

A catalog of video records of the 2013 Chelyabinsk superbolide[★]

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ABSTRACT

The Chelyabinsk superbolide of February 15, 2013, was caused by the atmospheric entry of a ~ 19 m asteroid with a kinetic energy of 500 kT TNT just south of the city of Chelyabinsk, Russia. It was a rare event; impacts of similar energy occur on the Earth only a few times per century. Impacts of this energy near such a large urban area are expected only a few times per 10 000 years. A number of video records obtained by casual eyewitnesses, dashboard cameras in cars, security, and traffic cameras were made publicly available by their authors on the Internet. These represent a rich repository for future scientific studies of this unique event. To aid researchers in the archival study of this airburst, we provide and document a catalog of 960 videos showing various aspects of the event. Among the video records are 400 distinct videos showing the bolide itself and 108 videos showing the illumination caused by the bolide. Other videos show the dust trail left in the atmosphere, the arrival of the blast wave on the ground, or the damage caused by the blast wave. As these video recordings have high scientific, historical, and archival value for future studies of this airburst, a systematic documentation and description of records is desirable. Many have already been used for scientific analyses. We give the exact locations where 715 videos were taken as well as details of the visible/audible phenomena in each video recording. An online version of the published catalog has been developed and will be regularly updated to provide a long-term database for investigators.

Key words. meteorites, meteors, meteoroids

1. Introduction

An extremely bright meteor, i.e. a superbolide (Ceplecha et al. 1999), appeared unexpectedly to the east of the Southern Ural mountains on the morning of February 15, 2013. The skies were mostly clear in that region and the superbolide was widely observed from the Russian regions of Kurganskaya, Tyumenskaya, Sverdlovskaya, Chelyabinskaya, Republic of Bashkortostan, Orenburgskaya, Republic of Tatarstan, Samarskaya, and from the Kostanay and Aktope regions of Kazakhstan. The blast wave produced by the superbolide caused serious damage – mostly broken windows and doors – in the city of Chelyabinsk and its surroundings and injured more than 1500 people (Popova et al. 2013; Brown et al. 2013). This unexpected and unusual event attracted worldwide attention. Scientists were eager to determine the size of the body that caused the superbolide, its velocity, trajectory, behavior in the atmosphere, the strength of the blast wave, the affected area, and other characteristics. Such a large airburst also provides ground-truth data for validation of entry models of ground damage caused by impacts, an essential component of future planetary defense efforts.

Apart from the infrasonic and seismic detections and some satellite-based observations, the main source of instrumental

data proved to be videos taken by the citizens in the affected regions. These videos represent one of the largest citizen-science documentary efforts in modern times of such an unusual and transitory event. The best characterization of the trajectory, velocity, and impactor orbit were obtained using selected calibrated casual video recordings showing the bolide in flight (Borovička et al. 2013; Popova et al. 2013). Other videos documented the dust trail in the atmosphere, the arrivals of the blast waves, and the damage to buildings (Brown et al. 2013; Popova et al. 2013).

These analyses established that the superbolide was caused by an asteroid with a diameter of about 19 m, which entered the atmosphere with the velocity of 19 km s⁻¹. The total energy was 500 kT TNT (2×10^{15} J). Chelyabinsk was the largest confirmed impact of interplanetary body since the Tunguska event in 1908, which had an estimated energy of 3–15 MT TNT (Vasilyev 1998; Bostouugh & Crawford 2008).

Until recently, it was estimated from telescopic measurements of small near-Earth asteroids that on average a body with the energy of Chelyabinsk enters the atmosphere only once per century (see the curve of Harris in Brown et al. 2013). New statistics of superbolides including Chelyabinsk itself and the recent re-evaluation of asteroid discovery statistics suggest that such events are in fact more frequent and occur a few times per century (Brown et al. 2013; Harris & D’Abramo 2015).

[★] An online version of the catalog is available at <http://meteor.asu.cas.cz/Chelyabinsk/>

Nevertheless, such events are still rare on a human lifetime scale. There was a possible 1.5 MT impact over the Indian Ocean in 1963 (Silber et al. 2009), but data for that event are only from infrasound recordings and are not as robust as the measurable ground-damage for Tunguska or the extensive records of the Chelyabinsk airburst.

Realizing that more than 90% of the Earth’s surface is uninhabited or only sparsely populated and that clouds may interfere with observations, humankind can expect to wait many centuries before seeing the next event of similar energy so well documented. On the other hand, we can expect that imaging devices, both ground-based and space-borne, will be more advanced and more widespread in the future. But even if better data are obtained next time, future events will surely not be identical to Chelyabinsk. Studies of similarities and differences between airburst events, particularly those that may cause ground damage, are essential to the development of better entry models to inform authorities as a key part of mitigation efforts in the area of planetary defense.

With the new telescopic surveys, such as the ATLAS project (Tomý 2011), that are specifically designed to detect small asteroids just prior to impact it is probable in the near future that a smaller version of Chelyabinsk will be detected just prior to impact. In such a scenario, understanding the range of possible ground damage from a Chelyabinsk-like impact becomes an urgent matter of civil defense.

For all of the foregoing reasons, it is important to identify and document all available Chelyabinsk videos. Only a minority of videos documenting this airburst were likely posted on the Internet. Nevertheless, the available records represent a large amount of valuable data. It is, however, not easy to find such videos on the Internet. Their authors put them spontaneously on various video sharing servers under various names and descriptions. Although some videos became very popular and were shown in the mass media worldwide near the time of the event, many others remained largely unknown. In this paper, we present a first version of a catalog of all videos that we have been able to document and locate as of mid-2015. This catalog and its associated metadata are a result of the combined efforts of a large number of people who spent hundreds of hours searching for the videos, classifying them, removing duplicates, geolocating the cameras, and in some instances performing detailed analyses of data shown in the videos.

This version of the catalog contains 960 videos; 400 of them show the bolide, or at least part of it, in flight. In our previous work (Borovička et al. 2013) we used in situ stellar calibration, i.e. determination of the alt-azimuthal coordinate system, of 15 videos. Since that publication, we have calibrated an additional 14 videos and refined some previous calibrations. A detailed description of the calibrations will be the subject of a forthcoming paper. The purpose of this work is to provide the list of all pertinent videos and a guide to researchers using the electronic database where various ancillary data for each record is stored. We are, nevertheless, aware that our database is not complete and not all information is known for all videos (e.g. their geolocations). For this reason, we provide not only the catalog in this paper, but also maintain an online version of it¹. The online database will be updated from time to time. We encourage readers to send their additions and corrections to the second author of this paper to continue future refinement and development of the database. It is also our hope that by publishing this catalog, the owners of some videos not yet in public circulation

may be encouraged to make their records available to the science community.

2. The Chelyabinsk event

Before describing the videos and the catalog, we briefly review the now well-understood and documented characteristics of the airburst event. More details can be found in Borovička et al. (2013), Brown et al. (2013), and Popova et al. (2013).

The bolide was visible for 17 s. For the first 11 s, it brightened almost continuously. From distances 180 km or less, the maximum brightness exceeded the brightness of the Sun. After the point of maximum luminosity was reached, the bolide separated into a number of distinct fragments. One fragment remained visible much longer than the others. It later landed in lake Chebarkul, 70 km west of Chelyabinsk. Thousands of smaller meteorites were found in a strewn field tens of kilometers long (Popova et al. 2013; Badyukov et al. 2014). A dust trail in the atmosphere formed immediately after the bolide. It gradually dispersed and remained visible for several hours. The dust trail was also clearly observed from satellites in Earth’s orbit (Miller et al. 2013; Proud 2013).

A strong airblast wave reached the ground in the Chelyabinsk region about 1.5 min to 5 min after the bolide, depending on the location. The airblast was variously described by witnesses as similar to a strong sonic boom. In many places, the airblast caused windows to break, doors to blow inward, or other minor structural damage. In one individual case, the roof of a zinc plant in Chelyabinsk collapsed. The airblast wave was followed by a number of weaker secondary sonic booms. This “cannonade” lasted for several minutes in the Chelyabinsk area.

3. Types of videos

Most videos showing the bolide itself were obtained by dashboard cameras. The use of cameras in cars is quite common in Russia. Various types of dashboard cameras were used, some of them with high resolution (Full HD). High resolution cameras usually have a smaller field of view than low resolution ones. While most cars were moving during the bolide flight, some records were obtained from stationary cars, e.g. parked cars or cars stopped at traffic lights. Stationary records are better for calibration and determination of the trajectory of the bolide and, in particular, velocity.

Other records of the bolide came from security cameras and traffic cameras. These cameras are stationary, but are typically mounted on elevated positions and directed toward the ground, so only a small portion of the sky is typically visible. They often have low resolution and low frame rate. In some cases only secondary records taken by hand from screen monitors were published.

Many traffic/security cameras and some dashboard cameras from cars that were pointing away from the apparent location of the airburst recorded only the illumination and shadows caused by the bolide. This is also the case of cameras mounted inside buildings. Such records have proven useful for the measurement of the light curve of the bolide in its brightest phase, although care must be taken to compensate for the effects of automatic gain control (AGC) included with most cameras. The records may also contain the arrival of the blast wave. Security and traffic cameras do not have a sound track, but the arrival of the blast wave was often quite apparent by the effects on the ground: glass breaking, cameras shaking, objects moving, or even people

¹ <http://meteor.asu.cas.cz/Chelyabinsk/>



Fig. 1. Images of the bolide (*top*), the dust trail (*middle*), and damaged windows and door of a factory (*bottom*). The individual frames shown are from videos 137, 784, and 708, respectively. Their authors are MsANZOR95, olegfon7271, and David Částeck.

falling indoors. In addition to studying the effects of the blast wave, the videos can also be useful for measuring the time interval between the bolide and the blast wave arrival and thus the origin and propagation of the wave. Of course, the time interval can be measured on many videos showing the bolide directly. Secondary booms can be studied only on records containing sound.

A large number of videos start after the bolide disappearance. These videos were typically taken by eyewitnesses to the bolide, who then decided to record the dust trail. Their videos document the dust trail, and in many cases also the arrival of the blast wave, the secondary sonic booms, and the reactions of people. Finally, some videos start only after the arrival of the blast wave. They document the damage or show the dust trail at a more evolved stage. We did not include videos showing meteorite recovery in the database.

For illustrative purposes, images from three typical videos are shown in Fig. 1.

We note that the quality of videos varies widely, not only in terms of resolution. In many cases there are missing and/or duplicated frames. Care must be therefore taken when establishing time scale on the basis of frame count. The date/time stamp embedded in the video is in most cases not correct in the absolute sense but can be used for relative timing. In a few cases the camera clock was corrected by a GPS receiver or using Internet connection.

4. Selection of videos for the catalog

We cataloged original videos containing a record from one camera. There are many compilations on the Internet, which combine several videos. These compilations are not listed in our catalog. The exceptions are compilations showing the records from related security cameras (e.g. from one factory) or traffic cameras (e.g. from one city). TV reports showing videos are not listed in the catalog unless they contain videos that were not found elsewhere.

The situation is somewhat complicated by the fact that many videos can be found under more than one unique internet link. Either the author uploaded multiple versions of the video (e.g. with different length or resolution) or he/she uploaded the same video on multiple video sharing servers (e.g. youtube.com and mail.ru) or other users took the original video and uploaded it again under their profiles. In these cases we list all links of the same video known to us to try to minimize issues of duplication.

In some cases the author cut the original record into two separate video sequences (e.g. one showing the bolide and one showing the blast wave) and uploaded them as two separate videos. In these cases we count them as one video and list both links.

Unfortunately, videos located on the Internet are not permanent. Videos once uploaded may later be deleted either by the author or by the provider for various reasons. In our catalog we also list links that are no longer valid. The reason is that other people may have noted these links earlier and we want to enable them to compare their list of links with ours. In some cases the video may be available under an alternative link.

Our catalog contains only videos. There are also many photos of the Chelyabinsk event on the Internet. In our experience, photos proved even more difficult to find on the Internet (there are other options for uploading photos than videos) and to geolocate than videos. Most of photos show the dust trail or damage. The photographs of the bolide in flight known to us can be found at the following links:

- <http://marateaman.livejournal.com/27910.html>;
- <http://www.nashgorod.ru/users/25424/Foto/22937/303228/>;
- <http://bigbangpage.com/?p=758>;
- <http://fineartamerica.com/featured/meteorite-alexander-tumashov.html>; and
- <http://cams.seti.org/index-chelyabinsk.html>.

Some photographs of the dust trail with links to original pages can be found² in the collection of one of the team members (NL).

5. Catalog

The videos are listed in Tables A.1–A.4 (only available in the electronic version of the paper). Table A.1 contains 400 videos

² At the address

<http://fotki.yandex.ru/users/chelyabinskfall>

showing the bolide. Table A.2 contains 108 videos showing illumination by the bolide, but not the bolide directly, Table A.3 contains 389 videos showing the dust trail in the atmosphere but neither the bolide nor the bolide light. The 63 videos in Table A.4 show either the arrival of the blast wave or damage caused by the blast wave or other consequences of the bolide. Some of them also show the dust trail in an evolved stage, i.e. a long time after the bolide, when the trail had already dispersed.

The arrangement of all four tables is the same. The following information is given in individual columns for each video in the database:

Number: the videos in Table A.1 are numbered as follows.

Videos 1–15 are the calibrated videos used for the determination of the bolide trajectory by Borovička et al. (2013). Videos 16–29 are the videos calibrated later by our team that will be used for the refinement of the trajectory in a future paper. Video 30 was calibrated by Popova et al. (2013). After this video, the original database was ordered as follows: the videos with known exact locations were listed first, in the order of decreasing latitude. Then videos with known site were listed in alphabetical order according to the site. Finally, other videos were listed in alphabetical order according to the link. The numbering continued in Tables A.2–A.4, which were ordered according to the same principles except that there are no calibrated videos. Nevertheless, in the time interval between the submission and revision of this paper we were able to locate more videos and to find some new videos. In addition, ten videos were found to be duplicates and were removed from the database (the links were moved to their respective places). To avoid confusion, we are keeping the original numbering. As a consequence, some numbers are now missing and new numbers were added at the ends of Tables A.1–A.4.

Latitude and longitude: the coordinates of the position where the video was taken (eastern longitude and northern latitude in the WGS84 system). For moving cars, the coordinates at the time of bolide maximum or at another important moment in the video are given. The information on exact position was in some cases directly embedded in the video using a GPS receiver or provided by the author. Sometimes the coordinates were posted by another user. In most cases, however, we determined the actual position by comparing the landmarks visible on the video with Google Earth satellite imagery. We note, however, that a large number of videos remain with coordinates unknown and users of the database are encouraged to report updated geolocations of videos to the second author. These new locations will be updated in the online database.

Site: the name of the city or village where the video was taken. If taken in open countryside, the name of the nearest village is given, followed, if applicable, by the road number (e.g. M5). In a few cases, other geographical features are given (e.g. lake). There are also videos with unknown sites.

Camera description: for dashboard cameras, we distinguish “moving car” and “standing car”. This applies to the time of the bolide or, if the bolide is not present, to another important event on the video. If the car started or stopped moving during the bolide flight, it is given as “starting car” or “stopping car”, respectively. The fixed surveillance cameras are given as “security” or “traffic” according to their purpose. The keyword “time” means that the time stamp shows correct time. The note “from screen” means that secondary record from the screen monitor was published. If a multiplicity is

given (e.g. 5x), videos from multiple cameras were combined under a single link and given a single number designation in our catalog. If multiple videos under a single link were treated separately in the catalog, their order is noted after the link. The videos taken by handheld cameras (mostly by mobile phones, but sometimes also by dashboard cameras manipulated by hand) are coded “handheld”.

Video description: one or more keywords are given describing the content of the video. “Whole bolide” means that (almost) the whole bolide was imaged. If only part of the bolide trajectory is visible on the video, it is specified as “beginning”, “middle”, or “end”. If only the illumination caused by the bolide can be seen, it is given as “light”. Naturally, videos showing the bolide also show the light but this is not given explicitly. For videos showing the dust trail, “trail” is given. Again, almost all videos showing the bolide also show the trail. The keyword “trail” is, however, given for videos with the bolide only in cases when more trail is visible than corresponds to the bolide part (e.g. when the dashboard camera was manually pointed to the trail or the car changed direction) or if the video is so long that it nicely shows “trail evolution”. Sonic booms heard in the sound track of the video are given as “booms”. If, in the absence of a sound track, the arrival of the blast wave can be seen by moving objects, it is given as “blast wave”. Finally, the documentation of visible damage (e.g. broken windows) is given as “damage”. We also sometimes give a note about the quality of the video (e.g. bolide overexposed).

Links: the link where the video can (or could at one time) be found. If more than one link is given for one video, the additional ones are either duplicates or related videos from the same author. We also note that more alternatives may be valid for the same link. For example these links lead to one identical video:

<http://www.youtube.com/watch?v=RE0vVY9S3LS>
<http://youtu.be/RE0vVY9S3LS>

The same is true for

http://my.mail.ru/mail/dmkchel/video/_myvideo/1.html
http://my.mail.ru/video/mail/dmkchel/_myvideo/1.html
http://video.mail.ru/mail/dmkchel/_myvideo/1.html

or

<http://www.odnoklassniki.ru/video/40337216280>
<http://ok.ru/video/40337216280>

We maintained a uniform format for all videos from the same video server in our catalog. The links that are no longer active as of July/August 2015 are given in italics in Tables A.1–A.4.

Figure 2 illustrates the geographical distribution of videos with known locations. The distribution mostly reflects population density. The most distant bolide records came from the Samara region, more than 700 km from the bolide. We note that the weather was mostly cloudy to the northwest of Yakaterinburg (towards Perm) and also to the east of the easternmost observations near Tyumen. Some places to the south and east from Chelyabinsk suffered from local ground fog. Nevertheless, the skies were nicely clear in most places around the bolide trajectory. In the surroundings of Ufa, the whole bolide (~350 km

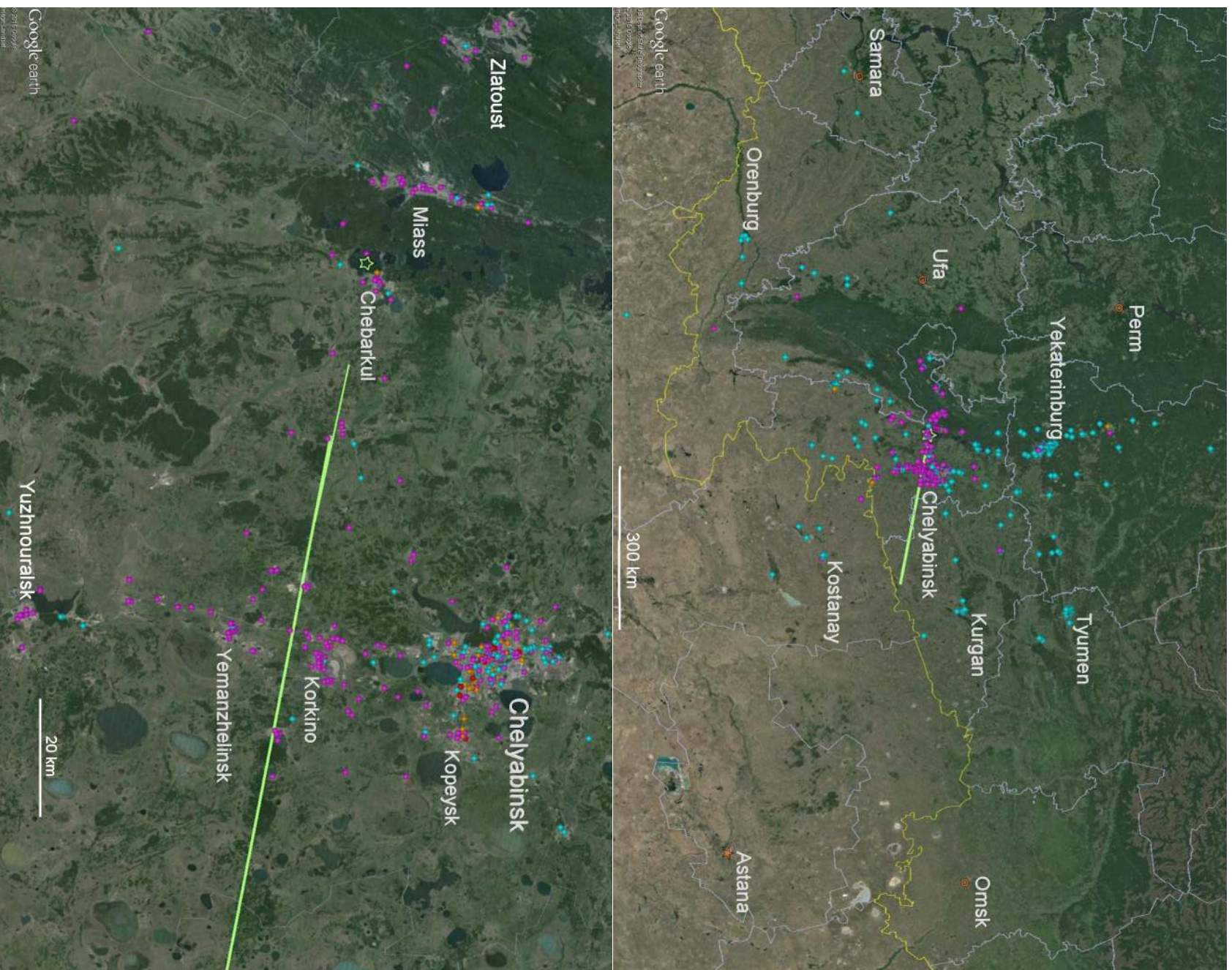


Fig. 2. Map showing the positions of 715 geolocated videos. *Upper panel:* overview of the whole area where the superbolide was seen; *lower panel:* region near the end of the bolide, including the city of Chelyabinsk. The green line is the ground projection of the bolide trajectory, including individual fragments (Borovička et al. 2013). The green star is the landing point of the largest fragment (Popova et al. 2013). The cyan dots are locations of videos showing the bolide (Table A.1). Other videos are coded as follows: orange – videos with bolide light (Table A.2), magenta – videos with trail (Table A.3), red – videos showing damage and other consequences (Table A.4). The source of the background map is Google Earth.

away) appeared close to the rising Sun and remained mostly unnoticed.

