



USING FDM TO INFLUENCE PILOT BEHAVIOUR

SAFETY FORUM - EUROCONTROL

MAY 2018

NETJETS

NETJETS INTRODUCTION

NETJETS



NETJETS EUROPE – HIGHLIGHTS

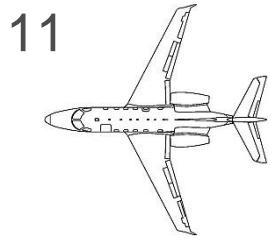
- Flight crew: 630 (27 nationalities)
- Fleet of 82 aircraft - 700 aircraft worldwide
- Flights to more than 1000 destinations in the last 5 years
- Non-crew employees: 525 in Lisbon Operations HQ
- Other offices in UK, France and Germany
- Operating environment:
 - EASA AOC - Portugal
 - Fractional Ownership model
 - Partnership with Lufthansa Private Jet



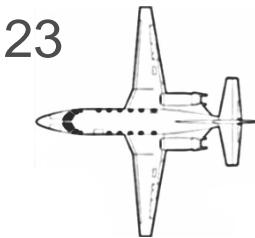
OPERATIONAL CHARACTERISTICS

- Worldwide operations
- No operational hub
- Destinations include:
 - Large international airports
 - Small mountainous airports
 - VFR airports
- Operations are unpredictable and changes occur at short notice – 10 hours customer notice
- Each day's schedule is unique and constantly changing

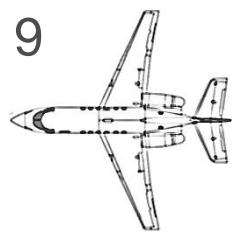
NETJETS EUROPE – FLEET



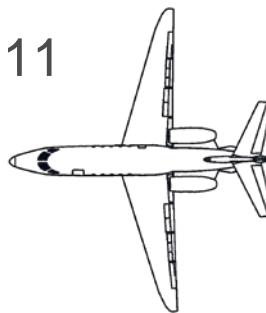
Embraer
Phenom 300



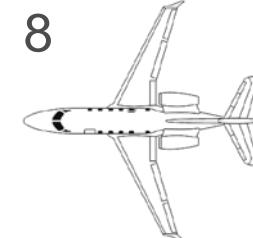
Cessna
Citation XLS



Hawker Beechcraft
750/800



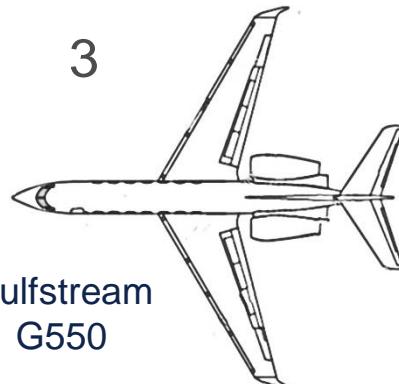
Cessna Latitude



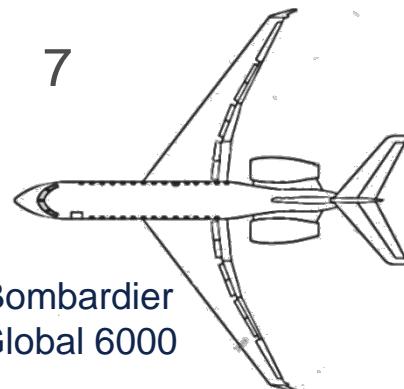
Bombardier
Challenger 350



Dassault
Falcon 2000EX



Gulfstream
G550



Bombardier
Global 6000

NETJETS

2

FLIGHT DATA MONITORING WITHIN THE SMS

NETJETS

FLIGHT DATA MONITORING

Flight Data monitoring (FDM) is the systematic, pro-active use of digital flight data from routine operations to improve aviation safety within an intrinsically non-punitive and just Safety Culture. (UK CAA)

- ICAO – Annex 6, Part 1 – Flight Data Analysis
- EASA – AIR OPS, Part ORO (ORO.AOC.130 – Flight Data Monitoring)
- UK CAA – Flight Data Monitoring, CAP 739
- Requirement for aircraft at or above 27,000kg MTOW
 - NetJets has FDM on all fleets, including those less than 27,000kg
- Required to be non-punitive and to protect the identity of the crew

FDM PROGRAMME – TARGETED AREAS

CREW

- Event investigations by the Honest Brokers (best source of information)
- Individual confidential e-mails with landing performance and details on unstable approaches
- Present case studies with real NetJets flights during Ground Recurrent Training
- Individual debrief of events and trends

FLIGHT OPERATIONS

- Monthly SPI report
- Monthly fleet-specific report (as requested by the chief pilot)
- Investigation of operational events (within the confidentiality principles)
- Support for Operational Risk Assessments
- Support for the development of new SOPs
- Flight Operations Safety Action Group

