

# FDM Personalized

June 12th, 2017



**EASA FDM Conference**  
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# **I. Aigle Azur at a glance**

## **II. Introduction**

## **III. Project development**

## **IV. Interface**

## **V. Results**

## **VI. Conclusions**

## **VII. In the future**



# I. Aigle Azur at a glance

## Figures

- 2nd French scheduled airline
- 2 million passengers
- 20 destinations (7 French airports, 7 Algerian airports, 4 Portuguese airports, Dakar, Bamako)
- 300 scheduled flights per week
- EUR 300 million Turnover
- 10 Airbus A320 family (7 A320, 3 A319)
- 100 pilots
- 1000 employees across the world



# I. Aigle Azur at a glance

## History

- 1946 Founded by French industry specialist Sylvain Floirat
- 2008 First IOSA Certification
- 2012 Introduction of HNA into Aigle Azur's capital (48%)
- 2016
  - 70th birthday
  - February : FTL implementation
  - June : **Decision to speak English over France**



## II. Introduction



FDM is a powerful tool to review line operations and to monitor :

- events (Micro)
- trends (Macro)

But pilots are not enough involved in this safety loop, and FDM can be a **pedagogic tool** to involve them with their own data and trends, while insuring the protection of the individualized interface.

Safety Department wanted to establish more **personalized** relationship between the Flight Safety Department and the pilots.

### III. Project development



January 2011:

Establishment of individual follow-up:

Face to face interview between the FSO and the pilot.

### III. Project development



Initial outcome: The results are encouraging but insufficient.

➡ Advantage:

Personalized discussion, productive face to face.

➡ Disadvantage:

Sometimes bad perception by the flight crew :

- the process is **not voluntary**,
- the FSO is neither the chief pilot, nor the instructor,
- this individual monitoring is perceived **negatively**.



### III. Project development



July 2013:

Setting up access to individualized interface: CASSIOPEE (SAGEM)

The **interface** to access personal data was set up in July 2013 by taking into consideration the remarks from flight crew as well as the previous conclusions.

A **confidential bridge** between the crew planning tool (APM) and Cassiopée (SAGEM) was set up to assign all the events to each flight crew member.

The access to this website was **encouraged** as a personal will.



## IV. Interface



Two interfaces were established between the flight safety department and the pilot via email :

- 1) Case by case : demand of anonymous « **Crew Feedback** » for clarification, by the FSO after receiving a notification (class 1,2,3)

Expéditeur: [mailer@cassiopee.aero](mailto:mailer@cassiopee.aero)  
Date: 24 octobre 2016 à 21:50:16 UTC+2  
Destinataire: [j.mialon@aigle-azur.fr](mailto:j.mialon@aigle-azur.fr)  
Objet: Crew feedback: new request

### Crew feedback: new request

A crew feedback has been requested on the flight #2903581 (ORY-CZL 2016/10/17):

"Bonjour, Pouvez vous me contacter rapidement à propos de cet événement ? Merci et bons vols"

[Post your feedback on Cassiopee website](#)

*This is an automated notification. Please do not reply to this email directly, use above link instead.*

# IV. Interface

The answer is completely anonymous :



Home Analysis Statistics ASR / OR Tracking SMS Config
Hi Glenn STADNIK | Log Out

Flight list
Event list
ACMS Report List
Advanced Search
#3009520
Flight id
GO

Attachments
Crew feedback
Safety issues
Add to favorite
Printable version

### Flight AAF7 : LIL > ALG 2017-02-XX

Take-off by sunset from LIL / 08

Date: 2017-02-13h34
Weather: LFOQ 1330Z AUTO 05008KT 3100 BR OVC012 M00/M03 Q1020 BECMG 8000 NSW
Pilot flying: Left seat
Configuration : 1+F

Landing by sunset to ALG /

Date: 2017-02-15h58
Weather: DAAG 1530Z 02007KT CAVOK 17/08 Q1013
Pilot flying: Left seat
Configuration : FULL

#### Event list

Valid	Time	Phase	Class	Type	Name	Data	Tabular
<input checked="" type="checkbox"/>	15:47:37	APPROACH	5	GPWS WARNING	GPWS_MODE=PULL, UP RALTC=1202 FT CASC=209 KT CONFIG=1 IVV=-419 FT/MIN	VIEW	
<input checked="" type="checkbox"/>	15:50:20	FIN APPRCH	5	THR RED LDG LATE	RALTC=9 FT CASC=130 KT CONFIG=FULL	VIEW	