The records of the trail are naturally more concentrated in the vicinity of the bolide, where the bolide, its acoustic effects, and the trail attracted the largest attention of the public. Nevertheless, the trail was visible at distances of more than 500 km, e.g. from Orenburg. The sonic booms and the ground damage extended to about 100 km from the brightest part of the bolide, perpendicular to the trajectory (see [Popova et al. 2013](#), for more details).

6. Online database

All data from Tables [A.1–A.4](#) can be found in the online database³. The advantages of the online version are as follows:

1. The online database will be updated from time to time when new videos or corrections to the existing items are found. Readers can report their findings by e-mail to the second author of this paper (see the e-mail address in the header of the paper). The versions of the database will be numbered and the changes made from version to version will be listed. The version published here is version number 1.
2. A user defined table can be created by selecting the videos of a certain type (bolide, illumination, trail, wave, damage, or a combination) and columns to display. The table can be exported in text format.
3. The table can be sorted according to video number, coordinates, or site name by clicking on the table header.
4. Videos can be searched for the site name, camera type, coordinates, or a combination of these parameters.
5. The alphabetical list of all internet links in the database can be created.
6. A schematic chart showing the geographical distribution of selected videos together with the bolide trajectory (from [Borovička et al. 2013](#)) can be plotted.

The online version also contains the following additional information for the majority of the videos: resolution in pixels, number of frames per second, and the time of interest, i.e. the time, counted from the beginning of the sequence, when the bolide and/or the blast wave occurred.

7. Summary

We have developed a catalog of almost a thousand distinct casual video records of the Chelyabinsk superbolide of February 15, 2013, which we have found on the Internet. The Chelyabinsk event was extraordinary in the sense that a bolide of such energy (500 kT TNT) occurs only a few times per century on the whole Earth and that it was well documented. It is also a good example of the damage caused by a cosmic body. Fortunately, there were no fatalities. Video records represent the richest part of the documentation. We believe that our catalog will be useful for studying the various aspects of the event. A subsequent paper providing the calibration of selected videos and a detailed description of the bolide's trajectory and fragmentation is in preparation.

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³ At the address

<http://meteor.asu.cas.cz/Chelyabinsk/>

Appendix A: Tables

Table A.1. List of videos showing the bolide.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
1	56.96346	60.60815	Verkhnyaya Pyshma	standing car	whole bolide	http://www.youtube.com/watch?v=LzvipoPuy0
2	56.41517	61.91888	Kamensk-Uralskiy	stopping car	whole bolide	http://www.youtube.com/watch?v=kFlpCT3v12E http://www.youtube.com/watch?v=6c9kiIt9pf0 http://www.youtube.com/watch?v=CME0jldlwGI http://www.youtube.com/watch?v=gnDtS0zyLBA http://www.youtube.com/watch?v=iCawTYPtehk http://www.youtube.com/watch?v=OPSzpnHHwos http://www.youtube.com/watch?v=vB1-Q93R1P http://www.youtube.com/watch?v=7TPDwSXaiB0 http://www.youtube.com/watch?v=49YZD9fPGMY
3	56.39328	61.93357	Kamensk-Uralskiy	standing car	middle, end	http://www.youtube.com/watch?v=J3DqsbxKOMA http://www.youtube.com/watch?v=9E4ghTMW0rg
4	56.38521	61.94287	Kamensk-Uralskiy	standing car	middle, end (overexposed)	http://www.youtube.com/watch?v=9E4ghTMW0rg http://my.mail.ru/mail/wasrad.53/video/839/21143.html http://vimeo.com/61421303
5	55.22039	61.29671	Chelyabinsk	moving car	whole bolide	http://www.youtube.com/watch?v=OM-5ngYg5Mg http://my.mail.ru/mail/low20er/video/_myvideo/7.html http://my.mail.ru/mail/low20er/video/_myvideo/9.html
6	55.17968	61.47201	Chelyabinsk	standing car	end, booms, trail evolution	http://www.youtube.com/watch?v=WsARMvNXNW8 http://www.youtube.com/watch?v=8Eu7QAP2DPM http://vk.com/video8770025_164763459
7	55.17556	61.39351	Chelyabinsk	standing car	end, booms, trail evolution	http://www.youtube.com/watch?v=32aJ4RB8MqI http://www.youtube.com/watch?v=-TW0mZZ4kIo http://www.youtube.com/watch?v=XqZhmC1RHpM
8	55.16631	61.44477	Chelyabinsk	standing car	end, booms	http://www.youtube.com/watch?v=gQ6Pa5Pv_io http://www.youtube.com/watch?v=fGWq0hOXiuU http://www.youtube.com/watch?v=HD0D6J1gJnc http://www.youtube.com/watch?v=pR15e0cZni0 http://www.youtube.com/watch?v=V0uhqJNXVdk http://www.youtube.com/watch?v=XJe2dMMedkY
9	55.14993	61.36404	Chelyabinsk	standing car	end, booms	http://www.youtube.com/watch?v=odKjwrjIM-k http://www.youtube.com/watch?v=2Gc1Hg05hNY http://my.mail.ru/bk/zaharow75/video/_myvideo/3.html http://www.youtube.com/watch?v=ELPLV3Rkslg http://www.youtube.com/watch?v=0CoP7WB8Gew http://www.youtube.com/watch?v=UjNpJXP7trQ
10	54.89095	61.39951	Korkino	standing car	beginning, blast wave	http://www.youtube.com/watch?v=5_1ytDqps8A http://www.youtube.com/watch?v=hD2iySyG090 http://www.youtube.com/watch?v=xboo7LiNR08
11	54.75668	61.30389	Yemanzhelinsk	moving car	end, booms	http://www.youtube.com/watch?v=lmfTSrVjstc http://www.youtube.com/watch?v=-fxvs4WNQMA http://www.youtube.com/watch?v=8dVx3Wul4us http://www.youtube.com/watch?v=DpQXyrqmcUM http://www.youtube.com/watch?v=ExWYuiyIng0
12	54.50082	61.27172	Kichigino, M36	moving car	middle, end	http://www.youtube.com/watch?v=e2035wJtw5s http://my.mail.ru/mail/effector74/video/_myvideo/75.html
13	54.07707	61.53128	Troitsk	moving car	end	
14	53.95274	58.41018	Beloretsk	stopping car	whole bolide	
15	54.99504	60.40023	Chebarkul	standing car	whole bolide	
16	56.99057	60.47882	Sredneuralsk	standing car	whole bolide	
17	55.45254	65.34085	Kurgan	standing car	middle	
18	55.48134	61.38762	Sakkulovo	standing car	beginning	
19	55.35384	61.33696	Dolgoderenskoe	moving car	end	
20	55.22925	61.32307	Chelyabinsk	moving car	end, trail	

Notes. (*) Links that are no longer active are printed in italics.

Table A.1. continued.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
21	55.17465	61.29083	Chelyabinsk	standing car	end	http://www.youtube.com/watch?v=vUBVjwteQ30 http://vimeo.com/59716415
22	55.17326	61.39409	Chelyabinsk	standing car	end	http://www.youtube.com/watch?v=wkfBRWeQAYo
23	55.16615	61.39305	Chelyabinsk	moving car	whole bolide, trail evolution	http://www.youtube.com/watch?v=-m0Hk5dUWcg
24	54.44848	61.26387	Yuzhnouralsk	moving car	beginning	http://my.mail.ru/mail/grosman/video/_myvideo/6.html http://www.youtube.com/watch?v=2hdOmn6xHSQ
25	54.08840	61.52491	Troitsk	stopping car	middle, end (overexposed)	http://www.youtube.com/watch?v=pgM7G6NfQ2Q http://www.youtube.com/watch?v=8-aEi9DCoME
26	54.31217	59.38581	Uchaly	standing car	beginning, middle	http://www.youtube.com/watch?v=k70o1guMsWs http://www.odnoklassniki.ru/video/3713206319
27	54.58007	60.30448	Mirnyi	security	middle, end, boom arrivals, trail evolution	http://www.youtube.com/watch?v=LmlwWFDy1x0
28	55.10593	60.12783	Miass	standing car	middle, end	http://www.youtube.com/watch?v=L3rMDmv08FQ
29	55.15811	60.14611	Miass	standing car	whole bolide, trail evolution	http://vk.com/video2668322_164277825 http://www.youtube.com/watch?v=d2IsesfxM74
30	56.07937	60.74269	Snezhinsk	standing car	middle, end	http://www.youtube.com/watch?v=2NSOpj8ynWs http://www.youtube.com/watch?v=OacNQRNpfkE http://www.youtube.com/watch?v=p2whPhTHR1c
31	59.60514	60.58061	Serov	starting car	middle (overexposed)	http://vk.com/video38462280_167123600
32	59.60374	60.59586	Serov	moving car	end	http://www.youtube.com/watch?v=mS6Yh4vecpw
33	59.60036	60.57591	Serov	moving car	whole bolide (overexposed)	http://www.youtube.com/watch?v=2zIv30n22IE
34	58.64781	59.81875	Lesnoy	security 2x	whole bolide	http://www.youtube.com/watch?v=wU-EF8Y-7Uc
35	58.27850	59.73867	Kushva	moving car	middle, trail	http://www.youtube.com/watch?v=eMAwP1XFfjI
36	58.05184	60.59421	Verkhnaya Salda	moving car	whole bolide	http://www.youtube.com/watch?v=ausa6JTow9M
37	58.04953	60.59136	Verkhnaya Salda	moving car	beginning, middle	http://www.youtube.com/watch?v=pMMFI3mher4
38	57.90938	60.09550	Nizhnyi Tagil	moving car	whole bolide	http://vk.com/video62491347_164754492
39	57.89783	59.93874	Nizhnyi Tagil	moving car	whole bolide	http://www.youtube.com/watch?v=0L9BJA9I6Bw http://www.youtube.com/watch?v=FNnos2voEbA http://www.youtube.com/watch?v=scrNkG4LpMI
40	57.87033	59.94394	Nizhnyi Tagil	traffic, time	end (overexposed)	http://www.youtube.com/watch?v=aD_HOqxCIpk http://www.youtube.com/watch?v=NcZNhJVV5xI (1st)
41	57.84997	61.72686	Alapayevsk	moving car	whole bolide	http://www.youtube.com/watch?v=ltfsZppxY3s
42	57.73494	59.87592	Chernoistochinsk	moving car	whole bolide	http://www.odnoklassniki.ru/video/3643934932
43	57.46913	60.20674	Nevyansk	moving car	whole bolide	http://www.youtube.com/watch?v=uQXziwHR1XI http://www.youtube.com/watch?v=vH_EJ8Nhlqs
44	57.44429	60.20275	Nevyansk	moving car	whole bolide (overexposed)	http://www.youtube.com/watch?v=X8jd3-JbhD4
45	57.36170	61.41347	Rezh	moving car	whole bolide	http://www.youtube.com/watch?v=AOLVdG0HBY
46	57.27901	60.29648	Novouralsk, P352	moving car	whole bolide (overexposed)	http://www.youtube.com/watch?v=3NXoJ0dAMf8
47	57.26051	60.09698	Novouralsk	moving car	beginning, middle	http://www.youtube.com/watch?v=8G_rAZaETtk
48	57.20240	65.60532	Tyumen	standing car	whole bolide	http://www.youtube.com/watch?v=1ZdYf2vM5LA
49	57.19931	65.45711	Tyumen	moving car	whole bolide	http://vk.com/video70991094_164503038 http://vk.com/video37260357_164796219
50	57.19318	60.25521	Tavatuy, P352	moving car	middle (overexposed)	http://www.youtube.com/watch?v=oaiRidKpzF8
51	57.17425	65.53951	Tyumen	moving car	whole bolide	http://vk.com/video7343412_164700886

Table A.1. continued.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
52	57.17345	65.53803	Tyumen	moving car	whole bolide	http://www.youtube.com/watch?v=aISbm5eN_nM
53	57.17134	65.89503	Tyumen	moving car	whole bolide (overexposed)	http://www.youtube.com/watch?v=tvE04bQ_nM4
54	57.15978	65.53244	Tyumen	moving car	middle (overexposed)	http://vk.com/video16916608_164520155
56	57.15832	65.53647	Tyumen	moving car	middle (overexposed)	http://www.youtube.com/watch?v=1LWfa0Lae1U
						http://www.youtube.com/watch?v=jDSz3SYHbU0
						http://www.youtube.com/watch?v=CSIAI7_WeTg
						http://www.youtube.com/watch?v=Qo9JeJgk7P4
57	57.14801	65.52472	Tyumen	moving car	whole bolide (overexposed)	http://www.youtube.com/watch?v=zJThaZTKFvI
						http://www.youtube.com/watch?v=7NSkccCYXig
58	57.14801	65.58681	Tyumen	standing car	beginning, middle	http://www.youtube.com/watch?v=E1IlgzL_3AQ
						http://vk.com/video-30823579_164328477
59	57.14769	65.54753	Tyumen	standing car	beginning, middle (overexposed)	http://www.youtube.com/watch?v=34Ln1jSc6wQ
						http://www.youtube.com/watch?v=rzkK4dgUoZ8
60	57.14666	65.58452	Tyumen	stopping car	whole bolide	http://www.youtube.com/watch?v=YkniHFCbCPo
61	57.14619	65.58333	Tyumen	standing car	whole bolide	http://www.youtube.com/watch?v=nFtcfy9kdrM
62	57.14440	65.54025	Tyumen	moving car	whole bolide	http://www.youtube.com/watch?v=skL41dJ7ZNo
						http://www.odnoklassniki.ru/video/2252080492
						http://www.youtube.com/watch?v=8WjJwm-MyEk
63	57.13934	65.65895	Tyumen	moving car	beginning	http://www.youtube.com/watch?v=80YLe049MLY
64	57.13640	65.55252	Tyumen	moving car	middle (overexposed)	http://www.youtube.com/watch?v=6jXK-xo0H-g
65	57.13185	65.51029	Tyumen	moving car	beginning, middle	http://vk.com/video137871389_164638479
66	57.12831	65.47714	Tyumen	moving car	whole bolide	http://www.tvtm.ru/video/goroda/tyumen-v-video/smotrim-tyumen-meteorit-tyumen-15-02-2013.html
67	57.12758	65.59198	Tyumen	moving car	whole bolide	http://www.youtube.com/watch?v=S7xJ0unwh5c
68	57.12511	65.65862	Tyumen	stopping car	whole bolide	http://www.youtube.com/watch?v=RTHzgLj--EY
69	57.12346	65.58659	Tyumen	moving car	beginning, middle	http://www.youtube.com/watch?v=IpA515rNZY8
70	57.12026	65.56473	Tyumen	moving car	beginning, middle	http://www.youtube.com/watch?v=hXGeHwbkguc
71	57.11508	65.57449	Tyumen	standing car	beginning, middle (overexposed)	http://www.youtube.com/watch?v=4hd0Eidt9wE
72	57.06046	63.77675	Talitsa	handheld	end, trail	http://vk.com/video149037488_164650320
73	57.03010	63.72484	Talitsa-Mayan	moving car	beginning, middle	http://www.youtube.com/watch?v=7DiQtP7-0x8
74	57.01759	60.51781	Solnechnyi, P352	standing car	whole bolide	http://www.youtube.com/watch?v=-wPu58n11tw
						http://www.youtube.com/watch?v=sJGstPR-q6U
75	57.00008	61.45330	Asbest	moving car	beginning, middle	http://www.youtube.com/watch?v=C-zIov013mQ
						http://www.youtube.com/watch?v=M7_CpPineJE
76	56.97298	60.57006	Verkhnyaya Pyshma	standing car	beginning, middle (overexposed)	http://www.youtube.com/watch?v=Rnr6syQHkes
77	56.97078	60.57419	Verkhnyaya Pyshma	moving car	whole bolide	http://www.youtube.com/watch?v=xGSKFFFKREA
						http://www.youtube.com/watch?v=1Cb_FODcnWQ
						http://www.youtube.com/watch?v=HXLc5JBxFoc
						http://www.youtube.com/watch?v=t3VDPSRAHe0
						http://www.youtube.com/watch?v=V-4KWvx9GzU
						http://www.youtube.com/watch?v=wsRxkrFG7Gc
78	56.96983	63.27905	Verkhnyaya Pyshma	security	middle, end	http://www.youtube.com/watch?v=x7XF5_e-D3A
79	56.95050	60.51390	Verkhnyaya Pyshma, P352	moving car	whole bolide	http://www.youtube.com/watch?v=pP5qU_jyx1M
80	56.95000	60.62745	Verkhnyaya Pyshma	moving car	whole bolide	http://www.youtube.com/watch?v=nNLOcof-Vek
81	56.94338	60.62941	Yekaterinburg	security	whole bolide	http://www.youtube.com/watch?v=kZxr9nAVQSo
						http://www.youtube.com/watch?v=dGkEjMZTL6k

