

KYSST-12

[Kapustin Yar to Sary Shagan Topol]

November 17, 2015

"At 15:12 Moscow time [1212 gmt] the strategic missile force test-launched an inter-continental ballistic missile RS-12M Topol from the Kapustin Yar test site in the Astrakhan Region"

PREVIOUS OBERG REPORTS

http://www.jamesoberg.com/Topol_Test_with_images.pdf

<http://www.jamesoberg.com/140520-topol-ky.pdf>

Previous launch -- <http://www.jamesoberg.com/KYSS-9.pdf>

JAMES OBERG

Nov 20 2015

DRAFT-1

TASS: Strategic missile force tests ballistic missile Topol with advanced warhead // 2015 November 17, 13:37 gmt

- Russia's strategic missile force has successfully tested an inter-continental ballistic missile Topol with an advanced warhead, the Defense Ministry's strategic missile force spokesman Colonel Igor Yegorov has said.
- "At 15:12 Moscow time [1212 gmt] the strategic missile force test-launched an inter-continental ballistic missile RS-12M Topol from the **Kapustin Yar test site** in the Astrakhan Region," Yegorov said.
- According to the official, the purpose of the launch was to test an **advanced warhead** of the inter-continental ballistic missile.
- "The missile's dummy warhead hit a hypothetical target at **the Sary-Shagan proving ground**, in neighboring Kazakhstan. The accuracy was within the expected parameters," he said.
- This is not the first launch of the Topol missile this year. At the end of August an RS-12M missile was launched from Kapustin Yar for **the same purpose** of testing a new warhead. And at the end of September a Topol missile was launched from Russia's northern test site Plesetsk during a routine testing of the Armed Forces' control system

Launch news and views

- Second launch in three months [7th in **last three years**] of a fascinating, controversial, and often visually spectacular series of missile defense penetration tests
- Dozens of posted videos and stills
- With launch pre-sunset, NO images of ascent smoke trails
- No launch imagery [TASS used stock Plesetsk image w/ pines!]
- BEST EVER images of warhead bus post-spinup [from Omsk]
- No further Moscow discussion
- NOTAMS – [unavailable]
- Short-range testing of ICBMs forbidden by strategic treaties
- Launch is of high cultural interest because past events had OFTEN resulted in mass sightings and video recordings which characterized flight profile – and this one did too

Putin wants weapons that can penetrate US missile shield

By Associated Press

November 10, 2015 | 5:06pm



<http://nypost.com/2015/11/10/putin-wants-weapons-that-can-penetrate-us-missile-shield/>

Associated Press -- November 10, 2015

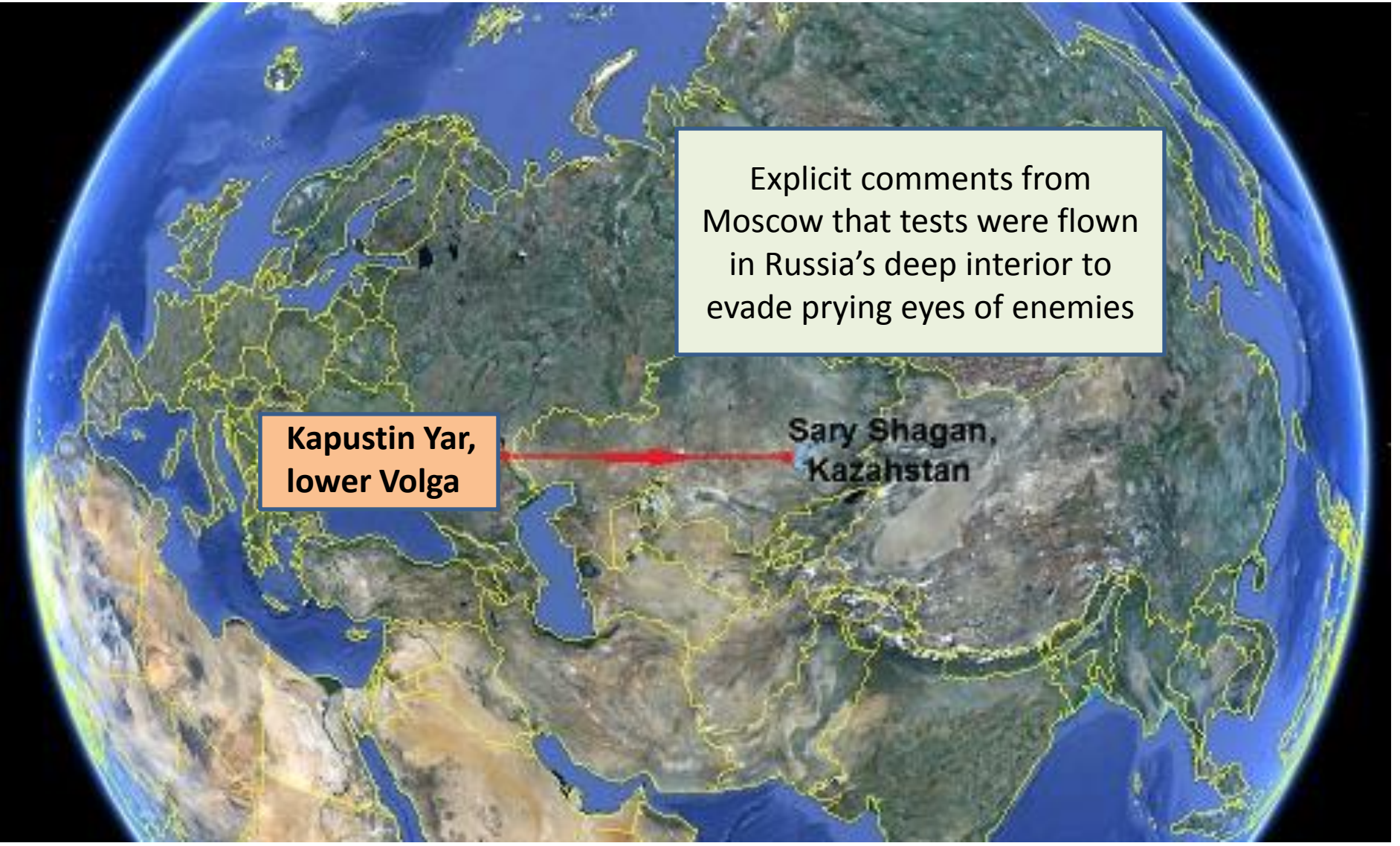
- Russia will counter NATO's U.S.-led missile defense program by deploying new strike weapons capable of piercing the shield, President Vladimir Putin said Tuesday.
- Putin told defense officials that by developing defenses against ballistic missiles Washington aims to "neutralize" Russia's strategic nuclear deterrent and gain a "decisive military superiority."
- He said that Moscow will respond by developing "strike systems capable of penetrating any missile defenses."
- "Over **the past three years**, companies of the military-industrial complex have created and **successfully tested** a number of prospective weapons systems that are capable of performing combat missions in a layered missile defense system. Such systems have already begun to enter the military this year. And now we are talking about development of new types of weapons," Putin said.