#### Request analysis

#### Attachments

Added by	Name	Phase	Status
Default	3009520-full.csv		<a href="#">DOWNLOAD</a>
Default	3009520.kml		<a href="#">DOWNLOAD</a>
Default	vertpath-3009520.pdf		<a href="#">DOWNLOAD</a>

#### Request analysis

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#### History

Operational Validation	2017-05-17
Technical validation by bruno.bouweret@sagem.com.	2017-02-16

#### Crew feedback

Glenn STADNIK - 2017-03-02  
Bonjour, Pourriez vous nous apporter quelques informations sur l'alarme EGPWS. Merci

Crew - 2017-03-07  
Bonjour , on était en régulation radar sur SMR pour la 09 en bonnes conditions . On a demandé de terminer à vue . Le contrôle nous a autorisé à 1500'. Nous sommes passés au dessus du port en descente vers 1500' , flaps 1 avec un vario relativement faible et avons eu une alarme EGPWS après le passage de la côte entre 2000 et 1500' une seule fois . Étant en très bonnes conditions de vol et dégagés du relief j'ai pris la décision de poursuivre l'approche à vue pour la 09 avec l'accord de l'OPL. Je n'ai pas compris le déclenchement de cette alarme .

Antoine PERCELAY - 2017-03-13  
Bonjour, Dans le but de faire évoluer (à nouveau) la procédure EGPWS d'Airbus ou faire modifier le système, nous collectons les ASR relatif à un faux déclenchement EGPWS. Pouvez vous en rédiger un si cela vous convient? Merci et très bons vols,

## IV. Interface



Second interface :

2) Automatic email warning in case of **Class3** notification, which includes a direct web access to the personal account on Cassiopee website

----- Forwarded message -----

From: <>  
Date: 2016-04-18 12:30 GMT+02:00  
Subject: [Cassiopee FDM] Class 3 events notification  
To: [y@agle-azur.fr](mailto:y@agle-azur.fr)



*Warning : this message has been generated automatically by CASSIOPEE FDM robot on behalf of Aigle Azur safety department, do not answer it.  
Please also note that the data contained here after may need to be validated by CASSIOPEE FDM analysts and/or Aigle Azur safety department.*

Some class 3 events have been detected for the following flights:

Tail #	From	To	Flight Id	Event Date	Flight Phase	Event Description	Event Data	Cond class3
F-HBIB	ORY 05 Apr 2016 - 12h08	ALG 05 Apr 2016 - 14h17	<a href="#">2684420</a>	05 Apr 2016 - 13h58	DESCENT	SPD HI BLW 8000	CASC=338 KT ALT_STDC=7880 FT sec=38	IAS > 300 kt
F-HCZJ	ORY 12 Apr 2016 - 14h37	LIS 12 Apr 2016 - 17h07	<a href="#">2682910</a>	12 Apr 2016 - 17h01	LANDING	PITCH LO ON LDG	PITCH=1.41 deg	Pitch < +2°

CASSIOPEE FDM is a service provided by Sagem  
<http://www.cassiopee.aero>

## IV. Interface



Each pilot can access to its **flight analysis**, chronologically

### FLIGHT LIST

As a flight-crew member, you can only see the flights you were affected on.

