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# ECCAIRS WORKSHOP

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Port Moresby, Papua New Guinea

29 June 2020 – 3 July 2020

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## Goal

To provide an understanding about the relationship between the investigation of occurrences and the safety information management, as part of the SMS and SSP.



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# Guidelines

- ADREP – ICAO Annex 13
- Safety Data Management – ICAO Annex 19
- Safety Performance Indicators (SPIs)
- ECCAIRS in practice
- Safety Studies/Reports –What to consider?



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## ICAO – ADREP

- ADREP – Accident Incident Data Reporting System
- A database of accidents and serious incidents reported to ICAO by States
- Maintained in the Air Navigation Bureau
- Contains 43 000 plus occurrences from 1970 to present



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## ICAO – ADREP

- 1974 – AIG Divisional Meeting defining the need for data on accident and incident.
- 1976 – ADREP implementation, adapting the NTSB structure.
- 1976 – ADREP requirements included in Annex 13 fourth edition.
- 1987 – New parameters (up to 5 events and ATA 100)
- 2000 – ADREP 2000 taxonomy development (SHEL)



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## ICAO – Annex 13 and ADREP

- The Annex 13 “Standards and Recommended Practices on Aircraft Accident and Incident Investigation” defines responsibilities for contracting States with regard to the notification during the course of an investigation.



# ICAO – Annex 13 and ADREP

TO	Notification	ADREP		Final Report
		Preliminary Report	Data Report	
State of Registry	Accidents and serious incidents – All aircraft types	Aircraft accidents Above 2.250 kg		Accidents and incidents of all aircraft types
State of Operator				
State of Design				
State of Manufacturer				
Other States (Information, fatalities, interest)		Airworthiness or issues of interest, below or equal to 2,250 kg		
ICAO	Accidents and serious incidents Above 2,250 kg or turbojet	Accidents above 2,250 kg	Accidents >2,250 kg Incidents >5,700 kg	Accidents and incidents above 5,700 kg



## ICAO – Annex 13 and ADREP

- Channels for reporting
  - List of Accident Investigation Authorities.
    - <http://www.icao.int/safety/AIA/Pages/default.aspx>
  - ICAO – AIG Section
    - <http://www.icao.int/safety/AirNavigation/AIG/Pages/default.aspx>
    - [AIginbox@icao.int](mailto:AIginbox@icao.int)



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## ICAO – Annex 19

- Safety
- Safety performance
- Safety performance indicator





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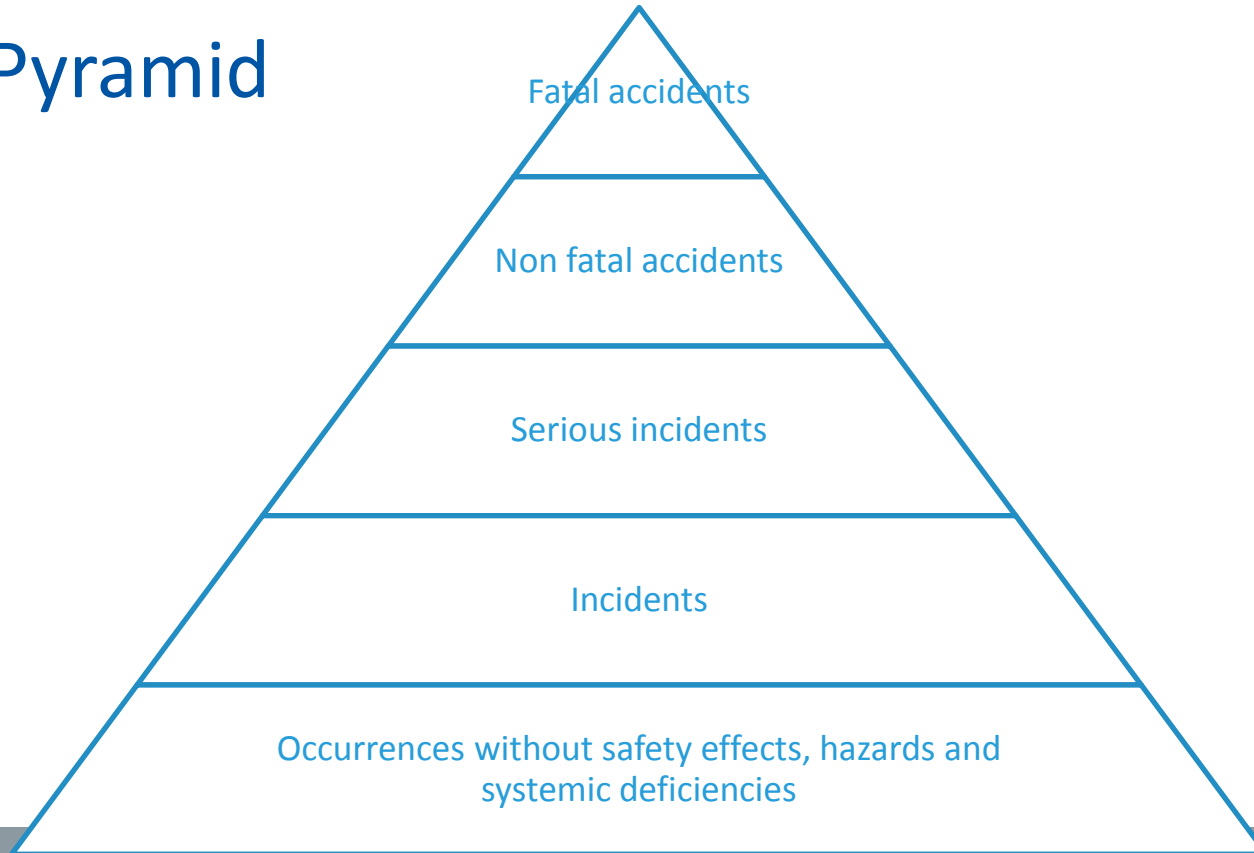
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## ICAO – Annex 19

- Each State shall establish an SSP, to reach an acceptable level of civil aviation safety performance
- As part of its SSP, each State shall require service providers under its authority to implement an SMS

