



ICAO

ENVIRONMENT

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**Capacity Building for CO₂ mitigation from international aviation - Fourth Seminar
Mombasa, Kenya
12-14 December, 2018**

Aviation Environmental System (AES)

Progress update and evaluation of results

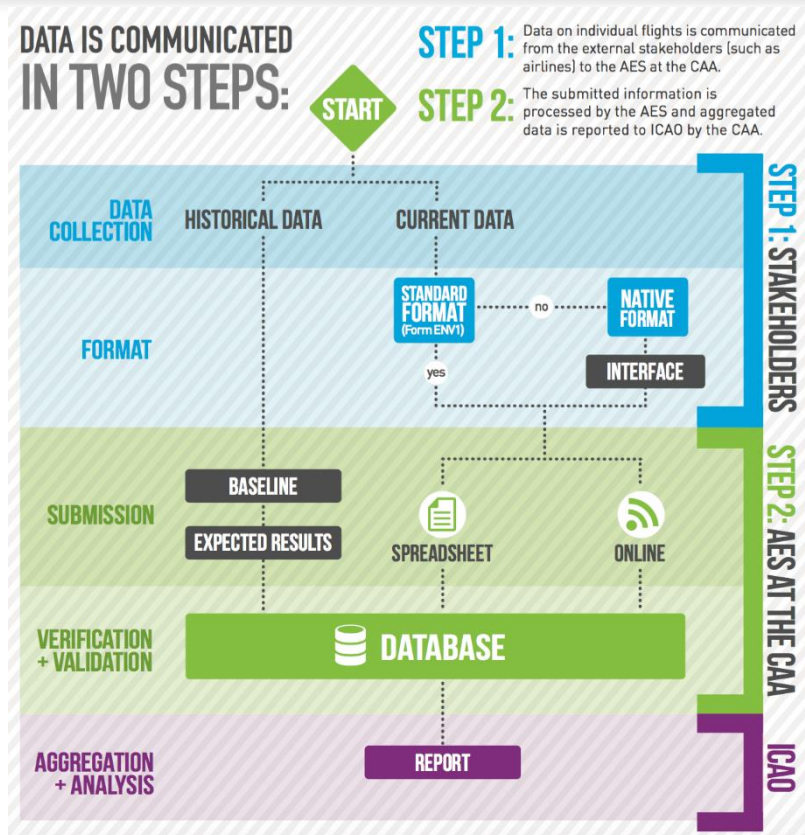
By Dr. Christelle Braun, Technical Project Consultant, Environment, ICAO





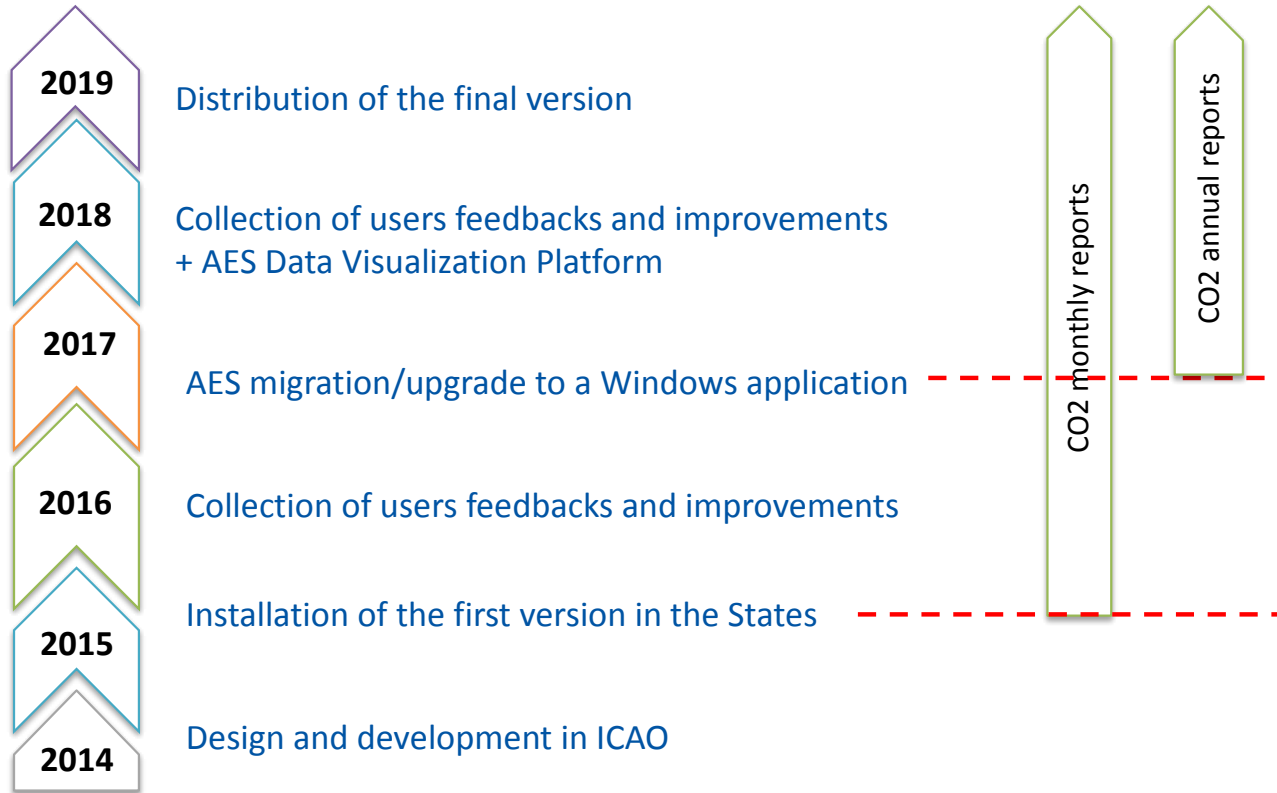
Capacity Building for CO₂ Mitigation from International Aviation







