Comparison of Digital Globe 17 July Satellite Imagery with Russian Ministry of Defense 17 July Satellite Imagery

A bell¿ngcat Investigation

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Summary

The subjects of the Bellingcat investigation team's analysis are three of six satellite photos released by the Russian Ministry of Defense (MoD) on 21 July 2014 as part of a press conference detailing Russia's information on the downing of Malaysia Airlines Flight 17 (MH17) on 17 July 2014. The images purportedly show Ukraine's Military Unit A-1428 north of Donetsk on 14 July 2014 and 17 July 2014.

The Russian satellite images were compared to a satellite image acquired by Bellingcat from Digital Globe (Catalog ID 105041001104D000) of the same location on 17 July 2014 along with images available on Google Earth showing the same site at several different dates during 2014.

It is clear from these comparisons that there are multiple differences between the Digital Globe 17 July 2014 satellite imagery and the Russian MoD's 14 July 2014 and 17 July 2014 imagery. These discrepancies can only be explained if the Russian MoD imagery is incorrectly dated.

Similarities between the Russian MoD imagery and Google Earth satellite imagery from May and June clearly demonstrate that the Russian MoD imagery was at least a month old on 17 July 2014.

Introduction

On 21 July 2014, at a special briefing for domestic and international press,[1] the Russian MoD published satellite images[2] of various locations in eastern Ukraine that purported to show Ukrainian air defense activity on 17 July, the day MH17 was shot down. Below is the official English translation provided by the MoD on its website:

> *According to our information on the day of the accident the Ukrainian Armed Forces deployed 3 to 4 artillery battalions of Buk-M1 missile system not far from Donetsk. The system allows hitting the targets on the distance up to 35 kilometers and on the altitude to 22 kilometers. Why did the Ukrainian Armed Forces deploy these air defense units in the Donetsk region? As we know militants don't have aircrafts. On the scheme we can see that both projected impact point and the airway are inside the air defense battle zone of the Ukrainian Armed Forces' Buk-M1 missile system. We have satellite photos of the Ukrainian Air Defense systems deployed in the South-East of the country.*[3]

In the interest of clarity, the Bellingcat investigation team has provided what we believe is a more accurate English translation:

> *According to our data, on the day of the downing of MH17 a grouping of anti-air defense systems of the ВСУ [Armed Forces of Ukraine] were near the town of Donetsk, numbering three or four anti-aircraft rocket divisions of the Buk-M1 complex. These complexes are capable of striking targets up to a distance of 35km and up to a height of 22km. Why and against whom did the Ukrainian authorities deploy such a powerful grouping of anti-air defenses near Donetsk? It is known that the separatists do not have aviation. On the map it is visible that the flight path, as well as the proposed location of where the Boeing was struck, fall within the area of activities of the Buk-M1 SAM system of the Ukrainian armed forces. We have satellite imagery of particular deployment locations of the air defense of the Ukrainian army in the southeast of the country.*

[1] http://function.mil.ru/news_page/country/more.htm?id=11970654@egNews
[2] http://stat.multimedia.mil.ru/multimedia/photo/gallery.htm?id=17402@cmsPhotoGallery
[3] http://function.mil.ru/news_page/country/more.htm?id=11970654@egNews

In Bellingcat's 31 May 2014 report, *Forensic Analysis of Satellite Images Released by the Russian Ministry of Defense*,[4] our team highlighted a number of discrepancies between the satellite images presented by the Russian MoD and Google Earth satellite imagery from 2 July 2014 and 21 July 2014. Thanks to donations by Bellingcat readers[5] it has now been possible to purchase satellite imagery from Digital Globe dated 17 July 2014 and collected at 11:08 a.m. local time of one of the sites shown in the MoD imagery.

