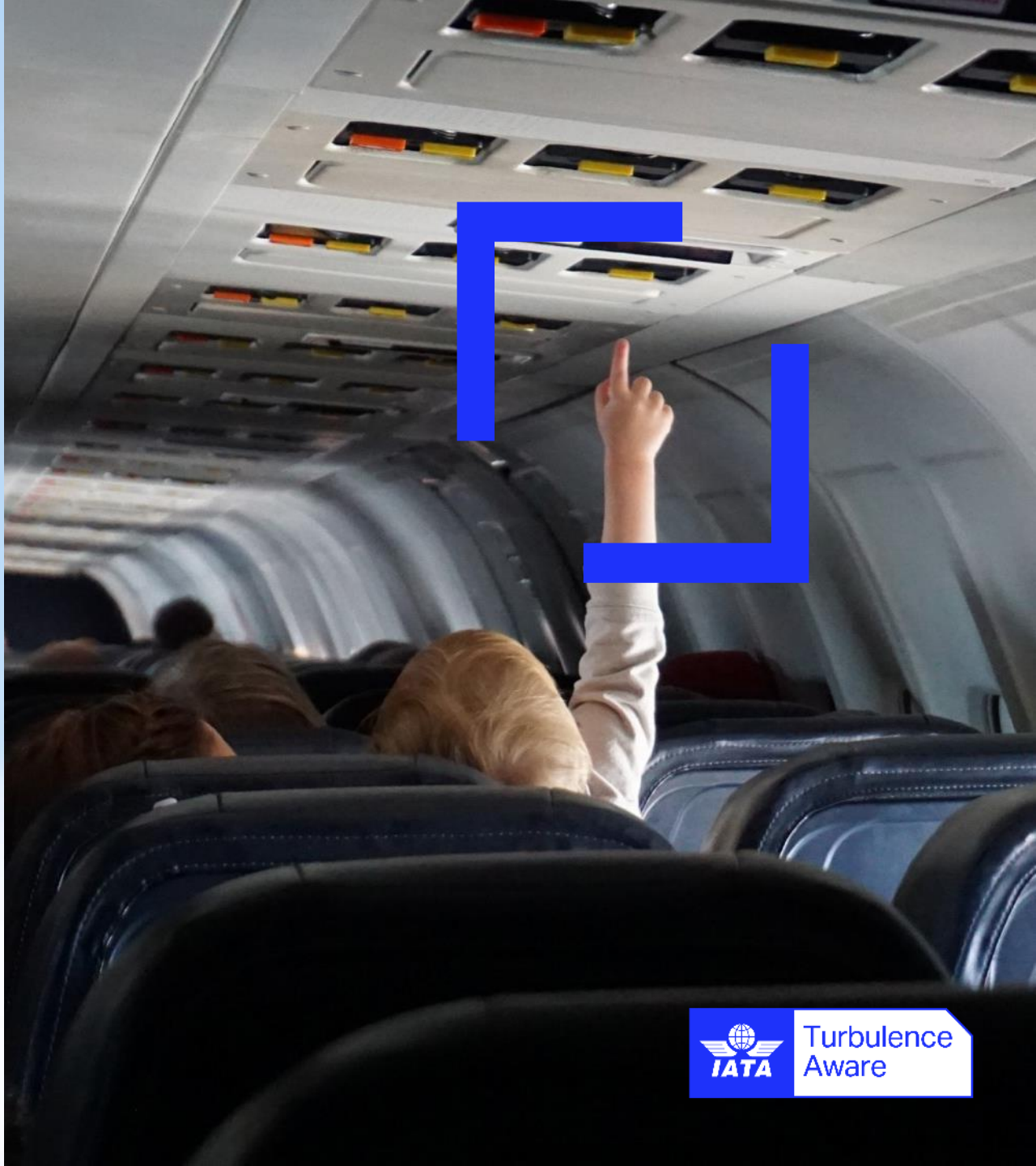
Turbulence is

The leading cause of injuries to cabin crew and passengers in non-fatal accidents (FAA)
Costing the aviation industry hundreds of millions of dollars every year

Causing brand damage and contributing to the fear of flying

University research around turbulence, is pointing to an increase in both severity and frequency



Recent Events:

- On 21 May 2024, a Boeing 777-300ER operating LHR-SIN, encountered severe turbulence over Myanmar, resulting in the death of a passenger and leaving 144 crew and passengers injured
- The aircraft was diverted to Suvarnabhumi Airport in Bangkok, Thailand
- On 26 March 2026, an A350 from LAX to SYD encountered turbulence during descent strong enough to launch cabin crew into the air
- Whilst it was a brief encounter and the aircraft landed safely, four cabin crew were reported injured, with three transported to hospital with minor injuries

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Current tools :

Pilot Reports (PIREPS) are subjective

Forecasts may be inaccurate and hours old

Weather radar cannot detect clear air turbulence

Industry shift to data-driven turbulence management

Technical advancements now enable aircraft to accurately calculate the turbulence state of the atmosphere in flight

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Introducing Turbulence Aware

A global platform **for sharing** automated EDR* turbulence reports in real-time

Airlines own their data

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Integration with in-house or third-party flight planning or in-flight weather tools, as well as ATM and MET situational awareness tools

Detailed report available **for each data point** – to increase situational awareness

Anonymized data – To protect airlines' identity and privacy

What is real-time turbulence data?

Eddy Dissipation Rate (EDR)

- Turbulence intensity metric measuring the state of the atmosphere around an aircraft in flight
- An aircraft independent absolute value
- Simple software installation based on NCAR v2 open-source algorithm
- No hardware required to calculate EDR

Parameters delivered for each report listed below:

Parameter	Explanation	Example
Observation Time	Time of report in UTC	2020-05-13t00:00:00Z
Altitude	Altitude Above Sea Level in feet	35,000 ft
Latitude	Geographical coordinate of the report for latitude	22
Longitude	Geographical coordinate of the report for longitude	120
Peak EDR	Maximum EDR value in the calculation	0.37
Mean EDR	Average EDR value of the calculation	0.12
Wind Speed	Wind speed in knots	40kt
Wind Direction	Wind direction in radial degrees	270˚
Static Air Temperature	Temperature in degrees Celsius	-55.0˚C

