FANS1/A Performance Based Communications and Surveillance On-Line Analysis Tool

Operational Data Link Seminar
ICAO Asia and Pacific Office
Bangkok, Thailand
2-4 May 2016

AIRWAYS
making your world possible

What we will cover today

- Need for on-line analysis tool
- Development timeline
- Discussion around availability/access/licencing.
- Need for future upgrades
- Overview of functionality.
- On-line demonstration.

AIRWAYS
making your world possible

- Airways has been carrying out PBCS analysis since 2009 using Excel spreadsheet based analysis supplemented with occasional analysis using the FAA provided GPAT tool.
- Excel spreadsheet based analysis of system ADS-C and CPDLC performance data in the .csv format provided in the GOLD/PBCS Manual guidance is very time consuming and resource intensive.
- Airways is currently developing and on-line analysis tool which will give us more efficient processing using less resource.
- The tool imports .csv files for CPDLC and ADS-C as described in the PBCS post implementation monitoring guidance material.

AIRWAYS
making your world possible

- The tool has been designed so that it may be used by more than one ANSP
- We see it in use by other small ANSP's like ourselves who may find it difficult to justify the development of automation.
- Tool does permit aggregating regional performance data.
- The tool outputs data in graphical format (cumulative frequency distributions) and also in tabular form similar to the formats described in the PBCS guidance material.
- We expect to have an "initial" production version completed by the end of June but development has progressed to the stage where we can share it with the seminar.
- This presentation will provide an overview of the capability of the tool and an on-line demonstration.

AIRWAYS
making your world possible

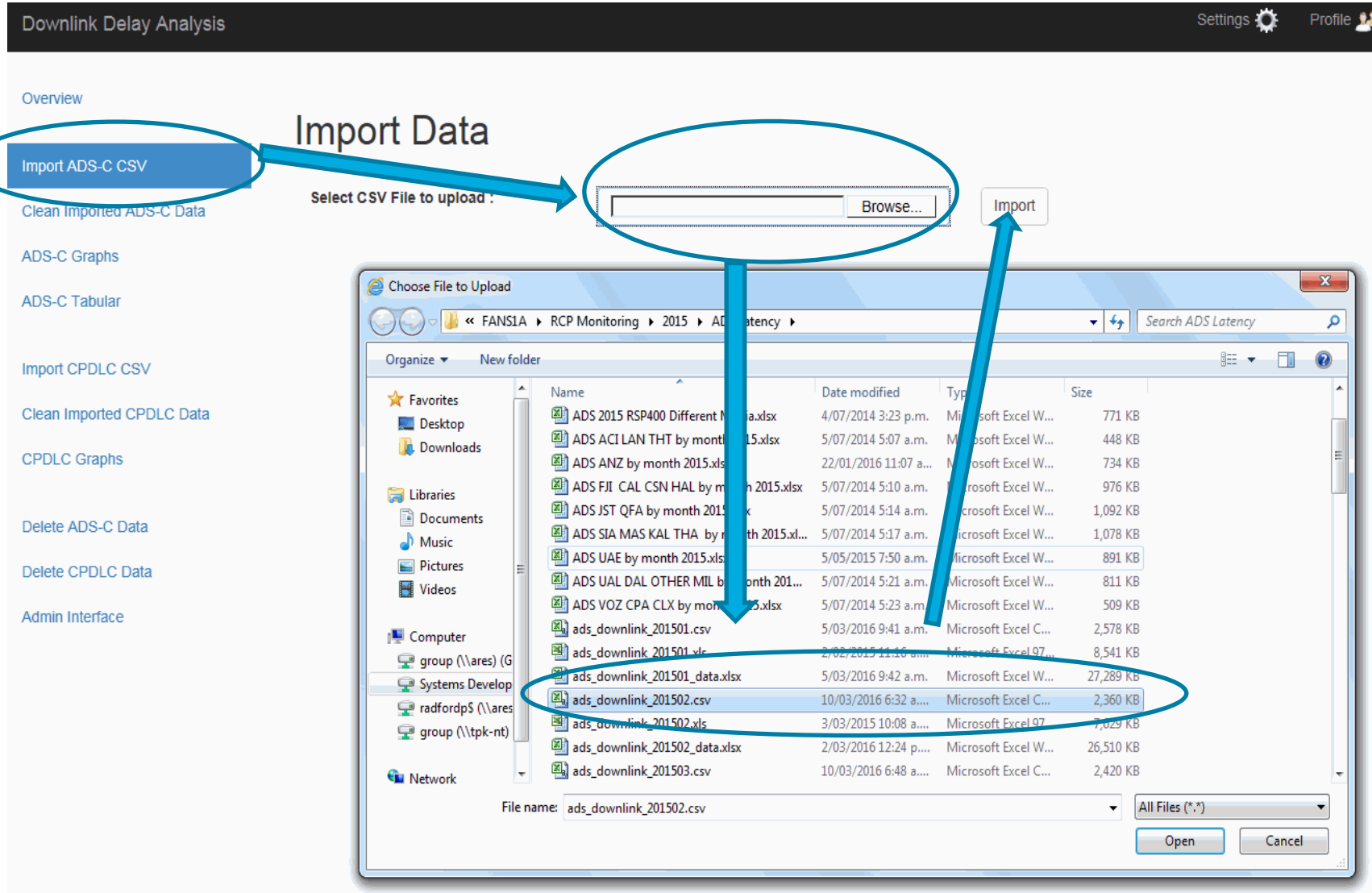
Access - Availability

- We are still discussing internally how the tool can be made available to other interested ANSP or other stakeholders in the FANS1/A community that need access to the performance data.
- A possible solution if we receive any interest from other stakeholders is to licence use for a free “trial” period such as 6-12 months to enable those interested to have a reasonable time to assess the tool.
- Following the trial period we anticipate that a small licence fee will be required to cover maintenance and upgrade costs.

