

iStars UserGroup

Meeting 1

dec. 2018

Towards a more data
guided
risk evaluation process



MINISTÈRE
DE LA TRANSITION
ÉCOLOGIQUE
ET SOLIDAIRE



DSAC

Direction Générale de l'Aviation Civile

Ministère de la Transition écologique et solidaire

DGAC (FRENCH CIVIL AVIATION AUTHORITY)

The image shows the organizational structure of the French Civil Aviation Authority (DGAC). At the top left, there are logos for the Ministry for an ecological and solidary transition and the Ministry of Transport. The DGAC logo is prominently displayed with the text "FRENCH CIVIL AVIATION AUTHORITY". Below this, four main directorates are listed: DSAC (Directorate for Civil Aviation Safety), DSNA (Directorate for Air Navigation Services), DTA (Directorate for Air Transport), and SG (General Secretariat). The DSAC box is highlighted with a red border. To the right, a vertical column lists several units: OCV (In-Flight Checking Unit), GTA (Air Transport Gendarmerie), MALGH (Light, General and Helicopter Aviation Service), SEAC (State Civil Aviation Authority), Polynésie française, Wallis-et-Futuna, DAC (Directorate for Civil Aviation), Nouvelle Calédonie, and ENAC (French Civil Aviation University).

Ministry for an ecological and solidary transition

Ministry of Transport

dgac

FRENCH CIVIL AVIATION AUTHORITY

DSAC
DIRECTORATE FOR CIVIL AVIATION SAFETY

DSNA
DIRECTORATE FOR AIR NAVIGATION SERVICES

DTA
DIRECTORATE FOR AIR TRANSPORT

SG
GENERAL SECRETARIAT

OCV
IN-FLIGHT CHECKING UNIT

GTA
AIR TRANSPORT GENDARMERIE

MALGH
LIGHT, GENERAL AND HELICOPTER AVIATION SERVICE

SEAC
STATE CIVIL AVIATION AUTHORITY

Polynésie française

Wallis-et-Futuna

DAC
DIRECTORATE FOR CIVIL AVIATION

Nouvelle Calédonie

ENAC
FRENCH CIVIL AVIATION UNIVERSITY

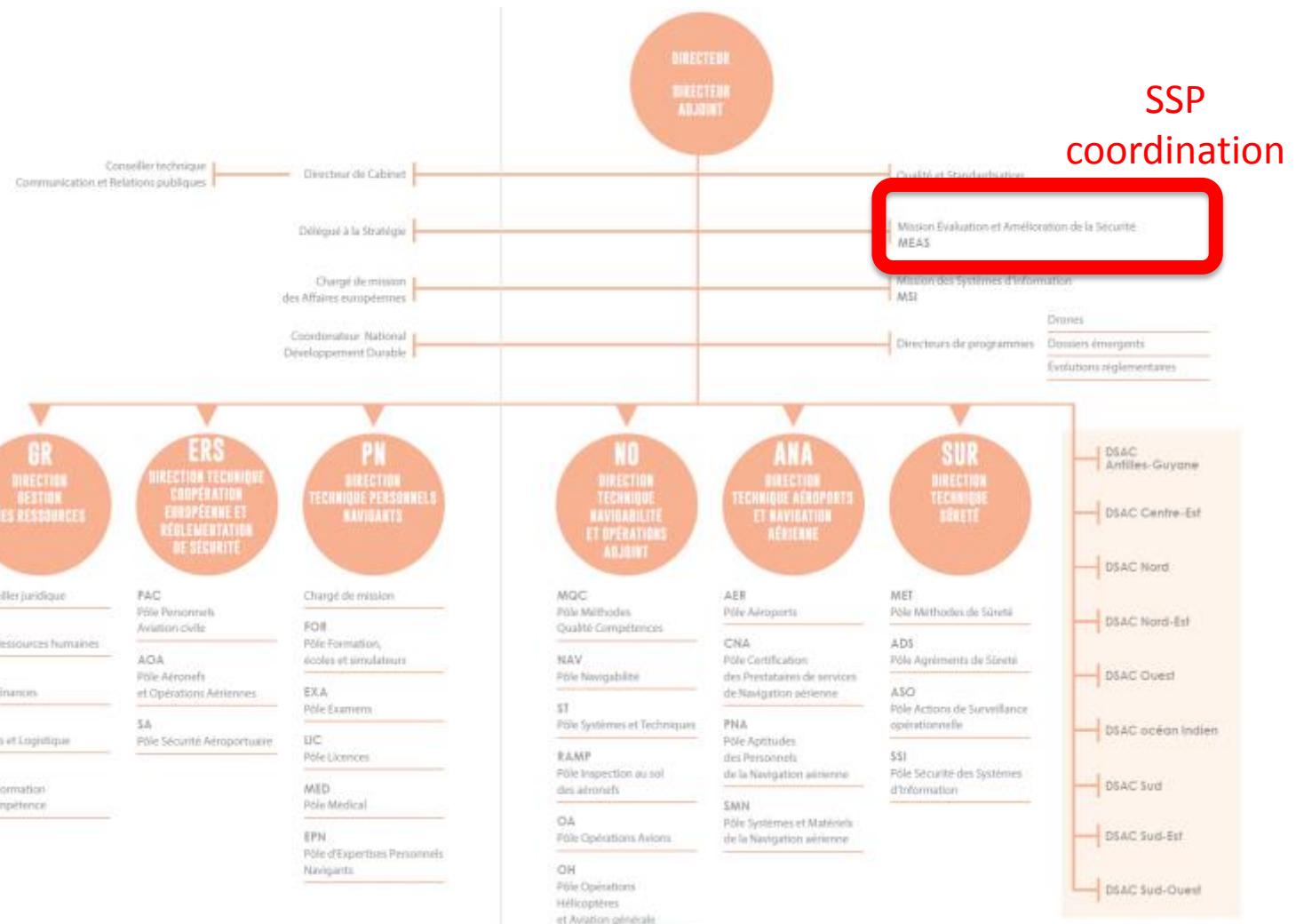


DSAC

Direction Générale de l'Aviation Civile

Ministère de la Transition écologique et solidaire

DGAC/DSAC (DIRECTORATE FOR CIVIL AVIATION SAFETY)



MINISTÈRE
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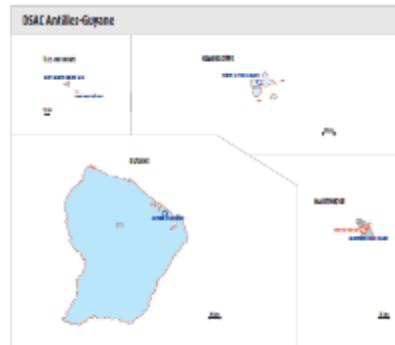
DSAC

Direction Générale de l'Aviation Civile

Ministère de la Transition écologique et solidaire

SSP
coordination

REGIONAL OFFICES



[Site DGAC](#) [Délégation](#)



Direction Générale de l'Aviation Civile

Ministère de la Transition écologique et solidaire

AND APPROXIMATELY

- 8 800 registered aircraft
- 10 000 referenced uav
- 190 CAT organisations
- 15 000 commercial pilot licences
- 50 000 private pilot licences
- 72 aerodrome certificates (55 european certificates) + hundreds of others AD
- 80 air navigation service providers
- ...



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D S A C

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Ministère de la Transition écologique et solidaire

One State Safety Programme

- aims to ensure the implementation of actions :

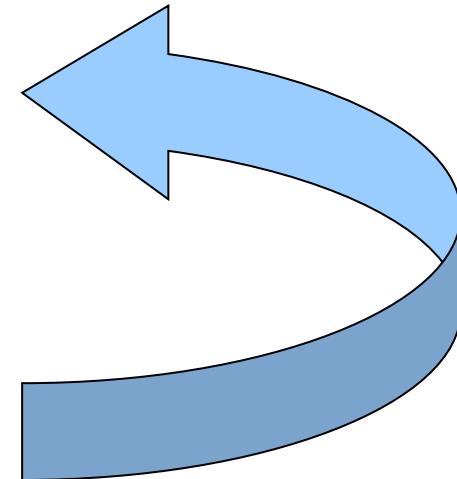
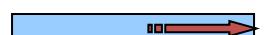
regulation



oversight

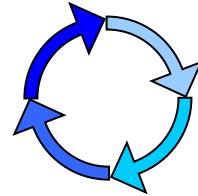


Safety promotion



- SSP aims at the efficiency of actions :

Risk analysis



Risk mitigation action plan

Safety performance indicators

Action plan adjustments



By allocating human and financial resources accordingly



DSAC

Direction Générale de l'Aviation Civile

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WHAT DATA DO WE HAVE IN HANDS ?

Data from oversight (audit reports for instance)

Safety reports from organisations

Ad hoc data, as trajectories data (from radar surveillance or ADS-B for instance)



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WHAT ARE WE DOING WELL WITH THOSE DATA FOR YEARS

- Follow-up of received safety reports
- Collegial safety reviews
 - to analyse information from safety reports and
 - To identify appropriate actions
- Safety issue case studies



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WHAT ARE WE DOING WELL WITH THOSE DATA FOR YEARS

- Follow-up of received safety reports
- Collegial safety reviews
 - to analyse information from safety reports and
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- Safety issue case studies

Always through an approach per oversight domain (airlines, airports, ansp, ...)