All flights

Needing review

Needing  
technical validation

With class 3 events

Detailed analysis

Waiting for  
crew feedback

Show 25 entries

CLEAR FILTERS

EXPORT CURRENT LIST

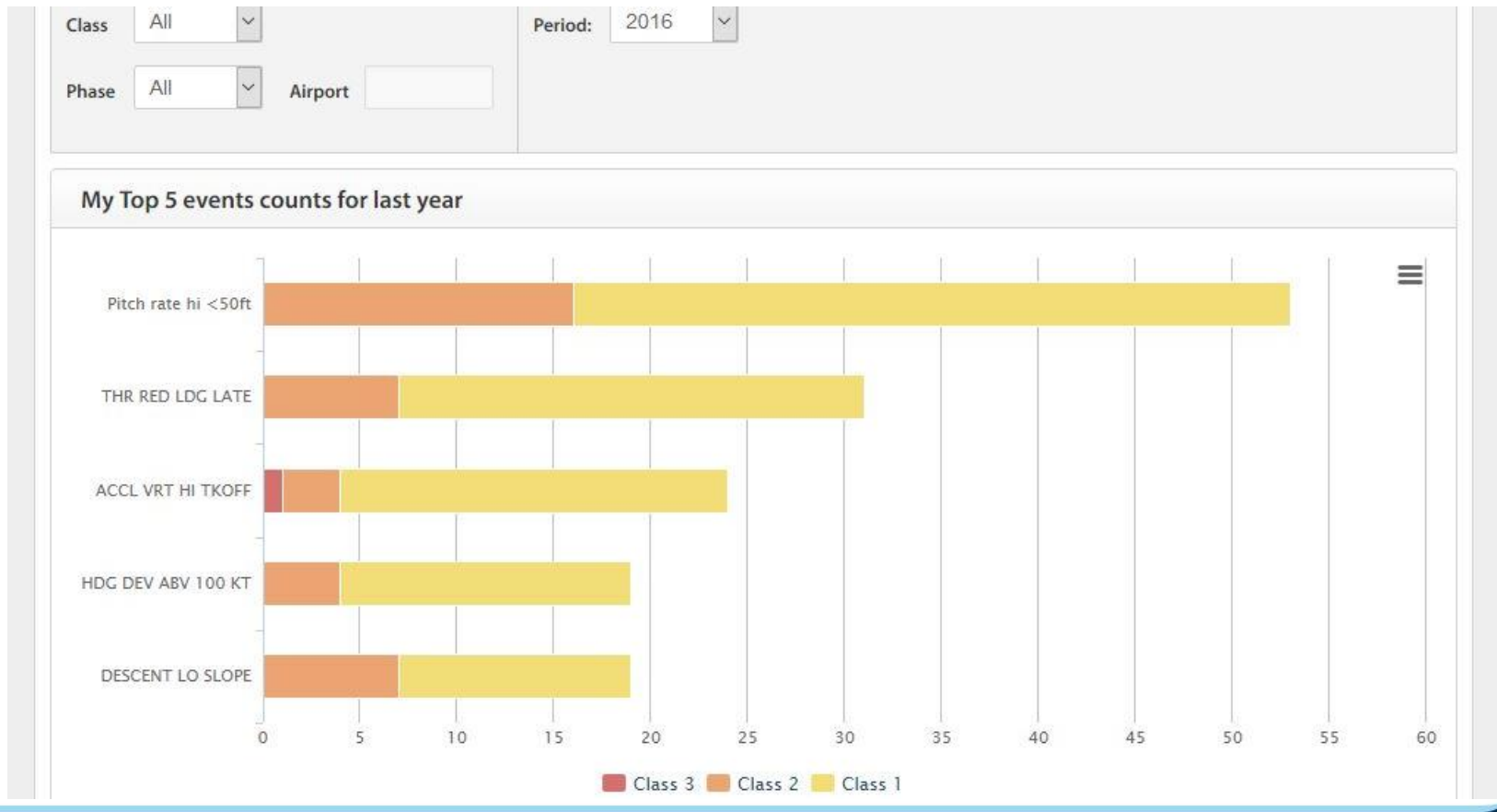
« 1 2 3 4 5 »

Infos	Date	Flight	From	RWY	To	RWY	Tail	Type	TKO	CR	APP	Details
<input type="text"/>	<input type="text" value="yyyy-mm-dd"/>	<input type="text"/>	<input type="text"/>		<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="radio"/>	2016-05-23	0258	ALG	05	CDG	26L	F-HBIB	A320	1		1	<a href="#">2744813</a>
<input type="radio"/>	2016-05-23	0257	ORY	24	ALG	09	F-HBIB	A320	1		1	<a href="#">2744812</a>
<input type="radio"/>	2016-05-23	0260	ALG	05	ORY	26	F-HBIB	A320	1		1	<a href="#">2744811</a>
<input checked="" type="radio"/>	2016-05-22	0221	ORY	24	ALG	23	F-HBIB	A320	3			<a href="#">2744808</a>
<input type="radio"/>	2016-05-22	0224	ALG	27	ORY	26	F-HBIB	A320	1			<a href="#">2744807</a>
<input type="radio"/>	2016-05-22	0223	ORY	24	ALG	23	F-HBIB	A320	2			<a href="#">2744806</a>

