuperscript{107} https://www.youtube.com/watch?v=6Q782gGjdmE
Reuters journalists visited Telmanove twice on 24 August 2014 (the next major town to the north of Novoazovs’k) and did not see any evidence of the presence Russian-armed separatist armed forces\textsuperscript{108} there, or on the way. On Yandex maps (image 31 August 2014), north of Shcherbak there is no visible evidence of vehicle tracks or battle for many kilometers. The only evidence of vehicle movement and visible signs of artillery fire occur close to the identified border crossing point between Markyne and Shcherbak considered above.

We found no evidence to support the Russian media and separatist narrative that the Russian-armed separatist forces were able to break through Ukrainian lines in the direction of Telmanove and attack Ukrainian positions near Novoazovs’k from the north on 25 August 2014. Instead, the available satellite imagery supports reports that armored forces entered Ukraine from Russia, crossed several fields, and then engaged Ukrainian forces from positions between the towns of Markyne and Rozy Lyuksemburh, northeast of Novoazovs’k.

**Shelling of Novoazovs’k 26 August 2014**

On 26 August 2014 a number of artillery strikes in the area of Novoazovs’k were recorded by journalists in the area (including VICE news Henry Langston and crew 26-1\textsuperscript{109}, Ricardo Marquina 26-2\textsuperscript{110}, and Petr Shelomovskiy\textsuperscript{111}), as well as local residents. It is clear from the open source evidence that non-military targets were damaged by artillery fire on several occasions during the day, including a hospital, residential areas, a major road (still in public use at the time of the attacks), a cemetery and a bread factory.

These attacks can be shown to have come from the northeast of Novoazovs’k. However, due to the distance between Novoazovs’k and the Russian border (approximately 10 km) and the minimum range of MLRS artillery systems being lower than this (approximately 4 km for a BM-21 Grad system\textsuperscript{112}), it is not possible to determine with certainty whether these attacks came from Ukraine or Russia. A summary of the attacks of 26 August 2014 considered in this section is shown in Figure 25.


\textsuperscript{109} [https://www.youtube.com/watch?v=hgrSb8G57cl](https://www.youtube.com/watch?v=hgrSb8G57cl)

\textsuperscript{110} [https://www.youtube.com/watch?v=v-fVDadSalO](https://www.youtube.com/watch?v=v-fVDadSalO)

\textsuperscript{111} [https://twitter.com/shelomovskiy/status/504253642929864705](https://twitter.com/shelomovskiy/status/504253642929864705)

F. MLRS attack on Sedovo – Novoazovs’k road and southeast Novoazovs’k, morning of 26 August 2014

Several videos and photos show the aftermath of an MLRS attack on the road between Novoazovs’k and Sedovo (Figure 26, Figure 27).

Figure 26. Photo of the MLRS attack on the morning of 26 August 2014 in the area of the Novoazovs’k – Sedovo road, filmed from approximately 47.109798, 38.080783.113

113 http://vk.com/albums62016585?z=photo62016585_338541708%2Fphotos62016585
https://archive.is/dRg0M
Video 26-1 and 26-2 both show a large number of smoke plumes at multiple sites (Video 26-2 and 26-5, filmed from approximately 47.109475, 38.032554, suggest at least three separate strike sites, Figure 27). Due to the large number of simultaneous smoke plumes visible in the videos showing the aftermath of the attack, it can be assumed that there were many explosions in close succession, suggesting that rapid-fire artillery systems were used, such as MLRS.

In the course of the attack, several non-military targets were struck. The Sedovo-Novozovs’k road was directly struck by a shell or rocket (Figure 28), A house in southeast Novozovs’k was struck by artillery (Figure 28), as well as a hospital in the area (video 26-7, filmed in the area of 47.110326, 38.103550).

114 https://www.youtube.com/watch?v=hqrSb8G57cl
115 https://www.youtube.com/watch?v=v-fVDadSalO
116 https://www.youtube.com/watch?v=_w5BHIA37E0 backup: https://www.youtube.com/watch?v=UxXveEVD_cK
117 https://www.youtube.com/watch?v=CC2XVa-atLs backup: https://www.youtube.com/watch?v=cZj0XB_cJl
A tweet from the journalist Petr Shelomovskiy with a photo of the crater on the road between Novoazovs'k and Sedovo helps us to determine the trajectory of the MLRS fire that landed in this area (Figure 28). The ‘arrowhead’ shape of the crater, with the round impact area at the front and ground damage behind suggests high-angle fire\(^{124}\) (i.e. fire greater than 45° angle) from the northeast. In video 26-3, the crater of the artillery fire also suggests that the rocket came from the northeast; the front of the crater undercuts the earth where the

\(^{118}\) https://www.youtube.com/watch?v=hgrSb8G57cl

\(^{119}\) https://www.youtube.com/watch?v=v-fVDAadSalQ

\(^{120}\) https://www.youtube.com/watch?v=lg-GW-G6bOQ backup: https://www.youtube.com/watch?v=FxOYJzObPCE

\(^{121}\) https://www.youtube.com/watch?v=_w5BHIA37E0 backup: https://www.youtube.com/watch?v=UxXveEvd_Ck

\(^{122}\) https://www.youtube.com/watch?v=izyeyzkMjhc backup: https://www.youtube.com/watch?v=NQx52XjcUA8

\(^{123}\) https://www.youtube.com/watch?v=txonMvU3j2U backup: https://www.youtube.com/watch?v=yTsd4MYOWGM

shell impacted the ground and we can see a sharp rise of earth in front of the crater and a relatively shallow rise behind the crater.\(^\text{125}\)

Figure 28. The estimated trajectories of two artillery craters filmed (video 26-3\(^\text{126}\)) or photographed (Petr Shelomovskiy tweet\(^\text{127}\)) following the MLRS attack on the morning of 26 August 2014 in the area of southeast Novoazovs’k. The craters are positioned at 47.104108, 38.104228 (Petr Shelomovskiy tweet) and 47.106310, 38.102976 (video 26-3).

G. Bread factory northeast Novoazovs’k artillery strike, morning of 26 August 2014

In video 26-1\(^\text{128}\) (at 10 minutes and 55 seconds into the video) the VICE news crew are filming towards the north from the roof of the Novoazovs’k town hall at 47.110717, 38.082114. They witness an explosion at the northeastern side of the town. After travelling to the scene of


\(^{126}\) https://www.youtube.com/watch?v=lg-GW-G6bOQ backup: https://www.youtube.com/watch?v=FxOYJzObPCE


\(^{128}\) https://www.youtube.com/watch?v=hgrSb8G57cl
the shelling, they observe an artillery crater at the exterior of a bread factory in Novoazovs’k, positioned at approximately 47.129163, 38.089240 (Figure 29).

