

Incident Assessment

Incident ID	CIV0031
Location	Zhuravlyovka (Журавлевка), Kyivskiy District, Kharkiv
Coordinates	50.0180, 36.2780 ¹
Date	25/02/2022
Time	Approximately 11:09 EET

Description of the Events

On the morning of 25/02/2022, the neighborhood of Zhuravlyovka in Kharkiv was hit by a cluster munition attack likely using 9M55K missiles, which impacted residential civilian areas. There is footage of the impacts of the submunitions, as well as imagery of three missile cargo sections which impacted this area at about the same time. The investigator considers it likely that this incident is related to rocket motors discovered further to the south-west in CIV0018, CIV0019 and CIV0035.

This incident contains four sub-incidents:

- CIV0031A: impact of submunitions;
- CIV0031B: remnants of a cargo section;
- CIV0031C: remnants of a cargo section;
- CIV0031D: remnants of a cargo section.

The investigator was able to estimate the likely direction of origin of the munitions that are the focus of this report based on independent assessment of the direction of origin of the rocket motors featured in CIV0018 and CIV0019. The estimated trajectory of these rocket motors passes over the locations of the three cargo sections and the location of the detonation of cluster submunitions identified in this report. The estimated area of origin based on this analysis is situated around the Russia-Ukraine border.

Key Findings

- On the morning of 25/02/2022, before 11:53 EET, a cluster munition attack impacted the neighborhood of Zhuravlyovka in Kharkiv city.
- The strike was likely carried out using 9M55K rockets.
- The area impacted was a civilian residential area.

¹ <https://maps.app.goo.gl/3JAMEAF3Zk7KsZ8F9>

- An airfield to the north also appears to have been the target of attacks during this time period.

Description of Searches

Searches were carried out in English, Russian and Ukrainian, primarily using the names of landmarks in the vicinity of where this event took place. These searches were conducted on Google, Yandex, Twitter and Facebook and were time limited to the days around the event.

Example search terms included “Zhuravlivka”, “Журавлівка”, “Журавлевка”, “Київський район”, “Киевский район”, “кладбище №13”, “cemetery no.13”, “цвинтар №13”, etc.

Further, once relevant posts were identified, the pages of the users who had posted the content were examined for any further relevant information. Platforms which map events in Ukraine, such as Center for Information Resilience² and Geoconfirmed³ were also checked for relevant content.

Background Summary of Significant Descriptive Content

Media Reports

- [Comments.UA \[Kharkiv\]](#)⁴: News report regarding shelling in Kharkiv.
- [Evening Kharkiv](#)⁵: Report noting shelling of Kharkiv by “Hurricanes and Tornadoes”.
- [Kharkiv Today](#)⁶: Report noting shelling of Kharkiv by “Hurricanes and Tornadoes”.

Analysis of Examinable Content

Individual pieces of content are referred to by a code consisting of what source (post on social media, message on Telegram etc.) they are from and which particular video or image they are within that source. For example, the first video in Source 1 would be “Source 1, Video 1” and therefore “S1V1”.

- **Source 1:** A single Twitter [video](#)⁷ (S1V1) depicting a large number of explosions impacting an area containing buildings. The earliest identified example of this video was posted by the Twitter user Aleph x @no_itsmyturn on 25/02/2022 at 12:07 EET. This version of the video contains a watermark to a Telegram account: @istorijaoruzija. This

² <https://eyesonrussia.org/>

³ <https://geoconfirmed.org/>

⁴

<https://kharkov.comments.ua/news/society/accidents/10520-v-harkove-ogromnyy-snaryad-torchit-prya-mo-iz-zemli.html>

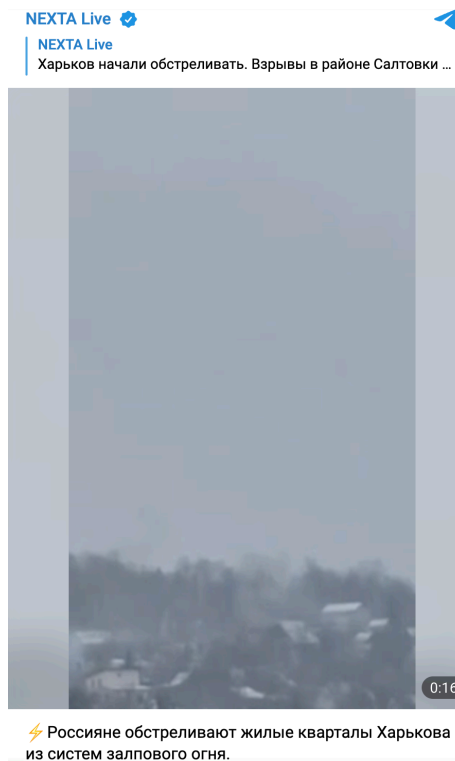
⁵ <https://vecherniy.kharkov.ua/news/191372/>

⁶ <https://2day.kh.ua/ru/kharkov/kharkov-obstrelivayut-iz-uraganov-i-smerchey>

⁷ https://twitter.com/no_itsmyturn/status/1497151186515996676

Telegram username links to an account created in May 2022 which uses the same watermark as seen in S1V1. It may be the case that the original channel was deleted and then resurrected.

Multiple other versions of this video were located without the watermark, the earliest of which is this [video](#)⁸ posted by the Telegram account [NEXTA Live](#)⁹ at 16:58 EET on 25/02/2022. Due to the large watermark in S1V1, this is the version which will be used for analysis and will be referred to as S5V1. This was geolocated to this area: [50.0180, 36.2780](#).¹⁰



- **Source 2:** A single [video](#)¹¹ (S2V1) posted to Twitter by researcher Michael Sheldon on 26/02/2022 at 03:21 EET which depicts what appears to be the cargo section of a cluster munition. The video contains a watermark for a TikTok account: @Skarbila_7_7_7_. However it appears this account no longer exists. The investigator geolocated this video to this location: [50.0161, 36.2639](#).¹²

⁸ https://t.me/nexta_live/17278

⁹ https://t.me/nexta_live

¹⁰ <https://maps.app.goo.gl/johP8AwX52inCoyV7>

¹¹ <https://twitter.com/Michael1Sheldon/status/1497381257092681729>

¹² <https://maps.app.goo.gl/agUSoDckaHEKMwkN7>



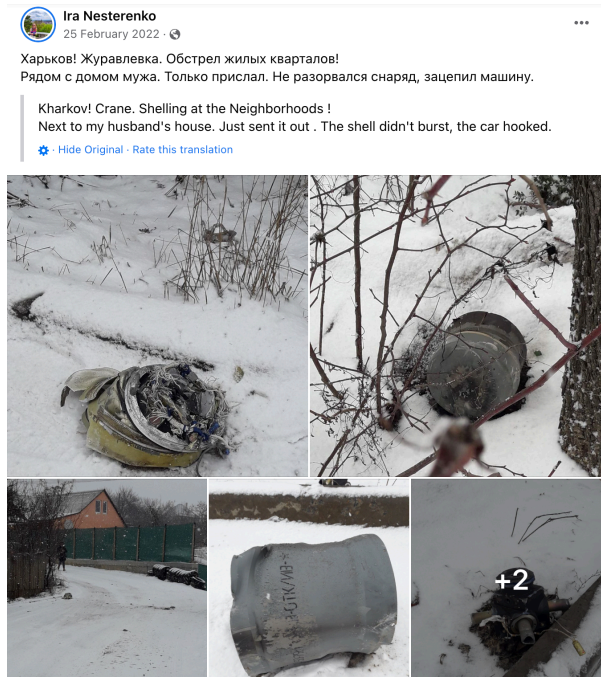
- **Source 3:** A single [video](#)¹³ (S3V1) posted to Twitter by researcher Michael Sheldon on 26/02/2022 at 07:46 EET which depicts what appears to be the cargo section of a cluster munition. The video contains a watermark for a TikTok account: @Sapfirchik7. However, it appears this account no longer exists. The investigator geolocated this video to this location: [50.0146, 36.2720](#).¹⁴



¹³ <https://twitter.com/Michael1Sheldon/status/1497448045637783553>

¹⁴ <https://maps.app.goo.gl/v6CxWq6RPLa96zc46>

- **Source 4:** Facebook [post](#)¹⁵ with six images which appear to be the same fragments as seen in S3V1. Posted on 25/02/2022 at 11:53 EET. The user (Ira Nesterenko) indicates that this event just happened and that the location is next to her husband's house. The investigator considers it likely that Nesterenko or her husband could be first-hand witnesses to this event.





Reference table for images seen in Source 4.

- **Source 5:** See Source 1.
- **Source 6:** A single image (S6I1) [posted](#)¹⁶ to the Telegram group Харьков LIVE at 11:35 EET on 25/02/2022. The caption accompanying this image states “The shell fell on Kievskaya”. Note that at the time of writing this group was private. The investigator determined that this image was captured at this location: [50.0041, 36.2630](#).¹⁷

¹⁶ <https://t.me/c/1006836030/27071>

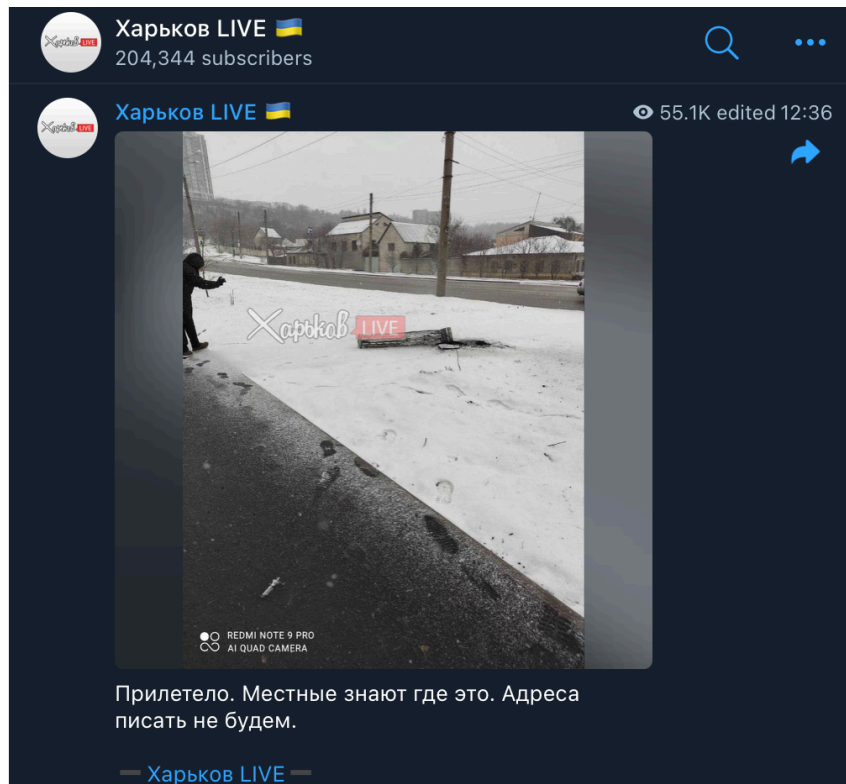
¹⁷ <https://maps.app.goo.gl/AMPQ9G6NxK5P94R18>



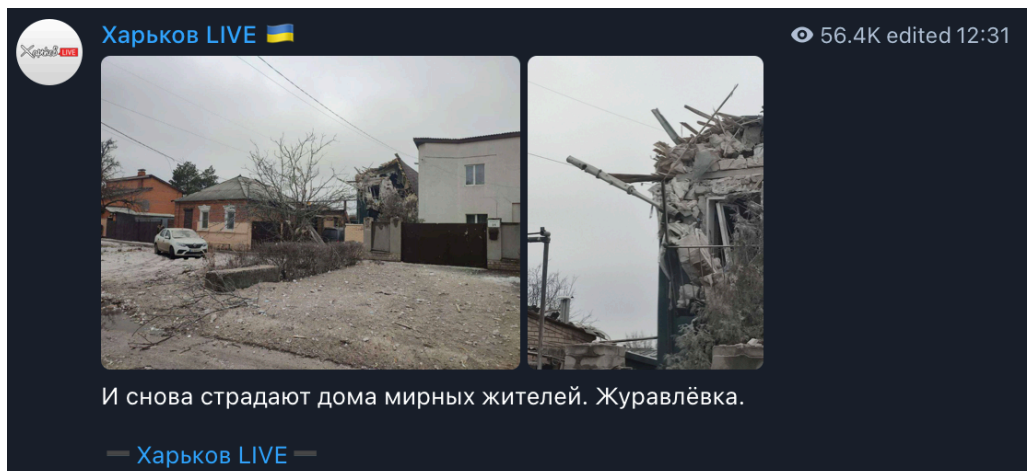
- **Source 7:** A single image (S7I1) [posted](#)¹⁸ to the Telegram group Харьков LIVE at 14:36 EET on 25/02/2022. The caption states that whoever has shared the image will not provide the location where it was captured. Note that at the time of writing this group was private. The investigator determined that the image was captured at this location: [50.0041, 36.2630](#).¹⁹

¹⁸ <https://t.me/c/1006836030/27112>

¹⁹ <https://maps.app.goo.gl/AMPQ9G6NxK5P94R18>



- **Source 8:** Two images (S8I1, S8I2) [posted](#)²⁰ to the Telegram group Харьков LIVE at 14:31 EET on 26/02/2022. The caption gives the location as “Журавлёвка”. Note that at the time of writing this group was private. The investigator determined the location for this incident here: [50.0081, 36.2744](#).²¹



Left: S8I1, Right: S8I2.