AES Implementation Timeline





- Migration from a Microsoft Access-based program to a .NET Windows application completed in 2017
- Migrated version already installed in eleven (11) selected States, including nine (9) States in Africa.

Enhanced performance:

- Enterprise solution based on SQL database, able to cope with much larger datasets
- Significant speed increase for the importation process of flights data (3mn to import 3,000 flights, as opposed to 25mn in the previous AES)
- Standard Windows application not reliant to Microsoft Office Suite like the previous AES, and therefore more modular and scalable for further developments





Aviation Environmental System

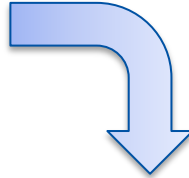
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European Development Cooperation Instrument (DCI-2007/2022-2017)

Main Menu Import Data Manage Data Providers Export Data Manage Database Browse Database Help

Welcome To The Aviation Environmental System

Please choose your activity:

- Import Data**: Import baseline, measured or forecast data from excel files supplied by your Data Providers. Generate template files.
- Export Data**: Output summary or detailed trends and export your data into Form M or a custom format.
- Manage Data Providers**: View your data providers and corresponding contacts, as well as the rights they reported.
- Manage Database**: Create a new database, link your AES or add your profile.
- Browse Database**: View/Get your data directly in table format.
- Help**: Check for help on the AES.



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Main Menu Import Export Manage Data Providers Manage Database Browse Database Help

- IMPORT DATA**: Import baseline, measured or forecast data from Excel files supplied by your Data Providers. Generate template files.
- MANAGE DATABASE**: Create a new database, link your AES or edit your profile.
- EXPORT DATA**: Output summary or detailed trends and export your data into Form M or a custom format.
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DCI-2007/2022-2017





- Import baseline and expected results from the Action Plan / EBT
- Import flights data via Excel Form ENV1
- **Import flights data via XML**
- **Import an Access database from old AES**



- Export baseline and expected results
- Export monitored data and graphical trends
- Export CO2 monthly reports (national level **and airline level**)
- **Export CO2 annual reports (national level and airline level)**
- Export Form M



MANAGE DATA PROVIDERS



- Define data providers and their data scope
- Define contact persons by the data providers
- Check submitted data

MANAGE DATABASE

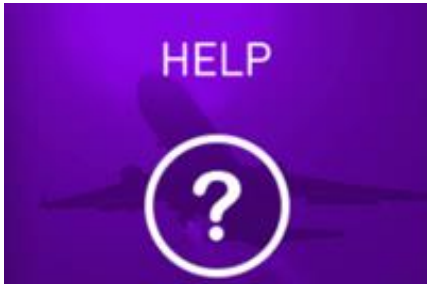


- Review invalid and inconsistent flights
- Create new database
- Link to another database
- **Synchronize with ICAO server**





- Browse different tables in the database (flights, baseline, data providers, etc.)



