



Turbulence
Aware

Revolutionizing Turbulence Mitigation



Turbulence is

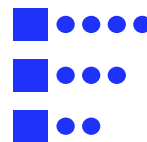
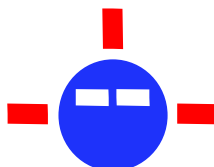
The leading cause of injuries to cabin crew and passengers in non-fatal accidents (FAA)

Costing the aviation industry hundreds of millions of dollars every year

Causing brand damage and contributing to the fear of flying



Costs associated with turbulence events



Diversion	Injuries	Fuel	CO2 emissions	Maintenance	Brand Image
<ul style="list-style-type: none"> Up to 200,000 USD per event 	<ul style="list-style-type: none"> Up to 10,000 USD per crew Up to 200,000 USD per passenger 	<ul style="list-style-type: none"> 83.79 USD to 359.63 USD / hour 	<ul style="list-style-type: none"> Every ton of fuel burned, there is a 3.16 multiple for CO2 emission 	<ul style="list-style-type: none"> between 60,000 USD and 150,000 USD an hour 	<ul style="list-style-type: none"> Hundreds of thousands of dollars in social contributions

Current tools

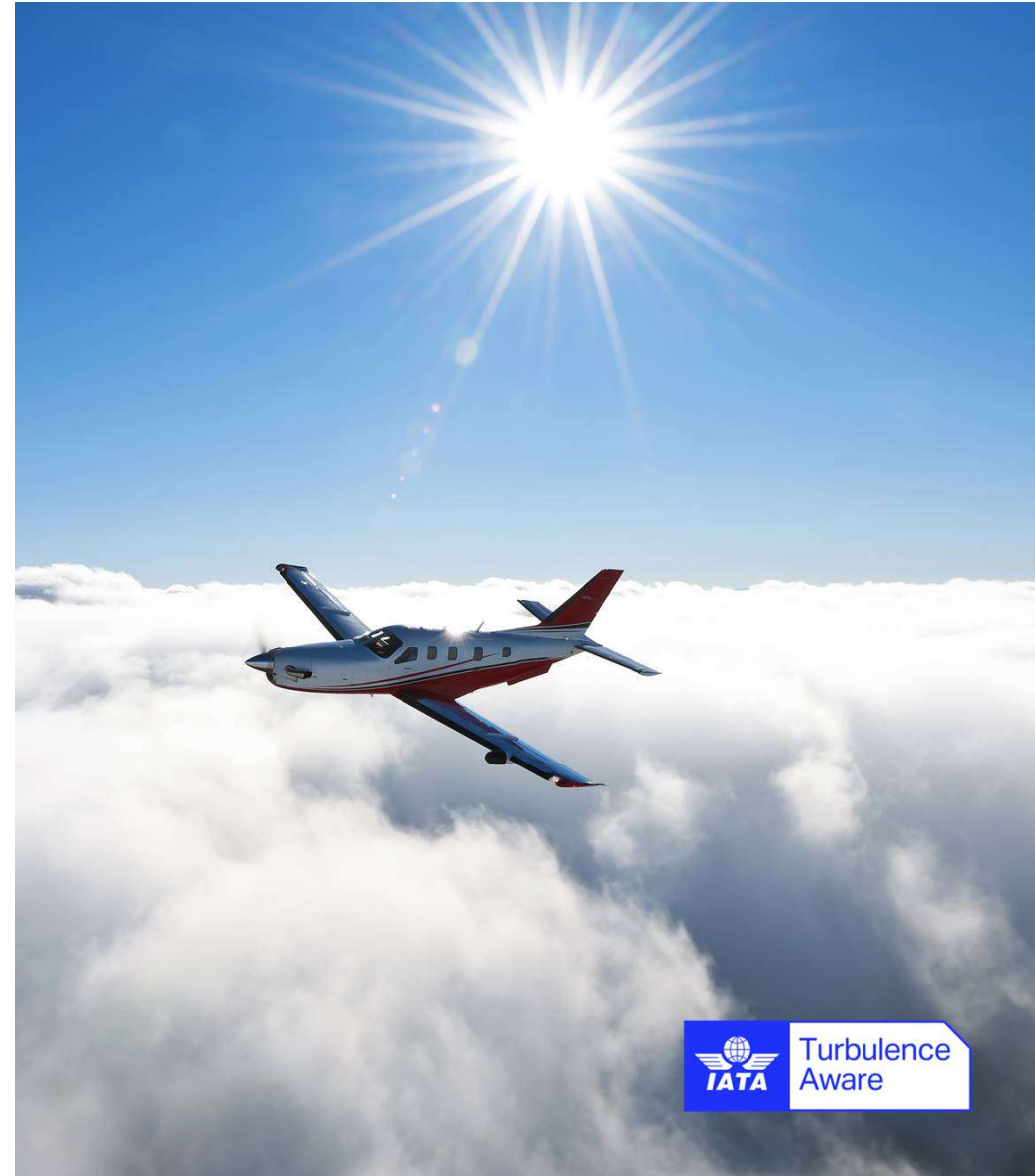
Pilot reports are **subjective**;