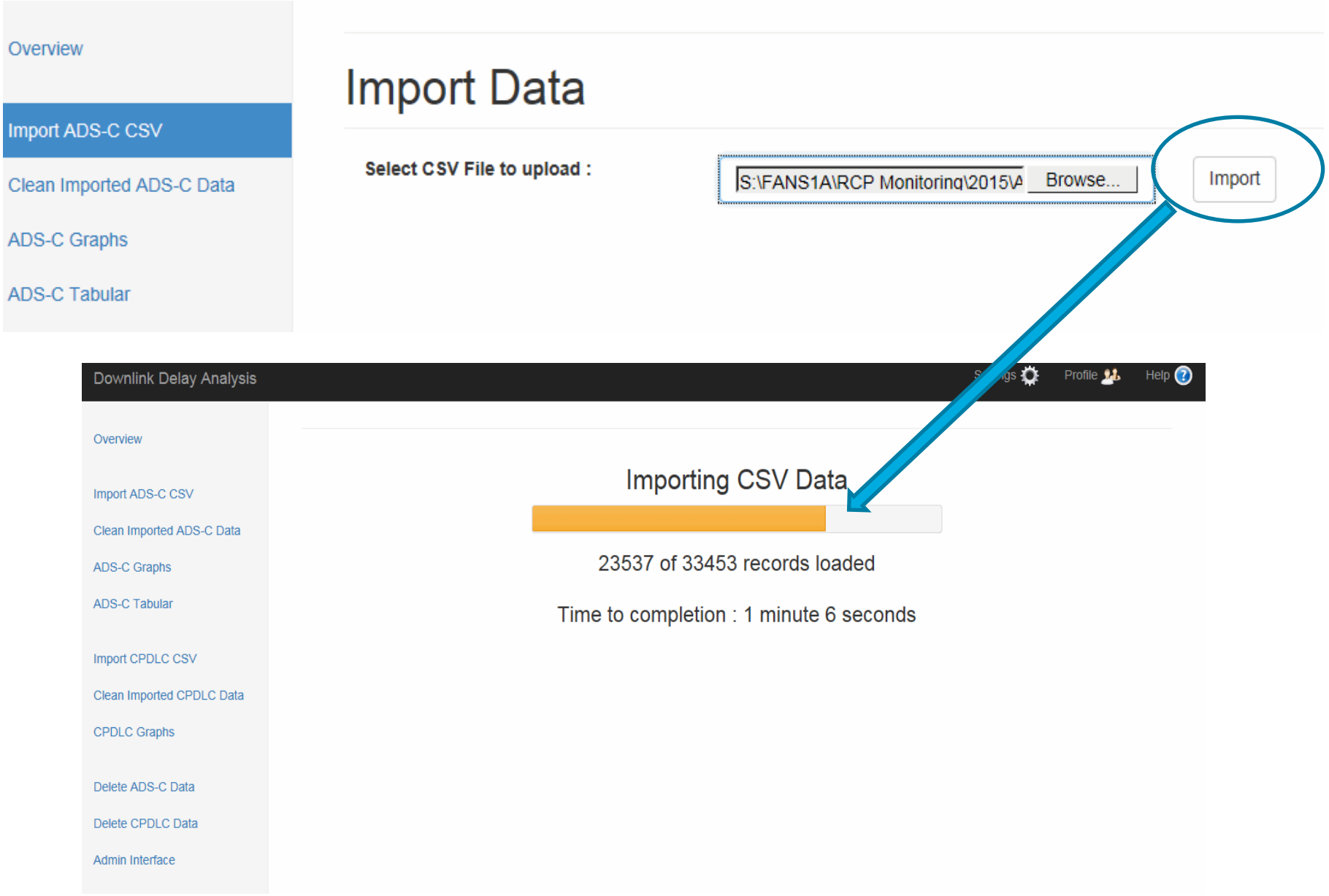
AIRWAYS
making your world possible

- We anticipate that upgrades will be required to the initial release of the tool. These upgrades will be required because:
  - The formats required for the tabular analysis are changing as more people become involved and we move towards PBCS implementation .
  - There are different needs for different users:
    - Manufacturers of different aircraft types
    - Airline users needing certification material.
    - ANSP post implementation monitoring.
    - ICAO regional overview.
- The quantum of the upgrades and changes required may drive the licence fee required after any trial period.
- Our intention is to keep the licence fee as small as possible to enable all interested to have access.