KYSS-12 [Nov 17] may become known as the “IKEA launch” because first videos were from store parking lot



MISSILE GROUND TRACK

Kapustin Yar to Sary Shagan



Explicit comments from Moscow that tests were flown in Russia's deep interior to evade prying eyes of enemies

The image is a satellite map of Eurasia, showing the landmasses of Europe, Russia, and parts of Asia. A red line with an arrowhead at the end indicates a ground track from Kapustin Yar in the lower Volga region of Russia to Sary Shagan in Kazakhstan. The track is a straight line across the vast, sparsely populated interior of the continent. The map shows geographical features like the Caspian Sea, the Ural Mountains, and the vast Siberian and Kazakh steppes. The track starts near the Caspian Sea and extends eastward across the border into Kazakhstan.

**Kapustin Yar,
lower Volga**

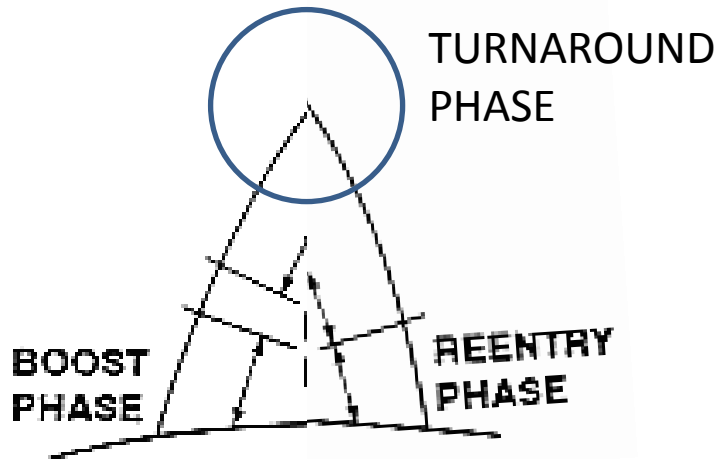
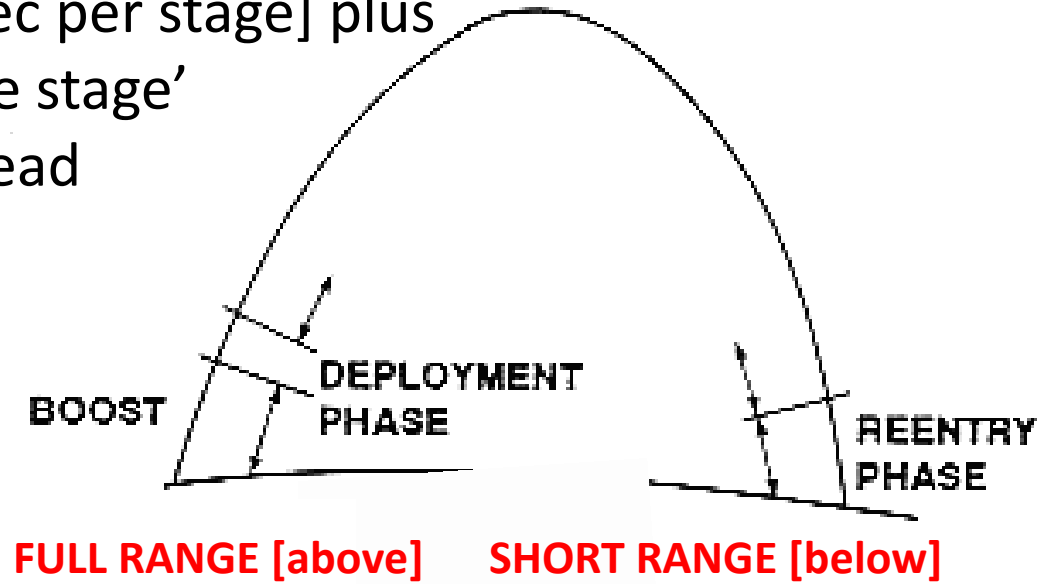
**Sary Shagan,
Kazakhstan**

Short range test with high apogee
[so visible 1000+ kilometers off track]



<https://www.youtube.com/watch?v=QHUKyrEU7vc>

Standard solid-fuel ICBM ascent involves rapid sequence high-G burns [60-sec per stage] plus 'battle stage' warhead bus.