Figure 29. The geolocation and trajectory estimate of the artillery crater at the bread factory in northeast Novoazovs’k, featured in video 26-1 at 12 minutes and 5 seconds, filmed from 47.129163, 38.089240. The artillery crater is seen at 12m 32s, and also in a photo (bottom right) from a VICE news article from 28 August 2014 by Harriet Salem, photo taken by Henry Langston.

The crater shows characteristics of a low-angle artillery shell (roughly V-shaped with a pointed front, and ground damage to each side of the crater from the side spray). Crater analysis of this artillery crater suggested that the fire came from the northeast (see Figure 31 for the position of this trajectory on the area map).

H. Northwest Novoazovs’k artillery strike, afternoon of 26 August 2014

In the afternoon of 26 August 2014, several videos showed the aftermath of an artillery attack on the outskirts of northwest Novoazovs’k (video 26-8, 26-9, 26-10, 26-11, Figure 30). The attack caused multiple fires and also hit a cemetery.

129 https://www.youtube.com/watch?v=hgrSb8G57cI
131 https://www.youtube.com/watch?v=pW0MJ7cSgYs backup: https://www.youtube.com/watch?v=8KTJewGKCNo
Figure 30. The area of northwest Novoazovs’k attacked by artillery in the afternoon of 26 August 2014 (47.127111, 38.062966). The red fire symbols indicate the location of artillery craters identified from Yandex maps imagery. Images of these artillery craters are available in an online album135, as the original Yandex maps layer was replaced during the preparation of this report. The camera symbols indicate the positions from which videos were filmed, and the solid same-colored lines coming from them indicate the left and right extent of the camera view at specified times in the video.

Satellite imagery from 31 August 2014 on Yandex maps showed until recently clear photos of the craters at this attack site which was analyzed with crater analysis techniques to determine the trajectory of fire136. However, during the preparation of this report, the satellite imagery covering most of Novoazovs’k was replaced by a newer image. The original satellite imagery of the crater area was saved in an online album for this report137.

Table 5 shows a summary of the crater analysis performed at the attack site in northwest Novoazovs’k. Fourteen craters were determined to come from the northeast, and two were

132 https://www.youtube.com/watch?v=cXrxH91bE2o backup: https://www.youtube.com/watch?v=9snK2yHM0 Oc
133 https://www.youtube.com/watch?v=ffSEcmE1qMU backup: https://www.youtube.com/watch?v=39KW-HGewuQ
134 https://www.youtube.com/watch?v=UCEJGiwwsHc backup: https://www.youtube.com/watch?v=tk33DxylfeM
135 http://imgur.com/a/ke5EX
https://archive.is/rqUqf
137 http://imgur.com/a/ke5EX
determined to come from the east / northeast. A number of craters were analyzed; the final average trajectories of the two attack directions are shown in Figure 31.

Table 5. Artillery craters identified at the artillery attack site in Northwest Novoazovs’k 26 August 2014 (47.127111, 38.062966) and their estimated trajectory from crater analysis of satellite imagery.

<table>
<thead>
<tr>
<th>Area</th>
<th>Number of craters identified</th>
<th>Number of craters clear enough to determine trajectory</th>
<th>Results</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northwest Novoazovs’k</td>
<td>20</td>
<td>16</td>
<td>14 from Northeast</td>
<td>Figure 31</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 from East/Northeast</td>
<td></td>
</tr>
</tbody>
</table>

Figure 31 is a summary of the artillery crater trajectories determined over the three attacks considered in this report on 26 August 2014. By overlaying the average trajectories of the artillery attack on northwest Novoazovs’k (attack H, Table 5, Figure 31), we found a possible firing point for this attack at 47.181629, 38.151538, in between Rozy Lyukssemburh and Markyne. The burn marks visible at this position were visible on now-replaced Yandex maps; a copy of the satellite image at this position was saved online\(^\text{138}\). The firing positions for the other attacks (F and G) could not be determined; although the estimated trajectory for the attack G crater passes close by the firing position for attack D (previously discussed in section MLRS attacks and artillery shelling of Ukrainian army checkpoints on road to Novoazovs’k from the border area: 21 July 2014 or 23 – 26 August 2014, page 24).

\(^{138}\) [http://i.imgur.com/q2Lld8p.png](http://i.imgur.com/q2Lld8p.png)
The capture of Novoazovs’k and aftermath

In the morning of 27 August 2014, continued shelling to the east of Novoazovs’k (as shown in videos 27-1\textsuperscript{139} and 27-2\textsuperscript{140}). It became clear during the day that Ukrainian forces had pulled back, and Russian-armed separatist forces had taken over Novoazovs’k\textsuperscript{141}. By the evening, official Ukrainian sources, due to this battle and others, were officially reporting

\textsuperscript{139} https://www.youtube.com/watch?v=eC1RFhbfk-c backup: https://www.youtube.com/watch?v=TIlxXiZxuh3o

\textsuperscript{140} https://www.youtube.com/watch?v=y2XeT3YjInA backup: https://www.youtube.com/watch?v=3A0iFhS-9tY

\textsuperscript{141} http://ru.tsn.ua/politika/boycy-batalona-dnpr-1-videli-sobstvennymi-glazami-kolonnu-tehniki-rf-i-gotovyatsya-k-boyu-383507.html https://archive.is/Omgo3
that a Russian invasion of Ukraine had begun\textsuperscript{142}. On the morning of 28 August 2014, the mayor of Novoazovs’k confirmed that the city had been taken\textsuperscript{143}.

On 27 August onwards, tanks belonging to Russian-armed separatists were sighted inside Novoazovs’k. In the following days, several tanks and artillery pieces were filmed or photographed by local residents or journalists. Of these, two T-72B tanks, and one 2s19 Msta-S self-propelled artillery system have been proven to come from Russia, as described in the following section.

I. T-72 sightings and 2s19 Msta-S sightings from Russia in Novoazovs’k, 27 August 2014 – November 2014

Videos and photos from the 27 August show the presence of tanks belonging to the Russian-armed separatists within Novoazovs’k (Figure 32). From several distinctive features such as the shape of the tank treads (wide center of track instead of split), inward-facing wheel hubs, and systems placed on top of the turret, it was possible to identify the presence of T-72B variant tanks inside Novoazovs’k, which were most likely the T-72B1\textsuperscript{144,145}.