Importing .csv data



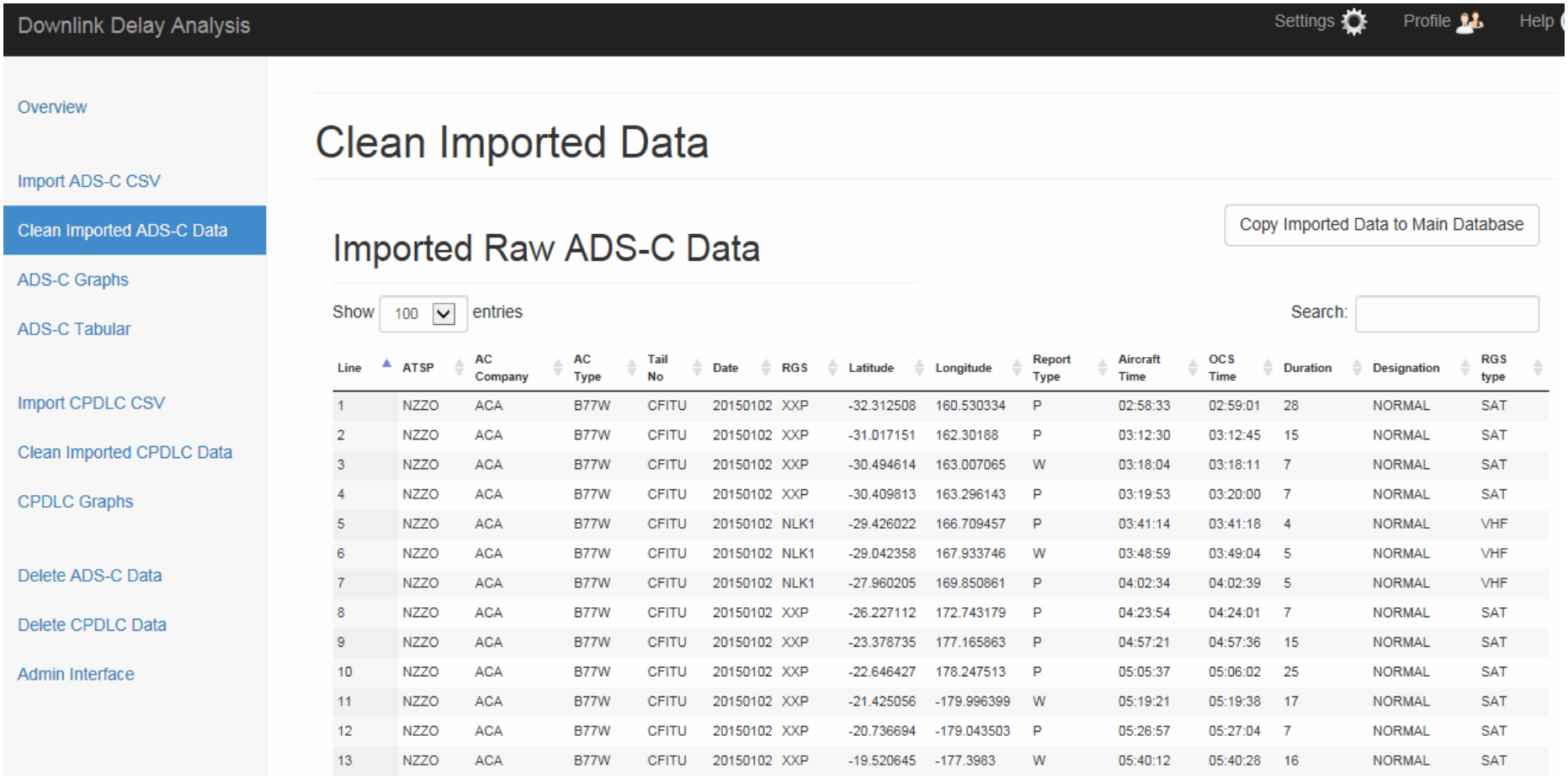
AIRWAYS
making your world possible



AIRWAYS
making your world possible

Clean/Filter imported data

- Shows all imported data , sort, review , view invalid records
- Fix missing type/company for tail number.
- Find and designate bad tails and outages.



Line	ATSP	AC Company	AC Type	Tail No	Date	RGS	Latitude	Longitude	Report Type	Aircraft Time	OCS Time	Duration	Designation	RGS type
1	NZZO	ACA	B77W	CFITU	20150102	XXP	-32.312508	160.530334	P	02:58:33	02:59:01	28	NORMAL	SAT
2	NZZO	ACA	B77W	CFITU	20150102	XXP	-31.017151	162.30188	P	03:12:30	03:12:45	15	NORMAL	SAT
3	NZZO	ACA	B77W	CFITU	20150102	XXP	-30.494614	163.007065	W	03:18:04	03:18:11	7	NORMAL	SAT
4	NZZO	ACA	B77W	CFITU	20150102	XXP	-30.409813	163.296143	P	03:19:53	03:20:00	7	NORMAL	SAT
5	NZZO	ACA	B77W	CFITU	20150102	NLK1	-29.426022	166.709457	P	03:41:14	03:41:18	4	NORMAL	VHF
6	NZZO	ACA	B77W	CFITU	20150102	NLK1	-29.042358	167.933746	W	03:48:59	03:49:04	5	NORMAL	VHF
7	NZZO	ACA	B77W	CFITU	20150102	NLK1	-27.960205	169.850861	P	04:02:34	04:02:39	5	NORMAL	VHF
8	NZZO	ACA	B77W	CFITU	20150102	XXP	-26.227112	172.743179	P	04:23:54	04:24:01	7	NORMAL	SAT
9	NZZO	ACA	B77W	CFITU	20150102	XXP	-23.378735	177.165863	P	04:57:21	04:57:36	15	NORMAL	SAT
10	NZZO	ACA	B77W	CFITU	20150102	XXP	-22.646427	178.247513	P	05:05:37	05:06:02	25	NORMAL	SAT
11	NZZO	ACA	B77W	CFITU	20150102	XXP	-21.425056	-179.996399	W	05:19:21	05:19:38	17	NORMAL	SAT
12	NZZO	ACA	B77W	CFITU	20150102	XXP	-20.736694	-179.043503	P	05:26:57	05:27:04	7	NORMAL	SAT
13	NZZO	ACA	B77W	CFITU	20150102	XXP	-19.520645	-177.3983	W	05:40:12	05:40:28	16	NORMAL	SAT

AIRWAYS
making your world possible

- Overview
- Import ADS-C CSV
- Clean Imported ADS-C Data
- ADS-C Graphs
- ADS-C Tabular
- Import CPDLC CSV
- Clean Imported CPDLC Data
- CPDLC Graphs
- Delete ADS-C Data
- Delete CPDLC Data
- Admin Interface

97	NZZO	ACI	A332	FOHSD	20150101	POR1	-24.08083	-174.376541	P	01:57:14	01:57:29	15	NORMAL	SAT
98	NZZO	ACI	A332	FOHSD	20150101	POR1	-24.023151	-170.768219	P	02:18:34	02:18:50	16	NORMAL	SAT
99	NZZO	ACI	A332	FOHSD	20150101	POR1	-23.997402	-169.995224	W	02:23:07	02:23:27	20	NORMAL	SAT
100	NZZO	ACI	A332	FOHSD	20150101	POR1	-23.515892	-167.232681	P	02:39:55	02:40:09	14	NORMAL	SAT

Showing 1 to 100 of 33,453 entries

Previous 1 2 3 4 5 ... 335 Next

Find Outages/Bad-Tails

Duration Range :

From Line (Click): **To (Alt-Click):** Set Outage

Selected_Tai **To (Ctrl-Click):** Set Bad Tai

Fix missing AC Type/AC Company

Tail Number: **AC Type:** **AC Company:** Set missing values

Invalid data to be discarded

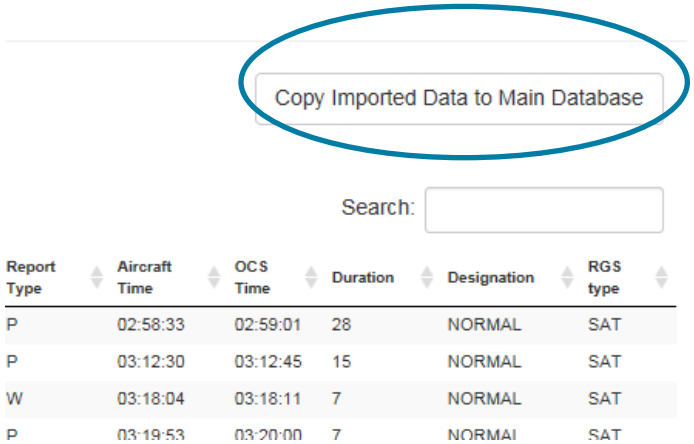
Show 25 entries Search:

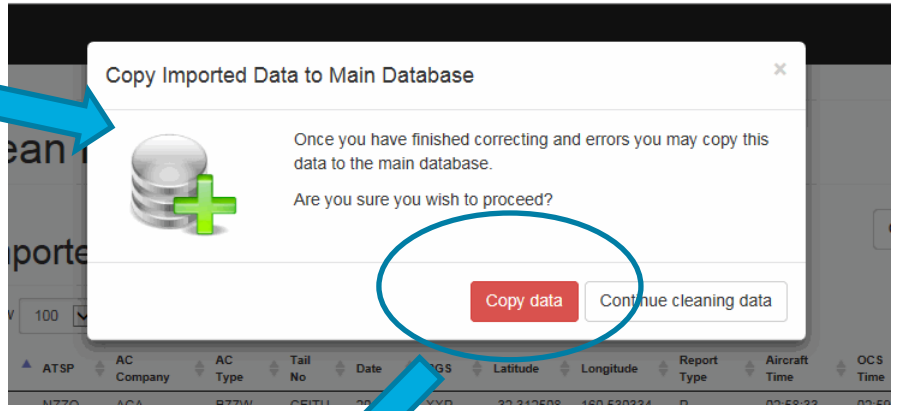
Line	ATSP	AC Company	AC Type	Tail No	Date	RGS	Latitude	Longitude	Report Type	Aircraft Time	OCS Time	Duration	Designation	RGS type
No data available in table														

