

ACCIDENTAL OBSERVATIONS  
OF FALCON-9 SECOND STAGE  
DEORBIT BURN OVER EUROPE  
[2018 OCT 08/0340 GMT]



REVIEW DRAFT 4

James Oberg

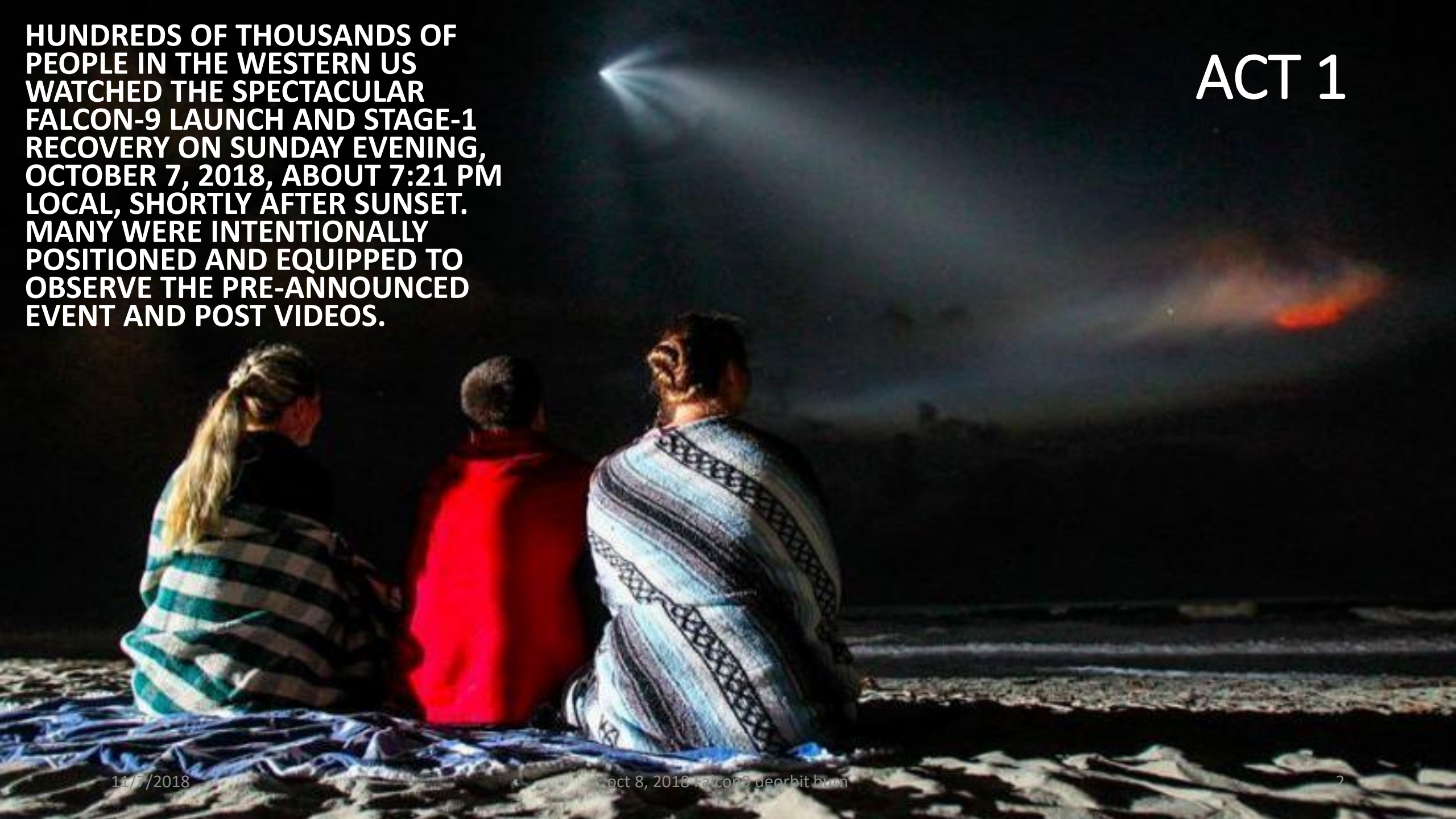
[jamesEoberg@  
comcast.net](mailto:jamesEoberg@comcast.net)

December 16,  
2018



**HUNDREDS OF THOUSANDS OF PEOPLE IN THE WESTERN US WATCHED THE SPECTACULAR FALCON-9 LAUNCH AND STAGE-1 RECOVERY ON SUNDAY EVENING, OCTOBER 7, 2018, ABOUT 7:21 PM LOCAL, SHORTLY AFTER SUNSET. MANY WERE INTENTIONALLY POSITIONED AND EQUIPPED TO OBSERVE THE PRE-ANNOUNCED EVENT AND POST VIDEOS.**

# ACT 1



**AN HOUR OR SO LATER, ACROSS NORTHERN EUROPE, IF THE SKY WAS CLEAR, PEOPLE OUTSIDE BEFORE DAWN WITNESSED A MOVING FUZZY BALL SPITTING A BRIEF FAN OF LIGHT FORWARD, THE NON PRE-ANNOUNCED ENGINE BURN OF THE SECOND STAGE TO SAFELY DEORBIT INTO PACIFIC OCEAN.**

## **ACT 2**

**ASIDE FROM A HANDFUL OF REPORTS FROM ENGLAND, BELGIUM, NETHERLANDS, GERMANY, FINLAND, AND ALL-SKY CAMERAS IN GERMANY AND ICELAND, THIS EVENT WENT UNNOTICED AND WAS NOT ACKNOWLEDGED BY SPACEX.**

11/7/2018

5:43 MESZ

oct 8, 2018 Falcon9 deorbit burn

# REPORT STRUCTURE

- 1. Mission overview
- 2. Deorbit burn planning & predictions
- 3. Viewing conditions in burn vicinity
- 4. Review of previous burn observations
- 5. First reports [Langbroek]
- 6. Tracking down European observers
- 7. Tracking down youtube comments
- 8. Analysis and conclusions

# SIGNIFICANCE OF REPORT ON THIS EVENT

- Provides explanation to the eyewitnesses
- Provides further examples of SpaceX Falcon-9 stage-2 plumes
- Deorbit, trans-GEO, escape, fuel dumping, and other kinds of events
- Provides context to assess apparent off-nominal performance elsewhere
- Broaden investigative techniques for seeking future reports
- Encourages future attempts to observe/record burns
- Encourages searches for previous burn observations
- Satisfies small network of serious amateur 'rocket spotters'
- Provides insights to public about non-reported space activities
- Provides examples for assessing other event witness descriptions

# BACKGROUND READING ON STAGE-2 OBSERVATIONS

- 2018 'ZUMA' mystery spiral observation  
[http://satobs.org/seesat\\_ref/misc/zuma\\_vs\\_falcon9-stage2\\_clouds\\_plumes\\_overview.pdf](http://satobs.org/seesat_ref/misc/zuma_vs_falcon9-stage2_clouds_plumes_overview.pdf)
- BEST observation to date: Norway deorbit Feb 19, 2018  
[http://satobs.org/seesat\\_ref/misc/180322-falcon9-deorbit-NORWAY.pdf](http://satobs.org/seesat_ref/misc/180322-falcon9-deorbit-NORWAY.pdf)
- FH [falcon heavy] trans-mars escape burn Feb 06, 2018  
[http://satobs.org/seesat\\_ref/misc/180206\\_fh\\_s2\\_burn3\\_d2.pdf](http://satobs.org/seesat_ref/misc/180206_fh_s2_burn3_d2.pdf)
- Well-observed Persian Gulf deorbit Feb 19, 2017  
[http://satobs.org/seesat\\_ref/misc/180314-falcon9s2-persian-gulf.pdf](http://satobs.org/seesat_ref/misc/180314-falcon9s2-persian-gulf.pdf)
- Indian Ocean fuel dump sphere Sep 29, 2013  
[http://satobs.org/seesat\\_ref/misc/180314-flcon9s2-indian-ocean.pdf](http://satobs.org/seesat_ref/misc/180314-flcon9s2-indian-ocean.pdf)
- Australia fuel vent spiral June 4, 2010  
[http://satobs.org/seesat\\_ref/misc/180314-falcon9s2-australia.pdf](http://satobs.org/seesat_ref/misc/180314-falcon9s2-australia.pdf)

# FURTHER OBSERVATIONS

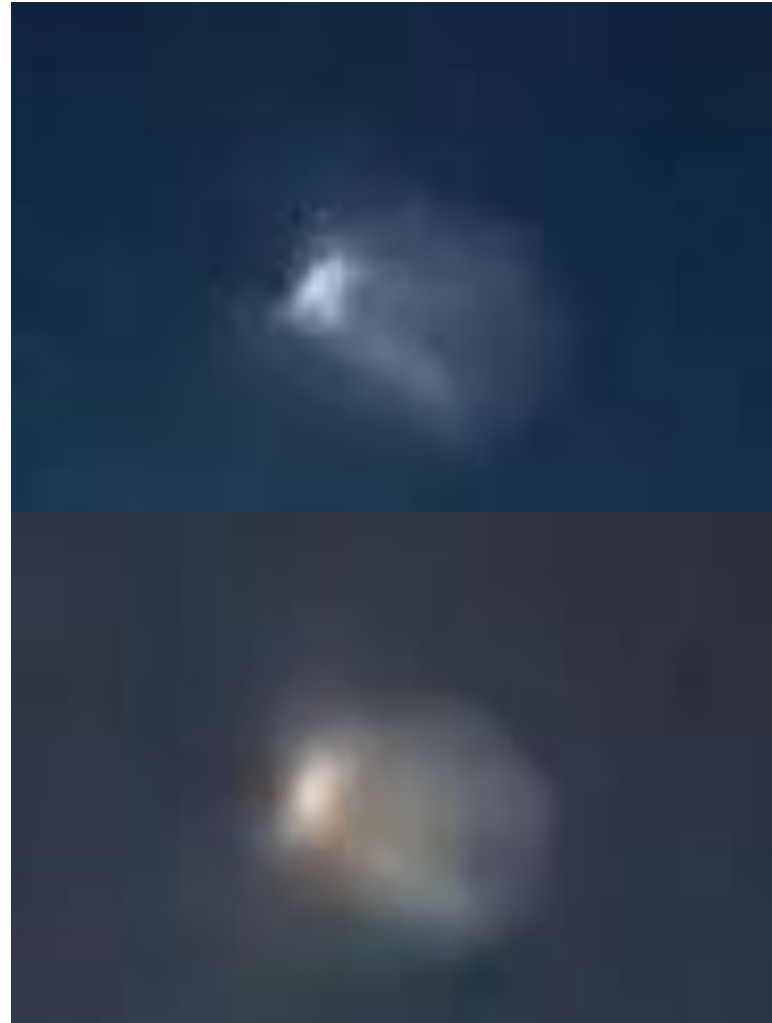
- Dec 22, 2017 Falcon 9 VAFB launch  
[http://satobs.org/seesat\\_ref/misc/Dec 22, 2017 falcon-9 Vandenberg launch.pdf](http://satobs.org/seesat_ref/misc/Dec_22,_2017_falcon-9_Vandenberg_launch.pdf)
- May 10, 2018 Falcon 9 stage 2 fuel dump observation from Australia  
[http://satobs.org/seesat\\_ref/misc/180510-falcon9s2-spiral-australia-ROUGH.pdf](http://satobs.org/seesat_ref/misc/180510-falcon9s2-spiral-australia-ROUGH.pdf)
- 50+ years of missile/space plume observations [examples]  
[http://satobs.org/seesat\\_ref/misc/Space clouds-Strange Spinoff of the Space Age.pdf](http://satobs.org/seesat_ref/misc/Space_clouds-Strange_Spinoff_of_the_Space_Age.pdf)
- OTHER
- OTHER

# 'ACT ZERO' – A RECENT PRECURSOR SHOWED WHAT SHAPES TO EXPECT



FEBRUARY 2018 EVENT RECORDED PRE-BURN TWIN PLUMES, ENGINE BURN PLUME, AND PLUME BREAKAWAY

11/7/2018



oct 8, 2018 Falcon9 deorbit burn

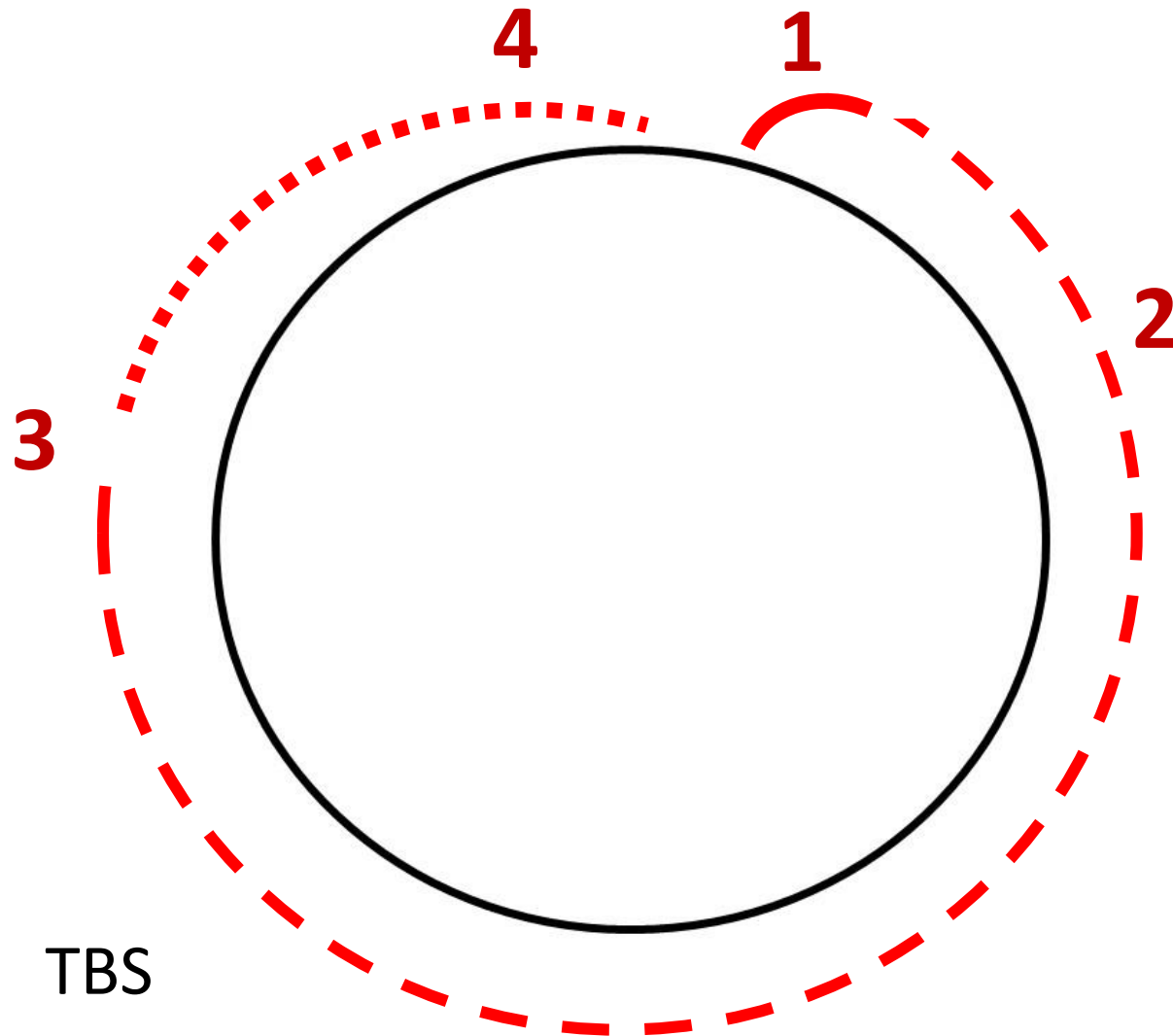




# SpaceX policy on deorbit events

- Different payloads and missions have very different disposal strategies for second stage.
- High variety of payload types/masses allows wide range of leftover propellant amount, and consequently of available delta-V capability
- Often the strategy is tailored for unique payload-specific needs
- **Consequently SpaceX does not disclose, pre-flight or later, the deorbit timing and burn magnitude/duration**
- Low-orbit disposal burns can be approximately anticipated based on required air/sea traffic warnings for planned component falls
- Use of second stage main engine leads to high-G very brief burn which is preceded by opposite-directions conditioning dumps

