

# UK CAA's FDM Based Precursors Project Update

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# Background

- ✈ The CAA's Significant 7 Task Forces and 2010 Safety Conference identified the need for improved information.
- ✈ Operators need focused, consistent information.
- ✈ CAA needs similar data for oversight of risk.
- ✈ Precursor events are not consistently reported making monitoring a challenge.
- ✈ FDM is a reliable source of insight into precursors of some Significant 7 outcomes.

# The Project

- ✈ Objective - Development of practicable, standardised FDM based precursors for REX, CFIT, LOC and AC (MAC)
- ✈ CAA working in co-operation with the UK FDM Operators Forum members and FDM suppliers.
- ✈ Landing REX (Runway Excursion) FDM precursors have been developed and report issued\*.
- ✈ Expanding the work on REX and other precursors to involve other Operators and FDM suppliers.

\* [www.caa.co.uk/report201201](http://www.caa.co.uk/report201201)

Safety Regulation Group

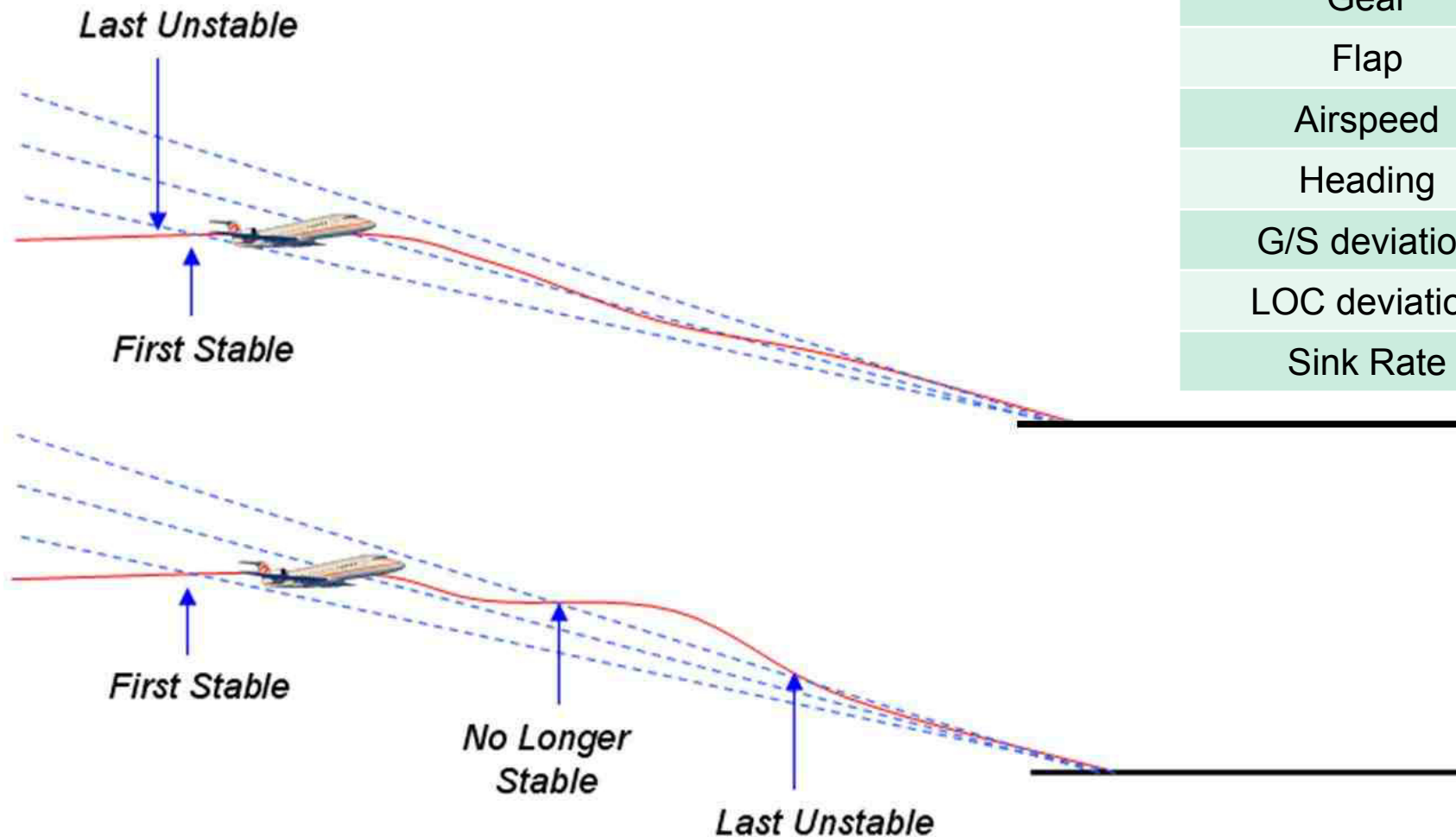