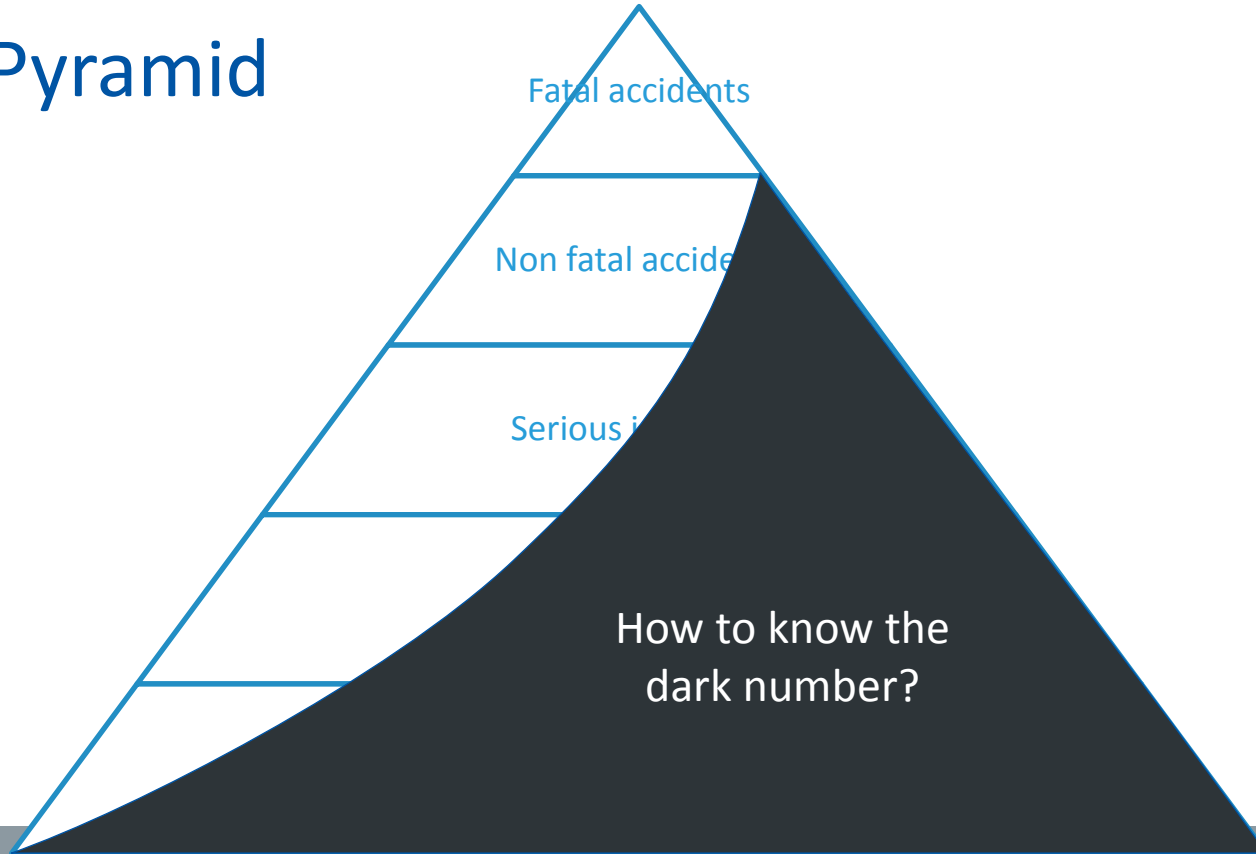


# Safety Pyramid

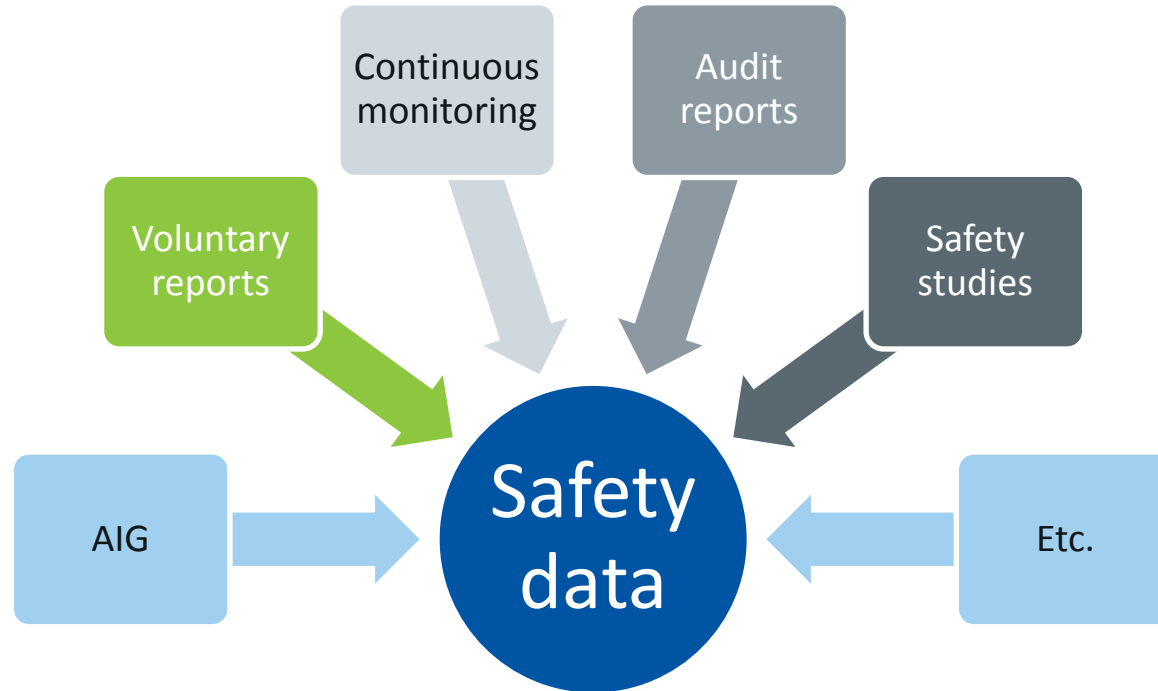




# Safety Pyramid

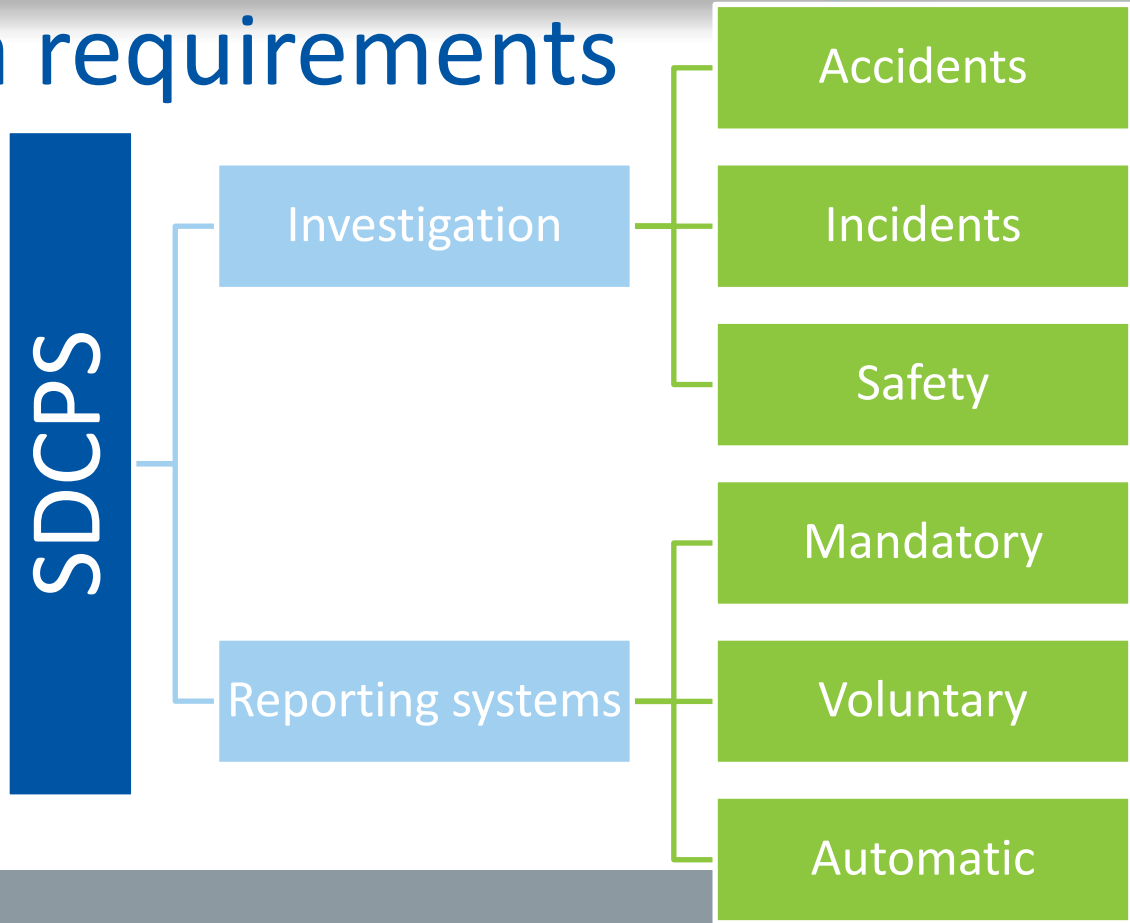


## Different sources of information





# Annex 19 – Data requirements





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## Example

- During cruise flight, there was an engine shutdown (single engine airplane). Consequentially, the pilot made a forced landing on unprepared ground, resulting in the aircraft being destroyed. There were no injuries.
- The investigation revealed that the pilot had not carried out a complete preflight check, without noticing that he did not have enough fuel for the flight. In addition, the mechanisms of the fuel gauges were broken on the inside and did not show the amount of fuel on board.
- The pilot stated that, on his way to the airfield, previous to the flight, he get stuck on traffic, but he could not continue delaying his boss, so he asked to prepare the plane by telephone and had to perform the pre-flight quickly.