\textsuperscript{142} https://twitter.com/MFA_Ukraine/status/504734047030239232

\textsuperscript{143} http://mariupolnews.com.ua/descr/48502

\textsuperscript{144} https://www.bellingcat.com/resources/2015/05/28/tankspotting-how-to-identify-the-t-72b3/
https://archive.is/JzwLM

T-72 tanks were not in active front line service in the Ukrainian armed forces during the conflict of summer 2014 (until that point Ukraine kept them in long-term storage or produced / upgraded them for export)\(^{148}\). Nevertheless, although it was highly unlikely that the T-72B tanks considered in Figure 38 were captured from Ukrainian forces by separatists, the presence of T-72B variant tanks inside Novoazovs'k is not conclusive proof that these are Russian tanks. To determine the origin of these tanks it is necessary to compare features of the vehicles seen in Ukraine with those seen in Russia during the conflict.

In late July / August, a number of convoys including trucks carrying T-72B tanks were sighted in Russia close to the Ukrainian border in the area of Kamensk-Shakhtinsky, Rostov-on-Don, and Taganrog\(^{149} 150 151 152 153 154 155\) (a number of convoys of other types of

\(^{146}\) [https://vk.com/wall-55653790?day=27082014&owners_only=1&q=Новоазовск](https://vk.com/wall-55653790?day=27082014&owners_only=1&q=Новоазовск)

\(^{147}\) [https://www.youtube.com/watch?v=IBuSgoWlaR4](https://www.youtube.com/watch?v=IBuSgoWlaR4) backup: [https://www.youtube.com/watch?v=LDqYNJ3fOBS](https://www.youtube.com/watch?v=LDqYNJ3fOBS)


\(^{149}\) [https://bellingcat-vehicles.silk.co/page/1222-Rostov-Oblast%3A-Tanks-on-trailers](https://bellingcat-vehicles.silk.co/page/1222-Rostov-Oblast%3A-Tanks-on-trailers)

\(^{150}\) [https://bellingcat-vehicles.silk.co/page/1223-Rostov-on-Don%3A-Tanks-on-trailers](https://bellingcat-vehicles.silk.co/page/1223-Rostov-on-Don%3A-Tanks-on-trailers)

\(^{151}\) [https://instagram.com/p/q_OTypgnXS/](https://instagram.com/p/q_OTypgnXS/) [https://archive.is/9uW38](https://archive.is/9uW38)

\(^{152}\) [https://instagram.com/p/rFFt34QXWU/](https://instagram.com/p/rFFt34QXWU/) backup: [https://www.youtube.com/watch?v=lpfWHoO7Wk](https://www.youtube.com/watch?v=lpfWHoO7Wk) [https://archive.is/0Y4RU](https://archive.is/0Y4RU)

\(^{153}\) [https://bellingcat-vehicles.silk.co/page/1217-M4-Lenina%3A-T-72B-tanks](https://bellingcat-vehicles.silk.co/page/1217-M4-Lenina%3A-T-72B-tanks)

\(^{154}\) [https://www.youtube.com/watch?v=ny55Axgecso](https://www.youtube.com/watch?v=ny55Axgecso) backup: [https://www.youtube.com/watch?v=_1ber8sRvUc](https://www.youtube.com/watch?v=_1ber8sRvUc)
vehicles, such as BMPs or trucks, were also filmed\(^{156}\ 157\ 158\ 159\ 160\ 161\). Building on the work of other investigative bloggers (Surpher\(^{162}\) and Askai\(^{163}\)) we compared photos and videos of T-72B tanks in the Novoazovs’k area following its capture by Russian-armed separatists with the tanks earlier sighted in Russia. In at least two cases (and unconfirmed in a third case), T-72B tanks were sighted in Russia in July / August 2014 and subsequently inside Ukraine in the Novoazovs’k area. These case studies are considered below.

**T-72B number 127 / 005**

On 30 July 2014 a T-72B tank convoy was filmed in the area of Kamensk-Shakhtinsky\(^{164}\), east of the Ukrainian-Russian border (Figure 33c). One of these tanks was numbered 127\(^{165}\).

On 21 August 2014, in the area of Rostov-on-Don, tank 127 was photographed again (Figure 33b). On 29 - 31 August\(^{166}\ 167\), tank 127 was photographed in Novoazovs’k by journalists visiting the town following its takeover by Russian-armed separatists (Figure 33). Distinctive Explosive Reactive Armor (ERA) block arrangements, paint colors, and a white tactical markings (Figure 33e) remaining on the turret match those of tank 127 seen previously in...

\(^{155}\)https://www.youtube.com/watch?v=8UtqUVwFH9k

\(^{156}\)https://bellingcat-vehicles.silk.co/page/1133-Taganrog%3A-tanks-%26-BMDs-on-trailers

\(^{157}\)https://www.youtube.com/watch?v=3O7FWwuX_gI

\(^{158}\)https://www.youtube.com/watch?v=qdeKeZQyFQ

\(^{159}\)https://www.youtube.com/watch?v=gVmhvM_sXs

\(^{160}\)https://www.youtube.com/watch?v=64RhrFyWxBs

\(^{161}\)https://www.youtube.com/watch?v=U685o2vTQiA


\(^{164}\)Video CONVOY-1: https://instagram.com/p/rFFt34QXWU/ backup: https://www.youtube.com/watch?v=lpfWHoOJ7Wk https://archive.is/OY4RU

\(^{165}\)It is worth noting that two other tanks of this same convoy (tank numbers 138 and 245) were also subsequently geolocated in different areas of Ukraine http://surpher.livejournal.com/762.html https://archive.is/XedLS


the Russian truck convoy. One photo even shows the tank still with the number 127 on one of the protective coverings on the top left of the vehicle.\footnote{168}

Tank 127 was again featured in video CONVOY-2 uploaded on 10 September 2014\footnote{174}, filmed inside Novoazov'sk (47.126085, 38.084023). By this time, much of the chassis of the tank had been painted over, and it had been renumbered as ‘005’.

\begin{figure}
\centering
\includegraphics[width=\textwidth]{sightings.png}
\caption{Figure 33. Sightings of tank number 127 / 005 in Russia and Ukraine during the summer of 2014. a), c) in a truck convoy 30 July 2014 close to Kamensk-Shakhtinsky\footnote{169}. b) Another convoy carrying tank 127, photo uploaded on 21 August 2014 and taken in the area of Rostov-on-Don\footnote{170}. d) A photo of tank 127 in Novoazov'sk taken by journalist Petr Shelomovskiy on 31 August 2014\footnote{172}. e) A photo of tank 127 in video CONVOY-2 uploaded 10 September 2014, filmed at 47.126085, 38.084023\footnote{173}.}
\end{figure}

\footnote{168}{\url{http://www.buzzfeed.com/miriamberger/21-photos-that-show-the-growing-conflict-in-east-ukraine} (photo 12)  
\url{https://archive.is/vwZgn}}