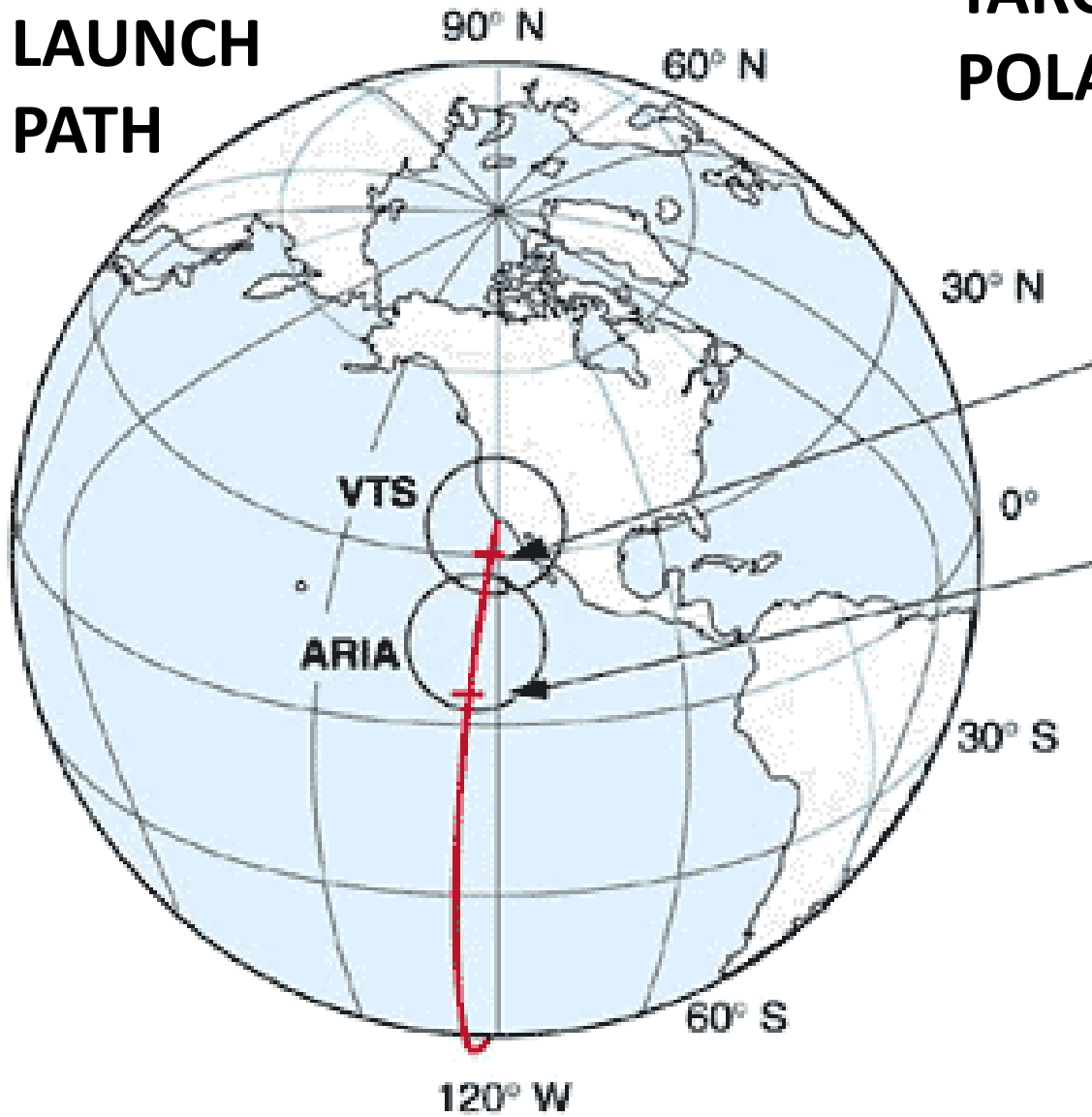
# SECOND STAGE DEORBIT BURN ON FIRST ORBIT



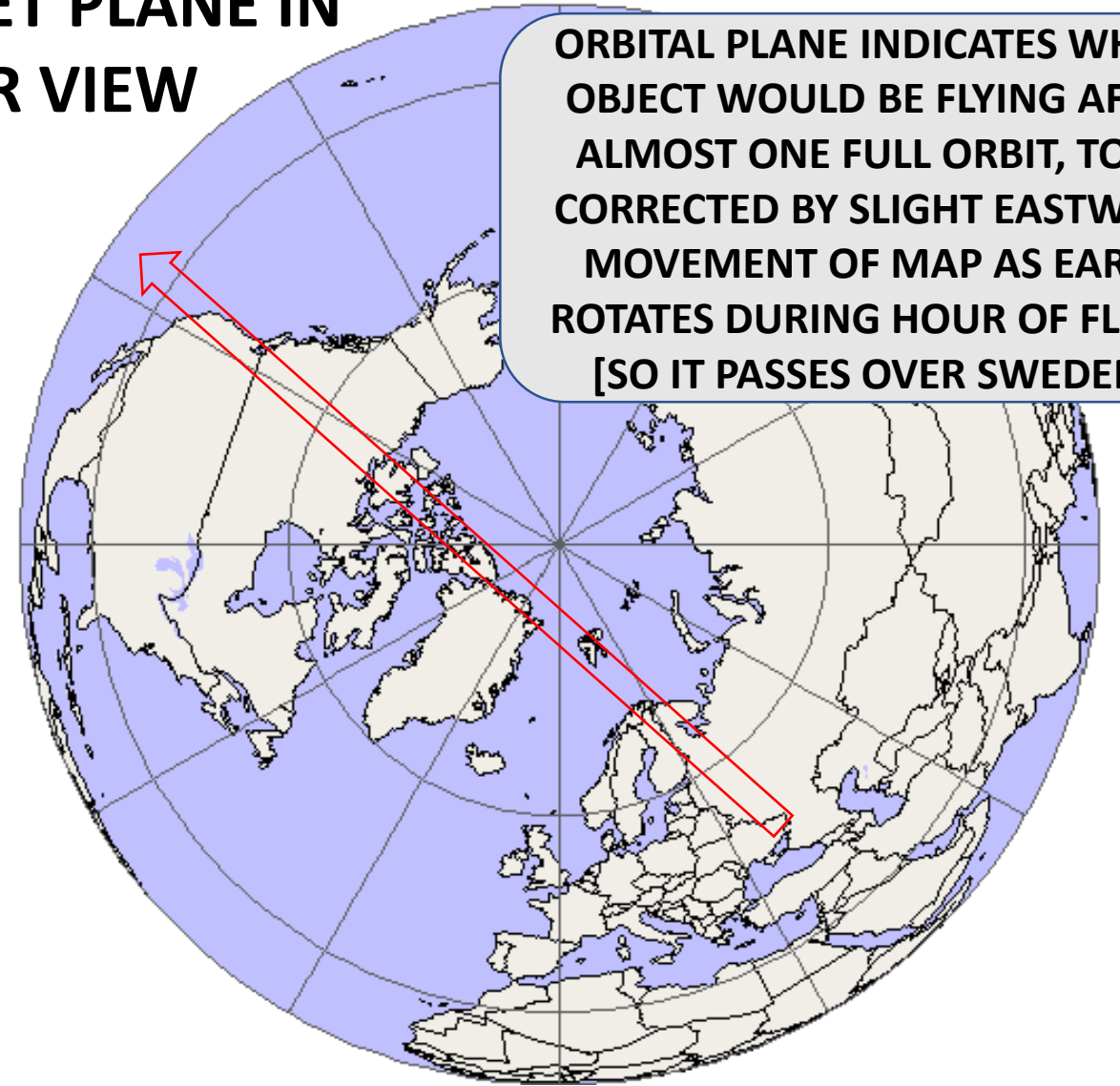
- 1.ASCENT/INSERTION**
- 2.DEPLOY PAYLOAD (S)**
- 3.RETROGRADE BURN**
- 4.ATMOSPHERE ENTRY**

FOR THIS MISSION, THE COMPUTED  
ALTITUDE OF THE DEORBIT BURN  
[NEAR APOGEE] WAS ABOUT 648 km.  
SOURCE: JONATHAN MCDOWELL

# LAUNCH PATH

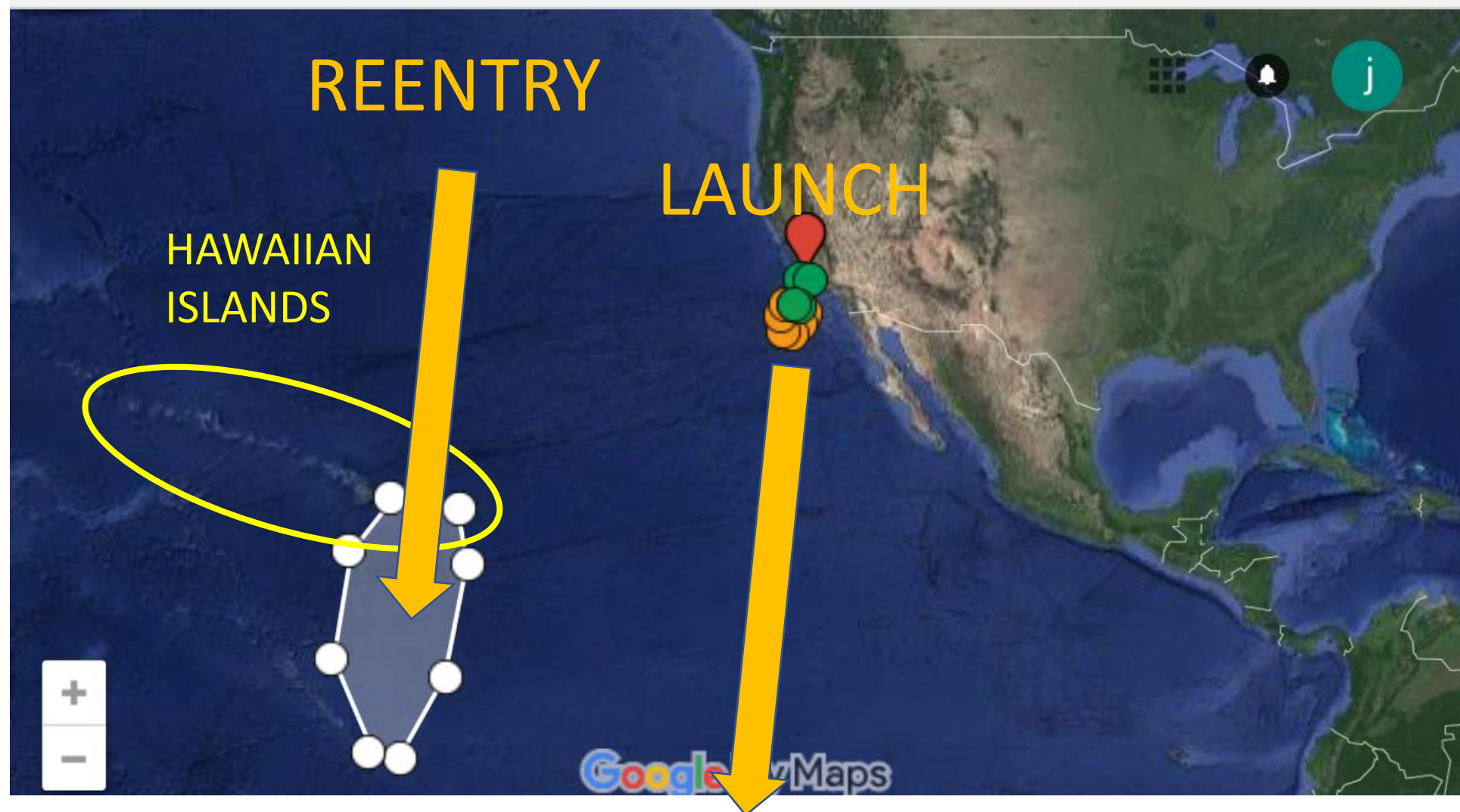


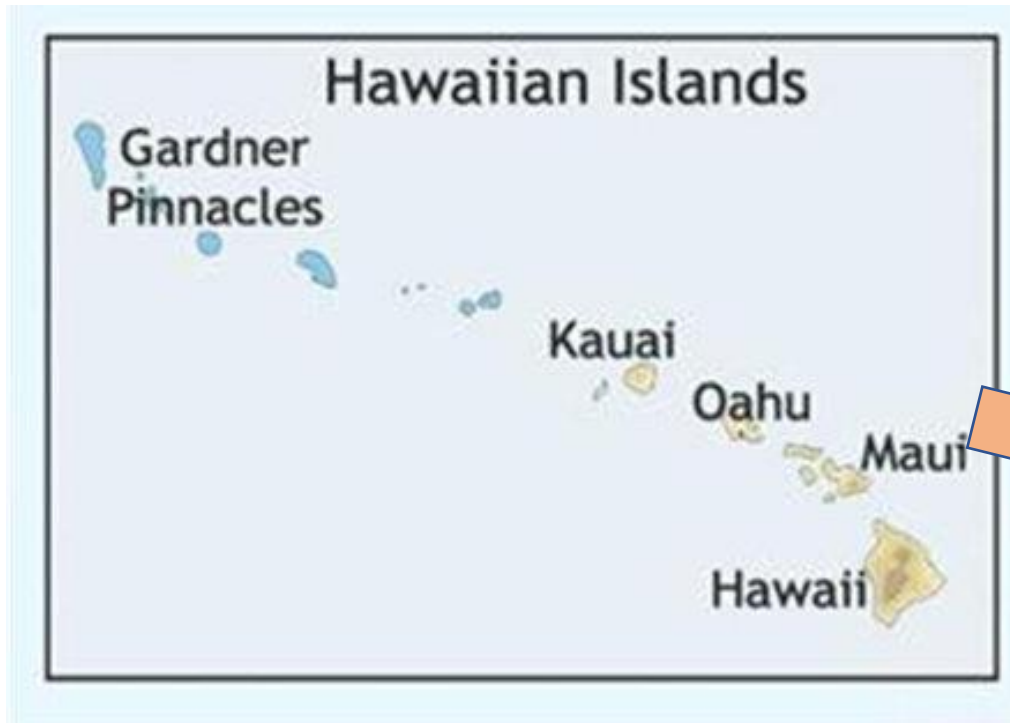
# TARGET PLANE IN POLAR VIEW



Stage-2 launches west of south, enters retrograde polar orbit, deploys satellite, then performs deorbit burn on opposite side of Earth, reenters SE of Hawaii

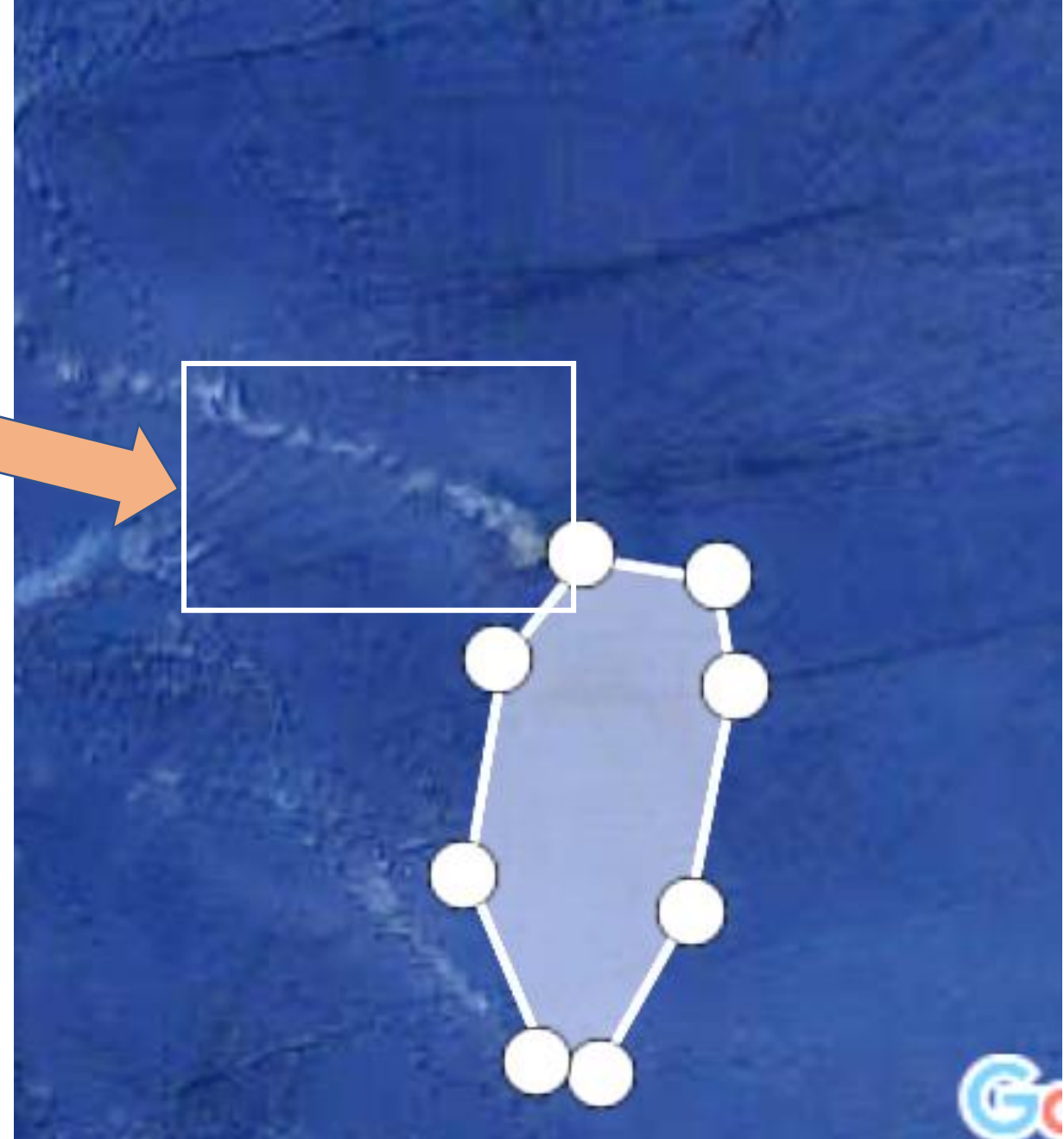
SAOCOM-1A Launch  
Hazard Area based  
on issued NOTMAR,  
valid for Oct 07 to  
Oct 10 UTC. Stage2  
Reentry Debris Area  
south of Hawaii  
active on second  
orbit between  
04:07 to 04:22 UTC.  
[late-afternoon  
local time]





[https://www.google.com/maps/d/viewer?mid=1dHqAYXF6NNKkdcnXTcHE0123pBKHoxh\\_&ll=24.6380727240534%2C-126.06112261709006&z=3](https://www.google.com/maps/d/viewer?mid=1dHqAYXF6NNKkdcnXTcHE0123pBKHoxh_&ll=24.6380727240534%2C-126.06112261709006&z=3)