Combined with an
SSP transverse approach

At both regional and national level



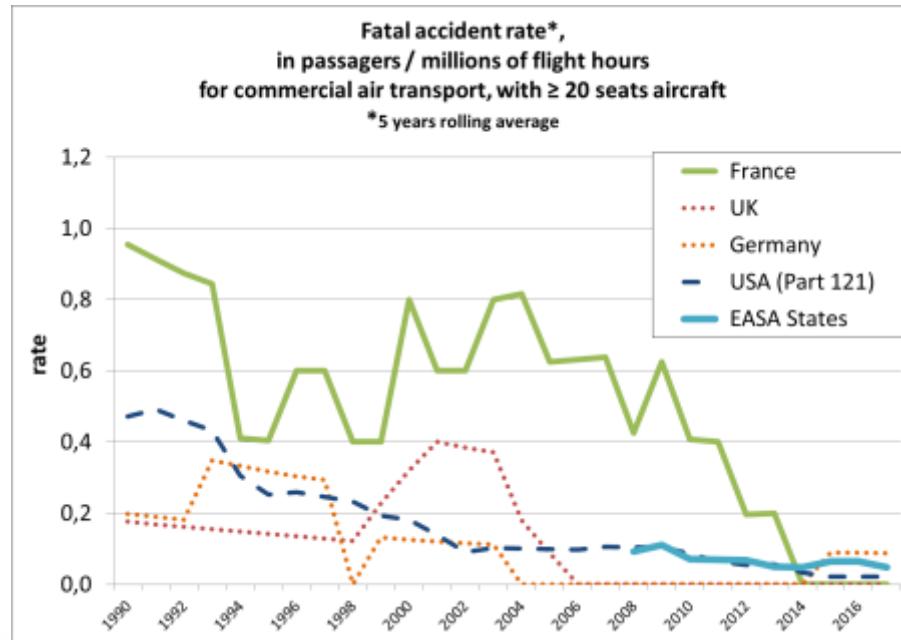
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WHAT ARE WE DOING WELL WITH THOSE DATA FOR YEARS

Production and use of 2 Acceptable Level of Safety Performance
(1 for commercial aviation, 1 for general aviation)



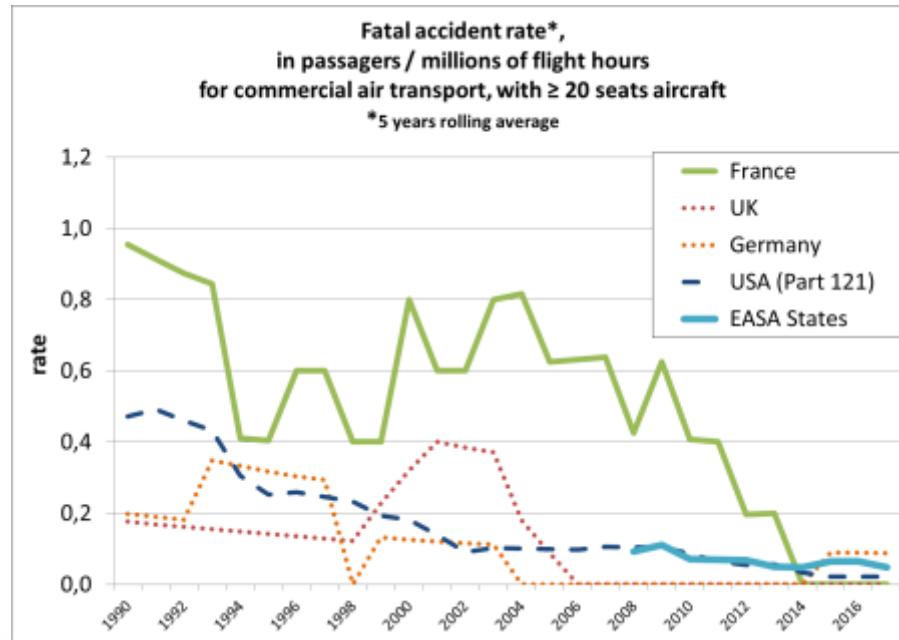
WHAT ARE WE DOING WELL WITH THOSE DATA FOR YEARS

Production and use of 2 Acceptable Level of Safety Performance

(1 for commercial aviation, 1 for general aviation)

ALoSP choosen definition : "The SSP aims to place France among the leading European countries whose operators are the safest in commercial aviation.

A comparison with the main European countries, as a five-year rolling average, serves as an indicator.»



WHAT DOES THE SSP ALLOW US TO DO

- To identify risks
- To define appropriate actions
- To elaborate tools as risk portfolios

N°	IDENTIFICATION DE L'ÉVÉNEMENT INDÉSIRABLE	CFIT	LOC-I	COLLISION EN VOL	COLLISION AU SOL	SORTIE DE PISTE	DOMMAGES / BLESSURES EN VOL	DOMMAGES / BLESSURES AU SOL
EI3.1	Approche non stabilisée ou non conforme	■	■			■		■
EI3.2	Position inusuelle (assiette, inclinaison, incidence,...)		■				■	
EI3.3	Événement lié aux conditions d'aérodrome (état de la piste et aérologie)		■			■	■	■
EI3.4	Rencontre de phénomènes météo dangereux hors proximité de l'aérodrome (orage, turbulence, givrage)		■	★			■	■
EI3.5	Mise en œuvre inadaptée des systèmes aéronef (masses et centrage, vitesses, trajectoires, configuration aéronef,...)	■	■	■	■	■	■	■
EI3.6	Événement lié à des travaux/maintenance sur ou à proximité d'une piste		★		■	■		■
EI3.7	Mauvaise coordination / exécution des opérations sol (dégivrage, chargements, arrimages, maintenance en ligne...)	■	■		■		■	■
EI3.8	Incursion sur piste		★		■	■		■
EI3.9	Perte de séparation en vol / pénétration d'espaces		★	■			■	
EI3.10	Péril animalier dont aviaire		■		■	■	■	■
EI3.11	Défaillance des interfaces sol-bord (incompréhension, inadaptation des infos transmises,...)	■	■	■	■	■	■	■
EI3.12	Événement relatif à l'entretien de l'aéronef	■	■		★	■	■	■
EI3.13	Feu/tumée en vol	★	■			■	■	■
EI3.14	Défaillance de système bord entraînant une perturbation de la gestion du vol	■	■	★	★	■	■	■
EI3.15	Dépressurisation		■	★			■	
EI3.16	Dommage aéronef suite à rencontre de FOD		■			■	■	■



MOST COMMON QUESTIONS WE ARE ASKED FOR

- « How is this portfolio produced ? »
- « What (scientific) process is it the result of ? »
- « What the hell do you do with our data ? They're falling into a black hole, we never get any feedback »

Nowadays, it is mainly a synthesis of experts, based on the previous described process
And a continuous collaborative work with professionals



N°	IDENTIFICATION DE L'ÉVÉNEMENT INDÉPARABLE	TYPE	LOCAL	COLLISION DES VTS	COLLISION AVION	RECUE DE PILOT	DOMAINE : COMMUNES / ILLUSTREES EN VOL	DOMAINE : DÉSOPPRESSEURS AUTON
E03.1	Appréhension non-décelable ou non conforme	■	■	■	■	■	■	■
E03.2	Prévision imprécise (passerelle, instabilité, incertitude...)	■	■	■	■	■	■	■
E03.3	Événement lié aux corrélations d'instabilité (hôte de la plate et aérologie)				■			
E03.4	Répercussion de l'hémisphère mérid. dangerosité hors prévisible de l'atmosphère (orage, turbulences, pluie)				■			
E03.5	Mise en évidence insuffisante des systèmes aéronaut.	■	■	■	■	■	■	■
E03.6	Mise en évidence insuffisante des systèmes aéronaut. (passerelle, sondages, aérobolles, configuration aéronef...)	■	■	■	■	■	■	■
E03.7	Événement lié à une transmission/malentendue sur ce qui provoque d'une plate	■	■	■	■	■	■	■
E03.8	Manœuvre contre-directionnelle / manœuvre d'optimisation vol (atterrisse, décollage, changements, arrêts, maintenance en ligne...)	■	■	■	■	■	■	■
E03.9	Inversion sur plan	■		■	■	■		
E03.10	Partie de séparation en vol / pénétration d'espaces	■		■		■		
E03.11	Part arriver, dont arrêts				■	■		
E03.12	Décalage des interférences sol-air (incompréhension, maladaptation des info transmises...)	■	■	■	■	■	■	■
E03.13	Événement relatif à l'emboîtement de l'aérostat	■	■		■	■	■	■
E03.14	Prévalence en vol	■	■		■	■	■	■
E03.15	Défaillance du système dont entraînent une perturbation de la gestion du vol	■	■	■	■	■	■	■
E03.16	Désynchronisation	■	■			■		
E03.17	Dérapage aérien sur la réception de l'OD	■	■			■		

No magic tool

HOW TO IMPROVE OUR SSP TO KEEP OUR ALOSP AT ITS REACHED LEVEL

- Improve the way we use the data to complete our risk assessment awareness
- Make the link between safety data and SSP outputs more visible to organisations that provide some of the most important data



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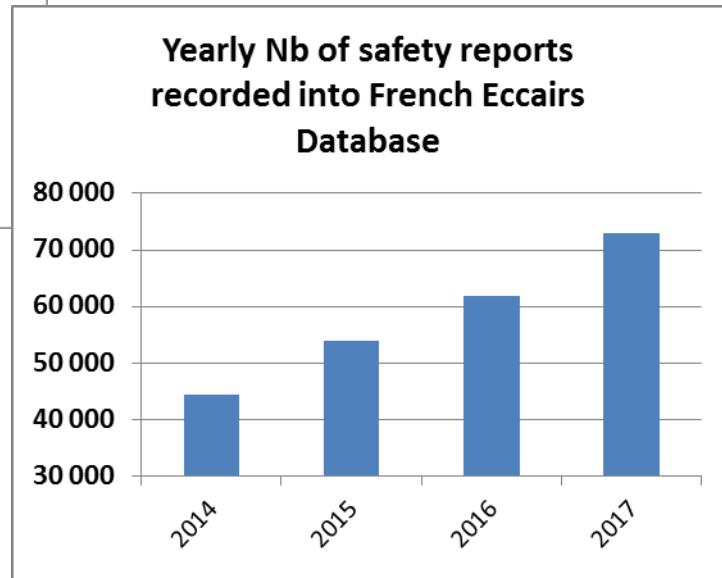
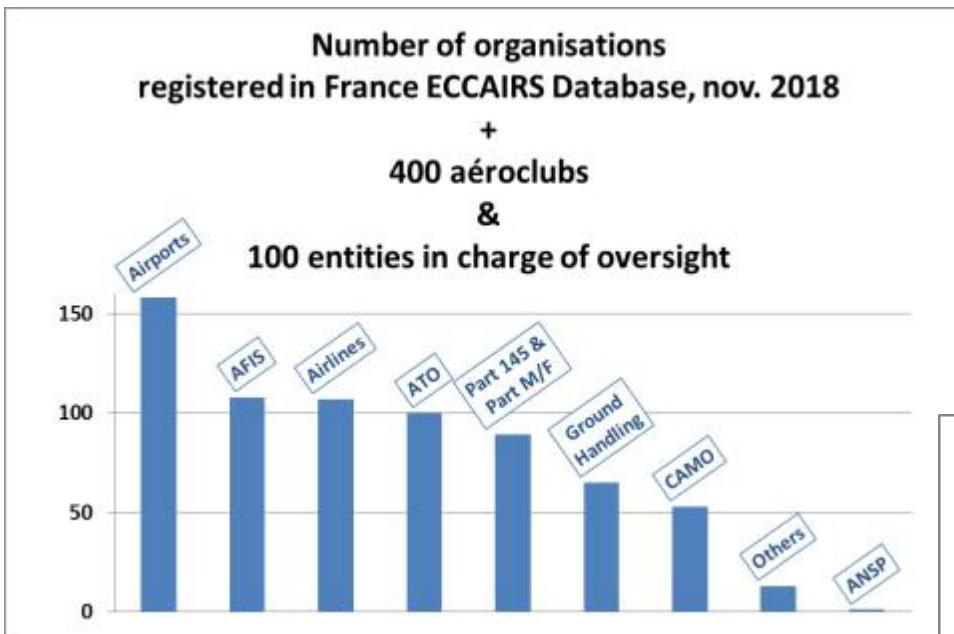