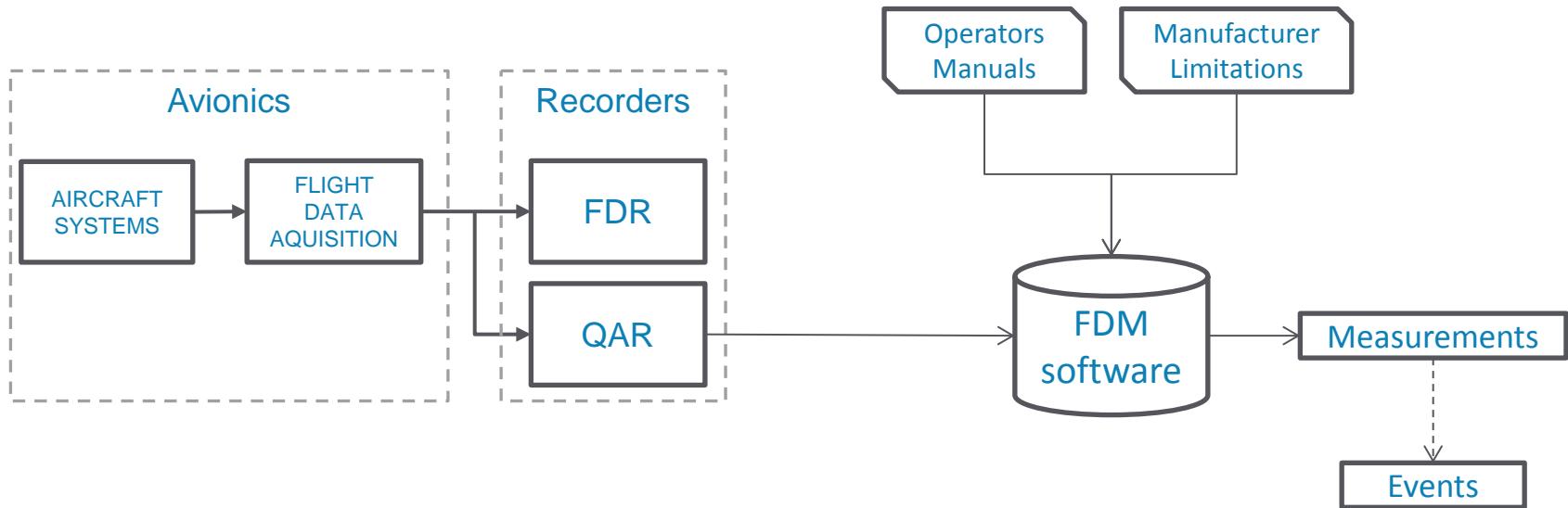
Provide information that recipients want or appreciate the value
Mix standard safety information with other types

3

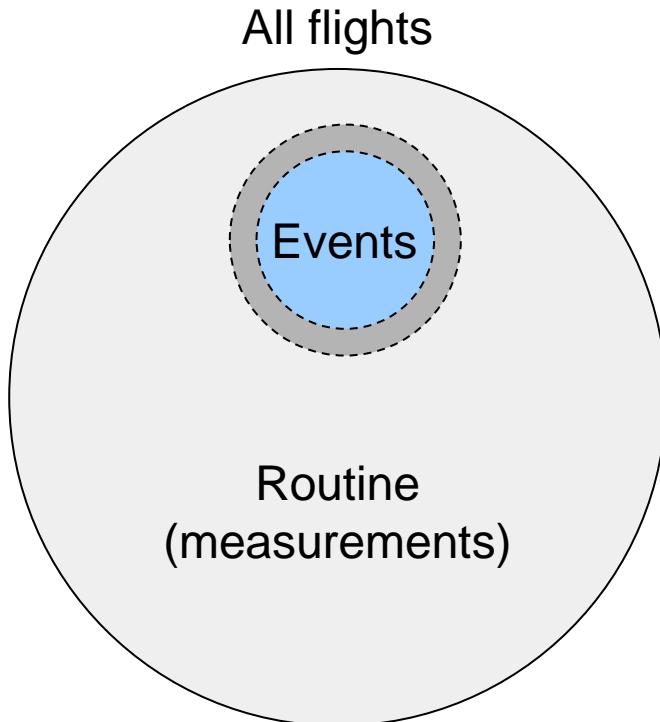
NETJETS FLIGHT DATA MONITORING PROGRAMME

NETJETS

HOW DOES FDM WORK



FLIGHT DATA MONITORING OBJECTIVES



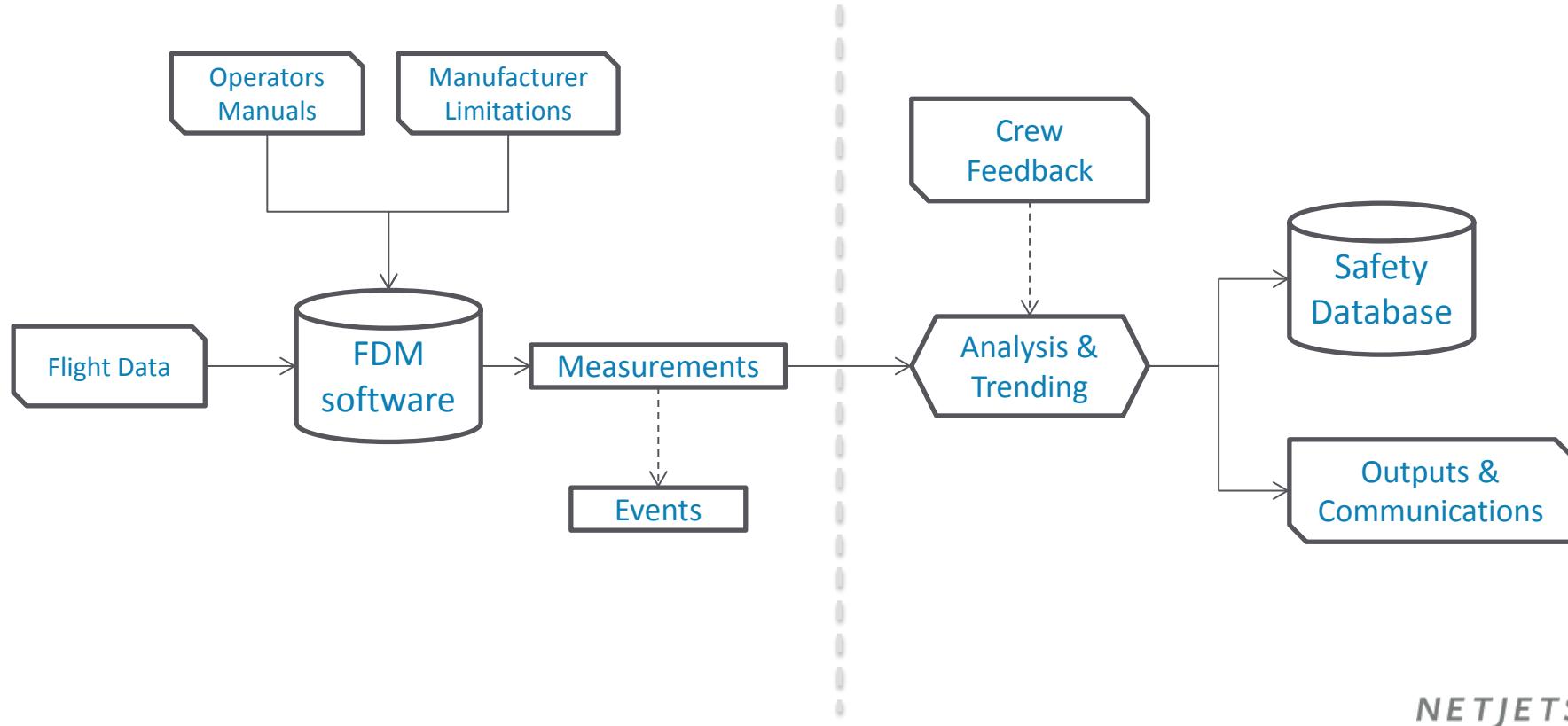
Highlight occurrences of non-standard, unusual or unsafe circumstances