Forecasts are **hours long** and **inaccurate**;

Weather radar cannot detect **clear air turbulence**

149% projected **increase** in the frequency of **severe turbulence***

*P. Williams, 2017



Industry shift to data-driven turbulence management

Recent technical advancements now **enable** aircraft to **accurately calculate** the turbulence state of the atmosphere in flight.



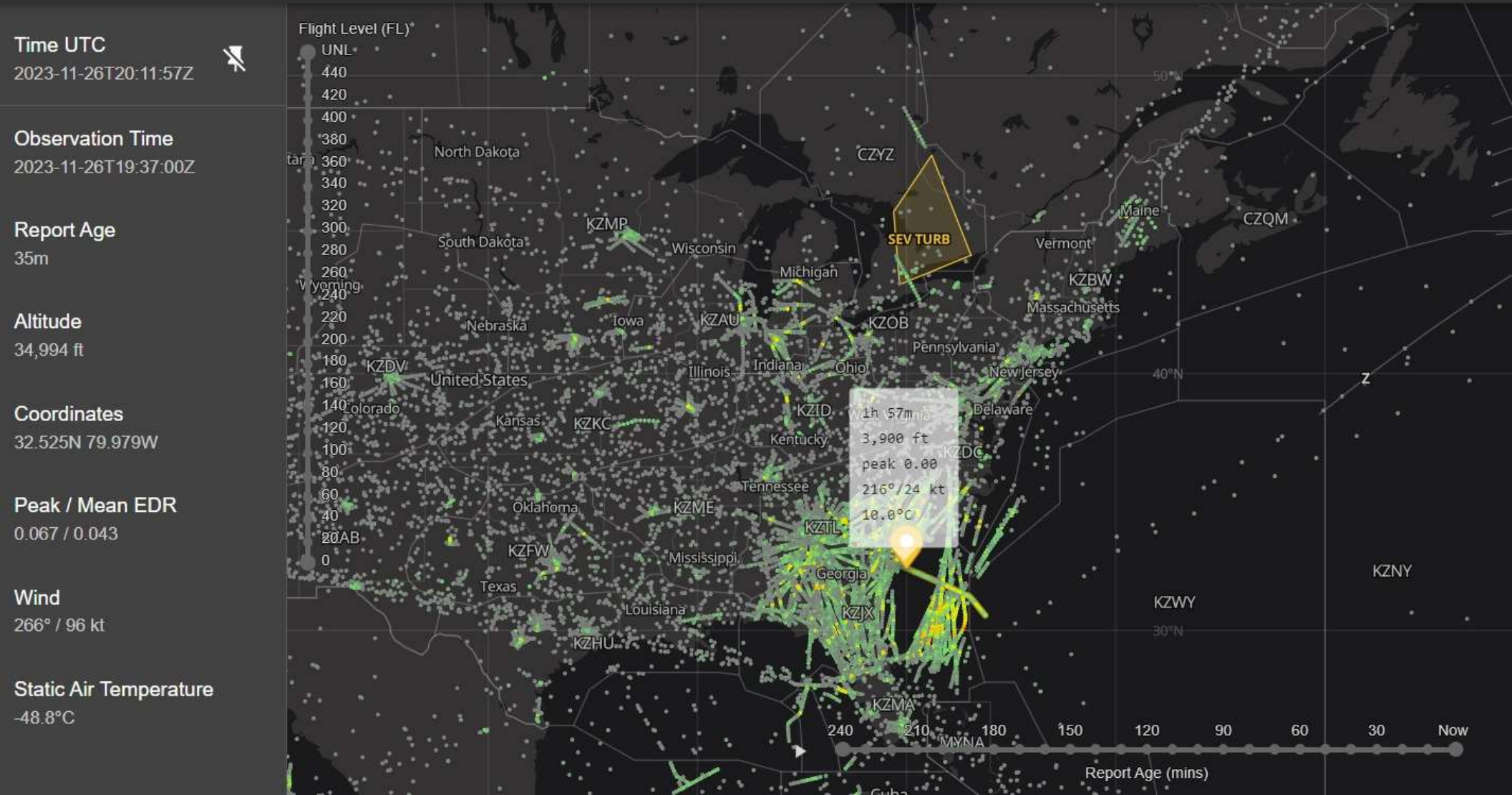
What is real-time turbulence data?

