 AFR25GN

Registration: ■■■ F-HBND

LFPO

Paris

EOBT  
10:35

AOBT  
10:26

LFMN

Nice

ETOT  
10:38

ATOT  
10:38

ETOA  
11:52

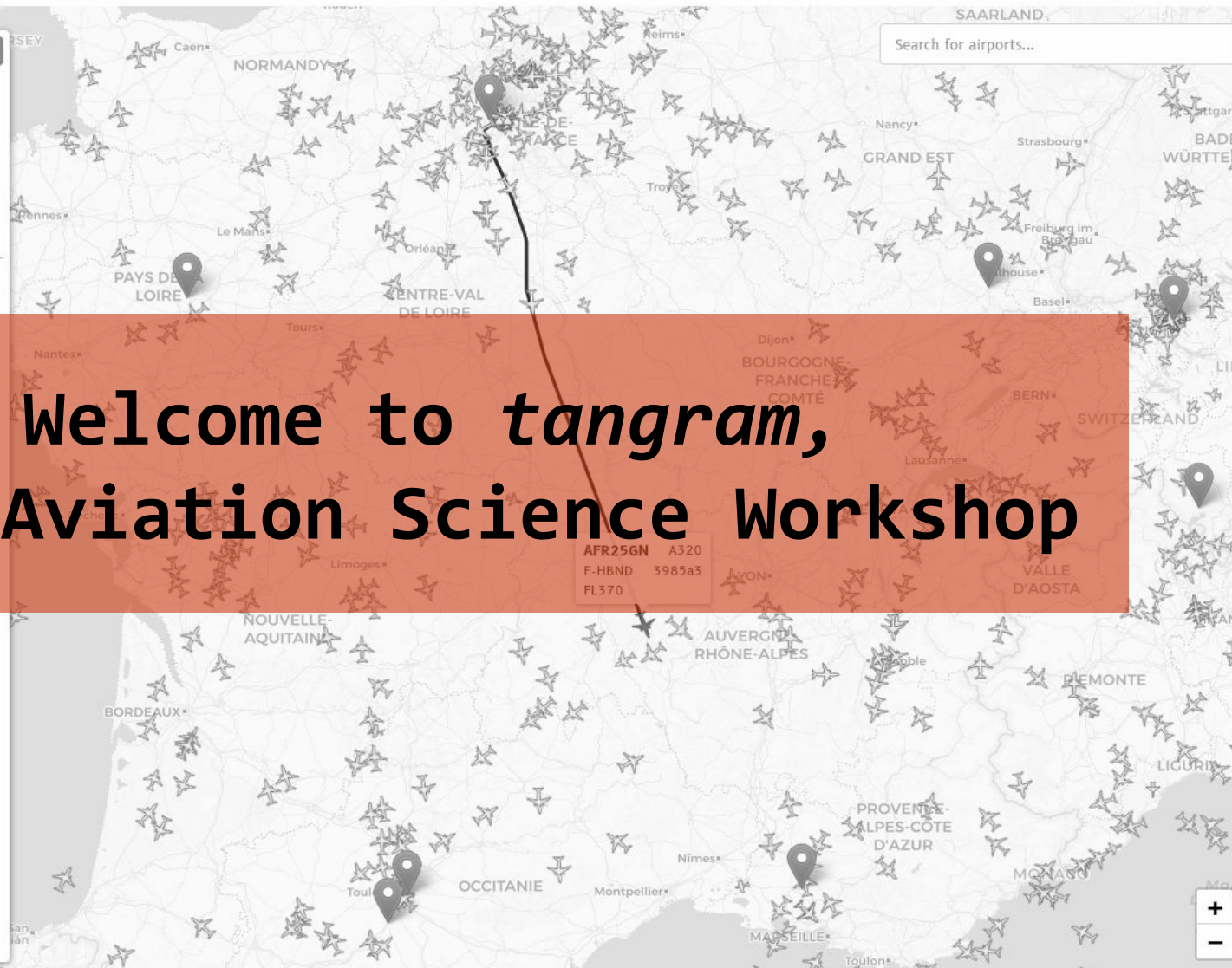
ATOA  
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Flight data