Identify areas of operational risk and quantify current safety margins;

Allows the assessment of the safety risks and supports prioritization of remedial measures

Confirm effectiveness of remedial actions

INTEGRATING FDM IN THE SMS



FDM PROGRAMME –SAFETY FOCUS

UNIQUE BENEFITS

Unbiased and objective

Proactivity: allows detection of precursors

Verify effectiveness of actions and mitigation

SAFETY FOCUS

Sole objective is Safety

De-identified and non-punitive

Confidential investigations conducted by peer

Consent required to widen the investigation

INTERACTION WITH CREWS

Protection

Information collected and processed in a confidential manner and shall not be used for punishment or open to public criticism

Motivation

Make sure they feel helpful and involved in the process by providing their perspective and opinion. Provide positive feedback.

Fairness

Never judge or patronize and try to understand their perspective. Always be constructive.

Integrity

Needs to be done by a respected and respectable peer. Data integrity is fundamental – do not ask about “events” that didn’t exist

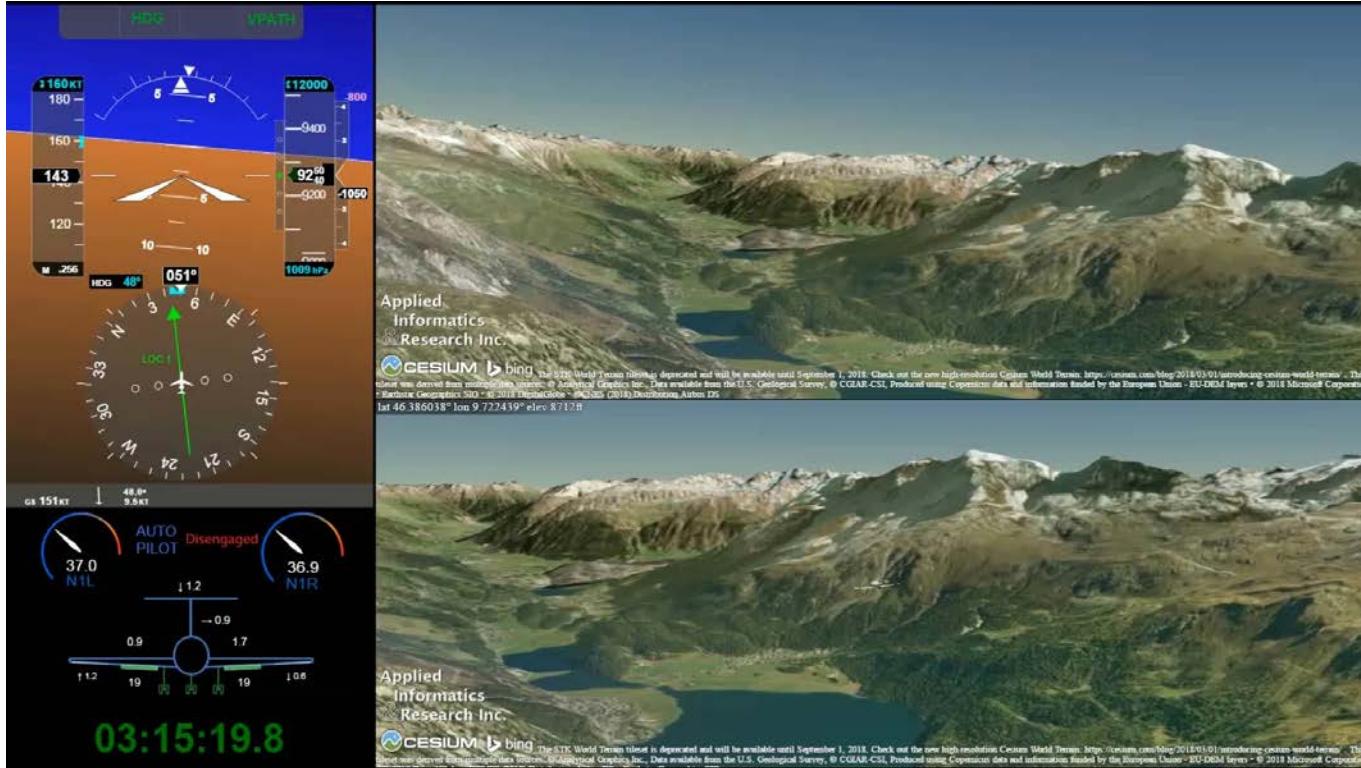
Extremely powerful promotion tool and is highly effective passing safety messages.