Eddy Dissipation Rate (EDR)

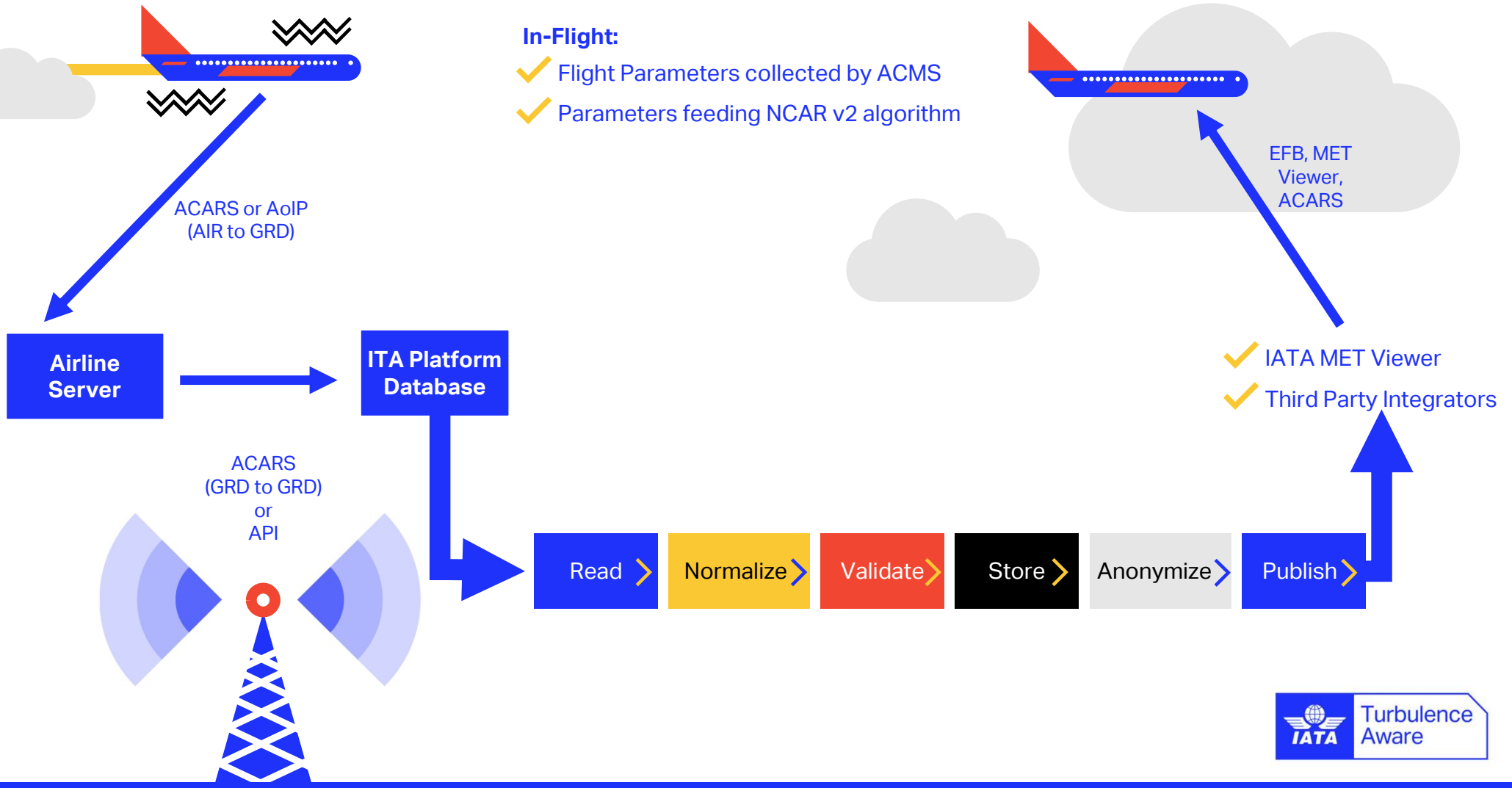
- Turbulence intensity metric measuring the **state of the atmosphere** around an aircraft in flight
- An **aircraft independent** absolute value
- Simple **software installation** based on NCAR v2 open-source algorithm
- **No hardware** required to calculate EDR



The key data point. Precise location and an objective intensity value.