**PRE-FLIGHT WARNINGS MUST BE GIVEN  
FOR STAGE DROP ZONES FOR LAUNCH  
AND FOR LATER DE-ORBIT IMPACT AREA**



# Marco Langbroek depiction of groundtrack [WITH EXPLANATORY ANNOTATIONS BY OBERG]



# Fundamental factors of in-flight 'rocket spotting'

- 1 NIGHTTIME, BLACK SKY
- 2 DEGREE OF SKY DARKNESS [URBAN VS RURAL VS AIR/SEA
- 3 CLOSE TO DAWN/DUSK FOR SPACE OBJECT ILLUMINATION
- 4 ALTITUDE OF SPACE OBJECT TO DETERMINE ELEVATION ANGLE
- 5 CLOUD COVER
- 6 ADVANCE NOTICE VERSUS SERENDIPITY
- 7 FAST ACCESS TO RECORDING DEVICE
- 8. ALL-SKY WEATHER/AURORA/METEOR/UFO RECORDING SYSTEMS
- 9. TELESCOPE OR BINOCULARS – not so much
- 10 LOCATION/LOCATION/LOCATION

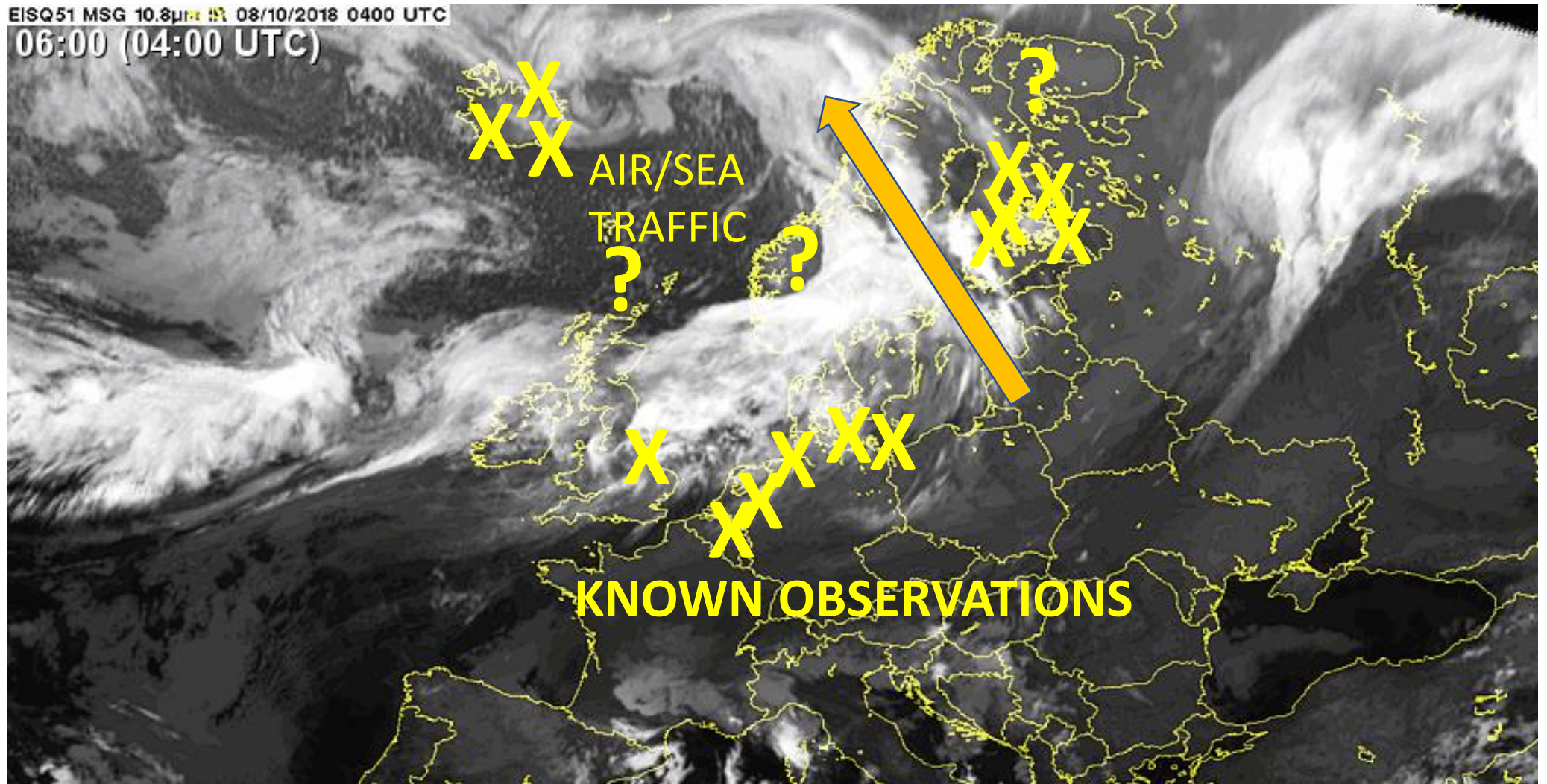
# REPORTS TRICKLE IN

- Observer Marco Langbroek FIRST calculates stage-2 ground track and receives reports from German observers
- In survey of internet/youtube comments on California launch spectacle, I noticed four separate questions from Europe about possibly related observations an hour after the launch – followup showed all four were legitimate fortuitous observations of the deorbit burn.
- Analysis of metsat cloud cover maps showed localized regions of clear skies around North Sea, and based on calculated illumination conditions I sent out queries to astronomers in Iceland – and hit jackpot from three separate observation programs.
- Further reports from northern Germany and Finland also came in.
- Potential spots on Norwegian coast and far NW Russia [probably too close to sunrise], have produced no reports.
- Queries to observers at sea or on commercial aircraft in area – still not done
- International Space Station was not in line-of-sight and crew was asleep.



# De-orbit observed from Europe [2 hrs pre-sunrise]

*No reports yet from clear areas in Norway, N Sweden NW Russia, sea/air*



Map from Langbroek report <http://www2.sat24.com/history.aspx?culture=en>

# SatTrackCam Leiden (b)log

THE SECRET SPIES IN THE SKY - *Imagery, Data Analysis, and Discussions relating to Military Space*

**SatTrackCam Leiden** (Cospar 4353) is a satellite tracking station located at Leiden, the Netherlands. The tracking focus is on classified objects - i.e. "spy satellites". With a camera, accurate positional measurements on satellites of interest are obtained in order to determine their orbits. Orbital behaviour is analysed.

**Falcon 9 reentry burn from  
SAOCOM 1A launch  
observed from Europe //  
Tuesday, 9 October 2018**

**Marco\_Langbroek**

[https://www.blogger.com/profile/  
08711764306071043709](https://www.blogger.com/profile/08711764306071043709)

<https://sattrackcam.blogspot.com/2018/10/falcon-9-reentry-burn-from-saocom-1a.html>

# LANGBROEK TEXT

On 8 October 2018 (7 October local time) at 2:21 UT, SpaceX launched the Argentinian Radar surveillance satellite **SAOCOM 1A** (2018-076A) in a sun-synchronous ~620 km orbit. The launch took place from launch platform 4 at Vandenberg in California. It was a spectacular launch, yielding spectacular launch images.

An hour later, near 03:40 UT, **a bright fuzzy blue object travelling through the sky was seen from northern Europe.**

This fuzzy phenomena was the **Falcon 9 rocket stage (the 2nd stage) from this launch performing its re-entry burn** while passing through apogee, lowering perigee such that it would reenter into the atmosphere over the Pacific Ocean southeast of Hawaii near 04:13 UT, at the end of it's first revolution.

# PRECISE TIME OF BURN NOT OFFICIALLY DISCLOSED

- 02:21 launch 2018oct08
- 03:40 UTC burn [estimated]
- **BURN WAS PROBABLY A MINUTE LATER OVER CENTRAL SWEDEN**
- Sunrise times
- Ermelo, netherlands 05:53
- SüderLügum in Germany 05:43
- Narvik, Norway 05:36
- Murmansk 04:35





NOTE FAMILIAR  
CONSTELLATION  
TO THE RIGHT OF  
IMAGE CENTER:  
URSA MAJOR

*image (c) Koen Miskotte.  
Used with permission  
[Langbroek report]*

Langbroek: “The image above is part of an image taken by a photographic all-sky meteor camera in Ermelo, the Netherlands, operated by Koen Miskotte. It is actually a stack of 4 separate images (hence the three short breaks in the trail), of 88 seconds exposure each, taken between 03:39:30 and 03:45:28 UT on Oct 8, 2018. The bright blue fuzzy streak above the treeline is well visible.”

Langbroek: The sky map shows the trajectory for SAOCOM 1A for Ermelo, the location of Koen Miskotte's allsky camera (times are in CEST = UT +2). The full all sky image is given as comparison. The two match well.

**MOTION WAS  
RIGHT TO LEFT**

# OBSERVATION FROM ENGLAND

- [comment posted on <https://youtu.be/sEaTe38-l4Y>
- placid renegade == Not sure if I saw this happen this morning! I'm from the uk and watched something **very much like this around 3am** in the morning sky.
- jim oberg == MAYBE YOU DID. The stage did a deorbit burn an hour after launch, west of Norway. It was seen in Belgium, Netherlands, and Germany.
- placid renegade == jim oberg thanks Jim, maybe this is what I in fact watched.
- jim oberg == Here is what the same phenomenon looked like earlier this year to observers in Norway. Please write down your own recollections BEFORE you watch this. [http://satobs.org/seesat\\_ref/misc/180322-falcon9-deorbit-NORWAY.pdf](http://satobs.org/seesat_ref/misc/180322-falcon9-deorbit-NORWAY.pdf)

[more]



11/7/2018



[RT] If you pause the video at 0:19 that's exactly what I saw but much smaller. [JO: on left is Feb 2018 Norway observation of deorbit]

oct 8, 2018 Falcon9 deorbit burn



23

- “placid renegade” [name unknown, no further contact]
- Just realised I was in fact **looking east from West Yorkshire**, the back of my house faces direct north so I looked to my right (east) I watched what at first thought was the **moon behind clouds** but as it was **much much smaller**. But it had that look of when the moon is behind wispy clouds, looked much larger than the stars in the morning sky. It was roughly about the height of the moon in the morning sky but as I watched it more and more it diminished and definitely **dropped and veered to its left**, as doing so looked like an actual star size then disappeared. I wondered if I had witnessed a supernova or something. And when morning came I searched the Internet to see if anyone else had reported it also, then came across info on Twitter about this.
- yeah no doubt about it mate, **how it looks on the images is what I watched**, it's the **exact same size and around the height I witnessed**. The **whispey** natured like **emitting a large gas halo** is what I can best describe it as. Feel very honoured now to have witnessed this. I must admit though it didn't have a core like the images as it was very far away, more **like a torch shine in fog**.



# OBSERVATION FROM NETHERLANDS

- Posting on youtube channel of SpaceX launch video from California  
<https://www.youtube.com/watch?v=irUUthNzeAg>
- A R C A N S C O == I SERIOUSLY SAW SOMETHING LIKE THIS JUST NOW HERE IN THE NETHERLANDS: **THE LIGHT POINT LIKE SHOOTING OUT A CIRKEL OF SMOKE!!!** .... At first it was absolutely terrifying to see.
- jim oberg == WOW! This is very important. The second stage deorbit burn occurred over your area an hour after launch. PLEASE respond with more details.  
....

I found that unique 'user name' on Facebook and sent this message....

- On Oct 8, 2018, on youtube, you reported seeing a strange hazy star in the pre-dawn sky. It was the SpaceX rocket from California, diving back into the atmosphere. I have collected reports from all around the North Sea. I want to send you my report, which quotes you.
- <https://www.facebook.com/pages/category/Personal-Blog/Arcansco-416838215333628/>
- SEE REPLY FROM JAMIE ALBERS ON NEXT PAGE

On the 8th of Oct. I posted my experience on Facebook,  
I will translate that message as good as I can in English for u.

"Did I just see a UFO?"

At 5:47 I walked outside and stopped for a moment to see how bright the stars were  
in the sky this morning. (I do it more often when dark, it fascinates me).

But suddenly I saw **while facing the direction North, a huge light point  
half covered by veil clouds and it moved fairly quickly. After that it  
looked like a kind of smoke was coming from that light point, in a  
circle form.**

I then went directly on Youtube to see if I could find something similar, and to my  
great surprise; Yesterday (7th of Oct.) from LA, uploaded a video in which the same  
thing I saw was recorded.

I still do not know what it was, but I hope I'll find more information about this topic."

- That's what I posted on my Facebook.
- I had hoped that I could have filmed it in some way, but because of the veil clouds, and the distance I wasn't even able to get it clearly on film.
- I asked people right away if they had seen anything similar like what I saw that morning, but no one I know had seen it...
- Anyway, if my experience and information helps you with the report, I hereby give you my permission to use my full name: 'Jamie Albers'.

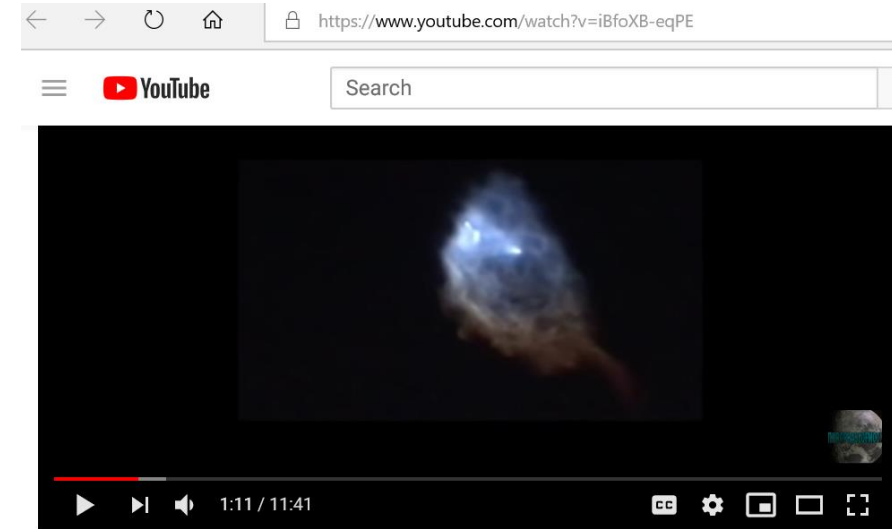
**"A R C A N S C O"  
[JAMIE ALBERS]**



# youtube comment on sighting in Belgium

<https://www.youtube.com/watch?v=iBfoXB-eqPE>

- Psycho Stef == A friend just told me monday morning around 6.00am he has seen a **circular teleportation-like cloud with a very fuzzy object close to it of coming out of it about 30 meters in the sky and about 1 km away.** Some online sources told him it was the Falcon 9 rocket launch he saw, where he knew nothing about. Only thing is, we live at the Belgian coast (on the other side of the 'world', that is) and **the thing he saw was very close and stationary until it dissapeared. ...**
- jim oberg == THIS IS VERY IMPORTANT. He may have seen the de-orbit burn of the second stage, it was also seen about that same time in Netherlands and Germany. Please respond so we can get more details from your friend.



It Just Happened Over LA! And We Got It! 2018

188,522 views

3.1K

311

SHARE

SAVE



thirdphaseofmoon

Streamed live on Oct 7, 2018

JOIN

SUBSCRIBE 647K

The Falcon 9 Rocket Makes A Spectacular Bang Over LA! But Something Mysterious Is

HUNDREDS OF VIDEOS OF SPACEX LAUNCH WERE POSTED ON SITES SUCH AS 'YOUTUBE', WITH MANY THOUSANDS OF COMMENTS

## Reply from youtube comment on sighting in Belgium -- 2

Psycho Stef == ...Well I asked him again and he told me that **he was kind of pretty sure that it wasn't the afterburn of the rocket he saw.** He watched several video's of the rocket **launch** as well. **Nothing on there was what he saw.** It first of all seemed **too close by like it could be over the next block and it looked to him like a very unsharp, unclear ring in the sky** (not clouds nor smoke) with what appeared a darker object very close to it. Like this shape : 0°. The strange thing was that his eyes **couldn't get it in focus it stayed fuzzy and unsharp looking** at it and it just moved like on the wind very slowly sliding.. That's all I can tell really, Apparently more people have seen things around that time, but **the time seems a little bit off because the launch was the night before and he saw this the next morning..** Maybe also check: <https://www.facebook.com/ufomeldpuntbe/> That's a group page on facebook for ufo sightings in our area. Hope it was helpful? Cheers

jim oberg == 6 AM Belgian time [GMT+2], so UT time was 04:00. The blog report: "On 8 October 2018 (7 October local time) at 2:21 UT, SpaceX launched the Argentinian Radar surveillance satellite SAOCOM 1A (2018-076A) in a sun-synchronous ~620 km orbit. The launch took place from launch platform 4 at Vandenberg in California. It was a spectacular launch, yielding spectacular launch images. An hour later, **near 03:40 UT**, a bright fuzzy blue object travelling through the sky was seen from northern Europe." **Seems to me that 'about 6AM' and 05:40 local time are pretty close.**

# BELGIAN UFO WEBSITE RECOMMENDED BY 'PSYCHO STEF'

<http://ufomeldpunt.be/recent.html?fbclid=IwAR0VX->

[Q2v2C2mM3fMFUNNkr9tYsv5aaPX3P0UaaYSHSvOFtpVbwRGnQDFW8](http://ufomeldpunt.be/recent.html?fbclid=IwAR0VX-Q2v2C2mM3fMFUNNkr9tYsv5aaPX3P0UaaYSHSvOFtpVbwRGnQDFW8)

- **Datum:** 08-10-2018 **Plaats:** Pittem (West-Vlaanderen) **Tijdstip:** 5u50 **Waarnemingsduur:** 5 minuten
- Omstreeks 5 u 50 keek ik naar sterrenbeeld "de grote beer" en plots zag ik aan de anders heldere hemel, je zag goed de sterren en ook een tweetal vliegtuigen, een bolvormige mistvlek met daarin een helderwit licht. Ik dacht eerst een ster of een vliegtuig achter een wolk, maar de rest van de hemel was helder en je zag heel goed de bolvormige mistvlek die bewoog. Ik nam de verrekijker en zag in het midden een helderwit licht, heel fel en de mistbol werd iets groter en het was alsof er een zoeklicht bewoog doorheen de mistbol, je zag een soort lichtbundel. De bol bewoog van het oosten naar het noorden en daalde iets en werd soms groter en kleiner terwijl het licht ook wat veranderde, de snelheid was redelijk constant en een beetje zoals van een vliegtuig.