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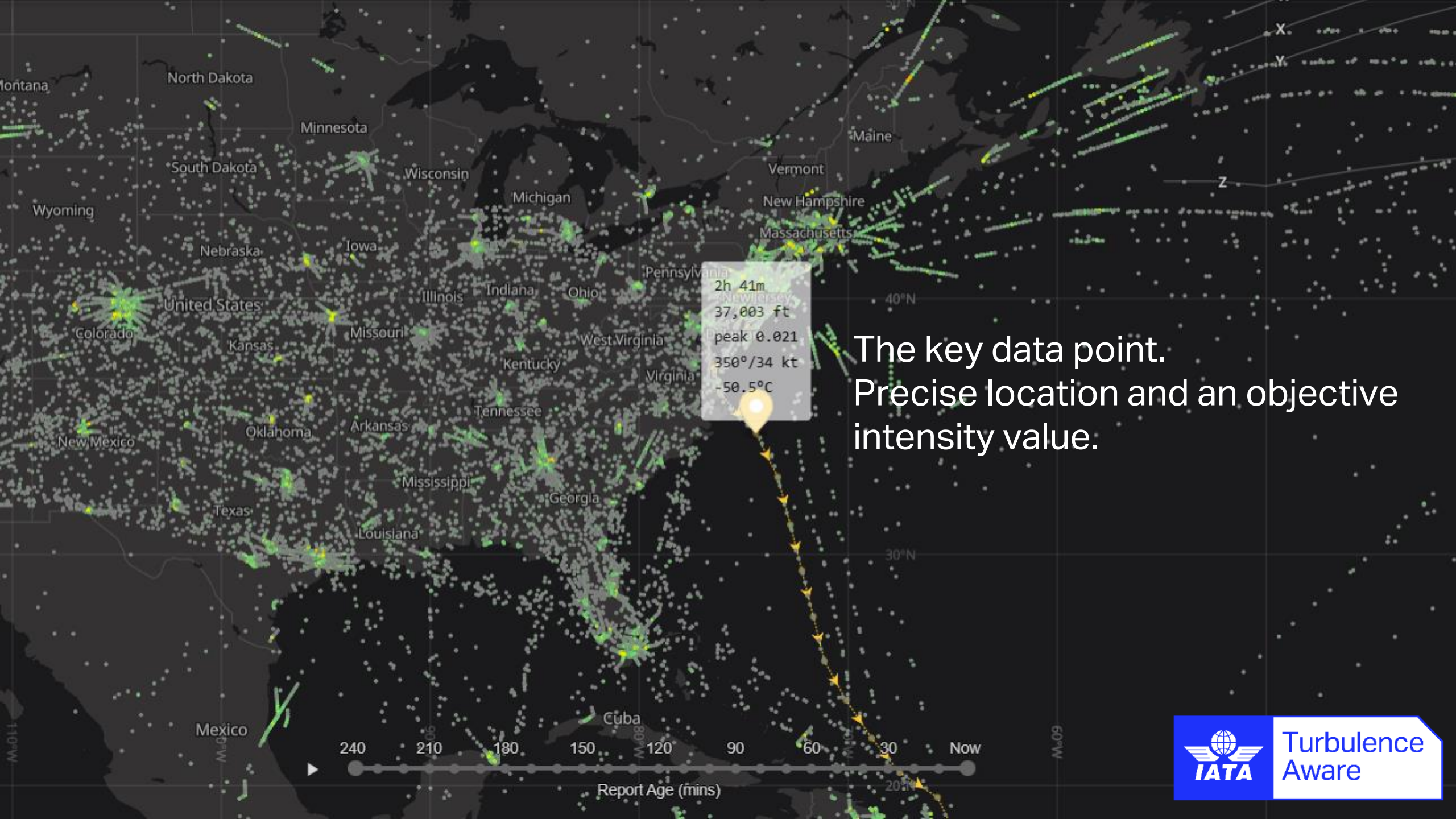
2h 41m
37,003 ft
peak 0.021
350°/34 kt
-50.5°C
240
210
180
150
120
90
60
30
Now
Report Age (mins)