D S A C

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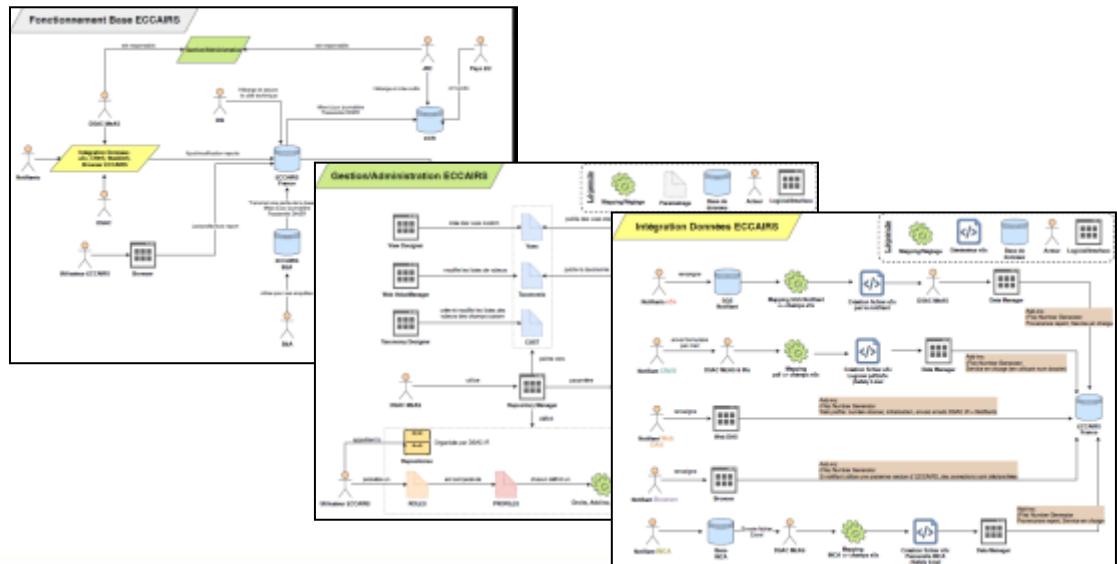
Ministère de la Transition écologique et solidaire

WHAT WE ARE BUILDING, FOCUS ON THE USE OF ECCAIRS SAFETY REPORTS DATABASE



WHAT WE ARE BUILDING, FOCUS ON THE USE OF ECCAIRS SAFETY REPORTS DATABASE

- Exploration and appropriation
- Revision of the data collection process
- and update of associated procedures
(is of no interest to everyone but is crucial)

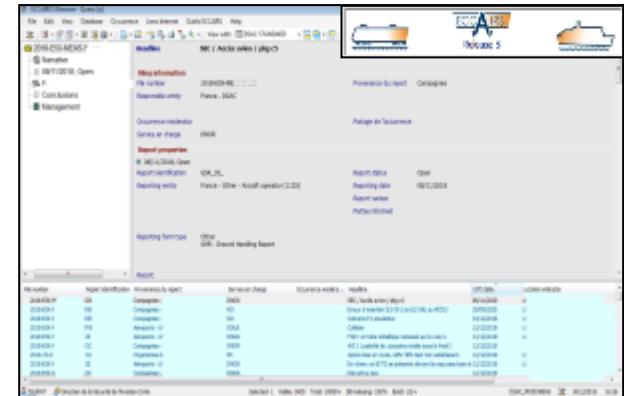


WHAT WE ARE BUILDING, FOCUS ON THE USE OF ECCAIRS SAFETY REPORTS DATABASE

Eccairs is a data collection tool,

it allows us to consult the stored data,

But it is not an analytical tool



The screenshot shows a computer screen displaying a software application titled "ECCAIRS Safety Reports Database". The interface includes a menu bar with options like File, Edit, View, Database, Document, Tools, Internet, Status (SSL/256), Help, and a toolbar with icons for New, Open, Save, Print, and Exit. The main window has several sections: "Report Information" (Report ID: 2018-0205-MC05-P, Title: France - 2018, Report date: 08/01/2018, Reporting entity: France - 2018, Reporting authority: ICAO-2018, Reporting entity: France - 2018 - Aviafrance (2.0)), "Report properties" (Report type: QM, Report identifier: ICAO-2018, Reporting entity: France - 2018 - Aviafrance (2.0)), and "Reporting template" (QMS: Ground Handling Report). Below these is a large table titled "Report" with columns: IRN number, Agent identification, Résumé du rapport, Dernière mise à jour, Etat de la mise à jour, Mots-clés, ICAO, and Version. The table lists various entries, such as "2018-0205-1" with "Aviafrance" as the agent and "ICAO - France" as the key. At the bottom of the table, there are buttons for "Ajouter", "Supprimer", "Annuler", and "Valider". The status bar at the bottom of the screen shows "Téléchargement de la base de données de l'aviation civile", "Nombre d'entrées : 1000000", "Taille : 300Mo", "Format : XML", "Mise à jour : 08/01/2018", and "Version : 2.0".

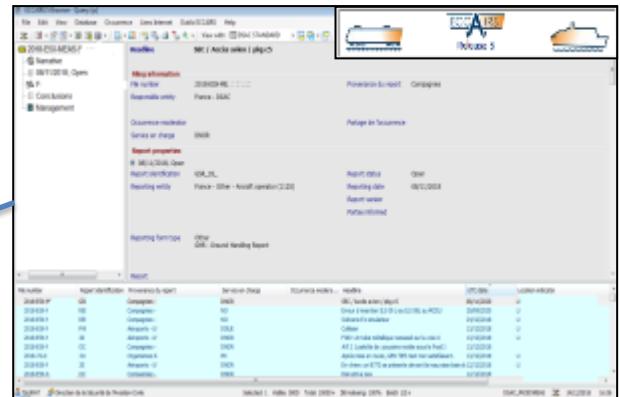
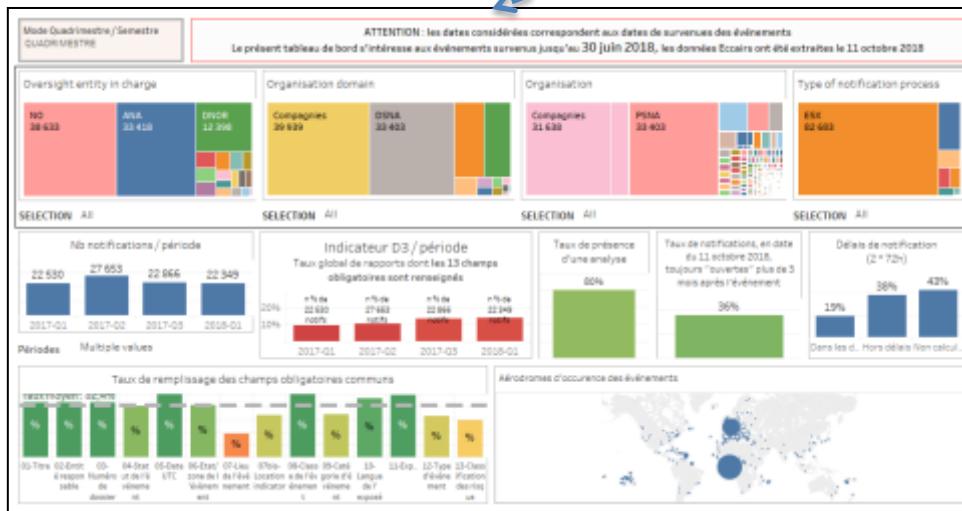
IRN number	Agent identification	Résumé du rapport	Dernière mise à jour	Etat de la mise à jour	Mots-clés	ICAO	Version
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2018-0205-3	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
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2018-0205-75	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
2018-0205-76	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
2018-0205-77	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
2018-0205-78	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
2018-0205-79	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
2018-0205-80	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
2018-0205-81	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
2018-0205-82	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
2018-0205-83	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
2018-0205-84	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
2018-0205-85	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
2018-0205-86	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
2018-0205-87	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
2018-0205-88	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
2018-0205-89	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
2018-0205-90	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
2018-0205-91	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
2018-0205-92	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
2018-0205-93	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
2018-0205-94	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
2018-0205-95	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
2018-0205-96	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
2018-0205-97	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
2018-0205-98	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
2018-0205-99	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0
2018-0205-100	Aviafrance	ICAO - France	2018-01-01	ICAO - France	ICAO - France	ICAO - France	2.0

