Isavia ANS

Commercial Space Operations

Update from Isavia ANS

7 April 2025

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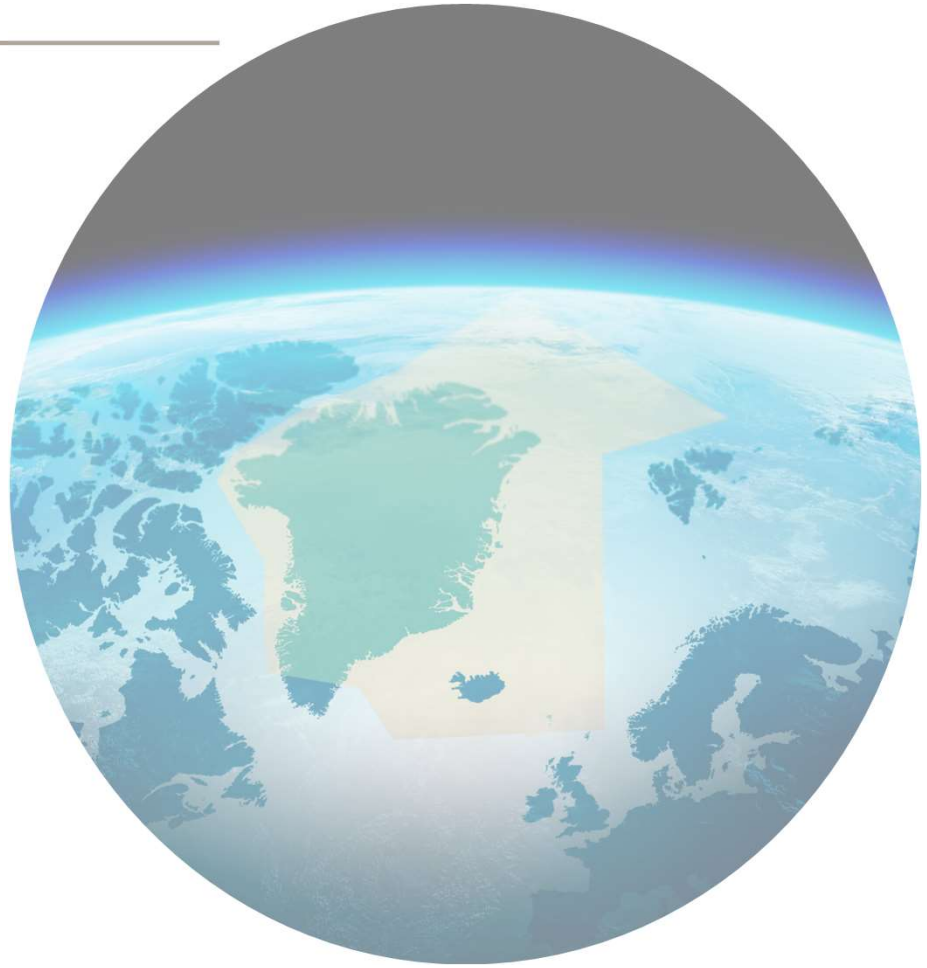
Status of Commercial Space Operations (CSO) in Reykjavik CTA

Space launches that impact operations in the Reykjavik CTA:

- Skyraura Limited, Iceland.
- Swedish Space Corporation, Northern Sweden.
- Saxa Vord, Shetlands, UK.
- Launches from Russia.
- Centre National d'Etudes Spatiales (CNES),
- Andoya Space Port, Norway.



