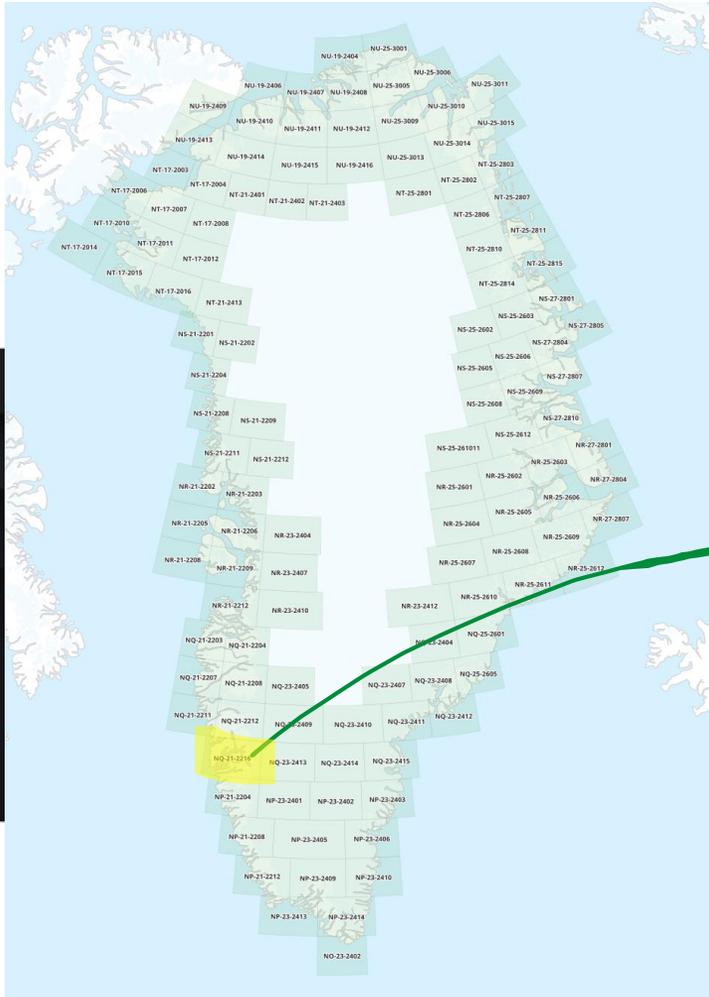
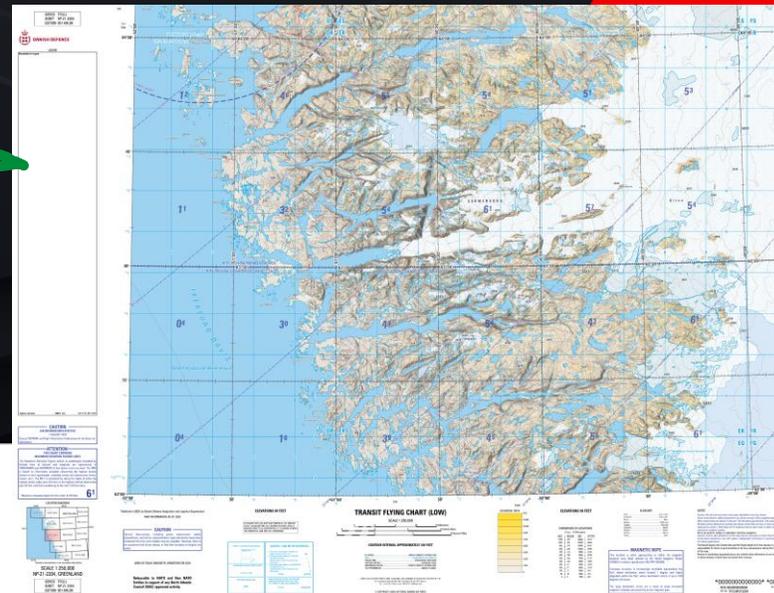


# Greenlandic Aeronautical Charts



Transit Flying Chart – Low level (TFC-L), 1:250 00  
Produced for DALO / RDAF – Edition 1, December 2025