WHAT WE ARE BUILDING, FOCUS ON THE USE OF ECCAIRS SAFETY REPORTS DATABASE

Eccairs is a data collection tool,

it allows us to consult the stored data,

But it is not an analytical tool

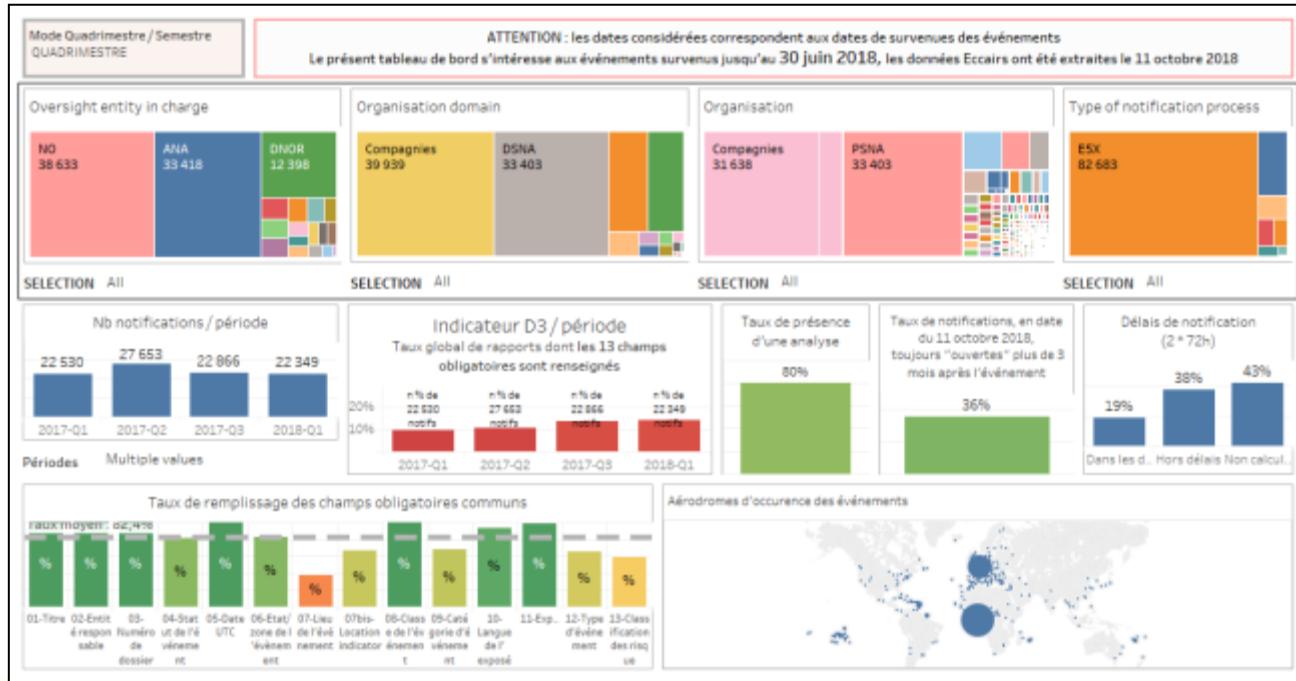


Thanks to modern data visualization tools, the database can become intelligible to non data analysis experts (interactive dashboards)

WHAT ARE WE BUILDING, FOCUS ON THE USE OF ECCAIRS DATABASE

1 / Back to basics

- Compliance of organisations regarding safety report notification process
- Data quality



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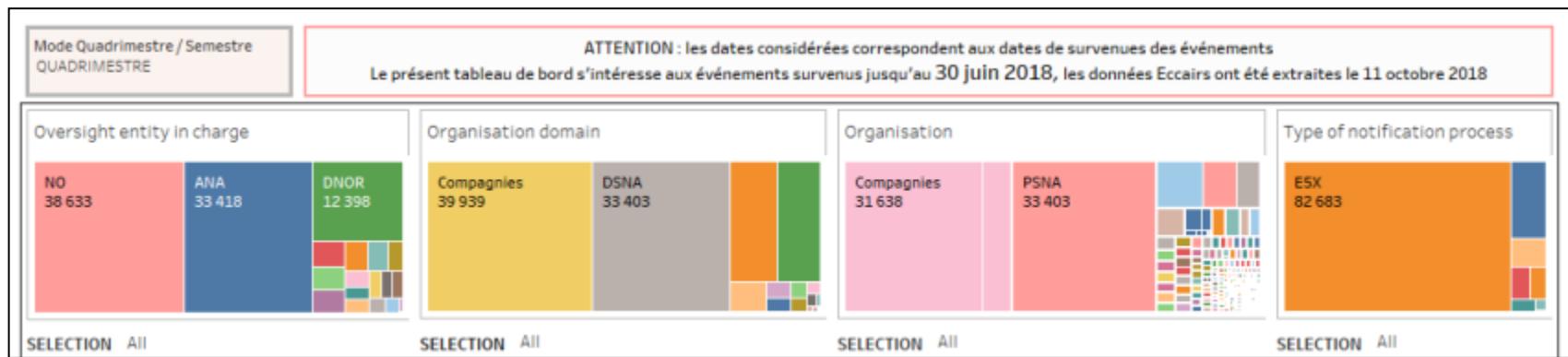
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WHAT ARE WE BUILDING, FOCUS ON THE USE OF ECCAIRS DATABASE

1 / Back to basics

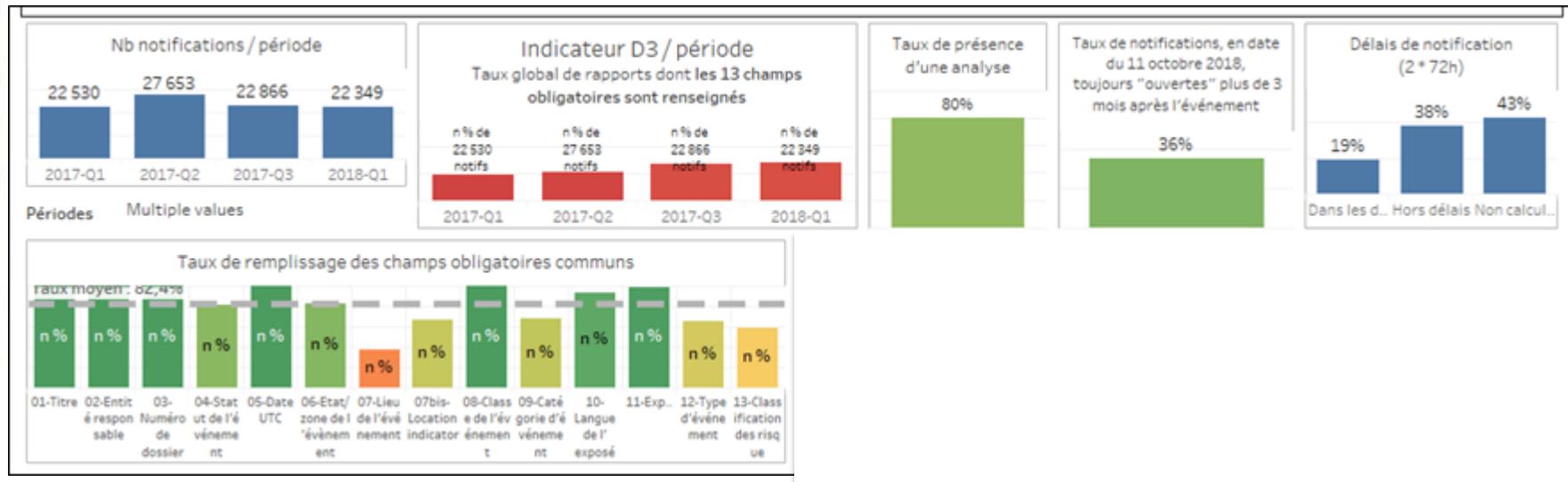
Complexity due to the variety of organisations at stake
and the corresponding oversight organisation



WHAT ARE WE BUILDING, FOCUS ON THE USE OF ECCAIRS DATABASE

1 / Back to basics

- Compliance of organisations regarding safety report notification process
- Data quality



WHAT ARE WE BUILDING, FOCUS ON THE USE OF ECCAIRS DATABASE

1 / Back to basics

Goals :

- Identify technical issues into the data collection process
- Adapt the analysis to each type of organisation
- detect gaps in the information provided
- Etc
- Useful for inspectors, safety analysts, managers, ...