Overview of CSO: Skyrora Ltd, Edinburgh Scotland

Launching from Iceland

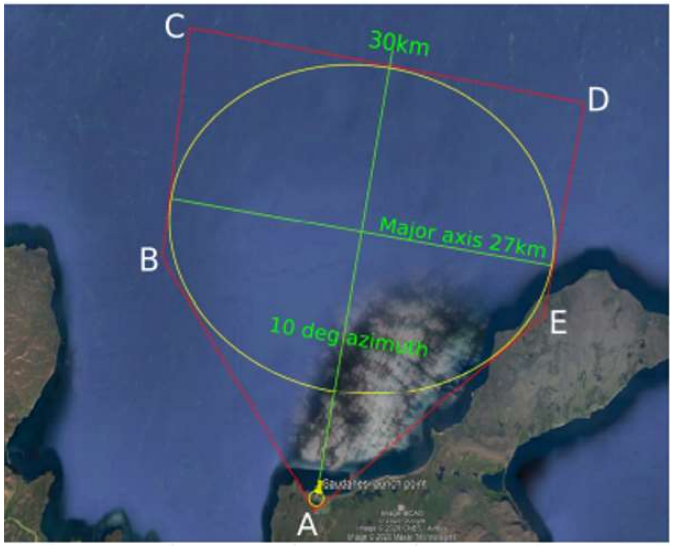
Two launches done from north-east corner of Iceland, preparation for orbital launches.

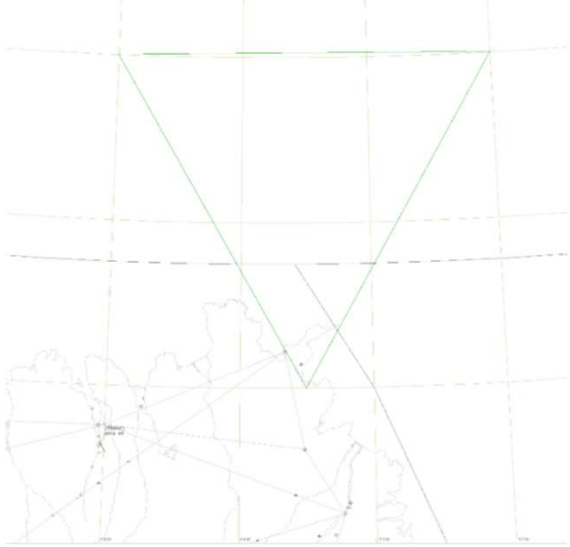
Skylark L – 1.000 kg. launched up to 500 km from the ground.

Danger Area
Start time: 0900 UTC.
End time: 1500 UTC.
Upper limit: Unlimited
Lower limit: MSL
Airspace within direct lines drawn between the following coordinates:
68N018W 68N012W 66N015W.

