





AIR ACCIDENT INVESTIGATION SECTOR

Ismaeil Al Hosani ADG- Air Accident Investigation Sector

11/23/2015

AAIS, October 2015- SST, Cairo

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At the end of this presentation, the attendees will know about the AAIS:

- Legislation
- Structure
- Responsibilities
- Main processes
- Software
- Strategic activities
- New capabilities
- Integration with the UAE SSP

Legislation Tiers



Civil Aviation Regulations CAR Part VI, Ch. 3- Air Accidents and Incidents Investigation

Publications

AAIS's Procedures

GCAA Structure



AAIS Structure



Ismaeil Abdel Wahed Assistant Director General - AAIS



Khalid Al Raisi Director -**Air Accident Investigation**



Usman Karappath Administration Senior Officer



Executive Assistant









Abdelati Al Fadil **Senior Investigator**



Thomas Curran Chief Investigator



Mariam Al Hussaini Naser al messabi Administration Assistant Technical Assistant AAIS, October 2015



Ibrahim Al Addasi **Chief Investigator**



Jeremias Malaihollo Senior Investigator



Elias Nikolaidis Chief Investigator



Fazal AliBaksh Senior Investigator



Darren Straker Chief Investigator



Mohammed Al Kayat Senior Investigator



AAIS Mandate

- Establish, maintain and update air accident investigation policies and procedures
- Conduct investigations of aviation accidents and incidents which occur within the UAE territories in accordance with annex 13
- Participate to investigations outside UAE territories if UAEregistered aircraft is involved
- Share knowledge with the national and international accident and incident investigation community
- Publish the results of investigations
- The UAE AAIS investigates all accidents and selected serious incidents in the UAE territory and when A6- registered aircraft are involved in events outside the UAE territories

Strategic Activities

- MENASASI
- ICAO initiative: RAIO
- ICAO AIGP

MoUs

Agreements with:

- TSB, Canada
- AAIB, the United Kingdom
- IAC, Regional Organization
- BEA, France
- AAIB, Singapore
- Civil Aviation Affairs, Kingdom of Bahrain
- Central Directorate for Accidents, Egypt
- Central Directorate for Accidents, Sudan
- CARC, Jordan
- Falcon Air Services, UAE (For air transportation to the accident site)
- ADAT, UAE
- AAIB, the United Kingdom
- Ministry of Interior, UAE
- Civil Defence, Dubai, UAE
- Armed Forces, UAE

Investigation Software

- INVESTIGATION SMART MANAGER (ISM)
- ECCAIRS 5
- Q-PULSE
- FLIGHT RECORDERS

Investigation Smart Manager (ISM)



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AAIS New Capabilities

- Small Unmanned Aircraft for Accident Site Aerial Imagery
- Flight data analysis "Plane Sciences"
- Laser scanner for accident site "FARO"



AIR ACCIDENT INVESTIGATION

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Flight Data Analysis

- The original owners of Flightscape, formed Plane Sciences primarily to provide flight data subject matter expertise to the aviation community with focus on accident investigation and prevention.
- Recently, Flightscape is focusing more in Flight Data Monitoring software
- FAS (flight data analysis software) integrates/interfaces with COTS solutions to take maximum advantage of high volume affordable applications such as Google Earth, X-plane, MATLAB, Excel, iCharts and Adobe Illustrator that can be bought and used





Laser Scanner

- Mount on a tripod
- Rotate 360 degrees
- Digitally record everything within about 300 feet
- Accurately correlating the time for the signal to return to help build not only 3-D still photos
- Digital simulations of past events



FAS Features

- Google Earth and X-Plane 3D visualization
- Synchronized animation, plot, list, audio and video
- Excel audio transcription template for subtitles
- FAS can be executed over the web for disseminating animations without any resident software required
- The worlds largest library of data-maps (older and new flight data map and configuration are available)
- FAS is the only software in the world that uses FRED (Flight Recorder Electronic Documentation) natively (it does not require FFD file as the Flightscape)

Benefits

- The data gathered from the scanners can be digitally reassembled to provide information accurate enough to measure tire skid marks or even the deformation of damaged object.
- The digital scanners also mean that simulations can offer viewers the opportunity to put themselves at any location to observe what occurred before or during an accident.