Digital Globe imagery captured at 11:08 a.m. local time on 17 July 2014 of Ukraine's Military Unit A-1428

This site, Military Unit A-1428, was shown in three images published by the Russian MoD. Two of the images depict the same portion of the site on 14 July 2014 and 17 July 2014, which notably show that military vehicles present in the 14 July imagery, including a Buk missile launcher, is absent from the 17 July imagery. It should be noted that, while the times on the Russian MoD's images are displayed on each image, there has been no clear indication of which time zone is being used. Therefore it has been impossible to establish if the claimed time was local time in Kiev or in Moscow (1 hour apart on 17 July 2014). In either case, the Digital Globe imagery would have been captured within 36 minutes of the time on the Russian MoD imagery.

[4] https://www.bellingcat.com/news/uk-and-europe/2015/05/31/mh17-forensic-analysis-of-satellite-images-released-by-the-russian-ministry-of-defense/
[5] http://www.gofundme.com/bellingcatsat

File name "mh17_brief_04-900.jpg,"[6] dated 14 July 2014, 11:40 (unknown time zone)

File name "mh17_brief_05-900.jpg,"[7] dated 17 July 2014, 11:32 (unknown time zone)

[6] http://stat.multimedia.mil.ru/images/military/military/photo/mh17_brief_04-900.jpg
[7] http://stat.multimedia.mil.ru/images/military/military/photo/mh17_brief_05-900.jpg

17 July 2014 Digital Globe image showing the same location as mh17_brief_04-900.jpg and mh17_brief_05-900.jpg

The third MoD image shows a different part of Military Unit A-1428 on 14 July 2014, just east of the location shown in the other two images.

File name "mh17_brief_03-900.jpg,"[8] dated 14 July 2014, 11:40 (unknown time zone)

17 July 2014 Digital Globe image showing the same location as mh17_brief_03-900.jpg

[8] http://stat.multimedia.mil.ru/images/military/military/photo/mh17_brief_03-900.jpg

Discrepancies between the Images

This section examines the three MoD satellite images, beginning with mh17_brief_04-900.jpg and mh17_brief_05-900.jpg, which show the same part of Military Unit A-1428 on 14 July 2014 and 17 July 2014. We then turn to mh17_brief_03-900.jpg to the east of that area. The four main discrepancies visible in mh17_brief_04-900.jpg and mh17_brief_05-900.jpg are shown below:

For the purposes of this report, the images are labeled as follows: images purchased from Digital Globe by Bellingcat are abbreviated "DG," images from Google Earth are abbreviated "GE," and images from the Russian Ministry of Defense's 21 July press conference are abbreviated "MoD."

Discrepancy 1

The first discrepancy shows a Buk missile launcher and multiple nearby vehicles missing from the 17 July 2014 MoD imagery that are still present in the 17 July 2014 Digital Globe imagery. As the Russian MoD failed to provide the time zone used in their images, it is unclear if the MoD image is from roughly 30 minutes before the Digital Globe image or roughly 30 minutes after. In either case, historical Google Earth satellite imagery and other sources raise questions about whether these vehicles were operational or moved at all. The following image shows the same location in Russian MoD imagery, Google Earth imagery, and Digital Globe imagery from 30 May 2014 to 27 July 2014.

The only satellite image showing the Buk and other nearby vehicles moving is the Russian MoD image from 17 July 2014.

Photo 6 of 8 Close

Added 9 December 2014 | Like 1

Dmitry Sobakar
Авдеевка (1 дивизион) 2014 год

Open original

Photo 8 of 8 Close

Added 9 December 2014 | Like

Dmitry Sobakar
Авдеевка (1 дивизион) 2014 год

Open original

Photo 11 of 11 Close

Added 8 August 2014 | Like

[redacted]

Open original

It has also been possible to find and geolocate images of the Buk missile launcher posted online on 8 August 2014 and 9 December 2014; however, the exact dates that the photos were taken cannot be exactly established.[9] The Buk is clearly damaged, and the rust on the tracks raises questions as to when it was last active. Open source data indicates that Military Unit A-1428 had been under attack since June 2014 by pro-Russian separatist forces, including two attacks with up to 50 separatists on the night of June 20 and early hours of June 21 that damaged and destroyed most, if not all, of the radar equipment on the base.[10] The Buk, then, may very well have been damaged before 17 July 2014.