²⁰ <https://t.me/c/1006836030/27395>

²¹ <https://maps.app.goo.gl/L6aaL3qtTF8Vq7D87>

- **Source 9:** Two images and a video [posted](#)²² by user Nadiia Krasova to Facebook at 14:22 EET on 26/02/2022. Note that the video, marked as S9V1 below, is from a different neighborhood in Kharkiv to the rest of these events. The investigator determined the location for this incident here: [50.0081, 36.2744](#).²³



Source 9, with annotations showing specific codes for each piece of content.

- **Source 10:** A single video [posted](#)²⁴ to Facebook by user Larysa Chala on 26/02/2022 at 17:47 EET. The post description indicates that the user created this piece of content and visited this area on this date and as such may be a first-hand witness. The investigator determined the location for this incident here: [50.0081, 36.2744](#).²⁵

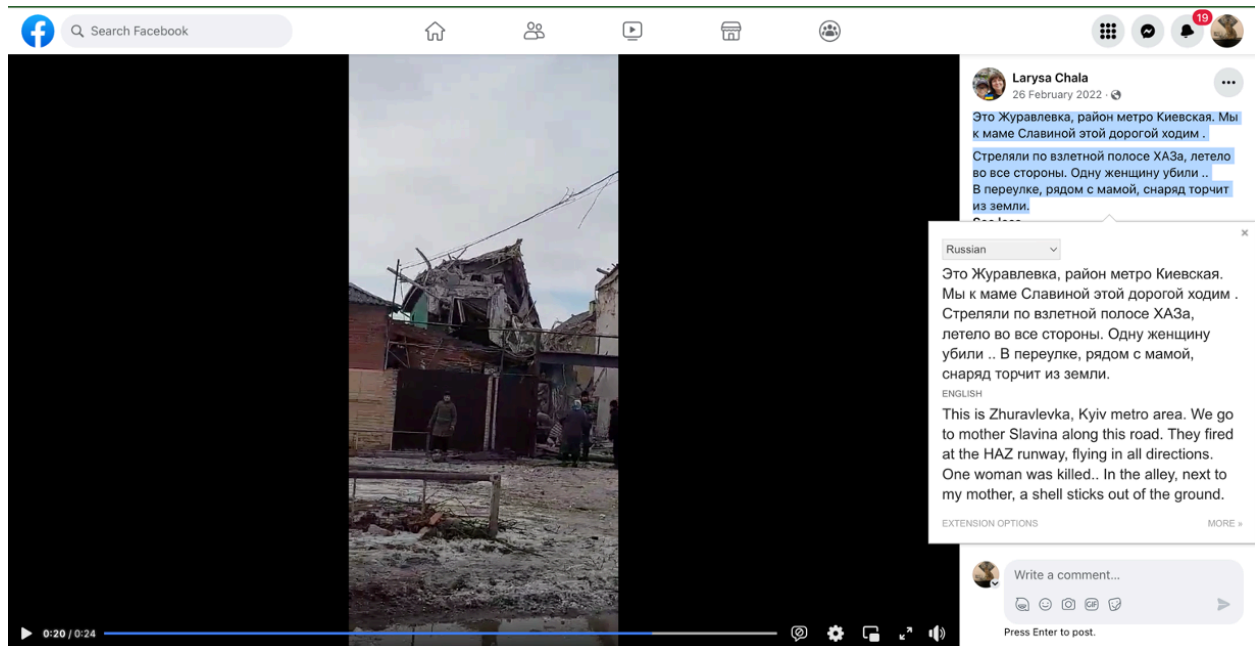
²²

<https://www.facebook.com/nadiia.krasova/posts/pfbid02J2qUKbFCAvf1B912bkhd2LitshNJPYHNVN89EjLQSZ6Yzxp8HxrzXxqNzQHrx1y1l>

²³ <https://maps.app.goo.gl/5UZpxJMkAz9XZanYA>

²⁴ <https://www.facebook.com/100000879206984/videos/325254459641077>

²⁵ <https://maps.app.goo.gl/5UZpxJMkAz9XZanYA>



- **Source 11:** Three images (S11I1, S11I2, S11I3) [posted](#)²⁶ on Facebook by user Oleg Shulzhenko on 26/02/2022 at 14:58 EET. Note that in the comments under the post, this user states that these images were sent to them by their godmother, who is reported to live 200 meters away from the incident. The investigator determined the location for this incident here: [50.0081, 36.2744](#).²⁷

²⁶

https://www.facebook.com/permalink.php?story_fbid=pfbid02HGApBwCUJnsXQUwxHXf9YaG8EP5sji rDWGEyUWc1QwhPCeUD1b4PATmmdNUcBCy8l&id=100000956771211

²⁷ <https://maps.app.goo.gl/5UZpxJMkAz9XZanYA>



Source 11 with annotations showing specific codes for each piece of content.

- **Source 12:** A single image (S12I1) [posted](#)²⁸ to Facebook by user Сергей Котов at 17:24 EET on 26/02/2022 noting the location as “Журавлевка”. The high quality of the image, as well as this image not appearing elsewhere, suggests the poster might be the creator of this content. The investigator determined the location for this incident here: [50.0081, 36.2744](#).²⁹

²⁸

[https://www.facebook.com/permalink.php?story_fbid=pfbido2sBb9ym7H3ZiQxCXbCdCf35bP1FF6q9Y3zrVMfZ5ZnnG2EyY3FBaaYdbQ6PcbCsDwl&id=100008782037497&__cft__\[o\]=AZUbfTeNHdS7zsmH5ofZCoIpvaL3TZAwwDVO_8KoPr95WRCrJLvQok1xWy3oR4XUj1KRuohJWwpabIEOW1FdrhQxvuJeRmhYOcqWrx89auZ9hA&__tn__=%2CO%2CP-R](https://www.facebook.com/permalink.php?story_fbid=pfbido2sBb9ym7H3ZiQxCXbCdCf35bP1FF6q9Y3zrVMfZ5ZnnG2EyY3FBaaYdbQ6PcbCsDwl&id=100008782037497&__cft__[o]=AZUbfTeNHdS7zsmH5ofZCoIpvaL3TZAwwDVO_8KoPr95WRCrJLvQok1xWy3oR4XUj1KRuohJWwpabIEOW1FdrhQxvuJeRmhYOcqWrx89auZ9hA&__tn__=%2CO%2CP-R)

²⁹ <https://maps.app.goo.gl/5UZpxJMkAz9XZanYA>



Сергей Котов

26 February 2022 · 🌐



26.022022. Харьков. Журавлевка. РУССКИЕ САМОЛЕТЫ ЛЕТИТЕ НАХУЙ,

26.02.2022. Kharkov. Crane. RUSSIAN PLANES GO TO FUCK YOU,

⚙️ · [Hide Original](#) · [Rate this translation](#)

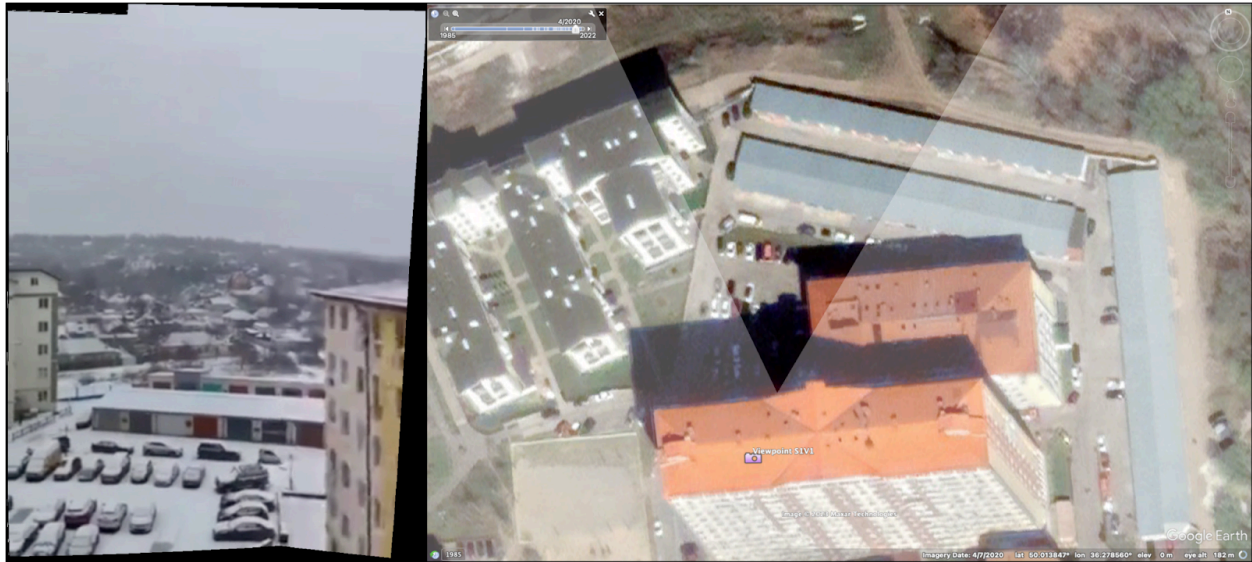


Questions to Investigate

Where Was the Incident? - CIV0031A

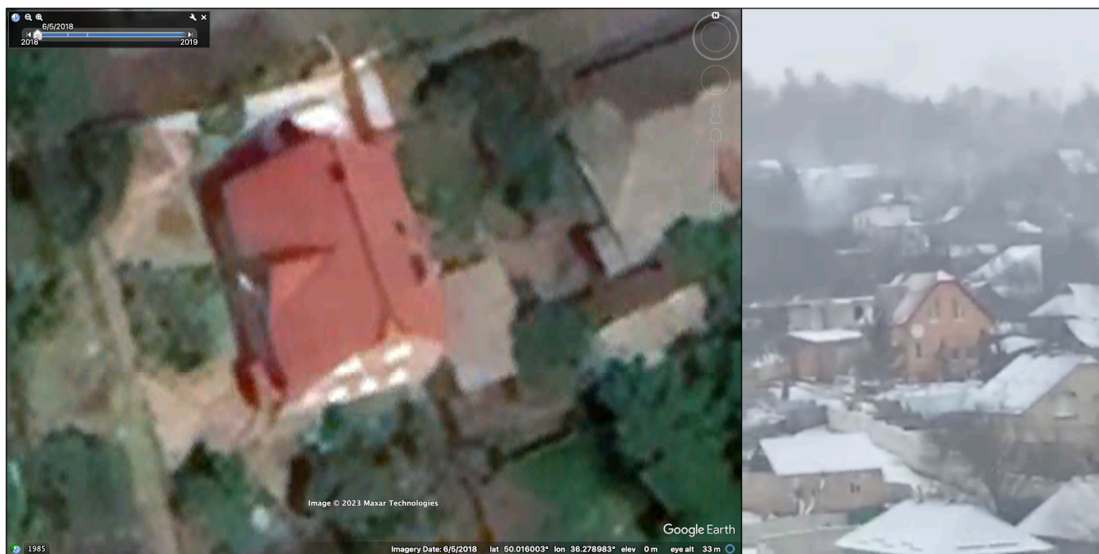
A single video was geolocated which clearly showed the impact of submunitions. The point from which this video was filmed was geolocated to a block of flats at [50.0132, 36.2781](https://maps.app.goo.gl/RsPUWpA2TNZxC9WG8)³⁰.

³⁰ <https://maps.app.goo.gl/RsPUWpA2TNZxC9WG8>



Left: Still from S5V1. Right: satellite image showing the viewpoint (Credit: Google/Maxar Technologies).

In order to assess where the submunitions impacted, it is necessary to identify reference points within the view of the camera. The first such reference point is a distinctive building at [50.01599 36.27884](https://maps.app.goo.gl/JEE5CjNEeiBZsDbcA)³¹ with a red clipped-gable roof, a roof dormer on the western side and two windows on the upper floor at the southern end.