Table A.1. continued.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
82	56.93593	61.46013	Asbest	moving car	end (overexposed)	http://my.mail.ru/mail/rook64/video/1/2.html
83	56.93343	63.76260	Talitsa	moving car	beginning, middle	http://www.youtube.com/watch?v=AmWX7rPKYz0
84	56.92318	60.75464	Yekaterinburg	moving car	beginning, middle (overexposed)	http://www.youtube.com/watch?v=dU4DPyBMqt8
85	56.91700	60.50786	Yekaterinburg, P352	moving car	middle, end (overexposed)	http://www.youtube.com/watch?v=Ii_l3L-AaJ8
86	56.91325	60.61778	Yekaterinburg	standing car	beginning, middle	http://www.youtube.com/watch?v=8j8-R1zkT0c
87	56.91316	60.77629	Beryozovskiy	standing car	middle (overexposed)	http://vk.com/video29862207_168251708 http://www.youtube.com/watch?v=isNQZLrybH4
88	56.91006	62.04442	Sukhoy Log	security	whole bolide (overexposed)	http://www.youtube.com/watch?v=hnfMhs0mUdI
89	56.90749	60.82330	Beryozovskiy	moving car	middle	http://www.youtube.com/watch?v=NbETDsnGUPc
90	56.88024	60.61848	Yekaterinburg	standing car	middle (overexposed)	http://vk.com/video2336690_164217108
91	56.87020	60.66674	Yekaterinburg	moving car	whole bolide	http://www.youtube.com/watch?v=ah-_LzdKugQ
92	56.86285	60.60490	Yekaterinburg	moving car	beginning (in clouds)	http://www.youtube.com/watch?v=rZiaab53yh8
93	56.84393	60.60966	Yekaterinburg	moving car	middle (in clouds)	http://www.youtube.com/watch?v=IvxlK-tDxRw http://www.youtube.com/watch?v=fatA4dfQSWc
94	56.83547	60.66702	Yekaterinburg	moving car	end	http://www.youtube.com/watch?v=dZaYv1R8tUE
95	56.83222	60.61302	Yekaterinburg	standing car	middle (overexposed)	http://www.youtube.com/watch?v=GnjeL25wVFM http://www.youtube.com/watch?v=_NUG2S6uQ54
96	56.83142	60.63577	Yekaterinburg	moving car	whole bolide (overexposed)	http://www.youtube.com/watch?v=8MMoJQgw6sM
97	56.82745	60.61338	Yekaterinburg	moving car, time	middle (overexposed)	http://www.youtube.com/watch?v=JU1FSbyWhIU
98	56.82442	60.56154	Yekaterinburg	partly moving car	end	http://www.youtube.com/watch?v=BjhYw-wNVPo
99	56.82363	60.63544	Yekaterinburg	standing car	middle	http://www.youtube.com/watch?v=4cxcIHSNjdy
100	56.82336	60.56944	Yekaterinburg	moving car	beginning	http://www.youtube.com/watch?v=E0wDeWjSvHU http://www.youtube.com/watch?v=pJb_PWBxUDo
101	56.82071	60.60550	Yekaterinburg	moving car	middle	http://www.youtube.com/watch?v=4r20mQjGKP0
102	56.81881	60.61291	Yekaterinburg	starting car	beginning, middle	http://www.odnoklassniki.ru/video/3528525982
103	56.81865	60.60618	Yekaterinburg	moving car	whole bolide	http://www.youtube.com/watch?v=LFsZitw6CKk http://www.youtube.com/watch?v=ciYDrOmd1H4 http://www.youtube.com/watch?v=j2sF8pwSxwE http://www.youtube.com/watch?v=mOIZikflpW4 http://www.youtube.com/watch?v=YjRiJebKqH8
104	56.81805	60.60651	Yekaterinburg	starting car	whole bolide	http://www.youtube.com/watch?v=Od6We-u2T_M http://www.youtube.com/watch?v=f3PdozSpbB8
105	56.81472	60.69557	Yekaterinburg-Putevka	moving car	middle, trail	http://www.youtube.com/watch?v=1CJe2MjPARI
106	56.81431	60.65570	Yekaterinburg	moving car	middle, end	http://www.youtube.com/watch?v=KsMjsh0A5pY http://my.mail.ru/list/popovair/video/_myvideo/859.html
107	56.81310	60.51714	Yekaterinburg	standing car	whole bolide (in clouds)	http://www.youtube.com/watch?v=c2RwD0iRSeU
108	56.81305	60.51691	Yekaterinburg	standing car	whole bolide	http://www.youtube.com/watch?v=1RqC0hjaIk
109	56.81234	60.60853	Yekaterinburg	standing car	whole bolide (overexposed)	http://www.youtube.com/watch?v=o9rTC6adAnM
110	56.81208	60.61184	Yekaterinburg	moving car	beginning, middle	http://www.youtube.com/watch?v=9P2xu0s3V3Q http://vk.com/video27464266_164293551
111	56.80634	60.61030	Yekaterinburg	standing car	whole bolide	http://www.youtube.com/watch?v=NslqG68dtLk
112	56.80600	60.61086	Yekaterinburg	starting car	whole bolide	http://www.youtube.com/watch?v=Fc50E_Pv2Lc http://www.youtube.com/watch?v=Ot0fPy-9DEC http://www.youtube.com/watch?v=v_4tDDqcPEc
113	56.79990	60.63050	Yekaterinburg	moving car	whole bolide (overexposed)	http://www.youtube.com/watch?v=bz2MuBXpHRg

Table A.1. continued.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
114	56.78794	60.60589	Yekaterinburg	stopping car	whole bolide (overexposed)	http://www.youtube.com/watch?v=TSdZtcEKess
115	56.78658	60.60634	Yekaterinburg	standing car	whole bolide (overexposed)	http://www.youtube.com/watch?v=PBe2deKV6y0
116	56.78625	60.60654	Yekaterinburg	starting/stopping car	whole bolide	http://www.youtube.com/watch?v=oQB0NIJOBf8 http://www.youtube.com/watch?v=eXAwTSQoA8A http://www.youtube.com/watch?v=sw62heybH9E
117	56.77163	60.61407	Yekaterinburg	moving car	whole bolide (overexposed)	http://www.youtube.com/watch?v=ZqcQWCJnMKg
118	56.76517	60.78858	Yekaterinburg	moving car	whole bolide	http://www.youtube.com/watch?v=05oFSfSQRYc
119	56.76203	60.82160	Yekaterinburg-Koltsovo	moving car	beginning, middle	http://www.youtube.com/watch?v=6aEiY3G9Vzg
120	56.76139	60.76321	Yekaterinburg	moving car	whole bolide	http://www.youtube.com/watch?v=PPltv-9Tfvg http://www.youtube.com/watch?v=jQkr6zPujNI http://www.youtube.com/watch?v=PYYOn1KeWOM http://www.youtube.com/watch?v=QIMKQihoyRI http://www.youtube.com/watch?v=SU7MrsLM6aY http://www.youtube.com/watch?v=y35gii8KOGk
121	56.75355	60.75262	Yekaterinburg	moving car	whole bolide	http://www.youtube.com/watch?v=rGs_6v2Chpc http://www.youtube.com/watch?v=3dXbK-FL_s4 http://www.youtube.com/watch?v=8IT2REmAgeU http://www.youtube.com/watch?v=P3mg435WoiE
122	56.75038	60.79722	Yekaterinburg-Koltsovo	security	whole bolide	http://www.youtube.com/watch?v=dJa18_RKODo http://www.youtube.com/watch?v=aMUkpAyfM-g
123	56.72246	63.78723	Butka	moving car	whole bolide	http://vk.com/video47240408_164481359
124	56.71330	60.08401	Degtyarsk	moving car	beginning, middle	http://www.youtube.com/watch?v=GUjJrQ0bX8k
125	56.71061	66.36182	Yalutorovsk	moving car	whole bolide	http://www.youtube.com/watch?v=RKqpWQqsPAI http://www.youtube.com/watch?v=D9VCQ2uJkCA
126	56.68064	66.30284	Yalutorovsk	moving car	middle, end	http://my.mail.ru/mail/chernevaa/video/_myvideo/10.html http://www.youtube.com/watch?v=h__8hKk65ns
128	56.66422	60.79234	Borodulino, M5	moving car	whole bolide (out of focus)	http://www.youtube.com/watch?v=vq08KXP9ck
129	56.65979	66.28545	Yalutorovsk	moving car	whole bolide	http://www.youtube.com/watch?v=RI7ICzjF2bc
130	56.50879	60.83254	Sysert	standing car	middle	http://www.youtube.com/watch?v=L05W4gR0jes http://www.youtube.com/watch?v=BMK_Tc40EYA http://www.youtube.com/watch?v=j3I_y5r6S-Q
131	56.49000	60.22920	Polevskoy	standing car	middle, end	http://www.youtube.com/watch?v=CPvphDKgVvY
132	56.48936	60.22873	Polevskoy	moving car	end	http://www.odnoklassniki.ru/video/3571124479
133	56.43763	60.16844	Polevskoy	moving car	middle, end (out of focus)	http://www.youtube.com/watch?v=zqW5-L142XE
134	56.38388	61.91645	Kamensk-Uralskiy	standing car	middle, end	http://vk.com/video6330012_164565093
135	56.38265	61.96917	Kamensk-Uralskiy	moving car	middle (overexposed)	http://www.youtube.com/watch?v=rie9rYW3yRA
136	56.27471	62.61116	Kataysk	stopping car	middle, end	http://vk.com/video-48979481_164414344 http://vk.com/video-48979481_164413727 http://www.odnoklassniki.ru/video/3941402703
137	56.11096	62.89605	Peski	stopping car	whole bolide	http://www.youtube.com/watch?v=6jvcTMr32zM
138	56.10749	63.65665	Shadrinsk	moving car	beginning, middle	http://www.youtube.com/watch?v=MvEYTwzB0U
139	56.07794	60.84086	Snezhinsk	moving car	middle, end	http://www.youtube.com/watch?v=n1m9v8scaTQ http://www.youtube.com/watch?v=2ovcjLp64Oc http://www.youtube.com/watch?v=HpU2CBxcSc
140	56.07311	60.22084	Verkhny Ufaley	security	middle, end	http://www.youtube.com/watch?v=leTSBrfZ37A http://www.youtube.com/watch?v=rQBmwwy2tss

Table A.1. continued.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
141	56.07202	60.21580	Verkhny Ufaley	standing car	beginning, middle	http://www.youtube.com/watch?v=G353N1K7Tmc http://www.youtube.com/watch?v=HIgl2wE-Uc0
142	55.90512	60.74227	Kasli	moving car	whole bolide	http://www.youtube.com/watch?v=kHO_PK7kDdo
143	55.87486	61.72534	Tachtalym	moving car	middle	http://www.youtube.com/watch?v=6rUZ2LRkGWI http://my.mail.ru/mail/wasrad.53/video/839/21144.html http://www.youtube.com/watch?v=_a-xAlnDsZ4
144	55.86872	61.75248	Khalitovo	standing car	middle (overexposed)	http://www.youtube.com/watch?v=dLu7yW4gf4A
145	55.76312	60.68545	Ozersk	handheld	end	http://www.youtube.com/watch?v=P5ITxG_EOHC
146	55.75009	60.71788	Ozersk	security	whole bolide	http://www.youtube.com/watch?v=oCbByuEwNrg
147	55.73668	60.69132	Ozersk	stopping car	end	http://my.mail.ru/mail/marina_l_b/video/_myvideo/3878.html http://www.youtube.com/watch?v=25NIuZ5UkjA
148	55.73139	60.58361	Kyshtym	stopping car	middle, end (overexposed)	http://www.youtube.com/watch?v=XRJWhnUAK0w http://www.youtube.com/watch?v=EA_vFIASxNM http://www.youtube.com/watch?v=Nkz6iRHGzrY http://www.youtube.com/watch?v=tXT-Mm91TZY
149	55.72868	60.55326	Kyshtym	moving car	end	http://www.youtube.com/watch?v=qOqeUnBg1EQ
150	55.71335	60.57042	Kyshtym	security	middle, end	http://vk.com/video9208237_164379357
151	55.70585	60.55343	Kyshtym	security	end	http://www.odnoklassniki.ru/video/4400220301
152	55.70294	60.56233	Kyshtym	security	whole bolide (overexposed)	http://www.youtube.com/watch?v=stsDn2XF1eU
153	55.48038	65.31900	Kurgan	moving car	middle	http://www.youtube.com/watch?v=qHa-rzKeaJY
154	55.47258	65.29221	Kurgan	moving car	whole bolide	http://www.youtube.com/watch?v=X2ja6_zJtzk http://video.yandex.ua/users/bob1221/view/1# http://www.youtube.com/watch?v=9ymjTX-5GGQ
155	55.46507	65.33743	Kurgan	security	middle	http://www.youtube.com/watch?v=va4pSDYi1LU
156	55.46058	65.35305	Kurgan	moving car	middle, end	http://www.youtube.com/watch?v=JkbT1ckMS3Y http://my.mail.ru/mail/elena.leo84/video/_myvideo/10.html
157	55.45438	65.33131	Kurgan	moving car	middle, end	http://www.youtube.com/watch?v=qk4nT5aVo9g http://www.youtube.com/watch?v=eduuIjRLisQ http://www.youtube.com/watch?v=Sil8Cb6PCFo
158	55.44996	65.03894	Kurgan, M51	moving car	middle, end	http://www.youtube.com/watch?v=YldB_BhGvsg
159	55.44749	65.34006	Kurgan	moving car	whole bolide	http://www.youtube.com/watch?v=Qbvrr9r4XwA http://www.odnoklassniki.ru/video/3934783692 http://www.youtube.com/watch?v=wiEuU_0CJbc
160	55.44211	65.33538	Kurgan	moving car	beginning, middle	http://www.youtube.com/watch?v=FAMcMmzIugU
161	55.44167	65.37086	Kurgan	moving car	beginning, middle	http://www.youtube.com/watch?v=gJX6ykCGVs4
162	55.36053	63.86245	Mishkino, M51	moving car	middle, end	http://my.mail.ru/mail/dobrotvorskiy.1975/video/1377/1378.html
163	55.36000	63.85570	Mishkino, M51	moving car	whole bolide	http://www.youtube.com/watch?v=kmbCYs3m6No http://vk.com/video13169831_164245651
164	55.34750	65.33660	Ketovo	stopping car	middle, end	http://www.youtube.com/watch?v=XFbbyFK_xjA
165	55.32282	61.63030	Sychyovo	standing car	beginning, booms	http://www.youtube.com/watch?v=h5w78eJFRrU
166	55.27627	61.87787	Miasskoe	moving car	end	http://vk.com/video-32159710_164513266
167	55.26360	61.41167	Chelyabinsk	security	end	http://www.youtube.com/watch?v=uF_eFsmZ1E4
168	55.25889	61.37127	Chelyabinsk	standing car	end	http://my.mail.ru/mail/mikl-dovgal/video/_myvideo/750.html http://www.youtube.com/watch?v=Z04WDiFD5pg
169	55.25099	61.41475	Chelyabinsk	security	beginning, blast wave	http://www.youtube.com/watch?v=PH_8rHQUnZc http://my.mail.ru/mail/sy_company/video/_myvideo/3.html

Table A.1. continued.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
170	55.23156	61.36995	Chelyabinsk	moving car	whole bolide, trail evolution, damage - zinc plant	http://www.youtube.com/watch?v=olgBeQ7exbI http://www.youtube.com/watch?v=GexFs933Eyc
171	55.23129	61.73058	Vakhrushevo, M51	moving car	end	http://my.mail.ru/list/pavel_saveljev/video/_myvideo/1.html
172	55.22686	61.37333	Chelyabinsk	moving car	beginning, middle, trail, booms, fall of zinc plant	http://www.youtube.com/watch?v=IWoe4Tqeu3o http://www.youtube.com/watch?v=Y_u-MNyBnDk
173	55.22202	61.37646	Chelyabinsk	moving car	whole bolide	http://www.youtube.com/watch?v=UCmpTw1mkSA
174	55.22045	62.52968	Alakul, M51	moving car	middle, end, trail evolution	http://www.youtube.com/watch?v=H2oRk49dvOI http://www.youtube.com/watch?v=z551xNpBVy8
175	55.21757	61.37476	Chelyabinsk	moving car	end	http://www.youtube.com/watch?v=Ex1a14XHZQs
176	55.20787	61.28424	Chelyabinsk	moving car	end, trail	http://www.youtube.com/watch?v=PK1vpDbU2Ho
177	55.20644	59.73168	Zlatoust	standing car	whole bolide (overexposed)	http://www.youtube.com/watch?v=tDXinUfcC3E
178	55.20361	61.28356	Chelyabinsk	moving car	middle, end	http://www.youtube.com/watch?v=C3g10Y9qRCE
179	55.19438	61.32743	Chelyabinsk	moving car	beginning	http://www.youtube.com/watch?v=lgBZMsaEN6s
180	55.19378	61.38103	Chelyabinsk	security	end	http://www.youtube.com/watch?v=MJpsXExSscY http://my.mail.ru/mail/marchela_vovik/video/_myvideo/28.html
181	55.19198	61.39295	Chelyabinsk	moving car	end	http://www.youtube.com/watch?v=f525TmMSBs0 http://my.mail.ru/mail/_astera_su70/video/_myvideo/48.html http://www.youtube.com/watch?v=P0q0BFnC-08 http://my.mail.ru/mail/wlad_schokolate/video/6/7.html http://my.mail.ru/mail/a.shupov/video/51/40.html
182	55.18904	61.31197	Chelyabinsk	moving car	end	http://www.youtube.com/watch?v=qp8fVYXANsg
183	55.18549	61.42194	Chelyabinsk	moving car	beginning (overexposed), booms	http://vk.com/video87296337_164479076
184	55.18048	61.39919	Chelyabinsk	moving car	end (overexposed), booms	http://www.youtube.com/watch?v=60a967xEWrw
185	55.17916	61.42749	Chelyabinsk	moving car	beginning (overexposed), trail, booms, damage	http://www.youtube.com/watch?v=ZDfnaAvpUFA
186	55.17547	61.43108	Chelyabinsk	moving car	end, booms	http://www.youtube.com/watch?v=IjtJwFs1Pxc
187	55.17437	61.33861	Chelyabinsk	moving car	beginning	http://www.youtube.com/watch?v=vnk9rTlgCT4
188	55.17434	61.39111	Chelyabinsk	moving car	end, booms	http://www.youtube.com/watch?v=h8F5Mvvwthg http://www.youtube.com/watch?v=Fnli70hhVxk
189	55.17276	61.35809	Chelyabinsk	moving car	end, booms	http://www.youtube.com/watch?v=-CH7vXd6yyI
190	55.16927	61.35398	Chelyabinsk	moving car	end, booms	http://www.youtube.com/watch?v=V5qxGet33uU
191	55.16862	61.45146	Chelyabinsk	moving car	beginning, end, booms, trail	http://www.youtube.com/watch?v=N3cmppNQGrc
192	55.16801	61.38795	Chelyabinsk	moving car	beginning, booms, damage	http://vk.com/video13169831_164245389 http://www.youtube.com/watch?v=9tzZR1a8FsQ http://www.youtube.com/watch?v=gl4pksEG9dQ http://www.youtube.com/watch?v=pIwpmFu-H_4 http://www.youtube.com/watch?v=VXIXeeQl6n0
193	55.16358	61.46585	Chelyabinsk	moving car	end	http://vk.com/video674068_164227509 http://vk.com/video29120119_164430281 http://www.youtube.com/watch?v=C981QbLUM5U http://www.youtube.com/watch?v=K5J_xEWIGPo http://www.youtube.com/watch?v=9KpfnsLmDF8 http://www.youtube.com/watch?v=Kr_bWxHfltk
194	55.16080	61.41748	Chelyabinsk	standing car	end, booms	http://my.mail.ru/mail/e.poluhin/video/_myvideo/14.html
195	55.16071	61.41386	Chelyabinsk	moving car	end	http://www.youtube.com/watch?v=tNT7gJCuOMM
196	55.15951	61.37135	Chelyabinsk	standing car	end	http://www.youtube.com/watch?v=crkpG6nZn6M
197	55.15894	61.43617	Chelyabinsk	moving car	end, booms	
198	55.15270	60.11827	Miass-Turgoyak	moving car	whole bolide (overexposed)	
199	55.15108	60.14586	Miass	moving car	whole bolide (overexposed), trail	

