SHELL AIRCRAFT INTERNATIONAL

FDM – An Operator's Perspective

Stan Medved

Director Corporate Aviation

Our GOAL is your SAFETY

14 November 2012

Copyright of Shell Aircraft International

Outline

Description of Shell Aircraft's operations and wider role

Why we decided to use FDM

Our implementation experience & challenges

How we (and our contractors) are using FDM

The way ahead

Copyright of Shell Aircraft International

Shell Aircraft Operations

Corporate Fleet

Rotterdam
3 Falcon 7X
2150 hrs p.a.

Houston
29 Pilots
1 Falcon 900EX
900 hrs p.a.

Calgary
1 Embraer 175
1 Dornier 328
1700 hrs p.a.

Air Safety & Advisory Group

Standards

Assurance

Contract support

~100 contracted aircraft

80,000 hrs per year

Brunei Shell Petroleum

3 Sikorsky S92
3000 hrs p.a.
27 pilots

Copyright of Shell Aircraft International

Why Use FDM

- Shell's research in the late 1990's led to it's 7/7=1 air safety strategy for contracted and operated helicopter operations
  - 7 initiatives, if properly implemented, would reduce helicopter fatlal accident rates to equal the world airline rate of less than 1 per million flights
  - FDM is one of the 7, which Shell also applies to fixed wing operations
- Strong desire to be the best corporate flight department we can be:

  Identify hazards; specific and latent safety issues; and non-compliance

  Standardisation, prevent performance drift, operational efficiency

  Link operations with the Safety Management System

  Reduce accidents and incidents
- "You don't improve what you don't measure"

Copyright of Shell Aircraft International

Implementation

- The introduction was not greeted with enthusiasm by the crews
  - We’re already safe
  - We don’t have any problems
  - We don’t want a policeman on the flight deck
  - You can’t guarantee privacy
  - You’ll use it against us
  - It won’t make any difference – we’re too small
  - We’re not an airline - we have better people
  - We know better ways to operate than what the Flight Manual says
  - We’re too busy flying to have to work on this programme
  - Nothing will change my mind

Copyright of Shell Aircraft International

Implementation

- Our reality
  - Good ‘safety’ record – complacency
  - Standardisation and adherence to SOPs was poor
  - We had and still have great people but so do the airlines
  - Company’s commitment to improvement, a just culture and respect for people
  - Operating in a low frequency high consequence environment
    - Warning signs or ‘weak signals’ were present
    - Chronic unease was building

Copyright of Shell Aircraft International

Implementation

- Initially only implemented on the Rotterdam fleet
- Traditional FDM structure with a FDM manager, FDM team and FCLO
- Third party data processing
- Confidential analysis and direct crew contact procedures
- Established KPIs (targets, capture rates, reporting)
- Expanded to include Houston and Calgary. Also implemented in Brunei
- Problems
  - Time to process and analyse data
  - One major breach of confidentiality
  - Little or no trending and not using the data

However beautiful the strategy you should occasionally look at the results'
Sir Winston Churchill

Copyright of Shell Aircraft International

Using FDM

- We had lots of data!
  - Categorising events into threat levels

    Minor Major Critical
- Both specific events and trend data used
  - Direct feedback to crews – memory is perishable!
  - Access to data by crews
  - SOP and training reviews
  - Specific exercises in the simulator
  - Awareness of operational issues
  - Reassess our ‘safety cases’ (‘bow-ties’)
  - Monitoring the effectiveness of corrective actions

Copyright of Shell Aircraft International

Using FDM

- Safety Officer review – input to operations and training
- Trends evaluated at Quarterly Safety Review Board meetings and senior management meetings
- Major and Critical event corrective actions monitored by management
- Quarterly report published and distributed to all personnel
  - Comprehensive trend data
  - Specific de-identified data
  - Issues
  - Corrective actions

Copyright of Shell Aircraft International

Using FDM

- Observation changes behaviour
  - Complete acceptance of FDM by crews
  - Crews will often contact the FDM manager first if they suspect an FDM event

