



North Atlantic

**AUTONOMOUS DISTRESS
TRACKING EXERCISE WITH LADR
PROJECT TEAM (NAT DISTREX
PT)**

Presented by Steve Pinkerton

Project Team Lead

United States Federal Aviation
Administration



Global Aeronautical Distress & Safety System (GADSS)

- Developed by ICAO in response to incidents like Air France 447 and Malaysian 370
 - Limited air navigation service ability to track/respond/locate
- Three functional blocks of GADSS
 - Autonomous Distress Tracking (ADT)
 - Post-flight Localization
 - Recovery
- Distribution of information when ADT is activated received/distributed by Location of an Aircraft in Distress Repository (LADR)



ADT Devices and Activation

- Device can be ADT with ELT (ELT (DT)) or a stand-alone ADT device
- Can be activated manually or automatically activates under certain conditions
 - Unusual attitude
 - May include, but are not limited to, excessive values of roll, pitch and yaw and their corresponding rates of change
 - Unusual speed
 - May include, but are not limited to, excessive vertical speed, stall condition, low airspeed, overspeed or other speed conditions
 - Total loss of thrust/propulsion on all engines
 - Parametric data used to define this condition may be engine performance parameters or other parameters that result from loss of thrust
 - Collision with terrain
 - May include, but are not limited to, high rate of closure to terrain or inappropriate altitude for the current position
- Study data shows an average event timeline of six minutes from activation to crash



Location of an Aircraft in Distress Repository (LADR)

- Established as a simple/efficient distribution source for information on an aircraft in distress
 - Guidance in ICAO Doc. 10150 *Manual on the Functional Specifications for the Location of an Aircraft in Distress Repository (LADR)*
- Notification to subscribed users (e.g. SAR, ANSP, Operators, etc.) via email
 - Minimum required information per ICAO Annex 6 are lat/long and timestamp
 - Additional information may be available



North Atlantic DISTREX PT

- Established by NAT Systems Planning Group (SPG) Conclusion 59/4
- Primary high-level task- develop and execute an ADT-LADR exercise
 - Exercise will use EUR/NAT VOLCEX as framework for development of exercise
- Other goals/task include evaluating any changes needed with introduction of ADT
 - Changes to ANSP/RCC/Operator coordination
 - Development of new procedures/processes
- Participants include ANSPs, Regulatory Authorities, RCCs, Cospas-SARSAT, ADT developers, IATA, IFALPA, amongst others in the North Atlantic Region



The logo is a circular emblem with a blue background. At the top, the text "ICAO- JRCC LCA SAR WORKSHOP" is written in white. In the center is a white silhouette of a twin-engine aircraft. Below the aircraft are two smaller emblems: on the left, the ICAO logo featuring a globe with wings; on the right, the Republic of Cyprus JRCC Larnaca logo featuring a map of Cyprus. At the bottom, the dates "5-6 OCTOBER 2023" are written in white.