Left: Red roofed building (credit: Google/Maxar Technologies). Right: A matching building as seen in S5V1.

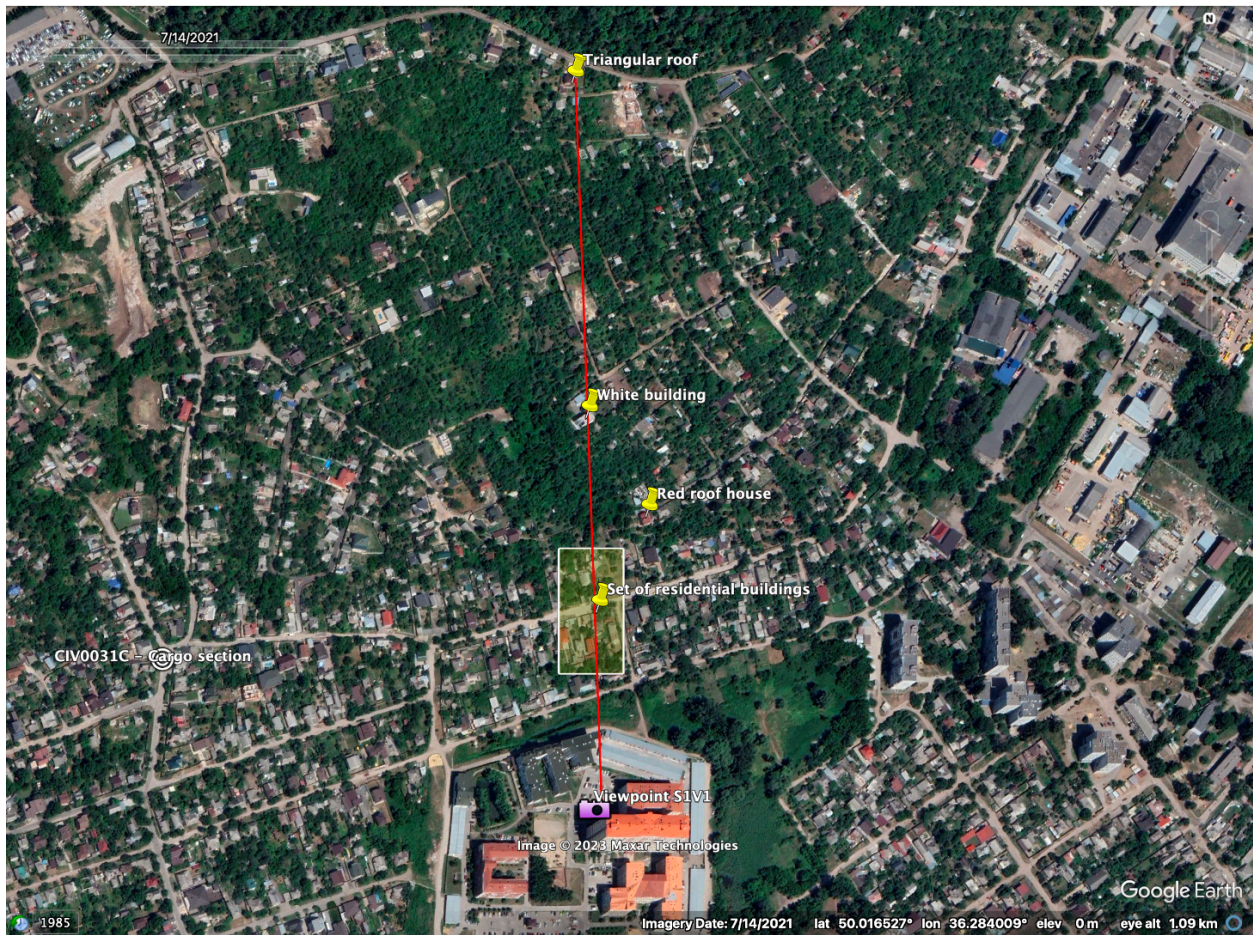
It is possible to identify the buildings and roads between the camera and the red roofed building.

³¹ <https://maps.app.goo.gl/JEE5CjNEeiBZsDbcA>



Top: Satellite image of this location, showing the view of the camera (Credit: Google/Maxar Technologies). Bottom: Still from S5V1.

The second set of reference points is a distinct viewline which includes the set of residential buildings identified above, a large white building and a building with a triangular roof which all align with each other.



(Credit: Google/Maxar Technologies).

This set of residential buildings can be identified due to their design and orientation to one another.



Left: Still from S5V1. Right: Satellite imagery of this location showing the set of buildings in the same orientation (Credit: Google/Maxar Technologies).

A white building immediately behind this set of residential buildings can also be identified relatively easily, due to its unusual build compared with the rest of the buildings within this area. Although the exact details of this building are less clear than, for example, the red roof house, there is no other building that is consistent with the characteristics of the building seen in S5V1 and is directly behind the set of residential buildings identified above. These characteristics include it being a multi-story building with a flat roof, made of white material, with large windows or gaps in a facade on the western side. The majority of the other buildings in this area are one or two stories high, with sloped roofs and more traditional design.



Left: Still from S5V1. Right: satellite imagery of the identified white building (Credit: Google/Maxar Technologies).

Immediately behind the white building there is another building with a distinctive triangular roof. Again this is identifiable in satellite imagery based on the alignment of the other reference points.



Left: Still from S5V1. Right: satellite imagery of the identified building with a triangular roof (Credit: Google/Maxar Technologies).

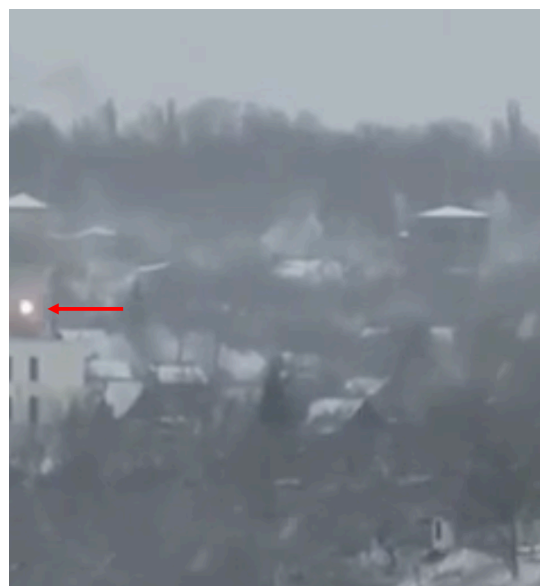
In S5V1 these reference points all clearly align with the perspective from the camera, which is also true of the identified reference points in satellite imagery.



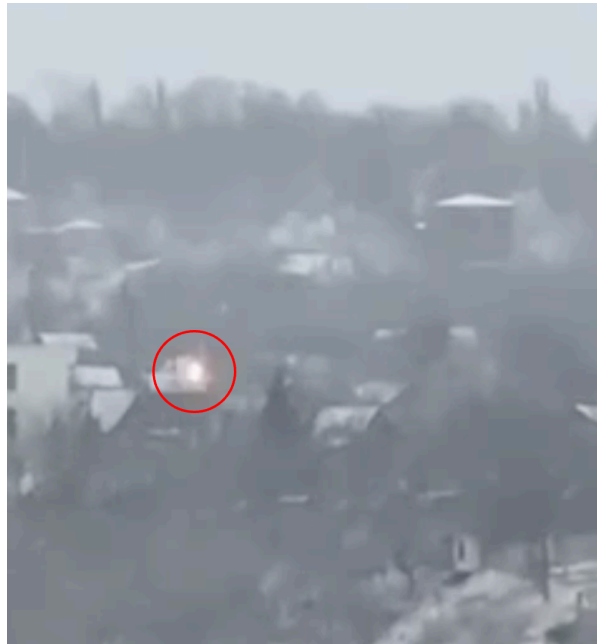
Left: Still from S5V1. Right: satellite image showing the same reference points and view line (Credit: Google/Maxar Technologies).

The area of impact was estimated by observing visible explosions and noting the furthest left, furthest right, closest and furthest away explosions from the perspective of the camera.

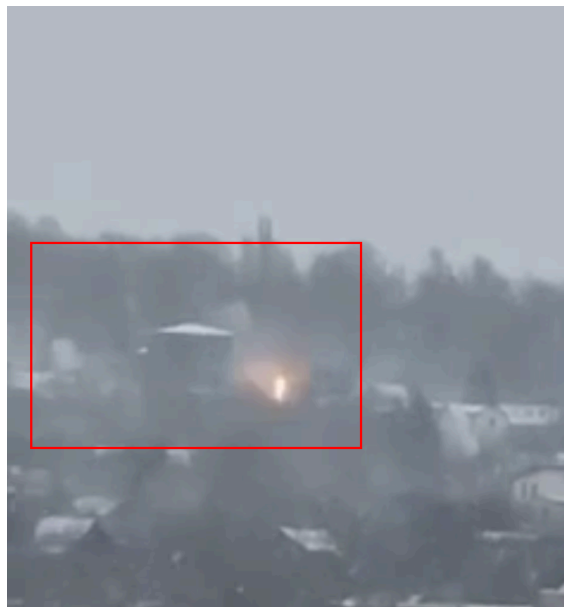
The furthest left explosion is seen at 00:09 in S5V1, which appears to be immediately behind the white building used as a reference point above.



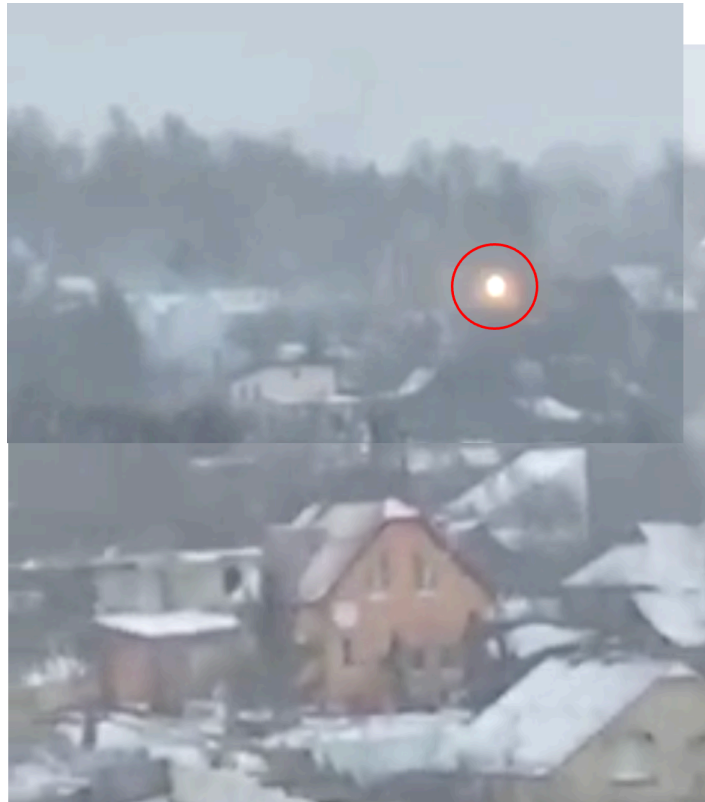
The closest explosion is seen at 00:06 in S5V1, which appears to be behind and to the right of the white building.



The furthest explosion from the camera is seen at 00:12 in S5V1, immediately next to a large building. However, it should be noted that smoke clouds, which are likely a result of other explosions, appear visible behind this building too.



The furthest right explosion from the camera is seen at 00:19 in S5V1, and appears to be at the edge of the treeline between the residential area and the cemetery immediately to the north.



The possible area of impact of the submunitions can be estimated by plotting the locations of the explosions seen in S5V1 as outlined above.