## IV. Interface



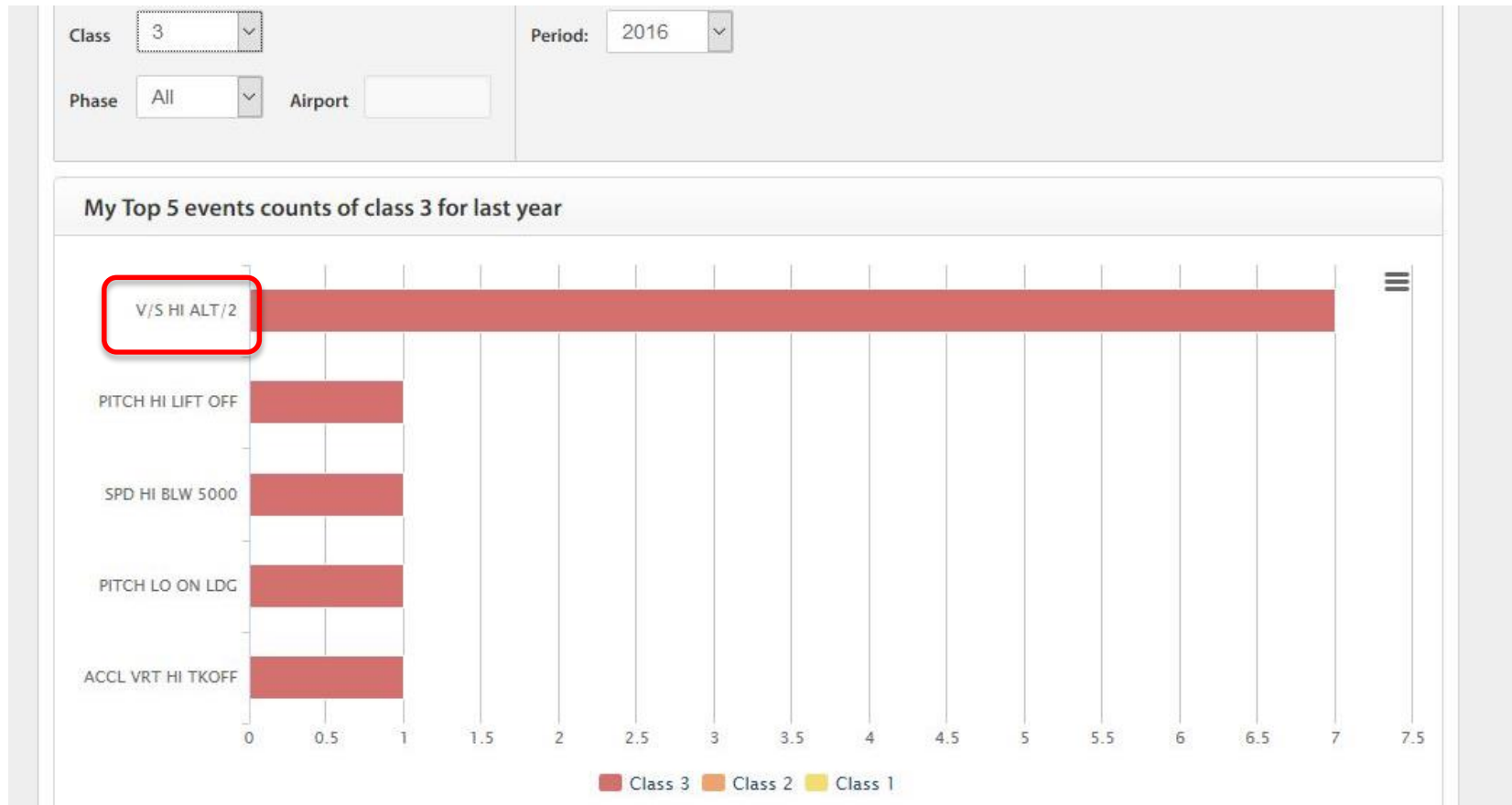
Each pilot can access to its statistics as a **TOP 5** events : Class 1+2+3