Coordination Agreement, NOTAM,

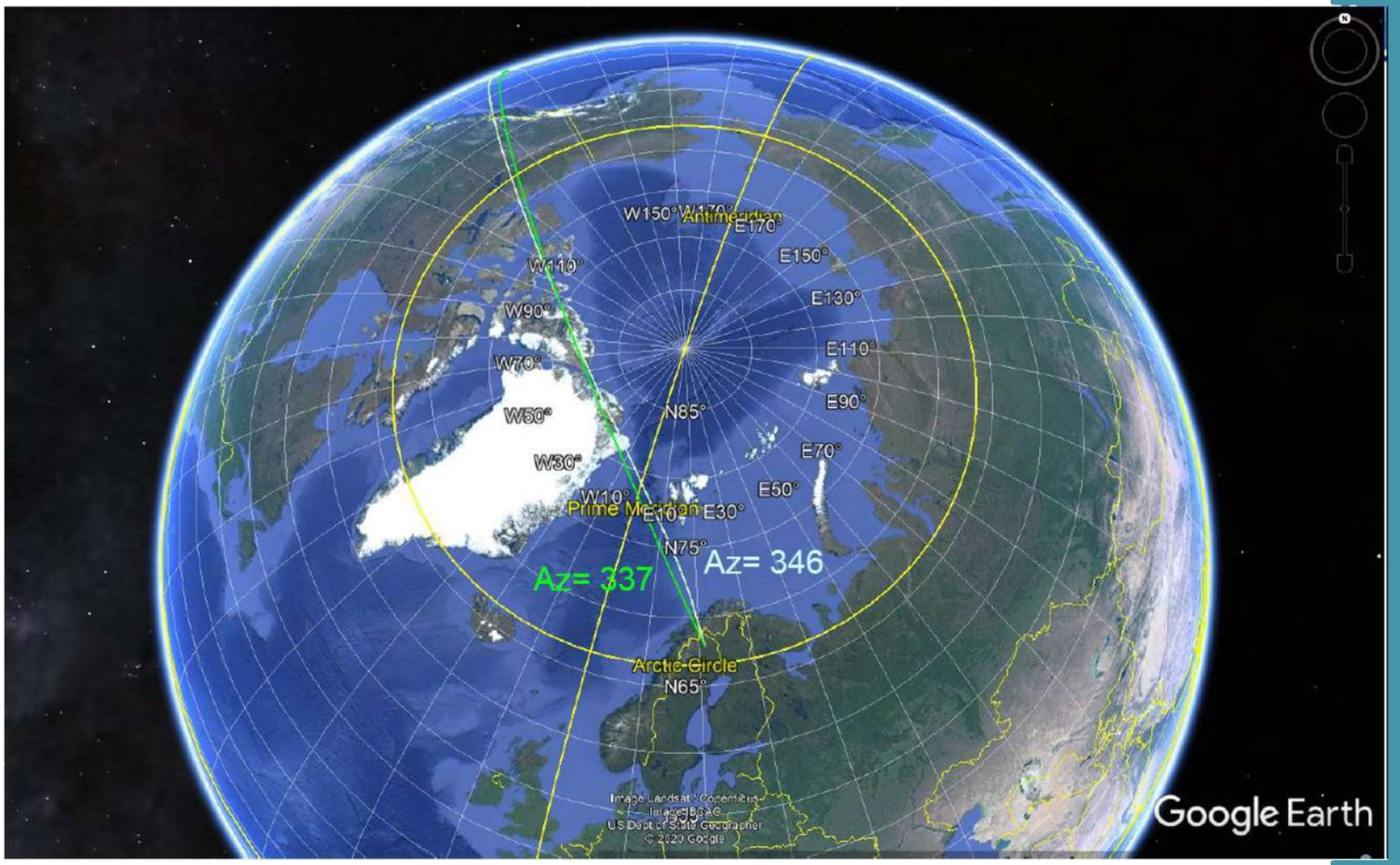
https://skyrora.com/





Overview of CSO: Esrange Space Center, Swedish Space Corporation, Northern Sweden

Planned orbital launches, first one in 2025.
Will launch into the northern part of Reykjavik CTA.



Spaceport Esrange

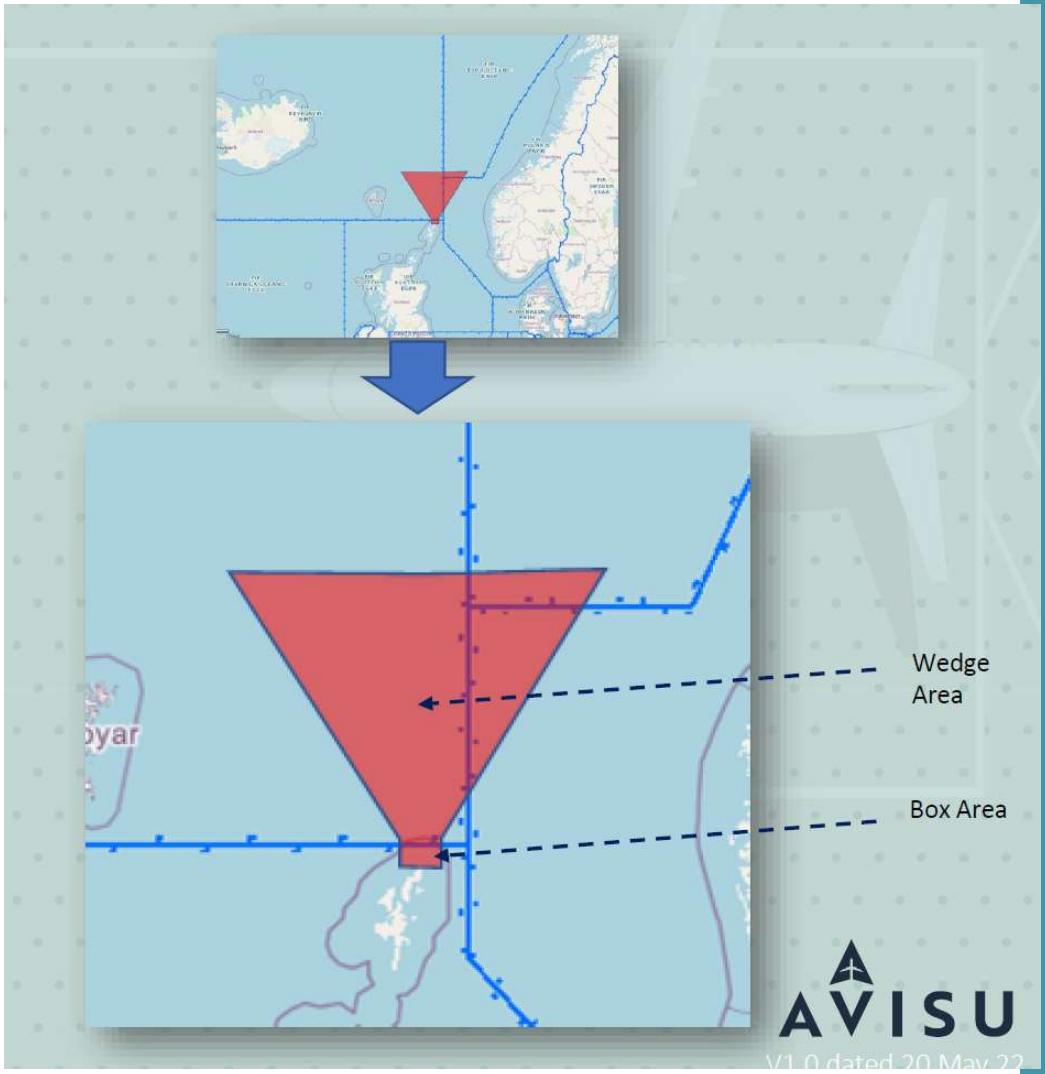
Overview of CSO: Saxa Vord, Shetlands, UK