\footnote{169}{Video CONVOY-1: \url{https://instagram.com/p/rFFt34QXWU/} backup: \url{https://www.youtube.com/watch?v=lpfWHoOJ7Wk}  
\url{https://archive.is/0Y4RU}}

\footnote{170}{\url{https://pp.vk.me/c620518/v620518709/11017/wNaX9B_a4us.jpg} with geolocation at \url{http://ic.pics.livejournal.com/sled_vzayt/73245930/57357/57357_original.jpg}  
\url{https://archive.is/Jd4c1}}

\footnote{171}{\url{https://bellingcat-vehicles.silk.co/page/1112-T-72B1-on-trailer}}

\footnote{172}{\url{https://twitter.com/shelomovskiy/status/506095547862618114} \url{https://web.archive.org/web/20151105201809/https://twitter.com/shelomovskiy/status/506095547862618114}}

\footnote{173}{\url{https://www.youtube.com/watch?v=pZzsLMdz4C8} backup: \url{https://www.youtube.com/watch?v=K2yiYfK9rk}}

\footnote{174}{\url{https://www.youtube.com/watch?v=pZzsLMdz4C8} backup: \url{https://www.youtube.com/watch?v=K2yiYfK9rk}}
Based on the unique visible features of T-72B1 tank number 127, we could confirm that it was transported within Russian territory from 30 July to 21 August, and was inside Novoazovs’k, Ukraine by 29 August 2014.

**T-72B number 004**

Another convoy of trucks carrying T-72B tanks was photographed on 5 August 2014 in Russia close to Kamensk-Shakhtinsky (Figure 36a). The tank closest to the camera had distinctive yellow and green coloring in the wheel hubs, green ERA blocks on its side, a painted brown front and back to the turret and a distinctive notch on the side skirt (Figure 36).

![Figure 34. a) Sighting of tank 004 inside Russia on a convoy close to Kamensk-Shakhtinsky 175, b) position of geotag for photo a) on VKontakte.]

Another photo of the tank was taken on 23 August 2014 and uploaded to Instagram at a location most likely between Rostov-on-Don and Taganrog in Russia (analysis of Google Street View images suggests the area of 47.2943725, 39.2856374, Figure 35). Once again, the visible tank had the distinctive green ERA blocks and wheel hub coloring.

---

175 https://bellingcat-vehicles.silk.co/page/1113-T-72-on-trailer

176 https://bellingcat-vehicles.silk.co/page/1113-T-72-on-trailer
Tank 004 was then sighted next to Novoazovs’k by Guardian journalist Alec Luhn on 30 August 2014 and it was seen again in video CONVOY-2 (Figure 36b, in which tank 127 also featured). In this video we can see the new ‘004’ numbering on the side of the tank.

Figure 35. Photos of tank 004 uploaded to Instagram on 23 August 2014. The top photo has been geolocated to a location in Russia close to 47.2943725, 39.2856374, visible on Google Street View here. The bottom left photo shows Tank 004 from the same Instagram pager, and the bottom right photo shows a photo of tank 004 inside Ukraine (also shown in Figure 36e). Note the green wheel hubs, the green front ERA brick (compare with), and the brown painted front of the turret.

178 https://www.google.de/maps/@47.2943725,39.2856374,3a,15y,100.96h,88.59t/data=!3m6!1e1!3m4!1sUomCAW2462ylLaCjxrT18g!2e0!7i13312!8i6656
Before entering Ukraine, tank T-72B1 004 was sighted in Russia in photos uploaded on 5 August 2014 and 23 August 2014. The same tank was then seen in Novoazovs'k on 30 August 2014 and in a video uploaded 10 September 2014. We can therefore confirm that this tank was transported from Russia to Ukraine during the conflict in late August 2014.

---

180. [https://www.youtube.com/watch?v=pZzsLMd4C8](https://www.youtube.com/watch?v=pZzsLMd4C8) backup: [https://www.youtube.com/watch?v=K2yiiYfK9rk](https://www.youtube.com/watch?v=K2yiiYfK9rk)


182. [http://vk.com/albums200578370?z=photo200578370_335228328/photos200578370](http://vk.com/albums200578370?z=photo200578370_335228328/photos200578370) [https://archive.is/F5JnN](https://archive.is/F5JnN)


184. [http://imgur.com/M6wFnLr](http://imgur.com/M6wFnLr) [https://archive.is/Vg10g](https://archive.is/Vg10g)
**T-72B number 002**

On 10 August 2014 a video of four tanks being transported on another truck convoy was filmed close to Rostov-on-Don (video CONVOY-3\(^{185}\)). The second tank in this video has a few distinctive features in the ERA block placement, and coloring of the gun and wheel hubs that make it look very similar to a third tank in video CONVOY-2 of T-72Bs inside Novoazov’sk uploaded on 10 September 2014\(^{186}\) (filmed at 47.126085, 38.084023). The tank is now painted with the number ‘002’ (Figure 37).

![Figure 37. A comparison of the T-72B tank shown in two videos: a) video CONVOY-3 of a truck convoy in Russia close to Rostov-on-Don on 10 August 2014\(^{187}\), and b) video CONVOY-2 uploaded on 10 September 2014 showing T-72B tanks filmed at 47.126085, 38.084023 inside Novoazov’sk\(^{188}\).](attachment:image)

---

\(^{185}\) [https://www.youtube.com/watch?v=nvS5Axqecso](https://www.youtube.com/watch?v=nvS5Axqecso) backup: [https://www.youtube.com/watch?v=1ber8sRvUc](https://www.youtube.com/watch?v=1ber8sRvUc)

\(^{186}\) [https://www.youtube.com/watch?v=pZzsLMdz4C8](https://www.youtube.com/watch?v=pZzsLMdz4C8) backup: [https://www.youtube.com/watch?v=K2yiYfK9rk](https://www.youtube.com/watch?v=K2yiYfK9rk)

\(^{187}\) [https://www.youtube.com/watch?v=nvS5Axqecso](https://www.youtube.com/watch?v=nvS5Axqecso) backup: [https://www.youtube.com/watch?v=1ber8sRvUc](https://www.youtube.com/watch?v=1ber8sRvUc)

\(^{188}\) [https://www.youtube.com/watch?v=pZzsLMdz4C8](https://www.youtube.com/watch?v=pZzsLMdz4C8) backup: [https://www.youtube.com/watch?v=K2yiYfK9rk](https://www.youtube.com/watch?v=K2yiYfK9rk)
Many of the features of the tank photos reviewed in Figure 37 seem to suggest that we are looking at the same T-72B on 10 August 2014 in Russia and on 10 September 2014 in Ukraine. However, the resolution in both videos is relatively poor, and so we concluded that the evidence was not strong enough to say with certainty that the tank in each video is the same.