3

VISUAL PRESENTATION OF DATA

NETJETS

DATA VISUALISATION



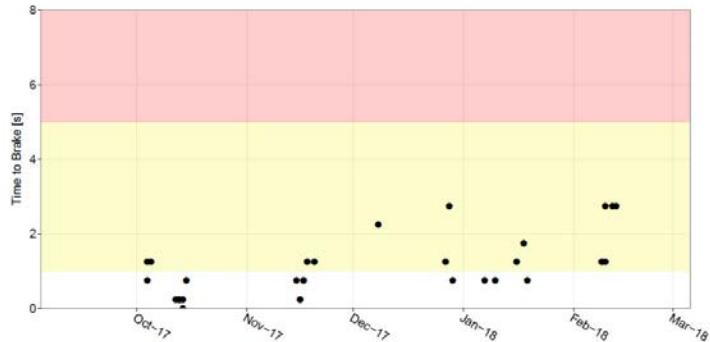
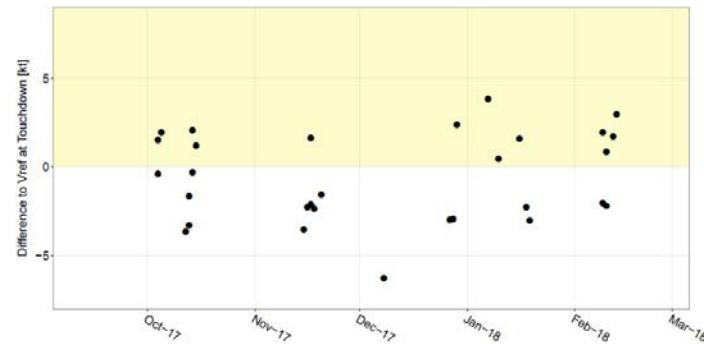
NETJETS

5

FLIGHT CREW MONTHLY EMAILS

NETJETS

MONTHLY INDIVIDUAL CREW REPORT



NETJETS

MONTHLY INDIVIDUAL CREW REPORT

Dear Crew Member,

This is your monthly unstable approach snapshot. It includes all flights captured in the FDM system in which you were pilot on board, but not necessarily the pilot flying.

If you had any unstable approaches, the details of the flight will be listed on a second table.

Flights in the last 6 months: 102

Unstable approach rate: 1%

| Date | Aircraft | ICAO | ROD | ON FINAL | CONFIG |
|----------|----------|------|-----|----------|--------|
| 10-March | CS-CHB | LFLB | X | OK | OK |

For the purpose of this communication, approaches are classified as stable or unstable using the following criteria:

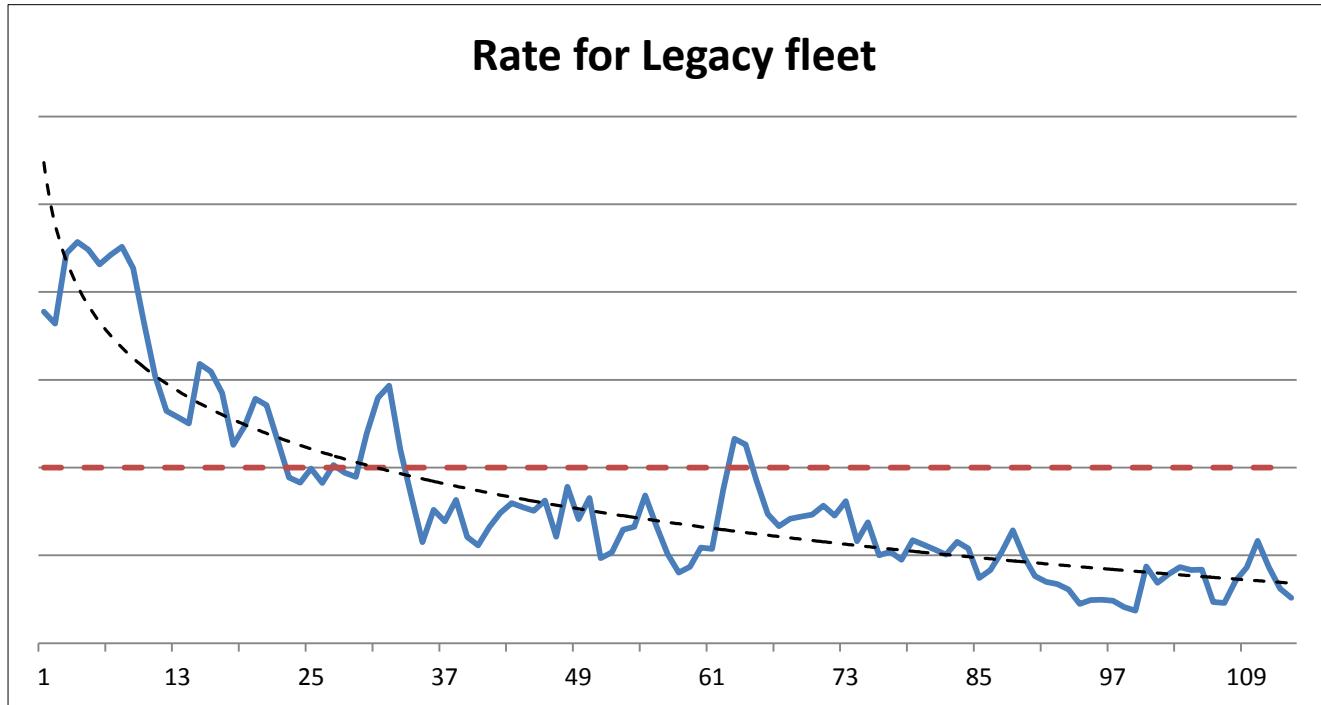
- ROD: rate of descent
- ON FINAL: establishment on the required approach path
- CONFIG: aircraft configuration