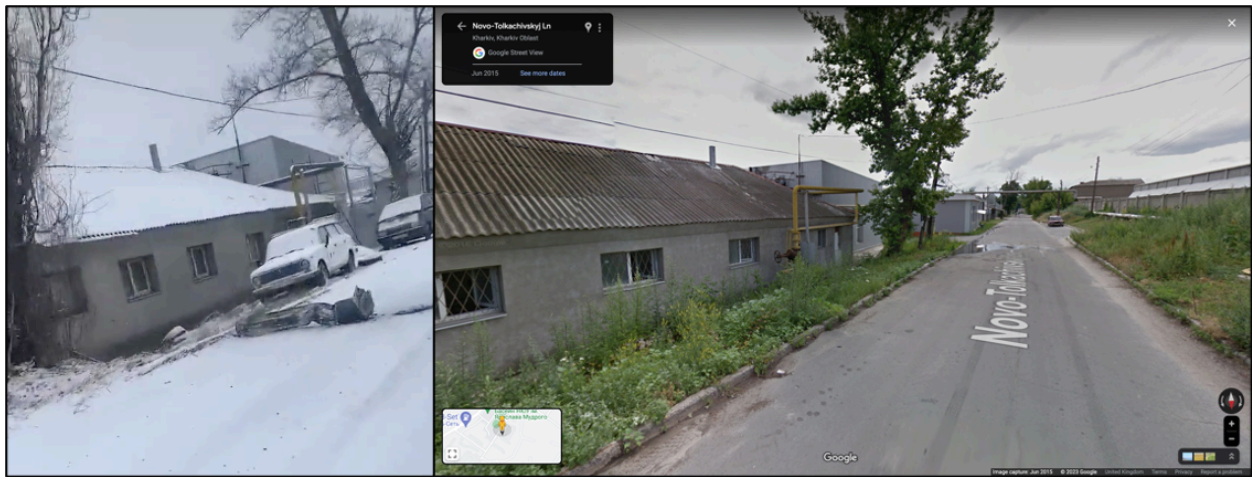


Estimated area of impact of submunitions highlighted by blue circle (Credit: Google/Maxar Technologies).

Where Was the Incident? - CIV0031B

S2V1, which depicts CIV0031B, was accompanied by a suggested geolocation by the user who posted it, who stated that it was filmed at [50.0161, 36.2639](https://maps.app.goo.gl/cNbiWUGCpTSw1H1s5).³² The investigator checked this location and determined that it was correct.

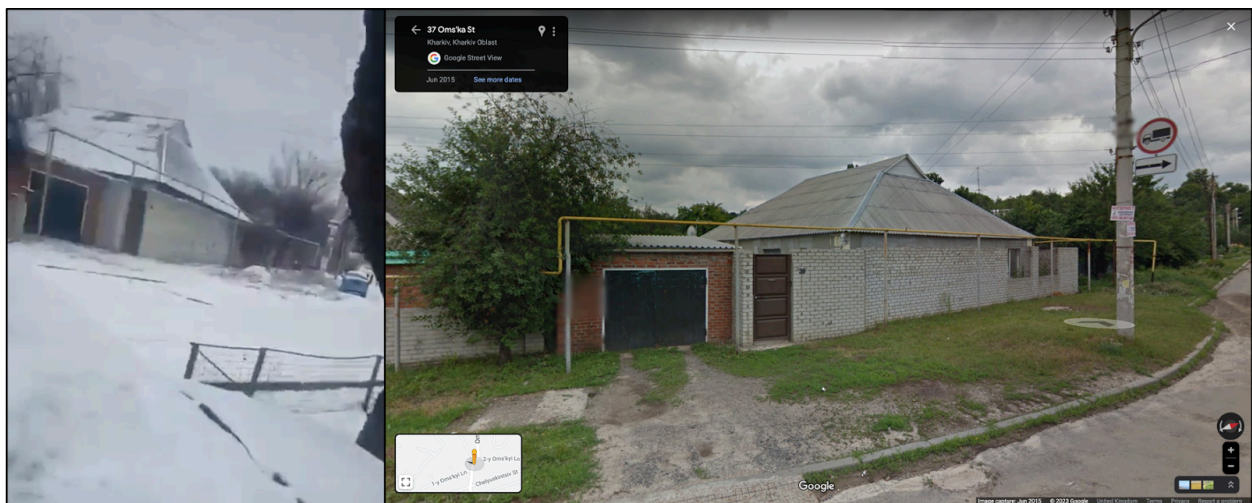
³² <https://maps.app.goo.gl/cNbiWUGCpTSw1H1s5>



Left: still from S2V1. Right: Google Street View of this location. Note in particular the distinctive yellow pipe.

Where Was the Incident? - CIV0031C

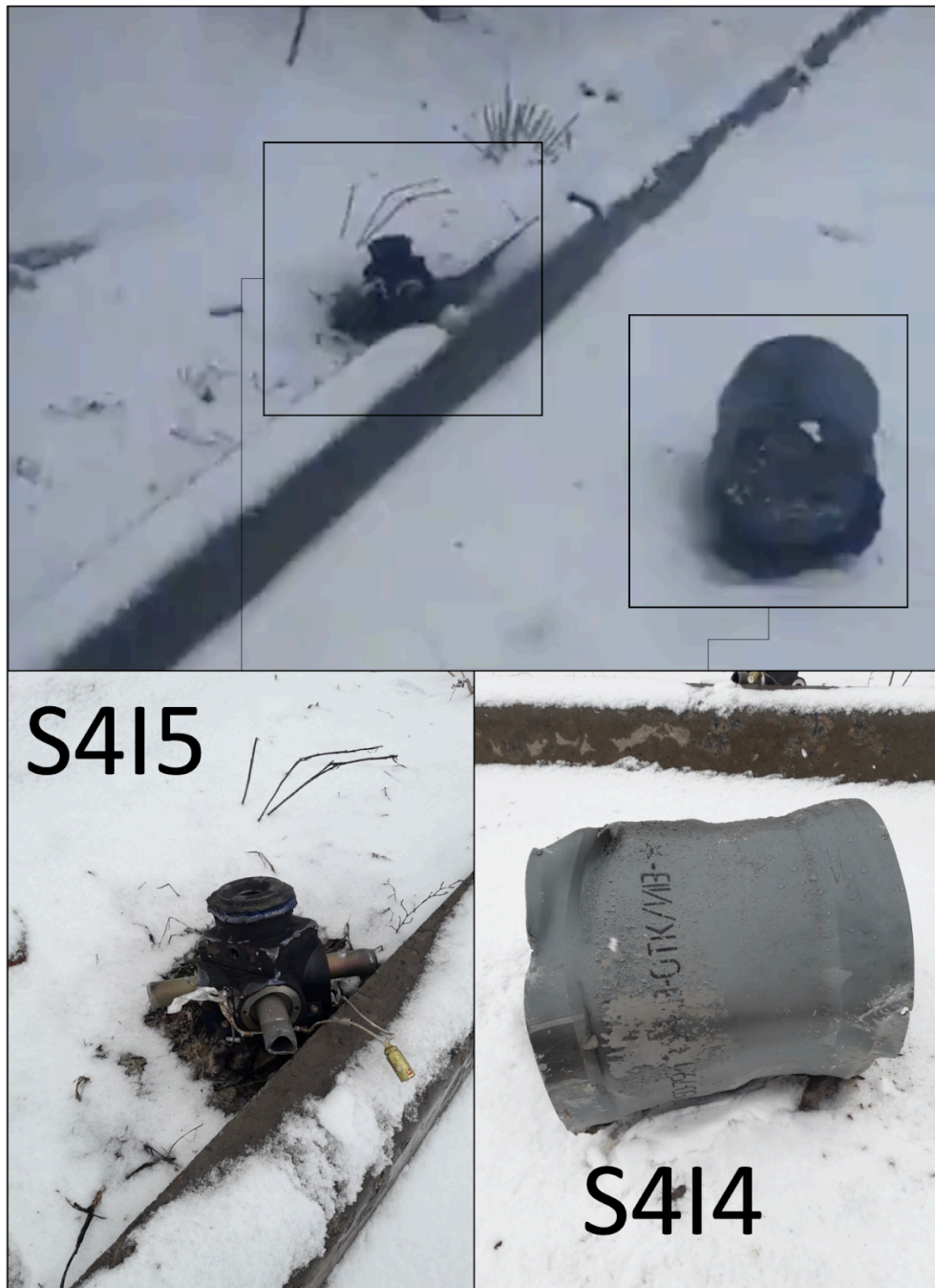
S3V1, which depicts CIV0031C, was accompanied by a suggested geolocation by the user who posted it, who stated that it was filmed at [50.0147, 36.2720](https://maps.app.goo.gl/juJegVsynTxZsg6a8)³³. The investigator checked this location and determined that it was correct.



Left: Still from S3V1, Right: Google Street View of this location. Note in particular the distinctive yellow pipe.

The images seen in Source 4 appear to be the same fragments seen in S3V1, linking that Source to CIV0031C. S4I6 also depicts a gate which matches one seen in S3V1, indicating it was taken at the same location.

³³ <https://maps.app.goo.gl/juJegVsynTxZsg6a8>



Top: Still from S3V1. Bottom: Images from S4. Note not only the fragments, but also the positioning and reference points such as the kerb and stalks of grass, which match exactly.



Left: Still from S3V1. Right: S4I6. Note the door and door markings seen in both images.



Left: Still from S3V1. Right: S4I1.



Left: Still from S3V1. Right: S4I2.

Where Was the Incident? - CIV0031D

CIV0031D was geolocated to [50.0041, 36.2630](#)³⁴.

CIV0031D was photographed twice from two different angles, and likely by two different people, as S7I1 has a filter stating “REDMI NOTE 9 PRO AI QUAD CAMERA” while S6I1 does not. The presence of this filter on one video and not on the other is indicative of the two videos having been filmed by two different recording devices. In S7I1 another person can be seen who appears to be taking a picture. As such, further images of this incident may have been created which are not publicly available or were not discovered by the investigator as part of the research process for this report.

Both S7I1 and S6I1 can be geolocated using Google Street View, which captured images from this location in 2015. Given this seven-year gap, some details in the Street View images are different from those seen in the Source imagery, most notably buildings on the ridge in the background in both S6I1 and S7I1. Additionally, the distortion of the 360 degree camera of Street View slightly alters the proportions of the buildings. This was taken into account by the investigator.

Despite these points, as this incident was photographed from two different angles we can cross-reference details within the imagery in order to reach a geolocation with the highest possible confidence.

³⁴ <https://maps.app.goo.gl/b7gJtztov2hU566AA>

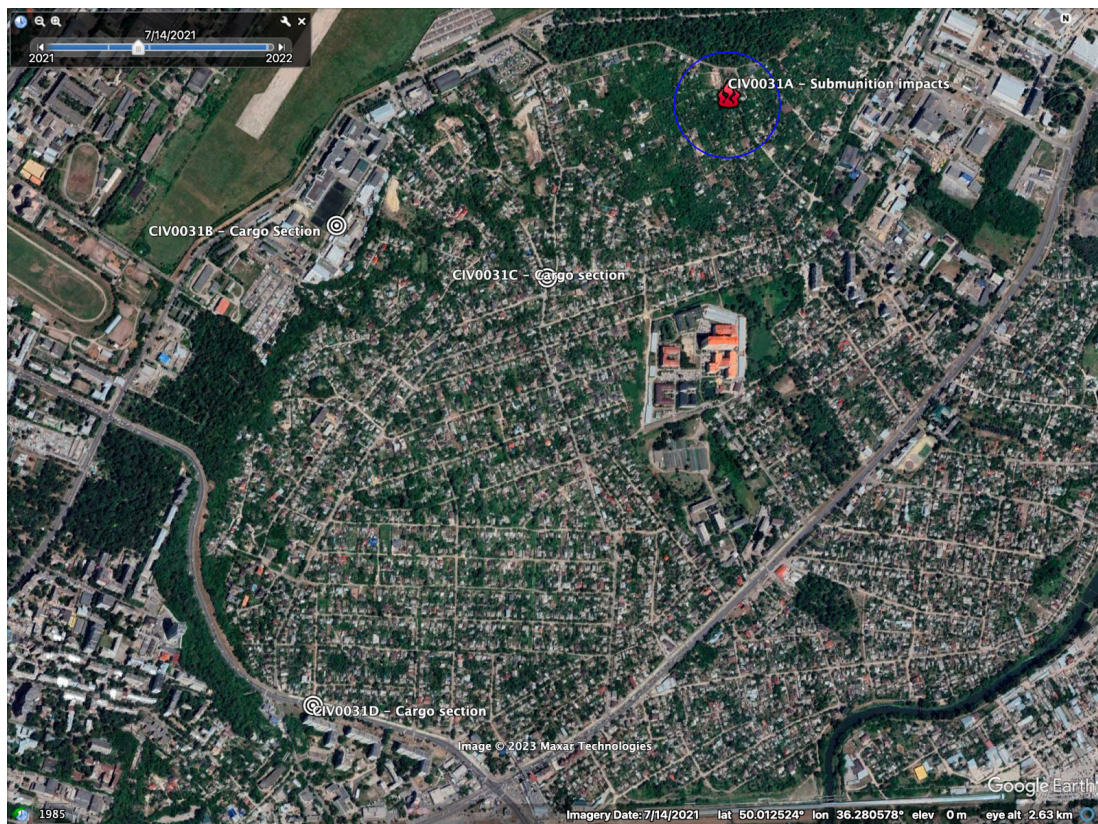


Top: Google Street View from this location. Bottom: S6I1. Note that the brightness of the image has been increased in order to more clearly show details within the image. Some buildings, most noticeably those on the hill in the background, are not visible in Street View. This is due to the age of this Street View imagery, which was taken in 2015.