Main Processes

- DI Notification
- Initial Investigation
- File Opening Decisionmaking
- Investigation
- Report Making
- Safety Recommendations

DI receives a call

DI Notification Process



File Opening Decision-making

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DI Occurrence A	ssessment					
Is the occurrence class	sified as an Accident or Serious Incident?	🛇 Accident 🔘 Serious Incident				
Does the occurrence i	nvolve a large or small aircraft?	🔘 Large aircraft 🔘 Small aircraft				
Commercial or Private	use?	🔘 Commercial use 🔘 Private use				
Involve a UAE registe	red aircraft or UAE operator?	◎ UAE registered aircraft ◎ UAE operator				
Is there a trend on t review of ROSI?	he same operator, aircraft type, kind of operation as per the	© Yes ◎ No				
Is there any anticipat	ed safety value of an investigation?	© Yes ◎ No				
Is it expected to make	a potential impact on public confidence on aviation safety?	© Yes ◎ No				
Have a relevance to a	n identified and targeted safety program?	© Yes ◎ No				
Are there enough ava conflicting priorities?	ilable resources and projected to be available in the event of	© Yes ◎ No				
Is there any other opp to be internally invest	ortunity to be investigated by other investigation authority? Or gated by the concerned operator?	© Yes ◎ No				
What is the time gap b	etween the occurrence and its notification?	Days: Hours:				
Does the occurrence	ave training benefits for the AAIS investigators?	🛇 Yes 🔘 No				
DI Suggestions a	nd Further Investigation					
Comments*		*				
	Require detailed investigation					
	Require limited scope investigation (Summary Reprint of Summary Rep	eport)				
DI Suggestion	Need to open a safety case					
	Do not bring valuable safety lessons Need to be recorded by the AAIS for future action					
	Investigation by other agency	Need to be recorded by the AAIS for future action Investigation by other agency Investigation				

Report Making Process



Reports Control		
DG Brief	Browse	
Preliminary Report		0
First Anniversary Interim Rep	ort	0
Second Anniversary Interim R	eport	0
Third Anniversary Interim Rep	ort	0
Draft Final Report		0
Forwarded to	United Arab Emirates Image: Arab Emirates Image: Arab Emirates	
Comments on the Draft Final I	Report	0
Final Report		0
Sent to	United Arab Emirates	
Is there any Safety Recommendation	YES	
Discontinuance Report		
Reason for Discontinaunce		
Discontinaunce Report	Browse	
Expenses		
Investigation Expenses	Calculate Expense	

AAIS Reports

- Preliminary Report
- Interim/Progress Report
- Final Report
- Summary Report
- Safety Study Report



Fokker MK.050 EP-LCA



Date: 10 FEBRUARY, 2004 Location: 2.6 nm final to Sharjah International Airport, United Arab Emirates Runway 12.

Probable Cause : The Investigation team determined that most probable cause of the accident that The power levers were moved by a pilot from the flight idle position into the ground control range, which led to an irreversible loss of flight control.

Injuries: There were a total of 43 fatalities and 3 survivors.

Nature of Damage: Most of the aircraft was completely destroyed on impact and only the tail section was relatively intact.

Augusta Westland AB139 - A6-BBB



Date: 3rd of June 2008. Location: Near Al Futaisi Island, Abu Dhabi-UAE. **Probable Cause :** The Investigation team determined that most probable cause of the accident was human factor due to crew disorientation following an unusual attitude. **Injuries:** All crew members including the three passengers were fatally injured (2 Crew+ 3 Passenger = 5). Nature of Damage: The aircraft was totally destroyed and its wreckage scattered over the shallow water.

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Bell 212, A6-ALV





Date: September 3rd, 2008. Location: Rashid Drilling Rig, MAERSK RESILIENT, Dubai–UAE. **Probable Cause :** The Investigation Team determined that the most probable cause of this accident has to be identified as loss of situational awareness due to loss of visual reference and the inability to determine the correct attitude of the Helicopter and react to this condition. Injuries: All crew members including the Five passengers were fatally injured (2 Crew+ 5 Passenger = 7). Nature of Damage: The aircraft was totally destroyed as a result of significant impact forces and subsequent fire.

Boeing 707-330C, ST-AKW



- Date: 21 October 2009.
- **Location:** 1.6 kilometers from the end of runway 30 (threshold of RWY 12), Sharjah International Airport.
- Probable Cause : the departure of the No. 4 engine core cowls;
 - the consequent disconnection of No. 4 engine EPR P_{t7} flex line;
 - the probable inappropriate crew response tothe perceived No. 4 engine power loss;
- the Aircraft entering into a stall after the
 published maximum bank angle was
 exceeded; and
- the Aircraft LOC that was not recoverable.
- Injuries: All 6 crew members were fatally injured .
- Nature of Damage :Aircraft completely destroyed by ground impact and consumed by fire.

