

# CAN WE IMPROVE AVIATION SAFETY

WITH PAST ACCIDENT DATA?

CAPSTONE PROJECT  
BY  
ROSHAN LULU

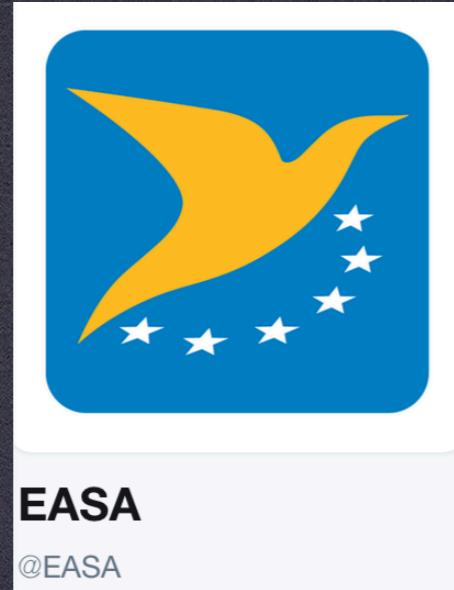


# AUDIENCE



**CASA**

@CASABriefing



**EASA**

@EASA



**The FAA**

@FAANews

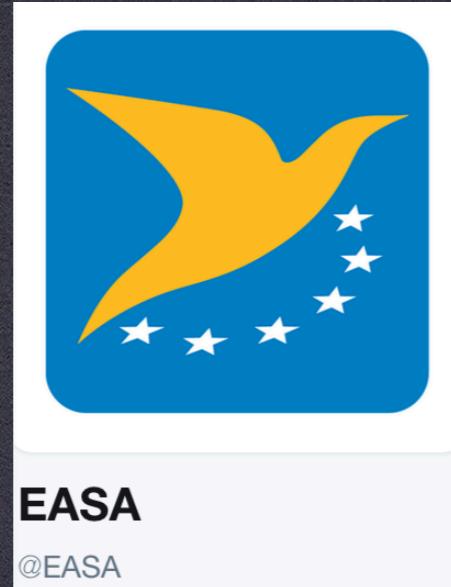


# AUDIENCE



CASA ✅

@CASABriefing