**From Blank Canvas to Flight-Ready Charts in Eight Months**



## Charts Before Christmas: A Holiday Tale from the Arctic

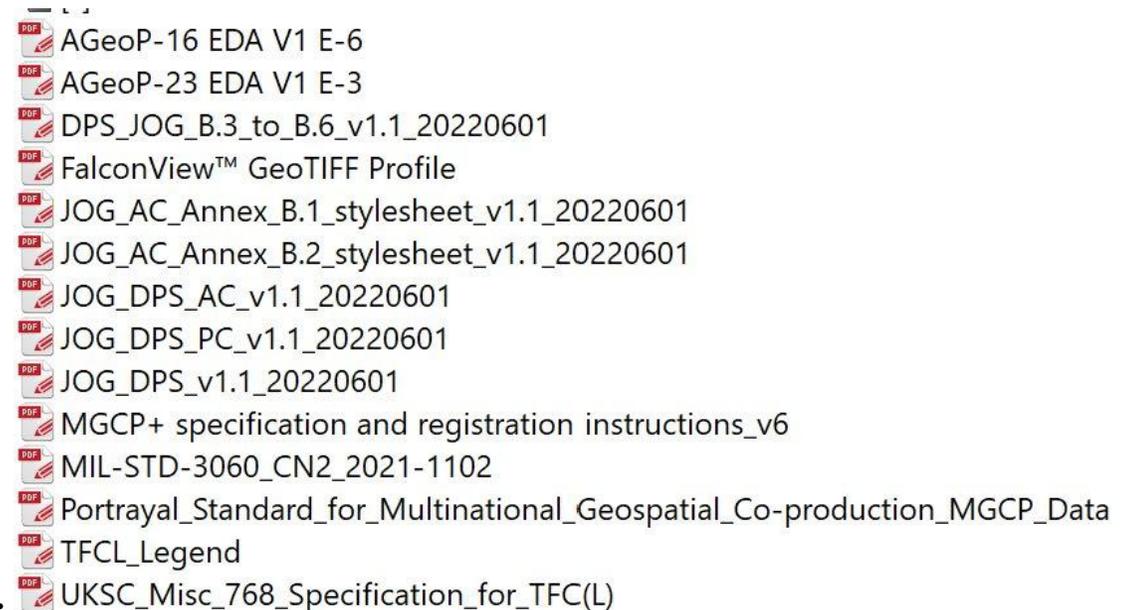


- The Danish Ministry of Defence Acquisition and Logistics Organisation (DALO) approached T-Kartor in the spring of 2025, with project start in July
- On behalf of Royal Danish Air Force (RDAF), was DALO in urgent need of aeronautical charts covering ice free parts of Greenland – with project deadline before Christmas

# Project limitations and challenges

## 116 Maps in 8 Months

- Tight project timeline – demanding coordination, precision, and efficiency
- From scratch complete roll out in OSGeo tech (QGIS, PostgreSQL, postGIS, Python, OGR, GDAL) – completely free from proprietary tech
- Applying the following data sources according to specifications:
  - Multinational Geospatial Co-production Program (MGCP, 1:50 000 scale) → KDS
  - Aeronautical Information Exchange Model (AIXM) & Aeronautical Information Publication (AIP) → NAVIAIR
  - Obstacle DataBase (ODB - Danish obstacles & minor airfields) → KDS
  - Digital Terrain Elevation Data (DTED) → Dataforsyningen
  - Nunagis geonames → Nunagis (Grönlandsk auktoritet)



Specifications...

# MGCP – Multinational Generational Co-production Program

## Generalization of 1:50k to 1:250k

- Generalized and applied according to specifications
- “Skin of the earth” topological generalization
  - Generalization 68% reduction
- “Overlays” parameter driven generalization
  - Generalization 73% reduction