Preparation ongoing since 2017. Requesting a designation as a permanent launch site in the south-east corner of the Reykjavik CTA.

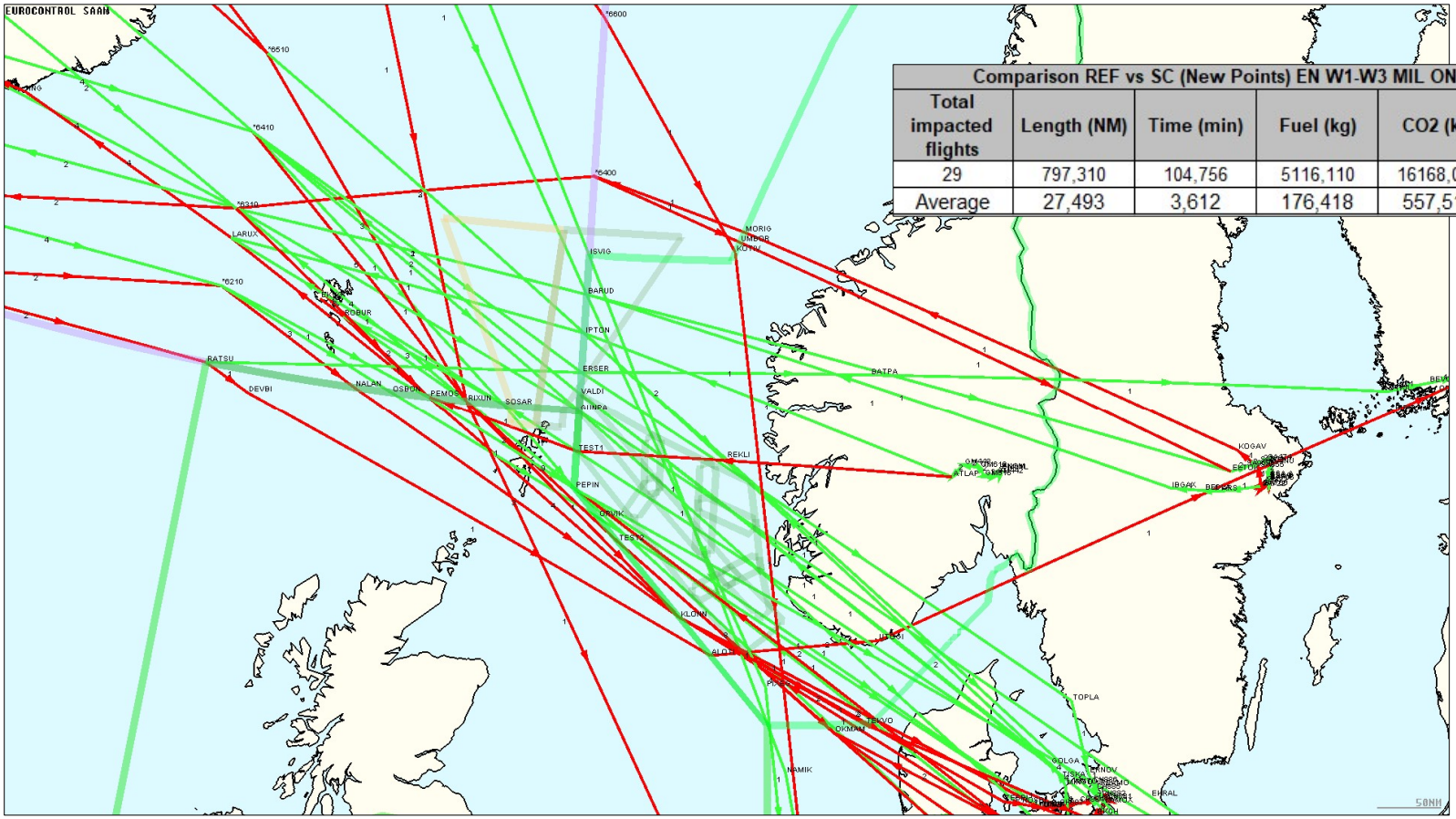
Temporary area was approved for a launch in 2023 but was not used due approval problems on behalf of the UK CAA.