Table A.1. continued.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
200	55.14712	61.38314	Chelyabinsk	stopping car	end, trail	http://www.youtube.com/watch?v=tpG_8g9fjKw
201	55.14545	61.38404	Chelyabinsk	moving car	beginning, end	http://www.youtube.com/watch?v=9zHgbFLz2ZA
202	55.14118	61.45361	Chelyabinsk	moving car	beginning, middle, trail	http://my.mail.ru/list/bobro81/video/_myvideo/77.html http://www.odnoklassniki.ru/video/3581085786
203	55.13919	61.45395	Chelyabinsk	moving car	end, booms	http://www.youtube.com/watch?v=jfTAFSHFy7w
204	55.13915	61.45032	Chelyabinsk	moving car	end (overexposed)	http://www.youtube.com/watch?v=xYLbsN5QKbw
205	55.13903	61.42193	Chelyabinsk	moving car	end (overexposed)	http://my.mail.ru/mail/timaschew2011/video/_myvideo/2.html
206	55.13829	61.45211	Chelyabinsk	moving car	beginning, middle, booms, trail evolution	http://my.mail.ru/mail/kuznecovkrivohizha1983/video/_myvideo/2.html
207	55.13822	61.40106	Chelyabinsk	moving car	beginning	http://www.youtube.com/watch?v=BszwJCA4Ja8
208	55.13737	61.42096	Chelyabinsk	moving car	end, trail, damage	http://www.youtube.com/watch?v=wuljJYRoYUs http://www.youtube.com/watch?v=9ohPKHSRIfs http://www.youtube.com/watch?v=LAHr1uM_4QI
209	55.13599	61.67528	Chelyabinsk	moving car	end	http://www.youtube.com/watch?v=kfANhNt3Aq8
210	55.12979	59.72167	Zlatoust	moving car	whole bolide (overexposed)	http://vk.com/video38483654_164459945
211	55.11918	61.38251	Chelyabinsk	moving car	beginning, trail	http://www.youtube.com/watch?v=JNa5uj0CopM
212	55.11539	61.46541	Chelyabinsk	standing car	beginning, booms	http://www.youtube.com/watch?v=LEZSgcXVivg
213	55.11464	61.41370	Chelyabinsk	moving car	end (shaking)	http://www.youtube.com/watch?v=CoR3eHGnhQM
214	55.11400	61.45584	Chelyabinsk	moving car	end, trail, damage, booms	http://www.youtube.com/watch?v=IJCd9tsxBuw
215	55.11127	59.71000	Zlatoust	moving car	middle (overexposed)	http://vk.com/video151215956_165297843
216	55.10780	61.38773	Chelyabinsk	standing car	end, booms	http://www.youtube.com/watch?v=nwsc0XxQK6w
217	55.10312	61.55569	Kopeysk	standing car	end, booms	http://www.youtube.com/watch?v=CrUu1F7Z90c
218	55.07518	58.91847	Satka	moving car	whole bolide (overexposed)	http://www.youtube.com/watch?v=rj9fph8y7zI
219	55.05799	61.59954	Chelyabinsk	standing car	end, booms	http://www.youtube.com/watch?v=-yB0BUaaqbo
220	55.05509	61.40735	Chelyabinsk	stopping car	beginning, booms	http://www.youtube.com/watch?v=sGFelgEYk7c
221	55.05033	58.98053	Satka	standing car	whole bolide (overexposed)	http://www.youtube.com/watch?v=OrlpFLAmImc http://www.youtube.com/watch?v=2pwWN7mZeDo http://www.youtube.com/watch?v=WJxCa9ciT60
222	55.00803	61.21257	Priisk, M5	moving car	beginning	http://www.youtube.com/watch?v=mpKBXsowQfE
223	54.97569	61.40532	Voznesenka, M36	moving car	end	http://www.youtube.com/watch?v=DxRLLa8PB08
224	54.95501	60.90357	Arkhangelskoe, M5	moving car	end, trail	http://www.youtube.com/watch?v=H6PtMBzvRKg
225	54.94425	60.05594	Miass, M5	moving car	whole bolide	http://www.youtube.com/watch?v=GtBqypYKPrw
226	54.94367	60.81136	Timiryazevskiy, M5	moving car	beginning, middle (out of focus)	http://www.youtube.com/watch?v=iPIxAlKdng http://www.youtube.com/watch?v=Xe3PFHyOA2Q
227	54.92713	58.14166	Ust-Katav	standing car	whole bolide (overexposed)	http://www.youtube.com/watch?v=ujHmCUz-kl8
228	54.92710	58.14152	Ust-Katav	standing car	whole bolide (overexposed)	http://my.mail.ru/mail/andryha_62/video/_myvideo/8.html
229	54.91900	60.32710	Chebarkul, M5	moving car	whole bolide	http://www.youtube.com/watch?v=VjtM5GUjmSY http://www.youtube.com/watch?v=9ONAtIGiyzc http://www.youtube.com/watch?v=IA1B6aNXPNa
230	54.89855	61.39922	Korkino	moving car	end	http://www.youtube.com/watch?v=B8qq0EhVTNc
231	54.84892	61.55343	Etkul	security (from screen)	end	http://www.youtube.com/watch?v=ZzwB7FeJRgA http://www.youtube.com/watch?v=c0AQmFnXQyQ
232	54.83419	58.38882	Trekhgorniy	moving car	whole bolide (overexposed)	http://www.youtube.com/watch?v=KiDRur_Kv5c
233	54.79045	65.97070	Polovinnoe	moving car	middle, end	http://vk.com/video141839325_164960394
234	54.53110	61.29626	Yuzhnouralsk, M36	moving car	middle, end	http://www.youtube.com/watch?v=xwovnWrYymc

Table A.1. continued.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
235	54.49802	61.27206	Kichigino, M36	moving car	end	http://vk.com/video15708455_164331874
236	54.42128	61.00084	Polyanovka, P360	moving car	whole bolide	http://www.youtube.com/watch?v=KC65kIdPAIQ http://www.youtube.com/watch?v=49M26Tuym7A
237	54.40053	61.29130	Yuzhnouralsk, M36	moving car	middle, end	http://www.youtube.com/watch?v=zgF1qDJjro8
238	54.37622	60.81202	Plast	security	end	http://www.youtube.com/watch?v=6kwxK430DW4 http://www.youtube.com/watch?v=pBvgS_f7ieI http://www.youtube.com/watch?v=NmH3eDRZ5cs
239	54.31159	59.38352	Uchaly	moving car	whole bolide (overexposed)	http://www.youtube.com/watch?v=d3zMWhHyQZI
240	54.31088	59.39628	Uchaly	security	end	http://www.youtube.com/watch?v=d3zMWhHyQZI
241	54.10830	54.08427	Belebey	moving car	middle (overexposed)	http://vk.com/video-4690945_168233525
242	54.09970	61.56280	Troitsk	moving car, time	middle, end	http://www.youtube.com/watch?v=YBEkfgjje00
243	54.09512	59.38135	Mezhozernyi	security	whole bolide	http://www.youtube.com/watch?v=iduaXA9-qjo http://www.youtube.com/watch?v=dnOIBNA758w http://www.youtube.com/watch?v=eXW3D5Uyd5U http://www.youtube.com/watch?v=w0zE7YzdmIk
244	54.08802	60.40810	Stepnoe, P360	moving car	beginning, middle	http://www.youtube.com/watch?v=ITAPjBuuvw
245	54.08630	61.58117	Troitsk	security	end	http://www.youtube.com/watch?v=GqA3Wy_Ta2o
246	53.97421	58.41348	Beloretsk	standing car	end (overexposed)	http://www.youtube.com/watch?v=Mo5Q7fINdRo
247	53.96744	58.35556	Beloretsk	stopping car	whole bolide (overexposed)	http://www.youtube.com/watch?v=pYEeby-B-nQ
248	53.96547	58.41668	Beloretsk	moving car	whole bolide (overexposed)	http://www.youtube.com/watch?v=_banBoRjFPI
249	53.92592	60.05416	Sukhtelinskiy, P360	moving car	middle, end	http://www.youtube.com/watch?v=EsdaIOE_e6U
250	53.85896	59.98931	Arsinskiy, P360	moving car	whole bolide, trail evolution	http://www.youtube.com/watch?v=MqRjBpq8rzQ http://www.youtube.com/watch?v=Z20Ln0Vscpc http://www.youtube.com/watch?v=T_zpdv5GhcM http://www.youtube.com/watch?v=w8qknbIbphI http://my.mail.ru/mail/shelokov.aleksan/video/_myvideo/4.html http://www.odnoklassniki.ru/video/3715303564 http://www.youtube.com/watch?v=b8yB0tY4tqU
251	53.81374	60.65065	Chesma	security	end	http://www.youtube.com/watch?v=XN-KwzP159w
252	53.75448	60.44262	Chesma	moving car	whole bolide	http://www.youtube.com/watch?v=G7kfx77bGbu
253	53.60077	58.61448	Bannoe	security	middle, end	http://www.youtube.com/watch?v=hmJQ1JLmJg0
254	53.52000	56.22000	Salikhovo	moving car	whole bolide	http://www.youtube.com/watch?v=DTVyfTEqYEU
255	53.50845	56.03743	Ishimbay	moving car, time	whole bolide	http://www.tvtm.ru/video/goroda/drugie-goroda/posmotret-video-proletaet-meteorit-po-doroge-bannoe-magnitogorsk-15-02-2013g.html
256	53.46331	58.72462	Tashtimerovo	moving car	beginning, middle	http://www.youtube.com/watch?v=2kXIFt9JzvU http://www.youtube.com/watch?v=9VFLsrfqSPg http://www.youtube.com/watch?v=F_nK_AEd_V4 http://www.youtube.com/watch?v=NrhRNrrGEro
257	53.43749	58.96862	Magnitogorsk	security	whole bolide	http://www.youtube.com/watch?v=bt2JH7NKxFU http://www.youtube.com/watch?v=BJjBofsEZzU
258	53.43746	58.96945	Magnitogorsk	security	end	http://www.youtube.com/watch?v=mmgABCuT_SA
259	53.41254	59.05930	Magnitogorsk	moving car	beginning	http://www.youtube.com/watch?v=3u2fwUeF434
260	53.40297	59.06049	Magnitogorsk	moving car	end	http://www.youtube.com/watch?v=b3uRBeFXyRc
261	53.40281	59.05982	Magnitogorsk	moving car	beginning, middle	http://www.odnoklassniki.ru/video/4131064040 http://www.youtube.com/watch?v=Lawwy2uIR18
262	53.39803	59.01093	Magnitogorsk	moving car	beginning, middle	http://www.youtube.com/watch?v=b9J7Kvkr8XI

Table A.1. continued.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
263	53.38783	58.96794	Magnitogorsk	moving car	beginning	http://www.youtube.com/watch?v=EZlUgCmJE04 http://www.youtube.com/watch?v=gEGs8wWxyjM http://www.youtube.com/watch?v=Z_OYxWDUaI8
264	53.38142	59.02222	Magnitogorsk	moving car	whole bolide	http://www.youtube.com/watch?v=kYhcK8I1jq8 http://www.youtube.com/watch?v=qC_PVRY6MY4 http://www.youtube.com/watch?v=zgRlktXMPm
265	53.37045	58.98515	Magnitogorsk	moving car	whole bolide	http://www.youtube.com/watch?v=7-Vrx_vzucg http://my.mail.ru/mail/magzoga/video/_myvideo/2.html
266	53.36144	59.01150	Magnitogorsk	standing car	whole bolide	http://www.youtube.com/watch?v=Cjx8aJKkE-w http://www.youtube.com/watch?v=hwHNeXCCYZs
267	53.35525	58.97856	Magnitogorsk	moving car	end	http://www.youtube.com/watch?v=8TCLAP8jjH8
268	53.34783	51.31419	Otradnyi	moving car	beginning	http://www.youtube.com/watch?v=Bq9bdfBfh8
269	53.25364	63.64386	Kostanay	moving car	whole bolide	http://www.odnoklassniki.ru/video/18604754944
270	53.25087	63.59567	Kostanay	moving car	whole bolide	http://www.youtube.com/watch?v=tfSDRxdM26g http://www.odnoklassniki.ru/video/2188903836 http://www.youtube.com/watch?v=HYskN9aaxZk
271	53.23249	63.61632	Kostanay	security	middle, end	http://www.youtube.com/watch?v=hhCBxmV_pLg http://www.youtube.com/watch?v=3-tlpj2jano
272	53.22571	63.63948	Kostanay	moving car	middle, end (overexposed)	http://www.youtube.com/watch?v=RCGUdj8cQ9s
273	53.22277	63.60366	Kostanay	moving car	whole bolide	http://www.youtube.com/watch?v=-h8oUHBE6LM
274	53.22157	63.63651	Kostanay	standing car	beginning, middle	http://www.youtube.com/watch?v=Vnj5pESVuas http://www.youtube.com/watch?v=gueFAySvWUo http://www.youtube.com/watch?v=nAPVQzQcLyA
275	53.18000	62.88000	Rudnyi	moving car	whole bolide (in fog)	http://www.youtube.com/watch?v=o1pBt50bR4E
276	53.05361	60.62363	Kartaly	moving car	whole bolide	http://www.youtube.com/watch?v=vL_kD8WtQyY http://www.youtube.com/watch?v=3QQIBNMtdsw http://www.youtube.com/watch?v=MpVXmBiNmsY http://www.youtube.com/watch?v=tKrgbc_ZePU
277	53.01165	50.14936	Berezki	moving car	middle	http://www.youtube.com/watch?v=n4tDkMKSEK0
278	52.96662	55.95286	Meleuz	moving car	beginning, middle (modified)	http://vk.com/video-11519318_164642260
279	52.96611	63.12392	Rudnyi	moving car	whole bolide	http://www.youtube.com/watch?v=ojNQu-frhvg http://vk.com/video160141727_164482091
280	52.84280	62.81153	Rudnyi	moving car	whole bolide	http://www.youtube.com/watch?v=bQgDS3bDy6o
281	52.76024	55.82017	Kumertau	handheld	end	http://www.youtube.com/watch?v=HNbu4zp_Ynk
282	52.58866	58.28347	Baymak	moving car	whole bolide	http://www.youtube.com/watch?v=PW2Pke3Sdws http://www.youtube.com/watch?v=WPvSheW0x_M
283	52.57769	58.29825	Baymak	moving car	middle, end	http://www.youtube.com/watch?v=DM7dBCmK38Q
284	52.38958	64.08345	Amankaragay	moving car	whole bolide	http://www.youtube.com/watch?v=ArCYr2V3VyA
285	51.82470	55.16308	Orenburg	standing car	middle, end	http://www.youtube.com/watch?v=LfkhZfvpv4w
286	51.79244	56.35527	Saraktash	moving car	whole bolide	http://vk.com/video12579562_165206769 http://vk.com/video31034867_164865161
288	51.79066	56.35792	Saraktash	moving car	whole bolide	http://www.youtube.com/watch?v=6JdGWiUWUuk
289	51.77870	55.06837	Orenburg	moving car	end	http://www.youtube.com/watch?v=Q8SmWw4biZs
290	51.76466	55.64851	Priuralskiy, P336	moving car	whole bolide	http://vk.com/video58064135_164494284
291	51.73559	55.08433	Orenburg	moving car	whole bolide	http://www.youtube.com/watch?v=zAXWBq0Cdtg
292	51.71389	55.20786	Orenburg	moving car	whole bolide	http://www.youtube.com/watch?v=zJ-Y7vhS1JE

Table A.1. continued.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
293	49.92120	57.33502	Alga	moving car	whole bolide	http://www.youtube.com/watch?v=qvmAJXP-Wm8 http://www.youtube.com/watch?v=uKNOsDsp_Ik http://www.youtube.com/watch?v=EE_LampPEQg http://www.youtube.com/watch?v=YxGKdWBUgDE
294	53.24822	60.92968	Komsomolskiy	moving car	whole bolide	http://www.youtube.com/watch?v=42uEFep916g
296	55.15572	61.39005	Chelyabinsk	standing car	end	http://my.mail.ru/inbox/nevolin64/video/_myvideo/2.html
297	55.13173	61.43596	Chelyabinsk	standing car	end	http://my.mail.ru/mail/beybars.kurbanov/video/_myvideo/13.html
298	55.18538	61.41988	Chelyabinsk	moving car	beginning (overexposed)	http://my.mail.ru/mail/djtemp1/video/_myvideo/67.html
299	55.10841	61.48582	Chelyabinsk	standing car	beginning, booms	http://my.mail.ru/mail/dmkchel/video/_myvideo/1.html
300	55.18936	61.30129	Chelyabinsk	stopping car	beginning (overexposed)	http://my.mail.ru/mail/gleykh78/video/_myvideo/5.html
301			Chelyabinsk	moving car	beginning	http://my.mail.ru/mail/lyadovdenis/video/79/100.html
302	55.23310	61.37519	Chelyabinsk	standing car	end, booms	http://my.mail.ru/mail/manakova.1975/video/2187/2194.html
303			Chelyabinsk	standing car	beginning (overexposed), booms	http://my.mail.ru/mail/serd1969/video/_myvideo/2.html
304	55.14286	61.41563	Chelyabinsk	standing car	end	http://my.mail.ru/mail/vanek-chel/video/_myvideo/17.html
305			Chelyabinsk	standing car	end	http://video.yandex.ru/users/pavel2306/view/1/
306	55.15011	61.30467	Chelyabinsk	standing car	end	http://vk.com/video137162642_164449067
307	55.12192	61.36612	Chelyabinsk	standing car	end (overexposed), booms	http://www.youtube.com/watch?v=eQhf7hrUHG4 http://odnoklassniki.ru/video/3727886400 http://vk.com/video66612342_164492509 http://vk.com/video66612342_164494232 http://www.youtube.com/watch?v=gVhQNDs6Qp4 http://vk.com/video8436222_164355791
308			Chelyabinsk	moving car	beginning (overexposed)	http://www.youtube.com/watch?v=0WC-xwNSYls
309	55.24628	61.37638	Chelyabinsk	stopping car	beginning	http://www.youtube.com/watch?v=7Im77PAaMIs
310			Chelyabinsk	standing car	beginning, middle	http://www.tv100.ru/news/specialisty-ne-obnarujili-sledov-upavshego-meteorita-68976/ http://www.youtube.com/watch?v=rbY3juWkcdQ
311	55.16388	61.40628	Chelyabinsk	moving car	end	http://www.youtube.com/watch?v=-8HsqeeiA_s
312	55.22764	61.37291	Chelyabinsk	stopping car	middle, end	http://www.youtube.com/watch?v=az211tkPsJo
313	55.14417	61.38062	Chelyabinsk	standing car	end	http://www.youtube.com/watch?v=czyOUtb41Rc
314	55.15906	61.37321	Chelyabinsk	security	whole bolide	http://www.youtube.com/watch?v=gOVfNur_E38
315			Chelyabinsk	security	end	http://www.youtube.com/watch?v=IcRCVOapPyA
316	55.16050	61.42569	Chelyabinsk	standing car	middle (overexposed)	http://www.youtube.com/watch?v=Kuh6_uIbj8k
317	55.24870	61.40086	Chelyabinsk	standing car	end (overexposed), booms	http://www.youtube.com/watch?v=myb7anGs-P8
318			Chelyabinsk	standing car	end	http://www.youtube.com/watch?v=nWjYymJFJ7s
319	55.27342	61.40050	Chelyabinsk	standing car	end	http://www.youtube.com/watch?v=RtsIXkmh3XM
320	55.25530	61.37949	Chelyabinsk	moving car	whole bolide	http://www.youtube.com/watch?v=txTDkRVyEE0
321			Chelyabinsk	security (from screen)	end	http://www.youtube.com/watch?v=WbxsxByr4zM
322	55.07236	61.39377	Chelyabinsk-Smolino	standing car	beginning, booms	http://my.mail.ru/mail/dmitriy57vax/video/_myvideo/4.html
323	55.44264	61.36120	Urefty, M36	moving car	end	http://my.mail.ru/mail/pony22011/video/_myvideo/4.html
324			Degtyarsk	security	middle, end	http://www.odnoklassniki.ru/video/3559983125
325	56.37565	61.94164	Kamensk-Uralskiy	moving car	beginning (overexposed)	http://www.youtube.com/watch?v=mkVqTSuHqkY
326	53.06629	60.63462	Kartaly	standing car	middle (overexposed)	http://www.youtube.com/watch?v=PonnqhI7J4A
327	53.05125	60.64689	Kartaly	security	end	http://www.youtube.com/watch?v=viKlyTeVXE4
328			Kataysk	security	whole bolide (overexposed)	http://www.youtube.com/watch?v=D3dbHGKLWMO