EASA

@EASA



The FAA ✅

@FAANews



# OBJECTIVE

- IDENTIFY POTENTIAL RISKS
- EXPLORE FREQUENT CAUSES
- GET INSIGHTS FROM PAST DATA

# DATA FROM 1920-2017

Aviation**Safety**Network



# DATA FROM 1920-2017



# CHALLENGES

- INCONSISTENT FEATURES
- UNEVEN LOCATION INFORMATION

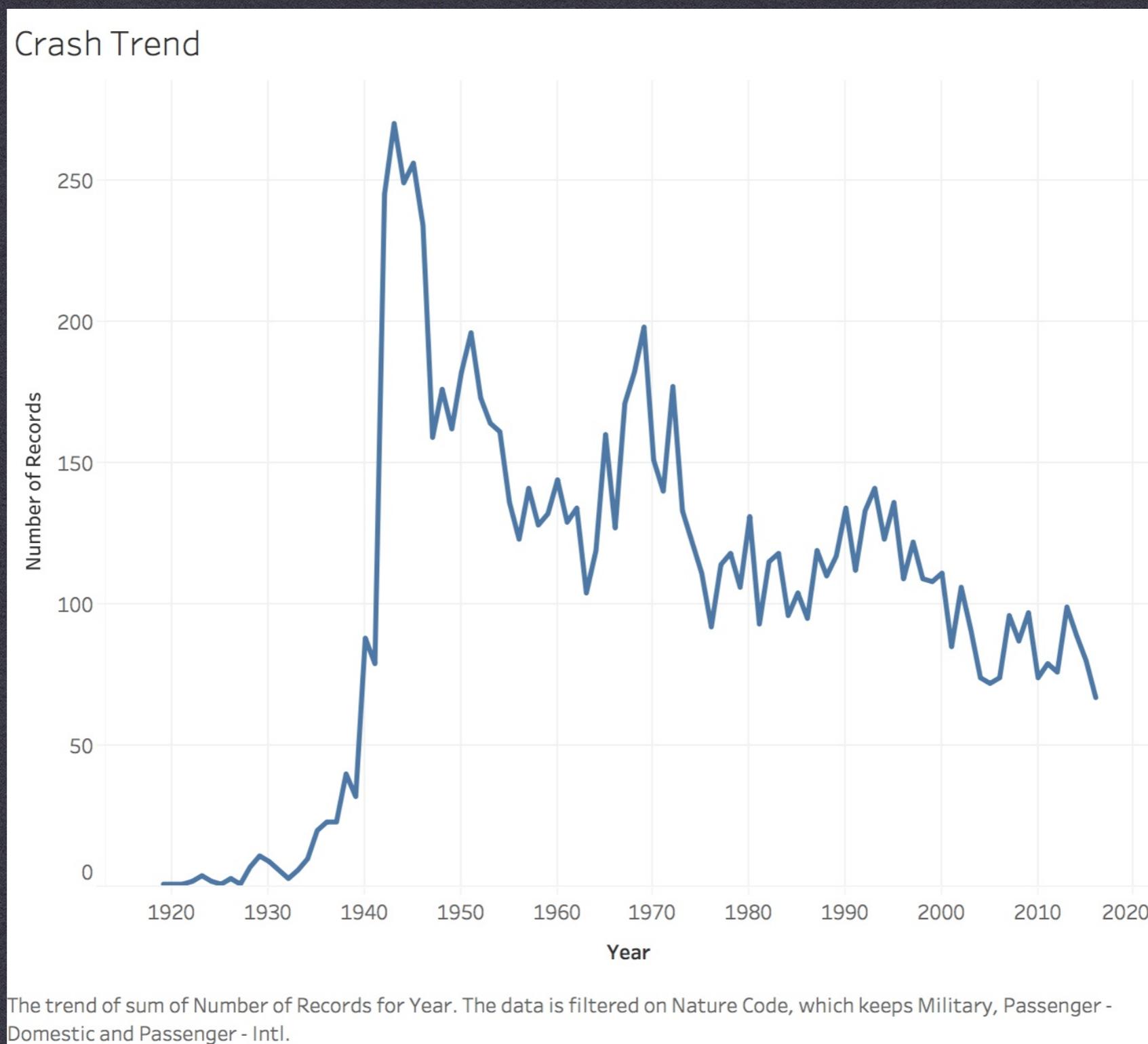