A few meetings a year since 2017 plus e-mails, Isavia ANS has drafted coordination agreements and other documents as needed.

Eurocontrol has done a traffic analysis for the impact of activating Danger Area.



Comparison REF vs SC



Comparison REF vs SC (New Points) EN W1-W3 MIL ON - Sunday					
Total impacted flights	Length (NM)	Time (min)	Fuel (kg)	CO2 (kg)	NOx (kg)
29	797,310	104,756	5116,110	16168,000	81,238
Average	27,493	3,612	176,418	557,517	2,801

Saxa Vord, Shetlands, UK

Impact/implications for Reykjavik CTA – Isavia ANS

The area impacted within the BIRD FIR is one of the most frequently used air traffic gateways into the Reykjavik CTA.

- 16% of total traffic in BIRD FIR enters this area.
- Average day: 76 flights impacted.
- Three day period: 230 flights impacted.
- Re-routing north or south of impacted area.
  - Increased workload for neighbouring FIRs.
    - Impact on safety has not been assessed.
  - Increased flight time, fuel burn, greenhouse gas emissions.

Launches are planned in the busiest months of the year.

- 400 aircraft on average on a busy day.
- More aircraft if winds favour flights in this area.

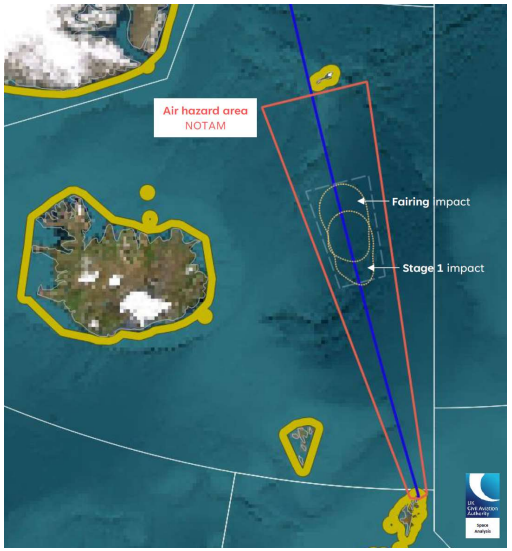
Loss of revenues for Isavia ANS.