Table A.1. continued.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
329			Kostanay-Chelyabinsk	moving car	whole bolide	http://www.youtube.com/watch?v=IyJANX0jY-o
330			Kurgan	security	middle	http://www.youtube.com/watch?v=1HrFQR1Yodk\road
331			Kurgan	security	whole bolide	http://www.youtube.com/watch?v=D3btGLH_OAQ
332			Kurgan	standing car	beginning, middle (overexposed)	http://www.youtube.com/watch?v=L2zkNjcQ13w
333			Kurgan	security (from screen)	end	http://www.youtube.com/watch?v=P1ZsxorXHN0
334	55.22336	62.54924	Kalinovka, M51	moving car	end	http://www.youtube.com/watch?v=x0fxgh4escg
						http://www.youtube.com/watch?v=WcmmSdNn2N4
						http://www.youtube.com/watch?v=DSvv7UBF1AM
335			Magnitogorsk	security	end	http://my.mail.ru/inbox/viktor-1956/video/_myvideo/10.html
336	53.43166	58.93460	Magnitogorsk	security	beginning, end	http://www.youtube.com/watch?v=28XT7Tepg3s
337	53.41154	58.94884	Magnitogorsk	moving car	middle	http://www.youtube.com/watch?v=j2XfaRQWyF8
338	55.10241	60.13159	Miass	security	beginning (overexposed)	http://vk.com/video-21039_164640499
339	55.28228	61.89160	Miasskoe	security	end	http://vk.com/video-32159710_164513255
						http://my.mail.ru/mail/aligator2008/video/4430/8190.html
340			Polevskoy	stopping car	middle, end	http://www.youtube.com/watch?v=jhyVX9GSD3s
341	56.90940	62.03831	Sukhoy Log	moving car	middle, end	http://www.youtube.com/watch?v=k4Y1qhoa7YQ
342	54.07775	61.52493	Troitsk	security	beginning, middle, blast wave	http://my.mail.ru/mail/burmistrov_51/video/_myvideo/2.html
343	54.07780	61.52495	Troitsk	security	beginning, blast wave	http://my.mail.ru/mail/burmistrov_51/video/_myvideo/3.html
344			Troitsk	security	end	http://www.youtube.com/watch?v=btW6vTnihhM
						http://www.youtube.com/watch?v=SnGle_6WXXI
345	57.13842	65.58499	Tyumen	moving car	beginning, middle (overexposed)	http://vk.com/video168780691_164470023
346	57.12788	65.55681	Tyumen	standing car	beginning, middle (overexposed)	http://www.youtube.com/watch?v=3pFQjd0bbko
347	57.18495	65.55850	Tyumen	starting car	middle	http://www.youtube.com/watch?v=e1-LQ6GMWSE
348	57.17202	65.48678	Tyumen	security	end (overexposed)	http://www.youtube.com/watch?v=G6g-KBZfDbI
349			Tyumen	standing car	middle	http://www.youtube.com/watch?v=iXFOMd4vbg0
350	57.19455	65.58201	Tyumen	security	whole bolide	http://www.youtube.com/watch?v=JK4u09bp1jQ
351			Tyumen	security (from screen)	end	http://www.youtube.com/watch?v=NkLeeXdUYLQ
352			Tyumen	standing car	middle, end	http://www.youtube.com/watch?v=qouRuLERLeU
353			Tyumen	standing car	middle (overexposed)	http://www.youtube.com/watch?v=z1MDlK6rejY
354	57.15315	65.47610	Tyumen	standing car	whole bolide	http://www.youtube.com/watch?v=MlUShPjkI3I
355			Tyumen, 10 km from	security	whole bolide	http://www.youtube.com/watch?v=8EKdMq_1w24
356	53.39481	60.99030	Varna	standing car	beginning, middle (overexposed)	http://my.mail.ru/mail/vovan-470278/video/_myvideo/16.html
357	56.96635	60.54303	Verkhnyaya Pyshma	standing car	middle	http://www.youtube.com/watch?v=r1VsbEC4u9E
358			Yekaterinburg	security	beginning, middle	http://my.mail.ru/bk/zanin60/video/135/164.html
359			Yekaterinburg	moving car	whole bolide	http://my.mail.ru/list/pivoc/video/_myvideo/59.html
360			Yekaterinburg	moving car	middle (overexposed)	http://my.mail.ru/mail/nbueyjdf/video/_myvideo/5.html
361			Yekaterinburg	standing car	middle, end (overexposed)	http://vk.com/video134097873_164456493
362			Yekaterinburg	security	end (overexposed)	http://vk.com/video179465564_164247417
363			Yekaterinburg	standing car	whole bolide (overexposed)	http://vk.com/video52003557_164738182
364			Yekaterinburg	security	end	http://www.1tv.ru/news/other/226450
365			Yekaterinburg	standing car	beginning	http://www.odnoklassniki.ru/video/3811051727
366			Yekaterinburg	moving car	whole bolide	http://www.youtube.com/watch?v=4fJa0KxUD6M
367			Yekaterinburg	standing car	whole bolide	http://www.youtube.com/watch?v=AQFuWLIHfzM
368			Yekaterinburg	standing car	whole bolide (in clouds)	http://www.youtube.com/watch?v=c5EWb6EISF0

Table A.1. continued.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
369			Yekaterinburg	moving car	middle (overexposed)	http://www.youtube.com/watch?v=G4M5pcYHkEM
370			Yekaterinburg	standing car	middle (overexposed)	http://www.youtube.com/watch?v=gUyJwr18ZaA
371			Yekaterinburg	moving car	whole bolide (overexposed)	http://www.youtube.com/watch?v=Iis5n04PF8Q
372			Yekaterinburg	security	middle (overexposed)	http://www.youtube.com/watch?v=jjfPtKwKud8
373			Yekaterinburg	moving car	middle (in clouds, overexposed)	http://www.youtube.com/watch?v=KDjz9Ou1-hg
374			Yekaterinburg	standing car	whole bolide	http://www.youtube.com/watch?v=My-Q9pcZ6uE
375			Yekaterinburg	standing car	whole bolide (overexposed)	http://www.youtube.com/watch?v=OQAG4GCo-bE
376			Yekaterinburg	standing car	end	http://www.youtube.com/watch?v=FPF6oB9ziVg
377			Yekaterinburg	moving car	whole bolide (overexposed)	http://www.youtube.com/watch?v=pdNYEL_TlaE
378			Yekaterinburg	moving car	end (overexposed)	http://www.youtube.com/watch?v=pe9kjjppN_Bw
379			Yekaterinburg	moving car	whole bolide (in clouds)	http://www.youtube.com/watch?v=TFDkH8wTYvg
380			Yekaterinburg	standing car	middle (overexposed)	http://www.youtube.com/watch?v=VMk33Y6DdoY
381			Yekaterinburg	security	whole bolide	http://www.youtube.com/watch?v=yoTmw2EL7is
382			Yekaterinburg	standing car	end (overexposed)	http://www.youtube.com/watch?v=ZJsi9AspurE
383			Yekaterinburg	starting car	beginning, middle	http://www.youtube.com/watch?v=ZSpLo3o2ONc
384	55.75482	60.69984	Ozersk	standing car	middle, end (overexposed)	http://my.mail.ru/bk/alenska.igolkina/video/_myvideo/1.html
385	55.16370	61.46118	Chelyabinsk	security	end	http://my.mail.ru/bk/leopol.d/video/_myvideo/259.html
386				security (from screen)	end	http://my.mail.ru/inbox/s8228/video/_myvideo/108.html
387				security (from screen)	end	http://my.mail.ru/mail/chek144/video/_myvideo/6.html
388	56.09261	63.64966	Shadrinsk	starting car	middle, end	http://my.mail.ru/mail/igor.metallon/video/_myvideo/1.html
389	56.69177	60.85933	Aramil	moving car	whole bolide	http://vk.com/video8520595_164634617
390				moving car	whole bolide	http://www.odnoklassniki.ru/video/4037216280
391	56.77638	60.61203	Yekaterinburg	starting car	whole bolide, trail	http://www.youtube.com/watch?v=_aPWACQCIFY
392				standing car	beginning, middle (overexposed)	http://www.youtube.com/watch?v=0q0DSSHsyYo
393				standing car	middle, end	http://www.youtube.com/watch?v=1AbSQBJ5fZ4
394	55.06404	61.35998	Chelyabinsk	moving car	end, trail	http://www.youtube.com/watch?v=2B8CqRFL8GI
395				standing car	beginning, middle (overexposed)	http://www.youtube.com/watch?v=3srLtzPMKro
396				standing car	beginning, middle	http://www.youtube.com/watch?v=8LFcGI_NIV0 http://www.youtube.com/watch?v=6JtngySxDuw
397	54.09924	59.07366	Novobayramgulovo	moving car	middle, end (overexposed)	http://www.youtube.com/watch?v=rib_U2RW5e8
398				security (from screen, slow)	whole bolide (overexposed)	http://www.youtube.com/watch?v=9moc4ZNfq7g http://www.youtube.com/watch?v=BewqbE4ph40
399	56.55870	60.87434	Kashino, M5	moving car	whole bolide	http://www.youtube.com/watch?v=-gxAt4WjYDY
400	57.62233	60.15408	Byngovskiy, P352	moving car	beginning, middle	http://www.youtube.com/watch?v=HyIxCTNxDPi
401	55.06455	61.34701	Chelyabinsk	moving car	end, booms	http://www.youtube.com/watch?v=iO_gbuPa8R4 http://www.youtube.com/watch?v=S8BhRjinJ7s
402				security	end (overexposed)	http://www.youtube.com/watch?v=uiQ1JISiWN8
957	57.14909	65.54998	Tyumen	stopping car	beginning, middle	http://www.youtube.com/watch?v=2VrDlpHccos
958			Chelyabinsk	moving car	beginning	http://my.mail.ru/mail/marija-ehkkert/video/_myvideo/40.html

Table A.2. List of videos showing bolide light.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
403	57.90992	59.99100	Nizhnyi Tagil	traffic, time	light	http://www.youtube.com/watch?v=NcZNhJVV5xI(2nd)
404	57.90589	59.97325	Nizhnyi Tagil	traffic, time	light	http://www.youtube.com/watch?v=NcZNhJVV5xI(3rd)
405	57.87033	59.94390	Nizhnyi Tagil	traffic, time	light	http://www.youtube.com/watch?v=NcZNhJVV5xI(4th)
406	55.21311	61.40609	Chelyabinsk	security (from screen)	light, blast wave	http://www.youtube.com/watch?v=kAXdUw9dy4w
407	55.20961	61.37821	Chelyabinsk	standing car	light, booms	http://www.youtube.com/watch?v=zSGB2wWTjv8
408	55.20461	61.38608	Chelyabinsk	moving car	light	http://www.youtube.com/watch?v=2omfTlK2ses
409	55.19477	61.33265	Chelyabinsk	moving car	light, booms	http://www.youtube.com/watch?v=ipYJ8QZFzw0
410	55.19434	61.30906	Chelyabinsk	standing car	light, booms	http://www.youtube.com/watch?v=NdGxk9ZudPU http://www.youtube.com/watch?v=A-XnkvpMk90
411	55.18996	61.38645	Chelyabinsk	moving car	light, trail	http://vk.com/video6145412_164677461 http://www.youtube.com/watch?v=BzzLwLISo0Q
412	55.18969	61.35785	Chelyabinsk	traffic, time	light, blast wave	http://www.youtube.com/watch?v=m0f1oUg7BF4 http://www.youtube.com/watch?v=UWcvqYoZoAg
413	55.18783	61.38551	Chelyabinsk	security 2x	light, blast wave	http://www.youtube.com/watch?v=FcTkTduH7tg
414	55.18220	61.46461	Chelyabinsk	moving car	light, booms	http://www.youtube.com/watch?v=FziYWFDrl0k
415	55.17824	61.35488	Chelyabinsk	security	light, blast wave	http://www.youtube.com/watch?v=5ythzNyOGag
416	55.17432	61.28755	Chelyabinsk	security (inside)	light, blast wave	http://www.youtube.com/watch?v=NUQZtRVboYc
417	55.17285	61.45351	Chelyabinsk	traffic	light	http://www.youtube.com/watch?v=aNDszz7Waxk
418	55.16697	61.29428	Chelyabinsk	security	light, blast wave	http://www.youtube.com/watch?v=uJ8XkeQF7Fo
419	55.16459	61.43087	Chelyabinsk	security (inside)	light, blast wave	http://www.youtube.com/watch?v=EH2iPovC7DI
420	55.16445	61.40425	Chelyabinsk	moving car	light, trail, booms	http://www.youtube.com/watch?v=rszpCJa6Xjg
421	55.16414	61.43103	Chelyabinsk	security	light, blast wave	http://www.youtube.com/watch?v=kc4wELW6vHs
422	55.16393	61.43216	Chelyabinsk	security	light, blast wave	http://www.youtube.com/watch?v=8MBTFV10fWE
423	55.16077	61.40246	Chelyabinsk	traffic	light	http://www.liveleak.com/view?f=3d14494f4e11 http://www.youtube.com/watch?v=bXiFSi2K278 http://www.youtube.com/watch?v=xanoIUJ9kKU
424	55.16040	61.37048	Chelyabinsk	security 10x	light, blast wave	http://www.youtube.com/watch?v=RznHQKjWBSA http://www.youtube.com/watch?v=gaK6_EQ3XJk
425	55.15939	61.37311	Chelyabinsk	standing car	light, booms	http://www.youtube.com/watch?v=c0c7STSupwg
426	55.15812	61.40985	Chelyabinsk	standing car	light	http://www.youtube.com/watch?v=jY0zYtg7Axx
427	55.15715	61.37749	Chelyabinsk	standing car	light, booms	http://www.youtube.com/watch?v=dNi4rEDmlxo
428	55.14975	61.39728	Chelyabinsk	security 7x	light, blast wave	http://www.youtube.com/watch?v=iZojTabY0q8
429	55.14756	61.36840	Chelyabinsk	moving car	light, booms, damage	http://www.youtube.com/watch?v=6WTCRcITLFU http://www.youtube.com/watch?v=8wBZalUVqoA
430	55.14743	61.38008	Chelyabinsk	standing car	light, booms	http://www.youtube.com/watch?v=4FF5_AwAxKg
431	55.14388	61.41443	Chelyabinsk	traffic, time	light, blast wave	http://www.youtube.com/watch?v=6FLpxVrKZgA http://www.youtube.com/watch?v=Qin41lP9r2U http://www.youtube.com/watch?v=tWYGb0QubIk
432	55.14324	61.38970	Chelyabinsk	moving car	light, trail	http://www.youtube.com/watch?v=sgF_hCfzGTM http://vk.com/video137326234_164432640
433	55.14240	61.39134	Chelyabinsk	moving car	light	http://www.youtube.com/watch?v=tQvxJvBPJ64
434	55.13963	61.45543	Chelyabinsk	standing car	light, blast wave	http://www.youtube.com/watch?v=SCmP9PezzKo
435	55.13946	61.48642	Chelyabinsk	security (inside)	light, blast wave	http://www.youtube.com/watch?v=IUj8Kml45c
436	55.13689	61.46028	Chelyabinsk	standing car	light, booms	http://my.mail.ru/mail/romromych/video/_myvideo/1.html
437	55.13622	60.15482	Miass	security	light	http://www.youtube.com/watch?v=gPaBJQ-0Hkg

Notes. (*) Links that are no longer active are printed in italics.

Table A.2. continued.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
438	55.13213	61.47853	Chelyabinsk	security (inside) 4x	light, blast wave	http://www.youtube.com/watch?v=fLRGyrbCqhc
439	55.13153	61.43623	Chelyabinsk	traffic	light, blast wave	http://www.youtube.com/watch?v=AAQkXdqxcJg
440	55.12859	61.48247	Chelyabinsk	security (inside)	light, blast wave	http://www.youtube.com/watch?v=X0UAG0RZy4o
441	55.12837	61.43452	Chelyabinsk	moving car	light	http://www.youtube.com/watch?v=W4yxJg8JyME(1st)
442	55.12094	61.46925	Chelyabinsk	security	light, blast wave	http://www.youtube.com/watch?v=efvP-RRuJuA
443	55.11970	61.56552	Chelyabinsk	moving car	light	http://www.youtube.com/watch?v=W4yxJg8JyME(2nd)
444	55.11740	61.59340	Kopeysk	moving car	light, booms, trail	http://www.youtube.com/watch?v=jIpbvPWGArS
445	55.11690	61.61296	Kopeysk	traffic, time	light, blast wave	http://www.youtube.com/watch?v=iq_nZB87VyU
446	55.11045	61.40888	Chelyabinsk	security	light, blast wave	http://www.youtube.com/watch?v=4cl3uPU5kZc
447	55.11045	61.40888	Chelyabinsk	security	light, blast wave	http://www.youtube.com/watch?v=7hr0oFToeKA
448	55.11045	61.40888	Chelyabinsk	security	light, blast wave	http://www.youtube.com/watch?v=ThMbBdoDkHU
449	55.11045	61.40888	Chelyabinsk	security	light, blast wave	http://www.youtube.com/watch?v=VEqScR14WXI
450	55.10418	61.35465	Chelyabinsk	security	light, blast wave	http://www.youtube.com/watch?v=zW44NmDgYBo
451	55.10411	61.38866	Chelyabinsk	security	light, blast wave	http://www.youtube.com/watch?v=wrYQ27unqJ0
452	54.97685	60.34461	Chebarkul	security	light, meteorite impact on lake	http://www.youtube.com/watch?v=GEY1_o9jX4o http://www.youtube.com/watch?v=MYNPJDvTA8U http://www.youtube.com/watch?v=ocME3KueHdY
453	54.90941	61.35773	Korkino	security (inside)	light, blast wave, damage	http://my.mail.ru/mail/2476016/video/_myvideo/4.html
454	54.90194	61.34694	Korkino	security (inside)	light, blast wave	http://www.youtube.com/watch?v=Ryd-dDi9Gys
455	54.89195	61.39370	Korkino	standing car	light, booms, damage	http://vk.com/video2970919_164466810
456	54.07740	61.53078	Troitsk	moving car	light, trail	http://my.mail.ru/mail/xaker_167/video/_myvideo/7.html
457	54.04076	61.64977	Troitsk	security	light, blast wave	http://www.youtube.com/watch?v=6TYV4EQvz2w
458	53.41151	59.09505	Magnitogorsk	moving car	light	http://www.youtube.com/watch?v=QPmepgA1_Xw http://mreporter.ru/reports/23974
459			Chelyabinsk	security	light	http://my.mail.ru/mail/interex2/video/_myvideo/4.html
460			Chelyabinsk	security (inside)	light, blast wave	http://www.youtube.com/watch?v=4DGT8P92RIo
461			Chelyabinsk	security (inside)	light, blast wave	http://www.youtube.com/watch?v=5Cg-aCfCFVg
462			Chelyabinsk	standing car	light, booms	http://www.youtube.com/watch?v=akKKYcPZFJM
463			Chelyabinsk	security	light, blast wave	http://www.youtube.com/watch?v=bmz4WID0kms
464			Chelyabinsk	standing car	light	http://www.youtube.com/watch?v=e3Ztt_3jtmY
465			Chelyabinsk	security	light	http://www.youtube.com/watch?v=F9s4fce5CF8
466			Chelyabinsk	security	light	http://www.youtube.com/watch?v=fH914F-7b4U
467			Chelyabinsk	traffic	light	http://www.youtube.com/watch?v=iSRQZhGg8Wo
468			Chelyabinsk	security (inside) 3x	light, blast wave, trail	http://www.youtube.com/watch?v=kSrUSmJPHOE
469			Chelyabinsk	security (inside)	light, booms	http://www.youtube.com/watch?v=lSeogPSnivY
470			Chelyabinsk	security 4x	light, blast wave	http://www.youtube.com/watch?v=nFGDMZYv3E4
471			Chelyabinsk	standing car	light, trail	http://www.youtube.com/watch?v=03AF_CQTXZg
472			Chelyabinsk	security (inside)	light, booms	http://www.youtube.com/watch?v=ODivQlHeEe4
473			Chelyabinsk	traffic 5x	light	http://www.youtube.com/watch?v=01GPKQRJZ0A
474			Chelyabinsk	security	light, blast wave	http://www.youtube.com/watch?v=OZIwvYc3Kxk
475			Chelyabinsk	security	light, blast wave	http://www.youtube.com/watch?v=QBQPvU-Uy1Y
476			Chelyabinsk	traffic	light	http://www.youtube.com/watch?v=qFPiU7n4F10
477			Chelyabinsk	security	light, blast wave	http://www.youtube.com/watch?v=RByKk1FL1hw
478			Chelyabinsk	security	light, blast wave	http://www.youtube.com/watch?v=sAJ8PhCYd88