# CHALLENGES

- INCONSISTENT FEATURES
- UNEVEN LOCATION INFORMATION

# SOLUTION

- IMPUTE DATA
- CLEAN AND EXTRACT VALID LOCATION
- USE GOOGLE MAPS API

# FIRST LOOK....



# COMMON CAUSES

**IS THERE AN ACCIDENT  
PRONE AREA?**





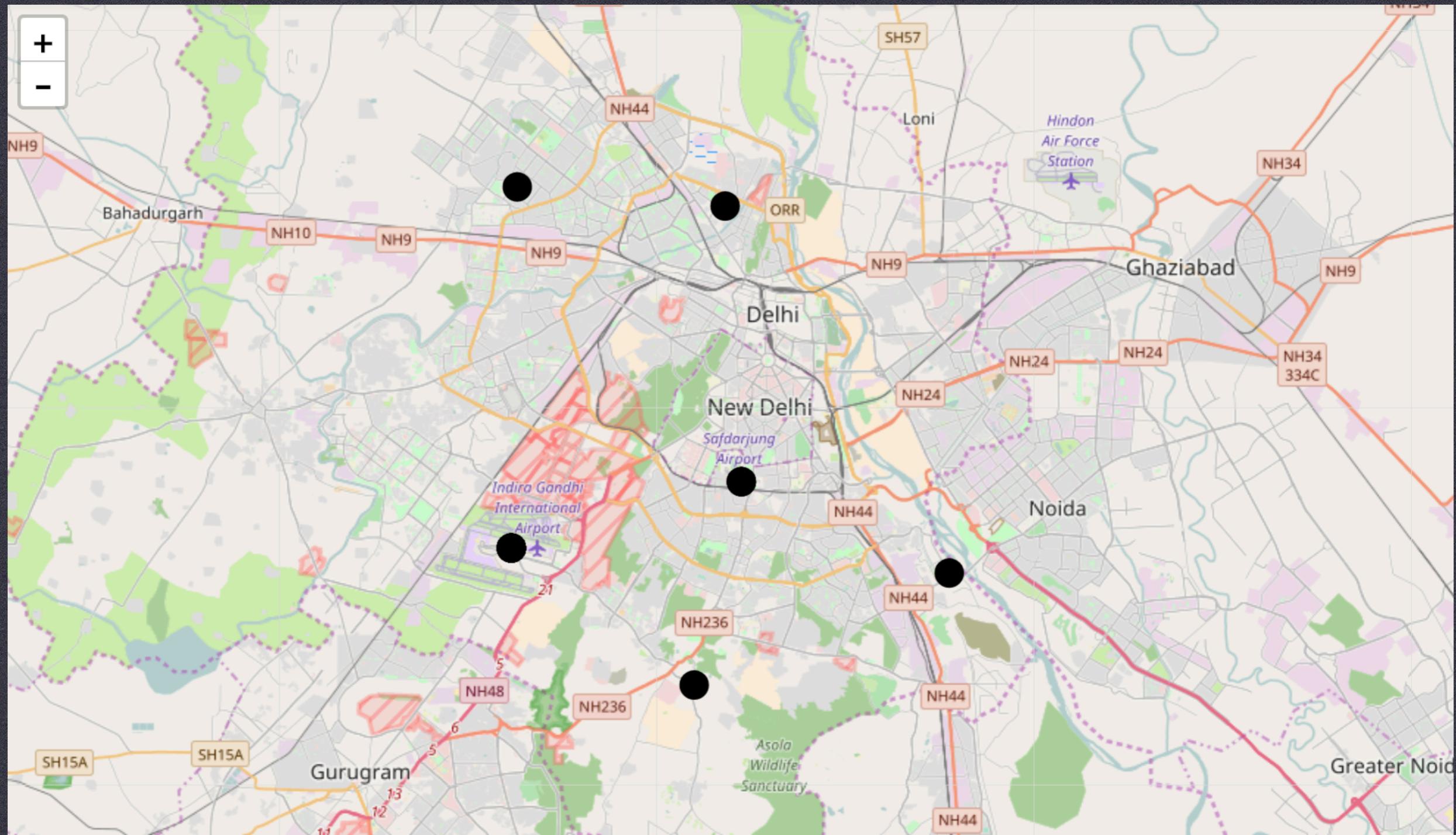
## SEARCH FOR LOCATIONS:

- AT LEAST 20 ACCIDENTS
- WITHIN 1 KM DISTANCE FROM EACH OTHER

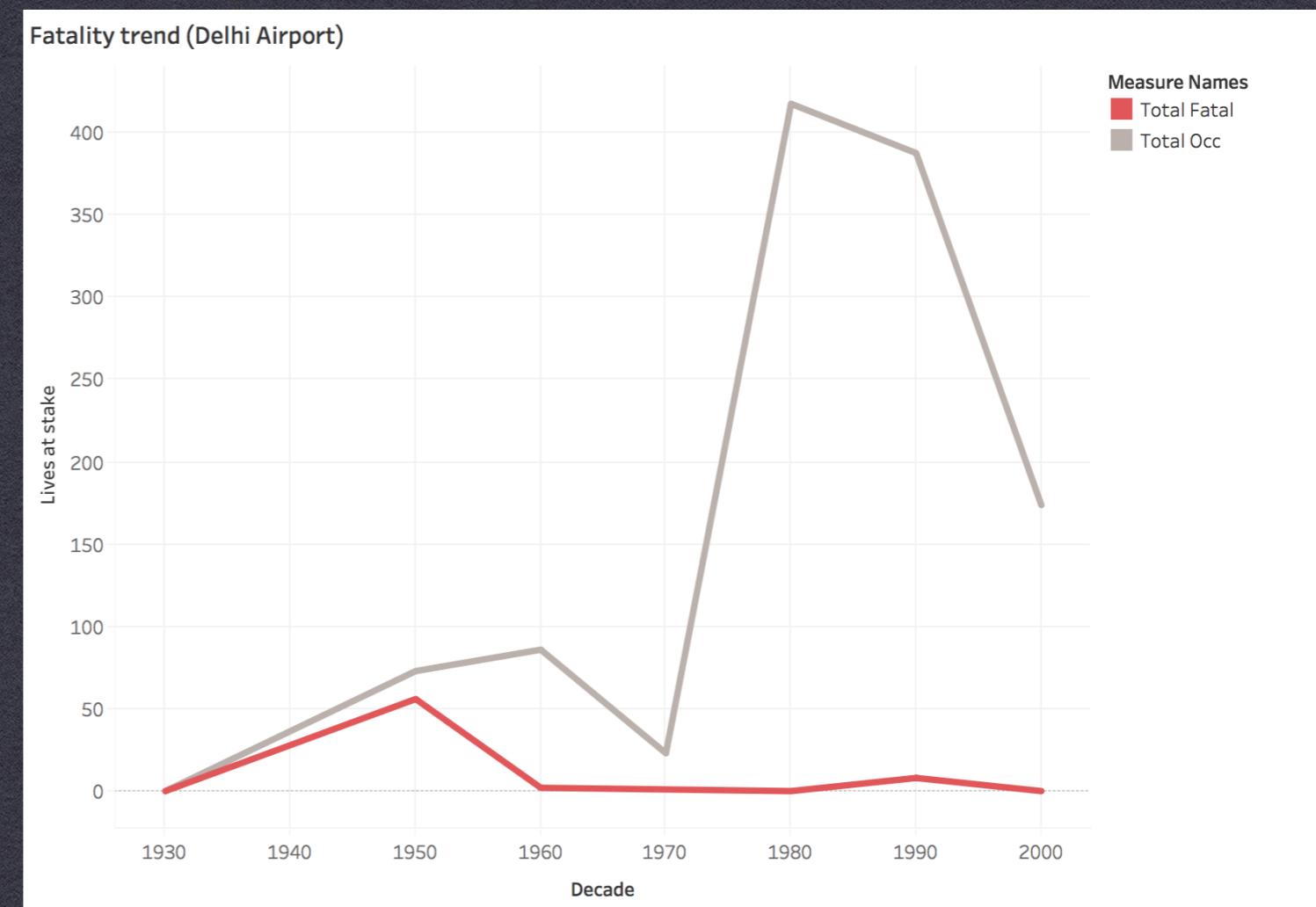
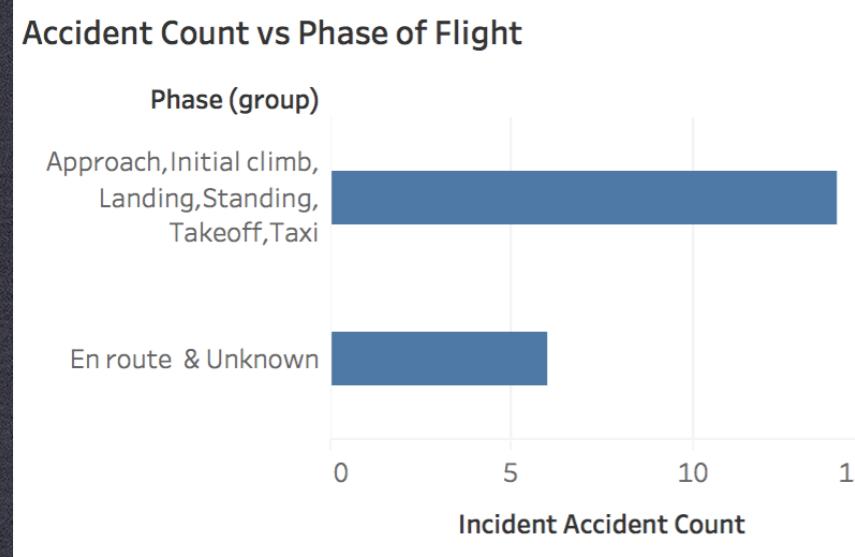
## ALGORITHM :