Boeing 747-44AF, N571UP



- Date: 03 September 2010.
- Location: nine nautical miles south west of Dubai International Airport, Dubai.
- **Probable Cause :** The uncontained cargo fire directly affected :
- the control cables and toxic smoke into the cockpit area, affecting the visibility in the cockpit, obscuring the view of the primary flight displays, audio control panels, and the view outside the cockpit which prevented the pilots from seeing anything, including the checklists, flight display warnings and the radio panels.
- the crew oxygen system, leading to an over heat
 failure which caused the Captain to be incapacitated
 due to toxic smoke poisoning.
- **Injuries:** the 2 crew members were fatally injured .
- **Nature of Damage :**Aircraft completely destroyed by ground impact and consumed by fire.

Safety Recommendations Process



Detailed SR Process



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Modules Workload Analysis	+ Stages Due (1)	AAI-Case-33	Case file 12/2011-GCAA AAIS as ACC REP	Case file 12/2011, SR F	06/11/2011
		AAI-Case-32	Case file 05/2010-GCAA AAIS as ACC	Case file 05/2010 - 2 SR	25/04/2010
(76) *		AAI-Case-31	Ground-Incident, On 5 February 2012, after	Case file 4/2012. Final r	05/02/2012
Audite		AAI-Case-30	Ground-Accident, On 17 August 2007, an Airbus	Case file 6/2007. Fiinal r	17/08/2007
	Search	AAI-Case-29	Flight-Accident, On September 3rd 2010, the	Case file 13/2010. Final	03/09/2010
Documents	Туре	AAI-Case-28	Flight- Accident, On 27 February 2011, A	GCAA case 2/2011,Ope	27/02/2011
J Documents *	Any 👻	AAI-Case-27	Ground-serious incident, (IL)-76TD,REG. UP-I7625	GCAA case 11/2012 con	21/06/2012
	Status	AAI-Case-26	Ground -Serious incident, At Abu Dhabi airport on	GCAA Case file11/2012	05/05/2012
V occurrences *	Any -	AAI-Case-25	Flight -Accident, At Al Ain on 9/2/2012 Paramotor	GCAA Case 05/2012,wi	09/02/2012
	Priority	AAI-Case-24	Flight-Accident-Etihad- B777-300 A6-ETC-	GCAA case 11/2011,wit	18/10/2011
	Any	AAI-Case-23	Flight-Accident, Al Jazirah Aviation Club,	GCAA Case file 03/2010	19/03/2010
	Owner	AAI-Case-22	GCAA case file 08/2012, SR 17/2012 to SR	GCAA case file 08/2012	22/04/2012
	Any	AAI-Case-21	GCAA case file 01/2010.SR 08/2012 to 16/2012.	GCAA case file 01/2010	23/02/2010
	Event Date	AAI-Case-20	Ground incident -Dubai airport, Phoenix Avia	GCAA Case file 16/2010	27/10/2010
	Any	AAI-Case-19	Ground event - serious incident, Gama Aviation	GCAA Case file 05/2011	09/05/2011
	Mandatoov2	AAI-Case-18	Fatal Accident - motorized parachute model	GCAA case file 04/2011	26/01/2011
	Apy	AAI-Case-17	Ground Incident during taxing- during its way to	GCAA Case file 02/2010	28/02/2010
		AAI-Case-16	Rejected takeoff at approx 155 km/hr, Ayk Avia,	GCAA Case file 09/2009	19/10/2009
	Keywords	AAI-Case-15	RTO while the B737-800NG, VT-AXP, Air India	GCAA case file 05/2009	07/07/2009
		AAI-Case-14	Fatal accident- Cameron Z-425 LW, A6-JBR,	GCAA AAIS Case file 04	25/04/2010
	Advanced 💫 Search 🙀 🗙	AAI-Case-13	Fatal accident - Aerogulf, Bell 212 helicopter,	GCAA AAIS Case file 02	03/09/2008
		AAI-Case-12	Aircraft crash, Sudan Airways, SUD 2241,	Case file 10/2009, with	21/10/2009
	🥠 Search	AAI-Case-11	Ground incident damage to IL-76 caused by	Case file 04/2009 with 9	14/04/2009
	A My Searches	AAI-Case-10	Balloon Adventures Dubai, CAMERON BNZ-425	Case File 03/2009 with	15/11/2009
		AAI-Case-9	AN-12, EK-12307, Flt# TRV609,In flight turn back	Case file 02/2009. With	06/01/2009
	🖉 My Folders	AAI-Case-8	Runway Excursion during take-off RWY30 Sharjah	Case file 01/2009 with 7	02/01/2009
		AAI-Case-7	Fatal accident of Agusta Bell AB139, A6-BBB, Abu	Case file 01/2008 with 1	02/06/2008
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Number	SR24/2013	Status 0	Open	*	Raised Date	28/11/2013	—	3	Î
Type/Level	AAI - Safety Recommendation 👻	Inspector A	Al Addasi, Ibrahim	÷	Target Date	26/02/2014	E	3	