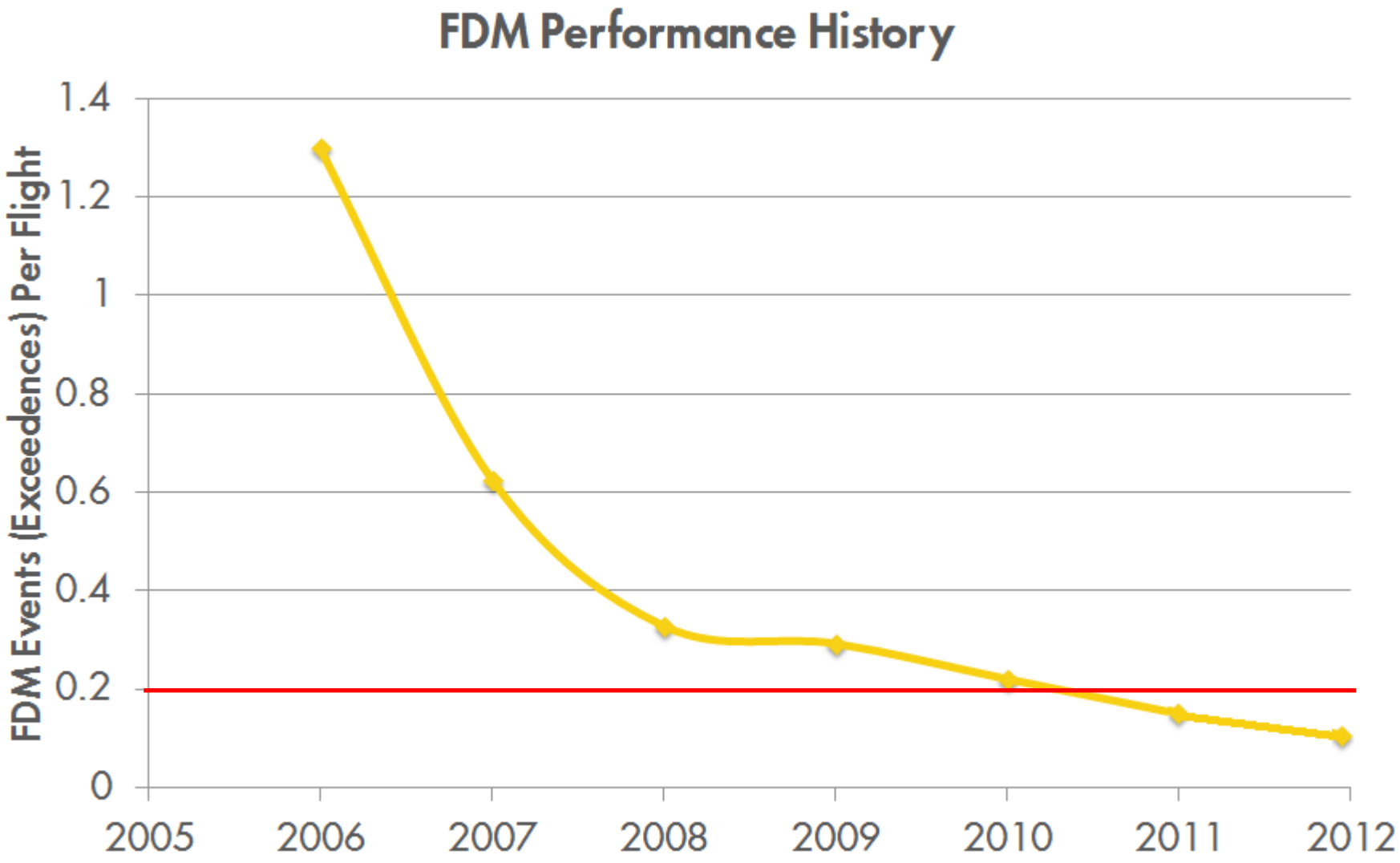
- FDM Costs
  - Initial Licence Fee ~ £17,000 (2006)
  - Annual Fee ~ £9,000
  - Staff costs – secondary duties for existing staff