- DBSCAN CLUSTERING

# IS THERE A PATTERN?



# INSIGHTS



# Mid-air collision averted at Delhi airport



Sidhartha Roy

NEW DELHI , APRIL 07, 2017 13:55 IST  
UPDATED: APRIL 07, 2017 17:47 IST

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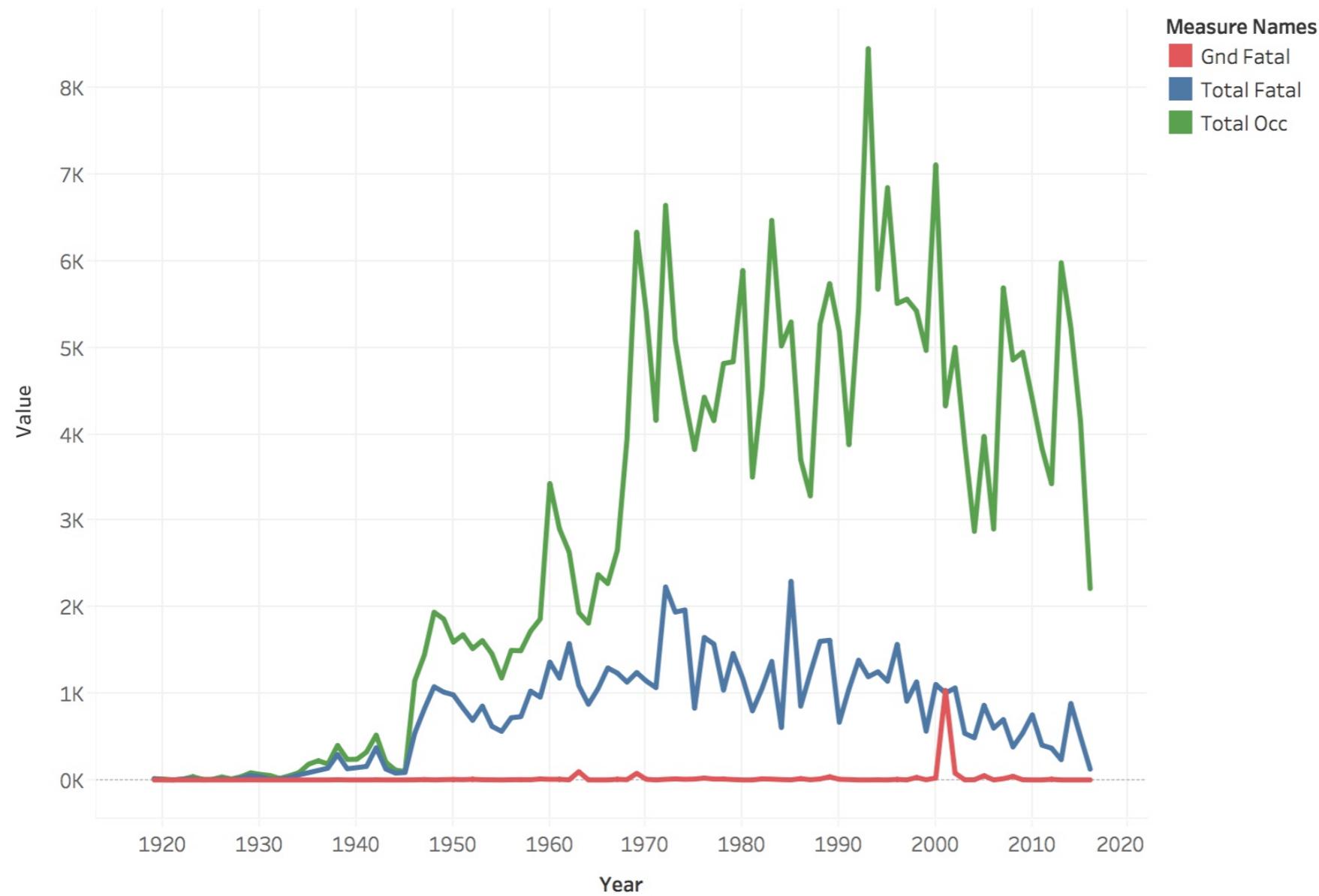
Two planes come face-to-face on Delhi airport runway, mishap averted [indianexpress.com/article/india/...](http://indianexpress.com/article/india/...)

4:05 PM - 27 Dec 2016

9 20

# FUTURE STEPS

Fatality Trend



The trends of Gnd Fatal, Total Fatal and Total Occ for Year. Color shows details about Gnd Fatal, Total Fatal and Total Occ.  
The data is filtered on Nature Code, which keeps Passenger - Domestic and Passenger - Intl.