Around 5:50 I watched the constellation Ursa Major and suddenly I saw the otherwise clear sky, you saw the stars well and also two planes, **a spherical mist spot with a bright white light**. I first thought of a star or a plane behind a cloud, but the rest of the sky was clear and you could very well see **the spherical mist that moved**. I took the **binoculars** and saw a bright white light in the middle, very bright and the mist bulb became slightly larger and it **was as if a searchlight was moving through the mist, you saw a kind of beam of light**. The sphere moved **from the east to the north** and **dropped slightly** and sometimes became larger and smaller while the light also changed slightly, the speed was fairly constant and a bit like a plane.

[TRANSLATION VERIFIED BY DUTCH NATIVE SPEAKER GEERT SASSEN]

# OBERG QUERY TO BELGIAN UFO GROUP

<https://www.facebook.com/ufomeldpuntbe/>

- On 8 October 2018 at 2:21 UT, SpaceX launched the Argentinian Radar surveillance satellite SAOCOM 1A. An hour later, near 03:40 UT, the rocket turned on its engine to dive back into the atmosphere. This looked like a bright fuzzy object that travelled through the sky over the North Sea, and was seen in northern Europe, from Germany to Netherlands to England to Iceland. From Belgium the object was low on the horizon, moving from right to left. Are there any witness reports? This is my report on a previous observation of the same phenomenon early this year.
- Le 8 octobre 2018 à 02h21 TU, SpaceX a lancé le satellite de surveillance radar argentin SAOCOM 1A. Une heure plus tard, vers 03h40 TU, la fusée a mis son moteur en marche pour plonger dans l'atmosphère. Cela ressemblait à un objet flou brillant qui traversait le ciel au-dessus de la mer du Nord et a été vu dans le nord de l'Europe, de l'Allemagne aux Pays-Bas, en passant par l'Angleterre et l'Islande. De Belgique, l'objet était bas à l'horizon, se déplaçant de droite à gauche. Y a-t-il des témoignages? Ceci est mon rapport sur une observation précédente du même phénomène au début de cette année.  
[http://satobs.org/seesat\\_ref/misc/180322-falcon9-deorbit-NORWAY.pdf](http://satobs.org/seesat_ref/misc/180322-falcon9-deorbit-NORWAY.pdf)

# LOCATION OF BELGIAN SIGHTING





**Belgisch UFO-meldpunt**

October 16 at 1:05 AM · 🌐

Er werd een nieuwe video op onze website geplaatst (08-10-2018, Genk).  
Bekijk de volledige opname via: <http://ufomeldpunt.be/2018.html> #UFOs



 Like

 Comment

Robin De Bundel and Geert Vandenberghe like this.  
11/7/2018

oct 8, 2018 Falcon9 deorbit burn

VIDEO OF  
ANOTHER  
SIGHTING,  
FROM CITY  
OF GENK,  
BELGIUM

<http://ufomeldpunt.be/2018.html> #UFOs



# UFO seen from Genk (Belgium) 08-10-2018

[UFO GROUP INDEPENDENTLY CORRECTLY IDENTIFIED SIGHTING, HOWEVER, NO USEFUL DETAILS OF APPEARANCE OR MOTION]

- <https://youtu.be/8tOyAXCiXuc> video duration 1:22
- Onze bevindingen: Dit verschijnel werd door verschillende mensen in binnen – en buitenland waargenomen. Het betreft hier de tweede rakettrap van de Falcon 9. De raket werd 1 uur en 20 minuten eerder gelanceerd door SpaceX vanaf Vandenberg AF in Californie.
- Evaluatie – rakettrap
- Our findings: This phenomenon was observed by various people at home and abroad. This is the second rocket stage of the Falcon 9. The rocket was launched 1 hour and 20 minutes earlier by SpaceX from Vandenberg AF in California.
- Evaluation – rocket stage

# UFO Genk (Belgium) 08-10-2018



IMAGE SHOWS ONLY A FUZZY BALL  
MOVING FROM RIGHT TO LEFT, NO  
DETAILS AND NO BRIEF OUTBURSTS.



<https://youtu.be/8tOyAXCiXuc>

▶ ⏸ 🔊 🔵 0:27 / 1:22



# COMMENT ON LAUNCH FROM BALTIC COAST EYEWITNESS 'GEN DIT'

[https://youtu.be/vr\\_C6LQ7mHc](https://youtu.be/vr_C6LQ7mHc)

Gen Dit == Could any of the boffins on here help me out. At 05:45am Central European time, location Sassnitz Germany. **I observed an object in the sky which looked identical to the footage of the first stage returning.** Same **halo** effect seen **ahead of the object in the direction of travel.** It is was travelling roughly South to North. Just not sure how I could have seen the falcon X here in Europe. Did the main module initiate a second burn or something. Excuse my ignorance as I am no rocket scientist. Incidentally it was stunningly beautiful to see.

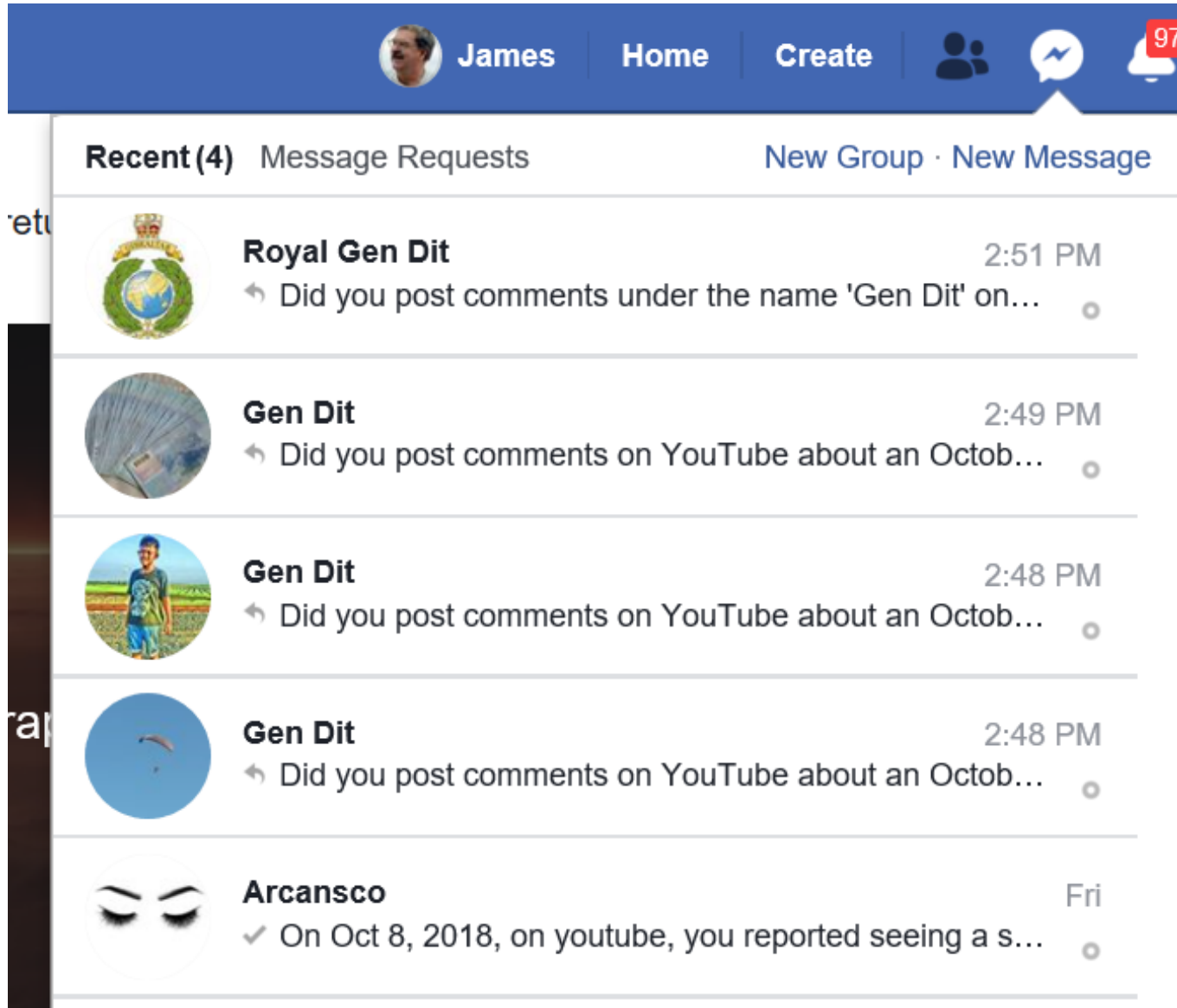
*"GEN DIT" is a Royal Navy term for a "true story" and 'boffin' is British slang.*



# Posted on video “SAOCCOM 1A Mission”

[https://youtu.be/vr\\_C6LQ7mHc](https://youtu.be/vr_C6LQ7mHc)

- You can actually see how the de-orbit burn looked from the ground in this video: "Feuerkugel über der deutsch-dänischen Grenze 08102018"
- <https://www.quora.com/How-is-a-Falcon-9-second-stage-de-orbited-after-the-payload-release>
- Gen Dit == Thanks I appreciate the response. Having read up on the Falcon X launch cycle I figured that was what I saw. Nice to have it confirmed and it really was **quite extraordinary** to see.
- [FURTHER CONTACT ATTEMPTS UNSUCCESSFUL]



# Seeking 'Gen Dit' [nothing found]

Did you post comments  
under the name 'Gen Dit' on  
YouTube about an October  
8, 2018 'UFO sighting'  
[SpaceX rocket plume] from  
Sassnitz?  
jameseoberg@comcast.net

# Another report from Germany

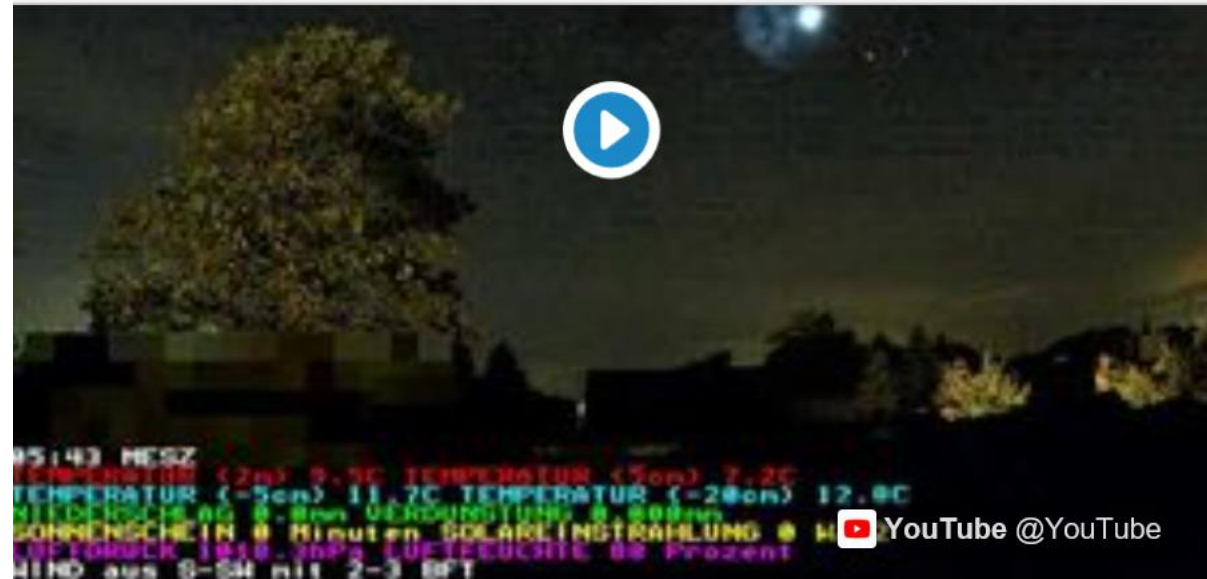
[Daniel Fischer @cosmos4u](#)

[@NASASpaceflight](#) Does the sky phenomenon last night at 3:42 UTC over Germany - [https://www.youtube.com/watch?v=4gz6aQQKb\\_Q...](https://www.youtube.com/watch?v=4gz6aQQKb_Q...)

with single frames in <http://www.sdlg2.de/Feuerkugel/Bilder%20Feuerkugel/...> jpgs

- look like something related to the Falcon 9 launch at Vandenberg? I.e. an event with the upper stage or payload?

[12:58 PM - Oct 8, 2018](#)



**Daniel Fischer**  
[@cosmos4u](#)



[@NASASpaceflight](#) Does the sky phenomenon last night at 3:42 UTC over Germany - [youtube.com/watch?v=4gz6aQQKb\\_Q...](https://www.youtube.com/watch?v=4gz6aQQKb_Q...) with single frames in [sdlg2.de/Feuerkugel/Bil...](http://www.sdlg2.de/Feuerkugel/Bilder%20Feuerkugel/...) - look like something related to the Falcon 9 launch at Vandenberg? I.e. an event with the upper stage or payload?

12:58 PM - Oct 8, 2018

♡ 44 💬 18 people are talking about this

<https://twitter.com/cosmos4u/status/1049358346522976256>

# Underlug weather station video

[https://youtu.be/4gz6aQQKb\\_Q](https://youtu.be/4gz6aQQKb_Q)

- Eine Feuerkugel (Bolide) wurde am 08.10.2018 bei ihrem Flug durch die Atmosphäre von der Kamera der privaten Wetterstation Süderlügum gegen 05.40 Uhr MESZ azfgezeichnet. Möglicherweise handelt es sich um die Oberstufe einer Falcon 9 Rakete von SpaceX beim Eintritt in die Atmosphäre. In der selben Nacht zu der passenden Zeit wurde ein Satelitt hochgeschossen.
- A fireball (Bolide) was marked on 08.10.2018 during its flight through the atmosphere of the camera of the private weather station Süderlügum at 05.40 clock CEST. It may be the upper stage of a Spacex Falcon 9 rocket entering the atmosphere. A satellite was shot up the same night at the appropriate time.
- Suederluegumwetter1 Published on Oct 8, 2018
- [www.suederluegumwetter.de](http://www.suederluegumwetter.de)
- <https://www.youtube.com/channel/UCL5RG1aeE5NbCWbfijaL7RQ>



**Thomas Pest**  
**[cirrostratus@email.de](mailto:cirrostratus@email.de)**



Langbroek: “A surveillance camera from a weather station in SüderLügum in Germany, near the German-Danish border, produced this **spectacular time-lapse movie** of the event (note the "puffs" when the rocket engine is firing).”

[https://youtu.be/4gz6aQQKb\\_Q](https://youtu.be/4gz6aQQKb_Q)

05:43 MESZ  
TEMPERATUR (2m) 9.5C TEMPERATUR (5cm) 7.2C  
TEMPERATUR (-5cm) 11.7C TEMPERATUR (-20cm) 12.8C  
NIEDERSCHLAG 0.0mm VERDUNSTUNG 0.000mm  
SONNENSCHIN 0 Min. AREINSTRALUNG 0 W/m²  
LUFTDRUCK 1018.3hPa LUFTFEUCHTE 88 %  
WIND aus S-SW mit 2-3 BFT

11/7/2018 0:04 / 0:08 oct 8, 2018 Falcon9 deorbit burn

HD

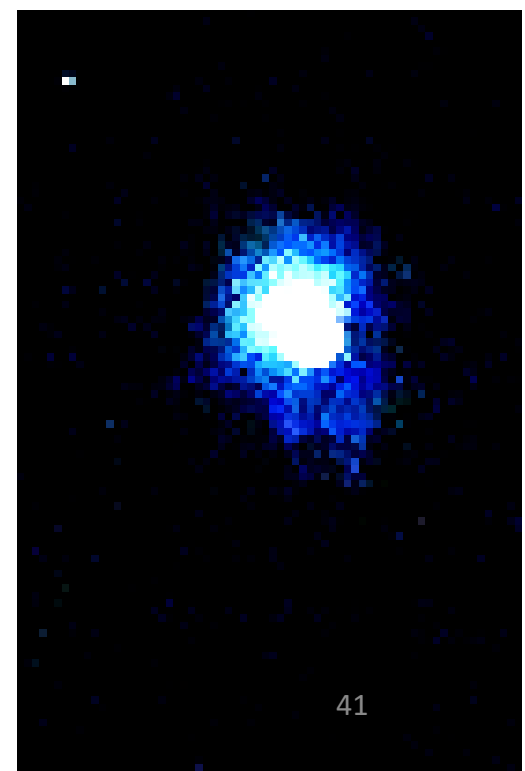


Image 499,  
twin lobe  
plumes are  
present [?]

THIS IS 75 SECONDS  
PRIOR TO THE BRIEF  
ENGINE BURN. THE  
OBJECT CAME INTO  
CAMERA VIEW FROM  
RIGHT WITH AURA  
ALREADY FORMED.



05:41 MESZ  
TEMPERATUR (2m) 9.5C TEMPERATUR (5cm) 7.2C  
TEMPERATUR (-5cm) 12.2C TEMPERATUR (-20cm) 12.8C  
NIEDERSCHLAG 0.0mm VERDUNSTUNG 0.000mm  
SONNENSCHIN 0 Minuten SOLAREINSTRALUNG 0 W/m2  
LUFTDRUCK 1018.3hPa LUFTFEUCHTE 88 Prozent  
WIND aus S-SW mit 2-3 BFT



# Further correspondence with Süderlügum [translation by JO with Google-Translate]



- I did not see the object itself! When I looked at the video, I first wondered what that bright, round object was. Next came this shockwave (fast delta-shaped cloud forward with a sharp front line...). What baffled me about this was the kind of bubble that formed (forward) that looked a moment later as if a spaceship were expelling some forward circular form. That's when the first thought came to me of a big satellite or even of aliens ,honestly. :-) This bubble thing then enlarged and became fainter, lasting about 30 seconds, while the object itself slowly moved from NE to SW[sic!] across the sky. After that, the object continued to fade and disappeared slowly from the sky. Watching the Cam, the apparition was seen for 5 minutes. However, I must say that I would not have noticed the whole thing, if a weather colleague (private Klimastation Büdelsdorf, about 100 km south of me) had not made me aware of this object, because he had noticed in his time-lapse shots.