# Current Work

- ✈ Aerobytes have released an update containing proposed landing REX measures to its customers.
- ✈ Analysing the output from these measures:
  - ✈ The 'real trial' starts now.
  - ✈ Rationalising the reasons for differences and the validity of results from standardisation
- ✈ Working with our Operators.

# Analysis Potential – Latest REX data

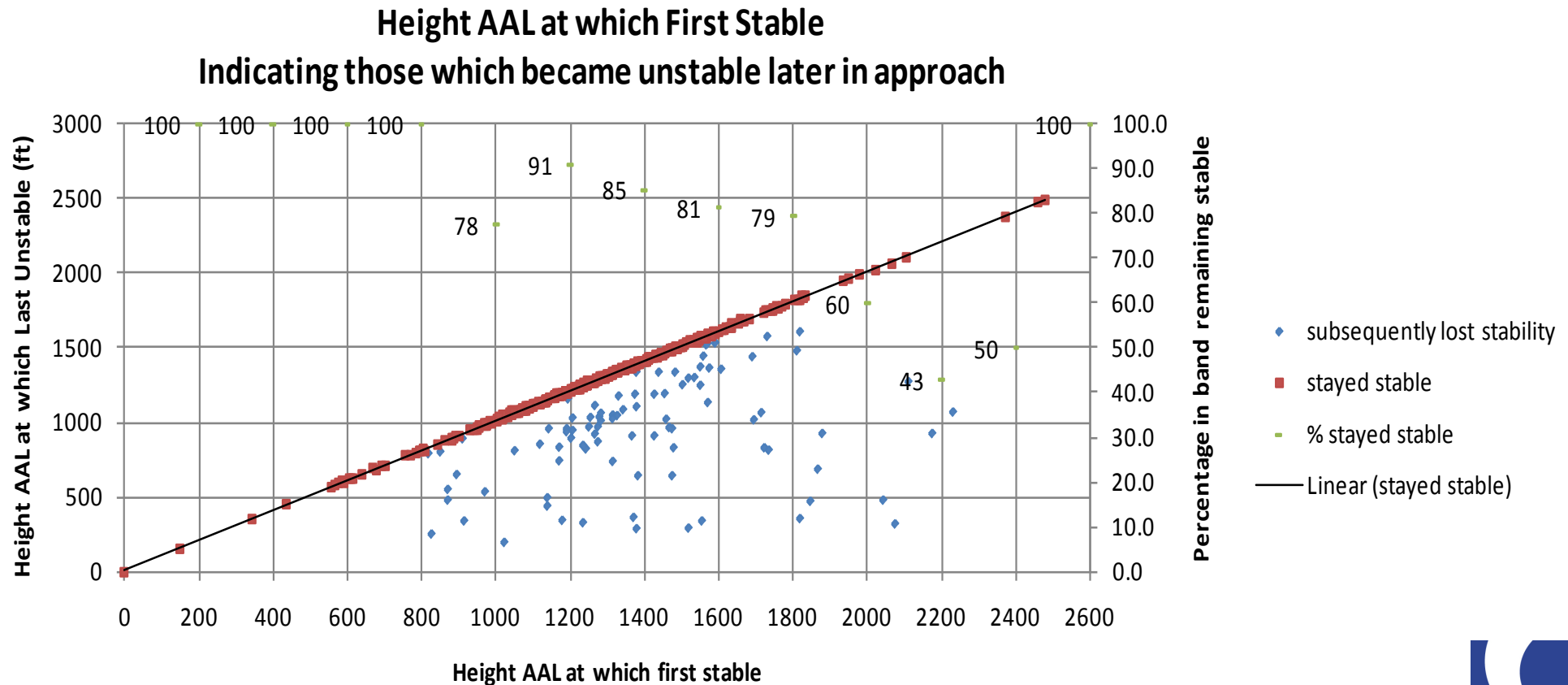
Contextual Information	Values Produced
Flight ID	Airspeed - at TD (kt)
Aircraft	Airspeed - vs target at TD (kt)
Dep Datetime	Appr Type - Actual
Dep Date	Appr Type - Autoland
Dep Time	Appr Type - Possible
Arr Datetime	Braking G - Required at 70kt (G)
Arr Date	Braking G - Required at TD (G)
Arr Time	Distance - Flare from 20ft (ft)
Dep IATA	Distance - Runway Length (ft)
Dep RWY	Distance - TD from Threshold (ft)
Arr IATA	Groundspeed - at TD (kt)
Arr RWY	Height - First Stable AAL (ft)
Flight Num	Height - First Stable Lost AAL (ft)
State Start	Height - Last Unstable AAL (ft)
State End	Method - TD Distance
State Duration	Reason - Last Unstable