Incident	AAI-Case-27 - INITIAL/SITE INV	ESTIGATION REPO							
Description of Finding	GCAA case 12/2012 Open and fi Serious incident, On 21 June 20 UP-I7625, operated by Air Trast Safety Recommendation SR 24/	nal report contained 7 12, the sixteen main 1 , burst due skid cause 2013 recommends tha	7 safety recommend anding gears tires o ed by brakes jammin at "The GCAA to imp	lations, SR18/201 of the Ilyushin (IL)- ig at landing, IIC v prove the Civil Avia	3 to SR24/2013). 76TD cargo Aircraft, vas Ibrahim Al Adda: tion Regulations to	, REG, 📋 si.		\$	
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	AliBaksh, Fazal 🔹 …		Flight Operations	-	Flight No/	Case file 12/2	012, IL-76TD		
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GCAA Business	5	D						-	
Process	3	Document			Regulation				
Fault Type	•	Resolution		-	Root Cause			-	
Aircraft Mode		Closed By		· ···	Closed Date			1	
Response							(2)	\$	
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Owner	Al Suwaidi, Matar	· ···		Comple	eted By		*		
Target Date	26/02/2014			Close	ed Date			- 75	
Details	With reference to Annex 13 to t section 8, the Air Accident Invest	he Convention on Inte	ernational Civil Avia	tion paragraph 6.1 ed the mentioned s	0 and GCAA CAR Pa	art VI chapter 3	-		
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Actions	Number 🔺 Owner	Details		Response	Target Da	ate Complete	ed Date	1	
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j Overdue (2)	NC5	test 123	Open	13/08/2013	
→ Stages Overdue (1)	NC10	test, test	Open	13/08/2013	
	SRT-1	engine fire	Closed	09/09/2013	
Search	SRT-2	PLease amend OMP 1.3.1	Closed	10/09/2013	
Type/ Level	SRT-3	Carry out equipment insp	Closed	10/09/2013	
Any	SRT-4	Carry out request of SR 01/2013	Closed	07/10/2013	A6-AAB
Any	T-5	Kindly respond SR 02/2013 which is related to AAIS	Closed	07/10/2013	
AAI - Safety Recommendation	Г-6	SR 01/2008 Establish regulations to prescribe the	Closed	07/10/2013	
Initial Document Approval	T-7	carry out sr 03/2013	Closed	08/10/2013	
Level 2	Г-8	Greetings from the GCAA, UAE.	Closed	08/10/2013	
Level 3 / Recommendation	Г-9	Dear Sir, with respect to AAI Annex 13 investigation,	Closed	12/10/2013	
Q-Pulse Change Request	Г-10	Carry our SR 01/2013	Closed	12/10/2013	
	T-11	AAI SR 01/2013	Closed	17/07/2013	
	T-12	AAI SR 02/2013. AAI Case file 01/2013.	Closed	15/07/2013	
×	.:: T-13	AAI SR 03/2013. AAI Case file 01/2013.	Closed	12/10/2013	
Advanced O Search (T) X	SRT-14	AAI SR 04/2013. AAI Case file 01/2013.	Open	12/10/2013	
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Search	SRT-16	AAI SR 16/2013. AAI Case file 01/2013. Please	Open	12/10/2013	
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	SRT-20	AAI SR 20/2013. AAI Case file 01/2010. Please	Open	12/10/2013	
*	SRT-21	test	Closed	25/07/2013	
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Integration with the UAE SSP

1. State's <u>Safety Policy</u> and Objectives.

 b. Safety Responsibilities and Accountabilities
 c. Accident and Incident Investigation
 d. Enforcement Policy

State's Safety Risk Management

- a. Safety Requirements for Service Providers SMS
- b. Approval of Service Providers
 - Acceptable Levels of Safety

3. State's Safety Assurance

- a. Safety Oversight
- b. Safety Data Collection, Analysis and Exchange
- c. Safety Data Driven Targeting of Oversight on Areas of Greater Concern or Need

4. State's Safety Promotion

- Internal Training, Communication and Dissemination of Safety Information
- b. External Training, Communication and Dissemination of Safety Information

Integration with the UAE SSP

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11/23/2015

Integration with the UAE SSP



Investigation Smart Manager









Generated Reports







AAIS, October 20

Thank you for your attention