Further T-72B tanks sighted in the area of Novoazovs’k

There are many further photos and videos of T-72B tanks stationed in the Novoazovs’k area in late summer / autumn 2014 (Figure 38). These tanks were sighted in the Novoazovs’k area; however, the origins of these tanks are thus far unconfirmed.

Figure 38. Evidence of the presence of T-72B tanks in the area of Novoazovs’k from 27 August 2014 to 01 October 2014. a) from geotagged VKontakte photos uploaded to twitter by user @BuTaJIu4eK on 01 October 2014 189, b) from an article 13 October 2014 190, and c), d) from user @raging545 on Twitter on 22 November 2015 191.

189 https://twitter.com/BuTaJIu4eK/status/649836628182204416
https://web.archive.org/web/20151103205359/https://twitter.com/BuTaJIu4eK/status/649836628182204416


191 https://twitter.com/raging545/status/536227666320711680
2s19 Msta-S sighted in Russia and in Ukraine

The case of the same 2s19 Msta-S self-propelled 152-mm howitzer (Msta-S) sighted first in Russia and then in Ukraine has been featured in a previous Bellingcat report. This section provides a brief summary of the evidence.

In a video uploaded on 30 July 2014, two Msta-S and several other armored vehicles were sighted on a truck convoy in Rostov-on-Don. One of the Msta-S has a distinctive camouflage pattern, and paint mark close to the rear of the turret (Figure 39a). It should be noted that this paint mark was different from the white circle which seems to be a feature of the other trucks and Msta-S in the video. Also note the writing ‘H2200’ on the side skirt just above the wheels (used as a code to designate oversized cargo for train transport in Russia).

The same Msta-S was sighted in Novoazovs’k in a video report by Al Jazeera uploaded on 5 September 2014. Note the same camouflage pattern and paint markings (Figure 39c).

193 https://www.youtube.com/watch?v=fqL_yZBMtAQ
195 https://ru.wikipedia.org/wiki/%D0%93%D0%B0%D0%BC%D1%80%D0%B8%D1%82%D0%BF%D0%BE%D0%B3%D1%80%D1%83%D0%B7%D0%BA%D0%B8#_._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._._.
Further subsequent reports of Msta-S systems inside Ukraine close to Novoazovs’k (and maybe even the same vehicle discussed in this section) have been reviewed by the investigative website Inform Napalm\textsuperscript{199}, but are not considered further in this report.

**Summary**

This section has shown that at least two T-72B tanks and one Msta-S self-propelled howitzer were transferred from Russia to Ukraine, arriving in Novoazovs’k in Ukraine in late August / early September 2014. Further photo evidence demonstrated that a number of T-72B tanks were stationed in the Novoazovs’k area in late summer / autumn 2014, but their origin could not be determined.

\textsuperscript{197} \url{https://www.bellingcat.com/resources/case-studies/2015/05/29/confirming-the-location-of-the-same-msta-s-in-russia-and-ukraine/} \url{https://archive.is/jAL2X}

\textsuperscript{198} \url{https://www.youtube.com/watch?t=8&v=ocfxP-lerAY} \url{https://www.youtube.com/watch?v=RRprccyNmFI}

\textsuperscript{199} \url{https://informnapalm.org/11391-sau-msta-s-novoazovskom} \url{https://archive.is/Bidwm}
Conclusions

Through analysis of open source videos, photos and satellite imagery from July / August 2014 between Novoazovs'k and the Ukraine-Russian border, we presented evidence of several instances of direct Russian involvement in the conflict in this area.

An MLRS attack (attack A) and a separate self-propelled artillery attack (attack B) were shown to have come from Russia on 23 August. Satellite imagery evidence of another MLRS attack on Ukrainian checkpoints coming within 1 km of the Russian-Ukraine border was presented, along with vehicle tracks leading back across the border (attack D). A potential firing position for mortar attacks on Novoazovs'k BCP was found on satellite imagery (attack C).

Satellite imagery of vehicle tracks through fields and the evidence of battle in the area of Markyne / Shcherbak (north of Novoazovs'k) support military and media reports that an armored force from Russia crossed the border between Markyne / Shcherbak on 25 August 2014 and engaged Ukrainian forces to the east of Novoazovs'k (attack E).

Open source evidence from 26 August shows that MLRS and artillery attacks were launched on targets on the outskirts of Novoazovs'k, striking roads, a hospital, residential areas and a cemetery (attacks F, G and H). It could not be determined whether these attacks came from Ukrainian or Russian territory.

Finally, it was shown that two T-72B tanks and one 2s19 Msta-S self-propelled howitzer was transported from Russia into Ukraine: videos and photos of vehicles in Novoazovs'k shortly after its capture were compared with truck convoys transporting armor within Russia in July / August 2014. Further photos from autumn / winter 2014 show the presence of several T-72B tanks in or close to Novoazovs'k.

Open source evidence has shown that attacks on Ukrainian forces around Novoazovs'k came from Russia, and that vehicles used in the conflict in the area were transported from Russia. This report adds to the growing body of evidence showing that Russia was directly involved in the Ukrainian conflict of 2014-2015.

Acknowledgments

This report was written by Sean Case and Klement Anders, with significant contributions from Aric Toler and Eliot Higgins.

The following members of the Bellingcat Investigation Team also contributed to this report:

- Timmi Allen
- Andrew Haggard
- Pieter van Huis
- Veli-Pekka Kivimaki
- Iggy Ostanin
- Nathan Patin
- Daniel Romein

Thanks to Pavel Aleshin and Dmitry Bochkov for assistance with the translation to Russian.
### Appendix

Table 6. Details of the videos considered in this report.