Table A.2. continued.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
479			Chelyabinsk	security (from screen)	light, blast wave	http://www.youtube.com/watch?v=Sk-ervNC4w8
480			Chelyabinsk	standing car	light, booms	http://www.youtube.com/watch?v=Szs1QtUmPvk
481			Chelyabinsk	security (inside)	light, blast wave	http://www.youtube.com/watch?v=tFkND-259CU
482			Chelyabinsk	security	light	http://www.youtube.com/watch?v=tYmU-NadsaI
483			Chelyabinsk	security	light	http://www.youtube.com/watch?v=uRt1AAVT5I4
484			Chelyabinsk	standing car	light, booms	http://www.youtube.com/watch?v=uzWyP2_PX0k
485			Chelyabinsk	security (inside)	light, blast wave	http://www.youtube.com/watch?v=VcvRBvWgEm0
486			Chelyabinsk	standing car	light	http://www.youtube.com/watch?v=vklUhdUGJ8g
487			Chelyabinsk	security (inside)	light, blast wave	http://www.youtube.com/watch?v=wdwYrvSkxIY
488			Chelyabinsk	security	light, blast wave	http://www.youtube.com/watch?v=X-7mxw0pb4s
489			Chelyabinsk	security (inside)	light, blast wave	http://www.youtube.com/watch?v=xmJSQvJaHX4
490			Chelyabinsk	security	light	http://www.youtube.com/watch?v=yKRcAqFWcAo
491			Kopeysk	security	light, blast wave	http://www.youtube.com/watch?v=-NJfdvGLh0g
492			Kostanay-Zarechnoe	standing car	light	http://www.youtube.com/watch?v=m-exR3D9Kj4
493			Kurgan	security (from screen) 5x	light	http://www.youtube.com/watch?v=VzbkR9qA03I
494			Miass	security	light	http://vk.com/video-21039_164640514
495			Miass	security	light	http://vk.com/video-21039_164640517
496			Miass	traffic	light	http://www.youtube.com/watch?v=-53B-IEKD4
497			Ozersk	moving car	light	http://www.youtube.com/watch?v=AAzpPGnI3Es
498			Ozersk	security	light	http://www.youtube.com/watch?v=N4db5uMCTAY
499			Yekaterinburg	moving car	light	http://www.youtube.com/watch?v=bgHR7k2nRoQ
500			Yekaterinburg	moving car	light	http://www.youtube.com/watch?v=IYz7xhY_Ti0
501			Zlatoust	traffic	light	http://vk.com/video134298431_164191596
502	55.16382	61.45987	Chelyabinsk	security	light	http://my.mail.ru/bk/leopol.d/video/_myvideo/260.html
503				security	light	http://my.mail.ru/mail/marat-2009.82/video/_myvideo/1.html
504				security	light	http://my.mail.ru/mail/marat-2009.82/video/_myvideo/2.html
505				security	light	http://my.mail.ru/mail/marat-2009.82/video/_myvideo/3.html
506				moving car	light	http://vk.com/video61967869_164573788
507				security	light, blast wave	http://www.youtube.com/watch?v=2ZZ-E2fnfZc
508				security	light	http://www.youtube.com/watch?v=-35XUdI6ebY
509				security	light, blast wave	http://www.youtube.com/watch?v=40k3_qtgcY
510				moving car	light	http://www.youtube.com/watch?v=QVbYpwXxhmk

Table A.3. List of videos showing the dust trail.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
511	57.90317	60.14062	Nizhnyi Tagil	handheld	trail	http://www.youtube.com/watch?v=ZQ1Z0lapu1k
512	57.12196	65.57631	Tyumen	handheld	trail	http://www.youtube.com/watch?v=tfZU0GdvnXl
513	56.80439	60.55161	Yekaterinburg	handheld	trail	http://www.youtube.com/watch?v=ZJr5Lzfk900
514	56.77469	60.71862	Yekaterinburg	handheld	trail	http://www.youtube.com/watch?v=lteLFPDgUgM
515	56.72910	60.71142	Yekaterinburg	handheld	trail	http://www.youtube.com/watch?v=5P71iBc1GZE
516	56.08744	60.73246	Snezhinsk	moving car	trail	http://www.youtube.com/watch?v=Swuki0d18rA
517	56.08490	63.62756	Shadrinsk	moving car	trail	http://www.youtube.com/watch?v=REoVvY9S3Ls
518	55.76313	60.70767	Ozersk	handheld	trail	http://www.youtube.com/watch?v=PfsKXc5QQ68 http://www.youtube.com/watch?v=X1tPNLg1EGU http://www.youtube.com/watch?v=_VH4idKtJRE
519	55.76246	60.70929	Ozersk	handheld	trail	http://www.youtube.com/watch?v=bI2B_dSxHG8
520	55.71430	60.54728	Kyshtym	handheld	trail	http://www.youtube.com/watch?v=0RrQVQY6oKU
521	55.69889	61.55163	Kunashak	handheld	trail	http://www.youtube.com/watch?v=dKSAY46gy-E
522	55.68709	61.19624	Bashakul	handheld	trail	http://www.youtube.com/watch?v=9wI_VRMpr70
523	55.49161	60.20279	Karabash	handheld	trail	http://vk.com/video128918199_164421504
524	55.38705	56.65944	Krasnyi Klyuch	handheld	trail	http://www.youtube.com/watch?v=thN3vF_Jc0Y http://www.youtube.com/watch?v=hMzKv0-2500 http://www.youtube.com/watch?v=INdY0dxVzsY http://www.youtube.com/watch?v=J5Ak0M1Eseg http://www.youtube.com/watch?v=UeKplvXVU-E http://www.youtube.com/watch?v=t-t1r70a7oU http://vk.com/video186157700_164766311 http://www.youtube.com/watch?v=_UKsMp9pj8o http://www.youtube.com/watch?v=rGmdJS56aOc http://www.youtube.com/watch?v=8K60pILnJ2k http://www.youtube.com/watch?v=qch-pIEgf44 http://www.youtube.com/watch?v=w6u0zFo2MQg http://www.youtube.com/watch?v=R0SR0VqnPr0 http://www.youtube.com/watch?v=m1-L2_yzV-Q http://www.youtube.com/watch?v=SRSrd0fbnHI http://www.youtube.com/watch?v=y_k9AbSLufY http://www.youtube.com/watch?v=DICQM5mYQ80 http://www.youtube.com/watch?v=oM4ZJrRxM8U http://www.youtube.com/watch?v=Wm-T_77SBeU http://www.youtube.com/watch?v=JMJBQ9QkVRM http://www.youtube.com/watch?v=hMfVhyznLiE http://www.youtube.com/watch?v=6q5WR6wyr04 http://www.youtube.com/watch?v=rflTN4XAAt34 http://www.youtube.com/watch?v=25zynpQz9E http://www.youtube.com/watch?v=oVRrqnDyfqU http://www.youtube.com/watch?v=TvgsNiGwrZo http://vk.com/video152763506_164562700 http://vk.com/video55395377_164483647 http://www.youtube.com/watch?v=N19m4nVdmaM http://www.youtube.com/watch?v=jxDQ7ceVRK0
525	55.26754	61.40821	Chelyabinsk	handheld	trail, booms	
526	55.26730	61.25979	Chelyabinsk	handheld	trail, booms	
527	55.25869	61.38039	Chelyabinsk	handheld	trail	
528	55.25302	61.38662	Chelyabinsk	handheld	trail, booms	
529	55.25244	61.35360	Chelyabinsk	handheld	trail, booms	
530	55.24385	61.29894	Chelyabinsk	handheld	trail, booms	
531	55.22844	61.38151	Chelyabinsk	handheld (13 min)	trail	
532	55.21740	60.19035	Chelyabinsk	handheld	trail	
534	55.21691	61.44011	Chelyabinsk	handheld	trail, booms	
535	55.21046	61.38312	Chelyabinsk	moving car	trail, booms, fall of zinc plant	
536	55.20644	59.73168	Zlatoust	handheld	trail	
537	55.20458	61.38690	Chelyabinsk	handheld	trail, booms, fall of zinc plant	
538	55.20444	61.32834	Chelyabinsk	handheld	trail, booms	
539	55.20388	61.34536	Chelyabinsk	handheld	trail, booms	
540	55.20326	61.39793	Chelyabinsk	handheld	trail	
541	55.19822	61.38466	Chelyabinsk	handheld	trail	
542	55.19401	61.38157	Chelyabinsk	handheld	trail, booms	
543	55.19334	61.33058	Chelyabinsk	handheld	trail, booms	
544	55.19258	61.28330	Chelyabinsk	handheld	trail, booms	
545	55.18958	61.38535	Chelyabinsk	handheld	trail, booms	
546	55.18934	61.33077	Chelyabinsk	handheld	trail, booms	
547	55.18593	61.29789	Chelyabinsk	handheld	trail, booms	

Notes. (*) Links that are no longer active are printed in italics.

Table A.3. continued.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
548	55.18442	61.42622	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=vQ3Ag9980NA
549	55.18409	59.63846	Zlatoust	handheld	trail	http://vk.com/video188147493_164485155
550	55.18244	61.38682	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=nYpqNB56taQ
551	55.18229	61.33677	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=hdQCK3N5euY
552	55.18131	61.46359	Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=0MaRSXwiDPY
553	55.18050	61.34712	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=MM1_aCDKA8w
554	55.17985	61.34789	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=5xMOSY4bW_M
555	55.17874	61.40117	Chelyabinsk	handheld	trail, booms, damage	http://www.youtube.com/watch?v=7C3b3tXA9Uc http://www.youtube.com/watch?v=TANUXnChAfg http://www.youtube.com/watch?v=Uhr9rZX_Gb8
556	55.17756	61.30028	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=azOUTd8R3XA http://www.youtube.com/watch?v=C4OR-_QT_Lo
557	55.17723	61.42809	Chelyabinsk	handheld	trail, booms, damage	http://www.youtube.com/watch?v=0SgV5K5N_dc
558	55.17578	61.37191	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=FhBpkUvXIbQ http://www.youtube.com/watch?v=62k4ZP-TYvU http://www.youtube.com/watch?v=ukkmXlgP1lI
559	55.17577	61.37107	Chelyabinsk	handheld	trail, booms	http://vk.com/video91594401_164351101
560	55.17577	61.36465	Chelyabinsk	handheld	damage, trail (evolved)	http://www.youtube.com/watch?v=71er_P9-tiE http://www.youtube.com/watch?v=9VS9e4d7I1Y http://www.youtube.com/watch?v=HqDt1UKN2jI http://www.youtube.com/watch?v=tZ9Ij39ehOQ
561	55.17154	61.53276	Chelyabinsk	handheld	booms, trail	http://www.youtube.com/watch?v=IPkNhcQSQnE http://vk.com/video3169662_165248765
562	55.16886	61.38349	Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=lgHgZ989_zo
563	55.16850	61.37995	Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=UrmsuZkXUJ0
564	55.16707	61.44953	Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=0xMESCdv1EM
565	55.16671	61.45446	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=9CDYBNBGQig
566	55.16610	61.46436	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=QTZ0vesq5fA http://vk.com/video36929261_164776580 http://www.odnoklassniki.ru/video/4270786004
567	55.16574	61.40112	Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=AlOKqWKpr1A
568	55.16549	61.40208	Chelyabinsk	handheld	trail, booms, damage	http://vk.com/video111805672_164487665
569	55.16537	61.29178	Chelyabinsk	handheld	trail	http://mreporter.ru/reports/23964
570	55.16479	61.40138	Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=4UqQ7D3uhJY
571	55.16468	61.54818	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=HaMurqKMenw
572	55.16395	61.40374	Chelyabinsk	moving car	trail, booms	http://www.youtube.com/watch?v=rkq1CF6Grzo
573	55.16359	61.47031	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=zkVUubMdAV2Q
574	55.16236	61.45798	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=38zQkZCWLl0
575	55.16073	61.38675	Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=sF9TPAxM_Q8 http://www.youtube.com/watch?v=Jnv5Q070inc
576	55.16024	59.65862	Zlatoust	handheld	trail	http://www.youtube.com/watch?v=e3PxJKcJx6w
577	55.15940	59.64178	Zlatoust	handheld	trail	http://vk.com/video102145970_164463466
578	55.15913	61.36470	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=b7mLUIDGqmw http://www.youtube.com/watch?v=STYJDvbQu_I
579	55.15895	59.13593	Berdyash	handheld	trail	http://www.youtube.com/watch?v=38q8HeWw9YI

Table A.3. continued.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
580	55.15825	61.39542	Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=QLy5EQdUr7U
581	55.15820	61.41132	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=G2KpK_GmvA8
582	55.15793	61.40551	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=U5xeBrD3lGo
583	55.15739	60.15541	Miass	handheld	trail	http://www.youtube.com/watch?v=JDj0Ia86ric
584	55.15697	61.36570	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=uXU3z3-bxNk
585	55.15658	61.31475	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=KePavkBZta0
586	55.15657	61.38185	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=_7Ns2ob0YQg
587	55.15431	61.39428	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=Of9x3R70A30
588	55.15371	61.39687	Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=1CtZIEPyNfA
589	55.15291	61.37657	Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=gBnYc7P_vmg
590	55.15216	61.40908	Chelyabinsk		trail	http://www.youtube.com/watch?v=-tG8IxHk-Q
591	55.15163	61.40362	Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=ZLZdLRSfRDI
592	55.14865	61.36337	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=QnOR36PQzn0
593	55.14785	61.39907	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=9CJX_F8fKaw
594	55.14778	61.40938	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=DyOFNHnc1N4
595	55.14575	61.46035	Chelyabinsk	handheld	trail, booms	http://vk.com/video18623145_165090615
596	55.14474	61.39089	Chelyabinsk	handheld	trail, booms	http://my.mail.ru/mail/kamerer.a.f/video/_myvideo/5.html
597	55.14392	61.43294	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=DrsgB4xkTKc
598	55.14150	60.14538	Miass	handheld	trail	http://vk.com/video98425443_164624672
599	55.14140	61.40561	Chelyabinsk	handheld	trail, damage	http://www.youtube.com/watch?v=TXFUwFceMk
600	55.14062	60.14444	Miass	handheld	trail	http://www.youtube.com/watch?v=PZyrB9o1st0
601	55.14044	61.47820	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=Tc74_7n2MPU
602	55.13501	61.39878	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=_n0aRpF0DJk
603	55.13465	61.40267	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=Zs5d3QL8KRo
604	55.13465	61.40267	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=0ccmX0PRJoU
605	55.13337	61.48074	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=4n0qgmtkvZ0
606	55.12975	61.42084	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=6TZj6sRB9TU
607	55.12750	59.72175	Zlatoust	handheld	trail	http://www.youtube.com/watch?v=16Kx0xjSndA
608	55.12525	61.42412	Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=ySpjto-FX8I
609	55.12250	61.50579	Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=rYz7zoNQ9SM
610	55.12103	61.60464	Kopeysk	handheld	trail	http://www.youtube.com/watch?v=00Q0r_iHpSc
611	55.11898	61.61504	Kopeysk	handheld	trail, booms	http://www.youtube.com/watch?v=YBzF2TE0MxQ
612	55.11802	61.51424	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=5jCmNXZcKh8
613	55.11695	61.39364	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=M1dZSgpyh7c
						http://www.youtube.com/watch?v=quMr_4sCOQg
						http://www.youtube.com/watch?v=VagEIt6P2TQ
						http://www.youtube.com/watch?v=5nBWYFHIgoQ
						http://www.youtube.com/watch?v=vXQqelxih-w
						http://www.youtube.com/watch?v=0jKWmMbDakI
						http://www.youtube.com/watch?v=VZJEfN1d_JU
						http://www.odnoklassniki.ru/video/3968469146
						http://www.youtube.com/watch?v=bN2gphPIHPI
						http://www.youtube.com/watch?v=qcVyLmWZIDg
						http://www.youtube.com/watch?v=Np_mpGYSBSA

Table A.3. continued.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
614	55.11358	61.42244	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=NJO2Wq9bMQo http://www.youtube.com/watch?v=vujpNkC-T-0 http://www.youtube.com/watch?v=gAO_Yk_WX4M http://www.youtube.com/watch?v=nklcIffbmMn
615	55.11246	59.74799	Zlatoust	handheld	trail	http://www.youtube.com/watch?v=Ju6ZqfrD3nc
616	55.11142	61.61215	Kopeysk	handheld	trail	http://www.youtube.com/watch?v=J1tn_q26qzU
617	55.11048	61.40911	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=XDqYclzto7k http://vk.com/video-7709260_164419035 http://www.youtube.com/watch?v=b7Jc0ze0rzY http://www.youtube.com/watch?v=UgmzhMnLvPk
618	55.11028	61.60418	Kopeysk	handheld (dashcam)	trail, booms	http://www.youtube.com/watch?v=4x3xG-eKpNA
619	55.10872	61.61826	Kopeysk	handheld	trail, booms	http://www.youtube.com/watch?v=Us0Ey5hCCow
620	55.10686	61.40873	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=x64sVm5qEn8
621	55.10591	60.14341	Miass	handheld	trail	http://www.youtube.com/watch?v=3new68Co0fA
622	55.10570	60.12805	Miass	handheld	trail	http://www.youtube.com/watch?v=5s4j5cxKTG8
623	55.10040	61.24122	Chelyabinsk-Malinovka	handheld	trail, booms	http://www.youtube.com/watch?v=5Rh2-v-gFEs
624	55.09737	61.60847	Kopeysk	handheld	trail, booms	http://www.youtube.com/watch?v=0L0-Irkj7-c
625	55.09512	61.35592	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=o3xRmDn6mHY
626	55.09369	60.12935	Miass	handheld	trail	http://www.youtube.com/watch?v=iwkKvLf3fZE
627	55.07665	59.69643	Zlatoust	handheld	trail	http://www.youtube.com/watch?v=rbMyzQAYjhA
628	55.07638	59.70488	Zlatoust	handheld	trail	http://vk.com/video14329370_164456488 http://vk.com/video18664266_164261463
629	55.07590	60.10343	Miass	handheld	trail	http://www.youtube.com/watch?v=18jPNN2_AEE
630	55.06129	59.89505	Syrostan	handheld	trail	http://www.youtube.com/watch?v=h8-QPNis5MI
631	55.06098	60.11249	Miass	handheld	trail	http://www.youtube.com/watch?v=zMncbCbMbn8 http://www.youtube.com/watch?v=g3qNxpPVatg
632	55.05911	61.52651	Starokamyshinsk	handheld	trail, booms	http://www.youtube.com/watch?v=2Tncom1rS5k
633	55.05600	61.61093	Kopeysk	handheld	trail, booms	http://www.youtube.com/watch?v=S7TLXIzRiuw
634	55.05349	60.11146	Miass	handheld	trail	http://www.youtube.com/watch?v=nbCIY7DoSi0 http://www.youtube.com/watch?v=RJm8zok-D8g http://www.youtube.com/watch?v=mJ7SL9PDsu4 http://www.youtube.com/watch?v=WD9Vmi84qgM
635	55.05131	58.94311	Satka	handheld	trail	http://www.youtube.com/watch?v=U-YUPoO-JWc
636	55.05116	60.10703	Miass	handheld	trail	http://www.youtube.com/watch?v=lq5imoWVY3o
637	55.04773	60.10067	Miass	handheld	trail	http://www.youtube.com/watch?v=Bo47BQ0Vifc
638	55.04756	60.11066	Miass	handheld	trail	http://www.youtube.com/watch?v=C8hi0kwmzAI
639	55.04589	61.48623	Kurochkino	handheld	trail, booms	http://www.youtube.com/watch?v=C8hi0kwmzAI
640	55.04491	58.98259	Satka	handheld	trail	http://vk.com/video-51799605_169637440
641	55.03917	61.11170	Poletaevo	handheld	trail	http://www.youtube.com/watch?v=eHhrQTziGoU
642	55.03592	60.11121	Miass	handheld	trail	http://www.youtube.com/watch?v=w4BUUgedpOQ
643	55.03445	61.12719	Poletaevo	handheld	trail, booms	http://www.youtube.com/watch?v=0u0bnUgyUsw http://www.youtube.com/watch?v=swWIMvFvQLw
644	55.03128	60.12237	Miass	handheld	trail	http://www.youtube.com/watch?v=7QR11ZRA1Nc
645	55.02674	61.71949	Lugovoy	handheld	trail, booms	http://www.youtube.com/watch?v=Bw_D551V1ZQ http://www.youtube.com/watch?v=cX2JyQcNnFI
646	55.01813	59.77665	Ural-Dacha, M5	handheld	trail	http://vk.com/video196202161_164507563