## IV. Interface



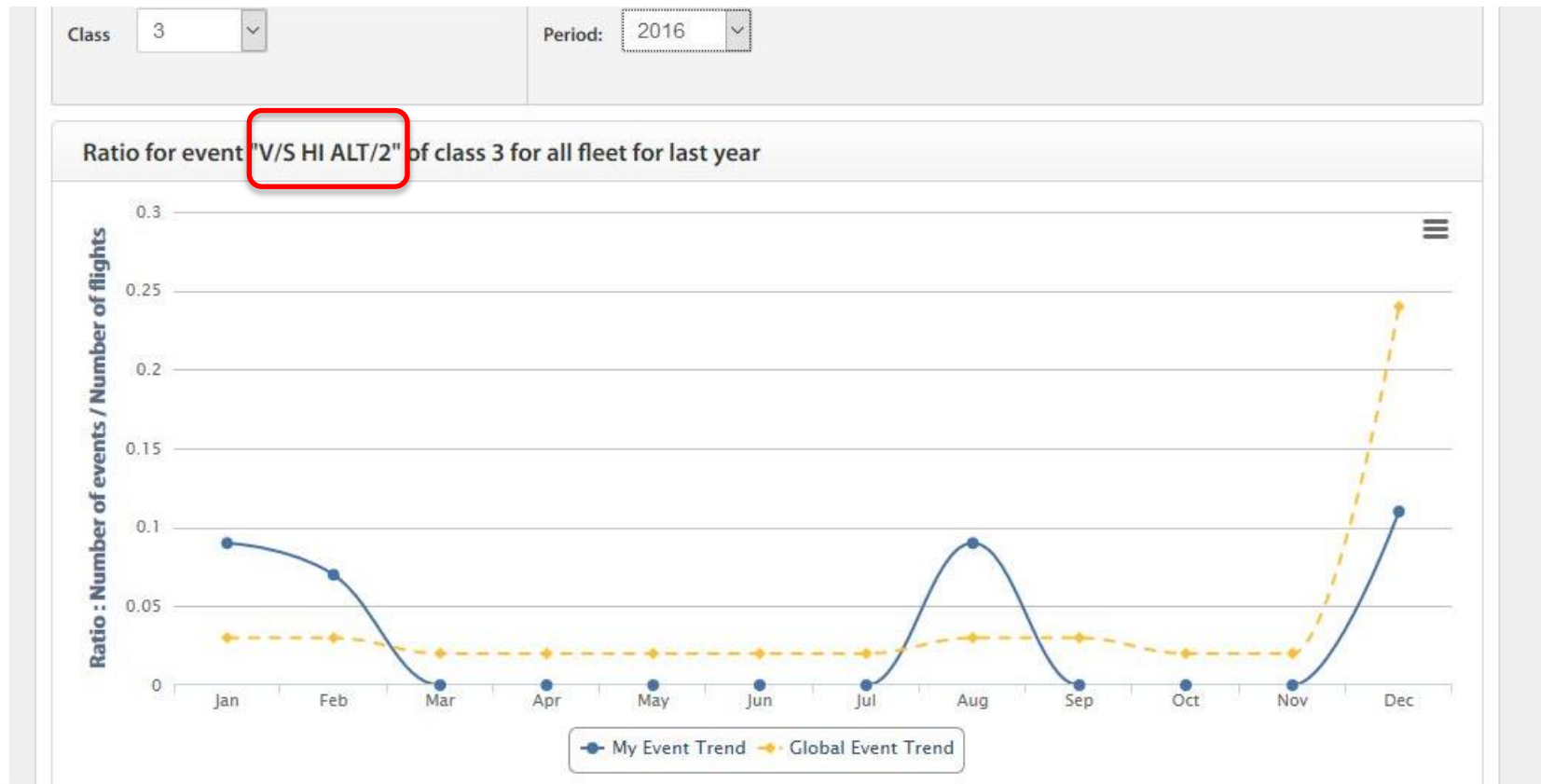
Each pilot can access to its statistics as a **TOP 5** events : Class 3 only



## IV. Interface



Each pilot can consult its **trend** on a specific event and compare its results with Aigle Azur **average**.