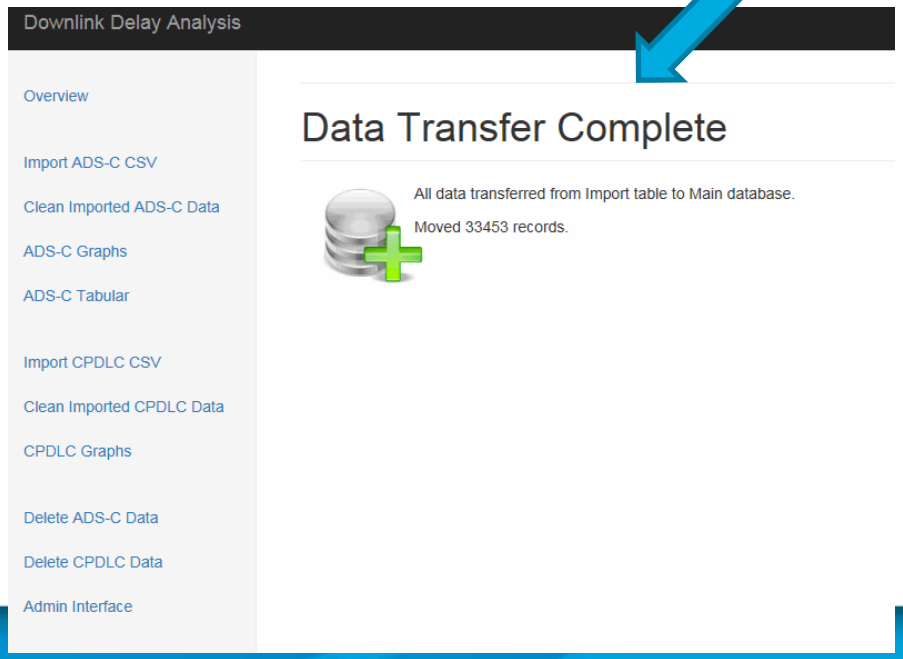
Showing 0 to 0 of 0 entries

Previous Next

AIRWAYS making your world possible

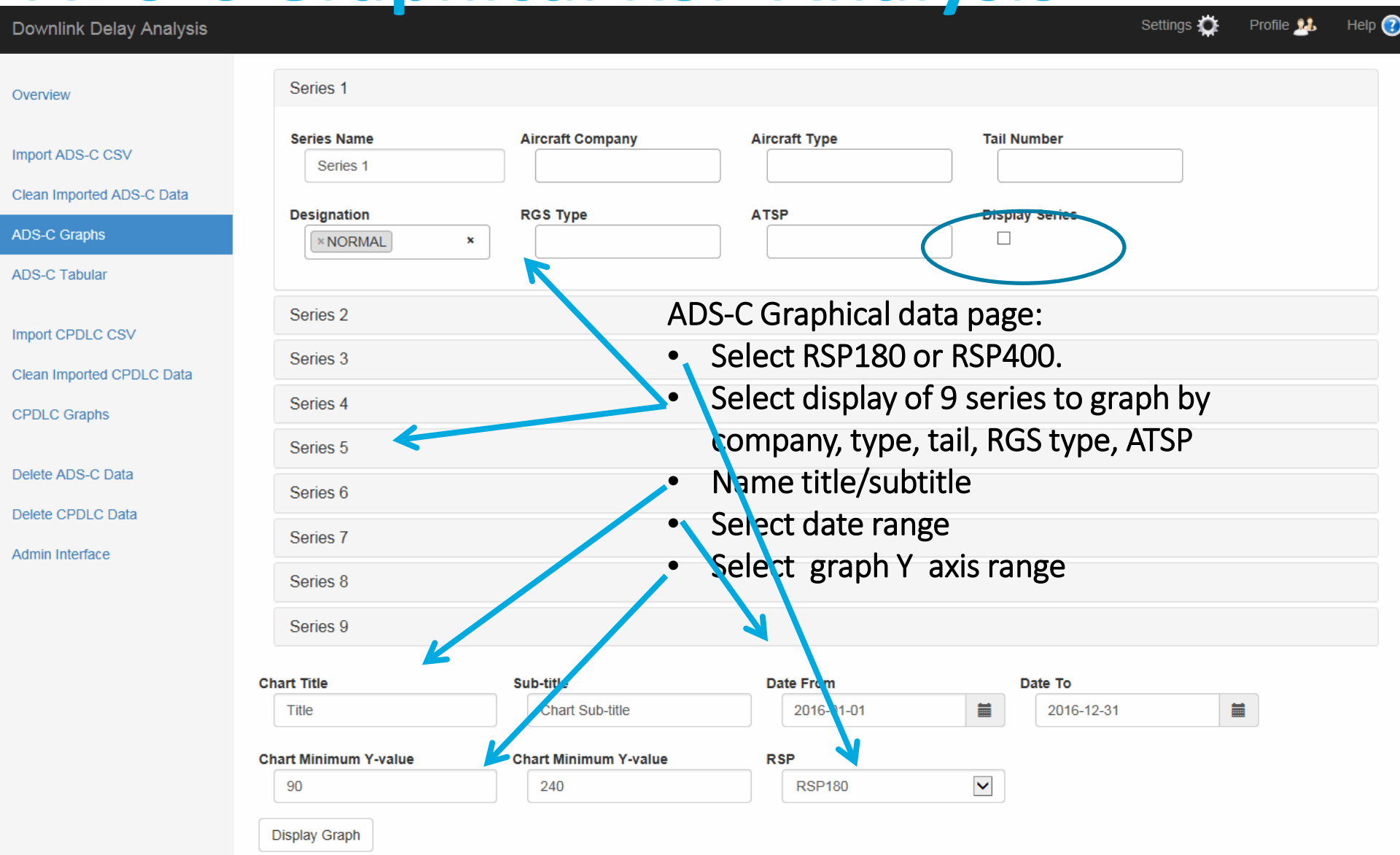






AIRWAYS
making your world possible

ADS-C Graphical RSP Analysis

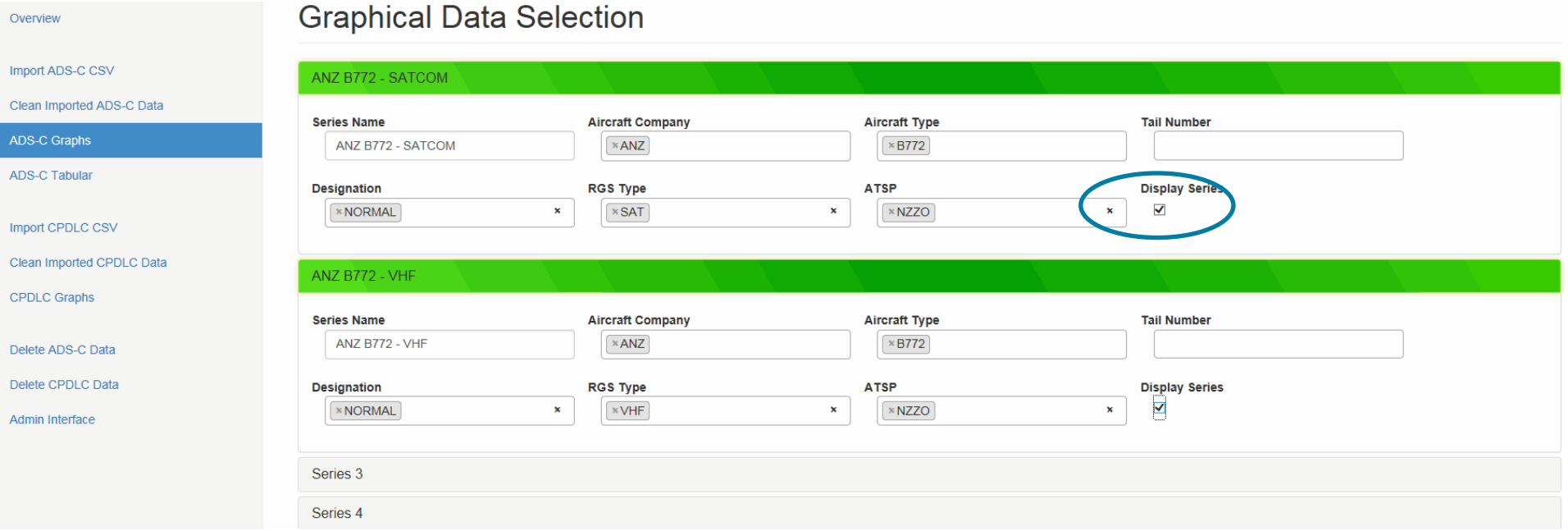


ADS-C Graphical data page:

- Select RSP180 or RSP400.
- Select display of 9 series to graph by company, type, tail, RGS type, ATSP
- Name title/subtitle
- Select date range
- Select graph Y axis range