- Email to ICAO-EU Project Team
- User manual (**updated**)



Aviation Environmental System



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Instrument DCI-ENV2013/322-049

Interface for Caribbean Airlines

1. Select the file containing the 2 datasheets for this month

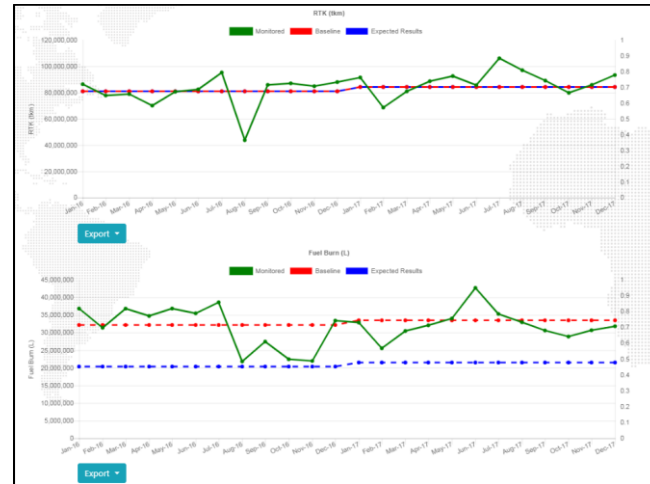
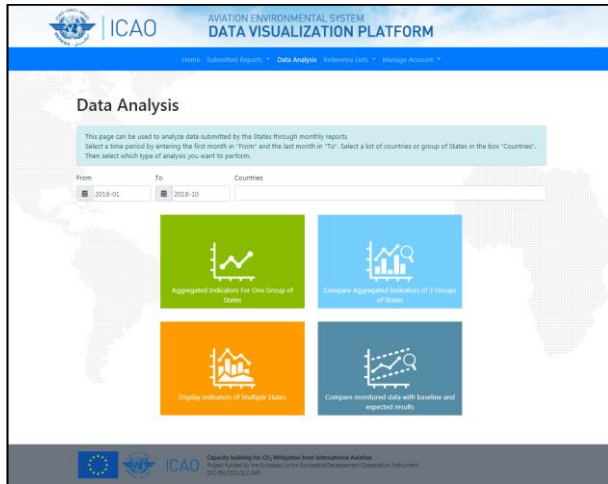
2. Import the selected files in the database

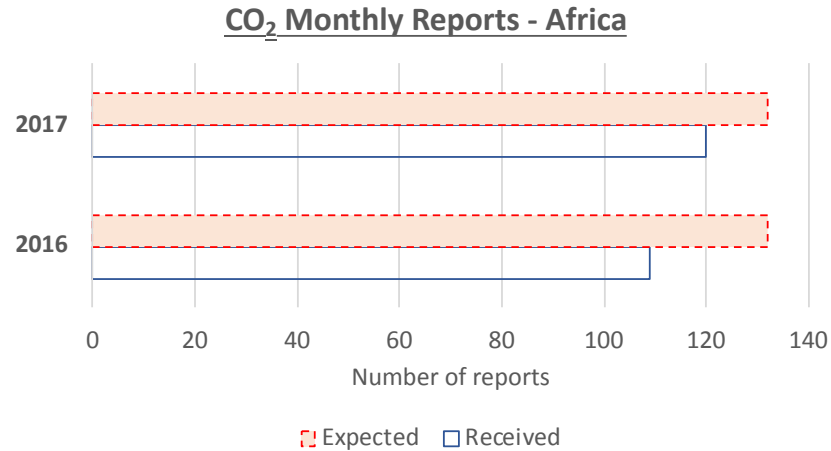
Number of flights in the last import:

3. Convert the last import to Form ENV1



- Centralized interface to collect and analyze AES data submitted by the States to ICAO (aggregated data included in the monthly and annual reports).
- Reserved to ICAO, useful for the monitoring of the data submission process and for reporting purposes.
- Linked to the new “Synchronize” button in the AES.