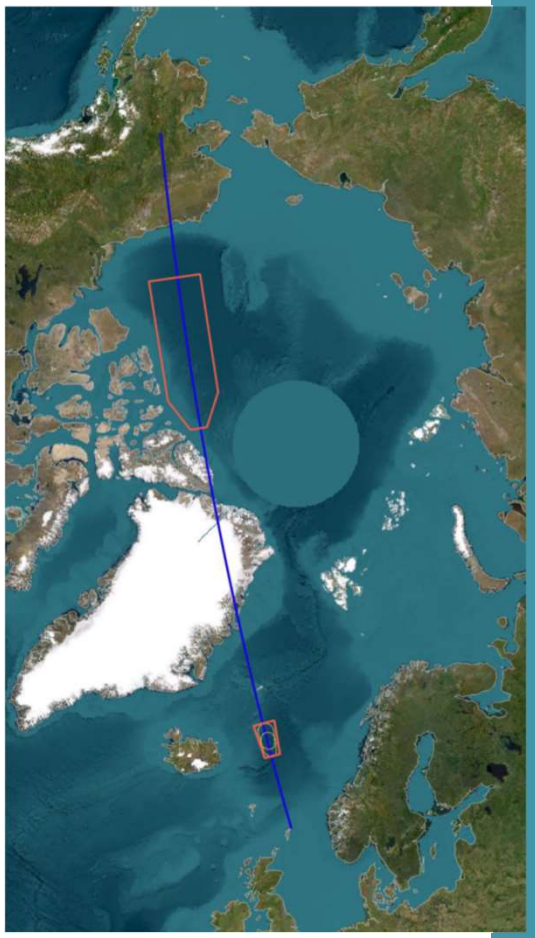
- For an average July day, the impact can be between 4000 and 16000 GBP.
- For 3 days in July, the impact can be 12000 and 49500 GBP.

Overview of CSO: Saxa Vord, Shetlands, UK

Planned launch:
Rocket Factory Augsburg (RFA) fall 2025

One meeting has been held by the UK Department for Transport and UK CAA with ICETRA and Isavia ANS





		Launch Windows [Flights/h]		
Sector	Daily total avg	Morning	Midday	Evening
H1 - Saxavord	127	5.8	9.5	1.9
H2 - Iceland	25	1.5	2.2	0.2
H3 - Jan Mayen	14	0.9	1.3	0.3
H4 - Greenland	13	0.7	1.4	0.2

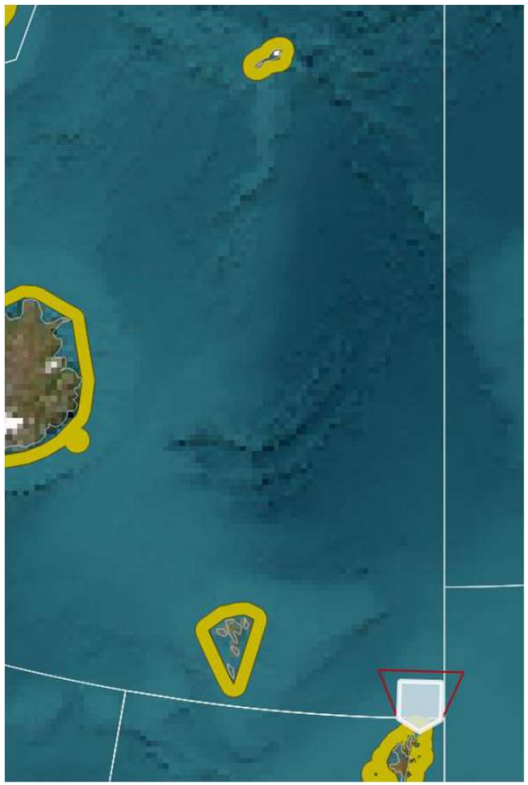
Overview of CSO: Saxa Vord, Shetlands, UK

Planned launch:
Skyrora - Skylark L launch Q1-Q22026

One meeting has been held by the UK Department for Transport and UK CAA with ICETRA and Isavia ANS