<table>
<thead>
<tr>
<th>Num</th>
<th>Original video name</th>
<th>Translated video name</th>
<th>Uploader name</th>
<th>Upload date</th>
<th>Coordinates filmed</th>
<th>Video URL</th>
<th>Backup video URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>23-1</td>
<td>Новоазовск. Обстрел украинских пограничников из РСЗО ГРАД с территории России 23.08.2014</td>
<td>The Russians shelled Novoazovs’k area 08/23/2014</td>
<td>max maximov</td>
<td>08/23/2014</td>
<td>47.158348, 38.210027</td>
<td><a href="https://www.youtube.com/watch?v=r7zabXF_bE">https://www.youtube.com/watch?v=r7zabXF_bE</a></td>
<td><a href="https://www.youtube.com/watch?v=RuiO66G8npA">https://www.youtube.com/watch?v=RuiO66G8npA</a></td>
</tr>
<tr>
<td>23-3</td>
<td>Российско-украинская граница 23.08.14 Седово. Новоазовский район</td>
<td>Russian-Ukrainian border 23.08.14 Sedovo. Novoazovs’k area</td>
<td>ilebai</td>
<td>08/23/2014</td>
<td>47.101406, 38.180351</td>
<td><a href="https://www.youtube.com/watch?v=SnRqBDoBz9s">https://www.youtube.com/watch?v=SnRqBDoBz9s</a></td>
<td><a href="https://www.youtube.com/watch?v=BqaHUVnVcJs">https://www.youtube.com/watch?v=BqaHUVnVcJs</a></td>
</tr>
<tr>
<td>23-6a</td>
<td>Россияне обстреливают Новоазовский район 23.08.2014 - 2</td>
<td>The Russians shelled the Novoazovs’k area 23.08.2014 - 2</td>
<td>max maximov</td>
<td>08/23/2014</td>
<td>47.119943, 38.230202</td>
<td><a href="https://www.youtube.com/watch?v=xCEIPnPnEMSw">https://www.youtube.com/watch?v=xCEIPnPnEMSw</a></td>
<td><a href="https://www.youtube.com/watch?v=CnrrA4GJj8w">https://www.youtube.com/watch?v=CnrrA4GJj8w</a></td>
</tr>
<tr>
<td>Num</td>
<td>Original video name</td>
<td>Translated video name</td>
<td>Uploader name</td>
<td>Upload date</td>
<td>Coordinates filmed</td>
<td>Video URL</td>
<td>Backup video URL</td>
</tr>
<tr>
<td>-----</td>
<td>---------------------</td>
<td>-----------------------</td>
<td>---------------</td>
<td>-------------</td>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
</tr>
<tr>
<td>23-6b</td>
<td>Россияне обстреливают Новоазовский район 23.08.2014 - 3</td>
<td>The Russians shelled the Novoazovs’k area 23.08.2014 - 3</td>
<td>max maximov</td>
<td>08/23/2014</td>
<td>47.119943, 38.230202</td>
<td><a href="https://www.youtube.com/watch?v=ZYBBU7gJy8o">https://www.youtube.com/watch?v=ZYBBU7gJy8o</a></td>
<td><a href="https://www.youtube.com/watch?v=zBxfgpVIuQ0">https://www.youtube.com/watch?v=zBxfgpVIuQ0</a></td>
</tr>
<tr>
<td>23-7</td>
<td>Арт Обстрел Седово. Сегодня. 23.08.2014</td>
<td>Art shelling Sedovo. Today. 08/23/2014</td>
<td>Ира Типичная</td>
<td>08/22/2014</td>
<td>Not geolocated</td>
<td><a href="https://www.youtube.com/watch?v=4-7DbcYtXVA">https://www.youtube.com/watch?v=4-7DbcYtXVA</a></td>
<td><a href="https://www.youtube.com/watch?v=U0aitW57Mk">https://www.youtube.com/watch?v=U0aitW57Mk</a></td>
</tr>
<tr>
<td>25-1</td>
<td>В направлении Новоазовск Мариуполь идут бои между пограничниками и бронетехникой из РФ 25 08 2014</td>
<td>Towards Novoazovs’k Mariupol there are fights between guards and armored vehicles from Russia 25 08 2014</td>
<td>Новостной Портал (News Portal)</td>
<td>08/26/2014</td>
<td>47.118453, 38.105540</td>
<td><a href="https://www.youtube.com/watch?v=DY-iN5o8J6E">https://www.youtube.com/watch?v=DY-iN5o8J6E</a></td>
<td><a href="https://www.youtube.com/watch?v=N8Bqfe4pWO8">https://www.youtube.com/watch?v=N8Bqfe4pWO8</a></td>
</tr>
<tr>
<td>26-1</td>
<td>The New Rebel Offensive: Russian Roulette (Dispatch 72)</td>
<td>The New Rebel Offensive: Russian Roulette (Dispatch 72)</td>
<td>VICE news</td>
<td>09/02/2014</td>
<td>47.105475, 38.105593, 12m 21s - 47.128856, 38.089090</td>
<td><a href="https://www.youtube.com/watch?v=hgrSb8G57cf">https://www.youtube.com/watch?v=hgrSb8G57cf</a></td>
<td>NA</td>
</tr>
<tr>
<td>26-2</td>
<td>Bombardeo de Novoazovs’k</td>
<td>Bombardment of Novoazovs’k</td>
<td>Ricardo Marquina Montañana</td>
<td>08/26/2014</td>
<td>47.104118, 38.104170, NW 2m 54s: 47.126175, 38.068350</td>
<td><a href="https://www.youtube.com/watch?v=v-fvDadSaI0">https://www.youtube.com/watch?v=v-fvDadSaI0</a></td>
<td>NA</td>
</tr>
<tr>
<td>26-3</td>
<td>Новоазовск обстрел из гаубиц 26.08.2014</td>
<td>Novoazovs’k fire from howitzers 08/26/2014</td>
<td>Петр Губка (Peter Sponge)</td>
<td>08/26/2014</td>
<td>47.106280, 38.102934</td>
<td><a href="https://www.youtube.com/watch?v=lg-GW-G6bOQ">https://www.youtube.com/watch?v=lg-GW-G6bOQ</a></td>
<td><a href="https://www.youtube.com/watch?v=FxOYJzO6bCE">https://www.youtube.com/watch?v=FxOYJzO6bCE</a></td>
</tr>
<tr>
<td>26-4</td>
<td>Новоазовск в городе горит больница, российские наемники продолжают обстреливать город 26 08 2014</td>
<td>Novoazovs’k Hospital in the city of lights, Russian mercenaries continue to bombard the city August 26, 2014</td>
<td>Новостной Портал (News Portal)</td>
<td>08/26/2014</td>
<td>Not geolocated.</td>
<td><a href="https://www.youtube.com/watch?v=txonMyU3j2U">https://www.youtube.com/watch?v=txonMyU3j2U</a></td>
<td><a href="https://www.youtube.com/watch?v=yTs4MYQWGM">https://www.youtube.com/watch?v=yTs4MYQWGM</a></td>
</tr>
<tr>
<td>Num</td>
<td>Original video name</td>
<td>Translated video name</td>
<td>Uploader name</td>
<td>Upload date</td>
<td>Coordinates filmed</td>
<td>Video URL</td>
<td>Backup video URL</td>
</tr>
<tr>
<td>-----</td>