Altitude (in ft) ▾

— Selected altitude — Barometric altitude

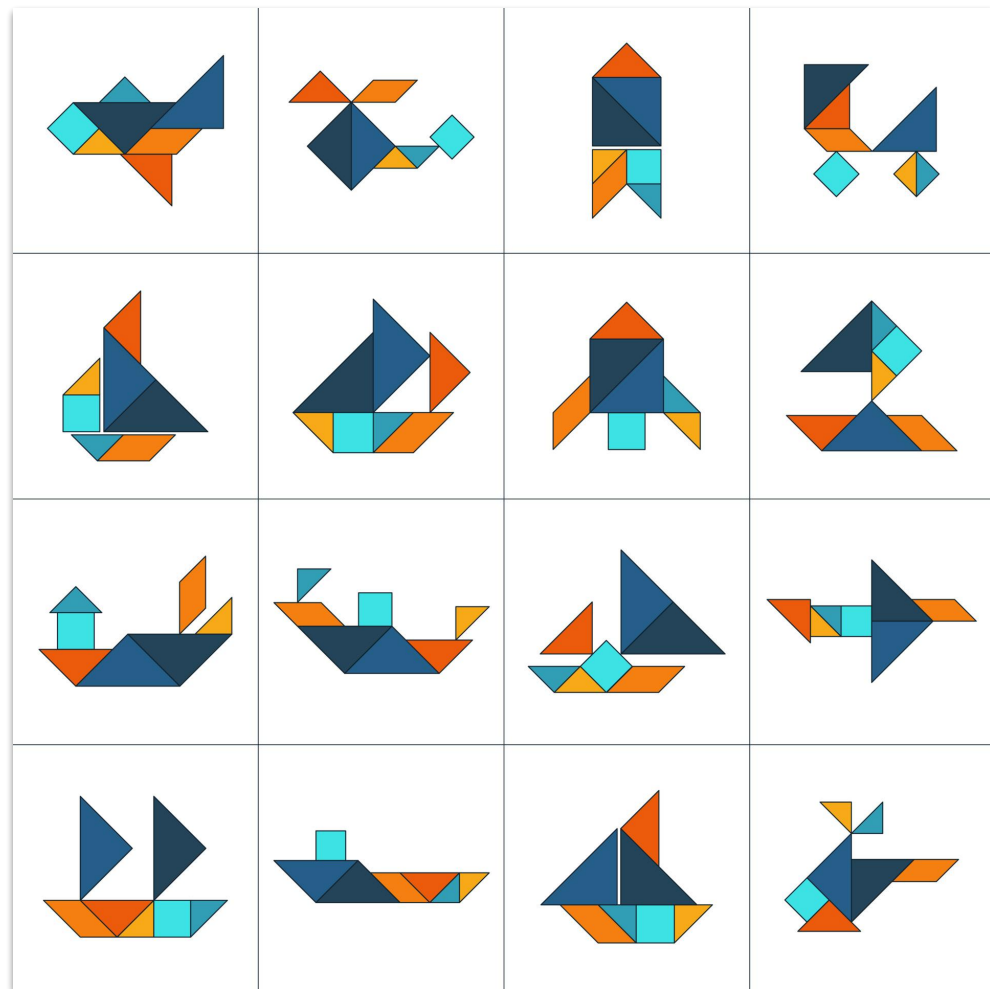




# Welcome to *tangram*, Open Aviation Science Workshop

# 七巧板

(qī qiǎo bǎn)



Project database > Tangram: open platform for modular, real-time, and data-driven aviation research

# Tangram: open platform for modular, real-time, and data-driven aviation research

Tangram is an open research framework for flight surveillance data that originated as a hobby project for detecting turbulence. It has potential for various real-time aviation research topics such as GNSS jamming detection, aviation weather monitoring, emission analysis, and airport performance monitoring. The preliminary version is currently available as a web application developed in Python and JavaScript. Our final goal is to create a fully functional platform that enables real-time open data analysis on a cloud service or personal computer. Tangram will aggregate raw data, allowing researchers to incorporate their own codes for conducting open research analyses.