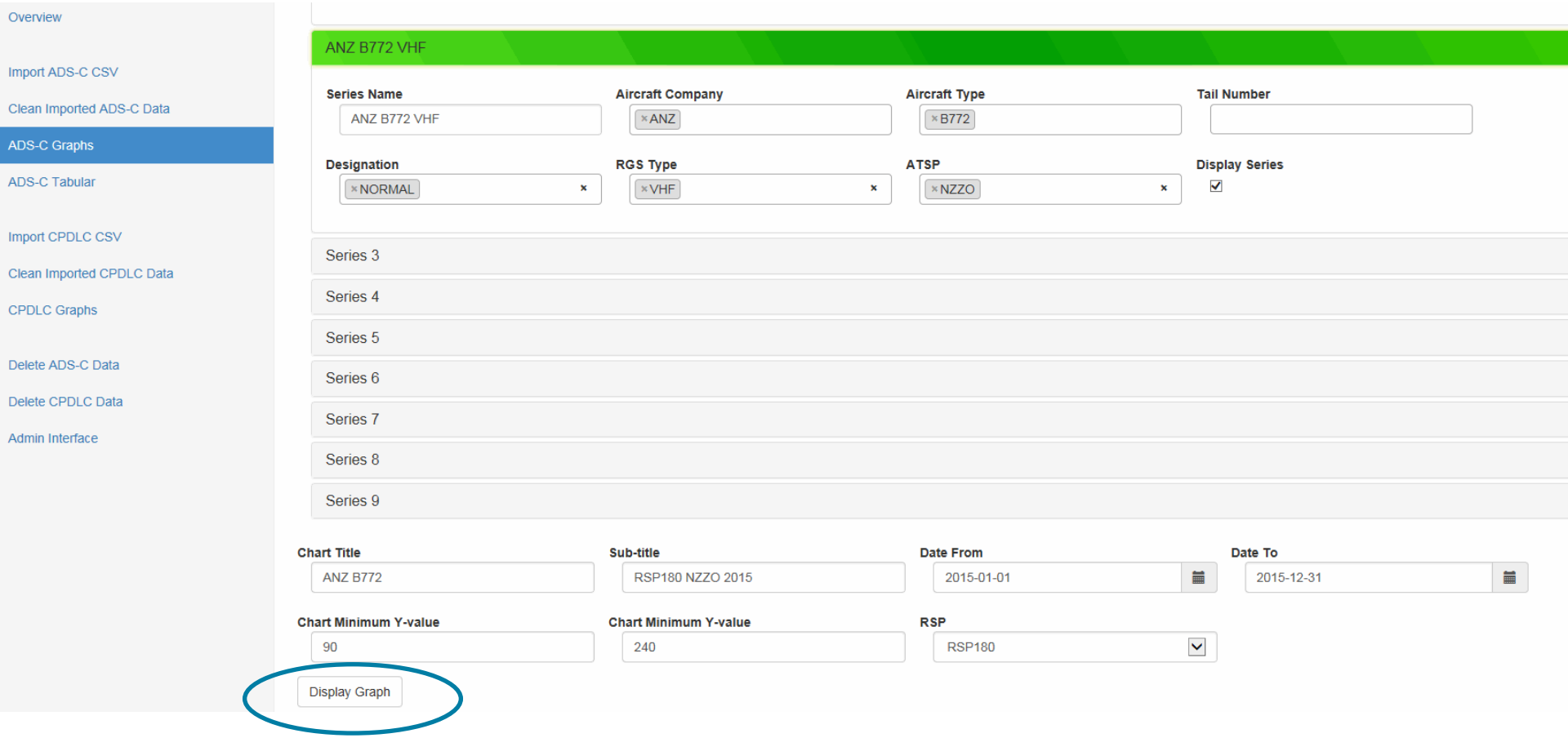
making your world possible

ADS-C Graphical RSP Analysis



AIRWAYS
making your world possible

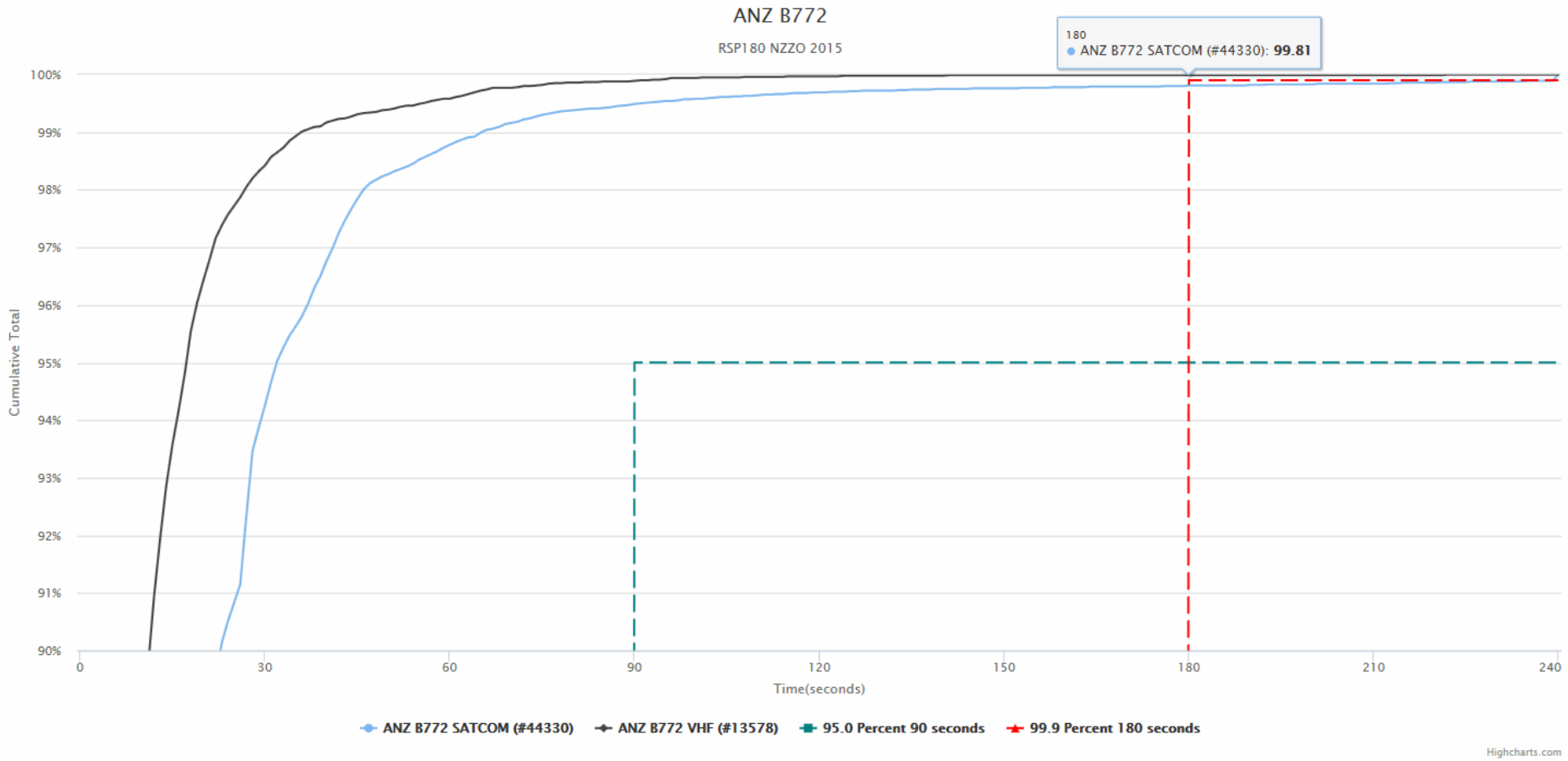
ADS-C Graphical RSP Analysis



AIRWAYS
making your world possible

ADS-C Graphical RSP Analysis

Selected Graph

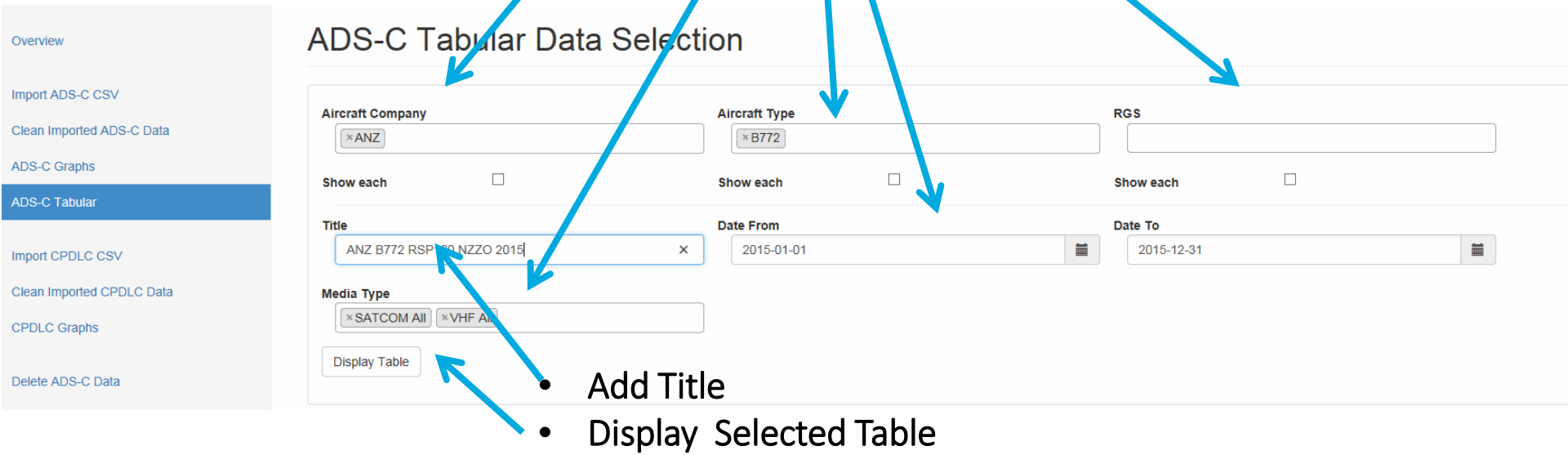


AIRWAYS
making your world possible

ADS-C Tabular RSP Analysis

ADS-C Tabular data page

- Select company,
- Select Aircraft Type,
- Select RGS,
- Select media type.
- Date range

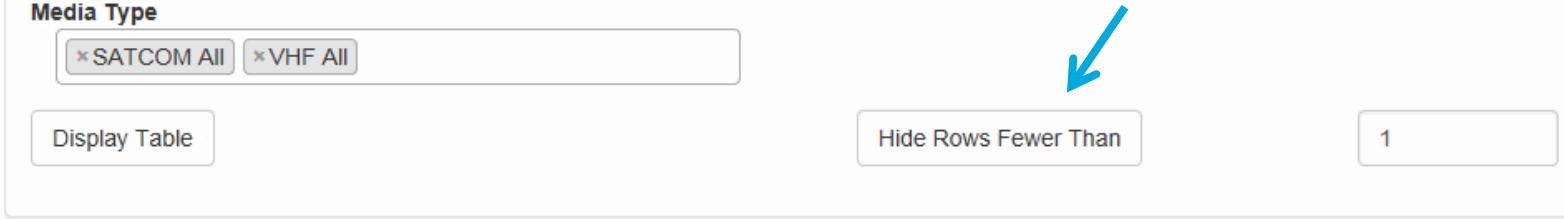


- Add Title
- Display Selected Table

AIRWAYS
making your world possible

ADS-C Tabular data page

- Filter displayed table to remove rows of less than specified number of messages.



ADS-C performance in NZZO FIR						
Colour Key Meets Criteria 99.0%-99.84% Under Criteria	Period 01 Jan 15 - 31 Dec 15				95% RSP180 Benchmark	99.9% RSP180 Benchmark
Media Type	**RGS**	**Aircraft Type**	**Operating Company**	**Message Count**	**RSP <= 90 sec**	**RSP <= 180 sec**
ANZ B772 RSP180 NZZO 2015						
SATCOM All	All	B772	ANZ	44330	99.49	99.81
VHF All	All	B772	ANZ	13578	99.90	99.99

AIRWAYS
making your world possible