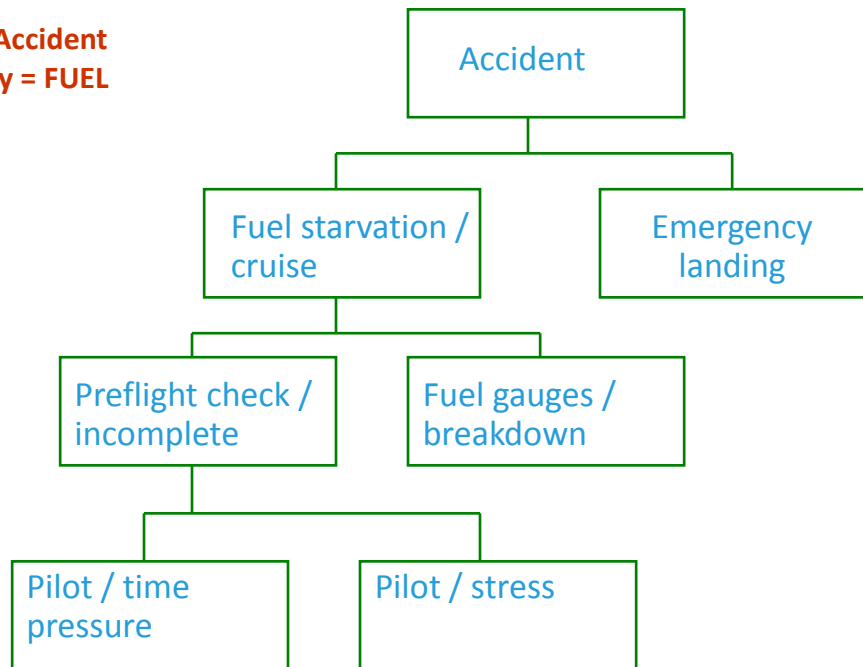
# Example

Occurrence class = Accident  
Occurrence category = FUEL

Events

Descriptive factors

Explanatory factors



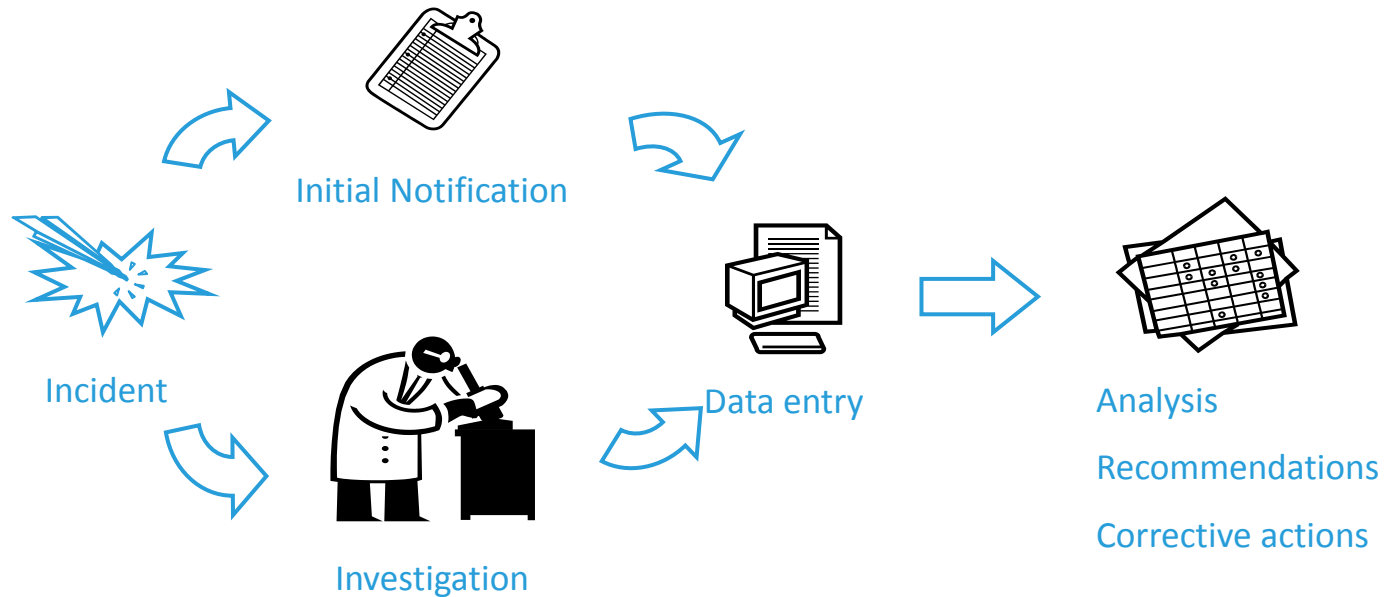


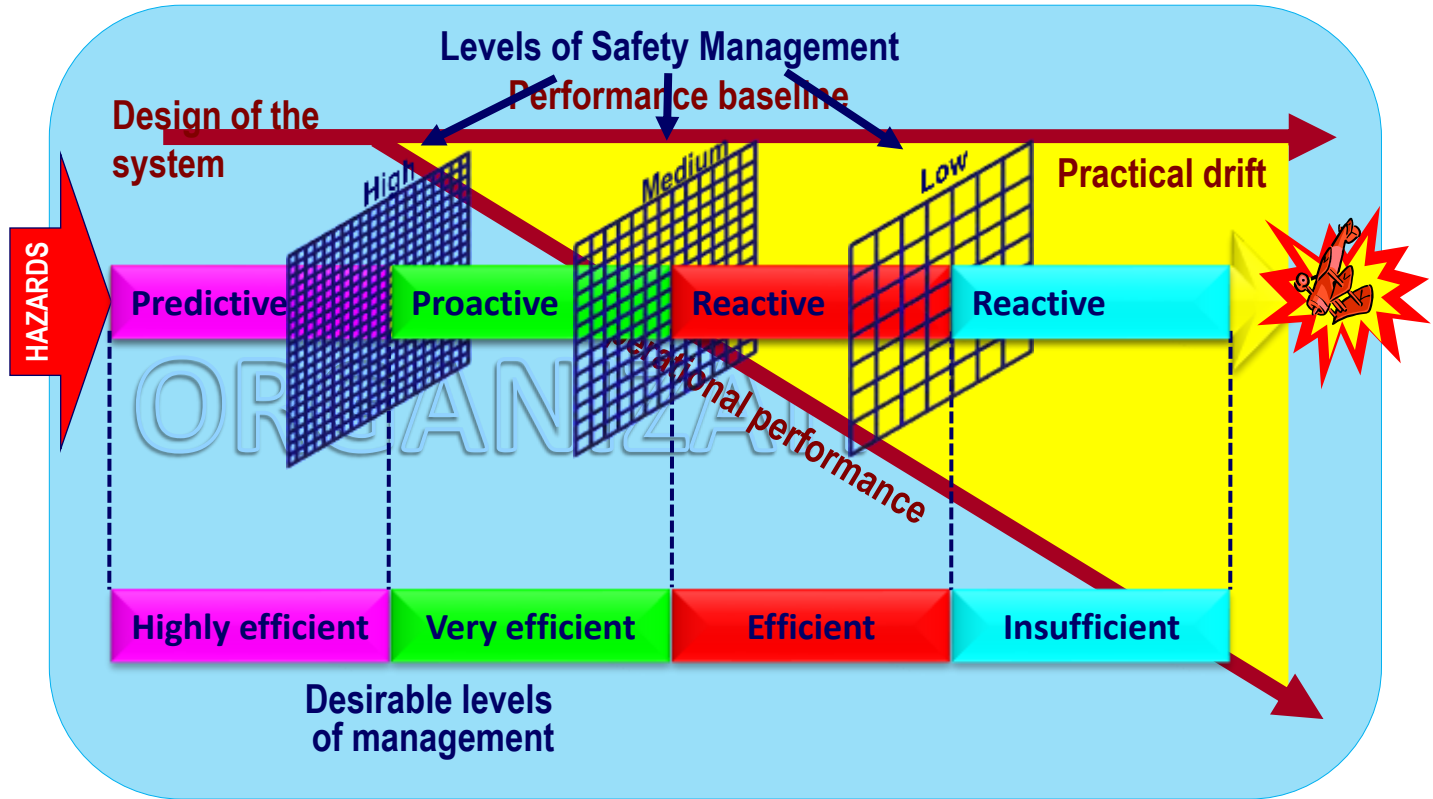
# Example

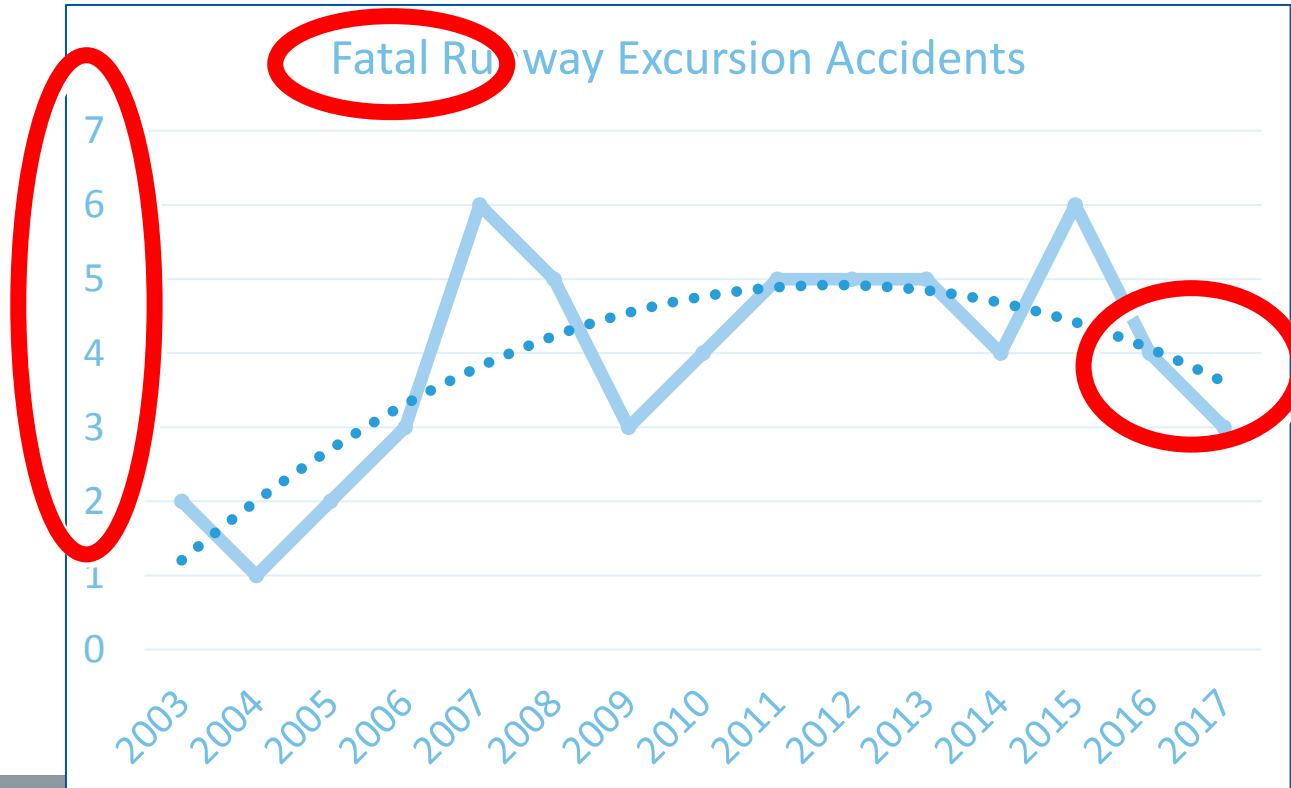
## Events

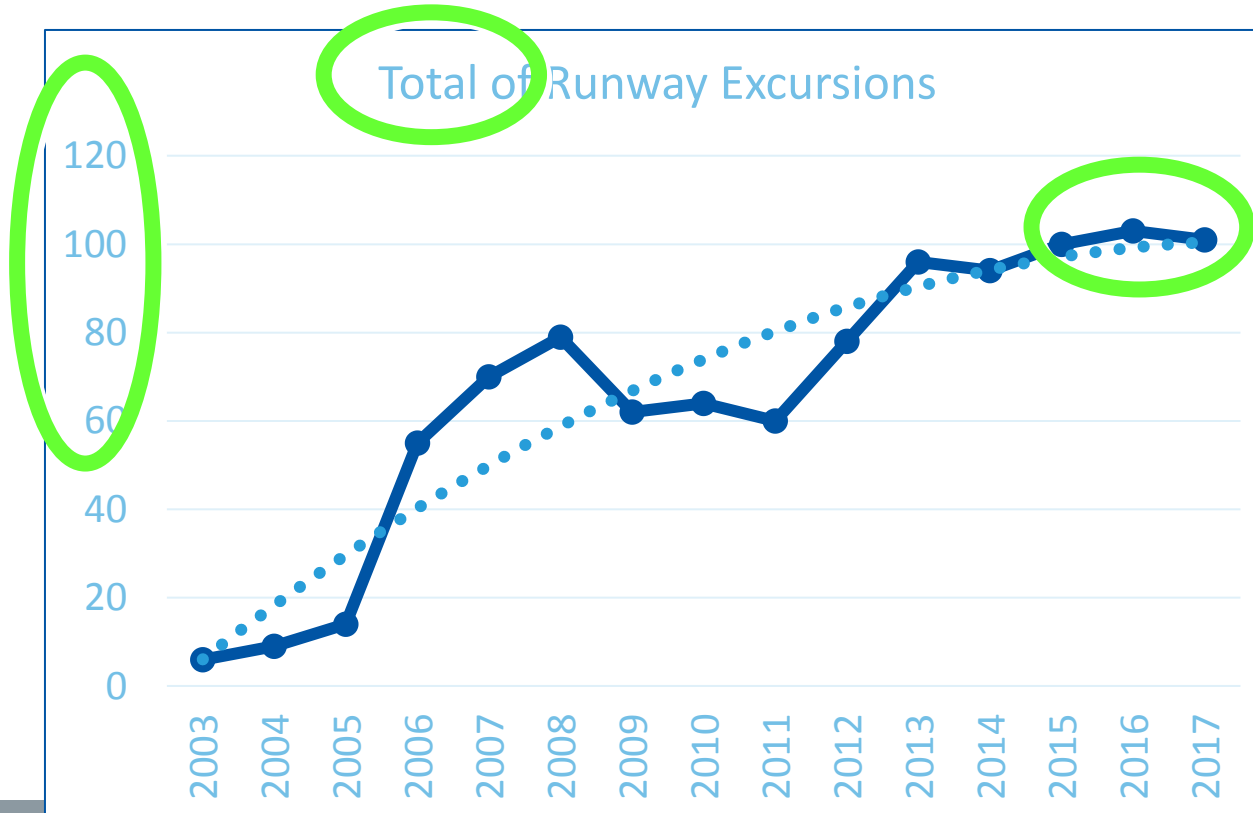
- [-] Reciprocating engine - fuel starvation related event, during Cruise
  - [-] Pre-flight check: Incomplete
    - ... Pilot, Time pressure factors:
    - ... Pilot, Impairment-stress:
    - ... 2840 Fuel indicating system: Broke