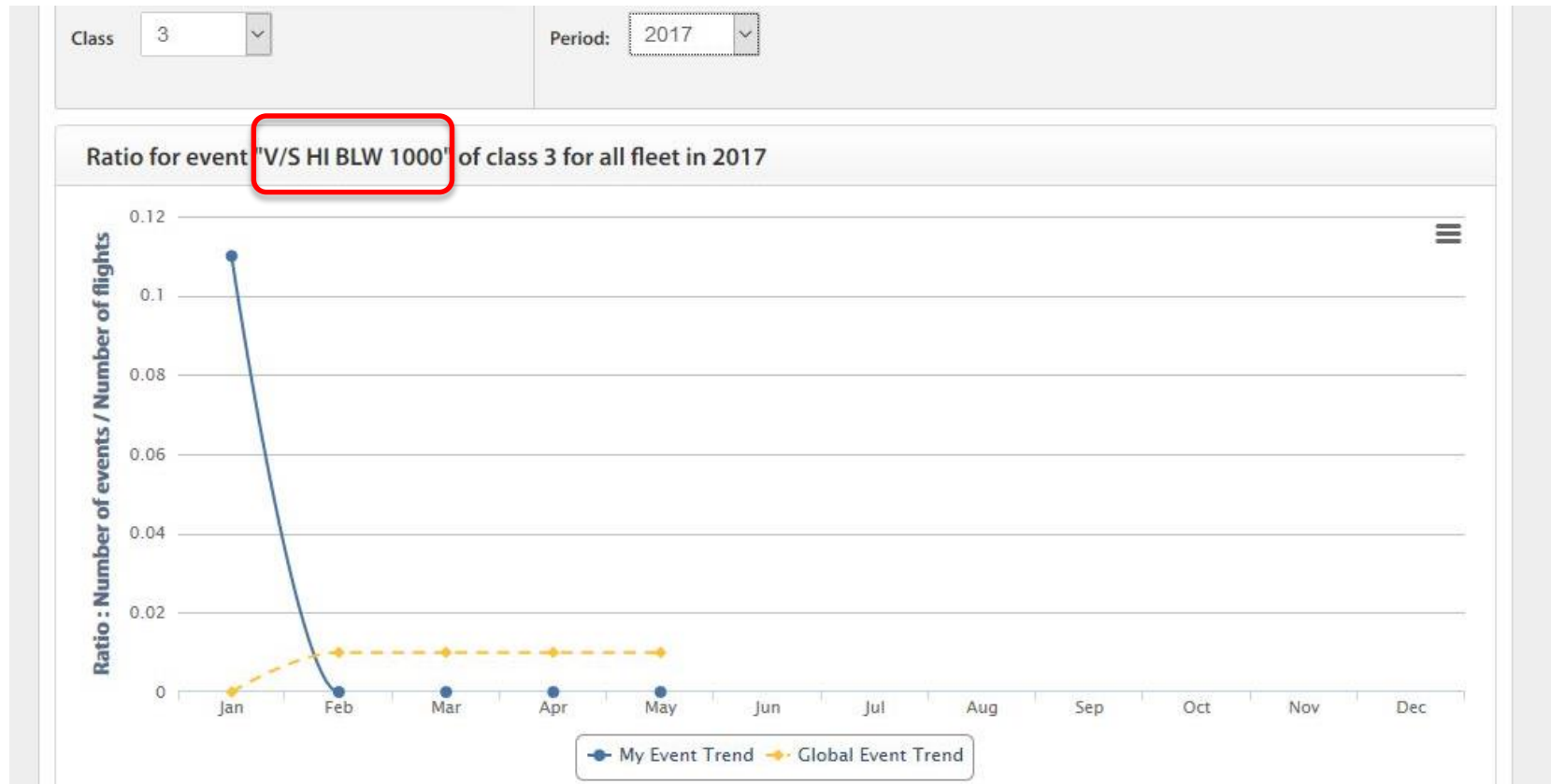




## IV. Interface

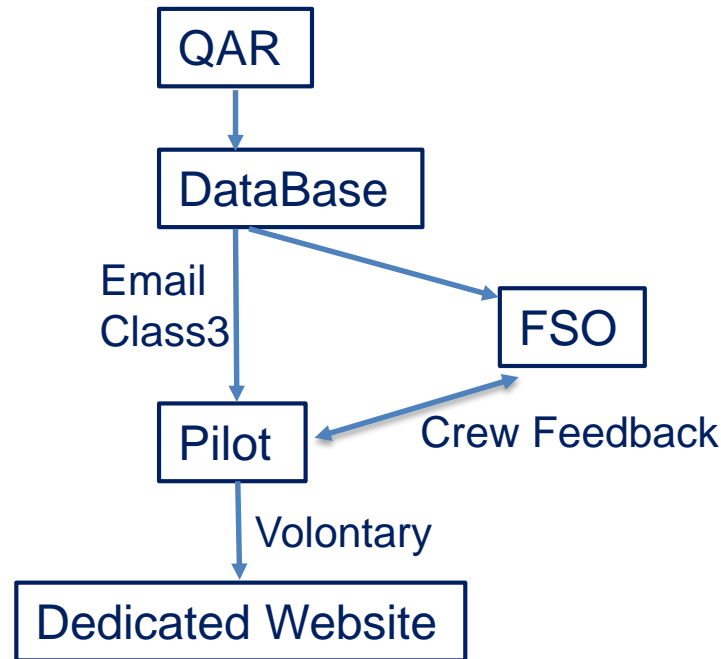


Each pilot can consult its **trend** on a specific event and compare its results with Aigle Azur **average**.



# IV. Interface

Global Picture :



Events

FLIGHT LIST

Also flight crew members, you can only see the flights you were affected on.