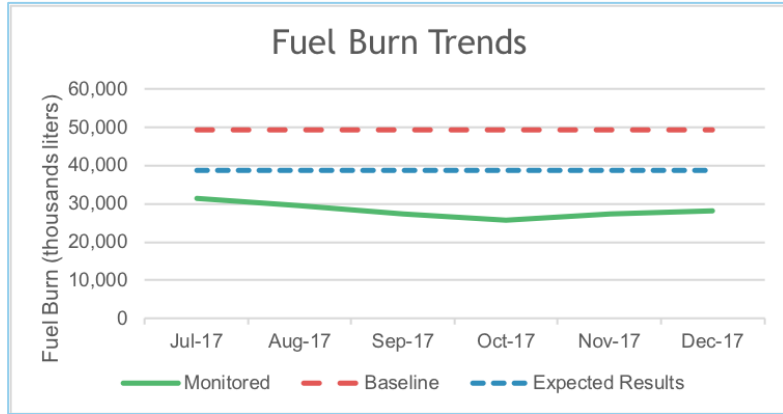
- For 2018, we already collected 70 reports and we expect to reach a similar or higher target than in 2017 by the first or second quarter of 2019.
- An analysis of the data submitted over the 3 years by the selected States will be completed by ICAO by April 2019 and shared with the States.





- Having one or two full year(s) of monitored data (2016 and/or 2017) allowed many States to recalculate their baseline and expected results, taking these years as historical data.
- This provided more realistic forecast than the initial baseline and expected results which were often based on inaccurate/incomplete historical data obtained prior to the monitoring with the AES.
- Seven (7) States have already recalculated their baselines and expected results based on historical data monitored with the AES. They could then update their Action Plan with these new trends.

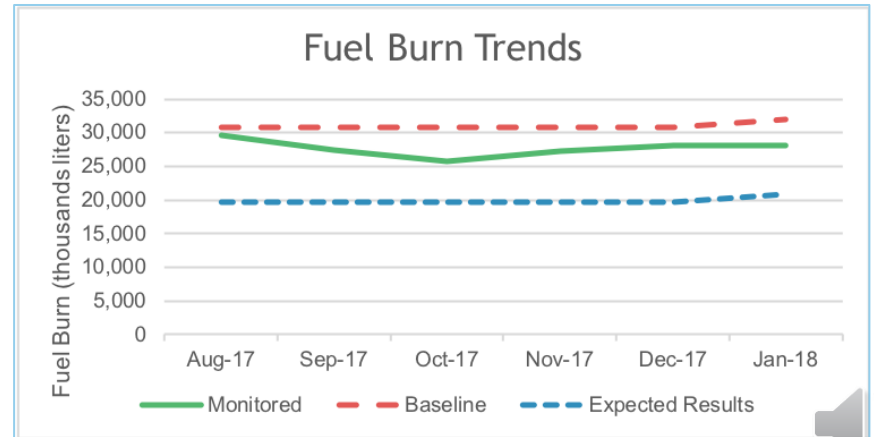




1. Baseline and exp. results over-estimated



2. Baseline and exp. results recalculated





- AES installed and CAA staff trained in the 14 selected States.
- 12 selected States are submitting monthly reports to ICAO on a regular basis.
- 10 States of the Project have issued a regulation such as an Aeronautical Information Circular (AIC) to request periodic data submission from airlines, including 8 African States.
- The AES was successfully migrated to a Windows application with enhanced performance and scalability. A final (complete) version will be distributed by January 2019.
- Two (2) Results-Oriented Monitoring (ROM) reviews were performed by the EU on the project, and the reviews of the AES were very positive.





- Limited human resources and capacity at the CAAs to collect data from the stakeholders, use the AES and report to ICAO
 - Creation of Environmental Units
 - Involvement and training of more relevant personnel
- Difficulty to collect data at the stakeholders level, creating delays and gaps in the data reporting
 - Interfaces to facilitate data conversion
 - Regulation to request data reporting from airlines
 - Awareness raising
- Limited flexibility of the AES
 - Continuous improvements, but within the scope
 - Personalized support, to solve individual problems





- With the development of the AES, the second objective of the project has been reached and the selected States have an efficient monitoring system for CO₂ emissions from international aviation.
- While the improvements on the AES will reach an end in 2019, the States are encouraged to continue using it and reporting their CO₂ emissions to ICAO.
- In parallel, the development of an “AES 2.0” will start, that will build on the existing AES but will include more functionalities to become “CORSIA compatible”. The next presentation will give more details on the AES 2.0 and the developments planned in the coming months.





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Lima

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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



THANK YOU