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WHAT ARE WE BUILDING, FOCUS ON THE USE OF ECCAIRS DATABASE

2 / Go further : issues at stake

Choosing from which angle to look into data

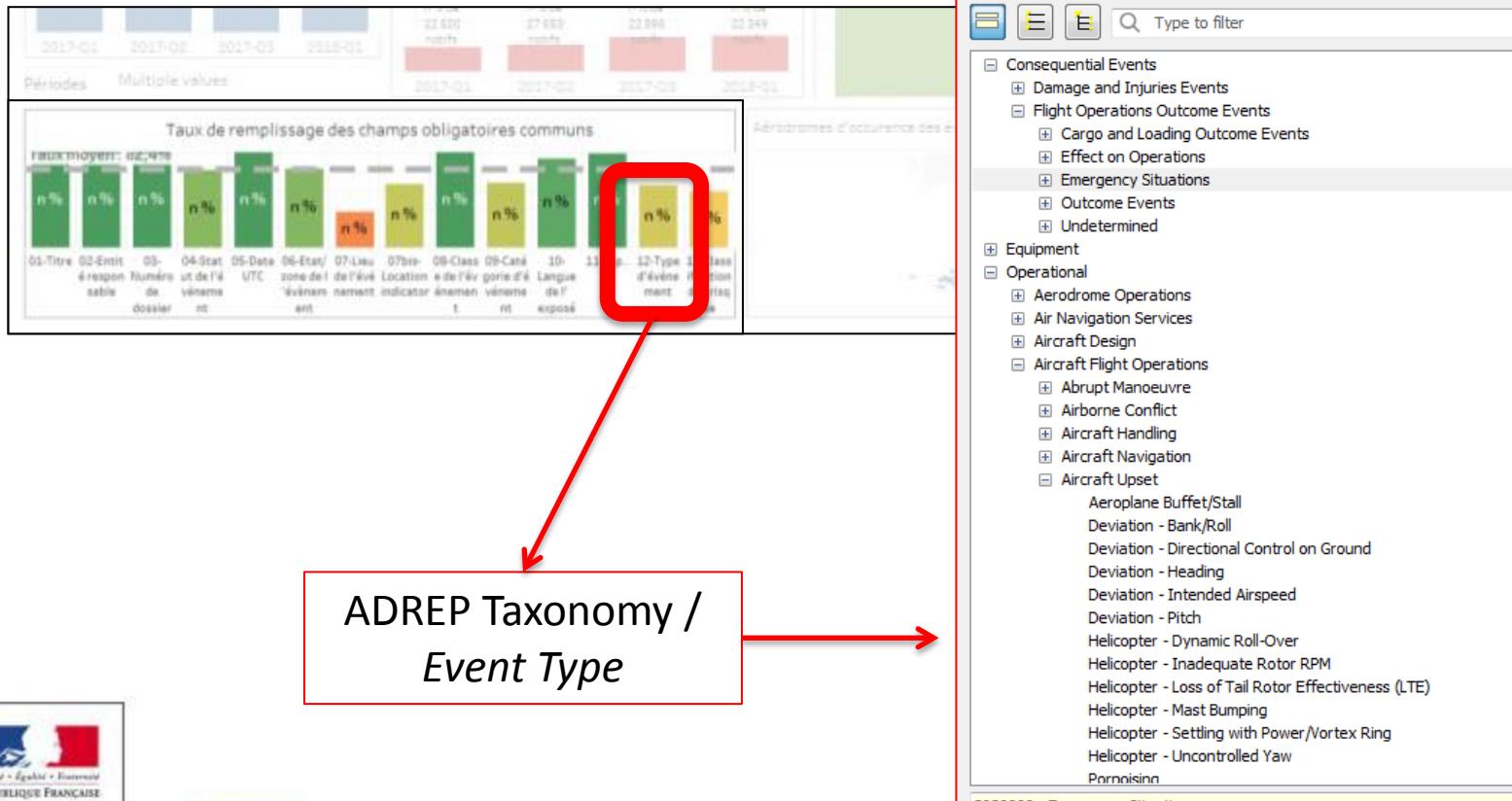


ADREP Taxonomy /
Event Type

WHAT ARE WE BUILDING, FOCUS ON THE USE OF ECCAIRS DATABASE

2 / Go further : issues at stake

Choosing from which angle to look into data



WHAT ARE WE BUILDING, FOCUS ON THE USE OF ECCAIRS DATABASE

2 / Go further : issues at stake

Choosing from which angle to look into data



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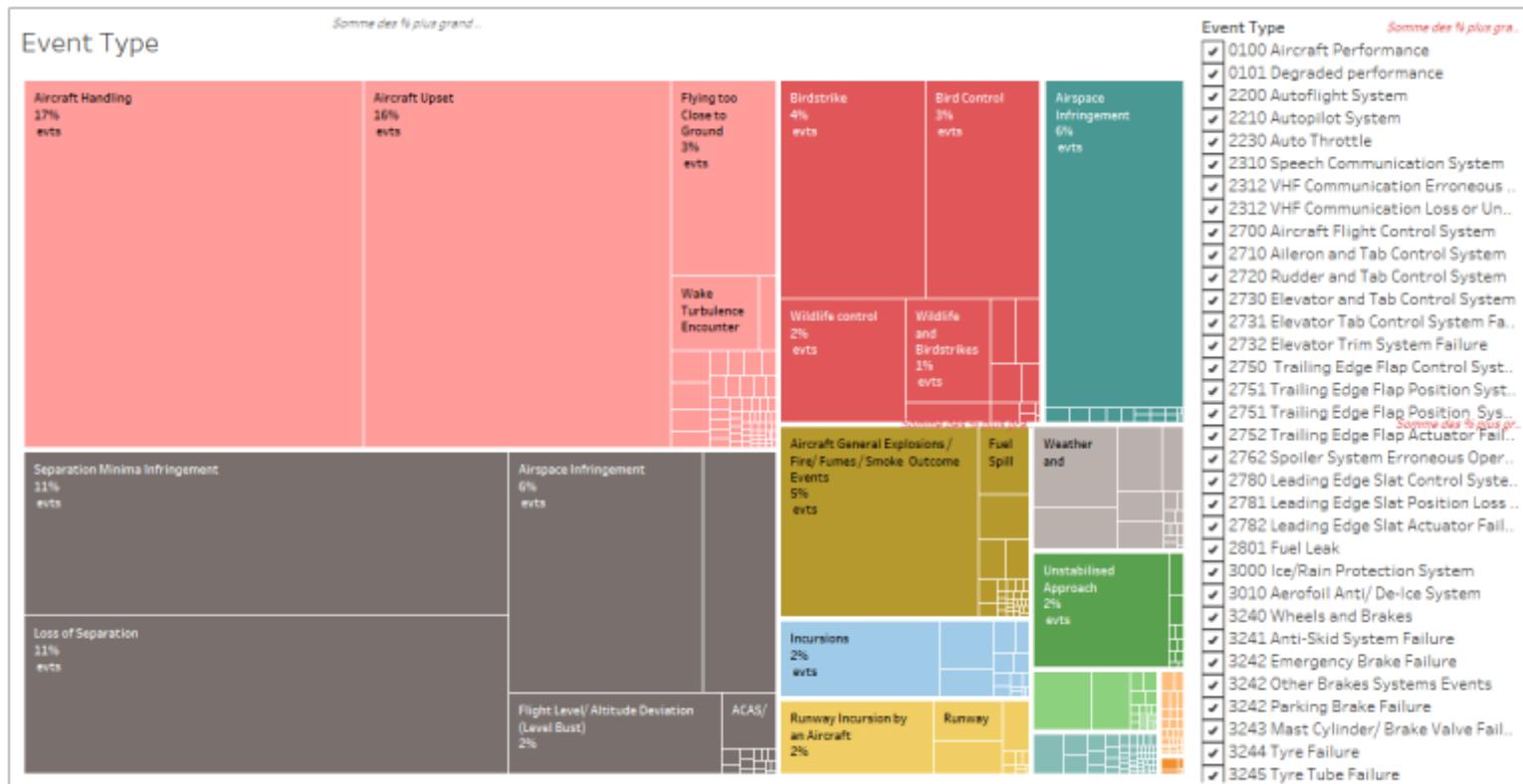
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WHAT ARE WE BUILDING, FOCUS ON THE USE OF ECCAIRS DATABASE

2 / Go further : issues at stake

Decide and build what to focus on : groups of interest -> same issue related reports



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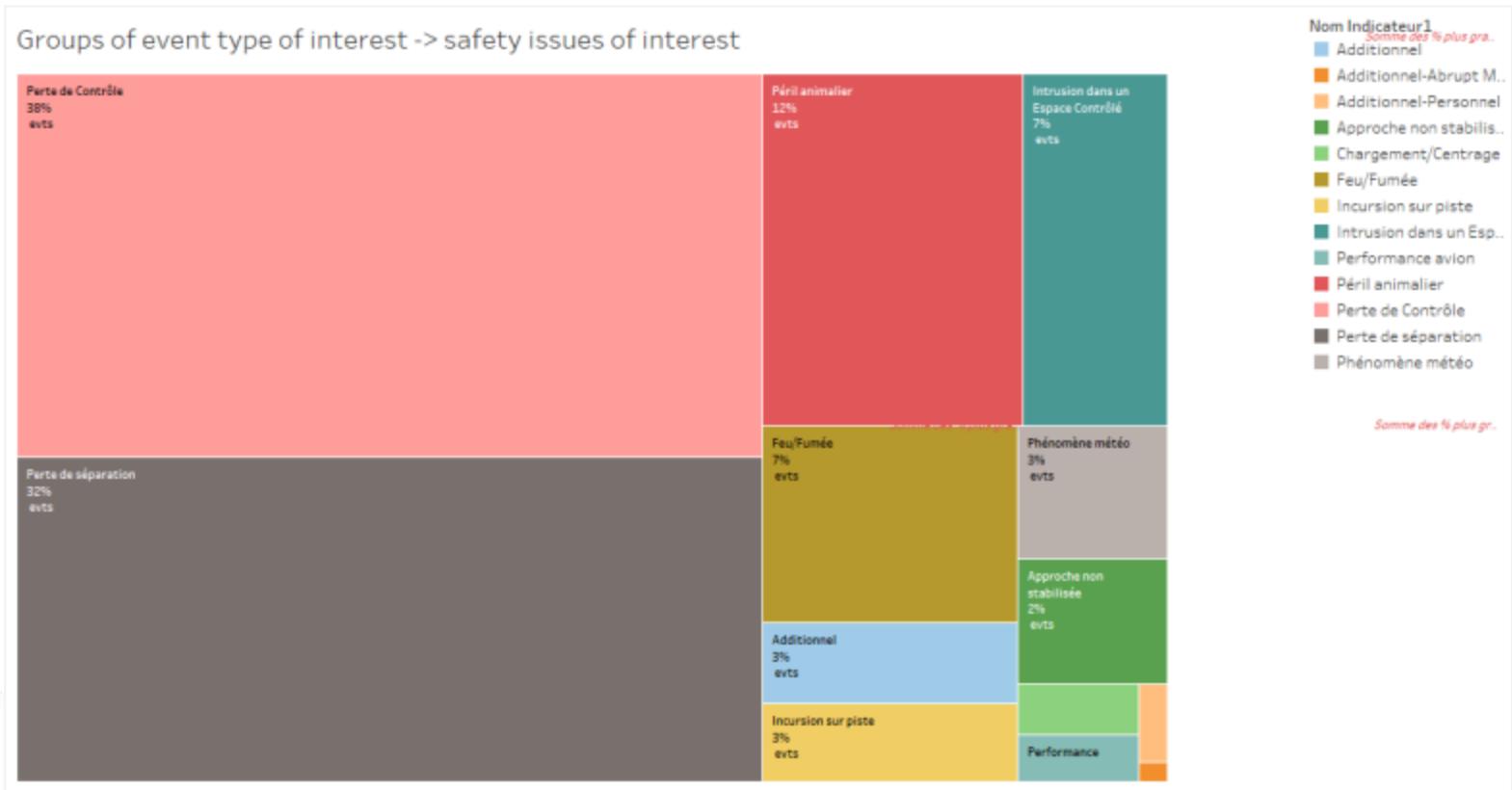
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2 / Go further : issues at stake

Decide and build what to focus on

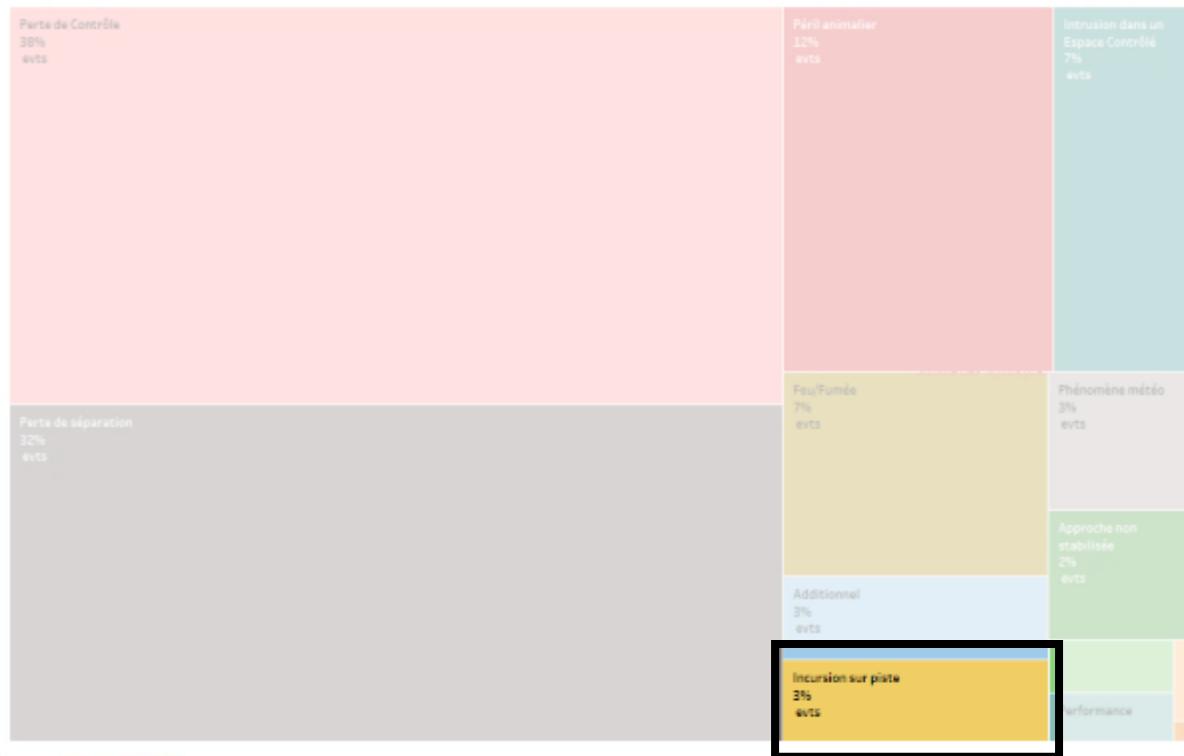


WHAT ARE WE BUILDING, FOCUS ON THE USE OF ECCAIRS DATABASE

3/ Deep further

Focus on one and investigate on what it means (or does not) ?