The key data point.
Precise location and an objective intensity value.
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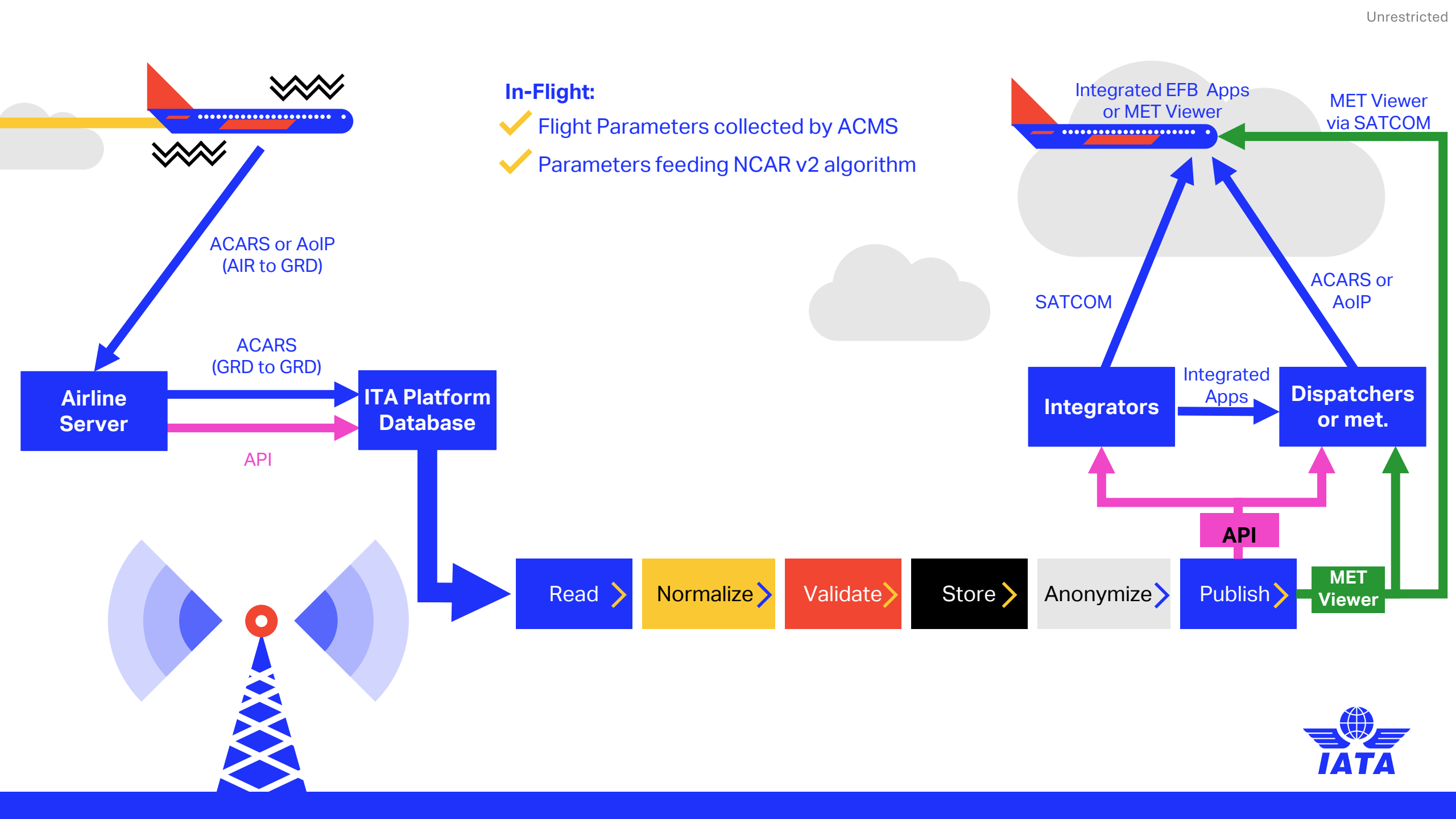
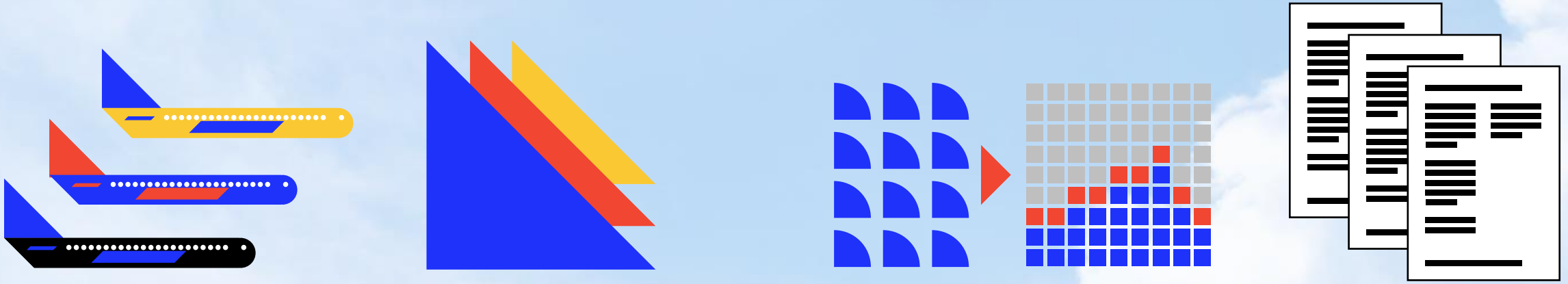