# Additional links from Süderlügum

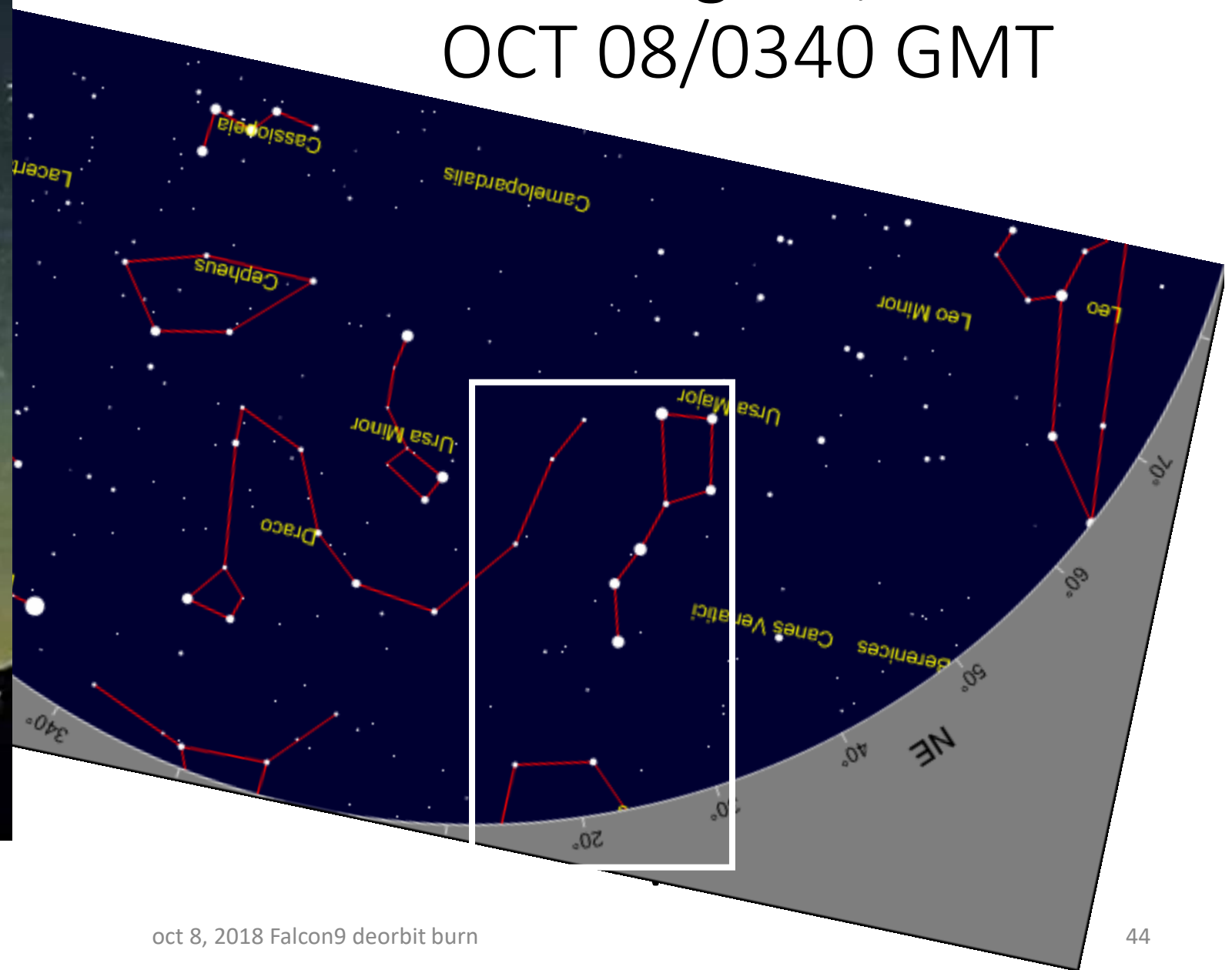
- From different forums I know that the phenomenon was recorded several times in Germany by webcams (here and here).
- <https://forum.meteoros.de/viewtopic.php?f=8&t=58332>
- <https://forum.meteoros.de/viewtopic.php?f=8&t=58335>
  
- **private Klimastation Büdelsdorf**
- <http://www.buedelsdorfwetter.de/css/>
- Michael Green // [migreen@gmx.de](mailto:migreen@gmx.de)

Zeit: UTC Mon Oct 8 03:43:

AZIMUTH = 27 DEGREES

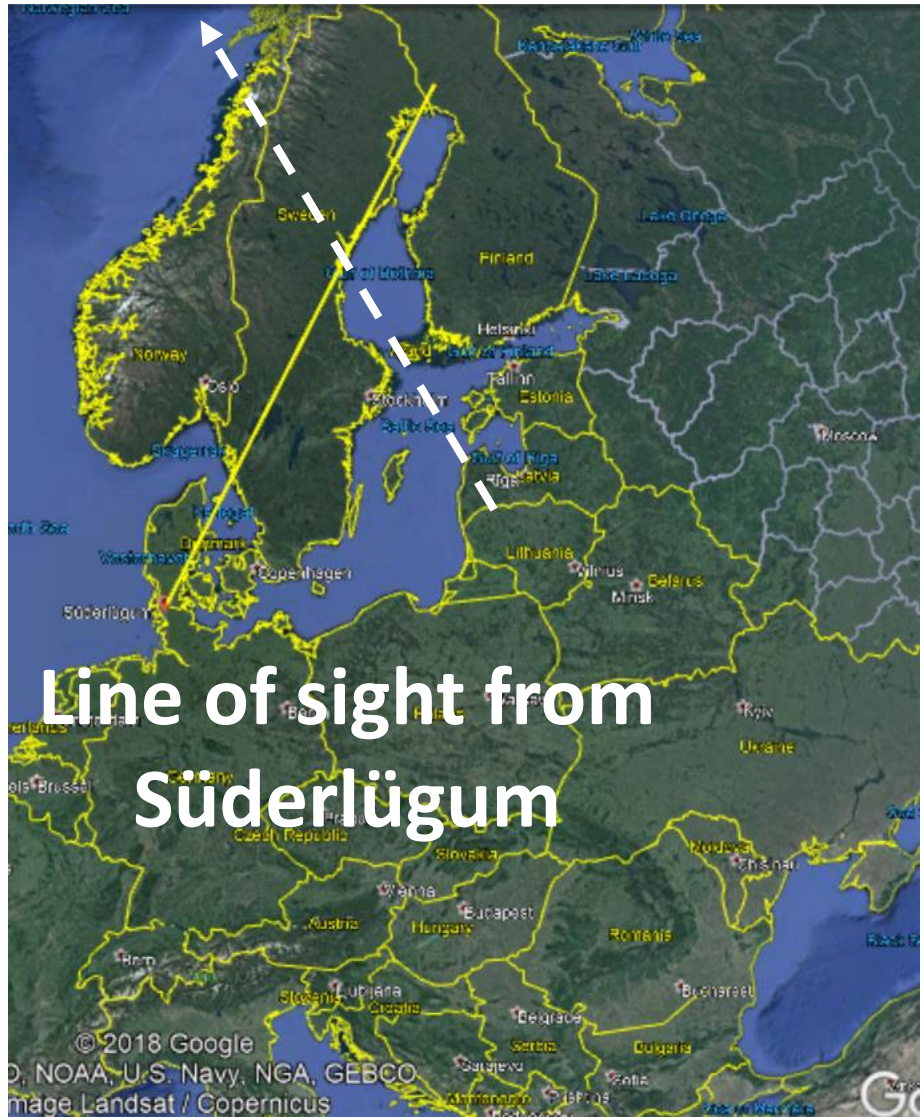
B (5cm) 7.2C

# Süderlügum , 2018 OCT 08/0340 GMT



62.3 N, 17.5 E, Sundsvall,  
Västernorrland County,  
Sweden [on Gulf of Bothnia]  
940 KM from **Söderlögum**

OBJECT ALTITUDE ~648 KM



Line of sight from  
**Söderlögum**



# Süderlügum video comment – Rostock sighting

[https://www.youtube.com/watch?v=4gz6aQQKb\\_Q&feature=youtu.be](https://www.youtube.com/watch?v=4gz6aQQKb_Q&feature=youtu.be)

- Michael Sauerborn == Ich habe wohl die gleiche Erscheinung von meinem Balkon in Rostock aus gesehen. Sternenklarer Himmel und dann zog das Ding durch wie ein beleuchteter Nebelball. Grob geschätzt dürfte die Richtung fast genau Richtung Norden gewesen sein. Leicht westlich.
- I have probably seen the same phenomenon from my balcony in Rostock. Starry sky and then the thing went through like **a lit fog ball**. Roughly estimated, the direction should have been almost exactly north. Slightly west.



# comment on Süderlügum video

kNews.space == Nice! Ich habe den Raketenstart live um 4:21 morgens mitverfolgt. Die Rakete flog vom Westen der USA aus nach Süden, über den Südpol, einmal um die Erdkugel über Afrika und Europa herum um dann schließlich über den Nordpol zu fliegen und in den Pazifik zwischen Hawaii und den USA ins Meer zu stürzen. Ich hab während dem Livestream spekuliert wo genau die obere Stufe wohl zum finalen Manöver ansetzen wird um die stabile Umlaufbahn wieder zu verlassen (dort wo die Ladung abgesetzt wurde). Da passiert es einmal über Deutschland und ich sehe es nicht, sehr ärgerlich and Danke fürs Video!

=====

I followed the rocket launch live at 4:21 am The rocket flew from the west of the United States south, over the South Pole, once around the globe over Africa and Europe around and then finally fly over the North Pole and plunge into the Pacific between Hawaii and the United States into the sea. During the livestream, I speculated as to where the upper stage would probably be at the final maneuver to leave the stable orbit (where the charge was dropped). Since it happened once over Germany and I did not see it, very annoying, and thanks for the video!

Bochum [http://www.astrotreff.de/topic.asp?TOPIC\\_ID=230613](http://www.astrotreff.de/topic.asp?TOPIC_ID=230613)

Hallo zusammen.

Heute morgen konnte ich ein ganz besonderes Ereignis beobachten: Es war 5:43 Uhr und flog von rechts nach links in ca. 20 Grad Höhe durch den Großen Wagen. Erst dachte ich, es wäre die ISS (passte von der Helligkeit), die durch Nebelschwaden mal diffus und mal punktförmig zu sehen ist. Doch alle Sterne drumherum waren klar. Dann hat sich davor auch noch ein Nebelkreis gebildet, wie man es bei Kampfflugzeugen beobachten kann, die die Schallmauer durchbrechen. Ein fantastischer Anblick.

Es könnte eventuell eine Stufe der Falcon-9 gewesen sein, die heute Nacht in Amerika gestartet ist. Vielleicht hat es ja sonst noch jemand beobachtet.

Hello everybody.

This morning I was able to observe a very special event: It was 5:43 clock and flew from right to left in about 20 degrees altitude through the Big Dipper. At first I thought it was the ISS (adapted from the brightness), which is sometimes diffuse and occasionally punctuated by fog. But all the stars around were clear. Then, before that, **a fog circle has formed**, as can be seen in fighter jets breaking through the sound barrier. A fantastic sight.

It may have been a stage in the Falcon-9 launching in America tonight. Maybe someone else has seen it.



# Incomplete analysis – needs work

unsere AllSky hat es auch drauf, ziemlich hell das Ding was immer es ist. Am Anfang auch komplett diffus. Ich prüf später mal die Einzelbilder.

<https://youtu.be/3g0TXDTXiyg>

VG

Martin

our AllSky has it on it too, pretty bright the thing whatever it is. At the beginning also completely diffuse. I'll check the frames later.

Bearbeitet vo

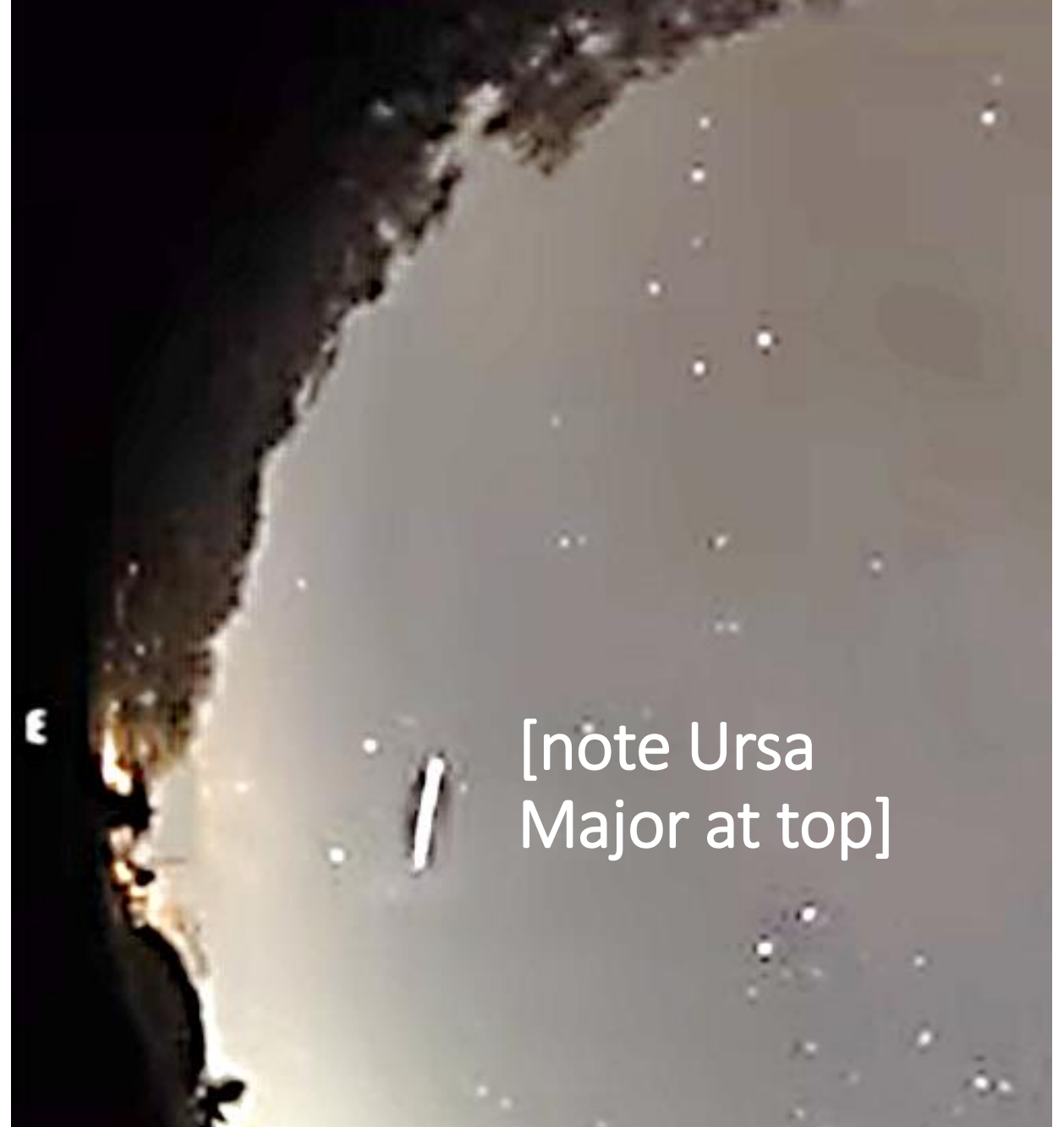
Freitag 07.10.2018 zum Montag 08.10.2018