Please note that the number of flights reported may be less than the actual performed during this time period; this is because the capture rate of the FDM system is less than 100% and also due to the delay in receiving data from aircraft.

Send all your questions and feedback to LIS-FDM@netjets.com

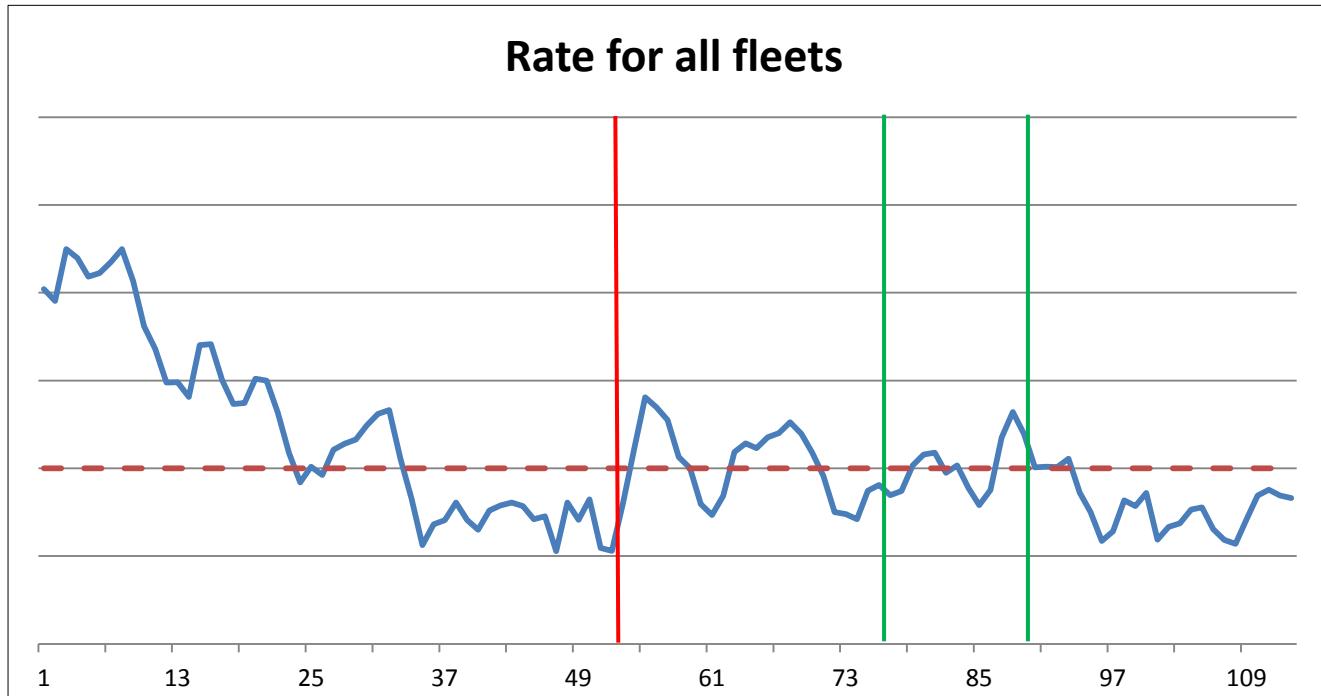
NETJETS

RESULTS OF UNSTABLE APPROACHES CAMPAIGN



NETJETS

RESULTS OF UNSTABLE APPROACHES CAMPAIGN



— New fleet & new crews

— New fleet & “old” crews