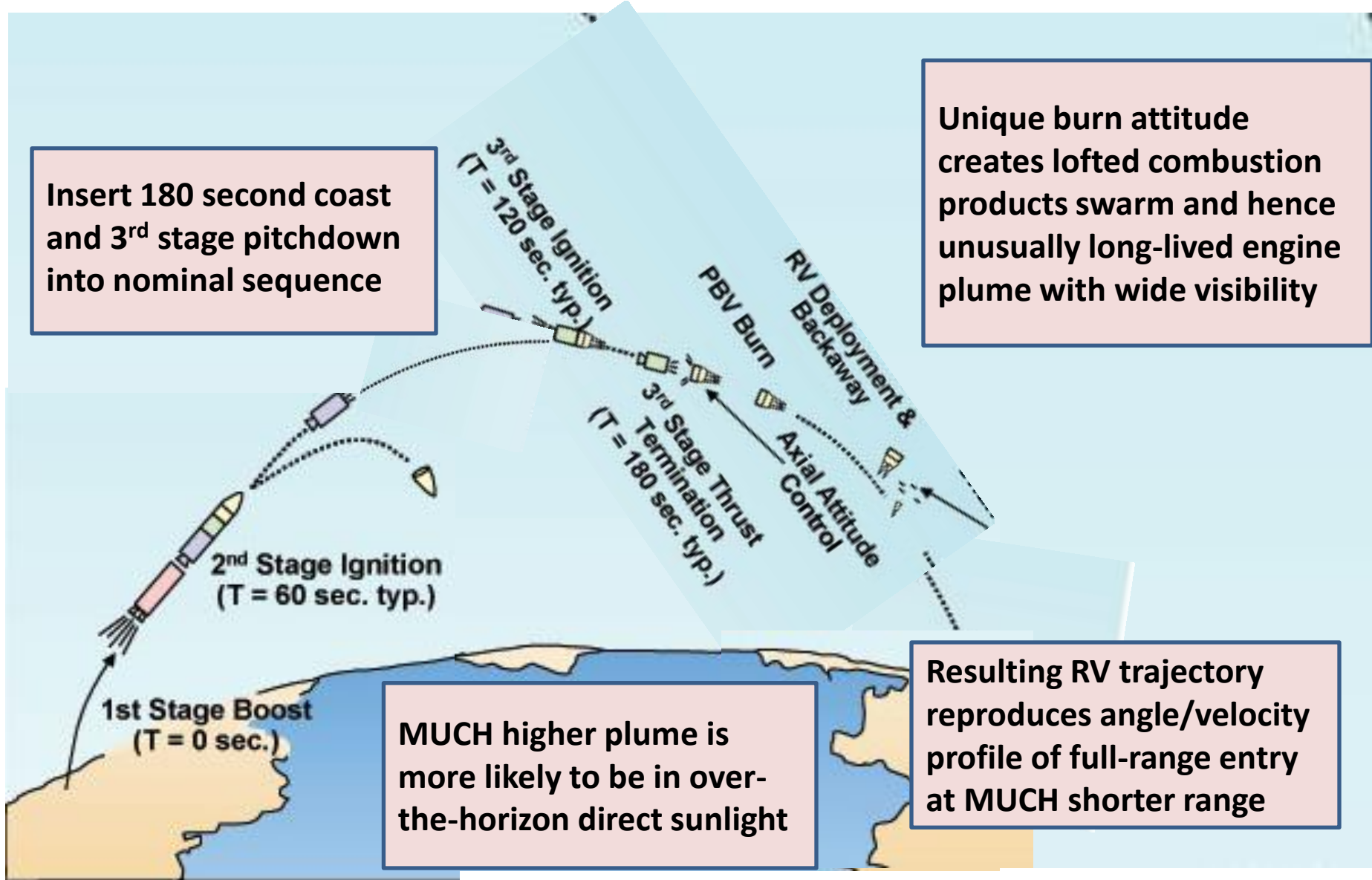
How the shorter range is performed

Normal high-G ascent for first two stages, then insert 180-second delay as stack coasts higher, conduct 3rd stage burn angled downwards to get onto nominal end-of-mission profile.

Why the KY-SS missions are so visible

Insert 180 second coast and 3rd stage pitchdown into nominal sequence

Unique burn attitude creates lofted combustion products swarm and hence unusually long-lived engine plume with wide visibility



MUCH higher plume is more likely to be in over-the-horizon direct sunlight

Resulting RV trajectory reproduces angle/velocity profile of full-range entry at MUCH shorter range

KYSS Flight Profile Peculiarities

- This burn scenario has not been described in any Russian press reports, but is derived from my study of hundreds of videotapes posted as 'UFOs' on youtube.com and rutube.ru
- Stage-3 burn with plume ejected aft with upward tilt creates a long-lived effluent particle cloud of enormous length [200 km]
- High apogee [> 900 km] and apparently orchestrated illumination conditions create visibility over vast distances
- Probably most spectacular space/missile-related OSINT opportunities into sensitive Moscow military activities since Soviet "crescent UFO flap" of 1967-8 revealed operational features of top secret treaty-breaking 'Fractional Orbital Bombardment System' [FOBS] space nuclear weapon

KY-SS family of Topol launches

1. 2005 Nov 01 1710 gmt +3 [sunset + 4h33m]
2. 2007 Dec 08 14:43 gmt +3 [sunset + 1h41m] ???
3. 2009 Dec 10 1235 gmt +3 [sunset + 34m] SEEN
4. 2010 Dec 05 1911 gmt +3 [sunset + 7h09m]
5. 2012 Jun 07 1739 gmt +4 [sunset + 43m] SEEN
6. 2013 Oct 10 1339 gmt +4 [sunset - 39m] SEEN +ISS
7. 2013 Dec 27 1730 gmt +4 [sunset + 4h33m]
8. 2014 Mar 04 1810 gmt +4 [sunset + 3h25m]
9. 2014 May 20 1708 gmt +4 [sunset + 31m] SEEN
10. 2014 Nov 11 ??? +3 [rumored failure] sunset = 1323
11. 2015 Aug 22 1513 gmt +3 [sunset - 45m] SEEN
12. 2015 Nov 17 1212 gmt +3 [sunset - 1h04m] SEEN

- Sunset Launch#
- -205 8
- -64 12
- -45 11
- -39 6
- +31 9
- +34 3
- +43 5
- +101 2
- +273 7
- +273 1
- +429 4
- Unknown 10

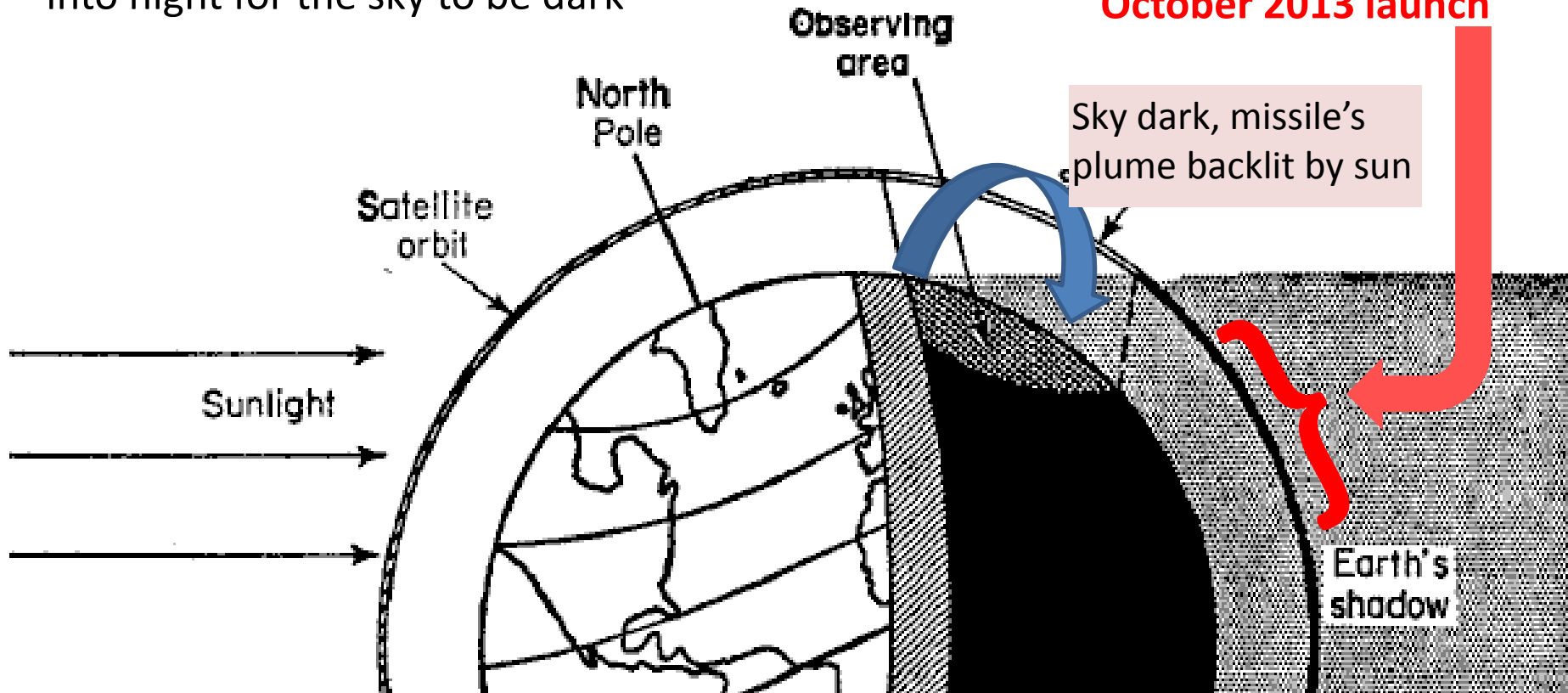
Significance of distribution of launch times