05:42:39 CEST



<https://youtu.be/3g0TXDTXiyg>

11/7/2018



[note Ursa Major at top]

oct 8, 2018 Falcon9 deorbit burn

50



Out Temp: 5.5°C  
 Sun Alt: -16.0°  
 Moon ALT: -2.0°  
 Moon Vis: 1.5%

Gain: 300  
 Exp: 20s  
 CCD: -10.8°C

11/7/2018

oct 8, 2018 Falcon9 deorbit burn

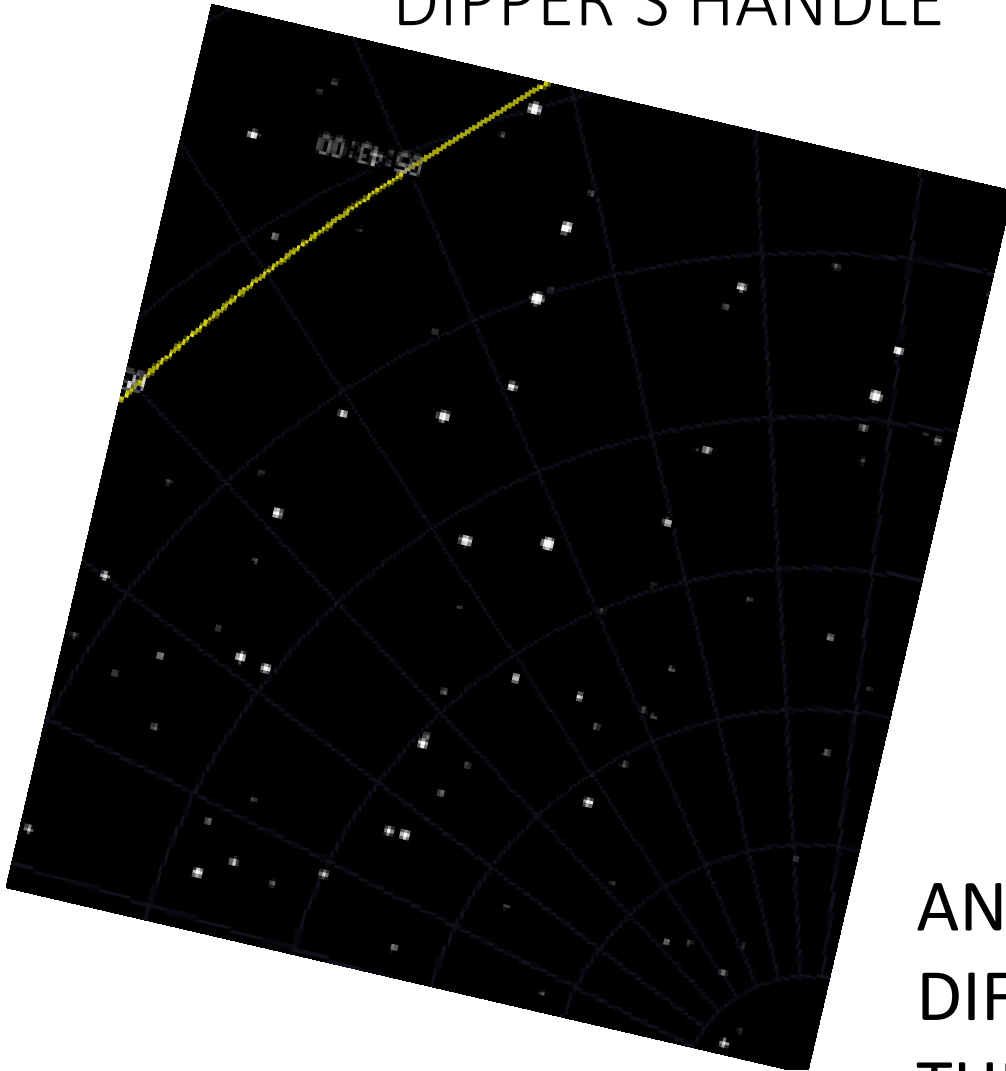
<https://www.facebook.com/Astroclub.Radebeul/photos/a.218521924982411/1298475753653684/?type=1&theater>

For better visibility we have created a slower gif - animation of the flight:

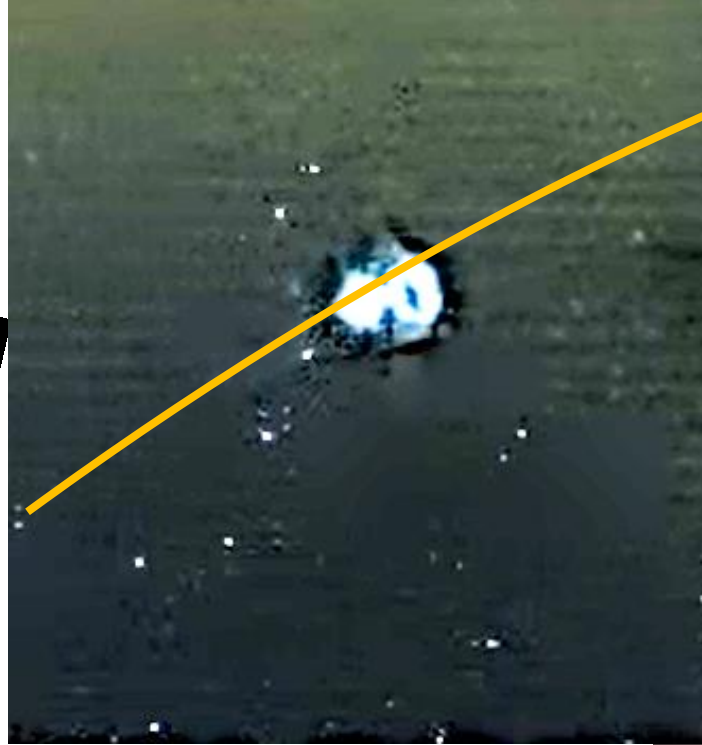
[http://galerie2.astroclub-radebeul.de/images/objects/bfa9805d-5e4b-4386-865b-d1900065b638/falcon\\_reburn.gif](http://galerie2.astroclub-radebeul.de/images/objects/bfa9805d-5e4b-4386-865b-d1900065b638/falcon_reburn.gif)



# AGAINST THE DIPPER'S HANDLE



Ermelo, Netherlands  
52°18'N 5°37'E



Süderlügum  
54°52'N 8°55'E

ANALYSIS PROPOSAL – USE  
DIFFERENT ELEVATIONS OF  
THE ORBITAL PATH TO TRY  
TO COMPUTE ALTITUDE



Radabeul  
51 07 N, 13 39 E

# OBSERVATION IN OSTWESTFALEN, GERMANY

Hallo liebe Astrofreunde,

ich habe das Teil auch heute Morgen zufällig beobachtet in Ostwestfalen bei Bielefeld!....sehr eindrucksvoller Anblick! Ich dachte erst es sei der Mond hinter Wolkenfetzen;-) Könnte es sein, daß diese Falcon 9 einen sogenannten Fuedump durchgeführt hat?

I also watched the part this morning in Ostwestfalen near Bielefeld! .... very impressive sight! I first thought it was the moon behind Wolkenfetzen ;-)  
**Could it be that this Falcon 9 has performed a so-called Fuel-dump?**

LG Olli




# Suggested link

- Hallo Leute, wurde gerade im Meteoros Forum gepostet:  
<https://forum.meteoros.de/viewtopic.php?f=8&t=58332>

Beste Grüße, Marcus

- Hi Guys,
- has just been posted in the Meteoros forum:  
<https://forum.meteoros.de/viewtopic.php?f=8&t=58332>
- Best regards, Marcus



The screenshot shows a web browser window displaying the AKM e.V. Forum. The browser's address bar shows the URL: <https://forum.meteoros.de/viewtopic.php?f=8&t=58332>. The forum header features a large image of a rainbow over a green landscape, with the AKM logo (a stylized 'M') on the left. The text 'AKM e.V. Forum' and 'Das Forum für atmosphärische Erscheinungen' is visible. Navigation links include 'Schnellzugriff', 'FAQ', 'Registrieren', and 'Anmelden'. The breadcrumb trail reads 'Foren-Übersicht < AKM e.V. Themengebiete < Meteor Forum'. A search bar is present with the text 'Suche...'. The main topic is 'mögliche Feuerkugel über Schleswig-Holstein 08.10.2018', moderated by Claudia Hinz, Wolfgang Hinz, and Sirko Molau. The post is by Thomas Pest, dated 8. Okt 2018, 16:36. The post content begins with 'Moin !'. The forum interface includes 'ANTWORTEN' and 'Thema durchsuchen...' buttons, and a page indicator '7 Beiträge • Seite 1 von 1'.

# Skyweek Zwei Punkt Null

Alles übers All ... von Daniel Fischer ... seit 1985 – und jetzt online im klassischen Blog-Format

« [Live-Blog zur Landung von MASCOT auf Ryugu](#)

[Hätte Neil Armstrong eine Action-Cam gehabt ... »](#)

## **Allgemeines Live-Blog vom 7.-9. Oktober 2018**

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<https://skyweek.wordpress.com/2018/10/07/allgemeines-live-blog-ab-dem-7-oktober-2018/#Okt08>

<https://skyweek.wordpress.com/2018/10/07/allgemeines-live-blog-ab-dem-7-oktober-2018/#Okt08>

Eine besondere Zugabe folgte gegen 5:43 MESZ (1:20 nach dem Start) in Europa: Der Deorbit-Burn der 2. Stufe konnte bestens gesehen werden (die Einzelbilder des Videos und ein Bericht dazu [<https://forum.meteoros.de/viewtopic.php?f=8&t=58332>]; es gingen zwei weitere beim Planetarium Bochum ein und [auch hier](#)) – siehe [hier](#), [hier](#), [hier](#) und [hier](#) zur eindeutigen Identifizierung! ...[21:35 MESZ]  
Eine Detektion des Reentry Burn über Finnland [URL]

A special encore [JO: to the launch spectacle] followed at 5:43 CEST (1:20 after launch) in Europe: The second stage Deorbit-Burn could be seen in the best way (the individual pictures of the video and a report on it, two more went to the Planetarium Bochum) and here too) .. [21:35 CEST] A Detection of Reentry Burn over Finland,, ....



# mögliche Feuerkugel über Schleswig-Holstein 08.10.2018

Zitat / Beitrag von Thomas Pest » 8. Okt 2018, 16:36

GERMAN SOCIAL MEDIA ACCOUNTS  
NEED FURTHER ANALYSIS ....

<https://forum.meteoros.de/viewtopic.php?f=8&t=58332>

tbs

Tolles Video dort. Sieht wirklich nach einer Raketen Zündung aus, oder Fuel Dump. Keine Bugwelle, denn sie breitet sich mit und sogar in Flugrichtung beschleunigend aus. Wie diese Falcon 9 Starts morgens (wie auch gestern, gibt beeindruckende Erscheinungen mal wieder im Netz. Aber die Falcon-9 war es eben nicht.

Und auch sonst, Raumflugobjekte bewegen sich fast definitiv nicht in Ost-West Richtung. Strange! Trumps Space Force schon aktiv?!

Walter

great video there. Looks like a rocket ignition, or fuel dump. No bow wave, because it spreads with and accelerating even in the direction of flight. Like these Falcon 9 launches in the morning (as well as yesterday, there are some awesome apparitions on the net again, but the Falcon 9 was not.

And even otherwise, spacecraft do not move almost definitely in east-west direction. Strange! Trumps Space Force already active?

Walter

tbs

also ich würde die Flugbahn von Süd nach Nord beschreiben....Vlt ein paar Grad Richtung West!  
Keinesfalls war es Ost nach West!

Bin gespannt was es wirklich war! Ich Tippe immernoch auf Fuel Dump der Fal

So I would describe the trajectory from south to north .... perhaps a few degrees west! It was not East to West!

I'm curious what it really was! I'm still typing on Fuel Dump the Falcon 9!

=====

Vielen Dank für die vielen Antworten.

Das es die Falcon-9 gewesen sein könnte, hatte ich nur in einer anderen Gruppe gehört, klang für mich einfach plausibel. Vielleicht kam mir die Flugrichtung auch nur so vor, da ich gerade mit dem Fahrrad unterwegs war, die "Schockwelle" war auf jeden Fall auf der linken Seite.

EDIT:Ich habe mir das YouTube Video jetzt erst angesehen, das ist genau das, was ich beobachtet habe.

Thanks a lot for all the answers.

That it could have been the Falcon-9, I had only heard in another group, sounded to me simply plausible. Maybe the direction of flight was just that way, as I was cycling, the "shockwave" was definitely on the left side.

EDIT: I've just watched the YouTube video, that's exactly what I've been watching.

[http://www.astrotreff.de/topic.asp?TOPIC\\_ID=230613](http://www.astrotreff.de/topic.asp?TOPIC_ID=230613)

Schade es ist knapp daneben aber daneben. Es sei denn ich hab was gravierend übersehen. Z.B. nix mit Nord-Süd Bahn. Hmm was sagt Wiki ? Aha, 100 Grad Inklination, also doch etwas schräg. Ja damit könnte man vielleicht den Überflug bei uns erklären. Das kann ich kaum noch rechnen und habe es auf dem Globus mal angeschaut und tatsächlich das zieht die Bahn gegen Europa :-)! Jetzt muss man nur noch die Viertelstunde Zeitdifferenz hinbiegen, aber da fehlt mir die Fantasie. In +15min ist diese Stufe schon über Spitzbergen. Obwohl? Der große Bär ist weit im Norden morgens um 5. Eine Stufe die von uns aus gesehen da durch geht und vielleicht 800km hoch ist, ist - weit im Norden.

Too bad it is close but wrong. Unless I've missed something seriously. For example, nothing with north-south train. Hmm, what does Wiki say? Aha, 100 degrees inclination, so a bit oblique. Yes **that could perhaps explain the overflight with us**. I can hardly count on that and have looked at it on the globe and actually that pulls the path against Europe :-)! Now you just have to bend the fifteen-minute time difference, but I lack the imagination. In + 15min this stage is already over Spitsbergen. Although? The big bear is far to the north in the morning at 5. A level that we can see through and maybe 800km is high - is far to the north.

# COMMENT NEEDS ATTRIBUTION

In Flugrichtung beschleunigt- nein, ich denke eher, das dies eine optische Täuschung ist.

Wenn sich das Objekt schräg vom Beobachter wegbewegt, wird eine sich seitlich schnell ausführende Struktur (Fueledump oder Schockwelle in der dünnen Wolkenschicht) so aussehen, als ob sie das Objekt selbst überholt.

Jedenfalls meine Einschätzung.

**Accelerated in the direction of flight - no, I think rather that this is an optical illusion.**

**If the object moves obliquely away from the observer, a rapidly expanding structure (fuel dump or shockwave in the thin cloud layer) will look as if it is overtaking the object itself.**

**In any case, my assessment.**

# OBSERVATION FROM FINLAND

URSA TAHDET JA AVARUUS TAIVAANVAHTI VERKKOKAUPPA

## Taivaanvahti

URSAN HAVAINTOJÄRJESTELMÄ

ETUSIVU HAVAINNOT **JÄTÄ HAVAINTO** ILMOITUKSET HAVAINTOPAIKAT FAQ UUTISET TILASTOHAKU MEDIALLE

KUVAT JA KERTOMUKSET

HAVAINNOT KUVINA

HAVAINNOT LISTANA

HAVAINNOT KARTALLA

HAVAINTOHAKU

▼ Kategoriat

Syvä avaruus

Aurinkokunta

Rakettilaukaisu - 8.10.2018 klo 06.44 Mikkeli Havainto numero 78378

Näytävyyys: II / V

Aki Taavitsainen, *Mikkelin Ursa*

Falcon 9 -kantoraketin vaihe näkyi himmeänä savujuovana Mikkelin Ursan tähtitornin länteen suunnatusta kamerasta.

#raketti: Falcon9  
#satelliitti: SAOCOM 1A

[Havainnot samasta aiheesta](#)

