



ICAO UNITING AVIATION

NO COUNTRY LEFT BEHIND



ICAO Accident Data Analysis

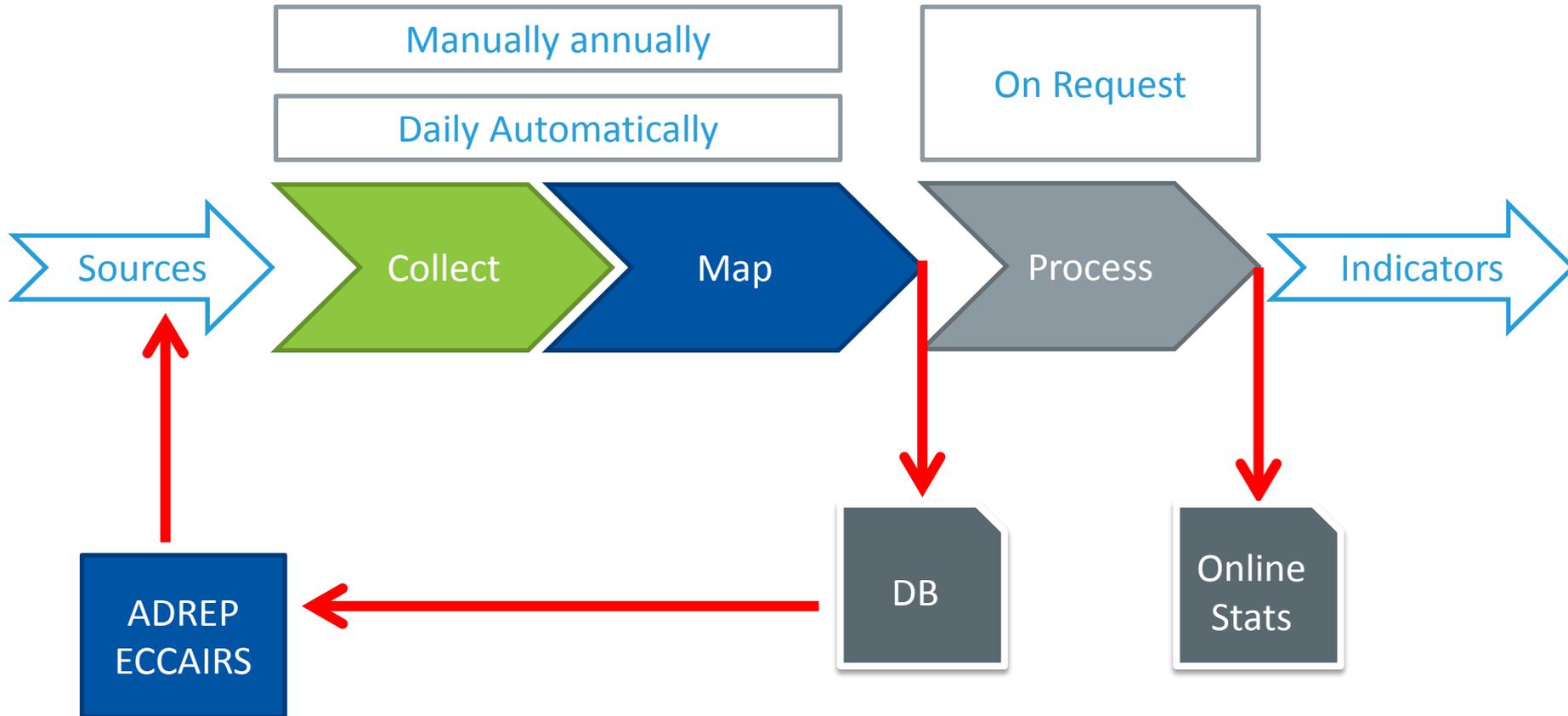
Marco MERENS

Chief, Integrated Aviation Analysis

AIA/01 – March 2016



Data Analysis Process





Data sources

- Official
 - States/ADREP
- Commercial providers
 - Ascend/Flightglobal
- Media sources
 - Aviation Safety Network
 - Aviation Herald
- Why do we use multiple sources?



Accident Databases

- Accident data stored in 2 databases:
 - ECCAIRS database (used as the “official” accident database)
 - Mongo/ISTARS Cloud (used for up-to-date accident information and for querying)



About the use of ECCAIRS

- ECCAIRS is primarily a tool to support accident INVESTIGATION not ANALYSIS
- ECCAIRS responds fully to the database requirements of SSP, but only partially to safety information production requirements.