Six of the eleven known launch times fall within a < two hour interval centered near sunset. One very obvious factor could involve ground-based optical tracking of decoy and other penetration aids deployment and maneuver during terminal descent into Sary Shagan.

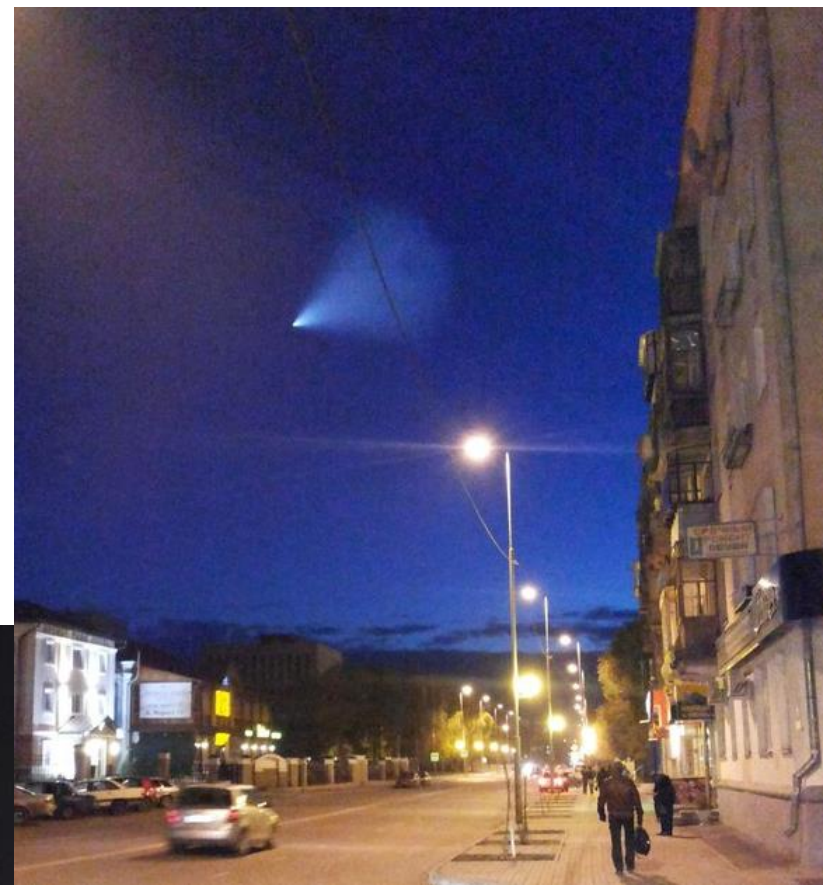
Evening twilight visibility

As with observing artificial satellites, the target must be high enough to be sunlit while the observer is far enough into night for the sky to be dark

Position of International Space Station during observation of plume for October 2013 launch



Typical Topol ICBM from Kapustin Yar [diving on ABM radar test range]



- Usually post-sunset twilight
- Third stage burn canted slightly down
- Warhead deploy spinup
- Multiple flights
- Observed in Russia, central Asia, Middle East, and once by astronauts on space station

Rocket plumes aren't like jet plumes or flamethrower plumes or smoke plumes

- First 50-60 kilometers of ascent, smoke trail is narrow, hemmed in, particles stopped and then buoyed by air
- This 'floating' non-vertical-moving portion is quickly zig-zagged by strong high-altitude crosswinds
- When rocket enters region of purer vacuum above the von Karman 'line' [~ 100 km], particle motions unimpeded, so the plume widens to fan shape
- Both engine exhaust [wide fan] and hydraulic pressure generator [to steer engines] exhaust [narrow trail] can leave visually distinguishable plumes
- Earlier [lower] portions of plume may not be fully sunlit for some 'twilight flights' [time-of-day dependent]

In space, plumes are even weirder than THAT!!

- Unlike atmospheric plumes suspended by buoyancy, plumes in space are clouds of effluent particles following ballistic trajectories so they behave in a literally unearthy manner
- Exhaust velocity is typically ~ 2 km/sec so early in ascent the particles are quickly flung back down into the atmosphere
- But as vehicle climbs and accelerates, with speed in the range 3-4 km/sec, the particles ejected from an already-fast-moving vehicle still retain significant forward speed with significant upwards angle – they are ‘lofted’ en masse through space, seem to ‘follow’ the missile [gradually falling behind, and only slowly disperse and fall
- This odd effect is enhanced as upper stages pitch over closer to horizontal – and a special category of recent Russian ICBM tests actually burn the third stage angled slightly downwards, thus giving plume particles a substantially greater UPWARDS initial component and extending their lifetime before air impact
- As third stage accelerates it pulls ahead of plume more quickly, narrowing the forward plume and introducing a noticeable taper

View from Urals



<https://www.youtube.com/watch?v=I2fDzcg7oT4>



Жители Урала приняли отделившуюся ступень ракеты
за НЛО



Новости России



Subscribe

597

411 views

View from Tyumen, Russia



View from Omsk, Russia

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Раздел [Отдых](#)

18 ноября 2015, 12:32

На эту же тему!