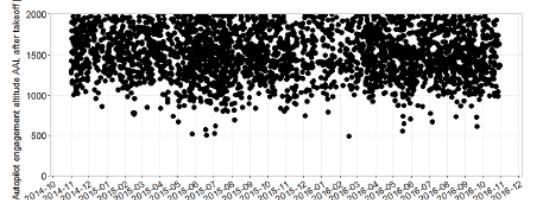
NETJETS

4

FLEET SPECIFIC REPORT

NETJETS

MONTHLY FLEET-SPECIFIC SPI REPORT



NETJETS

5

SAFETY ACTION PLANS

NETJETS

5.1

SAFETY ACTION PLAN – NICE, FRANCE

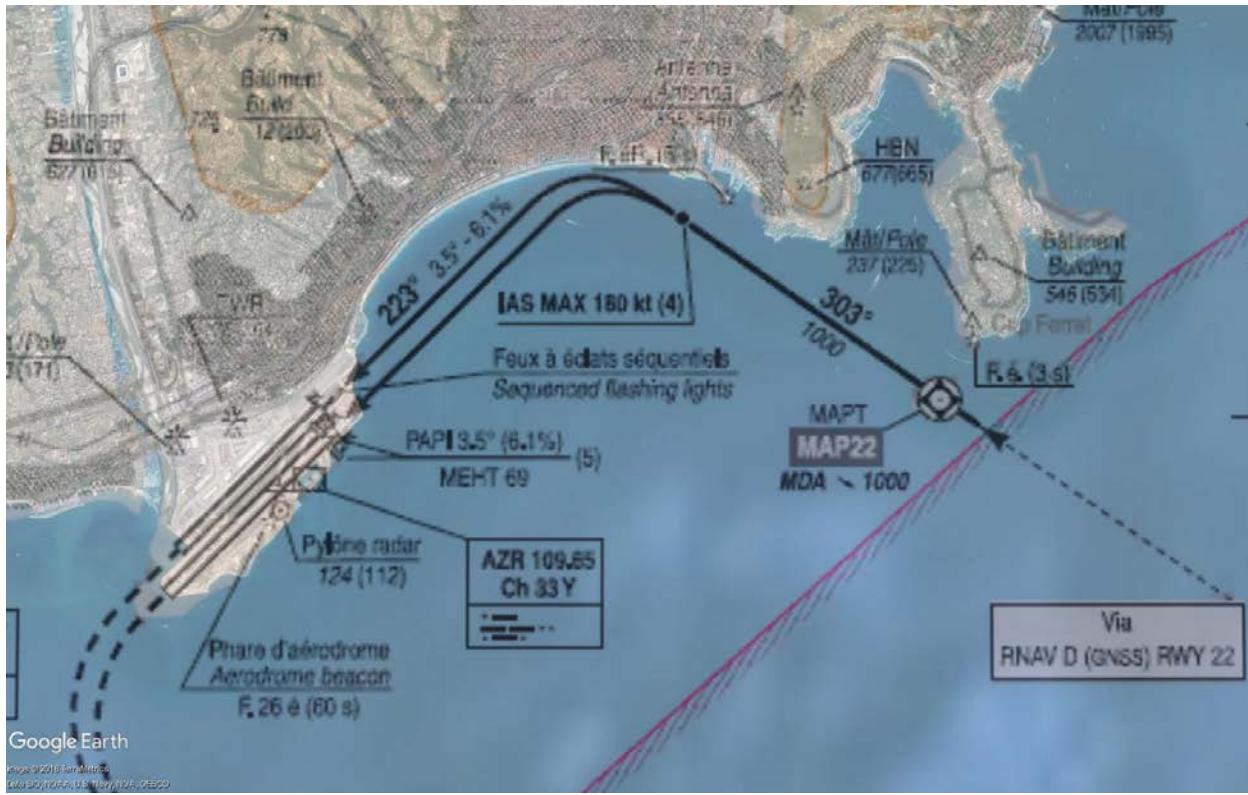
NETJETS

APPROACH OVERVIEW – NICE RWY 22

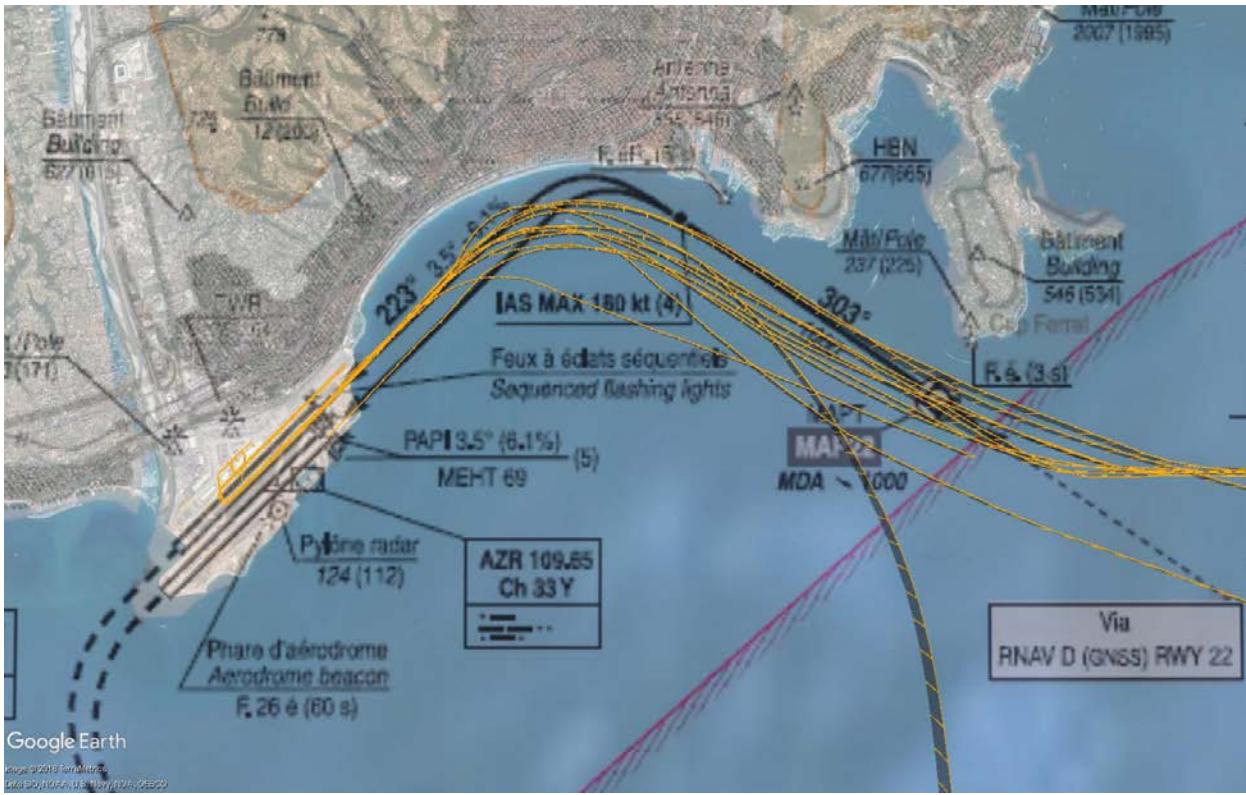


NETJETS

APPROACH OVERVIEW – NICE RWY 22

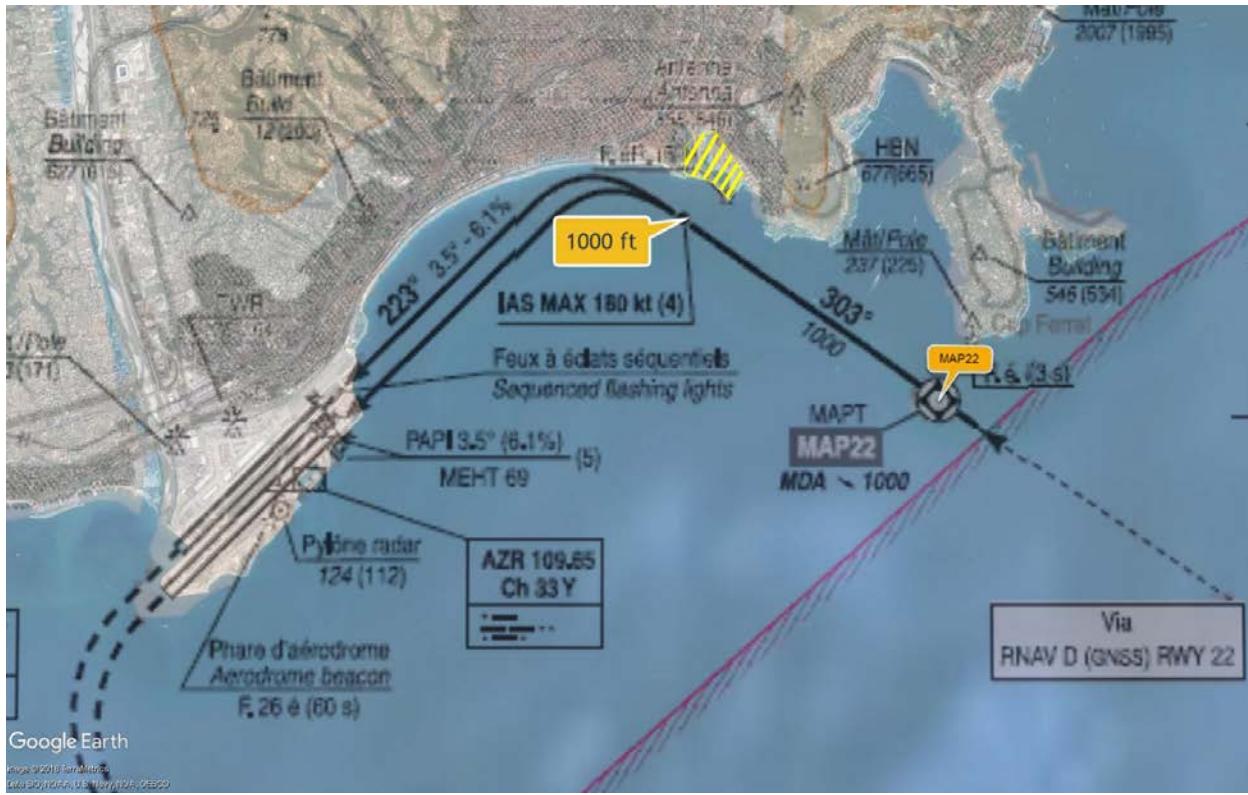


APPROACH OVERVIEW – NICE RWY 22



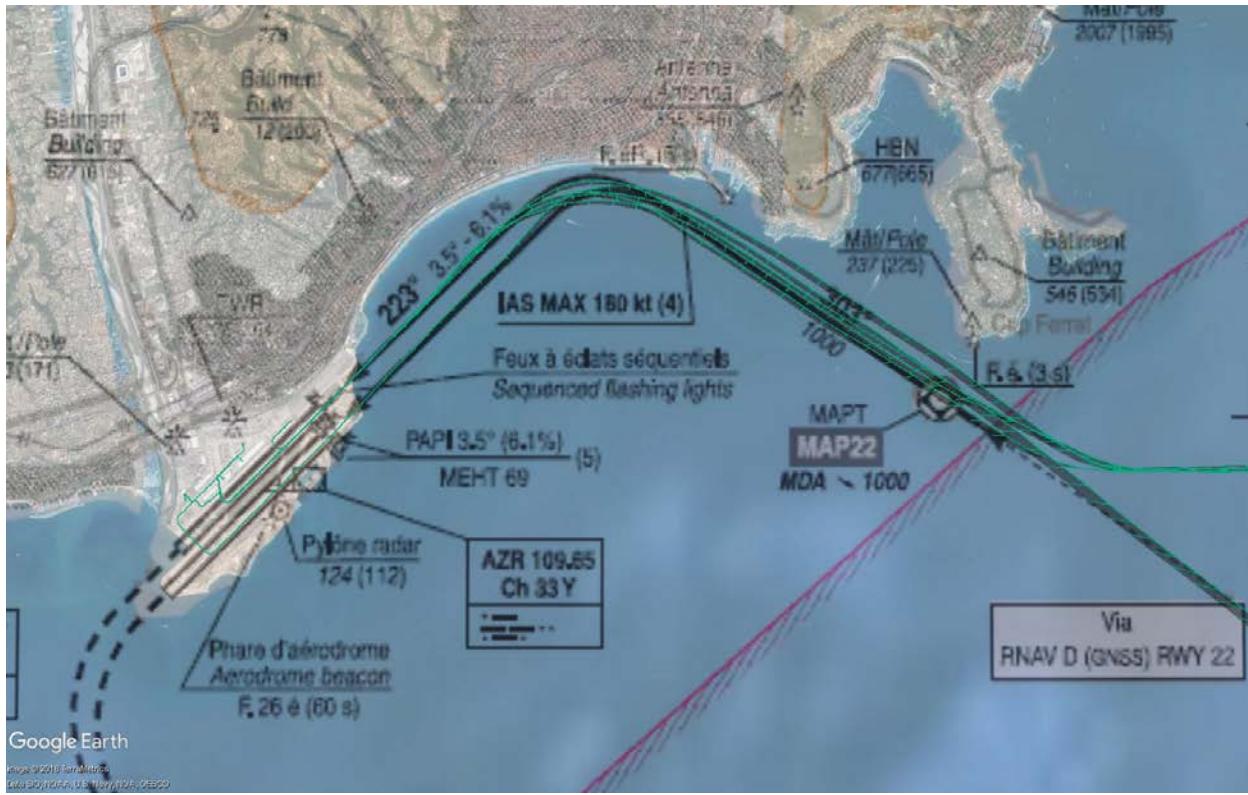
NETJETS

APPROACH OVERVIEW – NICE RWY 22