Left: S7I1. Right: Google Street View of this location. As with S6I1, some buildings in the background appear to have changed, but the buildings in the foreground confirm it is the same location.

Map of Sub-incidents

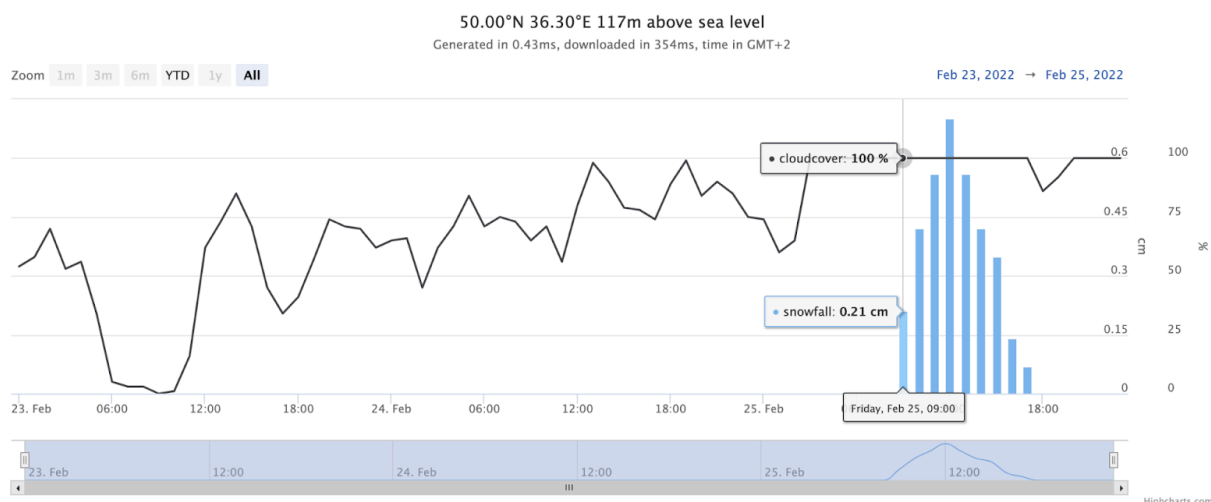


Satellite image showing locations of CIV0031A, B, C and D (Credit: Google/Maxar Technologies).

When Was the Incident? - CIV0031A

The earliest example of the video depicting this strike was [S1V1](#)³⁵ and it was posted on 25/02/2022 at 12:07 EET. This represents the latest time that this event could have taken place.

The weather conditions seen in S1V1 are significant. It is very cloudy and it is snowing relatively heavily. This is consistent with the weather in Kharkiv on 25/02/2022 when it snowed from 09:00 - 18:00 EET. Weather [reports](#)³⁶ show that it did not snow in Kharkiv on 23/02/2022 or 24/02/2022.



Weather report from Open Meteo of the city of Kharkiv from 23/02/2022-25/02/2022 showing both cloud cover (line) and snowfall (bars).

Given this data, CIV0031A must have taken place before 12:07 EET and after about 09:00 EET, when it began to snow.

A post from the Telegram group [Kharkiv Live](#)³⁷ was identified which stated that there was shelling at the “aircraft plant” at 11:30 EET on 25/02/2022. It may be linked to CIV0031A due that incident’s relatively close proximity to the airfield of the [Kharkiv State Aircraft Manufacturing Company](#).³⁸ Another social media channel named “Хуйовий Харків 🇺🇦 Хуевый Харьков” broadcasted an [announcement](#)³⁹ saying, “Shooting begins! everyone in shelter!” at 11:10 EET. However, it was not possible to assess a location for this “shooting” and whether the post referred to artillery or some other event.

³⁵ https://twitter.com/no_itsmyturn/status/1497151186515996676

³⁶

https://open-meteo.com/en/docs/historical-weather-api#latitude=49.98&longitude=36.25&start_date=2022-02-23&end_date=2022-02-25&hourly=snowfall,cloudcover&timezone=Europe%2FBerlin

³⁷ <https://t.me/c/1006836030/27069>

³⁸ <https://www.epicos.com/company/123937/kharkov-state-aircraft-manufacturing-company>

³⁹ https://t.me/huyovy_kharkiv/46196

Media reports note that there was shelling in Kharkiv by “Hurricanes” and “Tornadoes”, which are nicknames for the BM-27 Uragan and BM-30 Smerch respectively, at “[around 11:00](#),”⁴⁰ “[around 11:30](#)”⁴¹ and “[from 11:00](#).”⁴²

A search for “Kharkiv” in Ukrainian and Russian on 25/02/2022 on Twitter showed that, from 11:09 EET onwards, multiple users made posts about shelling, loud noises, explosions and “[roaring](#)”⁴³ in Kharkiv. Before this time there were mixed references to troop movements and fighting, but no posts indicating a large artillery attack. Although it is not possible to know whether these posts definitely refer to the strike seen in CIV0031A, it is likely that a strike on the magnitude of that seen and heard in S1V1 would prompt posts on social media. However, no posts referencing explosions were identified before 11:09 EET, and so 11:09 EET should be regarded as the likely earliest time CIV0031A could have occurred.

Considering this multitude of indicators, CIV0031 very likely took place between 11:09 EET and 12:07 EET, most likely at 11:09 EET or just before when multiple users began to make posts about shelling or loud noises in Kharkiv.

When Was the Incident? - CIV0031B

CIV0031B was captured on a single piece of content: [S2V1](#).⁴⁴ This was posted on 26/02/2022 at 03:21 EET by a researcher who is not the content creator. Since the video is in daylight and portrays a location in Ukraine it could not have been created later than 25/02/2022.

The weather in the video is consistent with conditions in Kharkiv on 25/02/2022, with heavy cloud cover and snow visibly falling. As noted above, it began snowing in Kharkiv at about 09:00 EET and stopped around 18:00. Twilight in Kharkiv on this date began just before 18:00, and it is light in S2V1. These facts suggest that the video was almost certainly taken during the period 09:00 - 18:00 EET on 25/02/2022.

Although the video does not film the cargo section impacting the ground, it must have been filmed shortly after the impact, given that the small crater next to the cargo section had not yet been covered by snow even though it was snowing at the time the video was filmed.

⁴⁰ <https://vecherniy.kharkov.ua/news/191372/>

⁴¹ <https://2day.kh.ua/ru/kharkov/kharkov-obstrelivayut-iz-uraganov-i-smerchey>

⁴²

<https://kharkov.comments.ua/news/society/accidents/10520-v-harkove-ogromnyy-snaryad-torchit-prya-mo-iz-zemli.html>

⁴³ <https://twitter.com/odarkovka/status/1497136641445617691>

⁴⁴ <https://twitter.com/Michael1Sheldon/status/1497381257092681729>



Still from S2V1 showing that the small crater has not yet been covered in snow.

When Was the Incident? - CIV0031C

CIV0031C was captured in two separate posts, [S3V1](#)⁴⁵ and [S4](#).⁴⁶

S3V1 was posted at 07:46 EET on 26/02/2022. However, as it is visibly snowing in the footage, it is very likely to have been filmed on 25/02/2022. This is because according to the weather data, it did not snow in Kharkiv on 26/02/2022. S4, which shows what appear to be the same fragments, was posted on 25/02/2022 at 11:53 EET. The post's description states that the fragments were "just sent" [Только прислал] indicating that the pictures were taken shortly

⁴⁵ <https://twitter.com/Michael1Sheldon/status/1497448045637783553>

⁴⁶

<https://www.facebook.com/ira.ira.ira.549/posts/pfbidovjZWrT5VDhzHXhHFEwWQB88uXNzqpZKGoaMGcSmJnaBX6faCXtyBRVzRxxvWQyt6W1>

after the cargo section impacted. This observation is supported by the lack of snow on the objects seen in this post which appear to be part of munitions, while other objects nearby, such as cars and tyres, are covered by a layer of snow.



Left: S4I3. Right: S4I4. Note the snow on the tires in the background of S4I3.

Indeed, one fragment appears to be in the middle of a melted pattern of snow, suggesting it is a source of heat which has not yet fully cooled.



S4I5. Note the patch of ground lacking snow under the fragment.

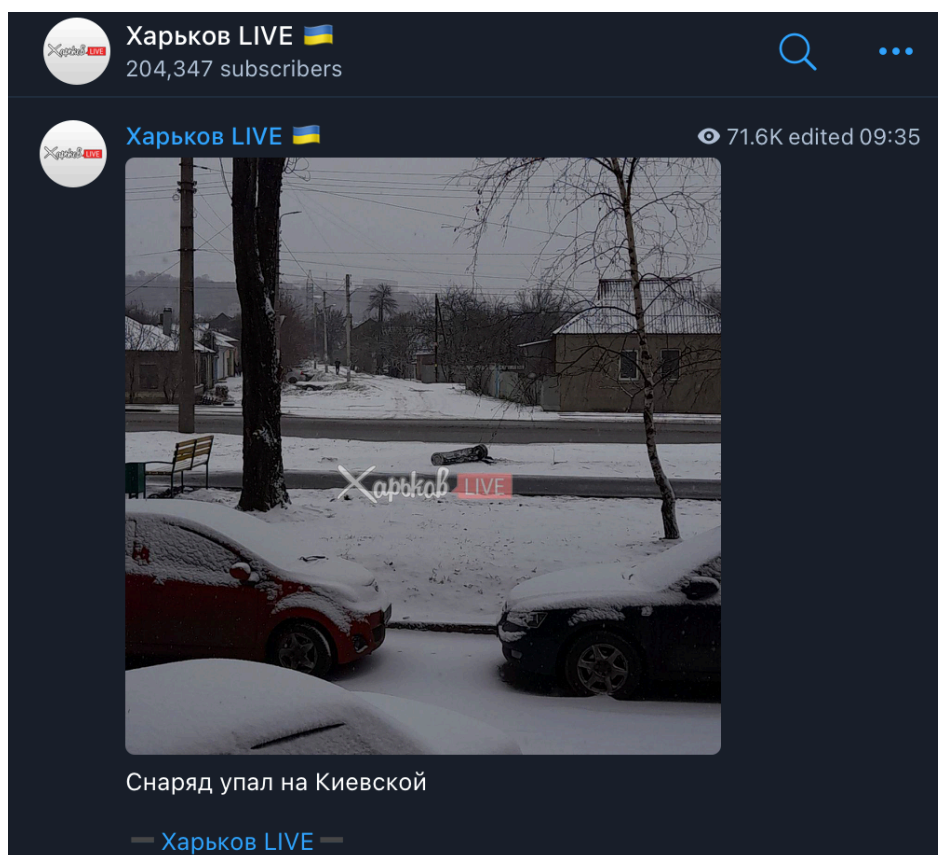
Given the analysis above (see: Where Was the Incident? - CIV0031C), it appears that both sources for CIV0031C show fragments of the same cargo section from a 9M55K rocket, which releases scores of explosive submunitions.

Considering that the description for S4 temporally limits the event to shortly before the time of the post itself, as well as the lack of reports of artillery strikes before 11:09 EET despite this munition releasing a large number of explosive submunitions, the investigator assessed that this event likely occurred between 11:09 - 11:53 EET on 25/02/2022.

When Was the Incident? - CIV0031D

CIV0031D was captured in two images: [S6I1](#)⁴⁷ and [S7I1](#).⁴⁸

S6I1 was posted on Telegram at 11:35 EET on 25/02/2022, although the timestamp indicates it was later edited. Telegram does not note what in the message has been edited.