Typical ADS-C Tabular RSP Analysis

ADS-C performance in NZZO FIR						
Colour Key Meets Criteria 99.0%-99.84% Under Criteria	Period 01 Jan 15 - 31 Dec 15				95% RSP180 Benchmark	99.9% RSP180 Benchmark
Media Type	**RGS**	**Aircraft Type**	**Operating Company**	**Message Count**	**RSP <= 90 sec**	**RSP <= 180 sec**
ANZ B772 RSP180 NZZO 2015						
SATCOM All	All	B772	ANZ	44330	99.49	99.81
VHF All	All	B772	ANZ	13578	99.90	99.99

AIRWAYS
making your world possible

Typical ADS-C Tabular RSP Analysis

ADS-C performance in NZZO FIR						
Colour Key Meets Criteria 99.0%-99.84% Under Criteria	Period 01 Jan 15 - 31 Dec 15				95% RSP180 Benchmark	99.9% RSP180 Benchmark
Media Type	RGS	Aircraft Type	Operating Company	Message Count	RSP <= 90 sec	RSP <= 180 sec
Analysis by						
SATCOM All	All	A332	CAL	5612	99.11	99.41
SATCOM All	All	A332	CCA	127	98.43	98.43
SATCOM All	All	A332	CES	1349	99.48	99.78
SATCOM All	All	A332	CSN	4651	99.57	99.68
VHF All	All	A332	CAL	1709	99.59	99.71
VHF All	All	A332	CCA	122	99.18	99.18
VHF All	All	A332	CES	1328	99.62	99.85
VHF All	All	A332	CSN	1712	99.47	99.77
HF All	All	A332	CCA	21	80.95	95.24
HF All	All	A332	CES	118	88.14	97.46
HF All	All	A332	CSN	153	76.47	91.50