<td>---------------------</td>
<td>-----------------------</td>
<td>---------------</td>
<td>-------------</td>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
</tr>
<tr>
<td>26-5</td>
<td>Россияне обстреливают Новоазовский район 26.08.2014 - 1</td>
<td>The Russians shelled Novoazov's area 08/26/2014 - 1</td>
<td>max maximov</td>
<td>08/26/2014</td>
<td>47.109475, 38.032554 (approximately)</td>
<td><a href="https://www.youtube.com/watch?v=w5BHIA37E0">https://www.youtube.com/watch?v=w5BHIA37E0</a></td>
<td><a href="https://www.youtube.com/watch?v=UxXyeEVd_Ck">https://www.youtube.com/watch?v=UxXyeEVd_Ck</a></td>
</tr>
<tr>
<td>26-6</td>
<td>выезд с седово!</td>
<td>check with Sedov!</td>
<td>Петр Губка (Peter Sponge)</td>
<td>08/26/2014</td>
<td>47.085344, 38.140382 (end of video)</td>
<td><a href="https://www.youtube.com/watch?v=izyeyzkMlh">https://www.youtube.com/watch?v=izyeyzkMlh</a></td>
<td><a href="https://www.youtube.com/watch?v=NQx52XjcUA8">https://www.youtube.com/watch?v=NQx52XjcUA8</a></td>
</tr>
<tr>
<td>26-7</td>
<td>обстрел Новоазовской больницы!!!26.08.2014</td>
<td>Novoazov'sk shelling hospitals 08/26/2014 !!!</td>
<td>Петр Губка (Peter Sponge)</td>
<td>08/26/2014</td>
<td>47.110514, 38.103689 (approximately)</td>
<td><a href="https://www.youtube.com/watch?v=CC2XVatLs">https://www.youtube.com/watch?v=CC2XVatLs</a></td>
<td><a href="https://www.youtube.com/watch?v=czI0XBCj">https://www.youtube.com/watch?v=czI0XBCj</a></td>
</tr>
<tr>
<td>26-8</td>
<td>MOV05554</td>
<td>MOV05554</td>
<td>Петр Губка (Peter Sponge)</td>
<td>08/26/2014</td>
<td>47.124490, 38.070001</td>
<td><a href="https://www.youtube.com/watch?v=pW0MJ7cSGY">https://www.youtube.com/watch?v=pW0MJ7cSGY</a></td>
<td><a href="https://www.youtube.com/watch?v=8KTJewGKCNQ">https://www.youtube.com/watch?v=8KTJewGKCNQ</a></td>
</tr>
<tr>
<td>26-9</td>
<td>Россияне обстреливают Новоазовский район 26.08.2014 - 2</td>
<td>The Russians shelled the Novoazov'sk area 08/26/2014 - 2</td>
<td>max maximov</td>
<td>08/26/2014</td>
<td>47.122517, 38.084772</td>
<td><a href="https://www.youtube.com/watch?v=tSeEcME1qMU">https://www.youtube.com/watch?v=tSeEcME1qMU</a></td>
<td><a href="https://www.youtube.com/watch?v=9snK2yHMOOc">https://www.youtube.com/watch?v=9snK2yHMOOc</a></td>
</tr>
<tr>
<td>26-10</td>
<td>Россияне обстреливают Новоазовский район 26.08.2014 - 3</td>
<td>The Russians shelled the Novoazov'sk area 08/26/2014 - 3</td>
<td>max maximov</td>
<td>08/26/2014</td>
<td>47.124186, 38.065466</td>
<td><a href="https://www.youtube.com/watch?v=fSfEcmE1qMU">https://www.youtube.com/watch?v=fSfEcmE1qMU</a></td>
<td><a href="https://www.youtube.com/watch?v=39KW-HGewu0">https://www.youtube.com/watch?v=39KW-HGewu0</a></td>
</tr>
<tr>
<td>Num</td>
<td>Original video name</td>
<td>Translated video name</td>
<td>Uploader name</td>
<td>Upload date</td>
<td>Coordinates filmed</td>
<td>Video URL</td>
<td>Backup video URL</td>
</tr>
<tr>
<td>-----</td>
<td>---------------------</td>
<td>-----------------------</td>
<td>---------------</td>
<td>-------------</td>
<td>-------------------</td>
<td>-----------</td>
<td>------------------</td>
</tr>
<tr>
<td>27-1</td>
<td>27.08.2014 Новоазовск</td>
<td>27.08.2014 Novoazovsk’k</td>
<td>Alex Will</td>
<td>08/27/2014</td>
<td>47.119197, 38.100287</td>
<td><a href="https://www.youtube.com/watch?v=eC1Rfhbfk-c">https://www.youtube.com/watch?v=eC1Rfhbfk-c</a></td>
<td><a href="https://www.youtube.com/watch?v=TIxXIZxuh3o">https://www.youtube.com/watch?v=TIxXIZxuh3o</a></td>
</tr>
<tr>
<td>27-2</td>
<td>Новоазовск идут бой за город 27 08 2014</td>
<td>Novoazovsk’k are fighting for the city August 27, 2014</td>
<td>News Online</td>
<td>08/27/2014</td>
<td>47.117982, 38.105428</td>
<td><a href="https://www.youtube.com/watch?v=y2XeT3YjnA">https://www.youtube.com/watch?v=y2XeT3YjnA</a></td>
<td><a href="https://www.youtube.com/watch?v=3A0iFhS9tY">https://www.youtube.com/watch?v=3A0iFhS9tY</a></td>
</tr>
<tr>
<td>CON VOY-1</td>
<td>NA</td>
<td>NA</td>
<td>don.kulagi n</td>
<td>Early August 2014</td>
<td>Near Kamensk-Shakhtinsky</td>
<td><a href="https://instagram.com/p/rFFt34QWXU/">https://instagram.com/p/rFFt34QWXU/</a></td>
<td><a href="https://www.youtube.com/watch?v=lpfWHo0J7Wk">https://www.youtube.com/watch?v=lpfWHo0J7Wk</a></td>
</tr>
<tr>
<td>CON VOY-2</td>
<td>Ukraine War • Novorussian Armed Forces started an offensive towards Novoazovsk’k</td>
<td>Ukraine War • Novorussian Armed Forces started an offensive towards Novoazovsk’k</td>
<td>Press TV News</td>
<td>09/10/2014</td>
<td>47.126085, 38.084023</td>
<td><a href="https://www.youtube.com/watch?v=pZzsLMdZ4C8">https://www.youtube.com/watch?v=pZzsLMdZ4C8</a></td>
<td><a href="https://www.youtube.com/watch?v=K2yiylF9k9r">https://www.youtube.com/watch?v=K2yiylF9k9r</a></td>
</tr>
<tr>
<td>CON VOY-3</td>
<td>Колонны бронетехники стягиваются в Ростов-на-Дону. 10.08.2014</td>
<td>Columns of armored vehicles pulled together in Rostov-on-Don. 08/10/2014</td>
<td>1Langolier</td>
<td>08/10/2014</td>
<td>(unconfirmed)</td>
<td><a href="https://www.youtube.com/watch?v=nvS5AxgecsO">https://www.youtube.com/watch?v=nvS5AxgecsO</a></td>
<td><a href="https://www.youtube.com/watch?v=1ber8sRvUc">https://www.youtube.com/watch?v=1ber8sRvUc</a></td>
</tr>
</tbody>
</table>
Table 7. Timeline of the events in the Novoazovs’k area between 21 July 2014 and 27 August 2014.