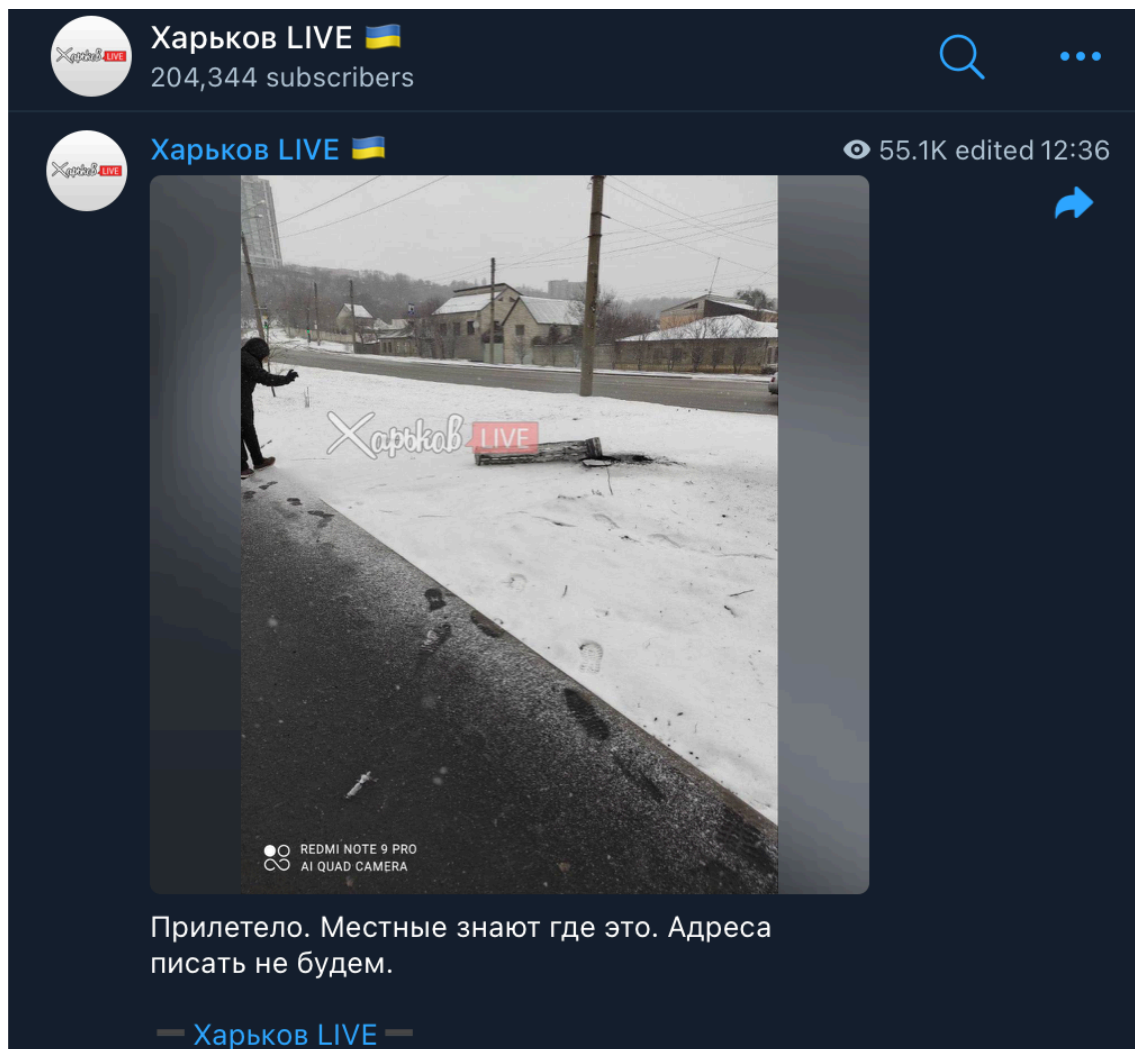


Screenshot of S6I1. Note that the time shown is in UTC.

S7I1 was posted on Telegram at 14:36 on 25/02/2022, although it was later edited. Telegram does not note what in the message has been edited.

⁴⁷ <https://t.me/c/1006836030/27071>

⁴⁸ <https://t.me/c/1006836030/27112>



Screenshot of S7I1 - note that the time shown is in UTC.

In both images it is visibly snowing, and snow has settled on cars and grass, but not on the tarmac of the pavement.

These factors strongly indicate that CIV0031C took place between 09:00 - 11:35 EET. Considering that both images show what appears to be the same cargo section from a 9M55K rocket, which releases scores of explosive submunitions, it likely produced significant sound when it functioned. Therefore, due to the lack of reports of artillery strikes before 11:09 EET, the investigator has assessed that this cargo section likely impacted between 11:09 - 11:53 EET on 25/02/2022.

Were There Military Structures, Installations or Other Assets in the Area?

The area in which the submunitions impacted (CIV0031A) and the cargo sections landed (CIV0031B, C, D) is primarily a residential area. The actual area of impact of submunitions in CIV0031A is labeled as “garden plots” on [Wikimapia](#)⁴⁹ and is bounded by a cemetery with an attached church on the north side. To the north-west is a location labeled as the [Institute of Prosecutor’s Office and Criminal Justice](#)⁵⁰ as well as an [educational institute](#).⁵¹ To the north of these buildings lies an airstrip, next to the Kharkiv State Aircraft Manufacturing Company.



Map showing use of areas in general. Note that this is based on information from Wikimapia, Google and Yandex.

⁴⁹

<http://wikimapia.org/#lang=en&lat=50.015296&lon=36.271877&z=15&m=w&show=/22422223/ru/%D0%A1%Do%Bo%Do%B4%Do%BE%Do%B2%D1%8B%Do%B5-%D1%83%D1%87%Do%Bo%D1%81%D1%82%Do%BA%Do%B8&search=kharkiv>

⁵⁰ <https://maps.app.goo.gl/eAG89gTMYw71c5v77>

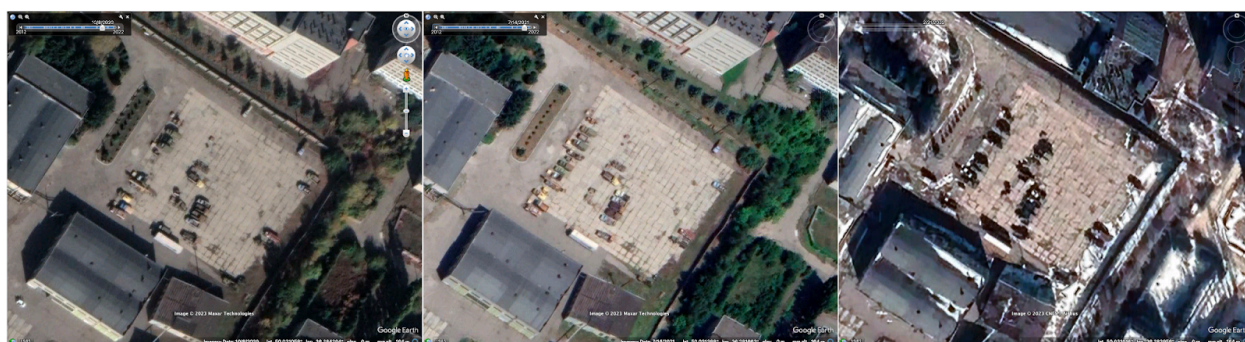
⁵¹ <https://maps.app.goo.gl/gc92GYKoyodmgakU7>

Examination of satellite imagery on Google Earth Pro on 20/02/2022 and 21/02/2022 did not result in identification of any military structures or vehicles within a 500 meter radius of the point of impact of the submunitions.

500 meters to the north west of the impacted area is the airfield and infrastructure of the Kharkiv State Aircraft Manufacturing Company. This company produces a range of aircrafts, including for military purposes, although as of 2021 it is reported to have been suffering significant capacity issues.⁵²

The grounds of the airstrip were examined using high-resolution satellite imagery from Maxar Technologies on 20/02/2022, CNES/Airbus 21/02/2022 and from Planet Labs on 27/02/2022. No new fortifications or armored vehicles could be identified on or in the vicinity of the airstrip.

A vehicle park identified at [50.0306, 36.2828](#)⁵³ did appear to contain several vehicles, but the majority of these appear to have been static at this location for several years.



Satellite imagery of vehicle park from left: 08/10/2020 (Credit: Google/Maxar Technologies), 14/07/2021 (Credit: Google/Maxar Technologies), 21/02/2022 (Credit: Google/CNES/Airbus).

What Was Damaged?

The cargo sections seen in CIV0031B, C and D do not appear to have caused much damage. However, they do appear to have deployed their payload of submunitions.

The nature of cluster munitions, which deploy many smaller submunitions, means that damage can be difficult to identify, since the explosions that they produce do not create very large craters and they tend to result in less structural damage than larger munitions. However, in the case of CIV0031A it is possible to identify some of that damage.

In S5V1 it is possible to see submunitions impacting on and around residential houses. In particular one impact can clearly be seen on the roof of a house at 00:14 of S5V1.

⁵² <https://jamestown.org/program/kharkiv-state-aviation-production-enterprise-enters-freefall/>

⁵³ <https://maps.app.goo.gl/2qcczvz2vEiefZ7w8>



Moment of impact on roof of house as seen in S5V1.

This same house can be seen in satellite imagery from 27/02/2022 at [50.0197, 36.2787](https://maps.app.goo.gl/Q66A93GRE196aNRNA)⁵⁴ with a mark on its roof in roughly the same position as where this explosion took place.

⁵⁴ <https://maps.app.goo.gl/Q66A93GRE196aNRNA>



Satellite image from 27/02/2022. Note the highlighted mark on the roof (Credit: Planet Labs).

Additionally, in satellite imagery from 27/02/2022, the north side of the airfield is covered in small black marks that are consistent with the multiple small explosions caused by submunitions detonating over a wide area.



Satellite imagery from 27/02/2022 (Credit: Planet Labs).

In a comparison with imagery from 14/02/2022 (the last satellite image where Kharkiv had significant snow-coverage before the invasion) it is possible to see that there are no similar markings.



Left: Satellite imagery from 14/02/2022. Right: Satellite imagery from 27/02/2022 (Credit: Planet Labs).

It should be noted that the satellite imagery depicting these black marks is from 27/02/2022, and it is not possible to confirm whether the marks on the airfield are from the strike on 25/02/2022 or from a different strike. However, it is certainly relevant that the airfield has marks which indicate it was possibly hit by cluster munitions in the period from 24/02/2022 to 27/02/2022.

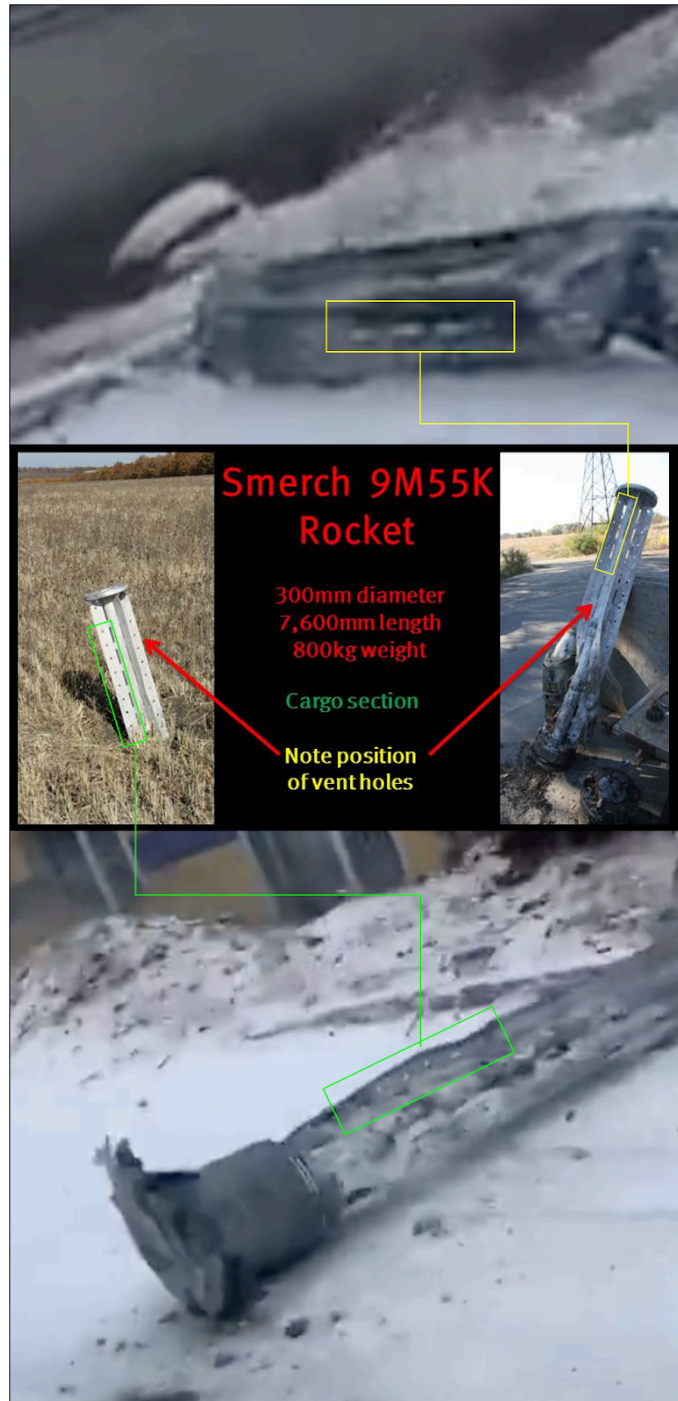
What Kind of Munition Was Used? - CIV0031A

The very large number of smaller explosions over a short period of time as heard and seen in S5V1 is consistent with a cluster munition. Both the cadence of these explosions and the power of their denotations is distinct from those of an attack using a Multiple Launch Rocket System (MLRS).