IATA Turbulence Aware in figures



3300+

Reporting Aircraft

31

Airlines feeding data to the Platform

14

Service Providers signed to **integrate** data

200+M

Turbulence Reports received

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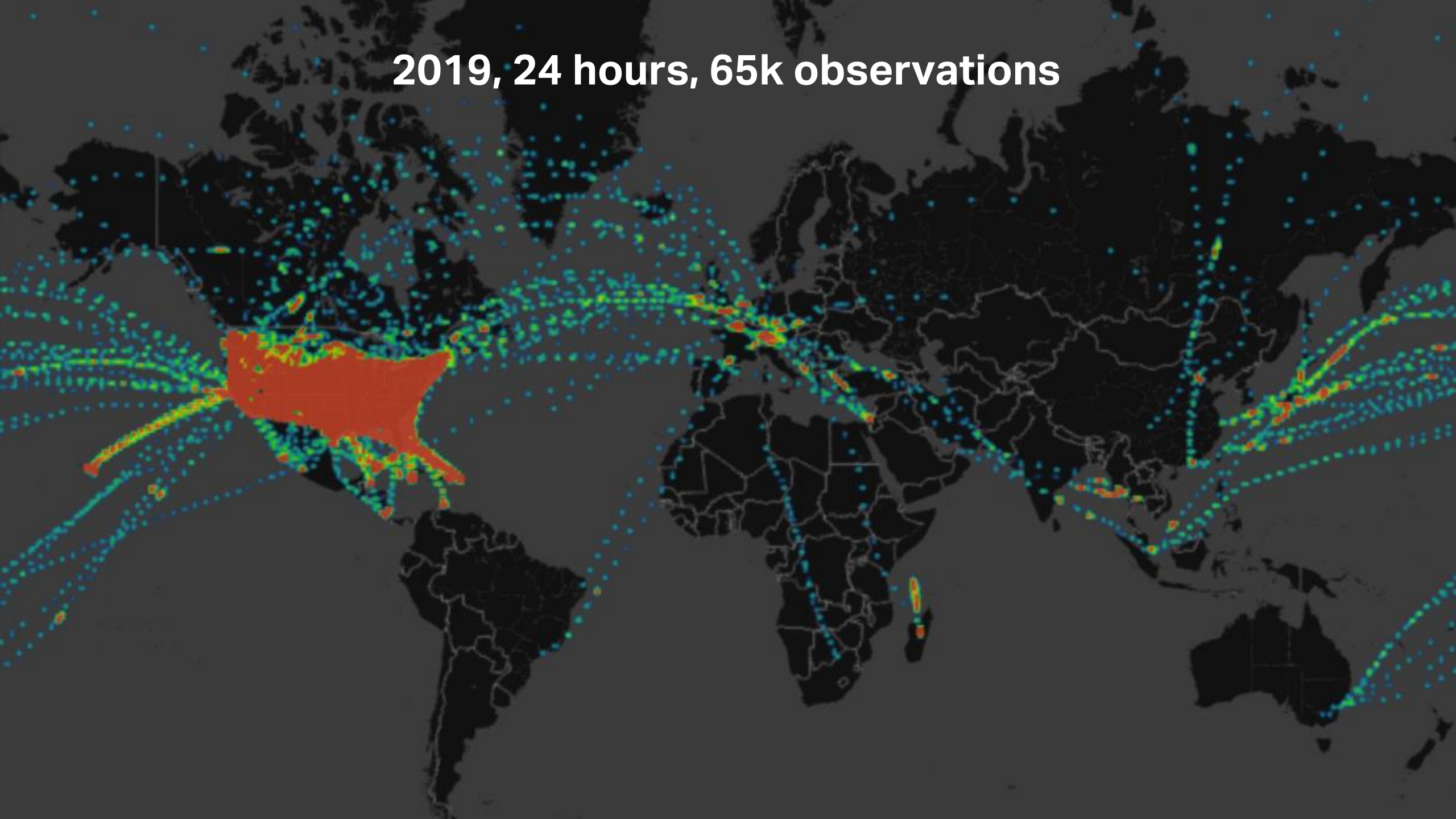
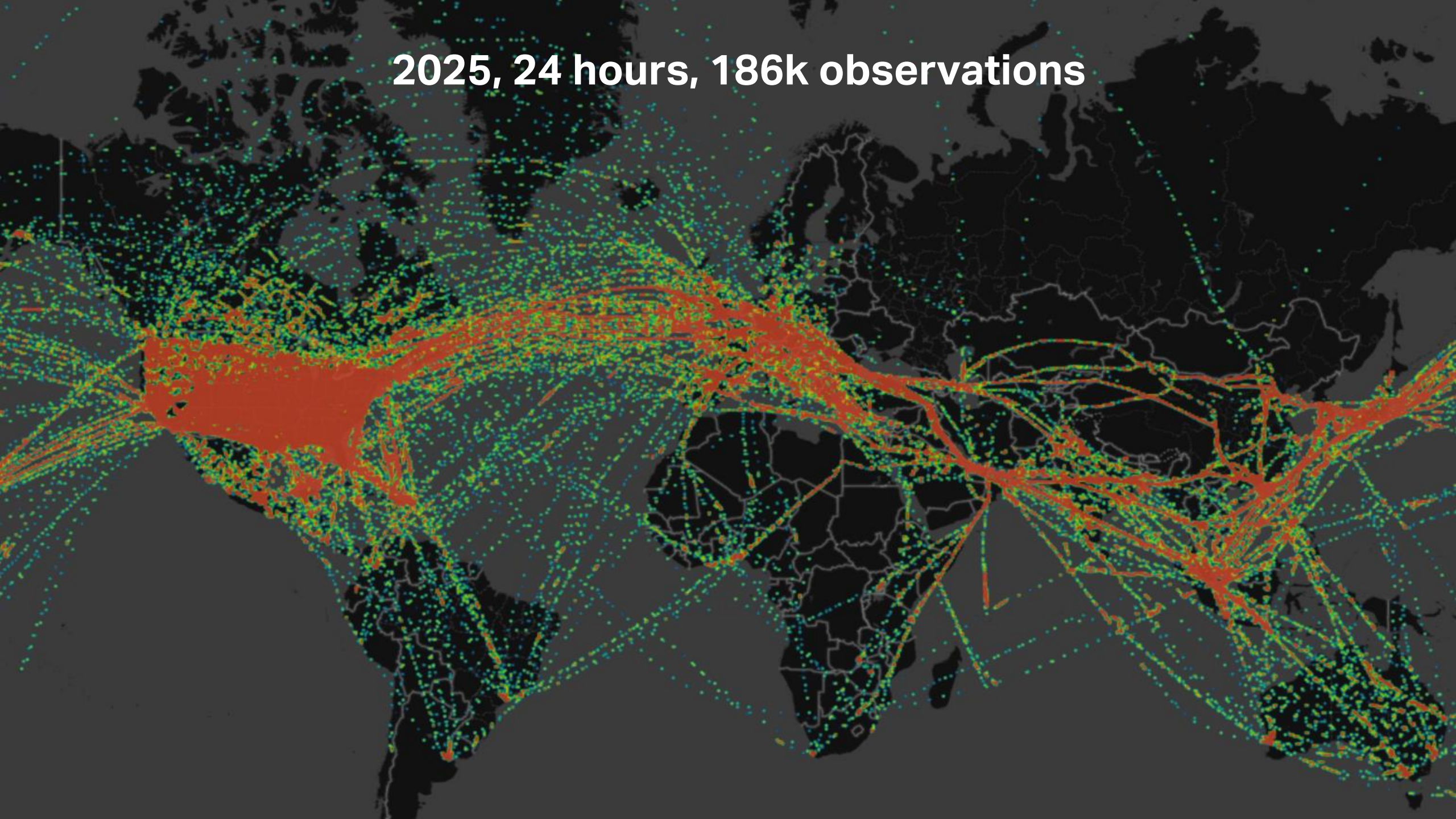
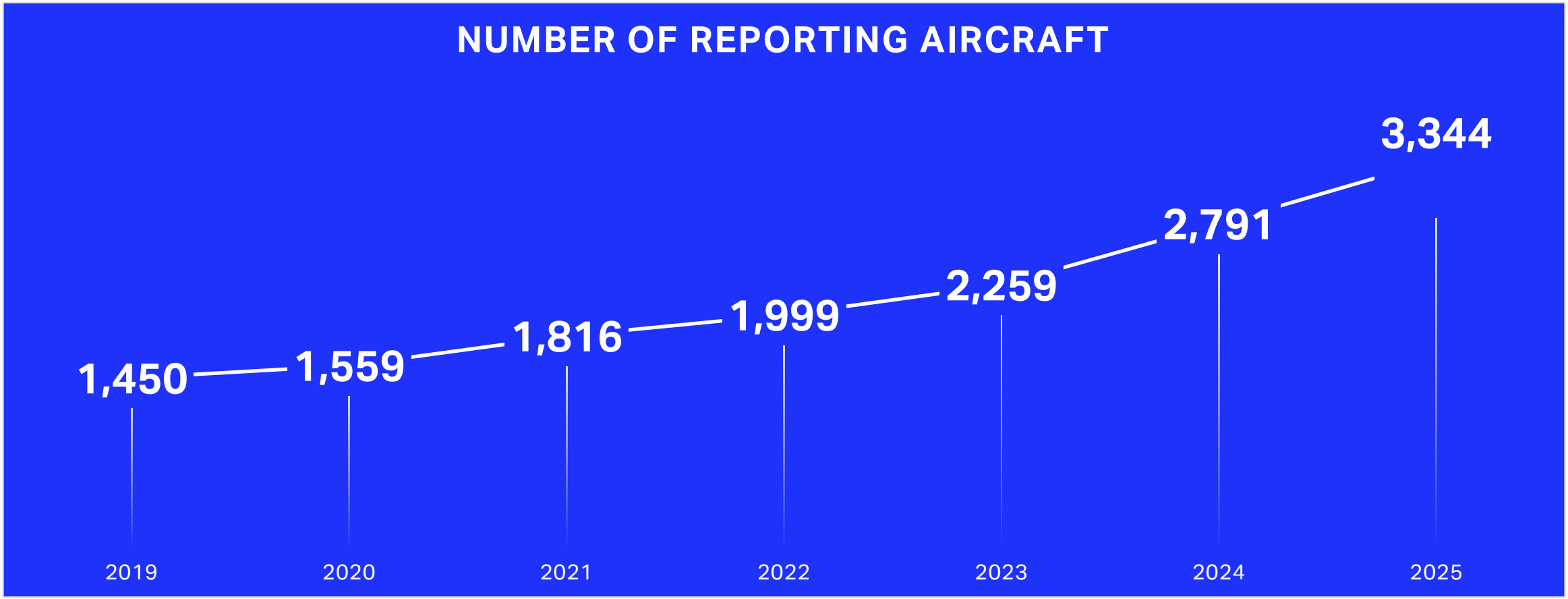