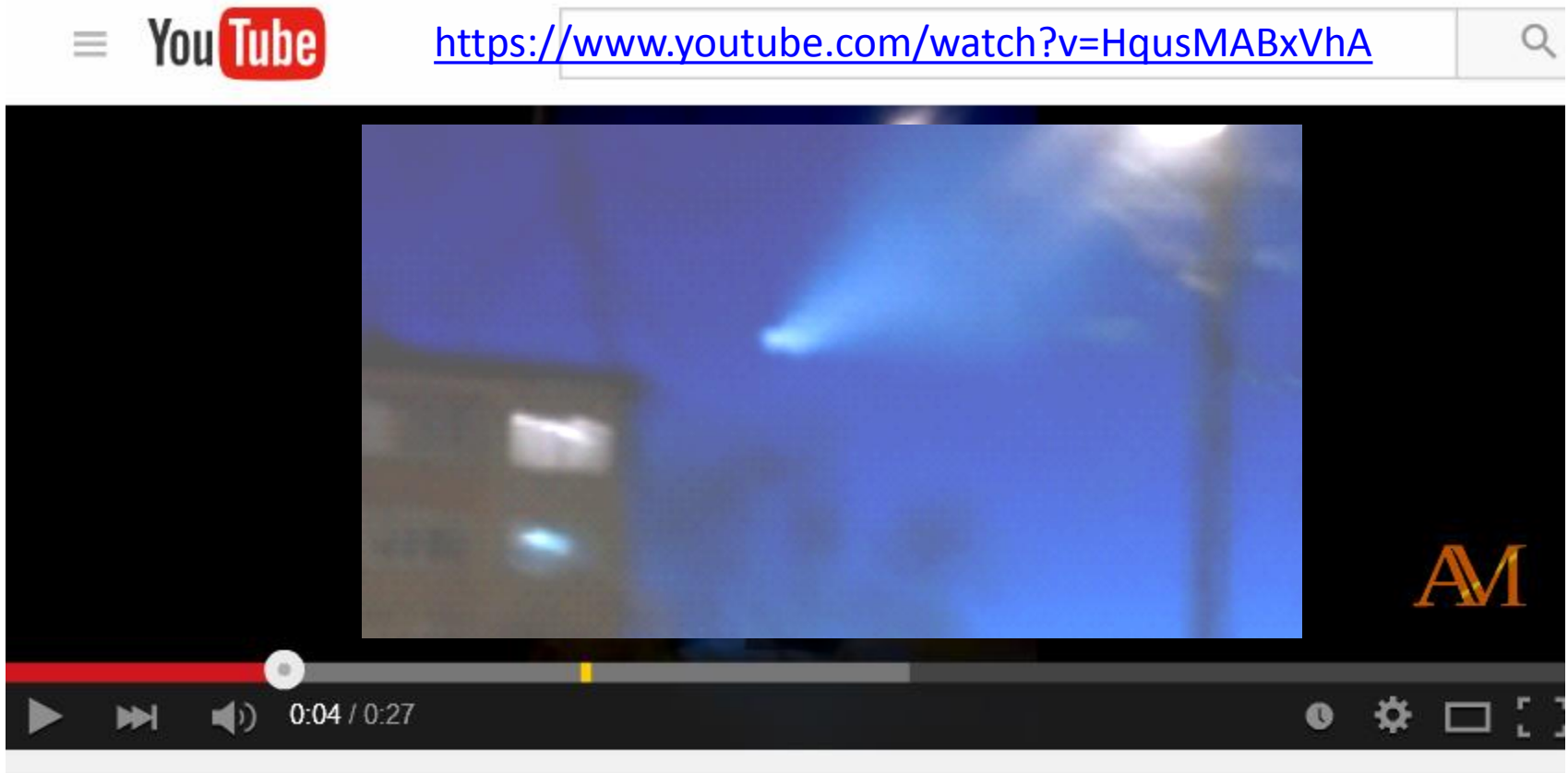
Вопышки в небе: запуск ракеты
всполошил омичей (фото
и видео)

НЛО в Омске: омичи отреагировали на запуск ракеты шутками



Фото: соцсети

Petropavlovsk



Аномальное явление В небе над Петропавловском

Other videos of interest

- Very nice view of spiral, northern Kazakhstan
- <https://www.youtube.com/watch?v=ihHmlloFbic>
- Tbs
- Tbs
- Tbs

Sometimes reported as UFO

МКР Новосибирск

МК в
регионах
21 ноября
2015
время 20:30

Свежий номер
МК
Регистрация
Вход

Новости Политика Экономика Происшествия Общество Спорт
Культура Наука

МНОГО МЕБЕЛИ НА [WWW.MVOPROS.RU](http://www.mvopros.ru)

Новости

19:48 Москвич
напал на
сотрудников ДПС
и эвакуаторщиков

Необычное свечение над
Новосибирском оказалось
следом от запуска «Тополя»

18 ноября 2015 в 11:18, просмотров: 2148

<http://ad.adriver.ru/cgi-bin/click.cgi?id=256728&ad=5437728&bid=40794078&bt=528&bn=28&pz=08&pid=CrZguRcHD6AxigW8nXGHV>

Волышки в небе: запуск ракеты
всполошил омичей (фото
и видео)

66.RU Новости Банки Работа Объявления Недвижимость Авто Общение Афиша

Раздел Наука и техника
18 ноября 2015, 13:10

Новости в тему

Светло как днем: на трассе под Реком регистраторы сняли ослепительную вспышку в небе


Пропавший бонинг или Самара Баллок? НЛО попал в объектив камеры NASA

Шалит! «НЛО» в небе над Челябинском создали проекторы цирка

В небе над Челябинском засняли очередное НЛО

Curiosity заснял на поверхности Марса НЛО

«Полет завершился эффектным исчезновением»: в небе над Алапаевском видели НЛО



Банки Авто Недвижимость Афиша Еда Народный герой Объявления Конкурс Работа Справка

Политика Бизнес Происшествия Авто Отдых В мире Интернет Спорт Наука и техника Здоровье

НЛО в Омске: омичи отреагировали на запуск ракеты шутками




Фото: соцсети

Жители Сибири приняли баллистическую ракету «Тополь» за НЛО

Siberia residents take ballistic rocket for 'UFO'

18 НОЯБРЯ, 12:16



Фото Ирины Садыровой, предоставлено Новосибир

Жители Новосибирской, Кемеровской, Омской и Томской областей приняли за НЛО, спутник Министерства обороны и за комету — испытательную межконтинентальную баллистическую ракету «Тополь» с полигона «Космический» в Астраханской области, выведенная 18 ноября кор

[below]

Novosibirsk also

МКРТИ Новосибирск
МК в регионах
21 ноября 2015
время 20:30

Свежий номер МК
Регистрация Вход

Новости Политика Экономика Происшествия Общество Спорт
Культура Наука

МНОГО МЕБЕЛИ НА [WWW.MVOPROS.RU](http://www.mvopros.ru)

Новости
19:48 Москвич
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Необычное свечение над
Новосибирском оказалось
следом от запуска «Тополя»

18 ноября 2015 в 11:18, просмотров: 2148

<http://ad.adriver.ru/cgi-bin/click.cgi?sid=25672&ad=543772&bid=4079407&bt=52&bn=28&pz=0&xpid=Cr2guRcHD6AxiGWBnXGHN>

View from Astana, Kazakhstan





Взрыв НЛО над Астаной, 17 ноября 2015, около 18:00



bor.kz

Yandex.ru search finds dozens of stories [examples below]

Новости Югры 18 ноября в 01:08

Необычное явление в небе наблюдали жители Югры. ВИДЕО

Вечером 17 ноября в небе появился объект, который петлял и оставлял за собой белый шлейф. ...
К обсуждению подключились и жители других городов России (Тюмень, Омск, Новосибирск, Сургут), которые так же наблюдали странный объект и решили поделиться с горожанами своими впечатлениями.