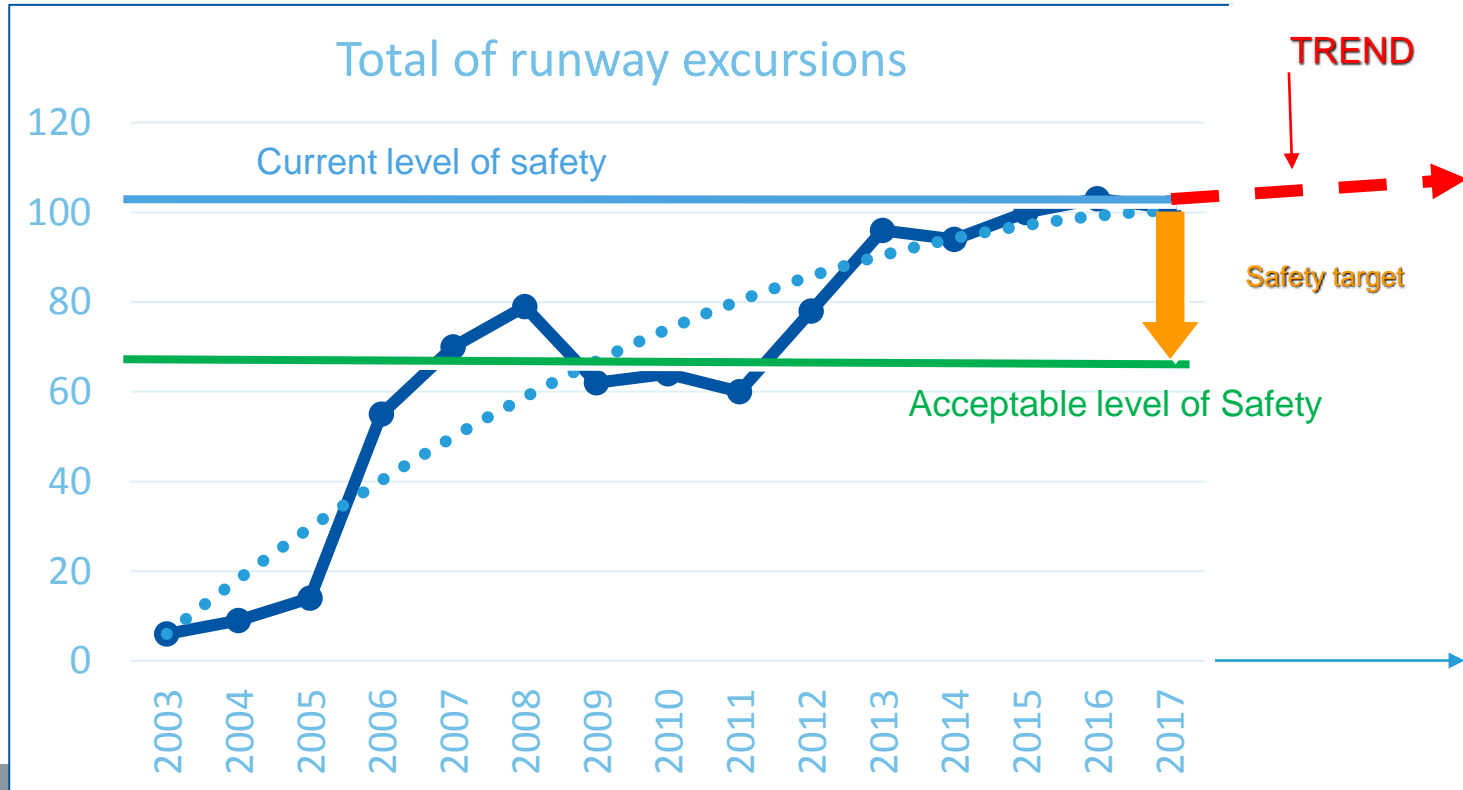
# Typical Workflow













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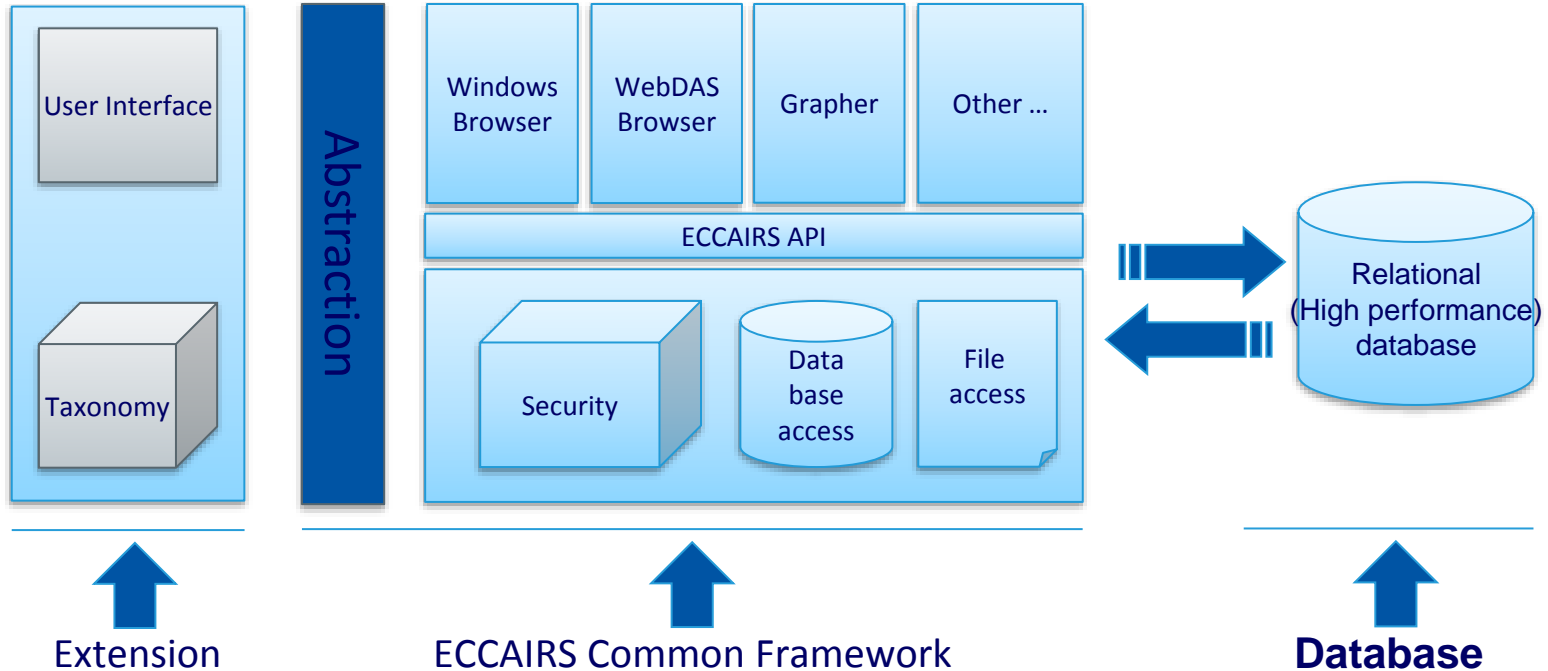


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# ECCAIRS ARCHITECTURE

# Software Architecture in Pictures





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# INTRO TO ECCAIRS



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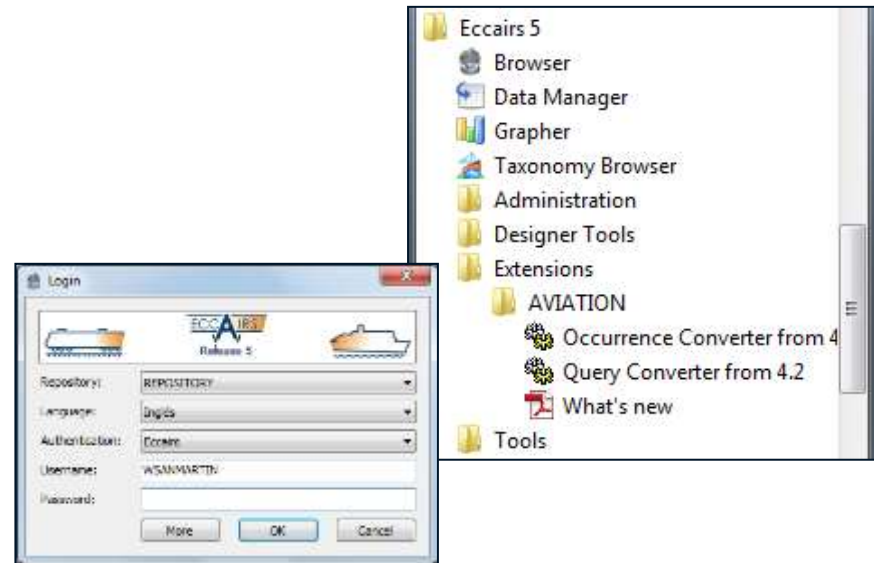
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# Basic concepts

- ECCAIRS System
- Occurrence
- Topics, Sections, Attributes and Views
- Taxonomy
- Query
- Query library and category
- Occurrence file

# ECCAIRS System

- Collects and exchanges occurrences data
- Can be used in different domains of transportation
- Security and encryption protocols



# Occurrence

- It is the basic record.
- Described by the ECCAIRS taxonomy.
- Stored in databases and occurrence files.
- Accesible through queries built by users.

File							Occurrence	Initial notification	Categories
File number	104895								
Responsible	Chile - DPA								
<b>Headline</b>									
Fuel starvation immediately after takeoff									
<b>When</b>			<b>Where</b>			<b>Weather</b>			
Local date	12-02-2018	12:50	State/area of	South America - Chile		Weather	VMC		
UTC date	12-02-2018	15:50	Location name	Región Metropolitana		Light conditions	Daylight		
<b>Injuries</b>									
	Fatal	Serious	Minor	None	Unknown	Total	<b>Severity</b>		
Total on ground							Occurrence	Accident	
Total on aircraft					2	2	Injury level	None	
Grand total					2	2	Highest damage	Substantial	
<b>Narrative</b>									
The pilot was intending to fly one hour, flying over an area close to the airfield, and also, practicing some touch-and-go maneuvers. After approximately 40 minutes of flight, and while performing a takeoff in one of the touch-and-go practices, the engine stopped and the pilot performed a forced landing in a field nearby. The aircraft suffered substantial damage, but no injuries were reported. The investigative actions conducted on site revealed there was approximately 1 US gal of fuel on each tank, which was below the 2.5 US gal established as minimum usable.									
<b>Events</b>									
<input type="checkbox"/> 1. 7300 Reciprocating Engine Fuel Starvation, Initial climb <input type="checkbox"/> Fuel-consumption calculation: Not made									
<b>Add/remove/select aircraft</b>									
<input checked="" type="checkbox"/> CESSNA - 172 - UNDESIGNATED SERIES									
<b>Aircraft and operation</b>									
Manufacturer	CESSNA - 172 - UNDESIGNATED SERIES								
Operator									
Operation type	Non-Commercial Operators - Pleasure - Local								
State of	Chile		Aircraft						
Schedule type			Operator type	Private owner					
<b>Injuries on aircraft</b>									
	Fatal	Serious	Minor	None	Unknown	Total	<b>Flight</b>		
Crew total						1	Last departure	Chile: SCCV : Curacavi	
Passengers						1	Reason	Chile: SCCV : Curacavi	
<b>Additional information</b>									
Cof-ign									
Duration of	1 Hour(s)								
Flight phase	Take-off								
Occ. on ground	No								
SCAD	None								



# Topics, sections, attributes and views

- Data is collected in hundreds of different **ATTRIBUTES**.
- Each **ATTRIBUTE** has one or more **VALUES** associated.

Make/md/srs	FOKKER F28 4000
Year built	1984
Aircraft serial number	11220



# Topics, sections, attributes and views

- **SECTIONS** are groups of **ATTRIBUTES** organized for visualization and edition purposes.

## Aircraft identification

Make/mdl/srs FOKKER  
F28  
4000

Year built 1984

Aircraft serial number 11220

## Aircraft description

Aircraft category Fixed wing  
Airplane

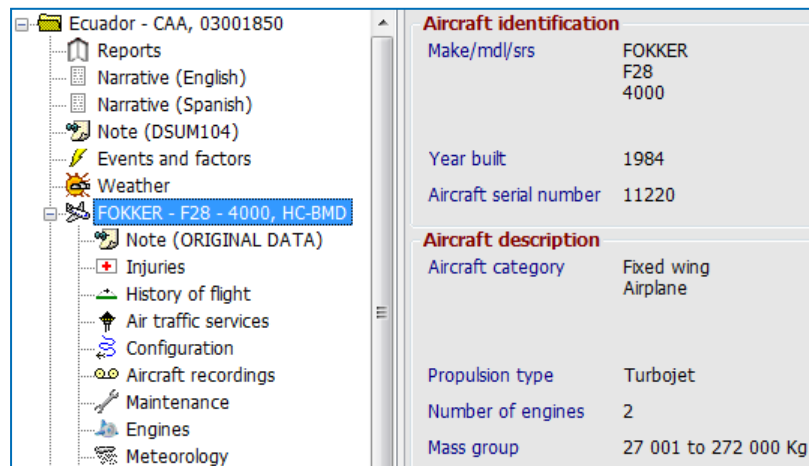
Propulsion type Turbojet

Number of engines 2

Mass group 27 001 to 272 000 Kg

# Topics, sections, attributes and views

- **TOPICS** are groups of **SECTIONS** organized for browsing.