Although the investigator has determined that this was a cluster munition strike, it was not possible to identify exactly what kind of munition caused this strike from S5V1 alone. However, due to analysis of the cargo sections which impacted to the south east during the same period of time, it appears likely that this strike was a result of cluster munitions deployed by 9M55K rockets.

What Kind of Munition Was Used? - CIV0031B

The fragment seen in S2V1 is identifiable as a cargo section for a 9M55K rocket.

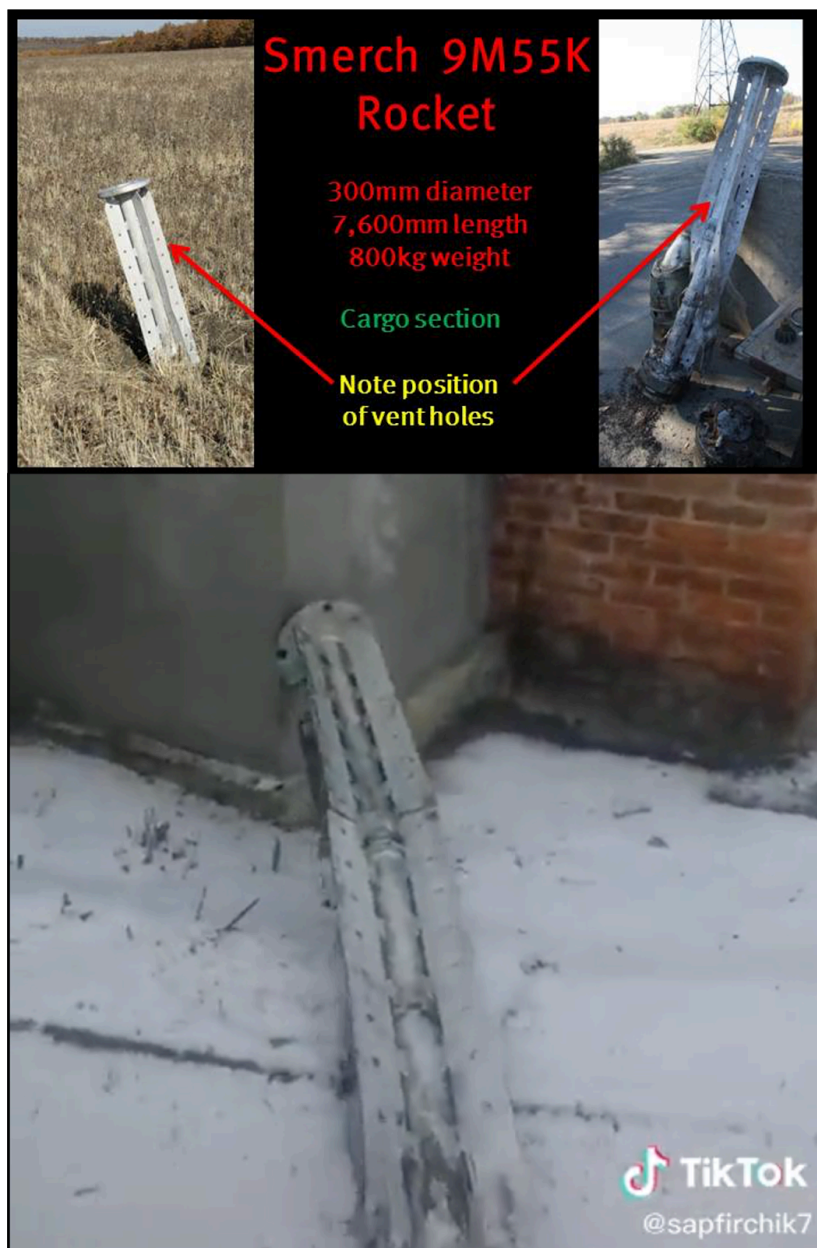


Top and bottom: Stills from S2V1. Note the spacings under the fins and the vent holes in the fins themselves. Middle: [Recognition card](#)⁵⁵ by Mark Hiznay, associate director of the Arms Division of Human Rights Watch.

⁵⁵ <https://twitter.com/markhiznay/status/562642484938149888?lang=ca>

What Kind of Munition Was Used? - CIV0031C

The fragment seen in S3V1 is identifiable as a cargo section for a 9M55K rocket.



Top: [Recognition card](#)⁵⁶ by Mark Hiznay, associate director of the Arms Division of Human Rights Watch. Bottom: Still from S3V1. Note the spacings under the fins and the vent holes in the fins themselves.

At least one of the fragments seen in S4 also appears to match a component for a 9M55K missile.

⁵⁶ <https://twitter.com/markhiznay/status/562642484938149888?lang=ca>



Left: Fragment seen in [S4I2](#).⁵⁷ Right: Part of the flight control system of 9M55K missile [identified](#)⁵⁸ in Syria.

What Kind of Munition Was Used? - CIV0031D

The fragment seen in S6I1 and S7I1 is identifiable as a cargo section for a 9M55K rocket.

⁵⁷ <https://www.facebook.com/photo?fbid=1101485377295369&set=pcb.1101485463962027>

⁵⁸ <https://armamentresearch.com/9m55k-cargo-rockets-and-9n235-submunitions-in-syria/>



Top: [Recognition card](#)⁵⁹ by Mark Hiznay, associate director of the Arms Division of Human Rights Watch. Bottom: Still from [S71](#).⁶⁰ Note the spacings under the fins and the vent holes in the fins themselves.

Is There Any Evidence of the Direction the Munition Came from?

It was not possible to assess the direction from which the munitions seen impacting in CIV0031A came. This is the same for the cargo sections seen in CIV0031B, CIV0031C and CIV0031D, which did not embed themselves into the ground and so did not give a clear indication of the direction from which they were launched.

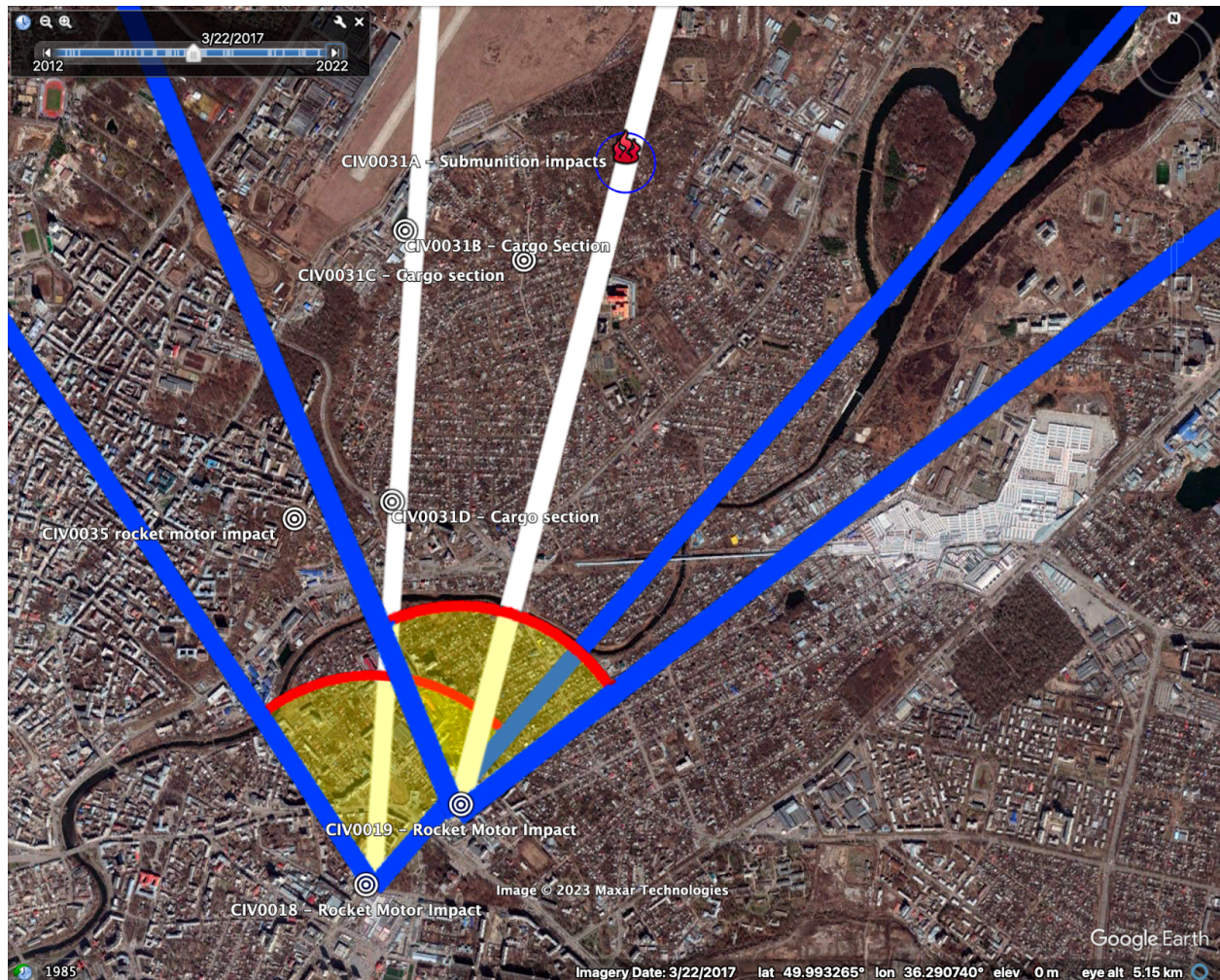
However, CIV0018 and CIV0019 may provide an indication of the direction. Both CIV0019 and CIV0018 were assessed to have occurred on 25/02/2022, sometime before 11:35 EET and

⁵⁹ <https://twitter.com/markhiznay/status/562642484938149888?lang=ca>

⁶⁰ <https://t.me/c/1006836030/27112>

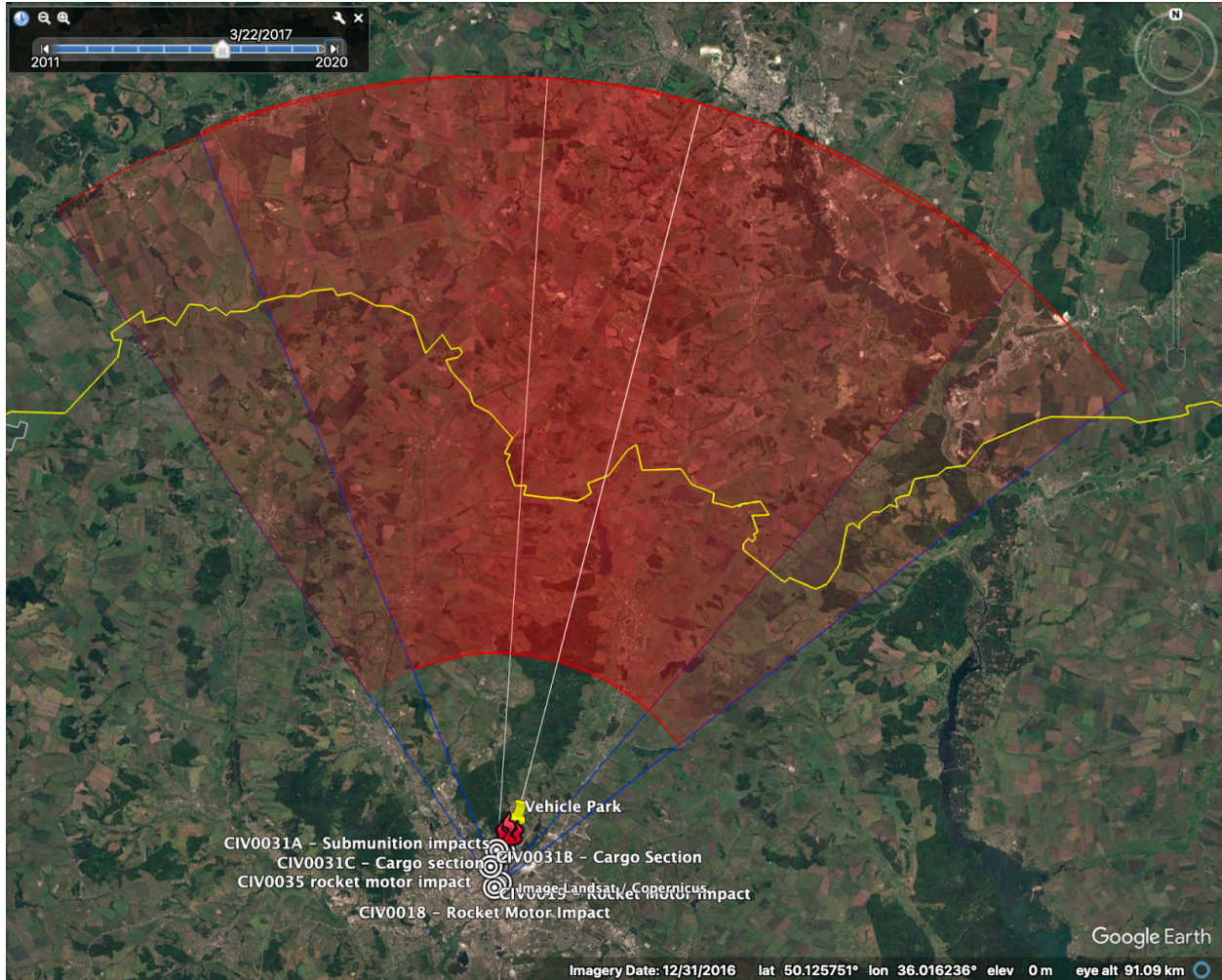
shortly before 11:40 EET, respectively. This is shortly after the multiple reports on social media regarding explosions in Kharkiv and aligns with other social media posts associated with CIV0031.