# Stable Approaches

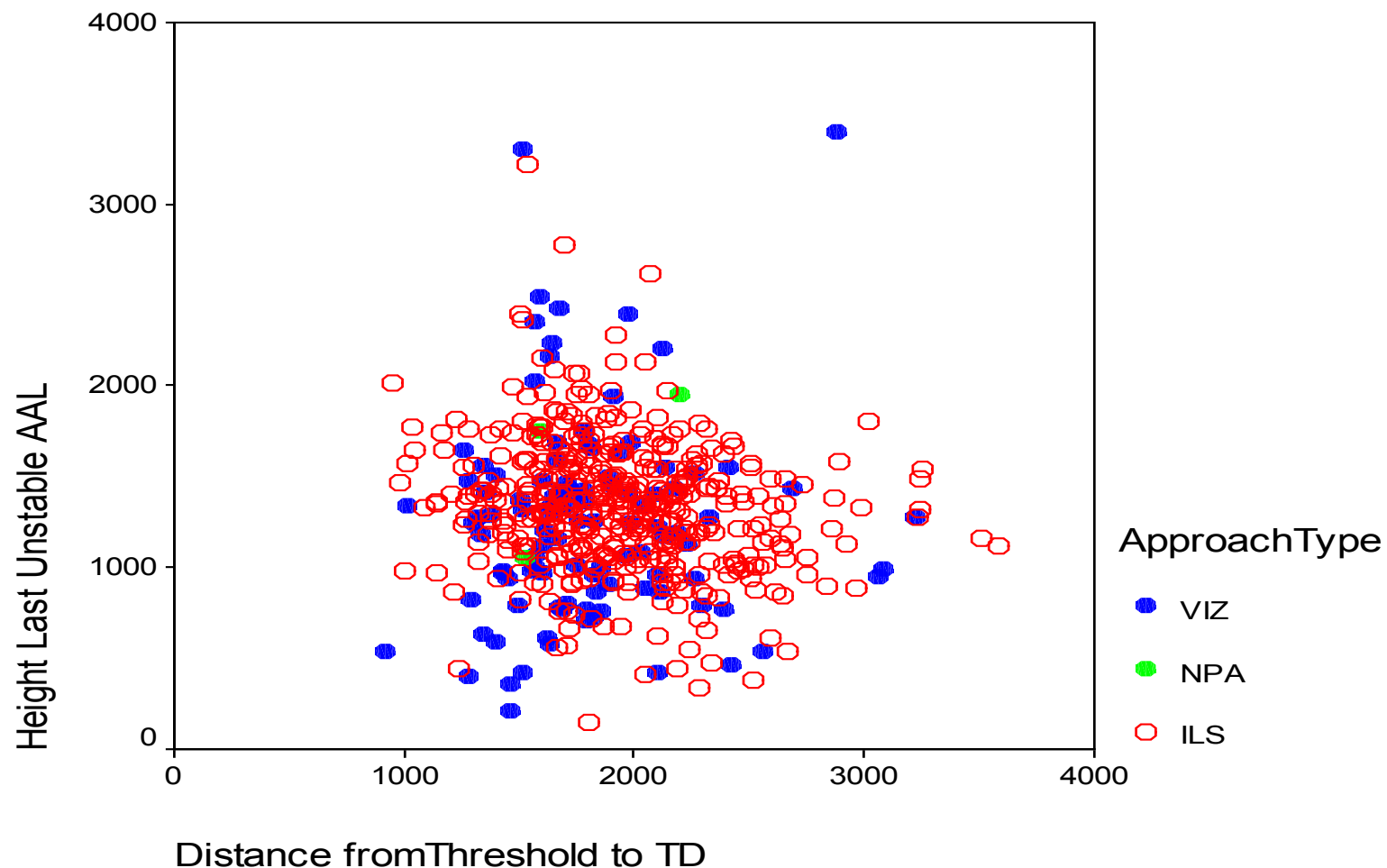


Parameter
Gear
Flap
Airspeed
Heading
G/S deviation
LOC deviation
Sink Rate

# Heights at which approaches were First Stable vs that at Last Unstable

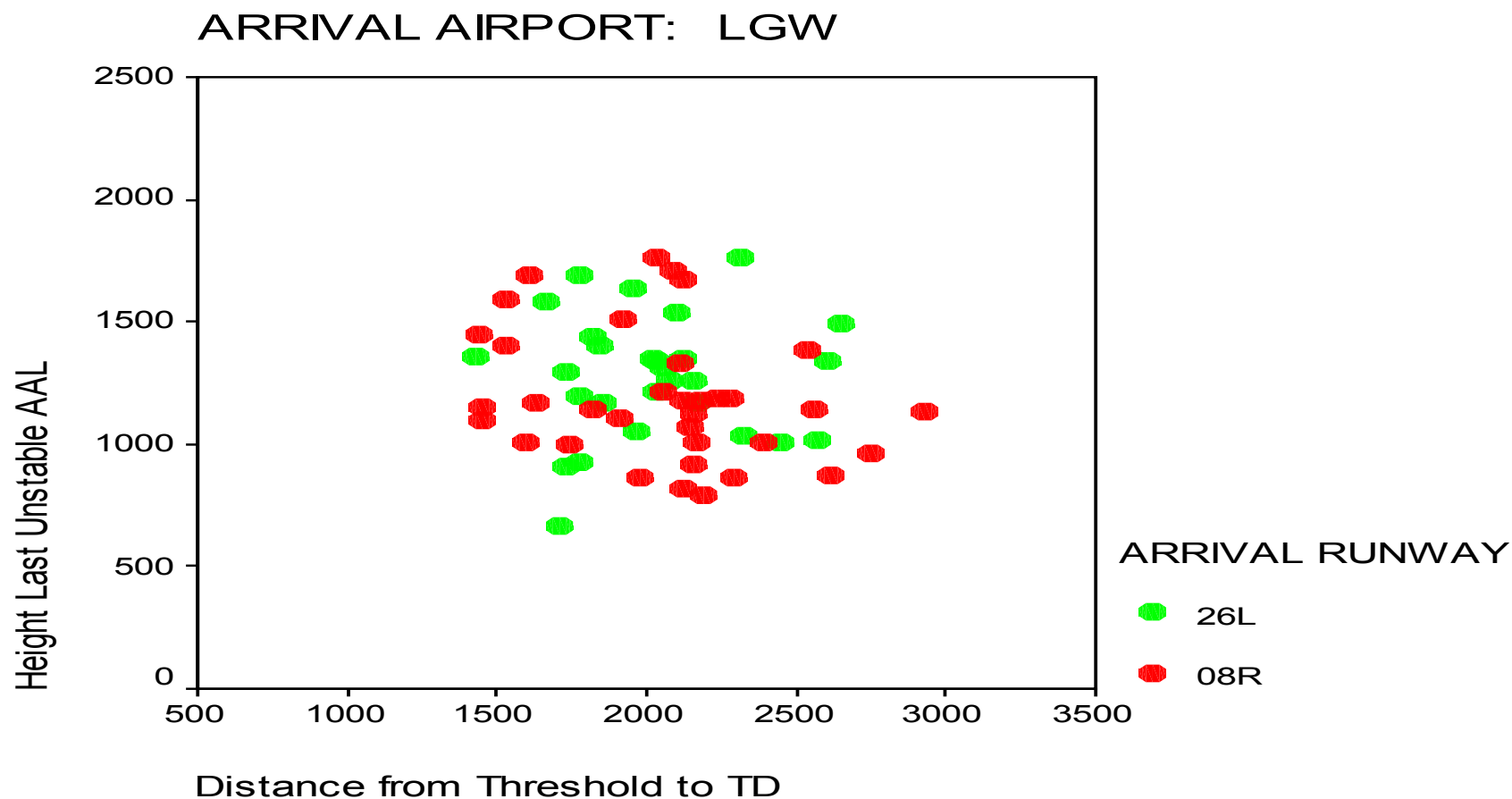


# Analysis by Type of Approach

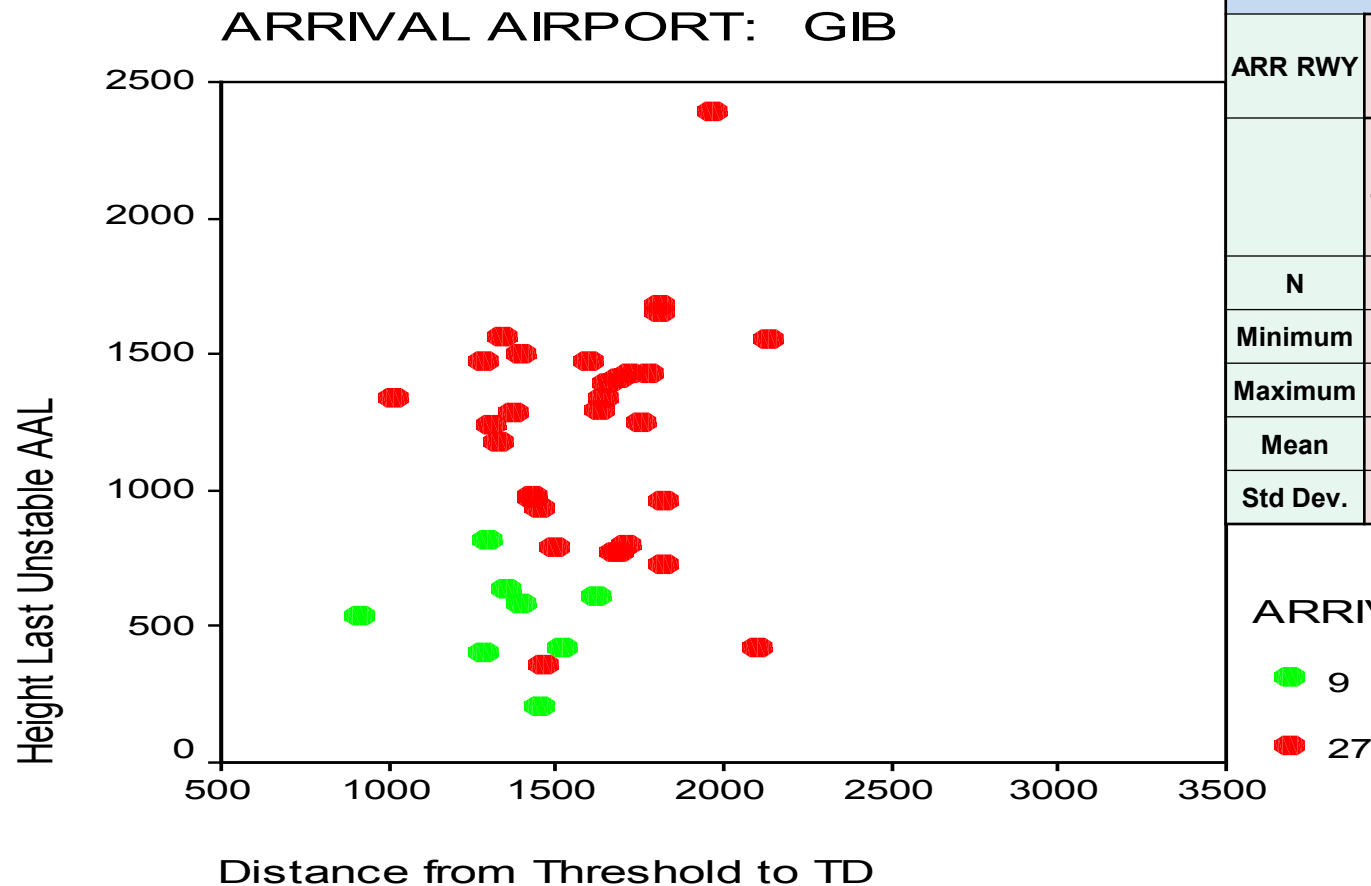