The screenshot displays a software interface for aircraft accident investigation. On the left, a tree view shows a hierarchy of sections under the heading 'Ecuador - CAA, 03001850'. The sections include Reports, Narrative (English), Narrative (Spanish), Note (DSUM104), Events and factors, Weather, FOKKER - F28 - 4000, HC-BMD (highlighted), Note (ORIGINAL DATA), Injuries, History of flight, Air traffic services, Configuration, Aircraft recordings, Maintenance, Engines, and Meteorology. On the right, a details panel shows attributes for the selected aircraft.

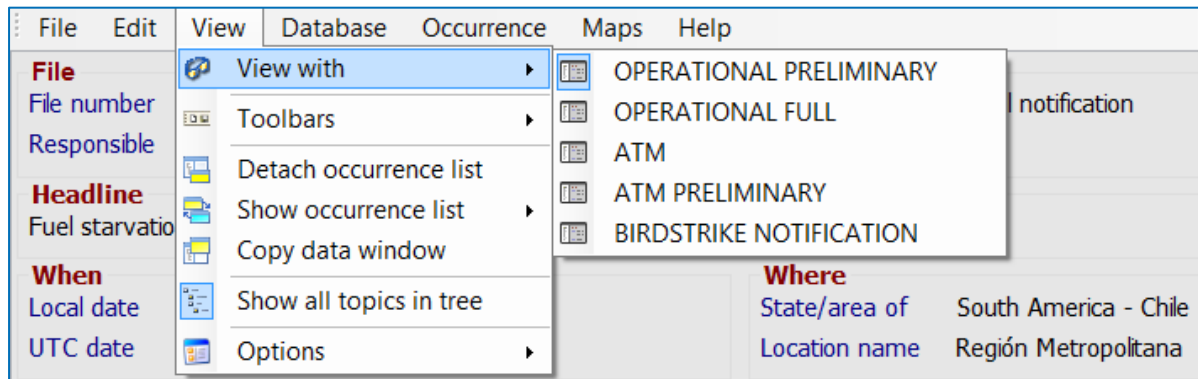
Aircraft identification	
Make/mdl/srs	FOKKER F28 4000
Year built	1984
Aircraft serial number	11220

Aircraft description	
Aircraft category	Fixed wing Airplane
Propulsion type	Turbojet
Number of engines	2
Mass group	27 001 to 272 000 Kg

# Topics, sections, attributes and views

- **VIEWS** are groups of **TOPICS** allowing user interaction.
- **VIEWS** change the way of presenting data.



The screenshot shows a software interface with a menu open. The menu items are:

- View with (selected)
- Toolbars
- Detach occurrence list
- Show occurrence list
- Copy data window
- Show all topics in tree
- Options

The 'View with' submenu is open, showing the following options:

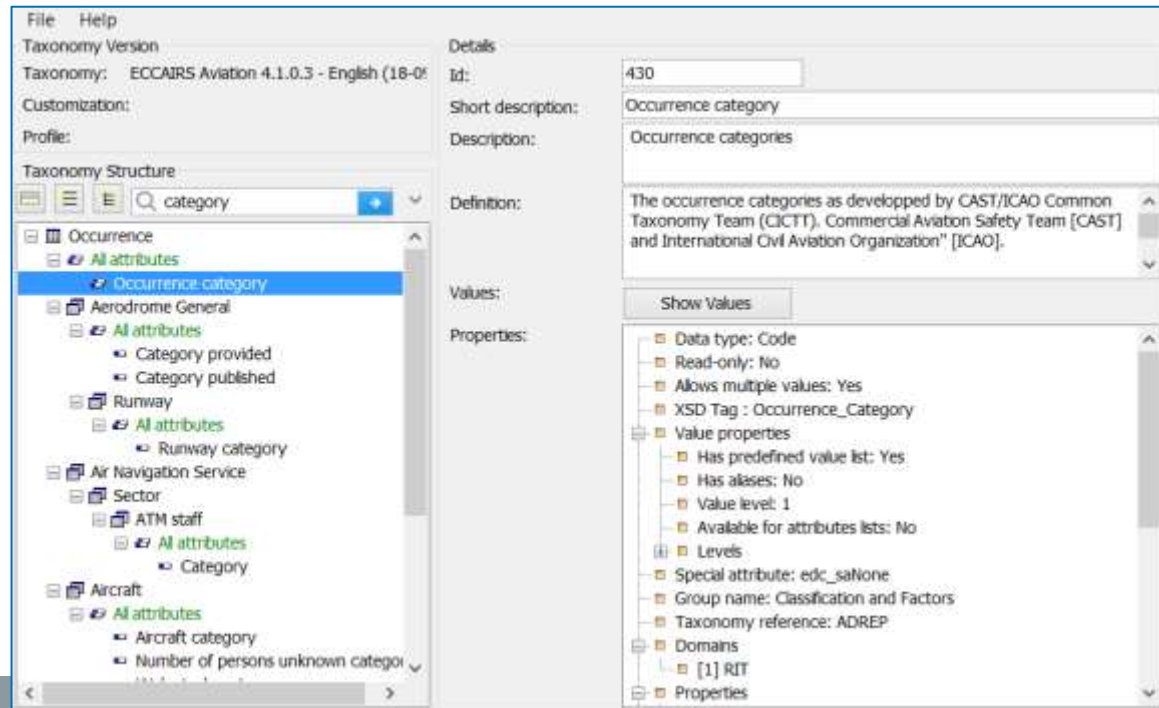
- OPERATIONAL PRELIMINARY
- OPERATIONAL FULL
- ATM
- ATM PRELIMINARY
- BIRDSTRIKE NOTIFICATION

The 'Where' section of the interface is visible, showing:

Where	
State/area of	South America - Chile
Location name	Región Metropolitana

# Taxonomy

- It is an information catalogue
- Describes how to code data to enter it into ECCAIRS



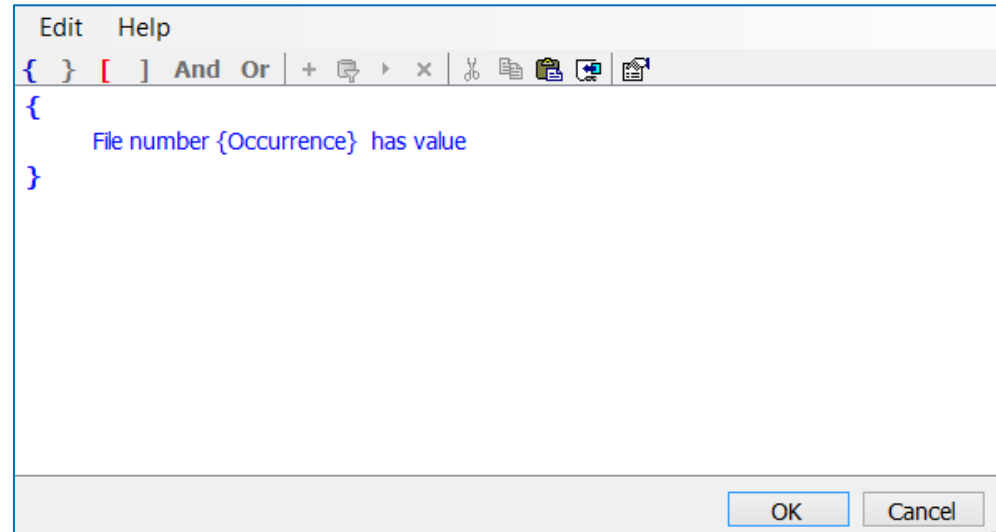
The screenshot displays the ECCAIRS Taxonomy software interface. The main window is titled 'Taxonomy Version' and shows the current taxonomy as 'ECCAIRS Aviation 4.1.0.3 - English (18-0)'. The 'Taxonomy Structure' pane on the left shows a tree view with 'Occurrence' selected, and 'Occurrence-category' highlighted. The 'Details' pane on the right shows the following information:

- Id:** 430
- Short description:** Occurrence category
- Description:** Occurrence categories
- Definition:** The occurrence categories as developed by CAST/ICAO Common Taxonomy Team (CICTT), Commercial Aviation Safety Team [CAST] and International Civil Aviation Organization" [ICAO].
- Values:** Show Values
- Properties:**
  - Data type: Code
  - Read-only: No
  - Allows multiple values: Yes
  - XSD Tag : Occurrence\_Category
  - Value properties
    - Has predefined value list: Yes
    - Has aliases: No
    - Value level: 1
    - Available for attributes lists: No
  - Levels
  - Special attribute: edc\_saNone
  - Group name: Classification and Factors
  - Taxonomy reference: ADREP
  - Domains
    - [1] RIT
  - Properties



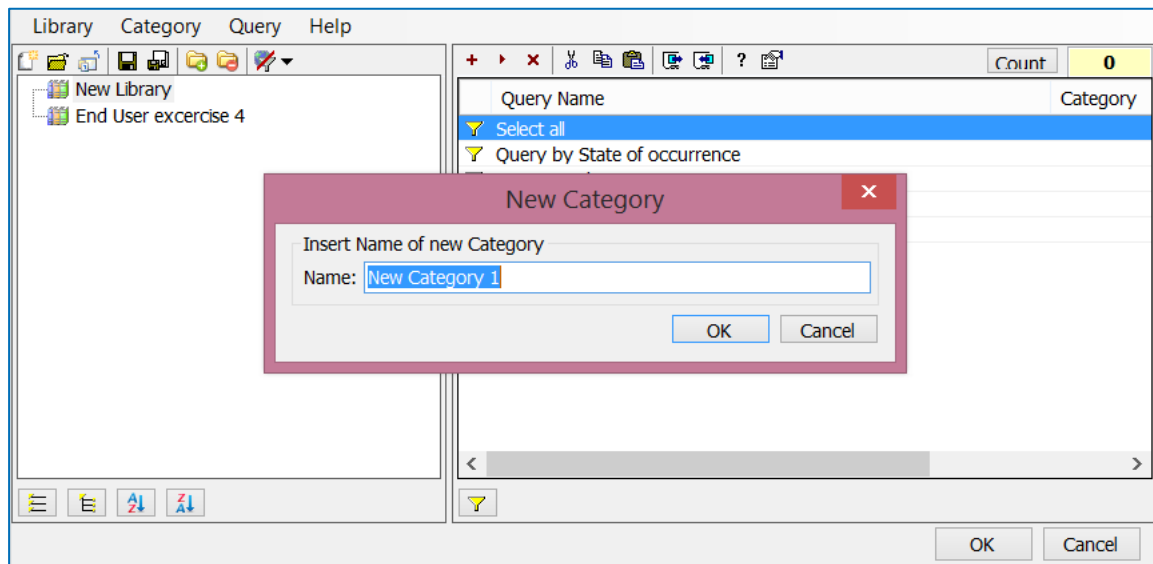
# Query

- Allows to recover occurrences from the database.
- Has to be built by the user.
- It is stored in a query database.



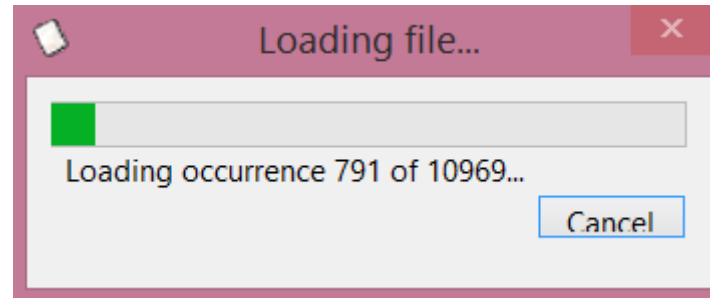
# Query library and category

- The **LIBRARY** is where **QUERIES** are stored.
- In a **LIBRARY**, it is possible to create **CATEGORIES**, in order to organize the **QUERIES** in a logical manner.