## Open Science Fund

The Open Science Fund aims to support projects specifically designed to implement and stimulate open science practices. With this funding instrument, NWO takes a step forward towards changing the way academics are recognised and rewarded in the Netherlands.

→ [Show research programme](#)



## Characteristics

### Status

In progress

### Duration

20 January 2024 to 30 April 2025

### Research programme

Open Science Fund

### File number

OSF23.1.051

### Discipline

[Technology](#)


### Themes


[Overig talentontwikkeling](#)

[Talent](#)

[2023-2026 \(Financieringslijnen\)](#)



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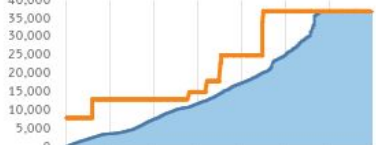
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ATOA11:45

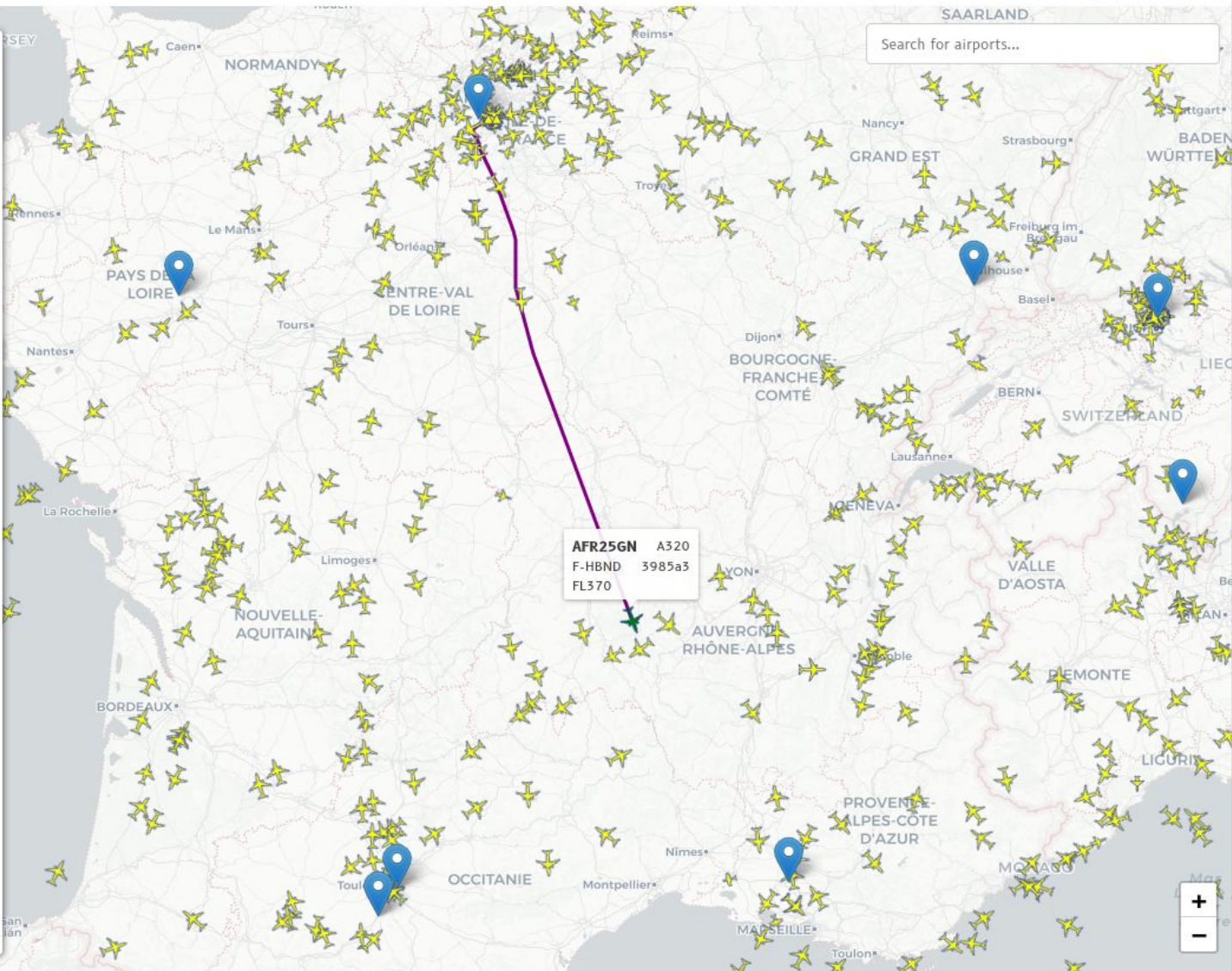
Flight data

Altitude (in ft) ▾

Selected altitude — Barometric altitude



Time	Selected altitude (ft)	Barometric altitude (ft)
11:38	10,000	5,000
11:40	15,000	8,000
11:41	15,000	10,000
11:43	20,000	12,000
11:44	25,000	15,000
11:46	35,000	20,000
11:49	35,000	30,000
12:00	35,000	35,000



## Day 1 · Part 1 – Open science in aviation

09:00 – Welcome Coffee

09:30 – 10:00 **Welcome and Keynote**

Jacco Hoekstra (TU Delft)

10:00 – 10:30 **Open science in aviation, where are we now?**

Junzi Sun (TU Delft)

10:30 – 11:00 **Good practices for open science**

Heather Andrews Mancilla (TU Delft / Aerospace Engineering)

11:00 – 11:30 **How to open your code when part of it cannot be shared ?**

Xavier Olive (ONERA)

11:30 - 12:00 **Talks from the participants**

- A large-scale and open-source dataset of aircraft interactions - Raúl López-Martín (IFISC)
- Creating open collaborative coverage maps at drone operating altitudes - Morten Larsen (AnyWi)

## Lunch (12:00-13:00)

## Day 1 · Part 2 – Open data in aviation

The afternoon consists of two hands-on sessions. Laptops are sufficient (an internet connection will be available), and basic knowledge of Python for data science is expected.

13:00 – 14:30 **A tour through aviation sources of data**

*(hands-on session)*

Gerald Gurtner (University of Westminster)

15:00 – 16:30 **Around OpenSky Network data: what is available and what is not?**

*(hands-on session)*

Junzi Sun, Xavier Olive

## Unofficial dinner gathering downtown

(self-financed)