Новокузнецк.ру 18 ноября в 00:57

Жители Кузбасса заметили НЛО

Яркий шар со светящимся шлейфом на небосклоне заметили в Кузбассе жители Ленинска-Кузнецкого. ...
Выяснилось, что подобное наблюдали и в других городах Сибири: в Омске, Томске, Павлодаре.

Йод 18 ноября в 00:54

Вспышка в небе напугала жителей Омска

Жители Омска обсуждают светящийся объект, замеченный в небе 17 ноября. Многие приняли его за НЛО, есть версии о сгоревшем в атмосфере метеорите.

Тушите свет! 18 ноября в 00:49

Над Барнаулом горожане заметили загадочный летающий объект

Жители Сибири, в частности, Барнаула, Кемеровской области и Омского региона накануне поздно вечером наблюдали в небе загадочный объект. В ночном небе появился яркий круг, за ним тянулся белый шлейф, растворившись через некоторое время после появления. Многие смогли снять это на видео.

... and in Kazakhstan

uber.kz

Поиск

← Новости

Было ли НЛО в небе над Казахстаном: консультация специалистов

21 ноября, 2015 — 19:30 • [Происшествия](#)

- tbs

zakon.kz

Saturday, November 21, 2015

Найти новость

-26° 308

НОВОСТИ

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АФИША

Казахстан

Мир

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Финансы

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НОВОСТИ ЗА СЕГОДНЯ

НЛО в небе над Казахстаном: объяснение специалистов



18 ноября 2015, 22:21

Жители северных регионов страны накануне наблюдали необычное свечение.

Казахстанцы перепутали ракету с НЛО. Жители северных регионов страны накануне наблюдали необычное свечение: в ночном небе неожиданно появился яркий шар, за которым тянулся белый шлейф. Вскоре объект растворился в воздухе, передает [телеканал КТК](#).

<https://www.youtube.com/watch?v=1Wk4uzqAwXE>



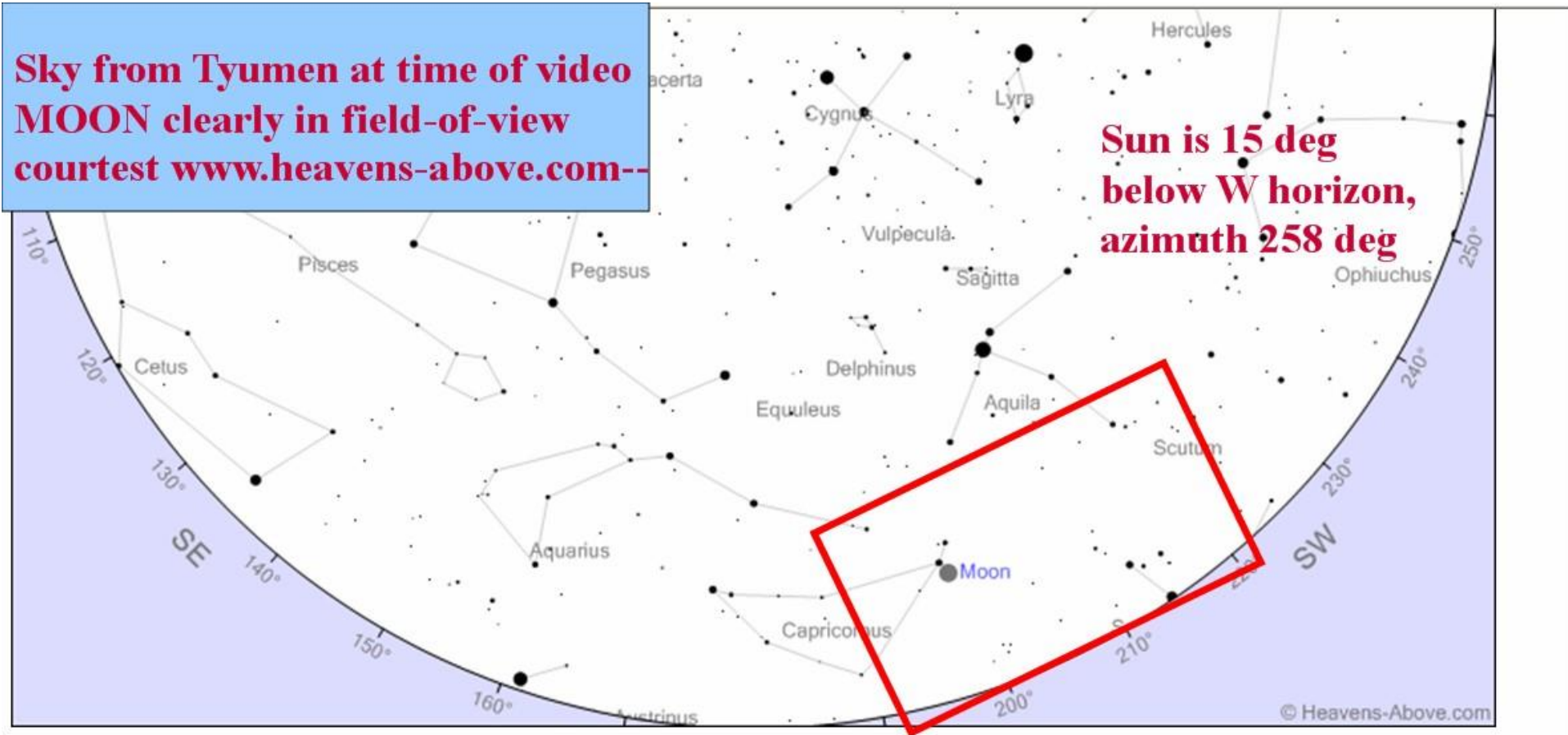
Video from
roadside
outside
Tyumen
includes
valuable
orientation
guide –
the MOON
[at left]

НЛО на Тюменью 17.11.2015 в 17:20

Sky over Tyumen gives azimuth, scale

**Sky from Tyumen at time of video
MOON clearly in field-of-view
courtest www.heavens-above.com---**

**Sun is 15 deg
below W horizon,
azimuth 258 deg**



© Heavens-Above.com

Time

Year	2015	Month	11	Day	17	Hour	18	Minute	24
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Display options