Mission overview
• **Skylark L launch.** Skyrora is planning on launching a guided suborbital launch vehicle from SaxaVord.
• **Mission profile**. Suborbital flight with the following characteristics:
• **Vehicle length:** 11.6 m
• **Expected apogee:** 110 km [86-133 km]
• **Downrange distance:** 40 km (~20 km inside Reykjavík FIR)
• **Timeline:** apogee reached at 228 s, drogue parachute deployed at 400 s, landing at 800-1000 s.
• **Timeline**. Skyrora's licence is currently under assessment. The timeline is uncertain; their ambition is Q4, but
significant hurdles need to be overcome to secure a launch this year. More likely to be Q1/Q2 2026

Marine and Airspace impact.
• **Airspace:** the size and shape of the hazard area has not been finalised, but it is likely to cover ~100 km of the Reykjavik FIR; significantly smaller than RFA's
• **Marine**: there is no interaction with Iceland's EEZ, the rocket impact points are fully contained in UK EEZ



Overview of CSO: Andøya Space Port, Norway

The most active Space Port launching into Reykjavik CTA

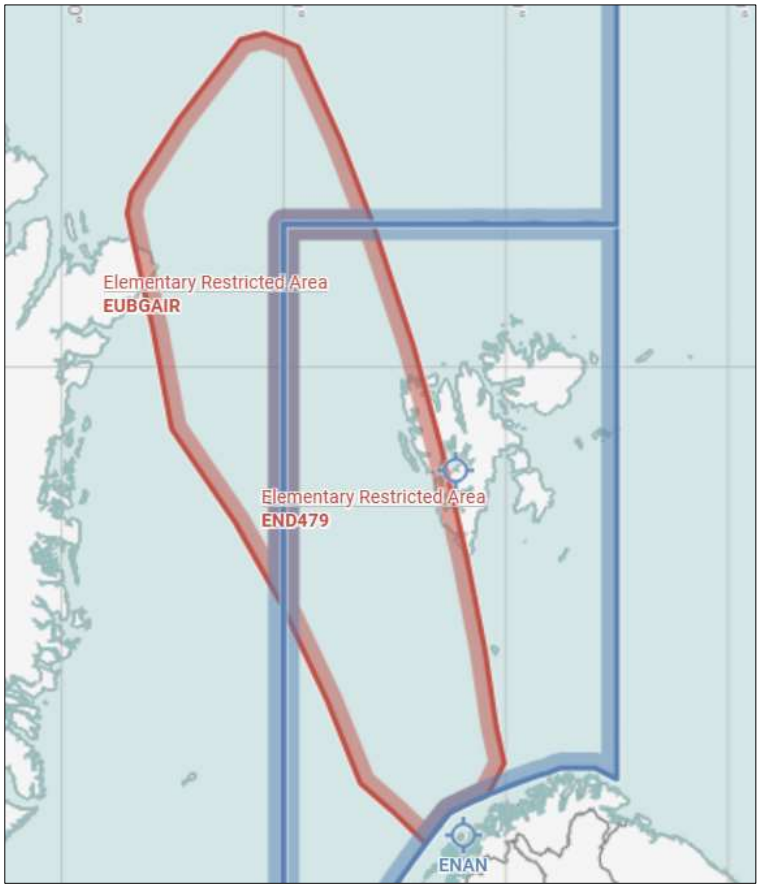
Latest launch:

ISAR Aerospace Spectrum Maiden Flight in the period March 18th to April 3rd, 2025, set to make first orbital launch from continental Europe.

Temporary Danger Area due to scientific launch from Andøya Space Station. Danger Area boundaries: 83 34 23N 001 44 27W - 82 00 00N 004 28 05E - 82 00 00N 000 00 00E - 76 28 04N 000 00 00W - 79 10 03N 007 37 52W - 82 08 56N 010 26 50W - (83 34 23N 001 44 27W).

March 18th to March 29th daily between 1130 and 1510.

March 30th to April 3rd daily between 1030 and 1410.



Preparation: Coordination Agreement, AIP ICELAND Supplement, NOTAMs

Overview of CSO: Andøya Space Port, Norway

Example: TEMPORARY DANGER AREA DUE TO SCIENTIFIC LAUNCH FROM ANDOYA SPACE STATION. MARCH 18TH TO MARCH 29TH DAILY BETWEEN 1130 AND 1510. MARCH 30TH TO APRIL 3RD DAILY BETWEEN 1030 AND 1410.