Lisätiedot

**Havainto** **Rakettilaukaisu**

Rakettilaukaisu Raketin vaihe taivaalla ⓘ

<https://www.taivaanvahti.fi/observations/show/78378>

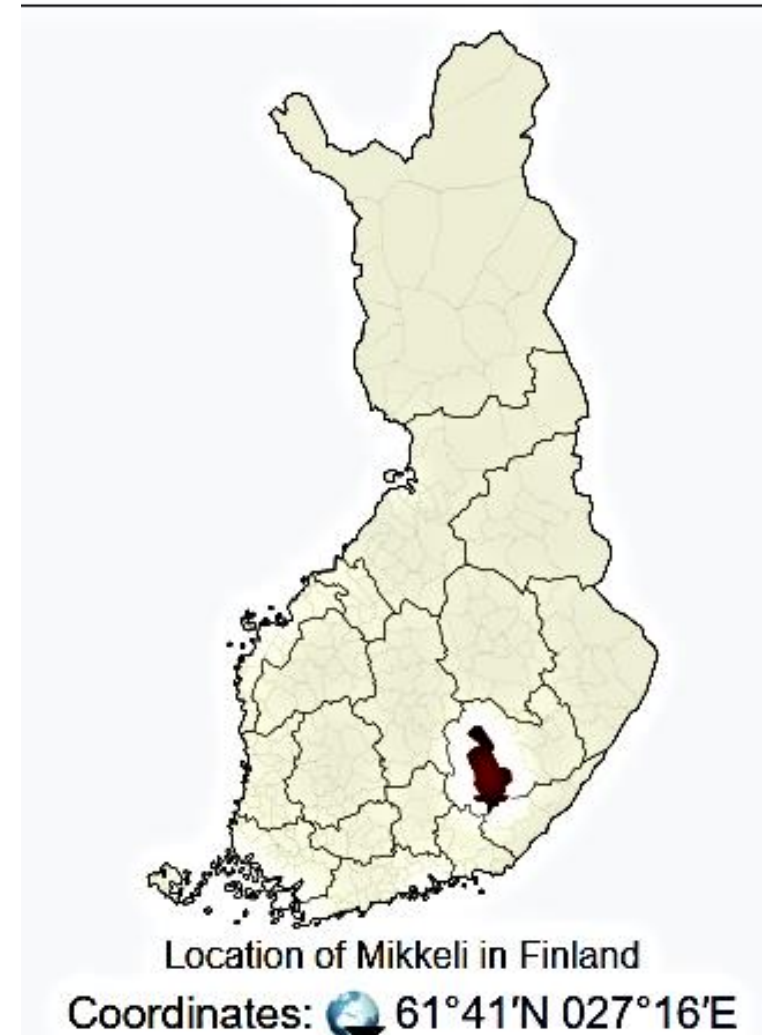
# PRE-DAWN OBSERVATION FROM SE FINLAND



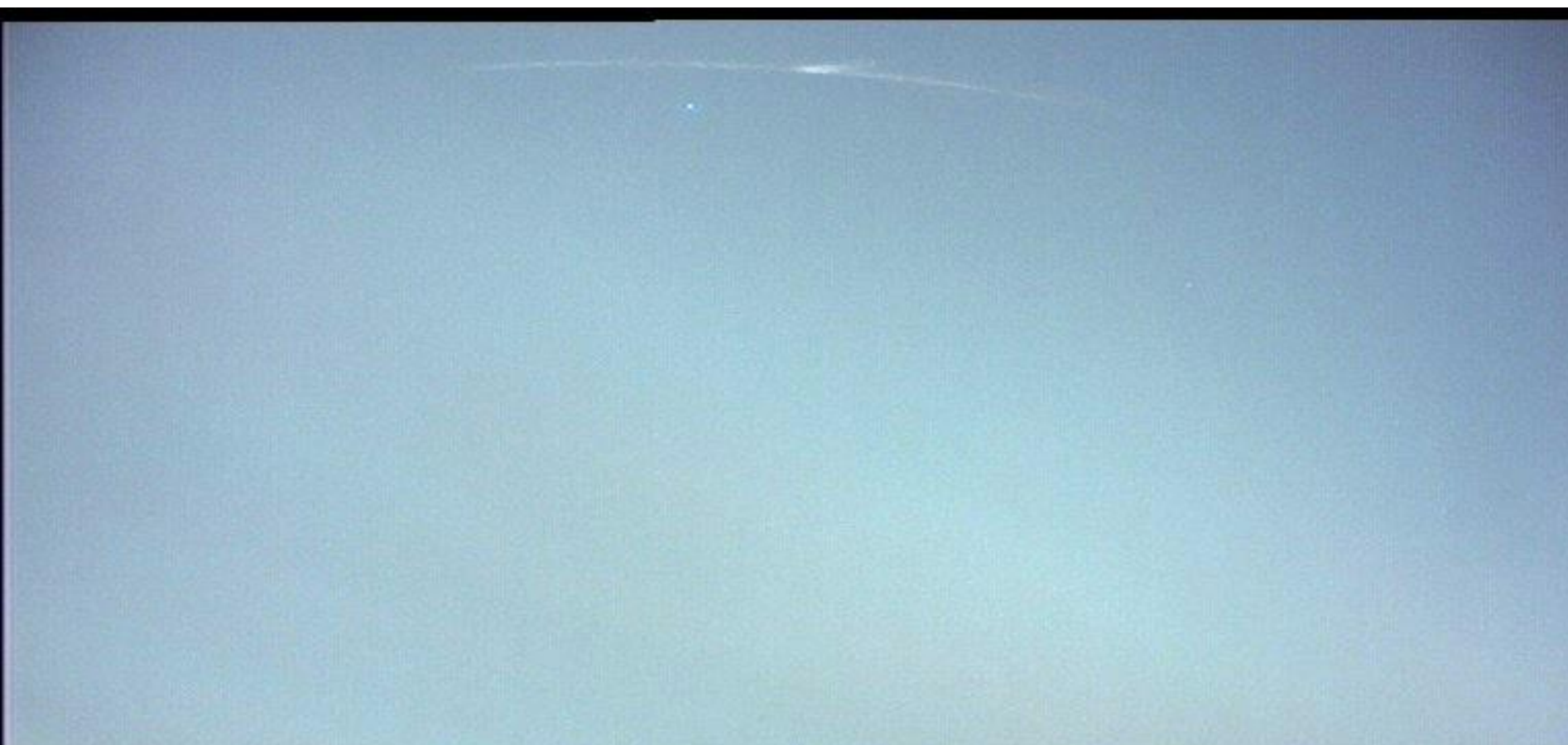
11/7/2018

- Falcon 9 -kantoraketin vaihe näkyi himmeänä savujuovana Mikkelin Ursan tähtitornin länteen suunnatusta kamerasta.
- The phase of the Falcon 9 launcher was dimmed by the smoky power of the camera **directed to the west** of Mikkeli's Ursa Star Tower [shown at left].

oct 8, 2018 Falcon9 deorbit burn



63



COMPOSITE OF  
IMAGES LOOKING  
WEST FROM SE  
FINLAND. NOTE  
THAT MOTION  
WAS LEFT-RIGHT.  
DEORBIT FLARE  
CLEARLY SHOWN.



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# Forward plume observed and time-exposure imaged



DIRECTION  
OF MOTION

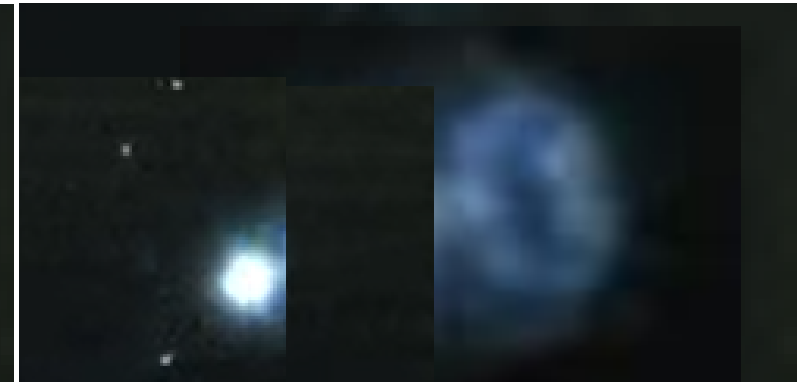
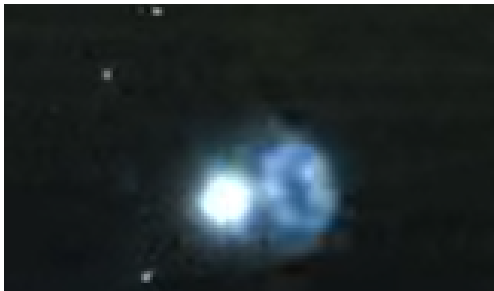
[copyright © 2018 Aki Taavitsainen All rights reserved.](#)

THE DEORBIT BURN IS  
FORWARD IN TERMS  
OF ORBITAL MOTION

QUICK-AND-DIRTY RECONSTRUCTION OF MOTION OF DEORBIT BURN PLUME AWAY FROM SECOND STAGE, EXPANDING Laterally AND DISSIPATING/FADING AS SEEN IN ACTUAL TIME EXPOSURE.

[artwork by james oberg]

SüderLügum  
video [right]



Ufomeldpunt.be: "it was as if a searchlight was moving through the mist, you saw a kind of beam of light."

'Gen Dit': "I observed an object in the sky which looked identical to the footage of the first stage returning.... Halo effect seen ahead of the object in the direction of travel.

Walter: "Looks like a rocket ignition, or fuel dump. No bow wave, because it spreads with and accelerating even in the direction of flight."

Veikko Simula: "the subject moved very slowly, as did the lights that separated from it.... , in the 45 degree sector I imagined maybe 5-6 lighter ones that faded after 3-4 s"

Helo Hellsten: "...the bigger light squirt faced forward about 10 seconds"

Ossi Tamminen: "...whiplash 'sprays' for a few seconds ... the phenomenon was divided into two."

# FINLAND COMMENTS

- **Mikko Peussa - 8.10.2018 22.18** == Hieno havainto! *Great observation!*
- **Samuli Ikäheimo - 8.10.2018 22.45** == Ka, hienoa että jäi kameraan. Twitterissä tuli vastaan timelapsea Saksan näkymiin: *Oh, fine, that left me in the camera. On Twitter came the timelapse to Germany's view [link]*
- **Tero Sipinen - 8.10.2018 22.51** == Hyvä että tarttui kameraankin! Onko olemassa osakuvia, joista saisi tehtyä animaation? Vai tallentuuko vain summakuvat? *Good to grab the camera too! Are there any sub artists that should be animated? Or save only the summaries?*
- **Aki Taavitsainen - 8.10.2018 22.55** == Kiitos! Tämä on ainut tallenne, summakuva. *Thank you! This is the only record, the sum of images.*
- **Tero Sipinen - 8.10.2018 23.45** == Ok, no ei se mitään, Samuli olikin jo laittanut videolinkkiä :) *Okay, well, nothing Samuli had already put in a video link :)*














# MORE FINLAND REPORTS

- Ah yes indeed, the Taivaanvahti site does have other observations as well! The ones with the camera icon have a photo or other observational stuff.  
mika.takala@tut.fi

[https://www.taivaanvahti.fi/observations/browse/list/2677051/observation\\_id/0](https://www.taivaanvahti.fi/observations/browse/list/2677051/observation_id/0)











- EXAMPLE:
- Kouvola [Juha Samposalo, *Ursa (Helsinki)* ]
- kirkas tähtimäinen kohde, jolla halo. siitä näytti irtoavan suihkuja, joten kyseessä kantoraketti. samanlainen, kuin helmikuussa havaittu! ilmeisesti Elopin laitteita?
- *a bright star object with halo. it seemed like a squirt, so it's a launcher. similar to the one observed in February! apparently Elon's devices? [jo: 'squirt' refers to engine plume?]*

p. 1

8.10.2018 klo 06.45	Helsinki	 Rakettilaukaisu	IV		Anu Solastie	Ursa (Helsinki)
8.10.2018 klo 06.44	Taivassalo	 Rakettilaukaisu	III		Juuso Nurmio	Ursa (Länsi- Suomi)
8.10.2018 klo 06.42 - 06.44	Orimattila, Artjärvi, Tähtikallio	 Rakettilaukaisu	II		Veikko Mäkelä Matias Takala	Ursa (Helsinki)
8.10.2018 klo 06.40 - 06.43	Espoo	 Rakettilaukaisu			Panu Lahtinen	Ursa (Etelä- Suomi)
8.10.2018 klo 06.45 - 06.46	Hämeenkyrö	 Rakettilaukaisu			Ari Märri	
8.10.2018 klo 06.43	Hankasalmi, Murtoinen	 Rakettilaukaisu	I		Arto Oksanen	Jyväskylän Sirius
8.10.2018 klo 06.43	Helsinki, Pukinmäki	 Rakettilaukaisu		 	Esko Lyytinen	Ursa (Etelä- Suomi)



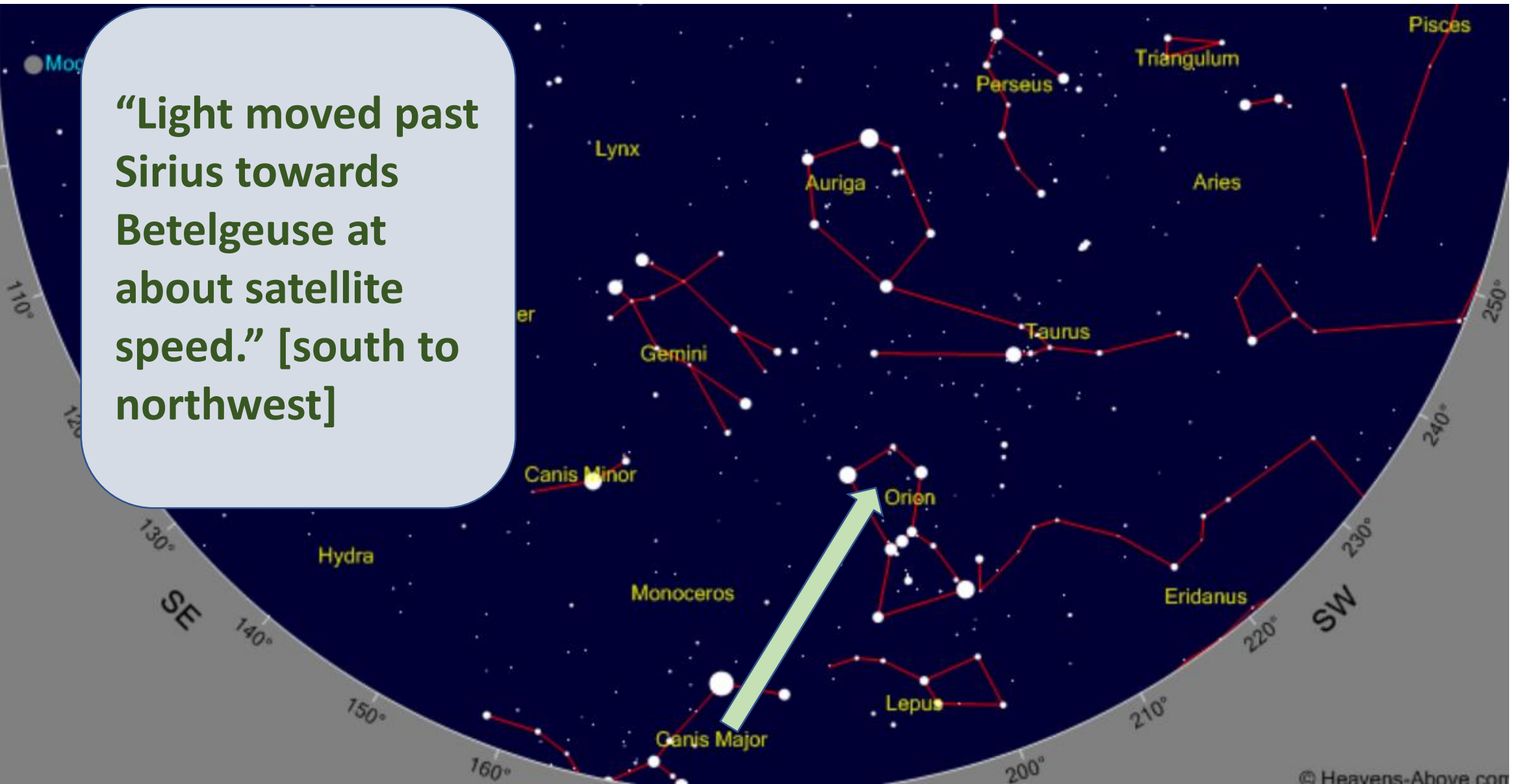
p. 2

8.10.2018 klo 06.44	Mikkeli	 Rakettilaukaisu	II	  5	Aki Taavitsainen	Mikkelin Ursa
8.10.2018 klo 06.00 - 06.10	Kouvola	 Rakettilaukaisu	IV		Juha Samposalo	Ursa (Helsinki)
8.10.2018 klo 06.45	Hollola	 Rakettilaukaisu	IV		Veikko Simula	
8.10.2018 klo 06.45	Mänttä	 Rakettilaukaisu			Helo Hellsten	
8.10.2018 klo 06.36	Lahti	 Rakettilaukaisu	IV	 1	Ossi Tamminen	Lahden Ursa
8.10.2018 klo 06.43	Helsinki	 Rakettilaukaisu	IV		Toni Salmela	
8.10.2018 klo 06.43 - 06.44	Pattijoki	 Rakettilaukaisu	IV		Arto Pitkälä	
Etsitty havainnot aikavälillä 0.0. klo 00.00 - 06.11.2018 klo 23.57.						(14 kpl) <input type="text" value="1"/> / 1

# Anu Solastie, *Ursa (Helsinki)*

- Rakettilaukaisu - 8.10.2018 klo 06.45 Helsinki Havainto numero 78525
- Kiinnitin huomiota etelä-pohjoissuunnassa liikkuneeseen valoon, joka oli kuin vesihöyryn ympäröimä. Valo liikkui Sirkuksen ohi kohti Betelgeusea noin satelliitin nopeudella. Saavutettuaan taivaanlaen valo muodosti udun seassa selvän valokartion eteenpäin. Ilmiö katosi näköpaikassani puiden taakse, enkä pystynyt harmikseni seuraamaan sitä pidemmälle. Ihmettelin tuolloin, miten selkeällä taivaalla, jossa tähdet näkyivät terävästi, voi liikkua niin utuinen valo. Muista havainnoista täällä on selvinnyt, että kyseessä oli Falcon 9 -kantoraketti.
- =====
- Rocket launch - 8.10.2018 at 06.45 am Helsinki Observation number 78525
- I paid attention to the light in **the north-south direction**, which was **surrounded by fog**. Light moved past Sirius towards Betelgeuse at about satellite speed. Upon reaching the light of the heavenly sky, he formed a clear light map in the hallway. The phenomenon disappeared behind my eyes in the sight of my eyes, and I could not keep track of it further. I was wondering at the time how clear the sky in which the stars were sharply visible could move such a **hazy light**. It has become clear from other sources here that it was a Falcon 9 launcher. [JO: star map shows direction was south-to-north]

“Light moved past Sirius towards Betelgeuse at about satellite speed.” [south to northwest]



TBS

<https://www.heavens-above.com/SkyChart.aspx?lat=60.1699&lng=24.9384&loc=Helsinki&alt=7&tz=EET>

Orimattila, Artjärvi, Tähtikallio [Veikko Mäkelä, Matias Takala, *Ursa (Helsinki)* ]

- Pengottiin myös Ursan Tähtikallion all-sky-kameran kuvista Falcon 9 -rakettilvaiheen jälkeä. Se näkyy kolme peräkkäisen minuutin kuvissa utumaisena täplä. Johtuen aamun valkenemisesta valotusajat ovat jo lyhyitä.
- Lentoradasta voisi päätellä, että rakettilvaihe näkyisi myös ennen ja jälkeen näiden kuvien, mutta kl 3.40 ja 3.45 kuvista ei erottunut mitään.
- Viimeisenä kuvana vasta suttu animaatio klo 3.40-3.45.

===

Also depicted by Ursan Tähtikallio's all-sky camera images, the trace of the Falcon 9 rocket stage. It appears in three consecutive minute pictures as a sticky [?] spot. Due to the onset of morning, shutter speeds are short.

From the flight route it could be inferred that the rocket stage would also be seen before and after these pictures, but none of the 3.40 and 3.45 images did.

As a last picture, just a combined animation from 3:40 to 3:45.

[JO: nothing seen before/after because the conditioning dump creates the visible cloud only shortly before and right after the burn]



- Panu Lahtinen, *Ursa (Etelä-Suomi)*
- SpaceX:n SAOCOM 1A -laukaisu oli näköjään jäänyt täälläkin taivaskameraan.
- Ensimmäisessä kuvassa viirun alku on noin klo 03.40.12 UTC ja neljännen kuvan lopussa poistuu kuvasta klo 03.42.38,926 UTC. Noin.
- -----
- SpaceX's SAOCOM 1A shot was apparently caught by the sky camera as well.
- In the first picture, the beginning of the streak is about 03.40.12 UTC and at the end of the fourth picture the image disappears at about 03.42.38.926 UTC.
- =====
- Taivassalo [Juuso Nurmio, *Ursa (Länsi-Suomi)* ]
- Falconin laukaisu jäi myös Taivassalon taivaskameraan kahteen minuutin valotukseen.
- Falcon's launch was also caught on the Taivassalo sky camera for two minutes of exposure.