Geometry of Tyumen sighting

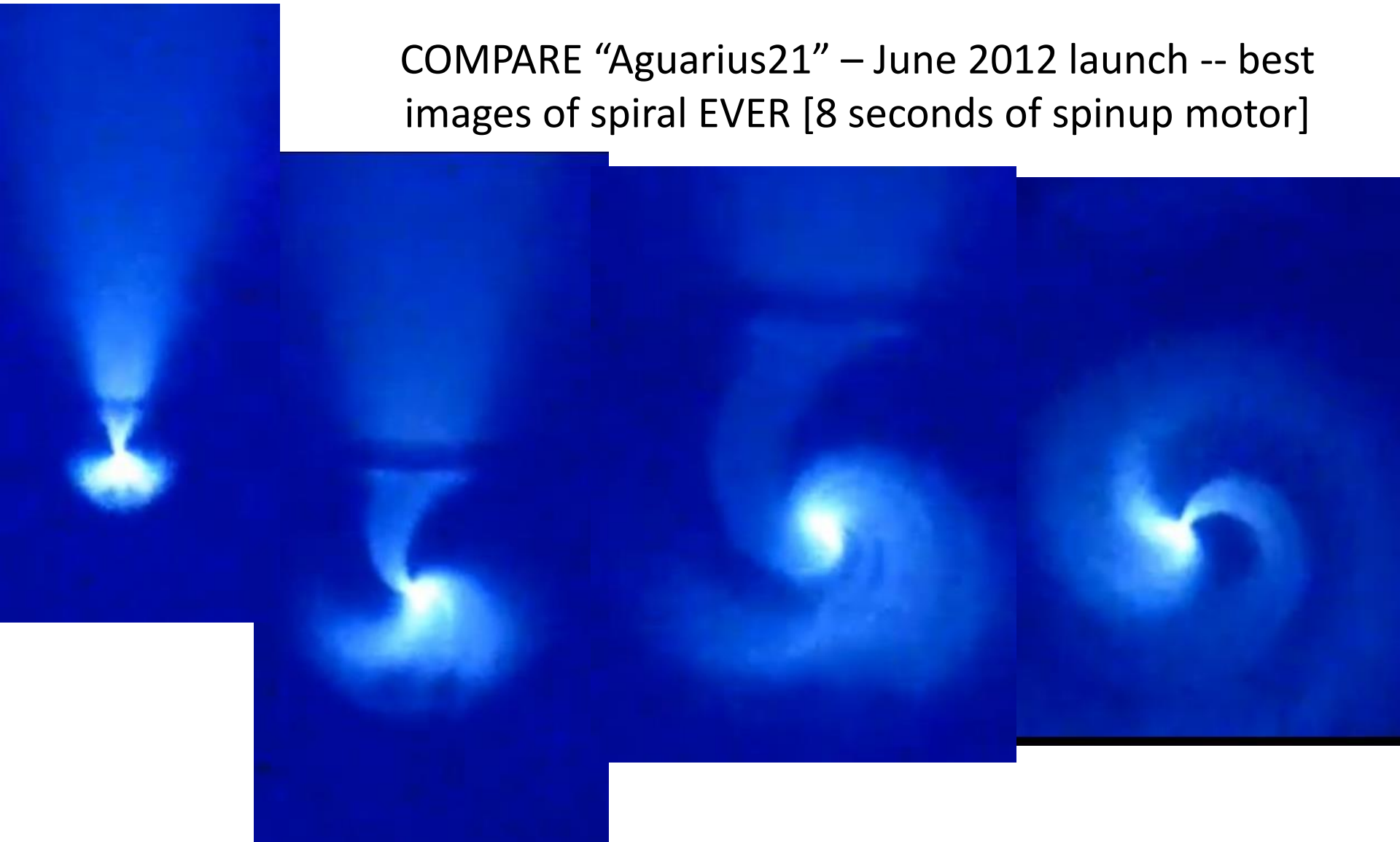


Omsk views
shows warhead



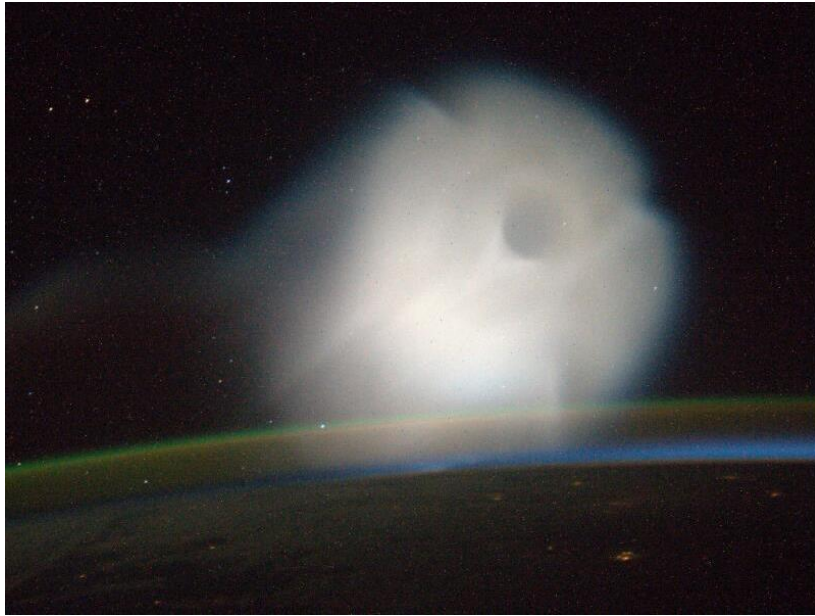
<https://www.youtube.com/watch?v=aPcMffpoURU>

COMPARE “Aguarius21” – June 2012 launch -- best
images of spiral EVER [8 seconds of spinup motor]



Triple plume completes about one full rev prior to fade-out
<https://www.youtube.com/watch?v=AHX6IU7NcO0>

Previously noticed plume masking effect present
[left] ISS view 2013 [right] Uzbekistan view 2013

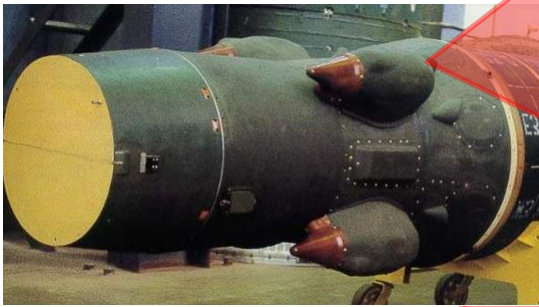


[left] This launch
– Omsk view

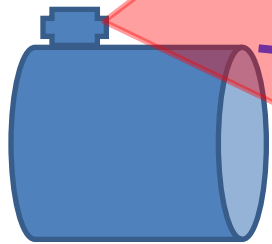
Why the distinctive plume silhouettes and masking?