Requires coordination between the Space Port, the CAAs in Iceland, Denmark and Norway. Avinor for Bodo OAC and Andøya TMA, Naviair for Nuuk FIC, Isavia ANS for Reykjavik CTA and Eurocontrol Network Manager for IFPS. Most of the work in this case is done by Avinor which is the main contact.

Timeline:

03-12.02.2025	20 e-mail preparing to start discussion on the Danger Area for launch from Andøya
04.02.2025	E-mail from ICETRA: Consultation temporary Danger Area Andøya Spaceport
18.02.2025	Meeting 1: to bring all the affected ANSPs to the same page and agree on the management of the activity planned by Andøya Spaceport
18.02.2025	2 E-mail with the first draft of Letter of Agreement (LoA)
19.02.2025	Application Danger Area Spectrum Maiden Flight received via e-mail
19.02.2025	AIP ICELAND SUP prepared
20.02.2025	1 e-mail from Bodo with the second draft of LoA
20.02.2025	AIP ICELAND SUP 02/2025 published
20.02.2025	20 e-mails regarding the application and coordinates of danger area (DA) and buffer around it.
27.02.2025	Meeting 2
27.02.2025	5 e-mails all parties regarding the coordinates of DA and buffer
27.02.2025	2 e-mails: Coordination with ICETRA regarding the use of LoA Template
04 -05.03.2025	15 e-mails all parties regarding the coordinates of DA and buffer
07.03.2025	Preparation of NOTAM – coordination with the AIM Specialist.
07.03.2025	NOTAM A0119/25 published
14.03.2025	Meeting 3
15.03.2025	All documents signed and published.

All together: 3 meetings, 57 e-mails + Preparation of Letter of Agreement, AIP ICELAND SUP and NOTAM

There is only one launch so every day it is decided if this is the correct day to launch. To open up the airspace for other users if there is no launch that day, the NOTAM must be replaced with a new NOTAM. That require coordination between Avinor, Naviair and Reykjavik. After the coordination new NOTAMs are published for each area.

Impact on Operations in Reykjavik CTA

When closure of airspace due to CSO is announced/imminent, ANSPs must, among other things, do the following:

- Fulfill the NAT Doc 013:
- Assess the impact, gather information, get contacts, negotiate timings, meetings, emails, and other communication with the CSO.
- Communication/coordination with the NSA. Make sure the ANSP has all the correct and complete information. For example, does the launch fulfill all requirements?
- Coordinate with IFPS due to FPL amendments.
- Coordination Agreement
- Information to the ATCOs
- Issue AIP Supplement and NOTAMs.
- Inform Operations.

Issues with launches:

- Possible delays in launches and/or many days included in the launch window.
- Some of the CSOs seek approval from State and ANSPs for launches and some only announce the launches.
- The areas are allocated depended on where the Space ports are.
- States can deny permission for launches if within the territorial waters of the state. They can´t deny if the launches are over high seas.
- What to do if CSOs do not pay charges in the future?
  - Will ANSPs have some grounding mechanism in case of non-payment?
  - Should states collect charges?
- Missed revenues for ANSPs.
- Extended cost for airliners due to rerouting or delaying flights.
- Environmental cost.
- Additional ATCOs on duty for re-routing of flights?
- Change to rostering systems to adapt to launches?

Possible Features of a Charging Scheme

The general idea

- User pays: CSOs must participate in operational cost as other airspace users do.
- Cost base of charging scheme must include the specific cost incurred by ANSPs and NSAs due to the launches.
- Charging scheme should encourage minimal impact on air traffic.

More specific

- Fixed charge to cover launch specific cost.
- Variable charge:
  - Location: Charge should be based on high, medium, or low-density traffic areas. Higher charge/unit rate in airspace with more traffic. *Encourages use of lower density areas.*
  - Time related: Charge should be based on time for published danger area (not actual time used). *Encourages minimizing of time affected.*

Reasoning behind charging scheme

- All users of airspace must pay for its use.
- Airspace closures cause rerouting cost for airlines, environmental cost of longer routes.
- Closure of airspace may result in revenue loss for ANSPs.
- Although not currently, future CSO operations may result in more ATCOs required on duty or a change in rosters.

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