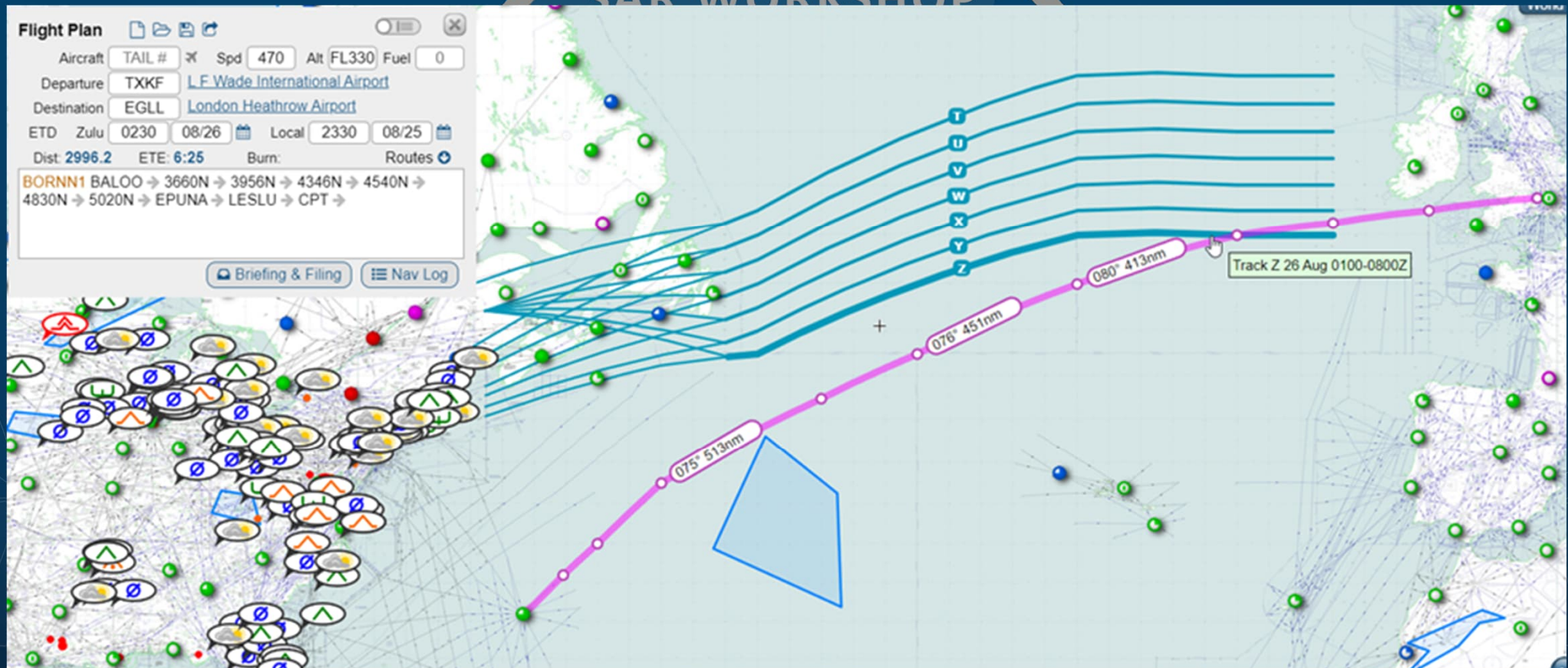
ICAO- JRCC LCA SAR WORKSHOP

5-6 OCTOBER 2023

Initial ADT-LADR Exercise

- Targeting November 2023 timeframe for execution
- Will utilize testbench to simulate an ADT signal
- A fictitious flight departing Bermuda (TXKF) en route to London-Heathrow (EGLL) will be used
 - “Triangle Ventures” TRV3931 H/B772
 - 212 souls (197 passengers, 15 crew)
 - En route time of 6+30 hours, with 7+45 hours of fuel
 - ADT will activate near the common boundary between New York, Gander, and Santa Maria FIRs
- ADT broadcast to last 15-20 minutes to allow sufficient time to receive/evaluate

Exercise Aircraft Flight Plan



Initial ADT-LADR Exercise

ICAO- JRCC LCA

Flight Plan [Icons]

Aircraft: TAIL # [✈] Spd: 470 Alt: FL330 Fuel: 0

Departure: TXKF [L F Wade International Airport](#)