Groups of event type of interest -> safety issues of interest



Nom Indicateur	Somme des % plus gr...
Additionnel	
Additional-Abrupt M...	
Additional-Personnel	
Approche non stabilis...	
Chargement/Centrage	
Feu/Fumée	
Incursion sur piste	
Intrusion dans un Esp...	
Performance avion	
Péris animalier	
Perte de Contrôle	
Perde de séparation	
Phénomène météo	

Somme des % plus gr...

WHAT ARE WE BUILDING, FOCUS ON THE USE OF ECCAIRS DATABASE

3/ Deep further

Focus on one and investigate on what it means (or does not) ?



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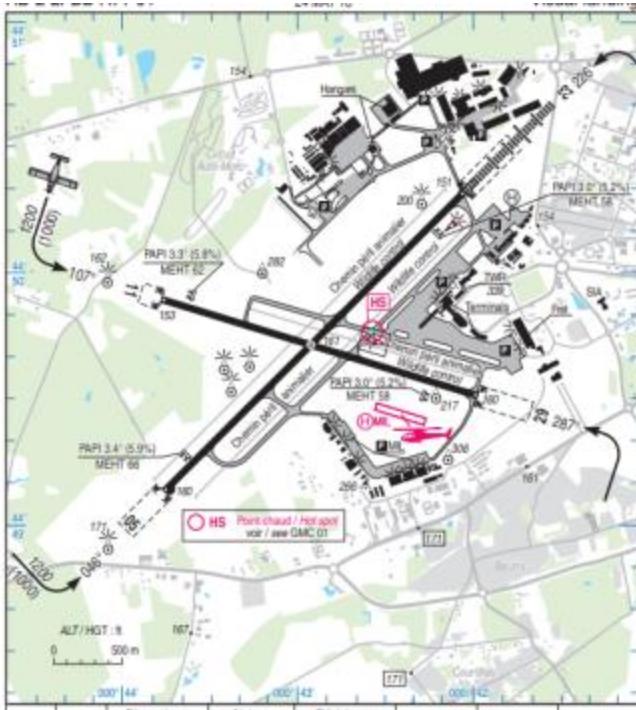
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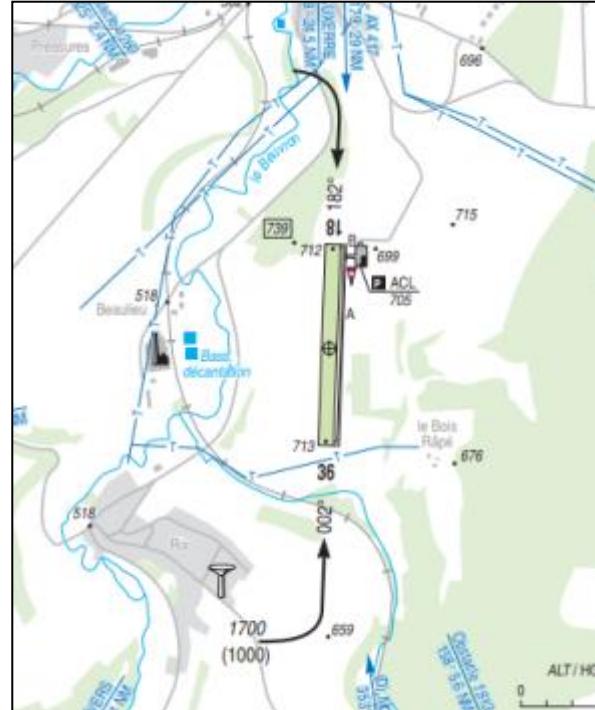
WHAT ARE WE BUILDING, FOCUS ON THE USE OF ECCAIRS DATABASE

3/ Deep further

Is it really relevant to count an overall national number of
« runway incursion related » events



=



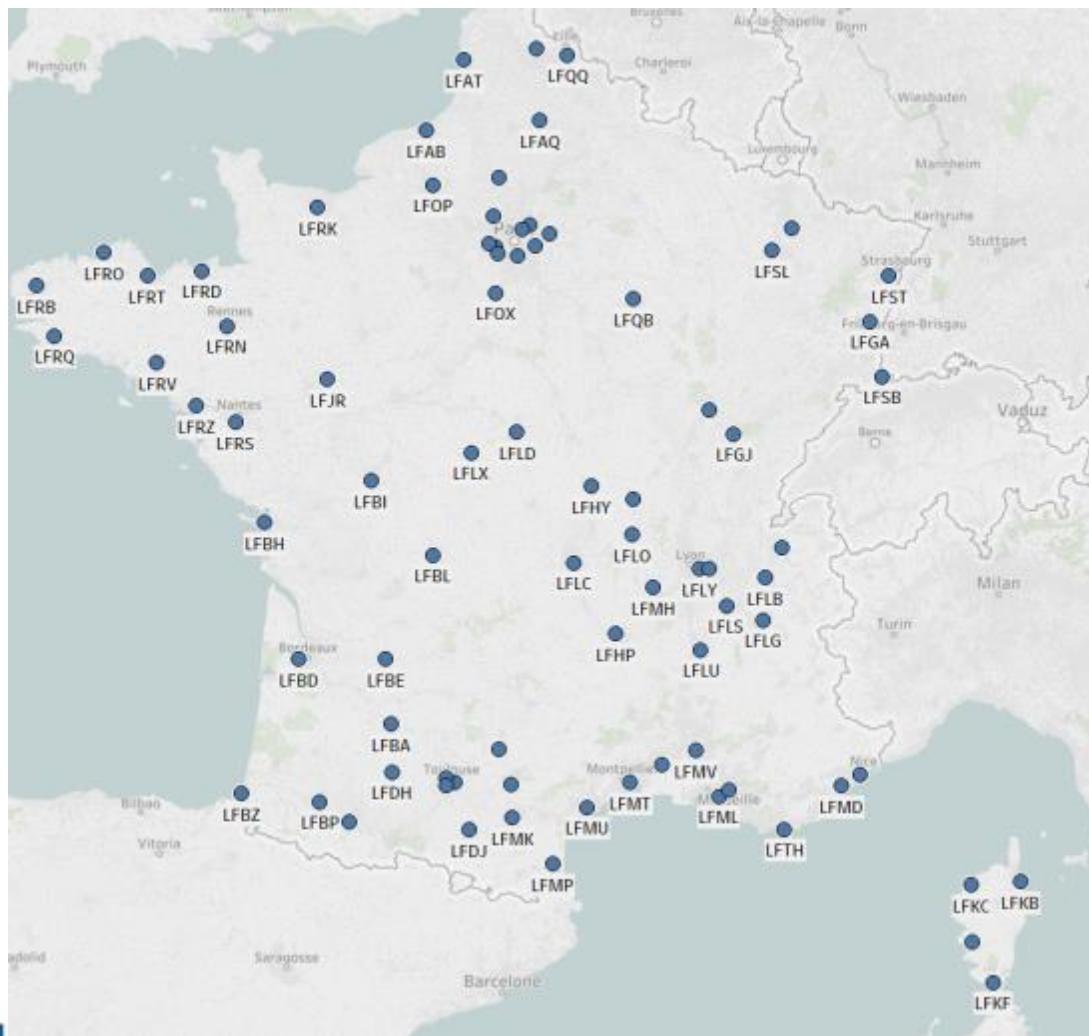
WHAT ARE WE BUILDING, FOCUS ON THE USE OF ECCAIRS DATABASE

3/ Deep further

airports of corresponding
« runway incursion related »
safety reports



WHAT ARE WE BUILDING, FOCUS ON THE USE OF ECCAIRS DATABASE



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WHAT ARE WE BUILDING, FOCUS ON THE USE OF ECCAIRS DATABASE

3/ Deep further

Caution : for this presentation, need for de-identification of the airports

But, for the the CAA internal process,

of course we must work on non de-identified data



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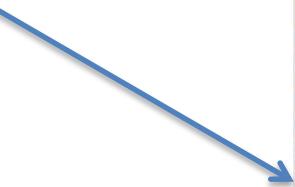
WHAT ARE WE BUILDING, FOCUS ON THE USE OF ECCAIRS DATABASE

3/ Deep further

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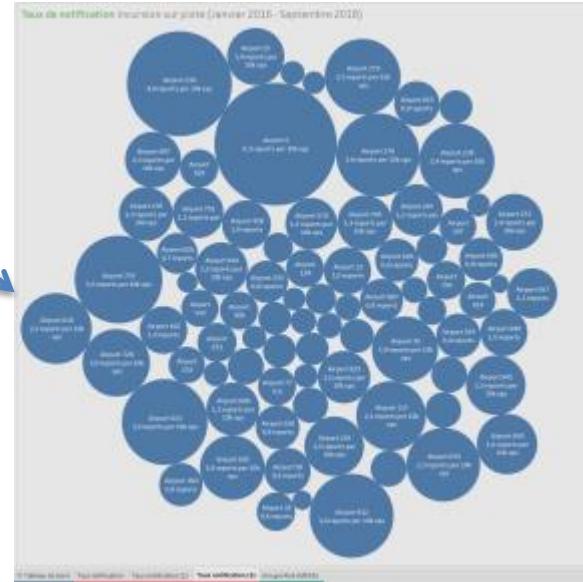
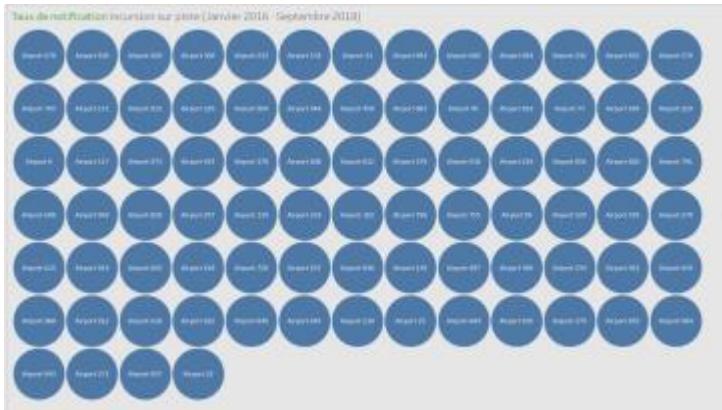
of course we must work on non de-identified data