NETJETS

APPROACH OVERVIEW – NICE RWY 22



NETJETS

RESULTS- NICE RWY 22

Nice - RWY 22

EARLY 2016  LAST 12 MONTHS

-75%

events

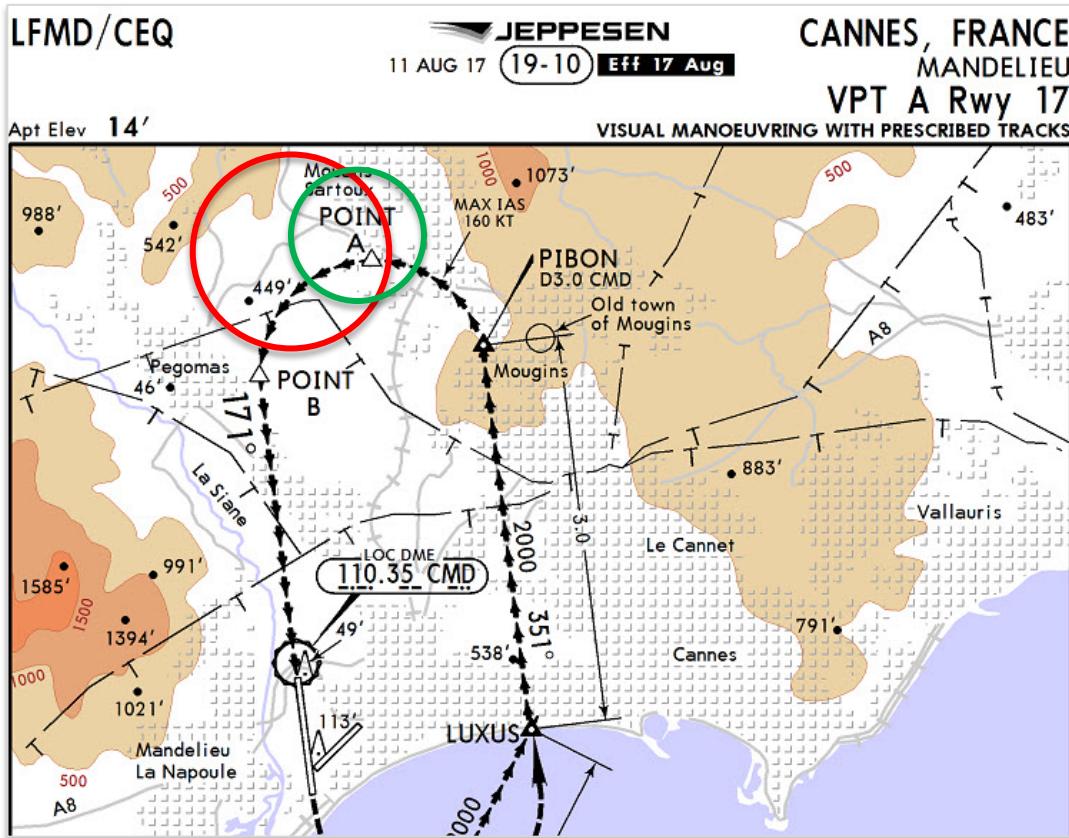
NETJETS

5.2

SAFETY ACTION PLAN – CANNES, FRANCE

NETJETS

APPROACH OVERVIEW – CANNES RWY 17



NETJETS

RESULTS – CANNES RWY 17

Cannes – RWY 17

EARLY 2016 → LAST 12 MONTHS

-95%

events

NETJETS

FDM INFLUENCING FLIGHT CREW BEHAVIOURS

CONCLUSIONS

- Must have the trust of the flight crew
- Data protection procedures have to be robust, transparent and consistently applied
- Cannot be used for disciplinary actions
- Must be used in a way that is seen as added value for the crew
- The wider interests of the safety culture should always govern use of data

INDIVIDUAL BEHAVIOUR CAN BE CHANGED BY

- Constructive, confidential use of individual data does influence behaviour
- Aggregate data can also be used to influence behaviour
- Flight data analysis can lead to effective safety action plans that change behaviour

NETJETS