- Warhead bus normally trims dispersions and goes to deployment attitude post stage-3
- Compressed flight profile MAY use bus thrusters to maneuver to stage-3 attitude [180 sec coast]
- Bus thrusters may initiate stage-3 firing
- Actual stage-3 ignition follows quickly [for 60 sec]
- Silhouettes at aft end of plume may reflect bus thruster early masking by stage-3 structure
- This sequence allows warhead deployment and spinup immediately at stage-3 cutoff [as seen]

Partial shadowing of stage thruster plumes -- notional

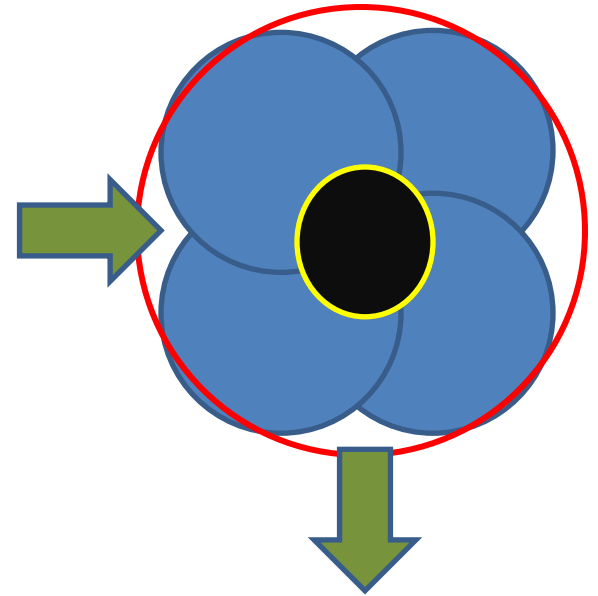


Thruster and plume



Region shadowed by stage aft structure

... times four
waist-mounted
thruster units,
each shadowed
by aft structure



- Similarities between observed cloud shape and thruster layout on Topol ICBM 'battle stage' are compelling
- Degree to which eyewitness videos and reports can characterize performance of top secret weapons system is amazing

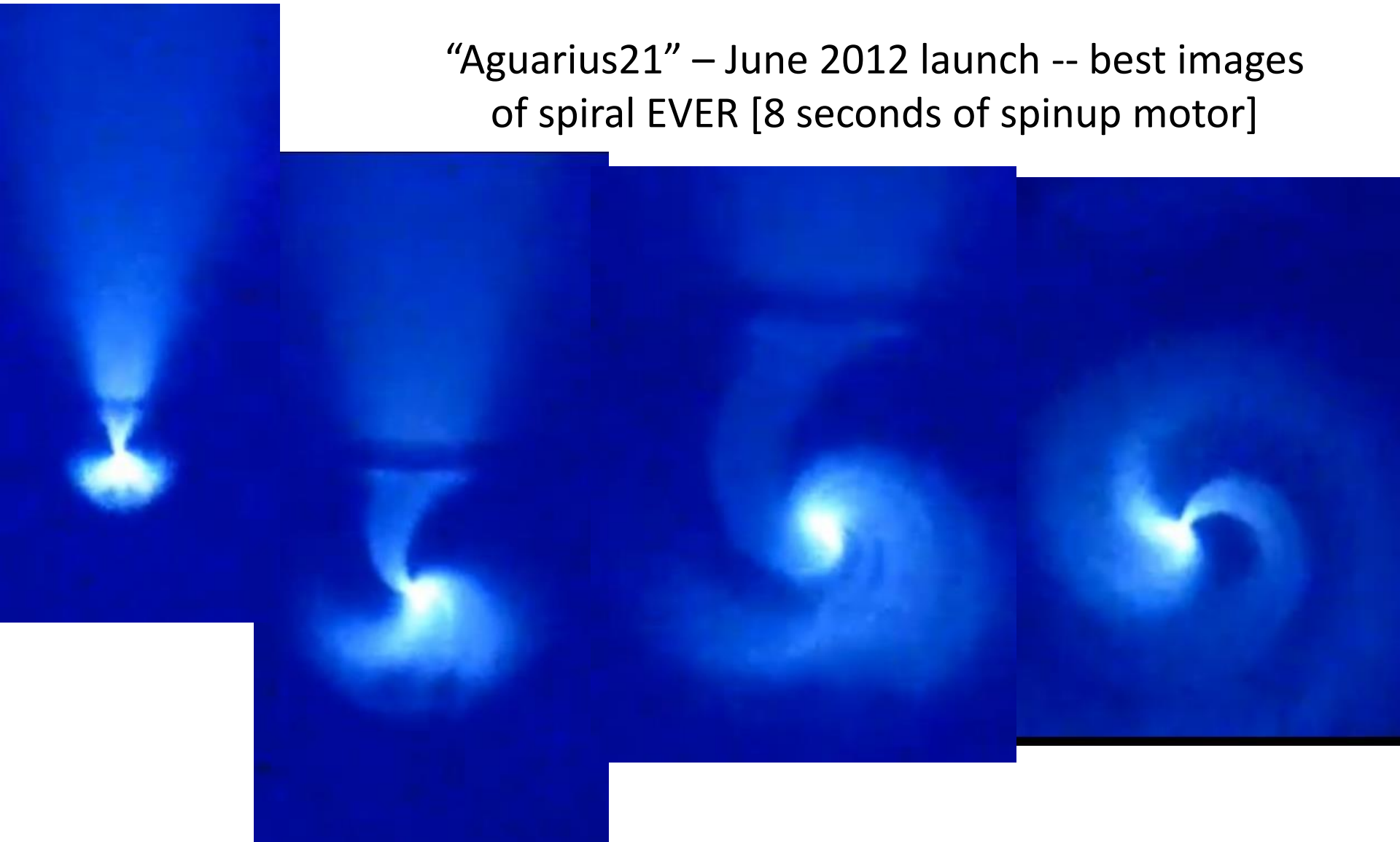


Topol-based commercial satellite launcher shows payload stage thruster firing



Source – START booster users manual

“Aguarius21” – June 2012 launch -- best images
of spiral EVER [8 seconds of spinup motor]



Triple plume completes about one full rev prior to fade-out
<https://www.youtube.com/watch?v=AHX6IU7NcO0>

Discussion

- 1.
- 2.
- 3.
- 4.

Appendix 1

TWILIGHT – tracking ‘moscow time’

- Until 2011,
 - during the winter, between the last Sunday of October and the last Sunday of March, *Moscow Standard Time (MSK, MCK)* was three hours ahead of [UTC](#), or [UTC+3](#);
 - during the summer, Moscow Time shifted forward an additional hour ahead of Moscow Standard Time to become *Moscow Summer Time (MSD)*, making it [UTC+4](#).
- In 2011, the Russian government proclaimed that [daylight saving time](#) would in future be observed all year round, thus effectively displacing [standard](#).^[1] On 27 March 2011, Muscovites set their clocks forward for a final time, effectively observing MSD, or UTC+4, permanently.
- But Moscow Time was reset to [UTC+3](#) permanently on 26 October 2014