Table A.3. continued.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
						http://vk.com/video58459938_164246225 http://www.youtube.com/watch?v=bfpkCaQYB4E
647	55.01800	61.38800	Chelyabinsk	handheld	trail (evolved)	http://www.youtube.com/watch?v=TDBS6Ja5WRU
648	55.01651	60.91030	Mirnyi Chebarkulskiy	handheld	trail, booms	http://vk.com/video13023911_164249628
649	55.01581	60.09047	Miass	handheld	trail	http://vk.com/video96838347_164768151
650	55.01570	60.10070	Miass	handheld	trail	http://vk.com/video504741_164457109 http://vk.com/video504741_164457138
651	55.01456	61.50070	Oktyabrskiy	handheld	trail, booms	http://mreporter.ru/reports/24052
652	55.01346	60.09836	Miass	handheld	trail	http://www.youtube.com/watch?v=Ko1nY0NpTkc
653	55.00991	60.08339	Miass	handheld	trail	http://www.youtube.com/watch?v=ajH_oXsgBAM
654	54.99946	60.41735	Chebarkul	handheld	trail	http://vk.com/video63485358_164538978
655	54.99319	61.47564	Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=fKwrsTKJ5bY
656	54.99260	61.36267	Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=zDbOK2_e2DE
657	54.99087	60.63225	Shakhmatovo	handheld	trail, booms	http://www.youtube.com/watch?v=aLA54XXWTSE
658	54.98667	60.08639	Miass	handheld	trail	http://www.youtube.com/watch?v=XyHivzEYMDA http://www.youtube.com/watch?v=Z-BoS_YEhfg http://www.youtube.com/watch?v=GiN1I2CK4gA
659	54.98545	60.10206	Miass	handheld	trail	http://www.youtube.com/watch?v=EFoq7QouP7M
660	54.98273	61.35758	Voznesenka	handheld	trail, booms	http://www.youtube.com/watch?v=6fupkGXJOKc
661	54.98238	60.37543	Chebarkul	handheld	trail	http://www.odnoklassniki.ru/video/3827501101
662	54.98034	60.36871	Chebarkul	handheld	trail	http://www.youtube.com/watch?v=9KmHXWy30_A
663	54.97787	60.36074	Chebarkul	handheld	trail	http://vk.com/video162974203_164409935
664	54.97734	60.35792	Chebarkul	handheld	trail	http://www.youtube.com/watch?v=nwq2coWzslw
665	54.97545	60.39630	Chebarkul	handheld	trail	http://www.odnoklassniki.ru/video/5390272563
666	54.97488	60.36099	Chebarkul	handheld	trail	http://www.youtube.com/watch?v=AR8zIPgW8yY
667	54.97380	60.36542	Chebarkul	handheld	trail	http://www.youtube.com/watch?v=IUFFfL6hRx4
668	54.96973	59.89120	Nizhnyi Atlyan, M5	handheld (moving car)	trail	http://www.youtube.com/watch?v=rcjwjnFrKBA
669	54.96669	60.09778	Miass	handheld	trail	http://www.youtube.com/watch?v=7K_yM2rgRjE
670	54.96315	61.38095	Voznesenka, M36	handheld (dashcam)	trail	http://www.youtube.com/watch?v=rCkfsR0aELI
671	54.96023	60.29434	Chebarkul (lake)	handheld	trail	http://www.youtube.com/watch?v=o2XK_1AR9eI http://vk.com/video30257815_164604524
672	54.95510	60.37232	Chebarkul	handheld	trail	http://vk.com/video3471941_164440024
673	54.95292	61.50387	Kalachevo	handheld	trail, booms	http://www.odnoklassniki.ru/video/3933603923
674	54.94218	61.54729	Kalachevo	handheld	trail, booms	http://www.youtube.com/watch?v=7R9U6QgBeeo
675	54.93560	61.53620	Kalachevo	handheld	trail, booms	http://www.youtube.com/watch?v=IPHNJPFky6g
676	54.93159	61.70293	Korablevo	handheld	trail, booms	http://www.youtube.com/watch?v=U0kaXZ56_qc http://www.youtube.com/watch?v=C9TWZ82zqJY http://www.youtube.com/watch?v=0ozSq3yEm3g http://www.youtube.com/watch?v=Mwieex7gFAS http://www.youtube.com/watch?v=ojamMwVHGGuQ http://www.youtube.com/watch?v=u6pCIUJh0lk http://www.youtube.com/watch?v=VN9_IMIvcOA
677	54.92982	61.46468	Roza	handheld	trail, booms	http://www.youtube.com/watch?v=AK5CzArj0sQ
678	54.92581	60.78531	Timiryazevskiy	handheld	trail, booms	http://www.youtube.com/watch?v=REXgAx79_Uc
679	54.92581	60.78531	Timiryazevskiy	handheld	trail	http://www.youtube.com/watch?v=Cnr6hzKRFMc
680	54.92480	60.75507	Timiryazevskiy	handheld	trail, booms	

Table A.3. continued.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
681	54.92416	60.76665	Timiryazevskiy	handheld	trail, booms	http://vk.com/video10621881_164365369 http://vk.com/video10621881_164365373
682	54.92241	60.21596	lake Bolshoy Yelanchik	handheld	trail (evolved)	http://www.youtube.com/watch?v=sDXaUknBglU
683	54.91921	61.33991	Korkino	handheld	trail, booms	http://www.youtube.com/watch?v=n04QIge2hDs http://www.youtube.com/watch?v=bhHAfgrTbcY
684	54.91453	61.30410	Korkino	handheld	trail, booms	http://www.youtube.com/watch?v=mLW2zvft9mI http://www.youtube.com/watch?v=yNoI2pySgBo
685	54.91163	61.33850	Korkino	handheld	trail, booms	http://www.youtube.com/watch?v=fvneuJa4iHM http://vk.com/video17299239_164651400 http://www.youtube.com/watch?v=z1C1kV5_ZOA
686	54.91055	61.45416	Roza	handheld	trail, booms	http://www.youtube.com/watch?v=nsNPIyxwPIE
688	54.90767	61.35846	Korkino	handheld	trail	http://www.youtube.com/watch?v=zZmlRA_fmXk http://www.youtube.com/watch?v=B7Ze3Zz33wk
689	54.90751	61.45053	Korkino	handheld	trail, booms	http://www.youtube.com/watch?v=CP9F9CQj4yQ
690	54.90609	60.30176	Sarafanovo	handheld	trail	http://vk.com/video9506412_164717475
691	54.90585	61.45758	Roza	handheld	trail, booms	http://www.youtube.com/watch?v=iMVWCEMKP4 http://www.youtube.com/watch?v=kitwpJlFPlo http://www.youtube.com/watch?v=tK0mkGcSBHs http://www.youtube.com/watch?v=ZDx_yajh1zQ
692	54.90435	61.36510	Korkino	handheld	trail, booms	http://www.youtube.com/watch?v=8Q-tiSB1X8g
693	54.90355	61.45322	Roza	handheld	trail	http://www.youtube.com/watch?v=Pqj4JvWf2fM
694	54.90344	61.35894	Korkino	handheld	trail, booms	http://www.youtube.com/watch?v=5ZhjudRC1KA
695	54.90273	60.79814	Timiryazevskiy	handheld	trail, booms	http://vk.com/video132882243_164491256
696	54.90106	61.34942	Korkino	handheld	trail	http://vk.com/video2842819_164466506
697	54.89919	61.40077	Korkino	handheld	trail, booms	http://vk.com/video134783314_164552762
698	54.89890	61.39520	Korkino	handheld	trail	http://www.youtube.com/watch?v=-6ab9lUE4-Y
699	54.89882	61.38724	Korkino	handheld	trail, booms	http://www.youtube.com/watch?v=m4vpdDWhfgs
700	54.89816	61.45542	Roza	handheld	trail, booms	http://www.youtube.com/watch?v=0idYfhzesXo
701	54.89766	61.42262	Korkino	handheld	trail, booms	http://www.youtube.com/watch?v=Mp-CMWGQ9ag
702	54.89482	61.39075	Korkino	handheld	trail (evolved)	http://vk.com/video12925671_164271535
703	54.89353	61.40091	Korkino	handheld	trail, booms	http://www.youtube.com/watch?v=kDHCQSCSLKU
704	54.89325	61.39655	Korkino	handheld	trail, booms	http://www.youtube.com/watch?v=Mm_Qt42I34
705	54.89290	61.40307	Korkino	handheld	trail	http://www.youtube.com/watch?v=DNV0AwhceJY
706	54.89273	61.41030	Korkino	handheld	trail	http://www.youtube.com/watch?v=_tAqxhvQgeE
707	54.89252	61.41571	Korkino	handheld	trail	http://vk.com/video11464306_164575577
708	54.89118	61.33591	Korkino	handheld	trail, damage	http://www.youtube.com/watch?v=ydod-1iJKPU
709	54.89095	61.39482	Korkino	handheld	trail, booms	http://www.youtube.com/watch?v=RdV7DUttxfU http://www.youtube.com/watch?v=joCUnvWYaww
710	54.89091	61.41358	Korkino	handheld	trail, booms	http://www.youtube.com/watch?v=aU8Lg12nIvs
711	54.88998	61.39514	Korkino	handheld	trail, booms	http://www.youtube.com/watch?v=BnM5KJuDkKY http://www.youtube.com/watch?v=-Hh73mTwLVg http://www.youtube.com/watch?v=kJ20GzIHops
712	54.88991	61.40876	Korkino	handheld	trail, booms	http://www.youtube.com/watch?v=gAMJEyYP7pM
713	54.88969	61.41344	Korkino	handheld	trail	http://www.youtube.com/watch?v=USfz1Zp8T24
714	54.88960	61.40346	Korkino	handheld	trail	http://www.youtube.com/watch?v=JiW1_N6ekYg

Table A.3. continued.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
715	54.88908	61.38695	Korkino	handheld	trail, booms	http://vk.com/video88518036_164400459
716	54.88571	61.37748	Korkino	handheld	trail	http://www.youtube.com/watch?v=21vF1L82V9k
717	54.87933	61.41361	Korkino	handheld	trail, booms	http://www.youtube.com/watch?v=w8fBnS2RHh4
718	54.87443	61.19572	Pervomayskiy	handheld	trail, booms	http://www.youtube.com/watch?v=ryZFLZ1H-Ug
719	54.87419	61.33557	Korkino	handheld	trail (evolved)	http://www.youtube.com/watch?v=sDve8HvfQQ0
720	54.87264	61.20079	Pervomayskiy	handheld	trail, booms	http://www.youtube.com/watch?v=R99zvcrqXo8
721	54.87066	61.32074	Novobaturino, M36	handheld	trail, booms	http://www.youtube.com/watch?v=TNZJZvSpbDA
722	54.86902	61.36192	Korkino	handheld	trail	http://vk.com/video19475987_164250327
723	54.86739	61.19714	Pervomayskiy	handheld	trail	http://vk.com/video6957721_164677889
724	54.84605	60.78324	Korotanovo	handheld	trail, booms	http://www.youtube.com/watch?v=pLaM45o6uQ4
725	54.84557	61.31492	Sary, M36	handheld	trail	http://my.mail.ru/mail/vasilev.sn/video/_myvideo/1.html http://www.odnoklassniki.ru/video/4576905341
726	54.82946	61.59064	Etkul	handheld	trail, booms	http://www.youtube.com/watch?v=QnbyMEe6uck
727	54.82939	61.59177	Etkul	handheld	trail	http://www.youtube.com/watch?v=qLLAsHPB4uo
728	54.82627	61.61049	Etkul	handheld	trail, booms	http://vk.com/video67434158_164657084
729	54.82588	61.15223	Zauralskiy	handheld	trail, booms	http://www.youtube.com/watch?v=TbHgF0oZCyw
730	54.82564	61.59279	Etkul	handheld	trail	http://www.youtube.com/watch?v=0BBvsUj3JGs
731	54.82489	61.15314	Zauralskiy	handheld	trail, booms	http://www.youtube.com/watch?v=w17zCX6s0Q4
732	54.82193	61.58430	Etkul	handheld	trail, booms	http://www.youtube.com/watch?v=3kc274wZgMg http://www.youtube.com/watch?v=qMPWSCwyHZQ
733	54.81797	61.70747	Shelomentsevo	handheld	trail, booms	http://www.youtube.com/watch?v=-otgMtaNJMw
734	54.81764	61.15563	Bereznyaki	handheld	trail, booms	http://www.youtube.com/watch?v=cc6gCxBjwEk
735	54.81676	61.15521	Bereznyaki	handheld	trail, booms	http://www.youtube.com/watch?v=ldaIOBJT6gg
736	54.81454	58.44562	Trekhgorny	webcam archive	trail	http://webcam.trktvs.ru/archive/data/2013/02/15/
737	54.81421	58.43360	Trekhgorny	handheld	trail	http://www.youtube.com/watch?v=-mofBiPzPGU http://www.youtube.com/watch?v=umBdOycWLDA
738	54.80573	58.44448	Trekhgorny	handheld	trail	http://vk.com/video72051182_164603116
739	54.80127	61.28585	Yemanzhelinka	handheld	trail	http://www.youtube.com/watch?v=vC5Etpu7T9E
740	54.78979	61.37147	Baturinskiy	handheld	trail, booms	http://www.youtube.com/watch?v=mDPVBlrsAC0
741	54.78874	61.23059	Zauralskiy	handheld	trail, booms	http://www.youtube.com/watch?v=9h3fMQC9K68
742	54.78765	61.36912	Yemanzhelinsk	handheld (moving car)	trail	http://www.youtube.com/watch?v=ZDkJrsDlQ6c
743	54.77806	61.05349	Tayandy	handheld	trail, booms	http://www.youtube.com/watch?v=ioVAL7UaUEA
744	54.77162	58.23008	Katav-Ivanovsk	handheld	trail	http://www.youtube.com/watch?v=Df52mmN_B_Q http://vk.com/video49486645_165098454
745	54.76304	61.30837	Yemanzhelinsk	handheld	trail	http://www.youtube.com/watch?v=6TNHyaSSPNQ
746	54.76114	61.31568	Yemanzhelinsk	handheld	trail	http://vk.com/video137196617_165801702
747	54.75990	61.30653	Yemanzhelinsk	handheld	trail, booms	http://www.youtube.com/watch?v=h-ri2a08QmE
748	54.75934	61.31112	Yemanzhelinsk	handheld	trail, booms	http://vk.com/video96187245_165026600
750	54.75688	61.30412	Yemanzhelinsk	handheld (dashcam)	damage, trail (evolved)	http://www.youtube.com/watch?v=tTwCIIuSaU http://www.youtube.com/watch?v=Z2vXvwwS06k
751	54.75688	61.29573	Yemanzhelinsk	handheld	trail	http://www.youtube.com/watch?v=x_3HA8VuG_o
752	54.75572	61.31747	Yemanzhelinsk	handheld	trail, booms	http://www.youtube.com/watch?v=4WcKx7omttU
753	54.75544	61.31543	Yemanzhelinsk	handheld	trail, booms	http://www.youtube.com/watch?v=64gXz9W2oyQ http://vk.com/video51056530_164412602
754	54.75519	61.29583	Yemanzhelinsk	handheld	trail, booms	http://www.youtube.com/watch?v=r78ZjEwIqD4

Table A.3. continued.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
755	54.75499	61.29431	Yemanzhelinsk	handheld	trail	http://www.youtube.com/watch?v=swWmI1H-qjY
756	54.75421	61.29425	Yemanzhelinsk	handheld	trail (evolved)	http://www.youtube.com/watch?v=ZPj_Ya3WLqs
757	54.75282	61.31977	Yemanzhelinsk	handheld	trail, booms	http://www.youtube.com/watch?v=DVKvceF2SX0
758	54.75236	61.33480	Yemanzhelinsk	handheld	trail, booms	http://www.youtube.com/watch?v=wdnCSUo3nzo
759	54.75168	61.32788	Yemanzhelinsk	handheld	trail, booms	http://www.youtube.com/watch?v=xmcFBy6mdhk
760	54.75022	61.31963	Yemanzhelinsk	handheld	trail, booms	http://www.youtube.com/watch?v=KmjJGgv0lMY
761	54.72364	61.26330	Borisovka	handheld	trail, booms	http://www.youtube.com/watch?v=BaxMeEE14zA
762	54.69476	61.24969	Tayandy, M36	handheld	trail, booms	http://www.youtube.com/watch?v=Rsync_vQoh0M
763	54.69448	61.24963	Tayandy, M36	handheld	trail, booms	http://www.youtube.com/watch?v=xAfDUGHP0NM
764	54.67484	61.24874	Klyuchi, M36	handheld	trail	http://www.youtube.com/watch?v=36V7LJ9sBpQ
765	54.67305	61.24959	Klyuchi, M36	handheld	trail	http://www.youtube.com/watch?v=OtHVRit60v8
766	54.64240	61.22857	Krasnogorskiy	handheld	trail, booms	http://www.youtube.com/watch?v=EYwLqdC_H0k
767	54.61789	59.72886	Komsomolsk	handheld	trail	http://www.youtube.com/watch?v=9tuJgyggw0Q
768	54.59880	61.23275	Krasnogorskiy	handheld	trail, damage	http://www.youtube.com/watch?v=fY3DIBR8W-Q=
769	54.50885	59.97462	Uyskoe	handheld	trail	http://www.youtube.com/watch?v=CYS2mmns23c
770	54.46777	61.19965	Yuzhnouralsk	handheld	trail	http://www.youtube.com/watch?v=ZTc2_FK00Wo
771	54.46727	61.20372	Yuzhnouralsk	handheld	trail, booms	http://www.youtube.com/watch?v=vm89ErBDvyE http://www.youtube.com/watch?v=HrmJSgzHoP8
772	54.45682	61.26150	Yuzhnouralsk	handheld	trail, booms	http://www.youtube.com/watch?v=bJ2bDAJULW0
773	54.44767	61.26441	Yuzhnouralsk	handheld	trail, booms	http://vk.com/video85722301_164551101
774	54.44728	61.26539	Yuzhnouralsk	handheld	trail, booms	http://vk.com/video145152566_164400495
775	54.44677	61.25404	Yuzhnouralsk	handheld	trail, booms	http://www.youtube.com/watch?v=PgPMMKY1tTk
776	54.44112	61.26917	Yuzhnouralsk	handheld	trail, booms	http://www.youtube.com/watch?v=hpT_hoixw5c
777	54.44096	61.35159	Uvelskiy	handheld	trail, booms	http://www.youtube.com/watch?v=L4UBn805aDo
778	54.43925	61.26697	Yuzhnouralsk	handheld	trail	http://my.mail.ru/mail/k-artem11-1989/video/_myvideo/3.html http://vk.com/video16397788_164640960
780	54.43789	61.26688	Yuzhnouralsk	handheld	trail, booms	http://www.youtube.com/watch?v=1VhZ1yIkMoU
781	54.43404	61.27721	Yuzhnouralsk	handheld	trail, booms	http://www.youtube.com/watch?v=SFf_dyVqwTo
782	54.38618	61.34644	Yuzhnouralsk	handheld	trail	http://vk.com/video13958382_164783027
783	54.36728	59.81978	Voronino	handheld	trail	http://www.youtube.com/watch?v=FcuD59584bQ
784	54.35769	60.80900	Plast	handheld	trail	http://www.youtube.com/watch?v=GQNv1fpMe5w
785	54.33888	59.91634	Uyskoe	handheld	trail	http://www.youtube.com/watch?v=Bu4RuFg_v6U
786	54.32070	59.38095	Uchaly	handheld	trail	http://www.youtube.com/watch?v=3s9_VbwMLx4 http://www.youtube.com/watch?v=1LfiqTZGrXs
787	54.31704	59.38063	Uchaly	handheld	trail	http://www.youtube.com/watch?v=BIImFGgdr6KM
788	54.12117	61.49166	Troitsk, M36	handheld (moving car)	trail	http://www.youtube.com/watch?v=UqFcWVvvoCo
789	54.11835	61.22703	Nizhnyaya Sanarka	handheld	trail	http://www.youtube.com/watch?v=1Cv9S0Z0e0E
790	54.08852	61.56649	Troitsk	handheld	trail	http://www.youtube.com/watch?v=X_BXWJv1o6k
791	54.07487	61.54034	Troitsk	handheld	trail	http://vk.com/video60240867_164969712
792	53.85657	62.10217	Nauchnyi	handheld	trail	http://www.youtube.com/watch?v=ehOuC3sBAIw http://www.youtube.com/watch?v=73ww2dr3pRI
793	53.38923	58.98350	Magnitogorsk	handheld	trail	http://www.youtube.com/watch?v=904IM0zhne0
794	53.36700	58.97968	Magnitogorsk	handheld	trail	http://www.youtube.com/watch?v=wCmbz3rzGY8
795	53.19981	63.69702	Kostanay-Zatobolsk	handheld	trail	http://www.youtube.com/watch?v=GFCWsvTdZao