WHAT ARE WE BUILDING, FOCUS ON THE USE OF ECCAIRS DATABASE

3/ Deep further

Computation of « nb of runway incursion related report per 10k ops »



WHAT

Taux de notification incursion sur piste (Janvier 2016 - Septembre 2018)



Tableau de bord - Taux notification - Taux notification (2) - **Taux notification (3)** - Groupe Risk (MEAS)



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WHAT ARE WE BUILDING, FOCUS ON THE USE OF ECCAIRS DATABASE

3/ Deep further

Link with each corresponding safety report



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WHAT

Taux de notification incursion sur piste (Janvier 2016 - Septembre 2018)



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WHAT ARE WE BUILDING,

SE

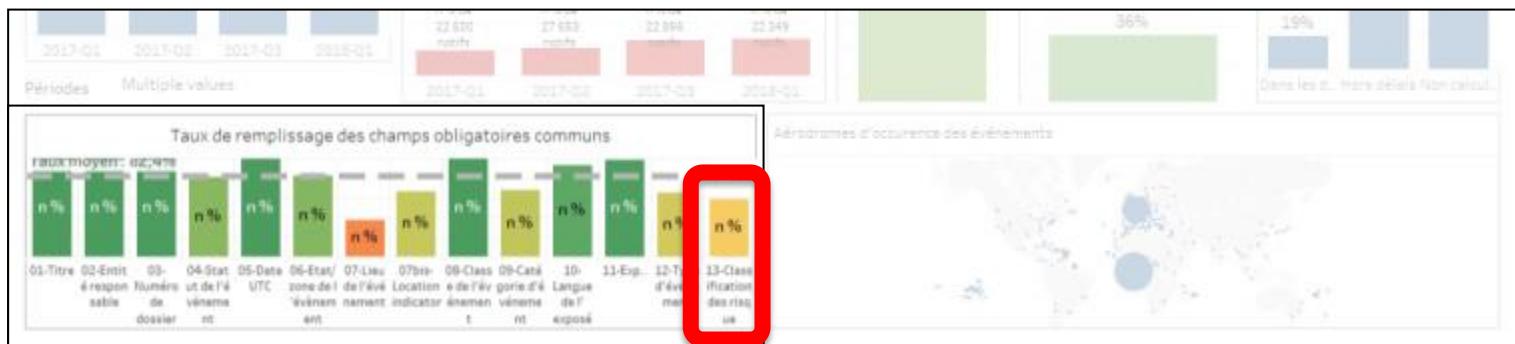


WHAT ARE WE BUILDING, FOCUS ON THE USE OF ECCAIRS DATABASE

3/ Deep further

And of course we would like to make the link with most significant of those events

(depending on the quality of the corresponding information measured previously)



WHAT ARE WE BUILDING,

SE



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WHAT ARE WE BUILDING, FOCUS ON THE USE OF ECCAIRS DATABASE



Airport: Airport 973

Runway Incursion notification rate : 0,7 notifications per 10,000 operations

UTC Local C...	Provenanc...	Headline
20/04/2016		Evénement TC : Disque Dur HS SESAMME AR
28/07/2016		REMISE DE GAZ
01/02/2018		Erreur de cheminement - Roulage sur un TWY non homologué pour le type avion
29/03/2018		Quasi-incursion sur piste - clairance conflictuelle
06/04/2018		Erreur de cheminement - Dégagement de piste
13/04/2018		Erreur de cheminement - Dégagement de piste

Risk classifica
[2:e+][3:5]
10
Absence de cl
[1:C][2:c][3:4]
Absence de cl
Absence de cl



WHAT ARE WE BUILDING, FOCUS ON THE USE OF ECCAIRS DATABASE

4/ and back to the usual business

we have to go back to experts (people in charge of oversight) to understand how organisations use risk classification and what it means,

To decide how to interpret it ...

Airport: Airport 973	Runway Incursion notification rate: 0,7 notifications per 10,000 operations	Risk classification	Groupe Risque (MEAS)
20/04/2016	Evénement TC : Disque Dur HS SESAMME AR	[2.e+][3-5]	Non Significatif
28/07/2016	REMISE DE GAZ	10	Non Significatif
01/02/2018	Erreur de cheminement - Roulage sur un TWY non homologué pour le type avion	Absence de classific.	Absence de classificatio..
29/03/2018	Quasi-incursion sur piste - clairance conflictuelle	[1-C][2-c][3-4]	Significatif
06/04/2018	Erreur de cheminement - Dégagement de piste	Absence de classific.	Absence de classificatio..
13/04/2018	Erreur de cheminement - Dégagement de piste	Absence de classific.	Absence de classificatio..



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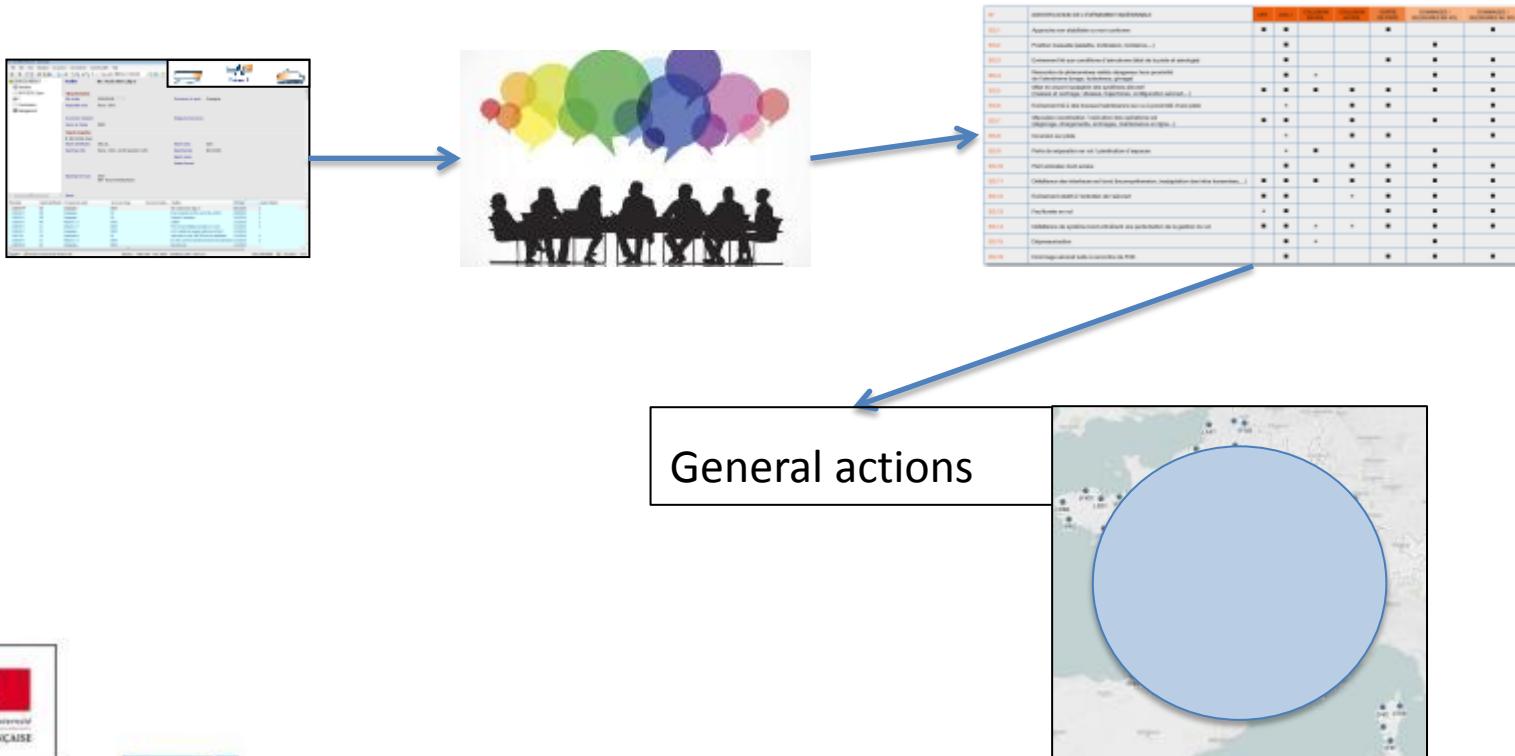
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WHAT ARE WE BUILDING, FOCUS ON THE USE OF ECCAIRS DATABASE

5/ in order to conclude on the most relevant actions that must be taken



WHAT ARE WE BUILDING, FOCUS ON THE USE OF ECCAIRS DATABASE

5/ in order to conclude on the most relevant actions that must be taken



	ATTEINDEMENT DES INDICATEURS	INDICATEURS	ÉVALUATION	PROGRESSION	DISCIPLINE	ÉVALUATION DU PROGRÈS	DISCIPLINE DU PROGRÈS
001	Communication de l'information - fonctionnelle						
002	Agences non établies non fonctionnelles						
003	Pratique insuffisante (partiellement fonctionnelle)						
004	Connaissance des conditions d'atteinte du résultat et sensibilisé						
005	Dimensionne les préoccupations relatives aux risques et opportunités						
006	Offre de formation adaptée aux besoins identifiés						
007	Pratique et partage l'enseignement, accueille et oriente les apprenants						
008	Assure la transmission et la mise à disposition d'informations et d'outils						
009	Pratique et encourage l'innovation et l'expérimentation						
010	Pratique et favorise l'égalité entre hommes et femmes						
011	Offre de formation adaptée aux besoins identifiés						
012	Connaissance des conditions d'atteinte du résultat et sensibilisé						
013	Dimensionne les préoccupations relatives aux risques et opportunités						
014	Offre de formation adaptée aux besoins identifiés						
015	Pratique et partage l'enseignement, accueille et oriente les apprenants						
016	Assure la transmission et la mise à disposition d'informations et d'outils						
017	Pratique et encourage l'innovation et l'expérimentation						
018	Pratique et favorise l'égalité entre hommes et femmes						