# Occurrence file

- **FILES** group occurrences for exchanging purposes.
- An occurrence weights between 50 to 200Kb (+ attachments).
- Open a file **DOES NOT** send it automatically to the database.





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BROWSER

# The Browser

- Is the tool for entering, modifying, visualizing and printing occurrences.

The screenshot shows a web browser window displaying the ICAO Birdstrike Notification Browser. The interface includes a menu bar (File, Edit, View, Database, Occurrence, Maps, Help), a toolbar, and a main content area with several sections:

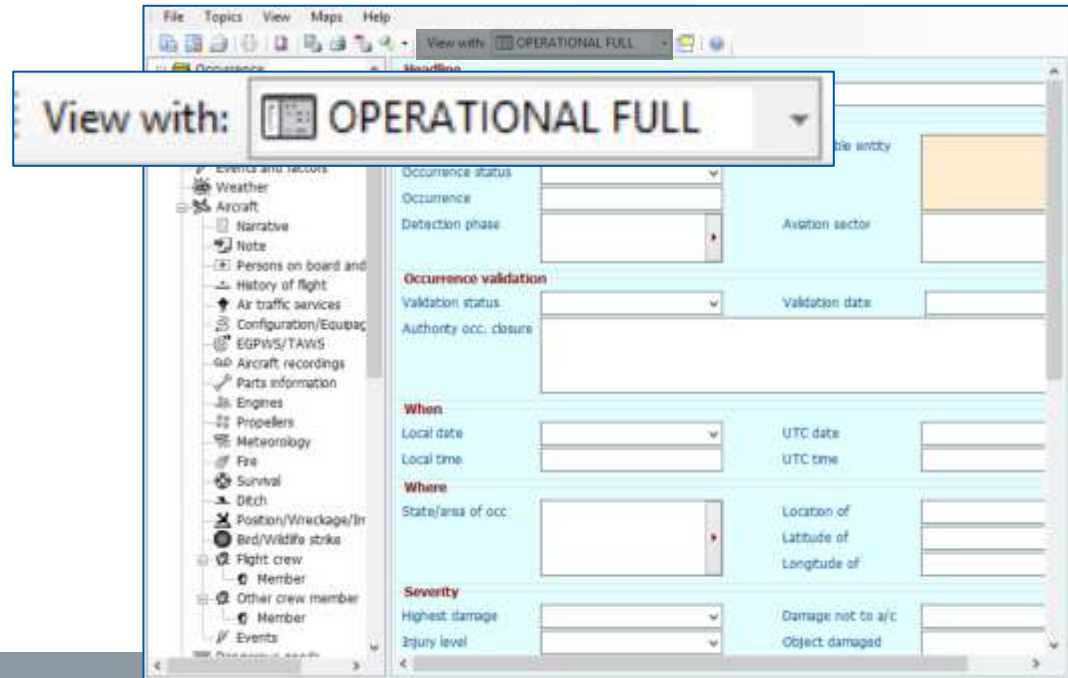
- Occurrence general information:** Responsible entity: Chile; File number: 008/2007; Location name: Chacayar; Local date: 05-12-2007; Local time: 17:45; Occurrence: OTHR: Other; Occurrence class: Occurrence with safety effect.
- External environment information:** Light conditions: Daylight; Cloud amount; Phenomenon type.
- Table of Occurrences:**

File number	Report identification	Responsible entity	Occurrence class	State/area of occ.	Location name	Local date	UTC date	Manufacturer/model	Aircraft re
008/2007	008/2007	Chile	Occurrence withou	Chile	Chacayar	05-12-2007	05-12-2007	OTHER	
01002660		Argentina - IAAC	Incident	Argentina	El BOUTE	17-07-2001		BOEING - 767 - 300	
011/2008	011/2008	Chile - DPA	Occurrence withou	Chile	Región del Maú	22-03-2008	22-03-2008	PIPER - PA38 - 181	
012/2008	012/2008	Chile - DPA	Occurrence withou	Chile	Región Metropol	05-04-2008	05-04-2008	PIPER - PA38	
013/2008	13/2008	Chile - DPA	Occurrence withou	Chile	Región Metropol	28-05-2008	28-05-2008	AEROSPATIALE - SA3	
017/2008	017/2008	Chile - DPA	Occurrence withou	Chile	Región Metropol	28-09-2008	28-09-2008	BOEING - 767 - 300	
02001120		Argentina - IAAC	Incident	Argentina	EZEIZA	27-05-2002		BECH - 1900	
09001740	09001740	Argentina - IAAC	Accident	Argentina	3 km E of El Part	16-05-2008		BECH - 80 - 65-80	
09005330	A09F0001	International Organi	Serious incident	Chile	Región Metropol	02-01-2009		BOEING - 767 - 300	
07000990	20070102	Switzerland - AAZ	Serious incident	Switzerland	Zurich ACC	10-05-2007	10-05-2007	ATRIS - A340 - 300	
0745	0745	Chile - DPA	Accident	Chile	Región Metropol	10-09-1980		OTHER	
07899P	07899P	Chile - DPA	Accident	Chile	Región de Antof	21-06-1991		PIPER - PA31	
07920M	07920M	Chile - DPA	Accident	Chile	Región Metropol	26-07-1991		BOERSONY - 535	
08763P	08763P	Chile	Accident	Chile	Región de Antof	11-03-1993		OTHER	
0899PC	0899PC	Chile - DPA	Incident	Chile	Región de Antof	24-11-1993	24-11-1993	PIPER - PA31	

The bottom status bar shows: WISANMARTIN | Dirección General de Aeronáutica Civil Chile - DPA | Válido: 500 | Total: 793 | DB indexing: 100% | REPOSITORY | 03-05-2018 | 12:33

# How to create/edit occurrences

- Using the edit window
- Choosing the corresponding view
  - Operational Preliminary
  - Operational Full
  - Birdstrike notification
  - ATM
  - ...



The screenshot displays the ICAO Safety Database edit window. A dropdown menu is open, showing the selected view: "OPERATIONAL FULL". The main window is divided into a left sidebar with a tree view of data categories and a right pane with various form fields. The sidebar categories include: Events and factors, Weather, Aircraft, Narrative, Note, Persons on board and History of flight, Air traffic services, Configuration/Equipac, EGPWS/TAWS, Aircraft recordings, Parts information, Engines, Propellers, Meteorology, Fire, Survival, Ditch, Position/Wreckage/In, Bird/Wildlife strike, Flight crew (Member), Other crew member (Member), and Events. The right pane contains sections for: Occurrence status, Occurrence, Detection phase, Occurrence validation (Validation status, Validation date, Authority occ. closure), When (Local date, Local time, UTC date, UTC time), Where (State/area of occ., Location of, Latitude of, Longitude of), and Severity (Highest damage, Injury level, Damage not to a/c, Object damaged).

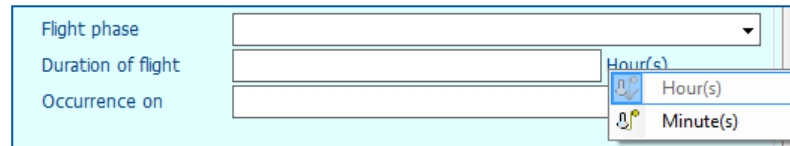
# How to create/edit occurrences

There are several ways to enter a value:



File number

## 1. Text or free value



Flight phase

Duration of flight

Occurrence on

Hour(s)

Minute(s)

Measurement units can also be modified

# How to create/edit occurrences

There are several ways to enter a value:

1. Text or free value
2. Predefined value

Highest Damage	<input type="text"/>
Injury level	Destroyed
Third party damage	Substantial
	Minor
	None
	Unknown

The value is chosen from a deployable list

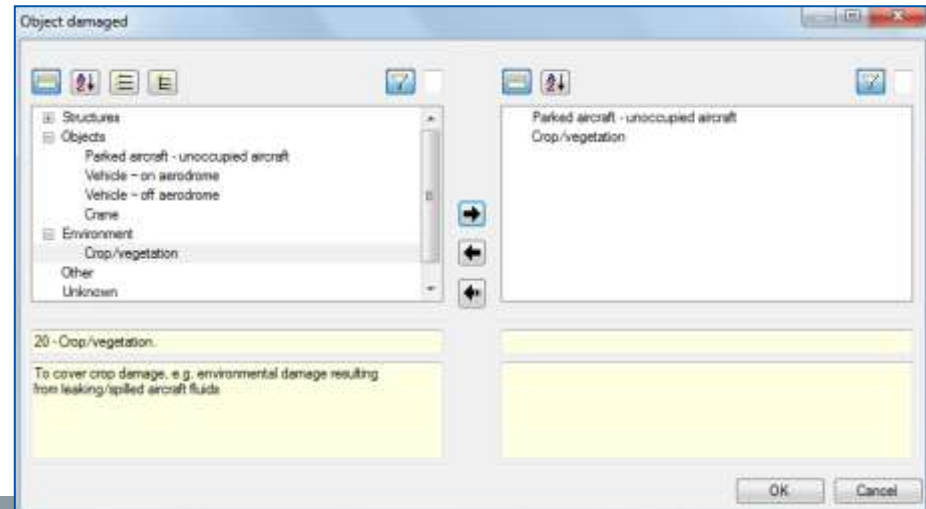
# How to create/edit occurrences

There are several ways to enter a value:

1. Text or free value
2. Predefined value
3. Multiple predefined value

Object damaged

Object damaged



The dialog box contains a list of predefined values on the left and a text area for free values on the right. The predefined values are:

- Structures
- Objects
  - Parked aircraft - unoccupied aircraft
  - Vehicle - on aerodrome
  - Vehicle - off aerodrome
  - Crane
- Environment
  - Crop/vegetation
  - Other
  - Unknown

The text area contains the following text:

20 - Crop/vegetation:  
To cover crop damage, e.g. environmental damage resulting from leaking/spilled aircraft fluids

Buttons: OK, Cancel

# How to create/edit occurrences

There are several ways to enter a value:

1. Text or free value
2. Predefined value
3. Multiple predefined value
4. Multiple levels value

Responsible entity

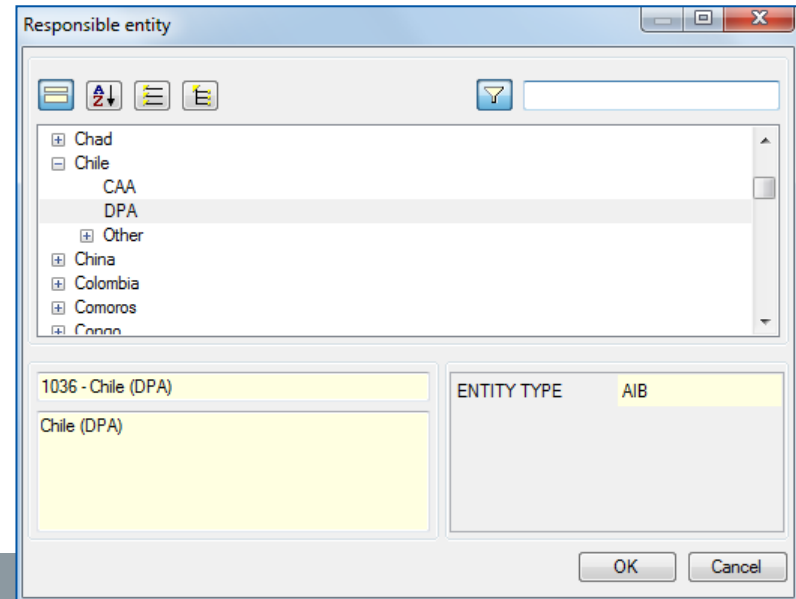
Responsible entity

1036 - Chile (DPA)