In addition, the base was under siege and frequently attacked in the days before and after 17 July 2014.[11] Running low on supplies,[12] two Ukrainian soldiers serving with military unit A-2938 (a radar unit housed at the same base as anti-air unit A-1428) tried to buy essentials, including toilet paper, in the nearby, separatist-controlled town of Avdiika.[13] They did not succeed, as they were attacked and arrested by separatist forces. These two soldiers from the base could not venture into a nearby town to buy toilet paper on 16 July 2014. Considering this, it is highly improbable that on the next day a group of soldiers could successfully sneak a very conspicuous anti-aircraft system along the surrounding separatist-controlled roads, around separatist checkpoints, through closely monitored territory, and then back to the exact spot in the vehicle yard without any incident, assuming the Buk was even operable.

[9] http://ukraineatwar.blogspot.nl/2014/10/ukraine-destroyed-buks-that-were-at.html
[10] http://army.unian.net/931387-na-donetchine-uspeshno-otbili-napadeniya-terroristov-na-voinskuyu-chast.html
http://www.unian.net/politics/931366-terroristyi-povredili-radiolokatsionnyie-ustanovki-pod-donetskom-smi.html
http://www.mil.gov.ua/news/2014/06/21/na-donechchini-uspishno-vidbito-dva-zbrojnih-napadi-teroristiv-na-pidrozdil-zenitnih-raketnih-vijsk/
http://time-news.net/ukraine/4009-atakovana-v-ch-2938-v-avdeevke.html
[11] http://www.unian.net/politics/940536-v-avdeevke-dva-ukrainskih-soldata-popali-v-plen.html
https://www.facebook.com/bochkala/posts/774348749284183
http://www.youtube.com/watch?v=v6huuKhOeEU
[12] http://www.unian.net/politics/940536-v-avdeevke-dva-ukrainskih-soldata-popali-v-plen.html
[13] http://www.unian.net/politics/940536-v-avdeevke-dva-ukrainskih-soldata-popali-v-plen.html