Topological generalized layers



Overlay generalized layers





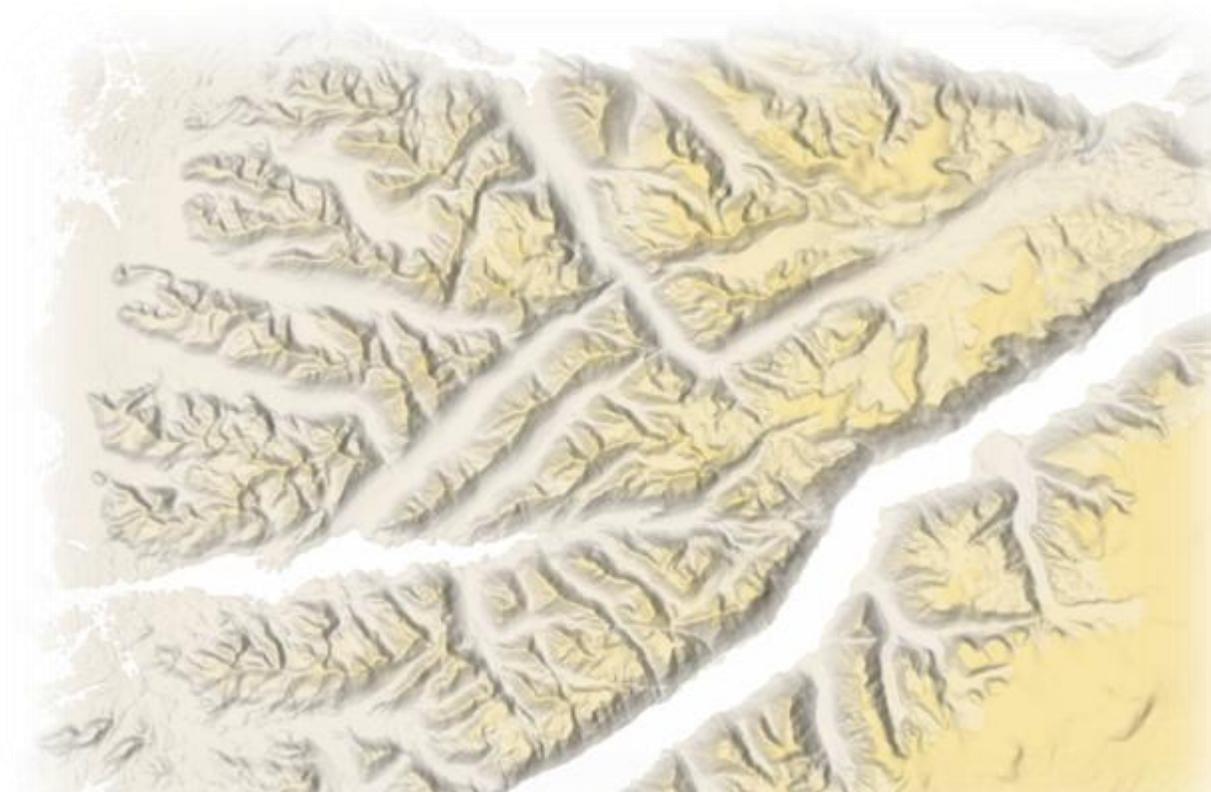
**Combined MGCP layers**



# Digital Terrain Elevation Data (DTED)

Cartographic themes derived from DTED (30x30m):

- Contour lines
- Maximum Elevation Figures
- Hill shade
- Elevation tints
- Spot elevations





# AIXM (Aeronautical Information Exchange Model) & ODB

All aeronautical information such as:

- Airfields, heliports, landing sites
- Airspaces
- Navigational aids

Obstacle database:

- Masts, towers, wind turbines
- Powerlines, aerial cable ways

## VERTICAL OBSTRUCTIONS (VO) (>= 150 feet)

Single: Unlit; Lit; Multiple: Unlit; Lit; Wind turbines \_\_\_\_\_

374 - Elevation of obstruction top above mean sea level (AMSL)

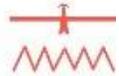
361 - Height of obstruction top above ground level (AGL)



## CABLES

Power transmission line, Aerial cable way \_\_\_\_\_

Suspended obstruction (>=200 feet AGL) \_\_\_\_\_



## AIRCRAFT FACILITIES (Military or Civil)

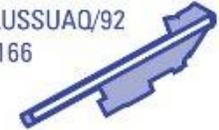
Airfield runway length >= 8000 feet \_\_\_\_\_ KANGERLUSSUAQ/92

KANGERLUSSUAQ - Name

166

92 - Length of longest runway to nearest hundreds of feet

166 - Elevation



Airfield runway length < 8000 feet \_\_\_\_\_

Airfield runway length unknown \_\_\_\_\_

CITRONENS FJORD - Name

s - Soft or unimproved surface

u - Unknown surface

Minor landing strip \_\_\_\_\_

Heliport/Helipad landing site \_\_\_\_\_



## NAVIGATIONAL AIDS (NAVAIDS)

Distance Measuring Equipment (DME),

Non-Directional Radio Beacon (NDB),

VHF Omni Range with Tactical Air Navigation Aid Beacon (VORTAC) \_\_\_\_\_

DME - NAVAID type

AS - NAVAID designator

24Y - Channel or frequency

Aeronautical ground lights \_\_\_\_\_

## CONTROLLED AIRSPACES

Control area (CTA), Terminal area (TMA) \_\_\_\_\_

Control zone (CTR), Flight information zone (FIZ) \_\_\_\_\_

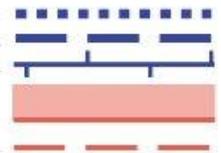
Flight information region (FIR) \_\_\_\_\_

Restricted areas:

Permanent \_\_\_\_\_

Activated by NOTAM \_\_\_\_\_

## OTHER





# Final product shown in Iris



116 TFC-L charts as geospatial PDFs



Map canvas GeoTIFFs



Mission planning GeoTIFFS



MBTiles



Compressed Arc Digital Raster Graphics (CADRG)



MGCP vector data as generalized to scale with documentation of process

The background features a large, vibrant red triangle on the left side, pointing towards the center. To its right, a dark navy blue area contains faint, concentric, wavy lines. The bottom right corner is a clean white space. A smaller, darker red triangle is partially visible behind the main red one on the right side.

**THANK YOU!**