2019, 24 hours, 65k observations

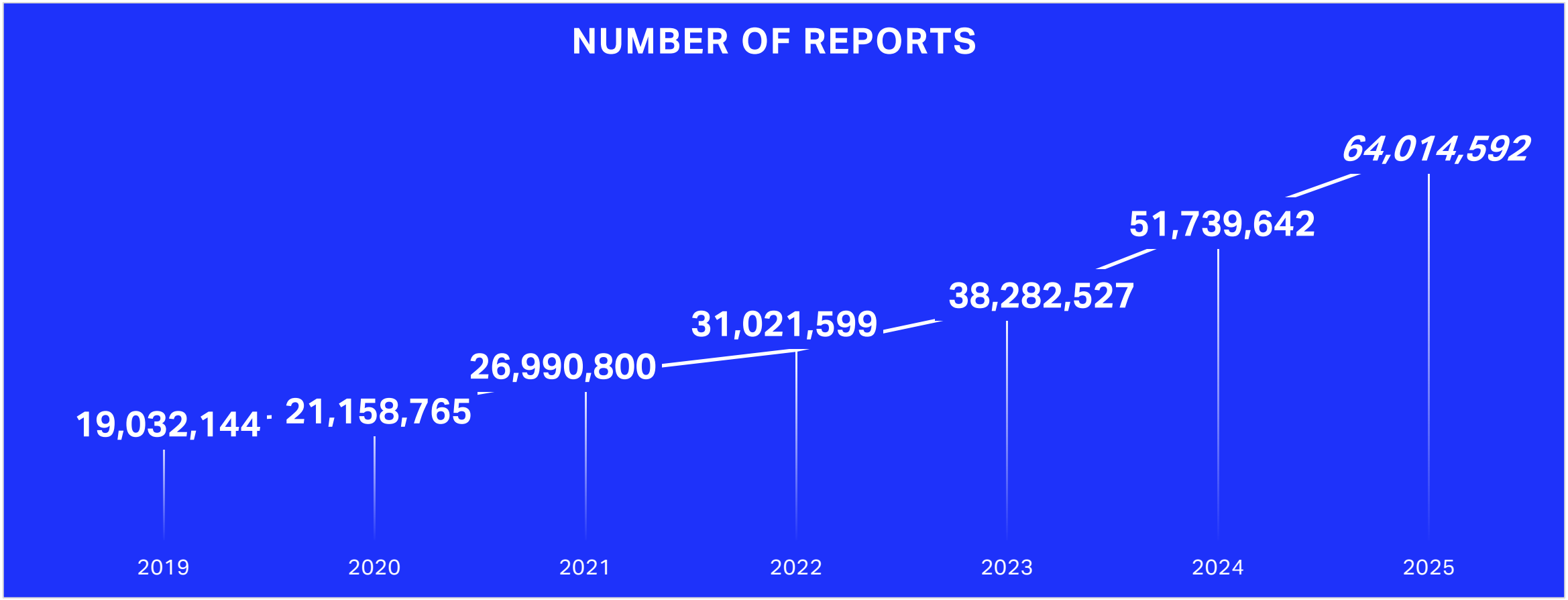

2025, 24 hours, 186k observations

Evolution



**participating airlines in the program*

Evolution



*participating airlines in the program

Benefits of the program - AUs

- Improved safety outcomes
- Reduction in turbulence associated costs
- Reduction in carbon emissions
- Fuel Savings
- Grounds to renegotiate insurance
- Reduced maintenance costs
- Enhancing brand image