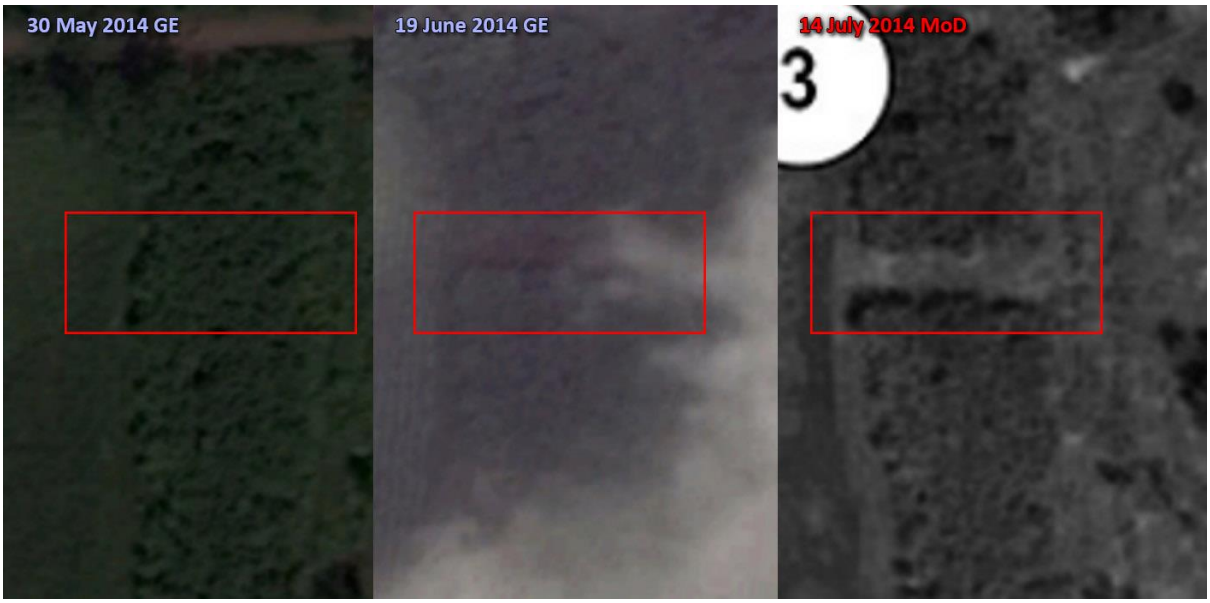
Discrepancy 2

In this comparison, it is clear that vehicles parked in the vehicle yard are in incorrect positions. This is especially notable, as Google Earth satellite imagery from April and May 2014 shows the vehicles in the same position as the Russian MoD imagery, and the 2 and 21 July 2014 Google Earth imagery shows them in the same position as the 17 July Digital Globe imagery.

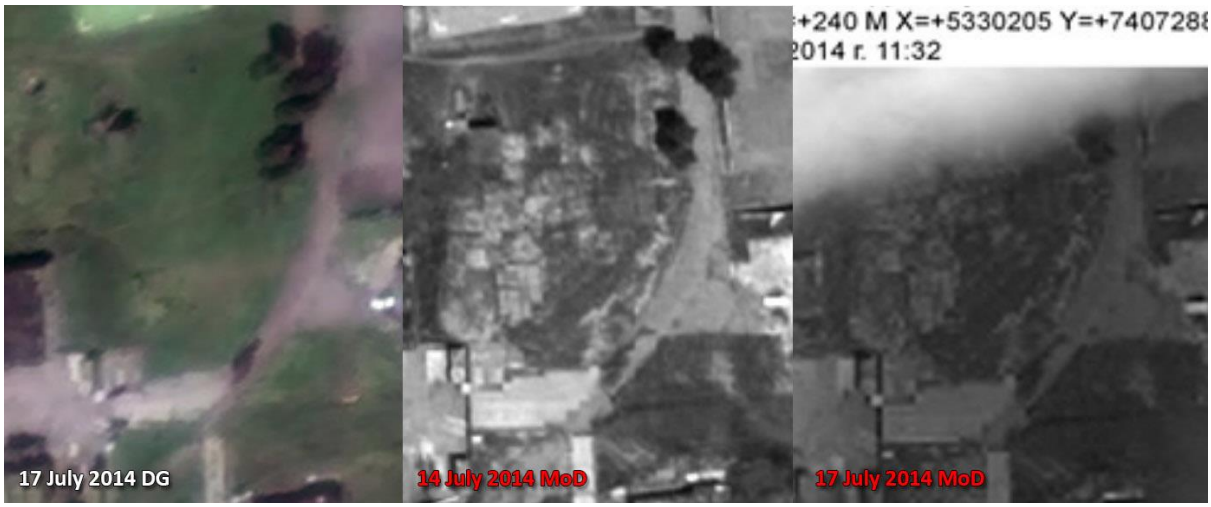
Discrepancy 3

This image shows vegetation that is present in the 14 July 2014 Russian MoD imagery that is clearly absent in the Digital Globe 17 July 2014 imagery. Google Earth imagery from 2 July 2014 and 21 July 2014 show that the area was clear of vegetation before and after the 17 July 2014 Digital Globe imagery, contrary to what is visible in the MoD 14 July 2014 imagery.

Google Earth imagery from 19 June 2014 shows a gap in the vegetation that matches what is visible in the MoD's 14 July 2014 imagery. This gap is absent from the 30 May 2014 Google Earth imagery, strongly indicating that the Russian MoD imagery was taken after 30 May 2014 and before 2 July 2014.



Discrepancy 4



The Russian MoD imagery shows large areas of worn-away grass that are not visible in the 17 July 2014 Digital Globe imagery. These same marks are also absent in Google Earth imagery from 2 July 2014 and 21 July 2014.