# Importance of Runway Based Analysis

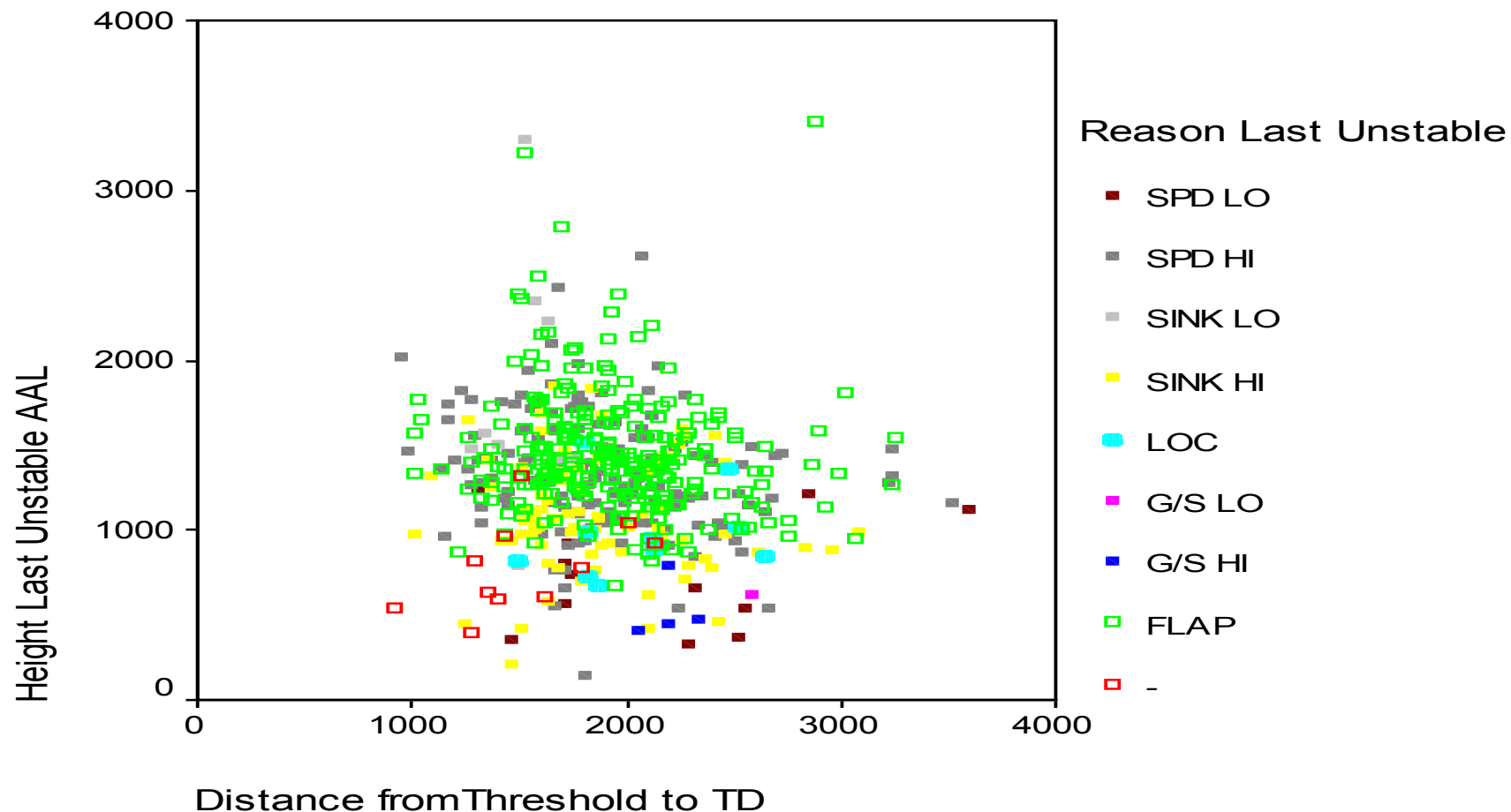


# Importance of Runway Based Analysis



GIB				
ARR RWY	27		9	
	Distance from Threshold to TD	Height Last Unstable AAL	Distance from Threshold to TD	Height Last Unstable AAL
N	31	30	8	8
Minimum	1018	357	914	206
Maximum	2130	2394	1622	819
Mean	1605	1213	1352	528
Std Dev.	248	417	211	184

# What was the reason for Last Unstable?



### **Where we are now**

- ✓ We have met with four major UK FDM Developers.
- ✓ We have met with CAA experts for an initial FDM precursor 'ideas' session.
- ✓ We have gathered information on events used by UK Operators related to REX, CFIT, LOC and AC.
- ✓ We have proposed an initial set of ideas for events to Developer(s).
- ✓ With a developer we are now developing these in a trial using historical data.

# What is next

- ✈ Operator experience and feedback following installation of the REX precursors update to their systems.
- ✈ Consultation with FDM Developers and Operators on: REX, CFIT, LOC, AC (MAC).
- ✈ Work towards implementation into Operator systems.

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