Chile (DPA)

ENTITY TYPE AIB

OK Cancel

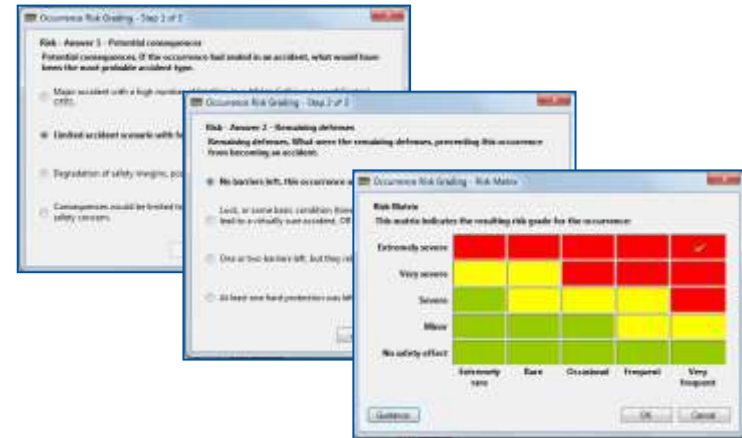


# How to create/edit occurrences

There are several ways to enter a value:

1. Text or free value
2. Predefined value
3. Multiple predefined value
4. Multiple levels value
5. Values guided by an assistant

Risk Grade



The image shows three overlapping screenshots of the 'Occurrence Risk Grading' software interface. The top screenshot shows 'Step 1 of 2' with a 'Risk - Answer 3 - Potential consequences' section. The middle screenshot shows 'Step 2 of 2' with a 'Risk - Answer 2 - Remaining defenses' section. The bottom screenshot shows the 'Risk Matrix' section, which is a 4x5 grid of colored cells (red, yellow, green) representing different risk levels based on severity and frequency. A red checkmark is visible in the top-right cell of the matrix.

Risk Matrix	Extremely rare	Rare	Occasional	Frequent	Very frequent
Extremely severe	Yellow	Yellow	Red	Red	Red
Very severe	Yellow	Yellow	Yellow	Yellow	Red
Severe	Green	Green	Green	Yellow	Yellow
Minor	Green	Green	Green	Green	Green
No safety effect	Green	Green	Green	Green	Green

Risk Grade



# How to create/edit occurrences

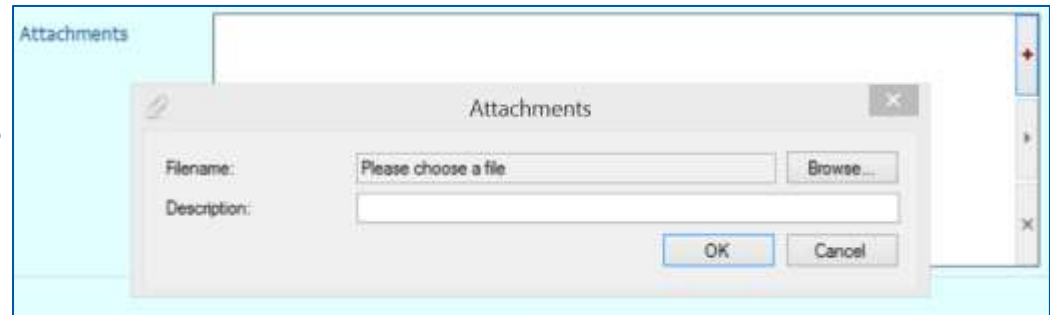
There are several ways to enter a value:

1. Text or free value
2. Predefined value
3. Multiple predefined value
4. Multiple levels value
5. Values guided by an assistant
6. Calendars

mayo de 2018						
lun	mar	mié	jue	vie	sáb	dom
30	1	2	<input type="text" value="3"/>	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	1	2	3
4	5	6	7	8	9	10
<input type="text"/> Hoy: 03-05-2018						

# How to create/edit occurrences

It is possible to insert attached files.





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# NOTIFICATIONS USING ECCAIRS

# Notifications

Always, information must be:

- Valid
- Consistent
- Relevant
- On time
- Etc.





# How to notify using ECCAIRS

Straight into the database

- What type of data?
- When?

The screenshot shows the ECCAIRS database notification form. The form is titled "OPERATIONAL PRELIMINARY" and contains various input fields for accident details. It is organized into sections: Filing information, Severity, Injury totals, Events, Call sign, Aircraft identification, Aircraft operation, Itinerary, and Injuries. The "Injury totals" and "Injuries" sections include summary tables with columns for Fatal, Serious, Minor, None, Unknown, and Total.

**Filing information**

Headline:

Occurrence status:

**File**

Responsible entity:

Where: States/area of occ:

Location name:

**When**

Local date:

UTC date:

**Severity**

Injury level:

Highest damage:

Third party damage:

Occurrence class:

**General weather conditions**

Weather conditions:

Light conditions:

**Injury totals**

	Total	Serious	Minor	None	Unknown	Total
Total on ground						
Total on aircraft						
Grand total						

**Events**

**Narrative**

Themes: - 0

**Call sign**

**Aircraft identification**

Manufacturer/mod:

State of registry:

Aircraft:

Flight number:

**Aircraft operation**

Operator:

Operator type:

ICAO information:

Operational type:

Schedule type:

**Itinerary**

Last departure:

Planned destination:

Flight phase:

Duration of flight:  hr(s)

Occ. on ground:

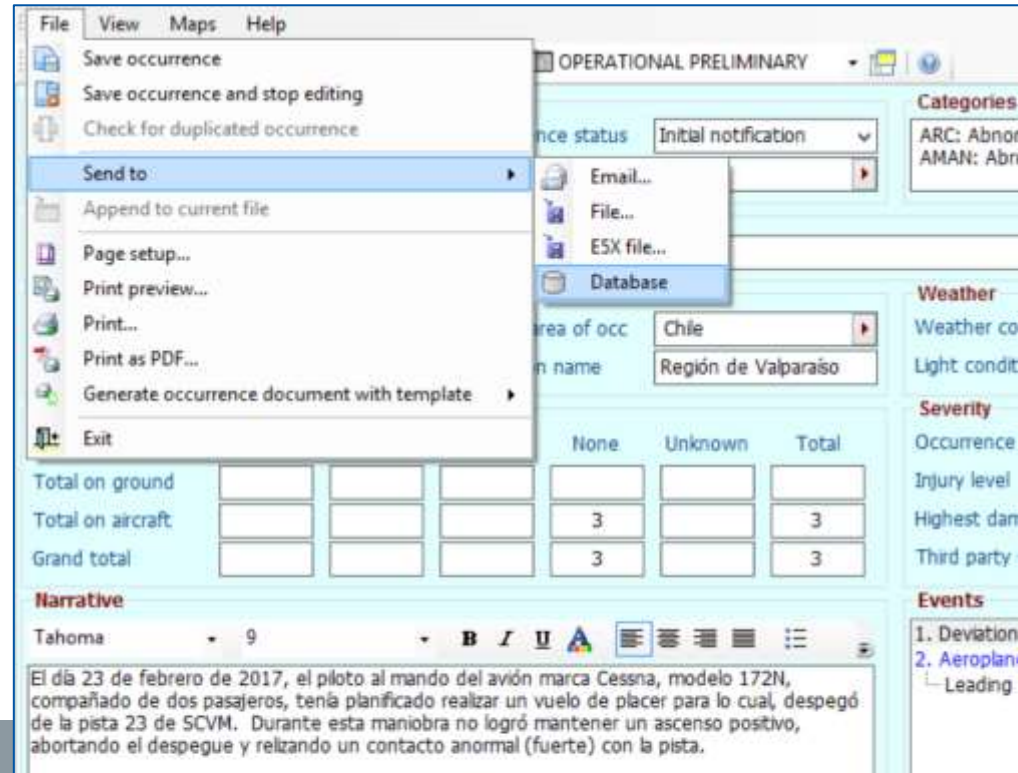
**Injuries**

	Fatal	Serious	Minor	None	Unknown	Total
OWB total						
Passengers						

# How to notify using ECCAIRS

## Straight into the database

- What type of data?
- When?



The screenshot shows the ECCAIRS software interface. The 'File' menu is open, and the 'Send to' option is selected, which has opened a sub-menu where 'Database' is highlighted. The main window displays an 'OPERATIONAL PRELIMINARY' report for an occurrence in Chile, specifically in the 'Región de Valparaíso'. The report includes a summary table and a narrative section.

	None	Unknown	Total
Total on ground			
Total on aircraft		3	3
Grand total		3	3

**Narrative**  
Tahoma 9

El día 23 de febrero de 2017, el piloto al mando del avión marca Cessna, modelo 172N, acompañado de dos pasajeros, tenía planificado realizar un vuelo de placer para lo cual, despegó de la pista 23 de SCVM. Durante esta maniobra no logró mantener un ascenso positivo, abortando el despegue y realizando un contacto anormal (fuerte) con la pista.

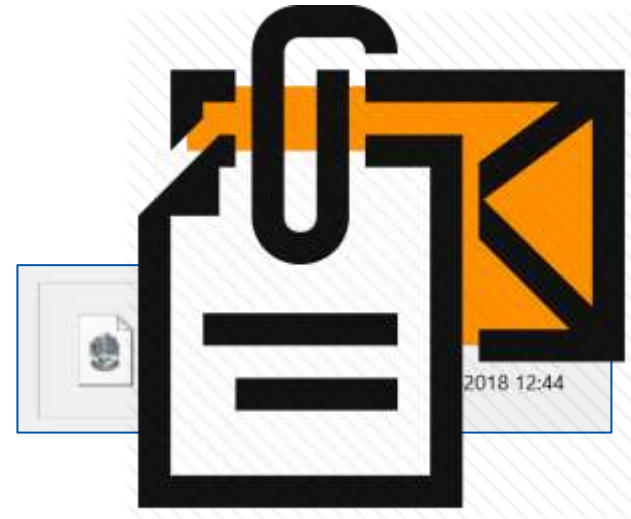


# How to notify using ECCAIRS

To organisations **with** ECCAIRS

– E5f files

- For instance, ICAO  
[aiginbox@icao.int](mailto:aiginbox@icao.int)







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# OCCURRENCES CLASSIFICATION



# Occurrence classification

- Class:
  - According to severity
    - Using Annex 13 definitions
      - And additional sub-categories for incidents
        - » Eurocontrol
      - Additional Guidance on „substantial damage“ in Attachment F of Annex 13
- Category:
  - Accident/incident categories
    - CAST-ICAO Common Taxonomy



## Occurrence classes

- Accident
- Serious incident
- Incident
- Major incident
- Significant incident
- Occurrence without safety effect
- Observation
- Occurrence with no flight intended
- Not determined



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## Exercises

Piper PA-28 aircraft, suffered the failure of its dual magnetos (design error), and performed an emergency landing. Pilot uninjured and aircraft without damage





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Boeing 737-200 aircraft, lost two engine covers from N°2 engine during takeoff roll and aborts takeoff. There was no damage reported.