# Mid-air collision averted at Delhi airport



Sidhartha Roy

NEW DELHI , APRIL 07, 2017 13:55 IST  
UPDATED: APRIL 07, 2017 17:47 IST

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## RECOMMENDATION

- **TOO MANY COLLISION INCIDENTS!**
- **IMPROVE AIR TRAFFIC CONTROL**



The Indian Express @IndianExpress

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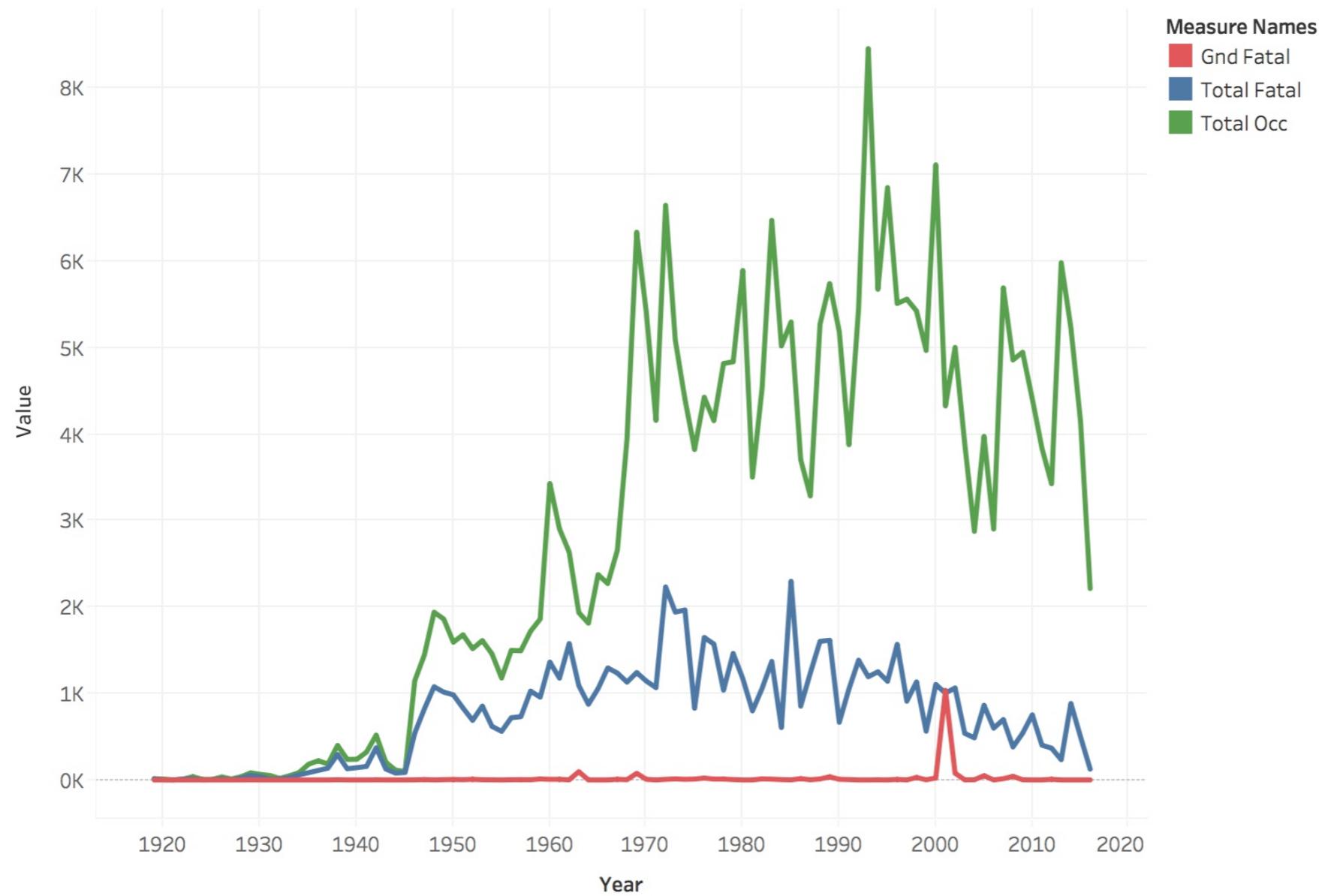
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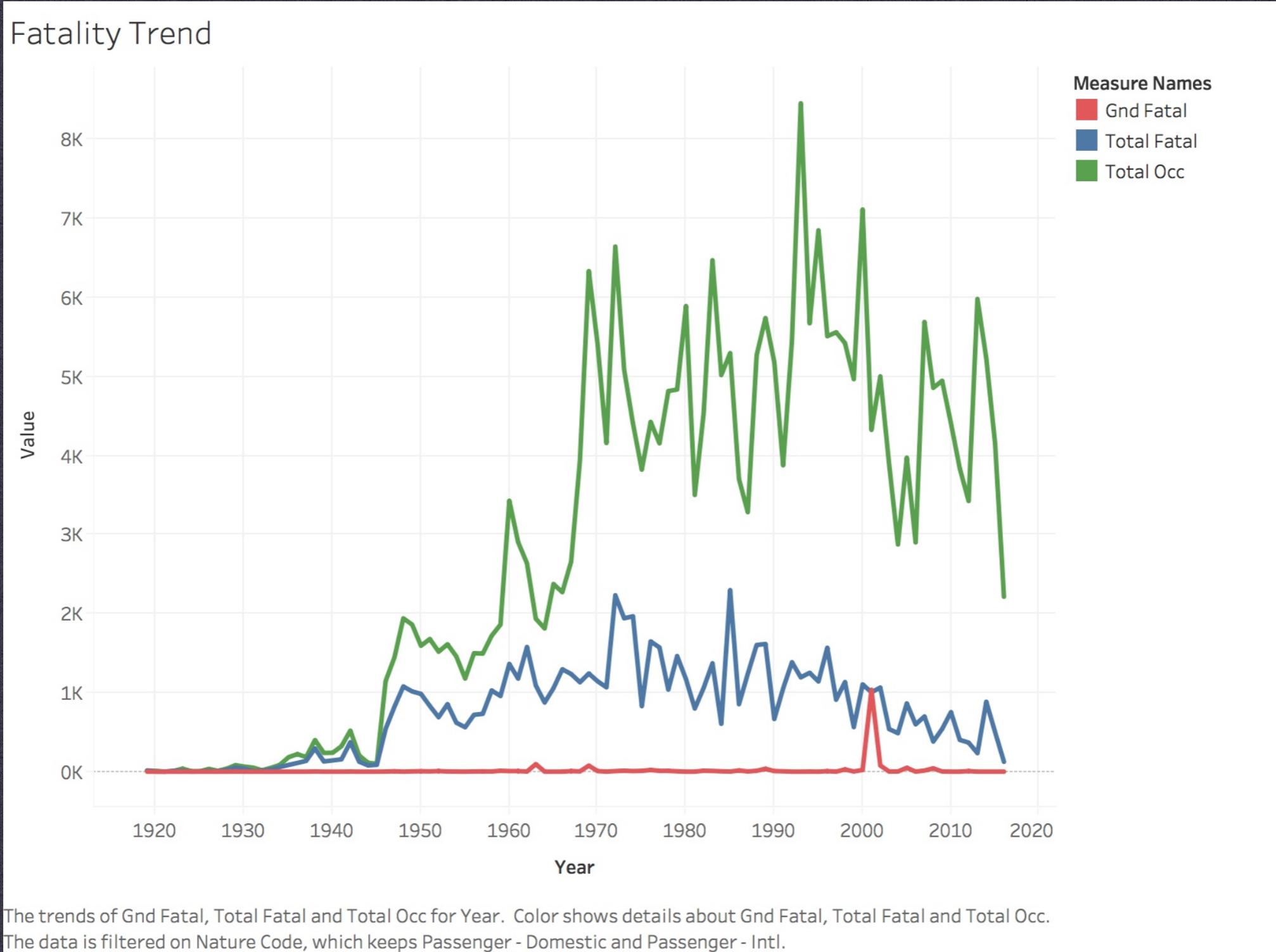
# SUMMARY

- MODEL CAN BE USED TO NARROW DOWN ON POTENTIAL RISK LOCATIONS

# FUTURE ENHANCEMENTS

- WEATHER DATA
- AIRPORT STAFF CAPACITY
- MAINTENANCE INFORMATION OF AIRCRAFTS

# CONCLUSION



# Q & A