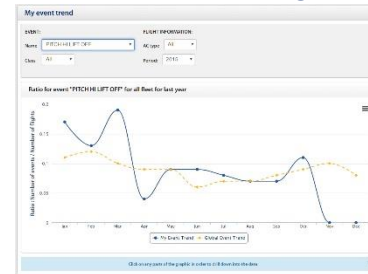
Show  entries

Info	Date	Flight	From	RWY	To	RWY	Tail	Type	TKO	CR	APP	Details
<input type="radio"/>	2016-09-23	9208	ALG	05	CDG	24L	F-HBGR	A320				25946113
<input type="radio"/>	2016-09-23	9207	ORY	24	ALG	09	F-HBGR	A320				25946112
<input type="radio"/>	2016-09-23	9209	ALG	05	ORY	26	F-HBGR	A320				25946111
<input checked="" type="radio"/>	2016-09-23	9221	ORY	24	ALG	23	F-HBGR	A320				25946098
<input type="radio"/>	2016-09-23	9224	ALG	27	ORY	26	F-HBGR	A320				25946097
<input type="radio"/>	2016-09-22	9223	ORY	24	ALG	23	F-HBGR	A320				25946096

Top 5



Fleet Average



Crew Feedback

Crew feedback

Glenn STADNIK - 2017-03-02

Bonjour. Pourriez vous nous apporter quelques informations sur l'alarme EGPWS. Merci

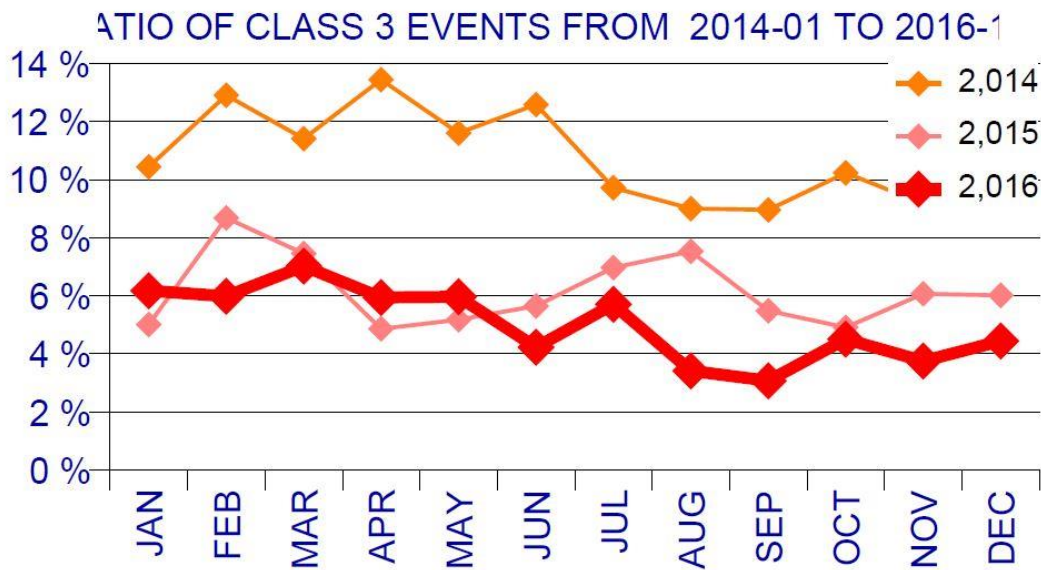
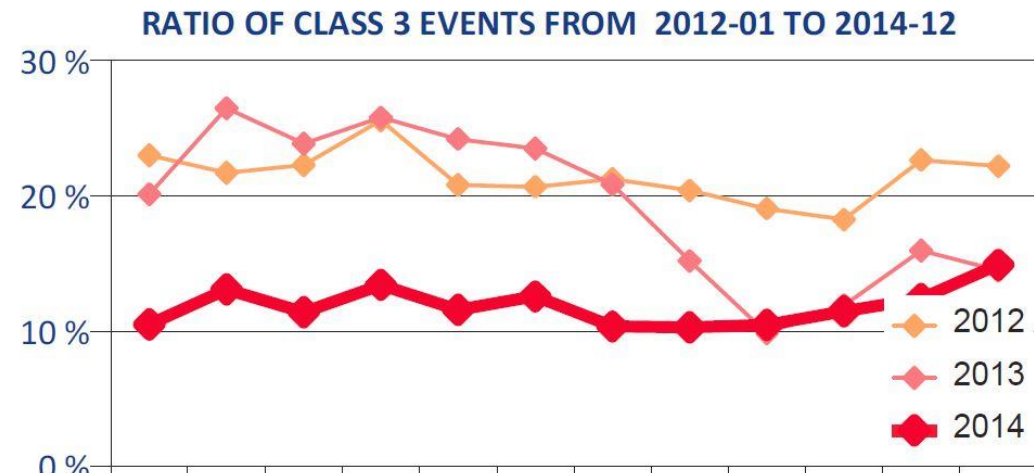
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## V. Results