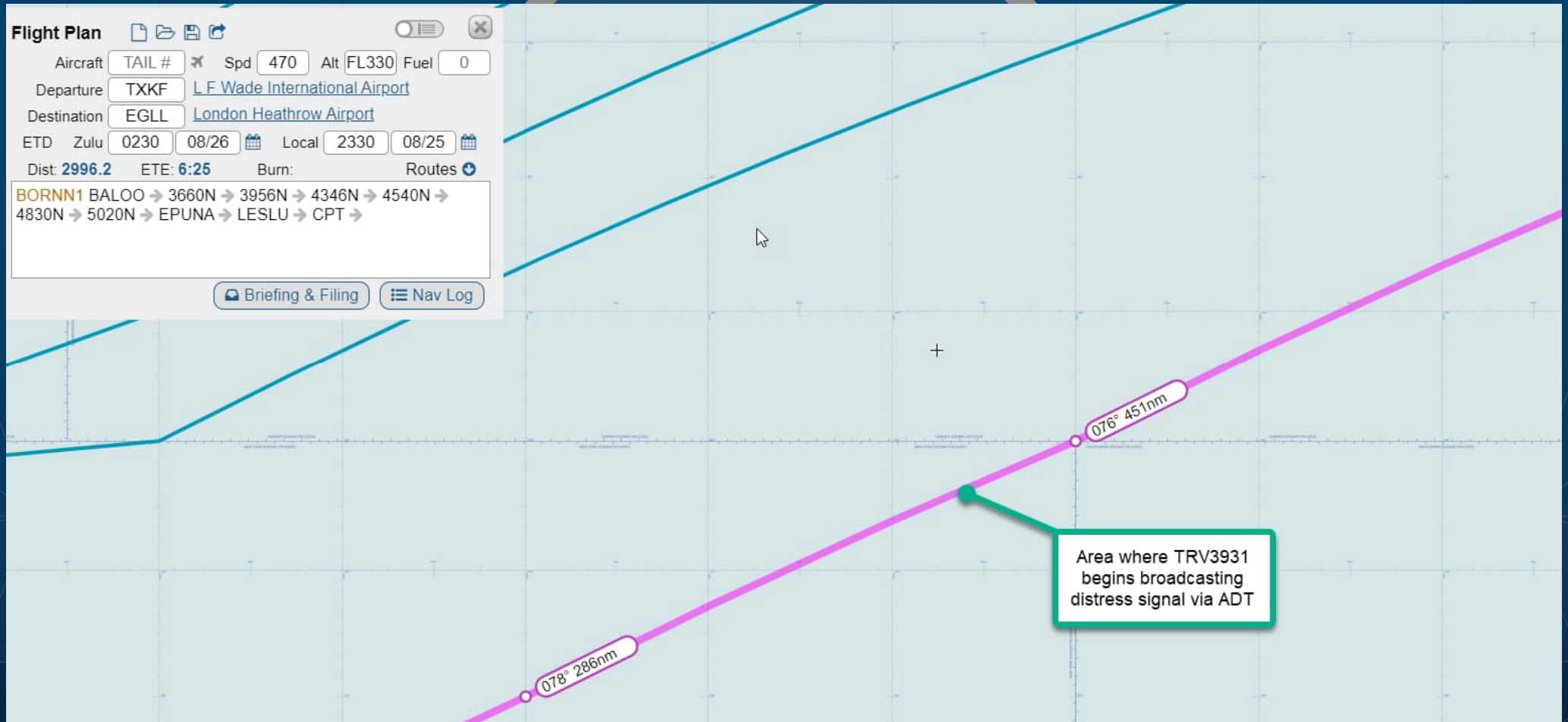
Destination: EGLL [London Heathrow Airport](#)

ETD Zulu: 0230 08/26 [📅] Local: 2330 08/25 [📅]

Dist: 2996.2 ETE: 6:25 Burn: Routes [🔄]

BORNN1 BALOO → 3660N → 3956N → 4346N → 4540N →
4830N → 5020N → EPUNA → LESLU → CPT →

[Briefing & Filing] [Nav Log]



Exercise Assumptions

1. All GADSS comms links are working
2. ADT device is properly coded with 3LD and is activated, either automatically or manually
3. The LADR sends “notifications” to the properly subscribed Operator, RCC and ATS unit responsible for the area of the incident (who have all provided up-to-date contact details) that have opted to receive the messages.
4. Test of both ELT (DT) and non-ELT ADT planned
5. No communications from aircraft



What will we evaluate and when?

- Notification process
 - Did all stakeholders receive LADR notification?
 - Were stakeholders able to access LADR site to track?
- Existing procedures
 - Were existing procedures/processes sufficient or are there gaps?
- Initial post-exercise debrief followed by more in-depth brief and analysis



Questions/Discussion

Thank you!