Use the Exporter to export CSV files
into an analysis system



Data Source Minimal Fact Fields

- Date
- State of Occurrence
- Operator
- Aircraft Registration
- Aircraft Model



ADREP Core Taxonomy (29)

- Filing Information (3)
- When (2)
- Where (5)
- Classification (2)
- Severity (3)
- Narrative (1)
- Aircraft identification (6)
- Operator (3)
- Operation type (1)
- History of flight (3)

References

Taxonomies



Filing Information and Narrative

- Basic information about who submitted the report and description
 - Reporting Organization
 - File Number
 - Date received
 - Narrative



When and Where

- Information about when and where the event happened
 - UTC Date and Time
 - State of Occurrence ISO 3166-1
 - Location of occurrence
 - FIR
 - Latitude
 - Longitude



Classification and Severity

- **Classifications of the event**
 - **Occurrence class**
Accident, Serious Incident, Incident, Occurrence without safety effect, Not Determined
 - **Occurrence Category**
CICTT Taxonomy
 - **Damage Aircraft**
Destroyed, Substantial, Minor, None, Unknown
 - **Injury Level**
Fatal, Serious, Minor, None, Unknown
 - **Fatalities**



Aircraft Information

- Information about the aircraft
 - Registration
 - Serial Number
 - Aircraft Category
 - Airplane, Helicopter, Other
 - Manufacturer / model
 - State of registry
 - Mass group
 - » MG1: 0-2250 kg
 - » MG2: 2251 - 5700 kg
 - » MG3: 5701 - 27000 kg
 - » MG4: 27001 - 272000 kg
 - » MG5: >272000 kg
 - » UNK: Unkown



Operation

- Information about the operator and its operation
 - Operator Name
 - Operator Code
 - State of Operator
 - Operation Type
 - Scheduled Commercial Air Transport
 - Non-scheduled commercial Air Transport
 - Non commercial operation



History of Flight

- Information about the flight
 - Last departure point
 - Planned destination
 - Flight Phase
 - CICTT FlightPhase taxonomy



Data Validation

- Safety Indicator Study Group (SISG) meets annually to review
 - Accident/incident classification
 - State of Occurrence
 - Occurrence category
 - Flight phases
 - Operator and aircraft information



AIA Considerations

- Collection
 - Collect data nationally in ECCAIRS and export in CSV for regional analysis, OR
 - Enter data directly into the analysis system



ADREP App Prototype Concept

Terms to search in narrative

Go Export CSV Query returned 218 records. Search:

When	Where	Who	What	Risk Cat.	Fat.
2016-03-04	Ethiopia	Boeing 787 ET-ASH Ethiopian Airlines Ethiopia	Standing Accident	RS	0
<p>Injury Level: None</p> <p>Class: Accident</p> <p>Aircraft Category: Airplane</p> <p>Mass Group: Over 5700 kg</p> <p>Status: Under Validation</p> <p>Operation: SCAT-P</p> <p>Occurrence Categories: -</p> <p>Aircraft Damage: Unreported</p> <p>Sources: ASCEND</p> <p>Links:</p> <p>Narratives ASCEND: The aircraft's nose undercarriage collapsed while it was preparing for push back. The accident happened in darkness (0015L). The aircraft was operating a flight to Rome.</p>					
2016-03-03	India	Boeing 737 (NG) VT-JGD Jet Airways India	Taxi Accident	RS	0
2016-02-14	Brazil	Boeing 737 (NG) PR-GXA GOL Brazil	Standing Accident	RS	0
2016-02-02	Somalia	Airbus A321 SX-BHS Daallo Airlines Djibouti	En route Accident	LOC-I	1

Existing ADREP app would contain a new Edit button for ICAO users



ADREP App Prototype Concept

Terms to search in narrative

Go Export CSV Query returned

When Where

2016-03-04	Ethiopia
------------	----------

Injury Level: None
Class: Accident
Aircraft Category: Airplane
Mass Group: Over 5700 kg
Status: Under Validation
Operation: SCAT-P
Occurrence Categories: -

Search:

What Risk Cat. Fat.

Standing Accident

raft was operating a flight to Rome.

Taxi Accident	RS	0
Standing Accident	RS	0
En route Accident	LOC-I	1

Edit Accident - Ethiopia on 2016-03-04

Date: 2016-03-04

Location: Ethiopia

Aircraft: Boeing 787

Registration: ET-ASH

Operator: Ethiopian Airlines

Op. State: Ethiopia

Fatalities: 0

Risk Cat.: RS

File: Choose File No file chosen

Close Save changes

Also allows ROs to upload files with additional info (e.g. notifications, etc...)

Opens a simple modal window to allow changes to basic fields.



AIA Considerations

- Mapping
 - Review accident records in a group at least yearly
 - Agree on classification taxonomies
 - Use iSTARS to keep track of those reviews



AIA Considerations

- Processing
 - Agree on indicator aggregation levels
 - Agree on time periods



ICAO

UNITING AVIATION



ICAO

North American
Central American
and Caribbean
(NACC) Office
Mexico City

South American
(SAM) Office
Lima

ICAO
Headquarters
Montréal

Western and
Central African
(WACAF) Office
Dakar

European and
North Atlantic
(EUR/NAT) Office
Paris

Middle East
(MID) Office
Cairo

Eastern and
Southern African
(ESAF) Office
Nairobi

Asia and Pacific
(APAC) Sub-office
Beijing

Asia and Pacific
(APAC) Office
Bangkok



Questions?

THANK YOU