More targeted and relevant actions



INTEGRATED AND COOPERATIVE USE OF THE DATA

This exemple highlights the key aspects of the more « modern » use of data from our french CAA perspective :

- Work with what you have in hands,
- And know what you have in hands,
- Involve all stakeholders, from oversight inspectors to top management
- Move step by step



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PERSPECTIVES

The above process focused on safety reports applies whatever the output we are interested in :

- Risk portfolio updates
- Audit preparation
- Topic of interest
- Case studies



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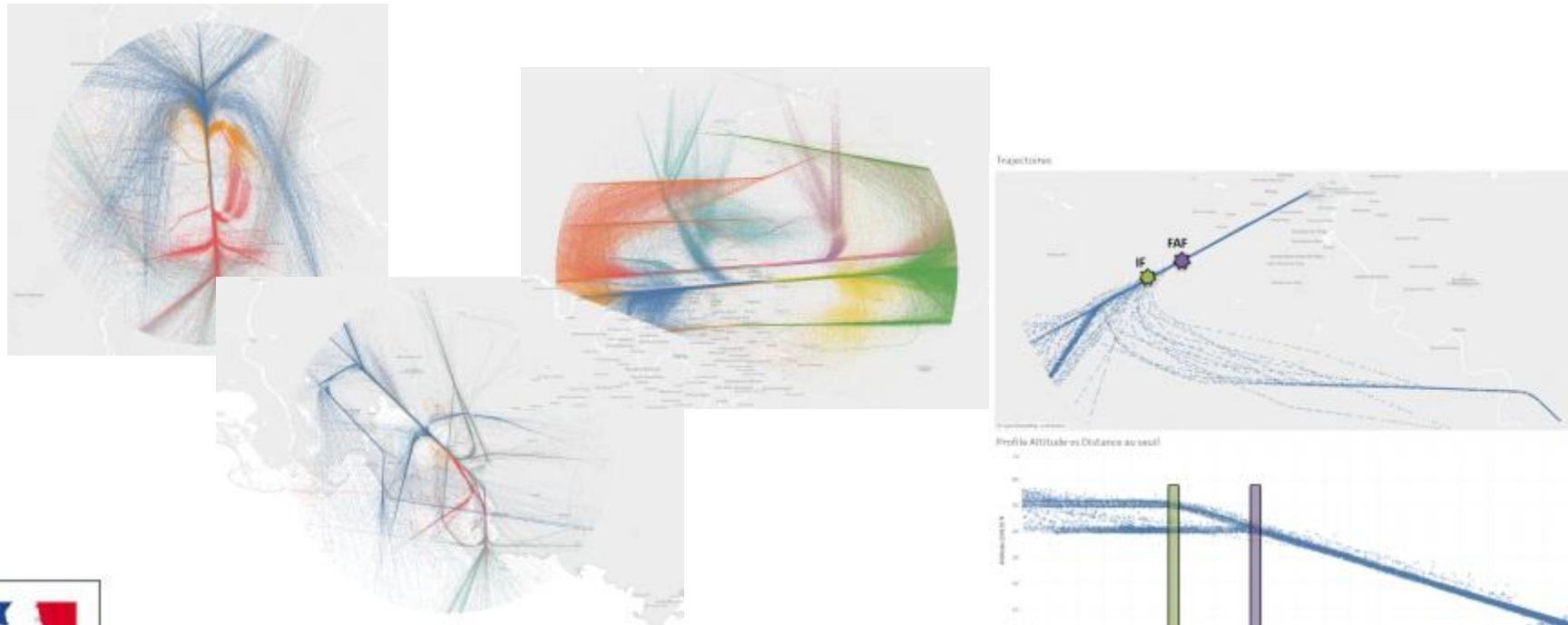
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PERSPECTIVES

And whatever the type of data we are using,

as for instance ADS-B data

Experiment conducted in 2018, based on a one month of 3 ADS-B data samples



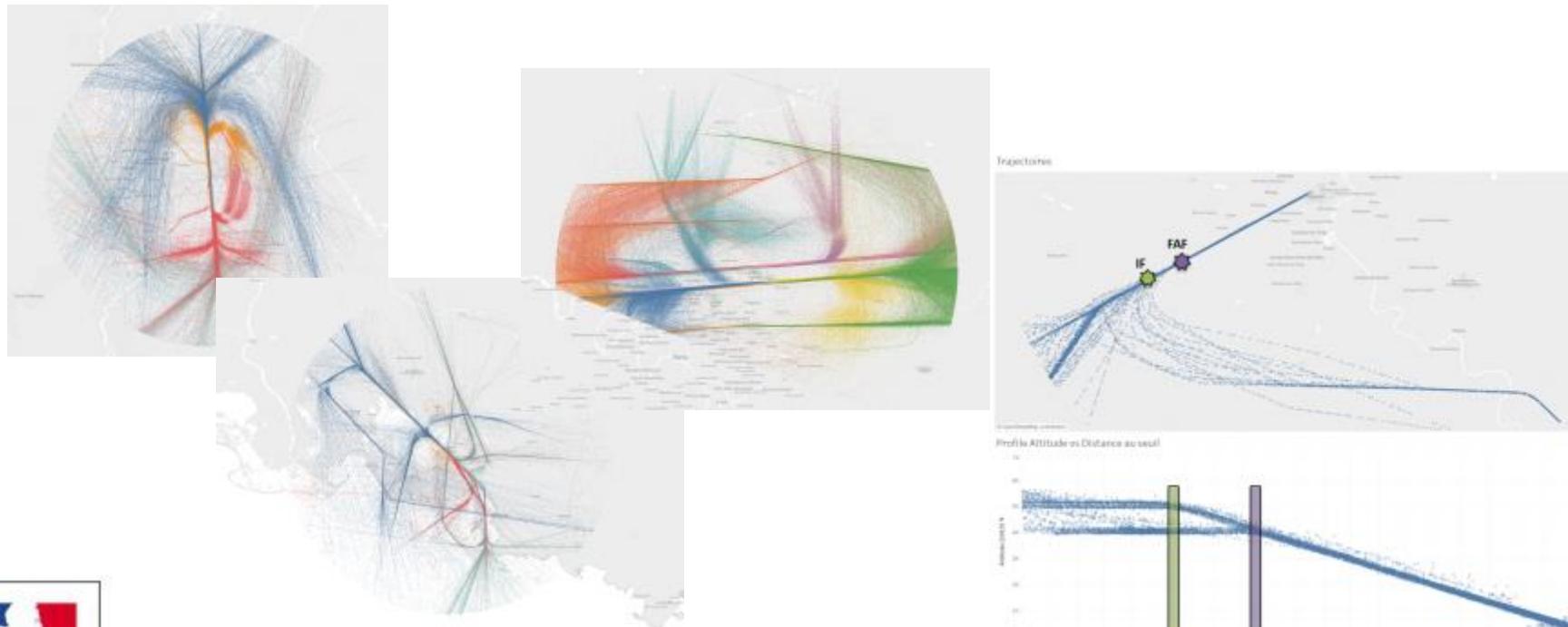
PERSPECTIVES

Caution : the one event investigation temptation as a first step

Main goal : analyse trends (use of QFU, ratio of non compliant approaches, ...)

Key advantages : no reporting culture bias & general overview (even if gaps still exist)

But important technical barrier to handle the data



PERSPECTIVES



The holy grail of data sources does not exist

Need to figure out how to correlate many data sources.

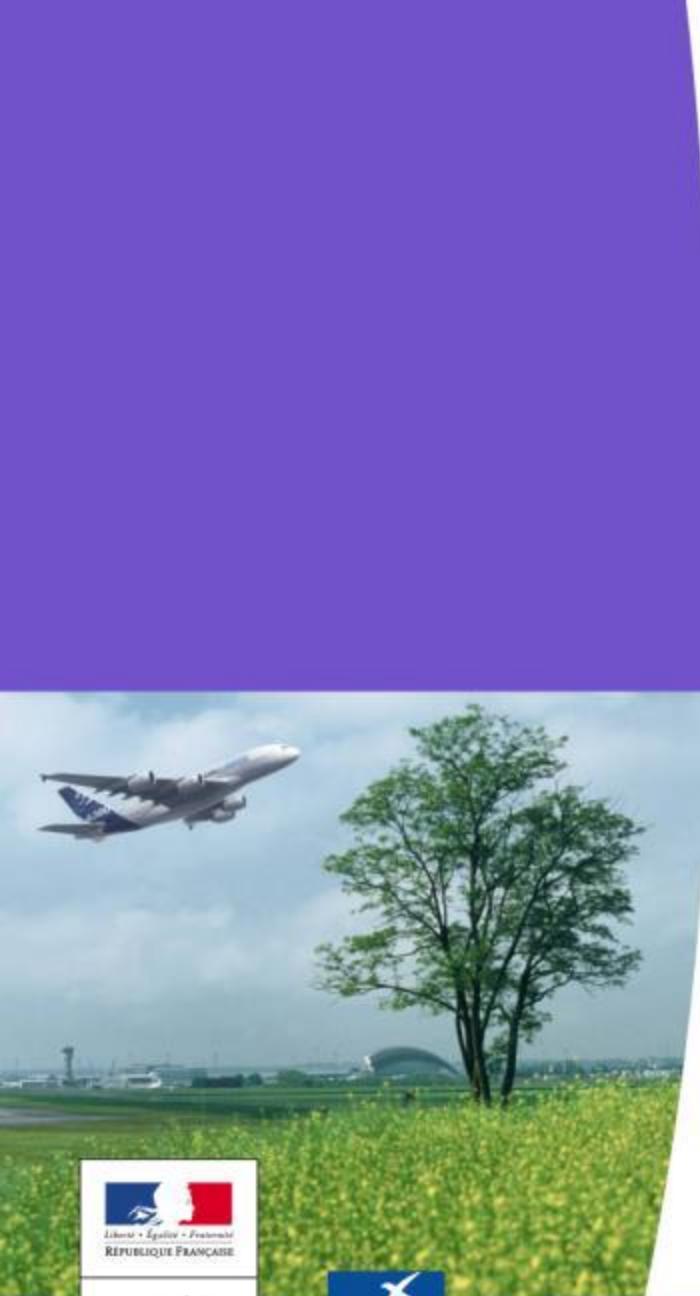
Moving from individual safety report analysis toward comprehensive risk evaluation.



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iStars UserGroup

Meeting 1

dec. 2018

Towards a more data guided
risk evaluation process

Paul-Emmanuel Thurat

French safety management coordination office
Head of commercial air transport division

paul-emmanuel.thurat@aviation-civile.gouv.fr



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