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Beechcraft Super King Air 350 aircraft, at FL 280 the windshield of the copilot side resulted entirely fractured for no apparent reason. The aircraft landed with no additional observations.





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Cessna 172N aircraft, during the landing roll excursioned runway by the end (long landing). The pilot was uninjured and the aircraft without damage.





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## Other cases

- Gross failure to achieve predicted performance during initial climb.
- Smoke in the cockpit, extinguished by the use of extinguishing agents.
- Multiple malfunctions of one system seriously affecting the operation of the aircraft.
- Insufficient fuel quantity level, requiring the declaration of an emergency by the pilot.



## Occurrence Categories

- 36 categories
- Representative of the occurrence
- More than one can be selected
- Note: use of some exclude the use of others
  - E.g. CFIT and LOC-I
    - You cannot or at least it is mighty unlikely to have lost control and then have a controlled flight into terrain



## List of occurrence categories (1)

1. ADRM: Aerodrome
2. AMAN: Abrupt manoeuvre
3. ARC: Abnormal runway contact
4. ATM: ATM/CNS
5. BIRD: Birdstrike
6. CABIN: Cabin safety events
7. CFIT: Controlled flight into terrain
8. CTOL: Collisions with obstacle (s) during take-off or landing
9. EXTL: External load occurrences
10. EVAC: Evacuation
11. F-NI: Fire/Smoke (non-impact)
12. F-POST: Fire/smoke (post-impact)



## List of occurrence categories (2)

13. FUEL: Fuel related
14. GCOL: Ground collision
15. GTOW: Glider towing related events
16. ICE: Icing
17. LALT: Low altitude operations
18. LOC-G: Loss of control – ground
19. LOC-I: Loss of control – inflight
20. LOLI: Loss of lifting conditions en-route
21. MAC: AIRPROX/near miss/midair collision
22. MED: Medical – occs. involving illness of persons on board the A/C
23. NAV: Navigation errors
24. RAMP: Ground handling
25. RE: Runway excursion



## List of occurrence categories (3)

- 26. RI: Runway incursion – vehicle, a/c or person
- 27. SCF-NP: System/component failure or malfunction (non-powerplant)
- 28. SCF-PP: Powerplant failure or malfunction
- 29. SEC: Security related
- 30. TURB: Turbulence encounter
- 31. UIMC: Unintended flight in IMC
- 32. USOS: Undershoot/overshoot
- 33. WILD: Wildlife encounters on landing surface
- 34. WSTRW: Windshear or thunderstorm
- 35. OTHR: Other
- 36. UNK: Unknown or undetermined



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ir.com







**Private-cross country**  
**Registration: PNGAIC1**  
**Date: 29.09.2018**  
**Time: 18:26 local**



**Service-Passenger  
transport**

**Registration:  
PNGAIC2**

**Date: 30.09.2018**

**Time: 16:00 local**



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**Private-local**  
**Registration: PNGAIC3**  
**Date: 01.10.2018**  
**Time: 14:00 local**

**Service-MEDEVAC**  
**Registration: PNGAIC4**  
**Date: 25.09.2018**  
**Time: 12:00 local**



**Private-cross country**  
**Registration: PNGAIC5**  
**Date: 01.09.2018**  
**Time: 11:30 local**



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**Private-cross country**  
**Registration: PNGAIC6**  
**Date: 01.10.2018**  
**Time: 16:00 local**



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**Service-Passenger transport  
Registration PNGAIC7  
Date: 02.10.2018  
Time: 19:30 local**



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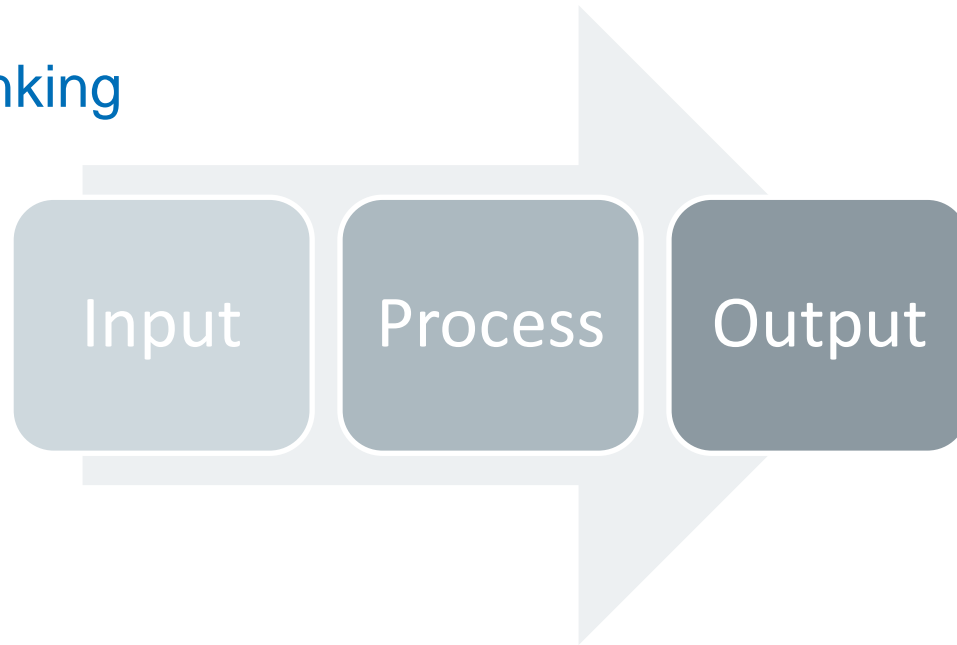
# Safety Data Analysis

- In general terms
  - Practical usage of data
  - Shows areas of concern
  - Developed through an analysis process



## How to structure it

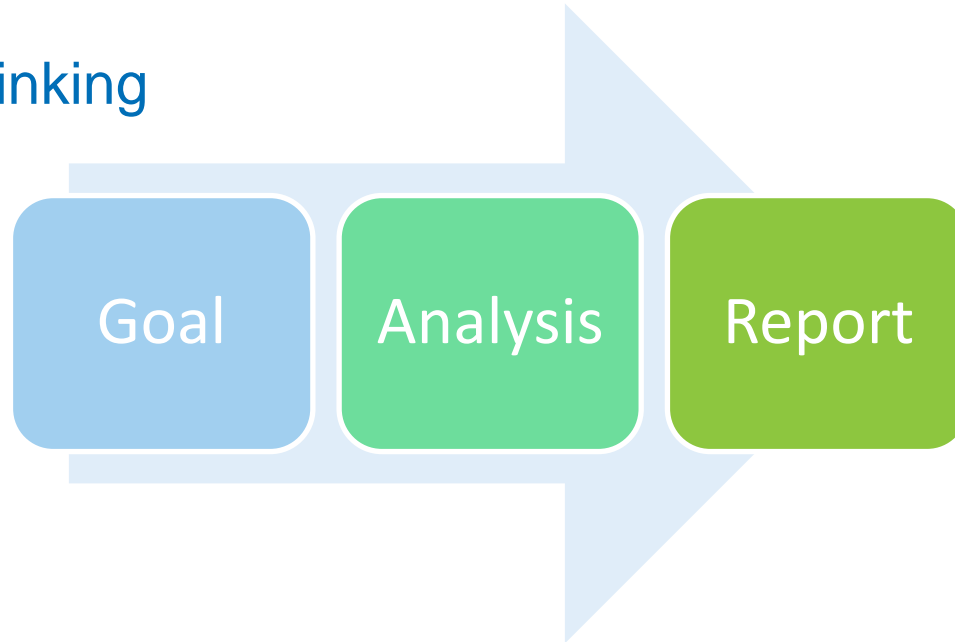
- Process thinking





## How to structure it

- Process thinking







| IC





## Some recommendations

- While developing:
  - Should include the complete data set for the study
  - All data shown should be analyzed
  - Going in-Depth depends on the objectives of the study



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# Some recommendations

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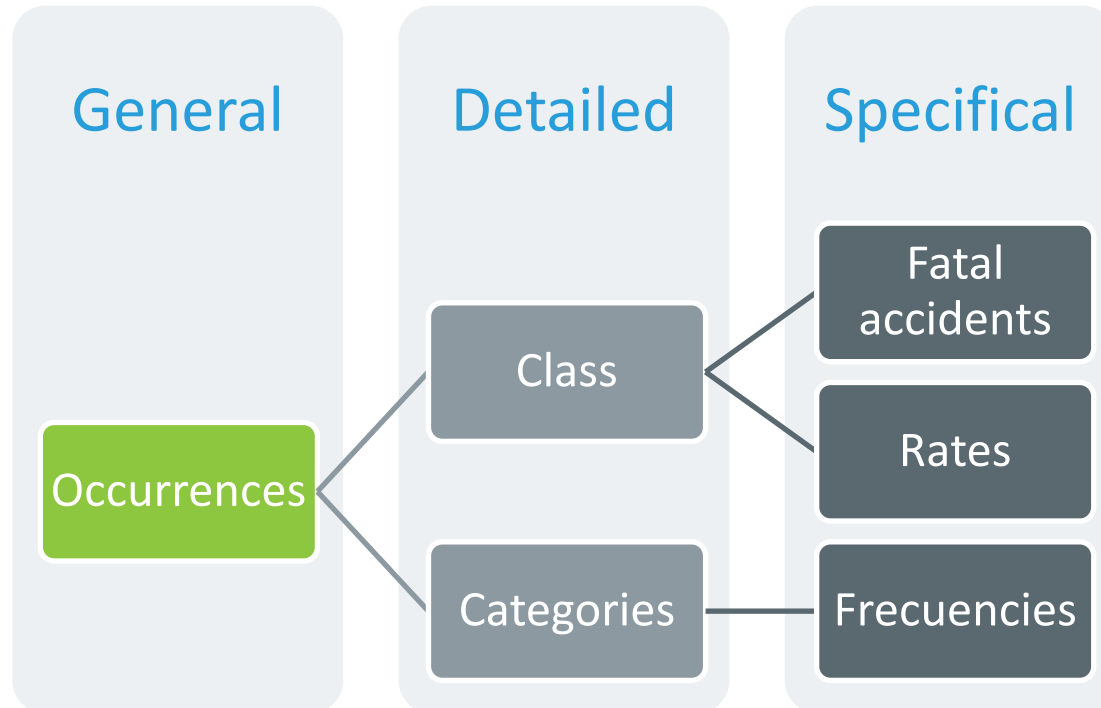


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- About the methodology
  - Begin with the most general aspects
  - Go through more detailed issues.

## An example





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## Some recommendations

- Conclusions:
  - Highlight the main findings
  - Brief explanations
  - Did we fulfill the expectations?
- Consider acronyms, sources, links of interest, etc.



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THANK YOU!



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# ECCAIRS WORKSHOP

**Winston San Martin**

**PNG AIC Investigations Manager – Adviser**

**ICAO Trainair Plus Instructor**

Port Moresby, Papua New Guinea

29 June 2020 – 3 July 2020

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