<https://mode-s.org/workshop/>

## Day 2 · Part 3 – Real-time aviation data analysis

9:00 – 12:00 **tangram: aviation data analysis on real-time data**

*(presentation, demo, and live coding with tangram)*

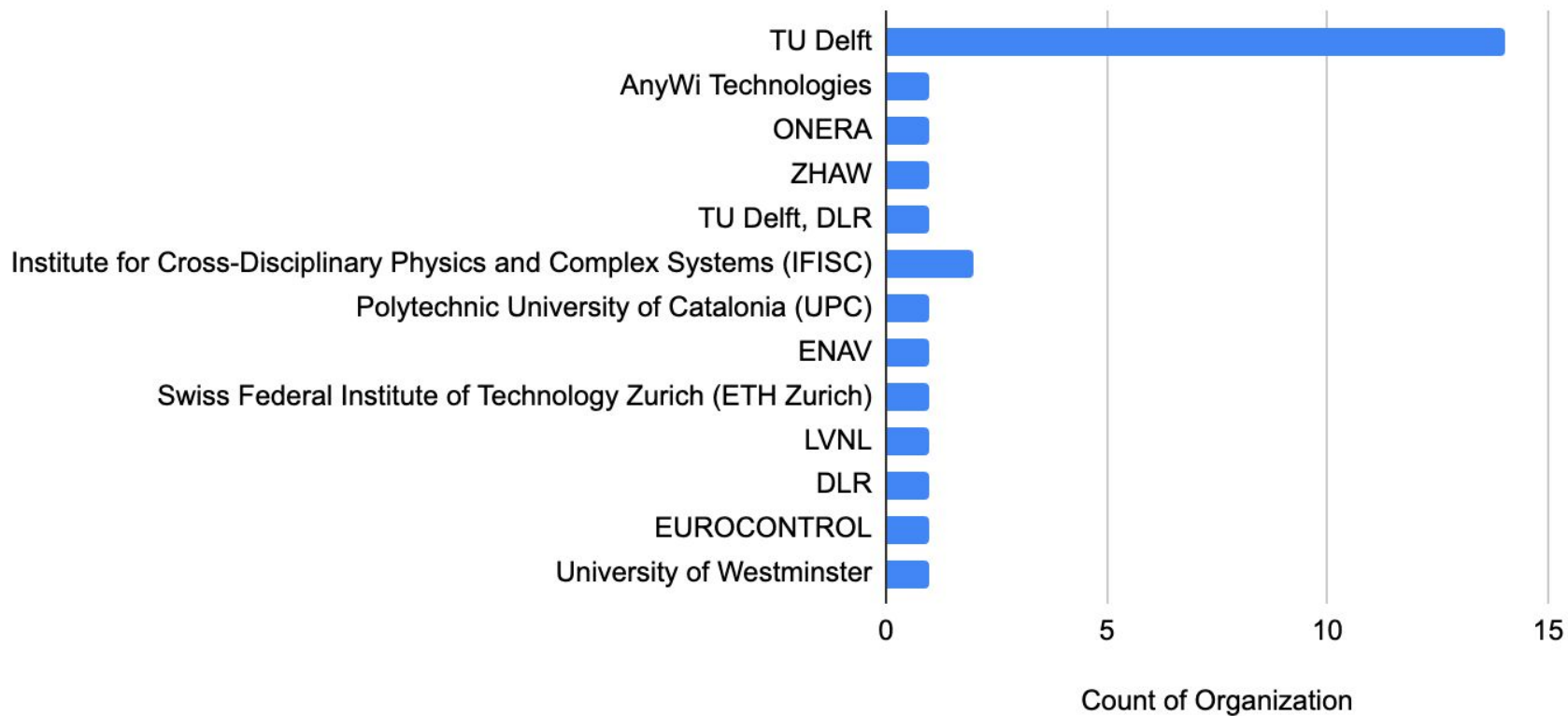
Xavier Olive, Junzi Sun

Lunch (12:00-13:00)