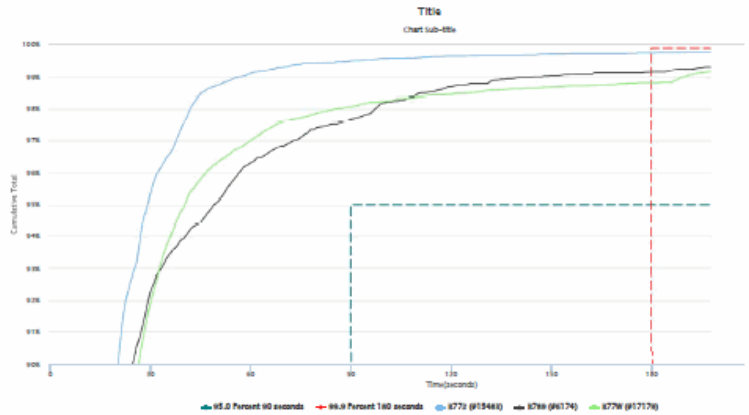
AIRWAYS
making your world possible

Printing graphs and tables

- Tool uses the normal print capability available in most browsers

Graphical Data Selection

Selected Graph



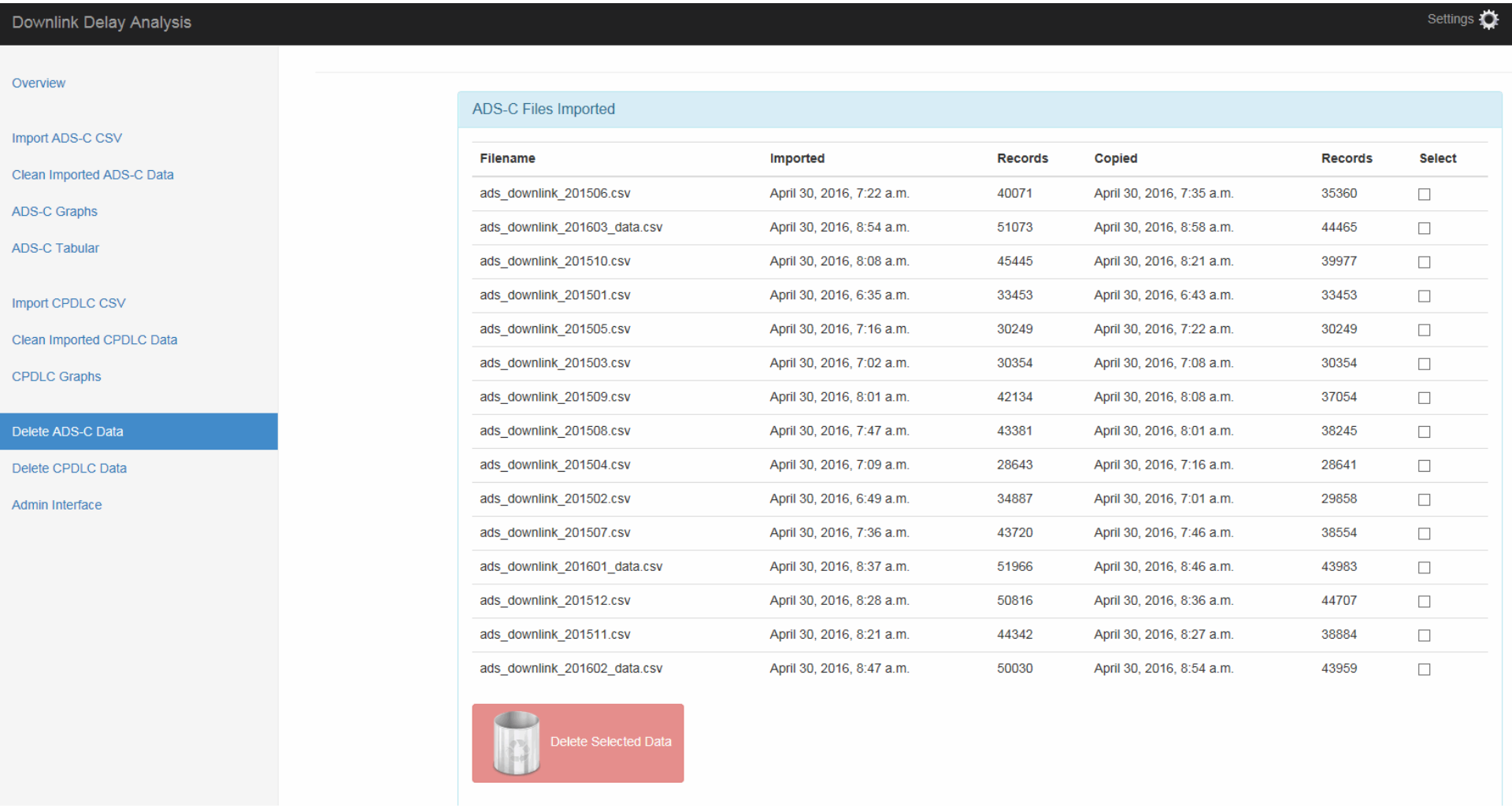
1/05/2016

ADS-C Tabular Data Selection

ADS-C performance in NZZO FIR						
Colour Key Meets Criteria 99.0% -99.84% Under Criteria	Period 01 Mar 16 - 31 Mar 16				95% RSP180 Benchmark	99.9% RSP180 Benchmark
Media Type	RGS	Aircraft Type	Operating Company	Message Count	RSP <= 90 sec	RSP <= 180 sec
Analysis by						
SATCOM I4	APK1	B789	ANZ	185	94.59	95.68
SATCOM I4	AME1	B77W	ANZ	471	99.58	100.00
SATCOM I4	APK1	B77W	ANZ	4679	97.67	98.31
SATCOM MTSAT	MTS1	B789	ANZ	1904	98.74	99.79

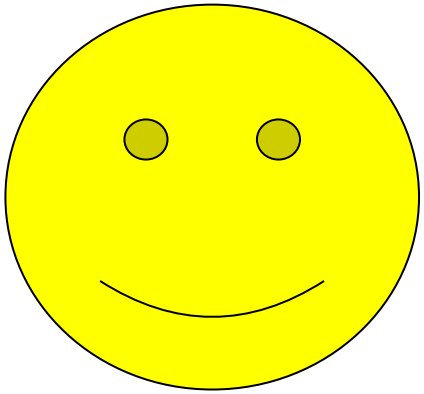
AIRWAYS
making your world possible

Delete imported records



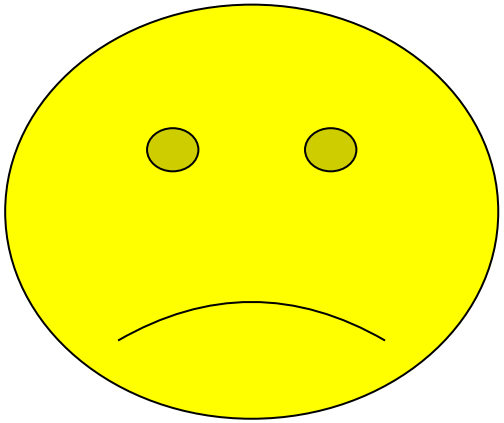
AIRWAYS
making your world possible

PLAN A : On-line demonstration



AIRWAYS
making your world possible

PLAN B : See next slide



AIRWAYS
making your world possible

Thank you

AIRWAYS
making your world possible