The percentage of Class3 with the same triggers was divided by 4

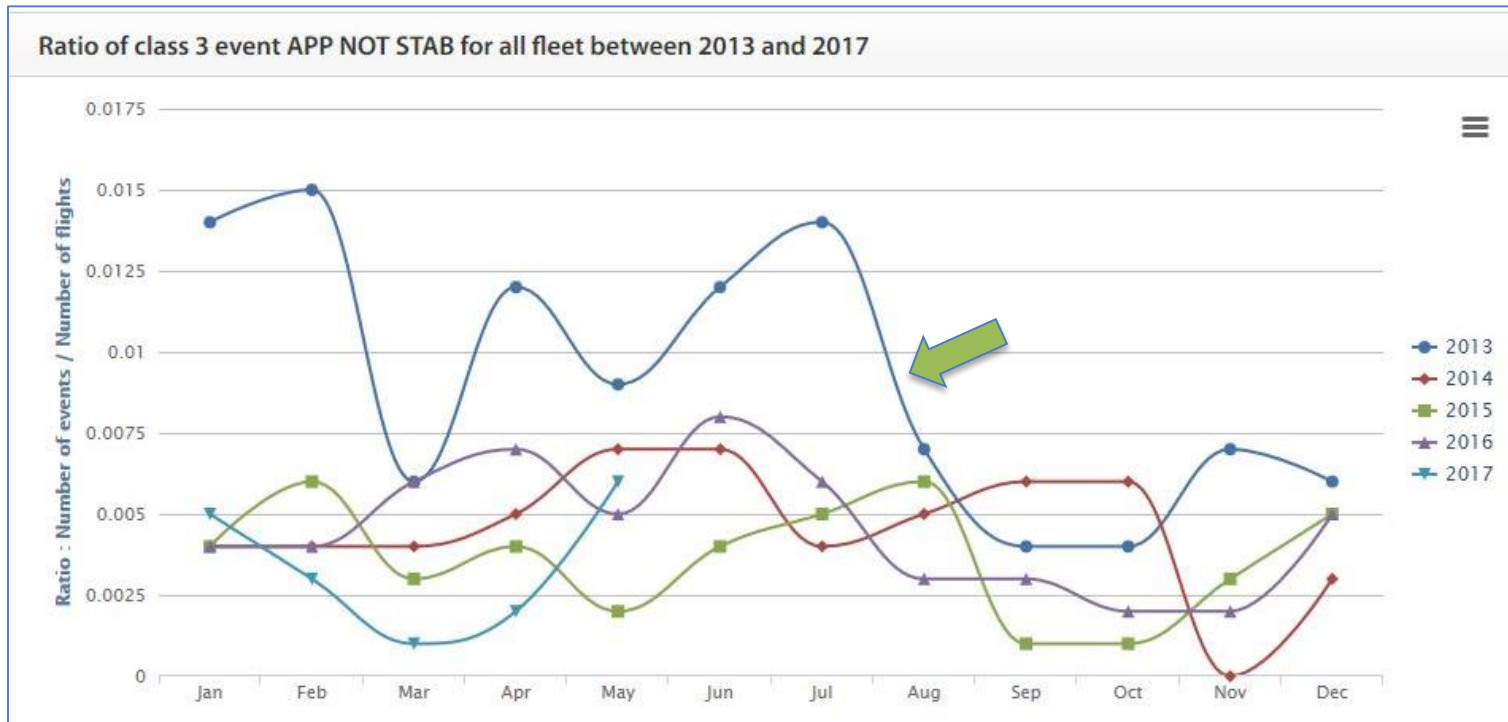


- 2012 : 20%
- July 2013 : drop to 10%
- 2014 : 10%
- 2015 : 7%
- 2016 : 5%

## V. Results



Energy management (Unstabilized Approach : Thrust) : divided by 3



# V. Results

GPWS : divided by 2



## VI. Conclusions



- Significant **decrease** in occurrence rate since July 2013
- Good feedback from the pilots who have integrated this process in their **work habits**

## VII. In the future



Training Department :

Already done for the fleet :

At the end of the FDM cycle, potential risks are identified and **pilot training programs** are modified accordingly.

For each pilot :

He is encouraged to bring its **top 5** events in order to customize its own simulator training session (1h to 1h30),  
=> Close the loop



# Thank you, Bons Vols !