13:00 End of the workshop

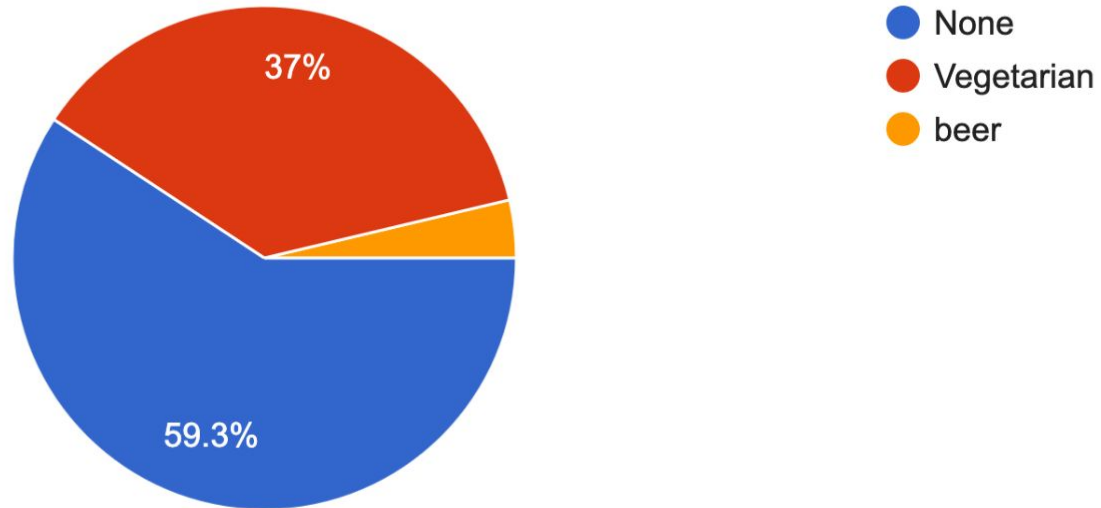
<https://mode-s.org/workshop/>

## Count of Organization





## Food restrictions

27 responses





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A320

LFPO

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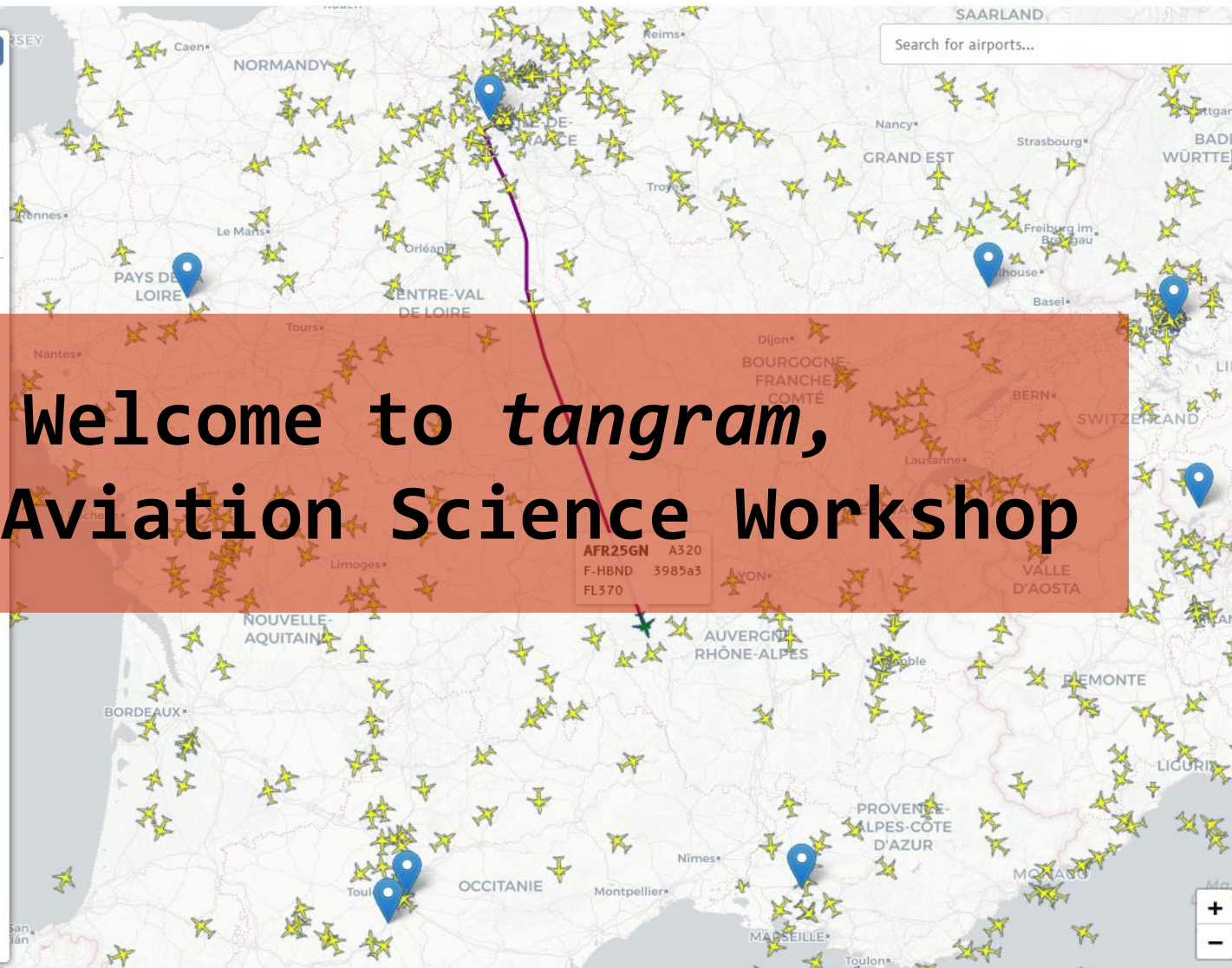
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Barometric altitude





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