Joining the Turbulence Aware Program can significantly lower the likelihood of adverse events related to turbulence.

The benefits of the TA Program are the foundation of the airline's internal business case.

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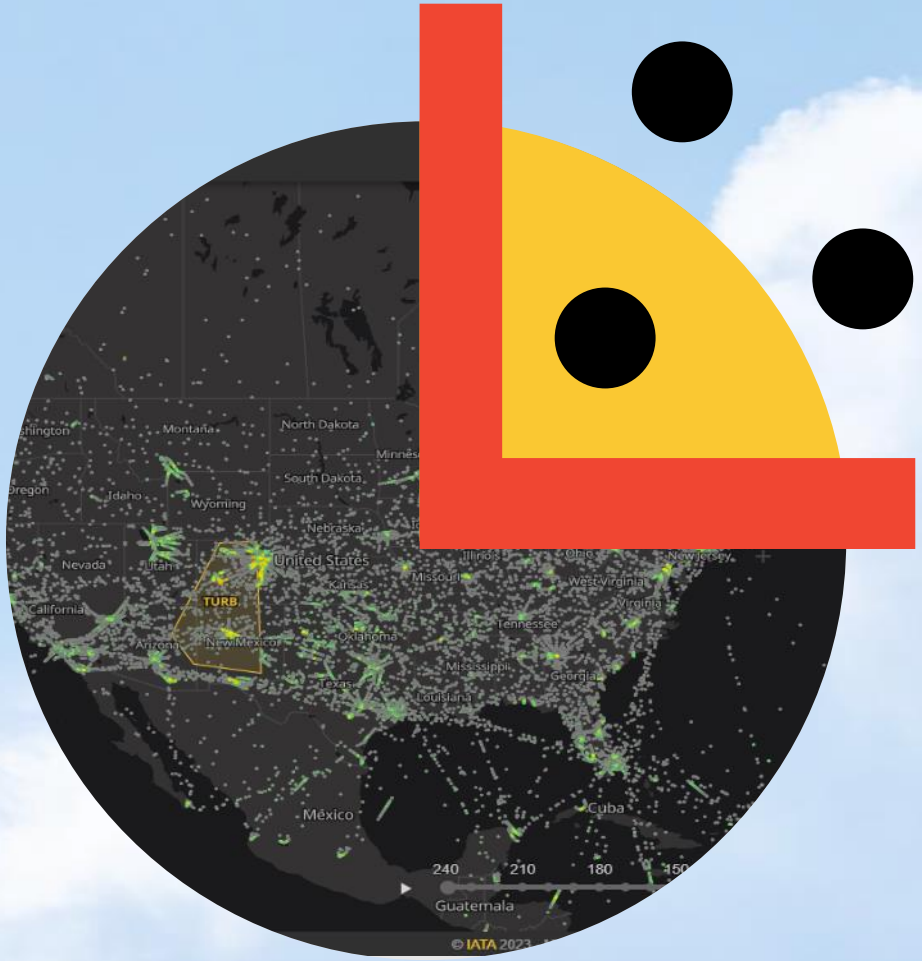
Use Cases:

- Turbulence and SIGMETs Modeling Validation
- Turbulence Model Development
- Turbulence and Weather Research Activities
- Access to the same raw turbulence data as pilots for better operational decisions
- Analysis of areas / altitudes / flight levels to better manage traffic flow and airways
- ATCs no longer need to congest the airways requesting ride reports



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Use Cases:

- Proactive management of air traffic flow
- Dynamic management of air traffic sectors
- Optimization of airspace usage
- Informed decisions and improved coordination between airlines, ATS and ATFM units
- Enhanced flight planning
- More accurate advisories and warnings
  Cross-FIR coordination during adverse weather

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Thank you!

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