How the turbulence data is collected



Business Aviation operators



Can join Turbulence Aware as **data consumers**;

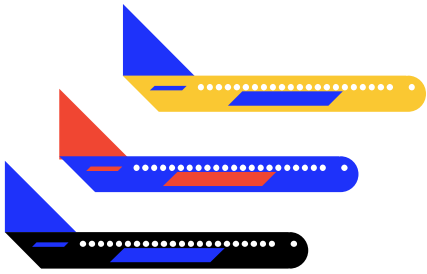


Not expected to report turbulence data
as the EDR solution is not currently offered by BA OEMs;



We offer a **2 months trial**.

IATA Turbulence Aware in figures



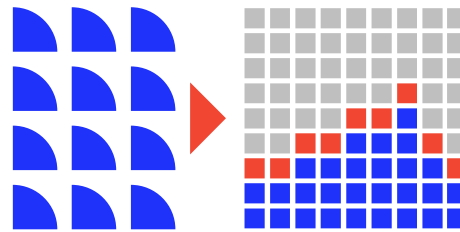
2000+

Reporting Aircraft



21

Airlines feeding
data to the Platform



12

Service Providers
signed to **integrate**
data



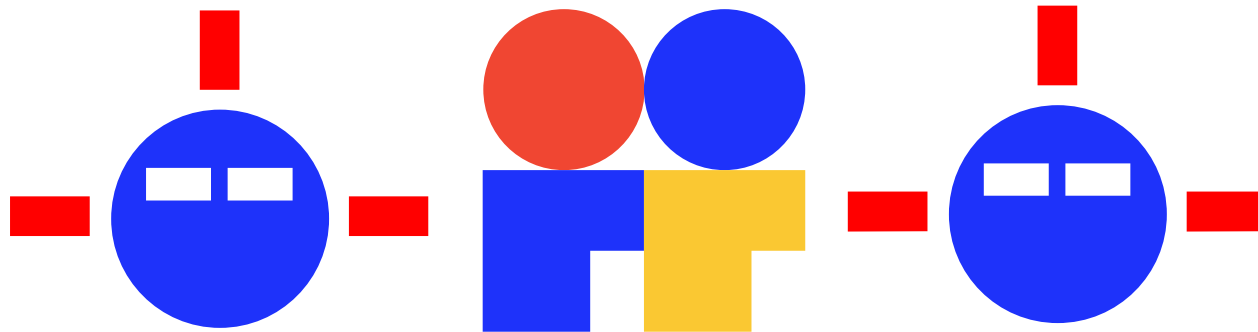
100+M

Turbulence Reports
received



IATA Turbulence Aware in figures

Safer journey for 700+ million PAX



Testimonials



"I'm a big fan of **Turbulence Aware!** For the first time, we have real-time objective turbulence information at our fingertips. In the past, all we had were forecasts maps with limited reliability and subjective PIREPS which are hit or miss in quality and quantity. Turbulence Aware adds to safety and passenger comfort by allowing me to **make better altitude and routing decisions.** At the very least, we're better equipped to advise our cabin crew and passengers on what to expect. I look forward to future integrations of the data to make it even more accessible within our daily workflow."

Tony Marotta,
Director of Aviation,
Pilot Business aviation flight
department



Turbulence Cost Avoidance Analysis Estimate per Year

Airline Size	Tails	Cost Avoided (USD)
Small	50	\$250K-\$750K
Medium	100	\$750K-\$1.5M
Large	200	\$1.5M-\$2M

Benefits of IATA's Turbulence Aware

- Improved **safety** outcomes:
 - Preflight planning
 - Ops Center flight monitoring
 - Inflight cabin management
- Enhanced **customer experience** and **brand image**
 - Avoids inconsistencies of forecast models and subjective pilot reports
- Efficient **fuel** planning and optimum burn in-flight
- Fewer **engineering inspections**
- Lower **insurance** premiums



For more information please contact:
IATATURBULENCE@IATA.ORG



Thank you!