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Incident</th>
<th>Evidence source in this document</th>
</tr>
</thead>
<tbody>
<tr>
<td>07/21/2015</td>
<td>Night</td>
<td>Checkpoint near Novoazovs’k border crossing point shelled with Grad system, reportedly from Russia.</td>
<td>Photo of Grad rocket from social media, official government source, TV news report.</td>
</tr>
<tr>
<td>07/25/2015</td>
<td>1:15am - 2:10am</td>
<td>Novoazovs’k border crossing point attacked with mortars, allegedly from Russian territory.</td>
<td>Ukrainian media and social media, official government source.</td>
</tr>
<tr>
<td>07/25/2015</td>
<td>Night</td>
<td>Base near Kholodne attacked with Grad system, allegedly from Russian territory.</td>
<td>Ukrainian media and social media, official government source.</td>
</tr>
<tr>
<td>08/21/2014</td>
<td>11:30am - 12:10pm</td>
<td>Novoazovs’k border crossing point attacked with mortars.</td>
<td>Ukrainian media. Possible mortar attack site identified on satellite images. Photos from Novoazovs’k border crossing point confirm use of 82-mm mortars.</td>
</tr>
<tr>
<td>08/23/2014</td>
<td>4:07am - 4:40am</td>
<td>Novoazovs’k border crossing point attacked with mortars.</td>
<td>Videos of MLRS fire in Russia and explosions at attack site, satellite images of artillery craters confirming trajectory and firing position</td>
</tr>
<tr>
<td>08/23/2014</td>
<td>4:40am</td>
<td>MLRS shelling of Kholodne Ukrainian army base.</td>
<td>Video of artillery fire from beyond Russian border by the sea, video of artillery striking the Kholodne army base close to 5:00am</td>
</tr>
<tr>
<td>08/23/2014</td>
<td>5:00am - ?</td>
<td>MLRS attack on Kholodne base, followed by more mortar shelling.</td>
<td>Interview with soldier</td>
</tr>
<tr>
<td>08/23/2014</td>
<td>6:00am - 6:25am</td>
<td>Mortar attack on Novoazovs’k border crossing point.</td>
<td>Local media report</td>
</tr>
<tr>
<td>08/23/2014</td>
<td>11:10am</td>
<td>MLRS attack (three systems) attack on Ukrainian army checkpoint near Novoazovs’k border crossing point.</td>
<td>Photos from local media and Reuters journalist of craters confirming timing and trajectory. Satellite images of craters confirming trajectory. Satellite images of clear firing position next to border confirming trajectory.</td>
</tr>
<tr>
<td>08/24/2014</td>
<td>3:10am - 4:00am</td>
<td>Mortar attack on Novoazovs’k border crossing point. Border crossing point closed.</td>
<td>Ukrainian government report, media report.</td>
</tr>
<tr>
<td>08/24/2014</td>
<td>Night</td>
<td>Attempted attack on checkpoint ‘near Mariupol’. Repelled and several attackers captured.</td>
<td>Ukrainian media</td>
</tr>
<tr>
<td>08/24/2014</td>
<td>Day</td>
<td>Separatist reports of taking Telmanove are officially denied. Reuters journalists see no armed forces in town.</td>
<td>Reuters article, official military report.</td>
</tr>
<tr>
<td>Date</td>
<td>Time</td>
<td>Incident</td>
<td>Evidence source in this document</td>
</tr>
<tr>
<td>--------------</td>
<td>----------</td>
<td>--------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>08/25/2015</td>
<td>8:00am</td>
<td>Armored column (at least seven tanks, others say up to 30) breaks through border between Markyne and Shcherbak. They attack checkpoints close to Novoazovs’k border crossing point. With air support, the attack is repelled. However, the Russian armor remains inside Ukraine close to Rozy Lyuksemburgh and Markyne, other units turned north.</td>
<td>Satellite imagery shows route across border and craters from battle near Markyne. Video shows explosions and smoke in direction of Markyne. Reuters article, Ukrainian media, official military report.</td>
</tr>
<tr>
<td>08/25/2014</td>
<td>Morning</td>
<td>MLRS shelling of Ukrainian units near Bezimenne.</td>
<td>Official government reports, media reports.</td>
</tr>
<tr>
<td>08/26/2014</td>
<td>Morning</td>
<td>Social media claims that Russian-armed separatist artillery has been positioned in Sedovo.</td>
<td>Social media</td>
</tr>
<tr>
<td>08/26/2014</td>
<td>Morning</td>
<td>Novoazovs’k - Sedovo road shelled by MLRS. Some shells hit Novoazovs’k hospital and several nearby residences.</td>
<td>Videos shortly following attack, official government reports. Many simultaneous smoke plumes suggest MLRS shelling. High-angle artillery crater suggests long range MLRS fire.</td>
</tr>
<tr>
<td>08/26/2014</td>
<td>Morning</td>
<td>Area near Novoazovs’k bread factory hit by shelling. Crater suggests shelling from NE.</td>
<td>Video shortly following attack.</td>
</tr>
<tr>
<td>08/26/2014</td>
<td>Afternoon</td>
<td>Ukrainian base and adjacent cemetery in NW Novoazovs’k shelled from NNE (likely by MLRS), from site towards Rozy Lyuksemburgh.</td>
<td>Video shortly following attack.</td>
</tr>
<tr>
<td>08/27/2014</td>
<td>Morning</td>
<td>Checkpoints to east of Novoazovs’k shelled</td>
<td>Video during attack. Satellite imagery of artillery craters confirm trajectory. Burn marks SE of Rozy Lyuksemburgh show possible firing point (in Ukraine).</td>
</tr>
<tr>
<td>08/27/2014</td>
<td>Day</td>
<td>Russian/separatist forces take Novoazovs’k.</td>
<td>Videos and photos showing Russian-armed separatist T-72 tanks in Novoazovs’k. Media reports.</td>
</tr>
</tbody>
</table>