As well as the date and rough time aligning, the assessed directions of origin of the rocket motors identified in CIV0018 and CIV0019, which were calculated independently from each other and from this report, indicate that the rocket motors would have passed over the point of impact seen in CIV0031A.



Map showing the impacts and assessed directions of origins (white lines) of CIV0018 and CIV0019, as well as all sub-incidents from CIV0031. Note that the assessed direction of origin of CIV0019 aligns exactly with the area of impact of CIV0031A.

Considering the close association in time and space between CIV0031 and CIV0018/CIV0019 the investigator considers it very likely that the rocket motors, cargo sections and impacts of submunitions are associated and part of the same strike. As such, the area of origin for CIV0031 would be the same as for CIV0018 and CIV0019.



Likely areas of origin of CIV0018 and CIV0018 highlighted in red. Note the border between Ukraine and Russia represented by the yellow line (Credit: Google/Landsat/Copernicus)

Has the Area Been Targeted More than Once? When?

It is possible that this neighborhood was targeted again the next day, on 26/02/2022. Research identified five sources ([S8](#),⁶¹ [S9](#),⁶² [S10](#),⁶³ [S11](#),⁶⁴ [S12](#)⁶⁵) which depicted a severely damaged house

⁶¹ <https://t.me/c/1006836030/27395>

⁶²

<https://www.facebook.com/nadiia.krasova/posts/pfbid02J2qUKbFCAvf1B912bkhd2LitshNJPHYNVN89EjLQSZ6Yzxp8HxrzXxqNzQHRxy1l>

⁶³ <https://www.facebook.com/100000879206984/videos/325254459641077>

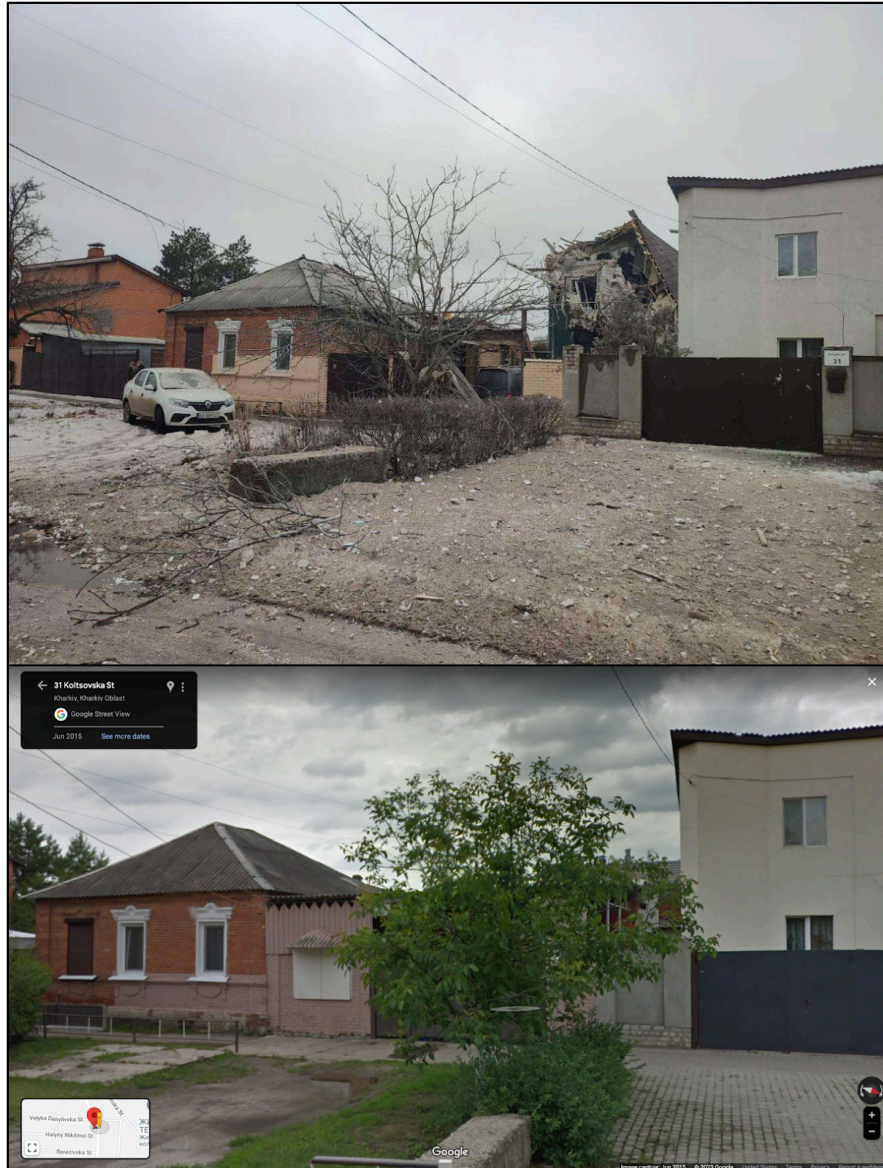
⁶⁴

https://www.facebook.com/permalink.php?story_fbid=pfbid02HGApBwCUJnsXQUwxHXf9YaG8EP5sji rDWGEyUWc1QwhPCeUD1b4PATmmdNUcBCy8l&id=100000956771211

⁶⁵

[https://www.facebook.com/permalink.php?story_fbid=pfbid02sBb9ym7H3ZiQxCXbCdCf35bP1FF6q9Y3 zrVMfZ5ZnnG2EyY3FBaaYdbQ6PcbCsDwl&id=100008782037497&__cft__\[o\]=AZUbfTeNHdS7zsmH5](https://www.facebook.com/permalink.php?story_fbid=pfbid02sBb9ym7H3ZiQxCXbCdCf35bP1FF6q9Y3 zrVMfZ5ZnnG2EyY3FBaaYdbQ6PcbCsDwl&id=100008782037497&__cft__[o]=AZUbfTeNHdS7zsmH5)

with what may be a fragment of a munition hanging from it. This house was geolocated to [50.0081, 36.2744](#).⁶⁶ All sources show the same house. It should be noted that S9 included a single video ([S9V1](#))⁶⁷ which was geolocated to an entirely different part of Kharkiv, at [49.8772, 36.3060](#).⁶⁸



Top: [S8I1](#).⁶⁹ Bottom: Google Street View of the identified location. Note that the Street View is from 2015, when the damaged house does not appear to have been built.

ofZCoIpvaL3TZAwwDVO_8KoPr95WRCrJLvQok1xWy30R4XUj1KRuohJWwpabIEOW1FdrhQxvuJeRmhYOcqWrx89auZ9hA&__tn__=%2CO%2CP-R

⁶⁶ <https://maps.app.goo.gl/iizNPFkAQkTxxPaV6>

⁶⁷ <https://www.facebook.com/1480707765/videos/pcb.10220586140551730/676966716831629>

⁶⁸ <https://maps.app.goo.gl/sL6FoBqa5gCGpqFC9>

⁶⁹ <https://t.me/c/1006836030/27395>



Top: Panoramic constructed from stills in [S10V1](#).⁷⁰ Bottom: Google Street View of the identified location. Note that the Street View is from 2015, when the damaged house does not appear to have been built.

All identified posts regarding this damaged house were posted on 26/02/2022 and none of them claim the event happened the day before. The investigator assessed that this was likely a damage from a different event to CIV0031 and likely occurred the day after, on 26/02/2022.

Despite this, these posts provide useful information indicating that this neighborhood (Журавлевка) was likely struck two days in a row. Secondly, at least some of these posts appear

⁷⁰ <https://www.facebook.com/100000879206984/videos/325254459641077>

to be original and may have been posted by first-hand witnesses in this area at the time (S10, S12) or where a first-hand witness is identifiable from comments under the post itself (S11). Additionally, the post from S10 includes the caption,

“Это Журавлевка, район метро Киевская. Мы к маме Славиной этой дорогой ходим. Стреляли по взлетной полосе ХАЗа, летело во все стороны. Одну женщину убили.. В переулке, рядом с мамой, снаряд торчит из земли.”

Which can be translated as:

“This is Zhuravlevka, area near Kyiv subway station. We are using this way to go to visit the mother of Slava. They shoot towards the runway of KhAZ, it flew in all directions. One woman was killed.. In the alley next to where my mother lives there is a munition remnant sticking out of the ground.”

It may be useful to know that this post specifically states that a runway was impacted and that one woman was reportedly killed.

Statements from Parties of the Conflict

Ukraine

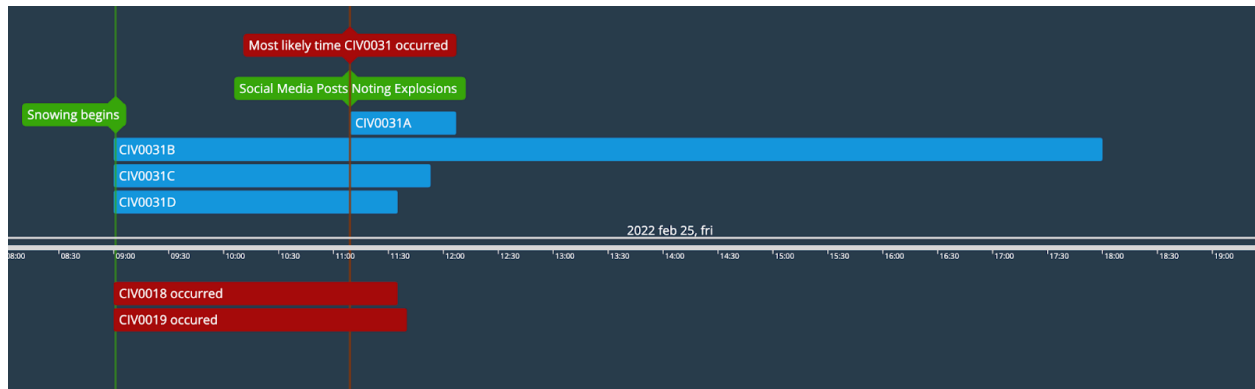
No official statement regarding this specific attack could be identified.

Russia

No official statement regarding this specific attack could be identified.

Timeline of the Incident

The investigator constructed a timeline based on the assessed times that each sub-incident could have occurred. All sources, including CIV0018 and CIV0019, show snow falling or recently settled, and, hence, must have occurred after it began snowing. The investigator assessed that CIV0031 likely occurred at 1109, when there was a large number of posts made regarding explosions in Kharkiv.



Conclusion

On 25/02/2022 multiple posts on social media and news reports indicate that Kharkiv was subjected to a bombardment of cluster munitions, starting at 11:09 EET. The sub-incidents which comprise CIV0031, as well as CIV0018, CIV0019 and CIV0035 appear to capture part of this bombardment. CIV0031A shows the impact of cluster munitions on a residential area; CIV0031B CIV0031C and CIV0031D show expended cargo sections from 9M55k rockets which have impacted the ground; while CIV0035, CIV0018 and CIV0019 show 9M55K rocket motors which have impacted the ground, the orientation of the latter two indicating they flew over the sites of CIV0035.

Further Action

Conduct further searches to identify if other cargo sections or rocket motors can be identified as coming from this strike.