[https://www.taivaanvahti.fi/images/uploads/201810/78418\\_04be7e9ebde2a412a8f960b04f52e96b.jpg](https://www.taivaanvahti.fi/images/uploads/201810/78418_04be7e9ebde2a412a8f960b04f52e96b.jpg)

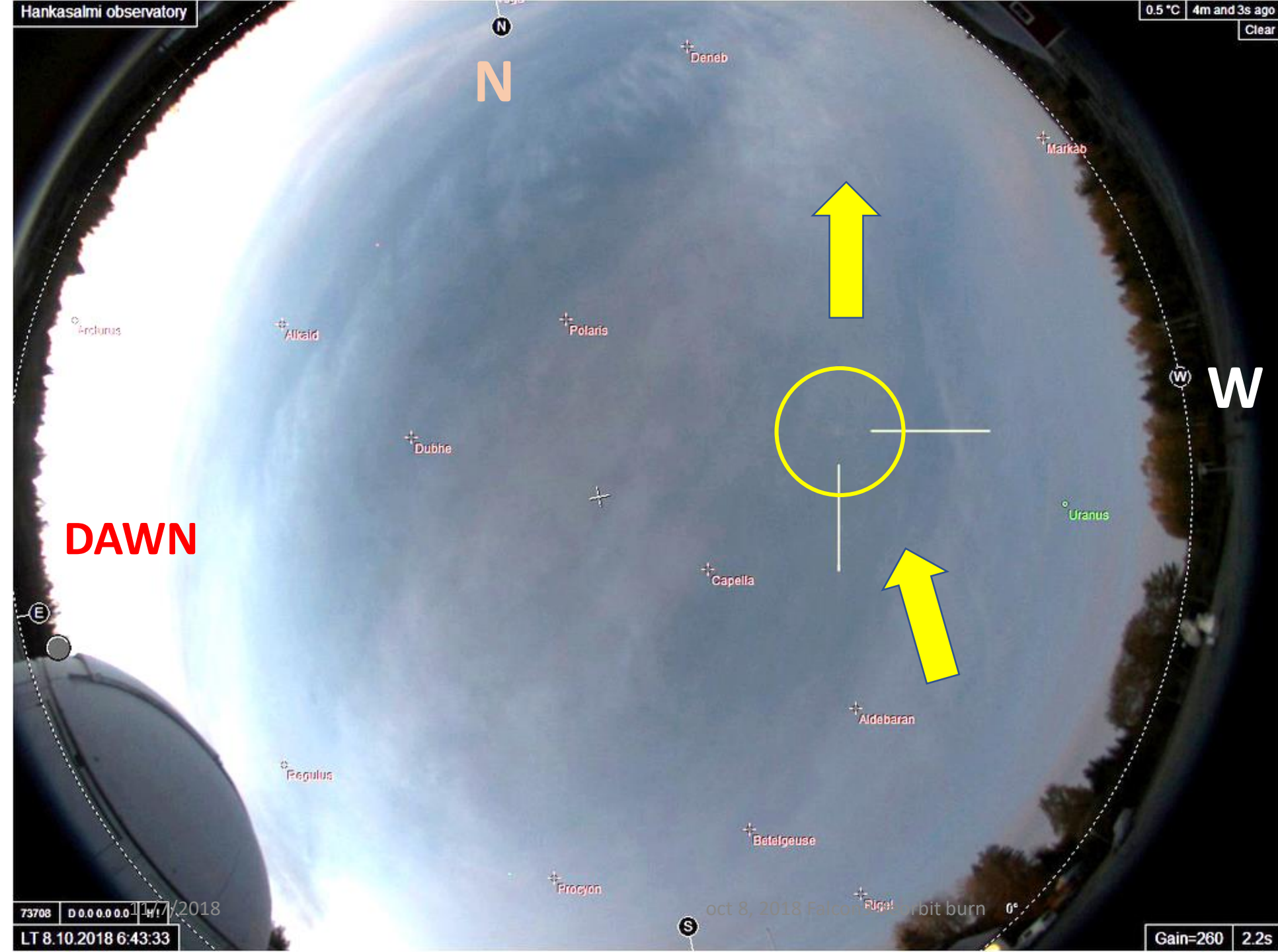
Copyright © 2018 Panu Lahtinen. All rights reserved.



text

• jj

- Hämeenkyrö [Ari Märri]
- Aamulla näin hitaasti liikkuvan läntesatelliitin utupilven kera ssä katosi rakennuksen taakse
- -----
- In the morning, the slow-moving satellite track with the glittering cloud in the west disappeared behind the building
- =====
- Hankasalmi, Murtoinen [Arto Oksanen, *Jyväskylän Sirius*]
- Muiden havaintojen innoittamana tutkin Hankasalmen allsky-kameran kuvia tarkemmin ja kyllähän sieltä pilvien joukosta löytyi yksi mahdollinen valopiste, joka voisi olla Falcon9 kantoraketin jättämä. Kuva on otettu 06:43:33 ja siinä on 2.2s valotus.
- Laitan myös edellisen kuvan joka on otettu minuuttia aiemmin.
- Lisäsin myös Saocom 1A -satelliitin lentoradan Heavens Abovesta.
- -----
- Inspired by other observations, I studied the images of Hankasalmi's Allsky camera more and more, and there was one possible cloud that might have been left by the Falcon9 launcher. Picture is taken 06:43:33 and has a 2.2s exposure.
- I also put the previous image taken in minutes earlier. I also added the Saocom 1A satellite flight path from Heavens Above.



- Very faint image in pre-dawn sky

# Helsinki, Pukinmäki [Esko Lyytinen, *Ursa (Etelä-Suomi)* ]

- Rakettilaukaisuun liittyvä havainto infrapuna-tulipallokamerasta. Kun näin tapauksesta muut havainnot niin tarkistin ajankohdan kuvasta ja näkyihän se. Olin tuon "pehmeän" jäljen kyllä jo aamusella huomannutkin ja hetken ihmetellyt, mutta jäi selvittämättä kunnes sain tiedon.
- Kuva on pohjoiseen päin ja sinne päin liikkui.
- =====
- A missile-related observation of an infrared fireball camera. When I saw other observations from this case, I checked the time of the picture and saw it. I was in that "soft" track already in the morning and noticed a moment, but it was not clear until I got the information.
- The picture is north facing and moving toward north.

# Hollola [Veikko Simula]

- Kävin aamulla postilaatikolla ja kun vilkaisin ylös taivaalle (kasvot länteen) havaitsin kooltaan ja kirkkaudeltaan tähden kaltaisen liikkuvan valon, joka valaisi ympäristöään. Liikkui luoteeseen "lentokoneen nopeudella". Näytti pysähtyvän (?) hetkeksi, jolloin siitä erkani menosuuntaan n. 45 asteen sektorissa viuhkanomaisesti ehkä 5-6 pienempää valoa, jotka 3-4 s kuluttua hiipuivat. Jatkoivat matkaansa, ja niin minäkin. Kello oli noin 06:45.
- En harrasta tähtitiedettä enkä ufotutkimusta, mutta en ole tähän ikään (66) mennessä nähnyt vastaavaa. En kuullut mitään ääntä enkä kokenut mitään ylimaallisia tunteita.
- "Tähdenlento" verrattuna kohde liikkui hyvin hitaasti, samoin siitä erkanevat valot.
- Taivas oli lähes pilvetön. Sää oli tyyni, ja lämpötila noin -2.

# Hollola [Veikko Simula] – near Lahti

- I went in the morning with the mailbox and when I looked up at the sky (facing to the west), I saw a moving light of size and brightness that illuminated the environment. Moved to the northwest at “airplane speed”. It seemed to stop (?) for a while, so did I, so I set it down, in the 45 degree sector [???] I imagined maybe 5-6 lighter ones that faded after 3-4 s [JO: presume this refers to the lumpy brief forward-aimed engine plume]. It went on its way, and so did I. The clock was about 6:45.
- I do not have astronomy or UFO, but I have not seen this before (66). I did not hear any sound and I did not experience any great feelings.
- Compared to "Star Aviation", the subject moved very slowly, as did the lights that separated from it.
- The sky was almost cloudless. The weather was calm and the temperature was about -2.

# Mänttä [Helo Hellsten]

- Ei ollut mitään pyrstö suihkua luulin olevan satelliitti tai voi ollakin, oli isohko tähtiin verrattuna etelä -pohjoinen suunta pieneni koko ajan näkemän puolivälissä tuli sumuverho ympärille ,eteen päin lähti isoneva valosuihku noin 10 sek meni pohjoiseen päin ei ollut lentokone lisätietoa annan jos on tarvetta tai toisin päin en koskaan ole nähnyt vastaavaa seurailen tähden lentoja ja Revon tulia olen ulko ilma .ihminen
- =====
- There was no tail squirt, I thought it was satellite or maybe it was, it was bigger than the stars compared to the south-bottomed direction I dropped all the time I saw midway came the fog curtain around, the bigger light squirt faced forward about 10 seconds [JO: braking burn plume ejected forward for a few seconds] went north facing there was no airplane more info I give if there is a need or otherwise the I have never seen anything like it follows the falling stars and the Northern lights am outside air .



# Lahti [Ossi Tamminen, *Lahden Ursa* ]

- Taivalla utuisena näkyvä valopiste joka liikkui etelästä pohjoiseen. Ehkä hieman nopeammin kuin satelliitit yleensä. Keskellä taivasta pisteestä sinkosi utuiset "suihkaukset" eteenpäin jotkä näkyivät ehkä muutaman sekunnin. Hetki tämän jälkeen ilmiö oli jakautunut kahdeksi.
- Oliko kyseessä mahdollisesti kantoraketin paluu ilmakehään ja jarrutuspoltto?
- =====
- A light-colored, light-colored spot that moved from south to north. Maybe a little faster than the satellites usually. In the middle of the sky, you punctured [??] the whiplash "sprays" for a few seconds. The moment when the phenomenon was divided into two.
- Was it possible for the launcher to return to the atmosphere and braking fuel?

# Summary of Finnish reports

- 1
- 2
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- 4
- 5
- 6

# REQUEST TO RUSSIAN CONTACTS

Через час после запуска ракета прошла через Балтийское море. Двигатель запустился на несколько секунд, чтобы протолкнуть ракету в атмосферу. Это должно было быть видно с северо-запада России и Финляндии, почти накладными.

One hour after launch, the rocket passed over the Baltic Sea. The engine ignited for several seconds, in order to push the rocket into the atmosphere. It should have been visible from north-west Russia and Finland, almost overhead.

ZERO RESULTS. YANDEX.RU & RUTUBE.RU 'UFO' SEARCH -- EMPTY

# Other requests

- Dead ends?

# ICELAND

- Karholl
- [Husafell, Iceland

# OBERG QUERY TO ICELAND ASTRONOMERS

- [einar@hi.is](mailto:einar@hi.is), [pja@hi.is](mailto:pja@hi.is); [halo@raunvis.hi.is](mailto:halo@raunvis.hi.is)
- [icelandreview@icelandreview.com](mailto:icelandreview@icelandreview.com); [icelandmonitor@mbl.is](mailto:icelandmonitor@mbl.is)
- The recent SpaceX Falcon9 launch from California on Oct 8 at 02:21 GMT created a spectacular sky show for a million viewers. But also, about an hour later [about 03:30], it crossed southeast to northwest over the North Sea. During this time it fired its rocket engine again to drop the discarded stage into the Pacific Ocean. It was sunlit so made a very bright appearance. The flare from this event was seen along the southern edge of the North Sea, from England to Belgium to Netherlands to the German-Danish border. Weather satellite maps showed the skies were clear over Iceland, so I wanted to find witnesses there. This is my report of a similar event seen from Norway earlier this year.  
[http://satobs.org/seesat\\_ref/misc/180322-falcon9-deorbit-NORWAY.pdf](http://satobs.org/seesat_ref/misc/180322-falcon9-deorbit-NORWAY.pdf)
- Please pass this request to any astronomy clubs or individuals that you think may have seen this event. Also, how can I contact operators of all-sky cameras in Iceland, which also may have captured images of this event?

# Karholl all-sky, Polar Research Institute of China

Dear Gulli and Oberg:

I have checked the data of all-sky monitoring camera at Karholl in Iceland (Lat.: 65.7 degree, Lon.: -17.4 degree). **I found that there is a small and short track at 03:39:00 UT on 08th October. It should be the track of SpaceX rocket.**

Please check the ppt and jpg files.

The interval of the camera is 1 minute.

I'm checking other cameras with the

interval of 10 seconds.

Best regards,

Ze-Jun Hu

Atmosphere and Space Physics Division

Polar Research Institute of China

No.451, Jinqiao Road, Pudong

Shanghai, 200136 China





UT: 2018-10-08 03:39:00

# Karholl



ENLARGED AND  
ROTATED IMAGE  
OF SMALL TRACK  
PROBABLY THE  
FALCON9 CLOUD



# Japanese auroracam on Iceland captures it

- Hi Jim, It turns out that scientists from the National Institute of Polar Research in Japan (NIPR) potentially recorded the rocket on an all-sky camera located in South-West Iceland. They've sent me a short movie that I hope is of use to you (attached).
- Gunnlaugur Bjornsson [gulli@hi.is](mailto:gulli@hi.is) Reykjavik, Iceland
- =====  
**From:** 門倉昭 [Akira Kadokura] **Date:** 17 Oct 2018 at 09:01:53 GMT  
**Subject: Re: Fw: Possible observation of SpaceX rocket**  
**To:** Gunnlaugur Björnsson [gulli@hi.is](mailto:gulli@hi.is)

Dear Gunnlaugur-san,  
I have checked our all-sky camera data at Husafell in that night, and found a candidate of the flying object described in the E-mail.

- Attached is the movie. Please look at the movement of the bright spot moving around horizon from East to North in the sky of the active pulsating aurora. At that time, Manarbakki was cloudy.
- Best regards, Akira Kadokura

# Japanese auroracam [Husafell, Iceland]

HUS\_Watec\_20181008\_...

@NIPR,Iceland Husafell Watec 2018-10-08 03:46:49.08

Station: HUS  
WATEC 10sec  
20181007  
to  
20181008

03:46:49:11 UT

2018-10-08 03:46:48

00:01 00:00

Play  
Mute  
Save video as  
Play speed >  
View source  
Inspect element

Name HUS\_Watec\_20181008\_034148\_034919.mp4  
Size 659 KB  
Modified -  
JAMES E OBERG at 03:30

8:34 AM

Quick reply all Reply Forward Delete

Courtesy of Akira Kadokura,  
National Institute of Polar  
Research, Japan

@NIPR,Iceland Husafell Waterc 2

Station: HUS  
WATEC 10sec  
20181007  
to  
20181008



FUZZY BALL MOVING  
EAST TO NORTH LOW  
IN SKY NEAR HORIZON

# ICELAND – PHOTOS BY JAPANESE METEOR OBSERVERS

- Hi Jim,
- here are some additional photos of the rocket. These were taken from the same location as the movie I sent you two days ago.
- Gunnlaugur
- ===
- Fri, 19 Oct 2018 17:08:45 +0900
- From: Akira Kadokura
- To: Gunnlaugur Björnsson <gulli@hi.is>
- Dear Gunnlaugur-san,
- During that night, the meteo-shower observation team stayed at Augastadir, and took photos of the flying object. Attached are some photos which they kindly sent me and took by Mr. Mikiya Sato.
- Best regards, Akira Kadokura



The location of our observatory (Husafell) is :  
Latitude: 64.67 deg, Longitude: -21.03 deg



11/7/2018

oct 8, 2018 Falcon9 deorbit burn

93



11/7/2018

oct 8, 2018 Falcon9 deorbit burn



11/7/2018

oct 8, 2018 Falcon9 deorbit burn

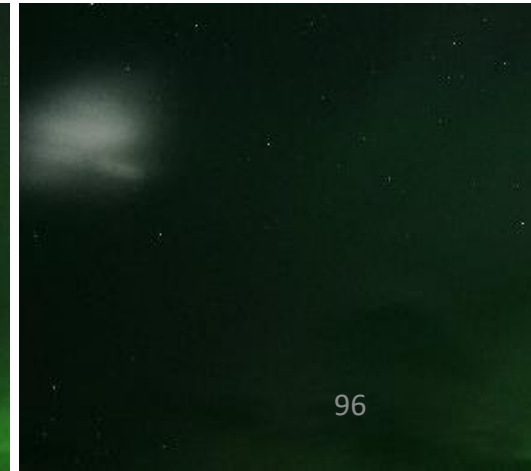
# MORE WORK NEEDED



11/7/2018



oct 8, 2018 Falcon9 deorbit burn





# SUMMARY

- UNPREDICTED SKY SPECTACLE CAUGHT BY MANY OBSERVERS
- SPACEX POLICY OF CONCEALING STAGE2 BURN SCHED FOILED BY RARE ACCIDENT OF SOLAR ILLUMINATION CONDITIONS
- ONCE THE FIRST REPORTS WERE NOTICED, NEW SEARCHES LAUNCHED
- CLOUD COVER IMAGERY INDICATED WHERE ELSE TO SEARCH
- IMAGES WITH RECOGNIZABLE STAR FIELDS ALLOWED DETERMINATION OF PRECISE LINE-OF-SITE AZIMUTHS AND THUS EXACT BURN LOCATION
- SEVERAL IMPORTANT REPORTS WERE MADE AS COMMENTS TO VIDEOS OF ORIGINAL LAUNCH AND OTHERS WERE ON 'UFO' WEBSITES
- VERBAL DESCRIPTIONS CONSISTENT WITH MUCH MORE DETAILED IMAGERY FROM FEB 2018 DEORBIT BURN WEST OF NORWAY

# Feuerkugel über der deutsch-dänischen Grenze 08102018



05:43 MESZ  
 TEMPERATUR (2m) 9.5C TEMPERATUR (5cm) 7.2C  
 TEMPERATUR (10cm) 5.1C TEMPERATUR (-20cm) 12.8C  
 NIEDERSCHLAG 0.0mm VERDUNSTUNG 0.000mm  
 SONNENSCHLAGE 0.000h MIKROWELLENSTRahlung 0.1142

11/7/2018 Type here to search

oct 8, 2018 Falcon9 deorbit burn

4:29 PM 10/23/2018