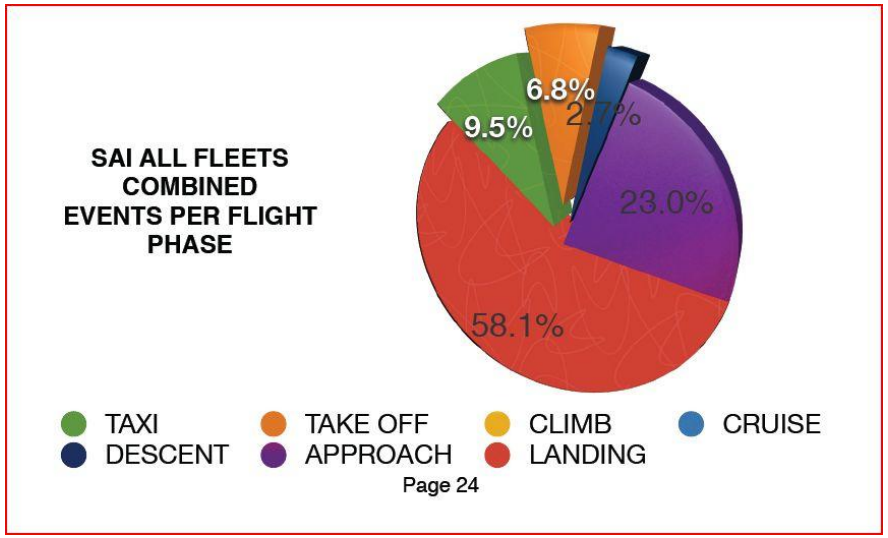
- FDM is an integral part of our Safety Management System

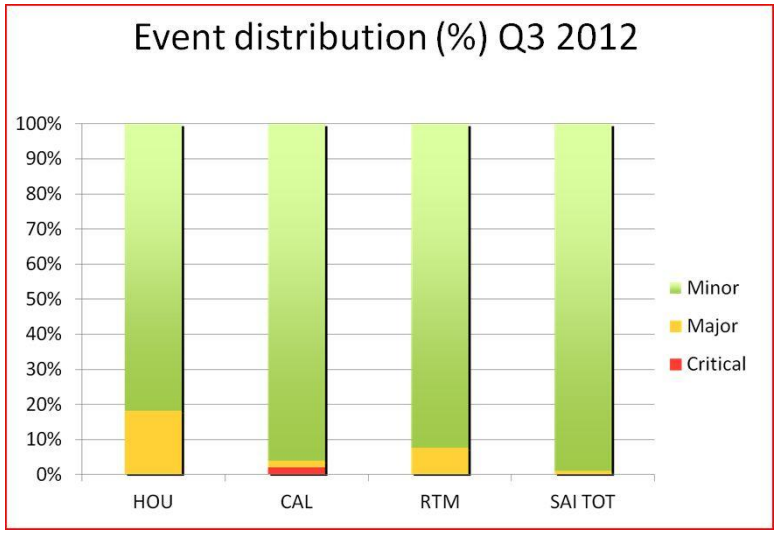
  "A Closed Loop System"

- Performance since 2006

Copyright of Shell Aircraft International


FDM Performance History
FDM Events (Exceedences) Per Flight
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2005
2006
2007
2008
2009
2010
2011
2012





CAL E175

Flights with NO events	224	91.1%
Flights with ONE event	19	7.7%
Flights with TWO events	2	0.8%
Flights with FOUR events	1	0.4%
TOTAL Flights	246	100%

Overview of Ratio Events per Flight Q4 2011 through Q3 2012

QUARTER	Critical	Major	Minor	Total Events
Q4 2011	0.000	0.000	0.150	0.150
Q1 2012	0.010	0.000	0.152	0.162
Q2 2012	0.000	0.005	0.109	0.114
Q3 2012	0.000	0.005	0.065	0.070

Copyright of Shell Aircraft International

Using FDM – The way ahead

- Brunei Shell Petroleum and some of our contracted operations have similar stories to tell
- But some Shell contracted operations are struggling with FDM
- Confidentiality is now robust but we need to strongly protect it
- So do we really know how good we are?
  - Review thresholds
  - How do we compare with others
  - Benchmarking
- Improving capture rates and timing of data download
- Sharing de-identified data with other operators
- Assessing event thresholds

Copyright of Shell Aircraft International

Summary

Description of Shell Aircraft's operations and wider role

Why we decided to use FDM

Our implementation experience & challenges

How we (and our contractors) are using FDM

Next steps

"Good isn't always good enough"

Copyright of Shell Aircraft International

Q & A