Table A.3. continued.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
796	53.06248	60.63157	Kartaly	handheld	trail	http://www.youtube.com/watch?v=XK1ugeX7z2Q
797	52.76573	55.78244	Kumertau		trail	http://www.youtube.com/watch?v=vZjKzs5cIxo
798	51.39256	57.60195	Mednogorsk	handheld	trail	http://www.odnoklassniki.ru/video/3887335645
799			Chebarkul	handheld	trail	http://www.youtube.com/watch?v=cF9m2DZBbTk http://www.youtube.com/watch?v=DrH9aT5pzBQ
800			Chebarkul	handheld	trail	http://www.youtube.com/watch?v=g5c0oWDhgFc
801			Chelyabinsk	handheld	trail	http://my.mail.ru/mail/burlakova.any/video/_myvideo/21.html
802			Chelyabinsk	handheld (moving car)	trail	http://my.mail.ru/mail/wlad_schokolade/video/6/8.html
803			Chelyabinsk	handheld	trail, booms	http://vk.com/video1343527_164428352
804			Chelyabinsk	handheld (dashcam)	trail	http://vk.com/video8436222_164355802
805			Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=_e8JatHYfp4
806			Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=2JkaHVAT03M
807			Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=2trNeVykn7Q
808			Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=45bHAeknp9E
809			Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=5VGZ_OTmC7E
810			Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=7qKIG05zcv
811			Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=-9HkE2RztYY
812			Chelyabinsk	handheld	trail (evolved)	http://www.youtube.com/watch?v=B_djUWZD1c8
813			Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=b0cRHsApzt8 http://www.youtube.com/watch?v=rc1QmmWVb2M
814			Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=bBx66UL1huw
815			Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=Bw9IAeja_Cs
816			Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=ES0TQIGkpTQ
817			Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=F9TKZpFRZaw
818			Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=gCrXGyP59js
819			Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=gurwI_hd51s
820			Chelyabinsk	handheld	trail (evolved)	http://www.youtube.com/watch?v=GzHgdFAEzg8
821			Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=h6M7KDQ1dB8
822			Chelyabinsk	handheld (moving car)	trail	http://www.youtube.com/watch?v=iffD056YoVI
823			Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=JdV0FQrmGG0
824			Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=jZE29zSJTcM
825			Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=kcA_wPL2VLs
826			Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=KkAOQxrKNU
827			Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=Mb595Z-SIuc
828			Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=-MzjF8nPhSc http://www.youtube.com/watch?v=Cii9Pv0NUNU
829			Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=nKnBikcbOMk
830			Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=QIX7xO6rWts
831			Chelyabinsk	handheld	trail, wave	http://www.youtube.com/watch?v=QOE6iFe5pio
832			Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=q0EtoWwqjrc
833			Chelyabinsk	handheld (dashcam)	trail, booms	http://www.youtube.com/watch?v=qsfxn6FuNp8
834			Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=ReBf81jSKqE
835			Chelyabinsk	handheld	trail, damage	http://www.youtube.com/watch?v=Sw6325XAJHA
836			Chelyabinsk	handheld	trail (evolved), damage	http://www.youtube.com/watch?v=t2HJXy1wovQ

Table A.3. continued.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
837			Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=uc9In5lg6kQ
838			Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=uJR4bZBYgEI
839			Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=uOwjU3hx6bM
840			Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=VDzso_KDIeM
841			Chelyabinsk	handheld	trail (evolved)	http://www.youtube.com/watch?v=VkVy3uscDmQ
842			Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=VVLwenIXCGk
843			Chelyabinsk	handheld (dashcam)	trail, booms	http://www.youtube.com/watch?v=WFxS6k4pU18
844			Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=WPD1hZk3D0g
845			Chelyabinsk	handheld	trail	http://www.youtube.com/watch?v=Yq97lgBQQsU
846			Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=z3B7mOKf9M4
847			Chelyabinsk	handheld	trail, booms	http://www.youtube.com/watch?v=ZOCmu_Lfxx8
848			Etkul	handheld	trail, booms	http://www.youtube.com/watch?v=0n06qiGx3lQ http://www.youtube.com/watch?v=wbqUOHMP6hs
849			Karataban	handheld	trail	http://my.mail.ru/list/toma200110/video/_myvideo/18.html
850			Kopeysk	handheld	trail	http://www.youtube.com/watch?v=cp4kP-7dqsA
851			Kopeysk	handheld	trail (evolved)	http://www.youtube.com/watch?v=KinZWiR_9mw
852			Kopeysk	handheld	trail	http://www.youtube.com/watch?v=S-Ct-fyX6CSI
853	54.89173	61.38033	Korkino	handheld	trail (evolved)	http://www.youtube.com/watch?v=fcBUR27XZY4 http://www.youtube.com/watch?v=8nM13caJjhE
855			Kosmakova	handheld	trail	http://www.youtube.com/watch?v=RAp1Dq_UN3g
856			Kostanay region	handheld (moving car)	trail	http://www.youtube.com/watch?v=nGW6sE2iaSU
857			Krasnogorskiy	handheld	trail, booms	http://www.youtube.com/watch?v=CY-vQSJghrY
858			Kurgan	handheld	trail	http://www.youtube.com/watch?v=ldEkE6rs12I
859			Kusa	handheld	trail	http://www.youtube.com/watch?v=F1vefKEK5hI
860			Lesnoy	handheld	trail	http://www.odnoklassniki.ru/video/18570151936
861			Miass	handheld	trail	http://www.youtube.com/watch?v=_9-to-wmKUE
862			Miass	handheld	trail	http://www.youtube.com/watch?v=7lNjKfWWhY0
863			Miass	handheld	trail, booms	http://www.youtube.com/watch?v=r0hZiWf2SYU
864			Miass	handheld	trail	http://www.youtube.com/watch?v=rSMhwrTYhTU
865			Mursalimkinskiy rayon	handheld	trail	http://www.youtube.com/watch?v=fqbDbHTeSes
866			Nizhnyi Tagil	handheld	trail	http://www.youtube.com/watch?v=W1D_IE03iFo
867			Orenburg	handheld	trail	http://www.youtube.com/watch?v=7AcamnE1Xb0
868			Shelomentsevo	handheld	trail, booms	http://tati.kiev.ua/video/14028/
869	54.90860	60.56700	Travniki	handheld	trail, booms	http://vk.com/video53284826_16477226
870	54.09742	61.58133	Troitsk	handheld	trail, booms	http://vk.com/video70881313_164402251 http://vk.com/video193965123_164651805 http://vk.com/video70881313_164402285
871			Troitsk		trail	http://www.youtube.com/watch?v=fIMyN4rEzrQ
872	54.07988	61.53570	Troitsk	handheld	trail	http://www.youtube.com/watch?v=GA9J48clm0Q
873	54.11810	61.49446	Klyastitskoe	handheld	trail, booms	http://www.youtube.com/watch?v=lJ48DV2Xbi4
874			Yekaterinburg		trail	http://www.youtube.com/watch?v=S9UtX2D2Ij8
875			Yemanzhelinsk	handheld	trail	http://www.youtube.com/watch?v=_LhdUk2AGOM
876			Yuzhnouralsk	handheld	trail	http://www.youtube.com/watch?v=1KYdARfYidM
877			Yuzhnouralsk	handheld	trail, booms	http://www.youtube.com/watch?v=24id4QP450U

Table A.3. continued.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
878			Yuzhnouralsk	handheld	trail	http://www.youtube.com/watch?v=6zu95LCd5v4
879			Yuzhnouralsk	handheld	trail	http://www.youtube.com/watch?v=A2031lmNpM8
880			Yuzhnouralsk	handheld	trail, booms	http://www.youtube.com/watch?v=rh1cYHb2uaw
881	54.93681	61.03841	Arkhangelskoe	handheld	trail	http://vk.com/video34436821_164879309
882	54.92729	61.34565	Korkino, M36	handheld (dashcam)	trail	http://vk.com/video61967869_164573822
883					trail	http://www.youtube.com/watch?v=5pVDpwN0nq0
884					trail	http://www.youtube.com/watch?v=6Z7pCNT4K7w
885				handheld	trail (evolved)	http://www.youtube.com/watch?v=7tmBtkYCAgQ
886				handheld	trail	http://www.youtube.com/watch?v=8ch67VBi0x0
887					trail	http://www.youtube.com/watch?v=BUMnNwBLOK4
888					trail	http://www.youtube.com/watch?v=iEMKj9eNwlQ
889					trail	http://www.youtube.com/watch?v=IfZy5PvAvo0
890				handheld	trail, booms	http://www.youtube.com/watch?v=kSSw-5_pFWc
891					trail, booms	http://www.youtube.com/watch?v=l9eq0DNCn1M
892					trail	http://www.youtube.com/watch?v=li7qPriZ7FI
893					trail	http://www.youtube.com/watch?v=OYWPhQPbc0g
894				handheld	trail	http://www.youtube.com/watch?v=XHzh0xso-Yc
959	55.18769	61.14814	Kremenkul	handheld	trail, booms	http://my.mail.ru/mail/manakova.1975/video/2187/2189.html
960	54.82409	61.59278	Etkul	handheld	trail	http://my.mail.ru/mail/lara_cherkasova/video/_myvideo/49.html
961	54.81637	61.15398	Bereznuyaki	handheld	trail, booms	http://www.youtube.com/watch?v=iFmGEh12DW8
962	54.80265	61.20417	Zauralskiy	handheld	trail, booms	http://my.mail.ru/mail/emelyanov.vladimir.57/video/_myvideo/16.html http://my.mail.ru/mail/emelyanov.vladimir.57/video/_myvideo/9.html
963	54.75847	61.31627	Yemanzhelinsk	handheld	trail (evolved)	http://www.youtube.com/watch?v=_QA61NthvzU
964	54.60327	61.23484	Krasnogorskiy	handheld	trail, booms	http://my.mail.ru/bk/ovn1955/video/320/355.html
965	54.60039	61.17543	Krasnogorskiy	handheld	trail, booms	http://my.mail.ru/bk/ovn1955/video/320/356.html
966	54.60026	61.17683	Krasnogorskiy	handheld	trail	http://my.mail.ru/bk/ovn1955/video/320/352.html
967	52.71724	56.63434	Mrakovo	handheld	trail	http://vk.com/video120867587_164282114
968			Chelyabinsk	handheld	trail, booms	http://my.mail.ru/list/dkochurov/video/_myvideo/2.html

Table A.4. List of videos showing the consequences of the bolide.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
895	55.20755	61.38361	Chelyabinsk	handheld	damage – zinc plant inside	http://my.mail.ru/inbox/alnevin/video/_myvideo/3.html
896	55.17555	61.62088	Potanino	handheld	damage, trail (evolved)	http://www.odnoklassniki.ru/video//3962374192
897	55.17017	61.37426	Chelyabinsk	handheld	damage	http://www.youtube.com/watch?v=OzCQtv0LRbY
898	55.16808	61.37189	Chelyabinsk	handheld	damage	http://www.youtube.com/watch?v=0eOfcnlIWak
899	55.16751	61.37275	Chelyabinsk	handheld	damage	http://www.youtube.com/watch?v=NZeyw5Cfv_E
900	55.15923	61.36823	Chelyabinsk	moving car	damage	http://www.youtube.com/watch?v=sF8cFTjY7gg
901	55.15216	61.40908	Chelyabinsk	handheld	damage	http://www.youtube.com/watch?v=LjfoYW75u_Y
902	55.14140	61.40561	Chelyabinsk	handheld	damage	http://www.youtube.com/watch?v=rN9mKFQA-JY
903	55.13440	61.45402	Chelyabinsk	standing car	damage	http://www.youtube.com/watch?v=DMf_yUao-cM
904	55.12201	61.62088	Kopeysk	security, inside	blast wave	http://www.youtube.com/watch?v=jzN_q2Bx9-U
905	55.11413	61.47649	Chelyabinsk	security, inside (from screen)	blast wave	http://www.youtube.com/watch?v=jtr3zeDH878
906	55.11413	61.47649	Chelyabinsk	security, inside (from screen)	blast wave	http://www.youtube.com/watch?v=Ta44I9TCarY
907	55.11413	61.47649	Chelyabinsk	handheld (dashcam)	damage	http://www.youtube.com/watch?v=p-3yXHMDIt4
908	55.11311	61.50087	Chelyabinsk	handheld (dashcam)	damage	http://www.youtube.com/watch?v=Pe0j6XQzdEc
909	54.89928	61.39130	Korkino	handheld (dashcam)	damage	http://www.youtube.com/watch?v=MFQ1E9xbCfU
910			Chelyabinsk	security	blast wave	http://www.youtube.com/watch?v=1hwXkLJodJg
911			Chelyabinsk	security	blast wave	http://www.youtube.com/watch?v=2eQ_DdX9ht0
912			Chelyabinsk	handheld	damage	http://www.youtube.com/watch?v=3zicUUp_0Qo
913			Chelyabinsk	security	blast wave	http://www.youtube.com/watch?v=7oNFPmJR3PA
914			Chelyabinsk	handheld	damage	http://www.youtube.com/watch?v=7zttq_tbBqU
915			Chelyabinsk	handheld	damage	http://www.youtube.com/watch?v=AJNnz2I7C1I
916			Chelyabinsk	handheld	blast wave	http://www.youtube.com/watch?v=AKyDgSpRk_o
917			Chelyabinsk	security	blast wave	http://www.youtube.com/watch?v=avaT5tVwkr8
918			Chelyabinsk	security, inside (from screen)	blast wave	http://www.youtube.com/watch?v=bYy7y1tU85A http://www.youtube.com/watch?v=aRM8GdV709c
919			Chelyabinsk	security, inside	blast wave	http://www.youtube.com/watch?v=dr6J5NirZBw
920			Chelyabinsk	standing car	booms	http://www.youtube.com/watch?v=fjRAaZ7B5PE http://www.youtube.com/watch?v=Q4RUZR3d08
921			Chelyabinsk	handheld	damage	http://www.youtube.com/watch?v=hIzoFRSGmGs
922			Chelyabinsk	handheld	damage	http://www.youtube.com/watch?v=iftJQ0qjXR8
923			Chelyabinsk	handheld	damage	http://www.youtube.com/watch?v=Lfd3XgK6qv8
924			Chelyabinsk	security	blast wave	http://www.youtube.com/watch?v=lpQl2DZM_X8
925			Chelyabinsk	security	blast wave	http://www.youtube.com/watch?v=mG4y75XLx-4
926			Chelyabinsk	handheld	damage	http://www.youtube.com/watch?v=Na9SY6EgheE
927			Chelyabinsk	moving car	booms	http://www.youtube.com/watch?v=NTXpTNJXE_w http://vk.com/video137326234_164432673
928			Chelyabinsk	security, inside	blast wave	http://www.youtube.com/watch?v=oCga6t5fw-0
929			Chelyabinsk	security, inside	blast wave	http://www.youtube.com/watch?v=odaXgrx9Zg0
930			Chelyabinsk	security, inside	blast wave	http://www.youtube.com/watch?v=0EK5wBnnKbw
931			Chelyabinsk	standing car	booms	http://www.youtube.com/watch?v=pm_GNNJghIM http://my.mail.ru/mail/kozilov/video/_myvideo/319.html
932			Chelyabinsk	moving car	booms	http://www.youtube.com/watch?v=PNZUvww3De4
933			Chelyabinsk	security, inside	blast wave	http://www.youtube.com/watch?v=pv8yuIPk3_Q
934			Chelyabinsk	security, inside (from screen)	blast wave	http://www.youtube.com/watch?v=REjRlXDMY4k

Notes. (*) Links that are no longer active are printed in italics.

Table A.4. continued.

No.	Latitude	Longitude	Site	Camera description	Video description	Links*
935			Chelyabinsk	webcam, inside	booms, inside	http://www.youtube.com/watch?v=S2F1RxQJQyw
937			Chelyabinsk	security, inside	blast wave	http://www.youtube.com/watch?v=t9TUvv00ScI http://www.youtube.com/watch?v=vQS5u9RwiTg
938			Chelyabinsk	security, inside	blast wave	http://www.youtube.com/watch?v=tA2ZikiIggw
939			Chelyabinsk	handheld	blast wave	http://www.youtube.com/watch?v=TIPh6eRinww
940			Chelyabinsk	moving car	damage	http://www.youtube.com/watch?v=tKHVu0XMiQq
941			Chelyabinsk	security, inside	blast wave	http://www.youtube.com/watch?v=U7ifjdZs6f8
942			Chelyabinsk	standing car	blast wave	http://www.youtube.com/watch?v=uEFLBTDWHYw
943			Chelyabinsk	handheld	damage	http://www.youtube.com/watch?v=WKME1cnreFY
944			Chelyabinsk	security	blast wave	http://www.youtube.com/watch?v=yc_7fKbEvqI
945			Kopeysk	security, inside (from screen)	damage	http://www.youtube.com/watch?v=-kPPY4J3LYQ
946			Kopeysk	handheld	damage	http://www.youtube.com/watch?v=qCyFv0Lurqw
947			Kopeysk	security	booms	http://www.youtube.com/watch?v=TLNfBWA4z_4
948			Kopeysk	security	booms	http://www.youtube.com/watch?v=v0nRzvATM20
949			Korkino	handheld	damage	http://www.youtube.com/watch?v=fx_Odh74100
950			Korkino	handheld	damage	http://www.youtube.com/watch?v=u2HMPFOuqUw
951			Yemanzhelinsk	handheld	damage	http://www.youtube.com/watch?v=ONsoYtGX410
952			Yuzhnouralsk	moving car	booms	http://my.mail.ru/mail/grosman/video/_myvideo/7.html
953				security, inside	blast wave	http://www.youtube.com/watch?v=79u8lqyuF_g http://www.youtube.com/watch?v=7Y4WDZFUPOE
954				security, inside	blast wave	http://www.youtube.com/watch?v=eLAuhJ5NteU
955				security, inside	blast wave	http://www.youtube.com/watch?v=s6xUvu3N_ps
956				security, inside	blast wave	http://www.youtube.com/watch?v=-wvPIEB0184
969	55.20780	61.38393	Chelyabinsk	moving car	damage - zinc plant	http://my.mail.ru/mail/caregorodcev-ale/video/8/10.html
970	55.20751	61.38413	Chelyabinsk	moving car	damage - zinc plant	http://my.mail.ru/mail/zaripov_rasul/video/_myvideo/31.html