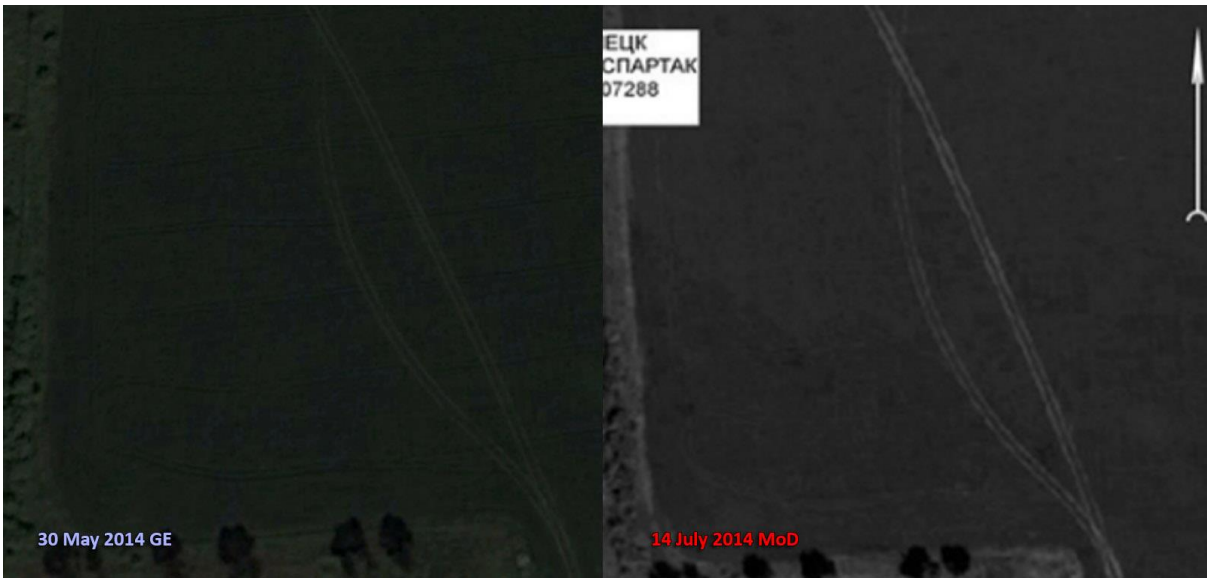
The only matching image from Google Earth is dated 30 May 2014 and clearly shows a nearly identical pattern of wear on the grass, thus confirming that the MoD imagery was taken before July.

Discrepancy 5

A fifth discrepancy is visible in the third Russian MoD image of Military Unit A-1428.

Plow marks visible in the Digital Globe 17 July 2014 imagery are clearly absent from the Ministry of Defense image, and it is possible to confirm that the plow marks were visible before and after 17 July 2014 using Google Earth imagery.

As with other comparisons, Google Earth imagery from 30 May 2014 shows a match with what is visible in the Ministry of Defense imagery, again confirming that the MoD imagery was taken before 2 July 2014.



Conclusion

Based on the comparison of Digital Globe satellite imagery dated 17 July 2014 with imagery provided by the Russian Ministry of Defense on 21 July 2014, it is abundantly clear that, despite claims to the contrary, the Russian Ministry of Defense satellite imagery was not taken on 14 July 2014 or 17 July 2014, but rather sometime in early June. The possibility that the Russian Ministry of Defense accidentally misdated the satellite images can be eliminated, as in a response to previous allegations of misrepresentation of these satellite images, the Ministry of Defense gave the following statement:

"The images released by the Russian Defense Ministry on July 21 are absolutely accurate in terms of the location and time."[14]

The Russian Ministry of Defense presented false satellite evidence as part of their 21 July 2014 press conference on the downing of Flight MH17.

[14] http://eng.mil.ru/en/analytics.htm

Acknowledgments

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