Welcome

On behalf of the IFALDA board I would like to send our heartfelt thoughts to each and all of you. We know it has been a challenging, unprecedented time in the world. We each have navigated our lives to survive the COVID-19 Pandemic. With 2021 coming to a close soon we hope you are all able to switch to stabilize and rebound so once again each of you can thrive in life.

-Shelleyrae Niemi-IFALDA VP of Administration and Publisher of Flight Dispatcher’s World.

Hail and Farewell…….

1. **Sevda Tantan**

Our Vice President East, Ms Sevda Tantan has retired from her position as Dispatch Manager-Turkish Airlines. She is currently working through some family matters and will also consider future professional challenges, sorting out opportunities to provide flight dispatch subject matter technical support as a contractor or consultant as well as other volunteer activities and personal interests. We are extremely pleased to learn that Sevda will also continue her efforts as Vice President East.

2. Sergey Vakhrushev

Our Vice President West, Mr. Sergey Vakhrushev, has resigned from United Airlines and has accepted a position with the U.S. FAA as an Aircraft Dispatch Aviation Safety Inspector, serving in the New York-Garden City Certificate Management office. His FAA appointment is September 1st, 2021. As such, to avoid conflicts of interest, Sergey has resigned his position as IFALDA VP-West and fortunately, Sergey will continue as an IFALDA Director at Large and be as supportive as possible in IFALDA's professional projects and interests. The IFALDA membership and the IFALDA Board owe a vote of thanks and appreciation for all that Sergey has done, particularly his efforts in the ICAO NATSPG and the various technical working groups to which he has contributed so much. Although Sergey's position with the FAA does not allow him to be in a decision-making position with IFALDA, Sergey will remain as Director at Large in order to assist as an advisor on technical and professional projects.

3. Nigel Cummins

Mr. Nigel Cummins, a United Airlines dispatcher and Dispatch Manager has been appointed to succeed Sergey as IFALDA Vice President West, to fill out Sergey's 2-year term ending in May 2022. Nigel is a seasoned United Dispatcher with 20+years of experience; for the past eight years, he has been in the position of a full-time Dispatch Manager (MDO). He has been involved with the NAMEUR (North American – European Air Traffic Flow Management Group) and other similar industry meetings in the past. He has the ability and desire to serve IFALDA. His leadership, knowledge, and expertise will significantly contribute to IFALDA. The IFALDA Board has unanimously voted to appoint Nigel to the position, subject to re-election at the 2022 AGM.

4. Tiago Ludgero

Introducing Tiago Ludgero as our new Director Professional and Technical Standards -Tiago is from Lisbon and is a Freelance Flight Dispatch instructor. He is the SME for JAA TO www.jaato.com on the initial and recurrent training Flight Dispatch Training. Their training program is recognized by ICAO. Tiago is a qualified commercial Pilot and will be a great addition for us.

5. **Paul Mason**

We'd like to welcome an old friend to IFALDA, Paul Mason as our Director Meetings & Events - Paul is a Dispatcher with Air Canada and has attended the last few Board meetings and is keen to contribute for us. This role is Shelleyrae's former position. Paul will work with the core team in the inner planning of the YYZ AGM and future events. We won't be disappointed by what he can do.

6. Edward Stefanovich

Let's welcome Edward Stefanovich as our new Director of Association Memberships. Edward has also attended our last few Board meetings and will be a valuable asset for us. This role encompasses communication and maintenance with our Association groups. Edward has a strong training background, which can also help us with unique projects.

……….

2022 AGM-YYZ

We are excited to announce that the 2022 AGM-YYZ is in process of being finalized. The AGM will be held in Toronto May 10-12, 2022. Hotel and registration details will be posted on our website. www.ifalda.org. We are finalizing details. Although we hope for all of you to be able to join us, we will have options for those that can participate virtually.

…….

A note of Thanks:

This edition of FDW 2021 is my first in my new role. I could not have completed it without the expertise of Dave Porter. He has been the long time editor and has made it what it is today. I will do my best to submit future versions during my time at VP Admin that will be adequate. I am grateful for all the help he has given me. Thank you Dave!

……

Articles of interest for Dispatcher's

Alaska Airlines pioneers A.I. to plan flight routes, saving fuel and time

https://fortune.com/2021/07/27/alaska-airlines-ai-flight-dispatch-airspace-intelligence/

……….

A21 Aviation Magazine Training Forum in Mexico March 2021

A report from FALDA Director Mexico and Central America Raul Aguirre

I attended an Aviation Magazine Training Virtual Forum in early 2021, hosted by the **A21 Aviation Magazine** and had the participation of several training school directors as well as veteran civil and military pilots.

The following topics were discussed.

1.- status of the professional training offer in Mexico.

Due to the pandemic the schools have had to change the way they work, relying heavily on distance learning, and few presential classes with limited assistance, there is a legal void, as this has not yet been regulated, so pending review by the aeronautic authorities, it has been self-regulated by the schools according to other nations best practices. The lack of medical examiners has also stopped many pupils from graduating. The flight schools had in a similar way as the airlines to park their aircraft until better times.

2.- talent demand in the different specialties.

Talent will be greatly needed in all fields, there is a big aerospace Industry in the country, and it will be supplied by 30 plus schools and one university. The best schools will have a high demand by pupils.

3.- challenges.

In aviation there will always be golden ages and dark moments, as it is a dynamic industry, the stock market has seen a rise in airline prices that means that investors still have confidence; this situation will eventually be overcome if we all work together for a good ending.

4.- academic infrastructure to attend the demand after the pandemic.

It´s expected to be sufficient but will have to move to a hybrid model of distance and presentable classes, to satisfy a greater number of pupils and learning environments. Until the aeronautical authorities can make a ruling the distance classes will have to be self-regulated.

………

An Argument for a Flight Dispatch System

By Dave Porter- Special Assistant to the President

Many States, including the United States and Canada amongst others, have scalable systems for the exercise of operational control for the commercial carriage of paying passengers.

- At larger scheduled passenger-carrying airlines, a pilot-dispatcher joint responsibility system is generally required by regulation.
- With non-scheduled cargo and passenger-charter airlines, a flight following system is often mandated, with the Director of Operations exercising responsibility using trained "flight followers", who are often government-certificated flight dispatchers.
- Smaller on-demand operators generally use pilot self-dispatch flight locating systems of operational control, normally without a system of direct operational support from the ground.

Let's look at one of these….

An Air Tindi Cessna 208B Grand Caravan, Registration: C-FKAY, sustained substantial damage in a forced landing on the frozen surface of Great Slave Lake, Canada. Air Tindi is a CanadianType-C operator requiring a pilot self-dispatch system of operational control.

Flight 223 from Yellowknife Airport (CYZF), Northwest Territories, to Fort Simpson Airport (CYFS), Northwest Territories had originally been scheduled for 19 November 2014 at 18:00 local time but was cancelled because of freezing drizzle reported in Fort Simpson. The flight was rescheduled for 20 November 2014 at 06:00. Its early-morning departure was intended to enable the regularly scheduled return flight to depart Fort Simpson at 08:00 with minimal delay.

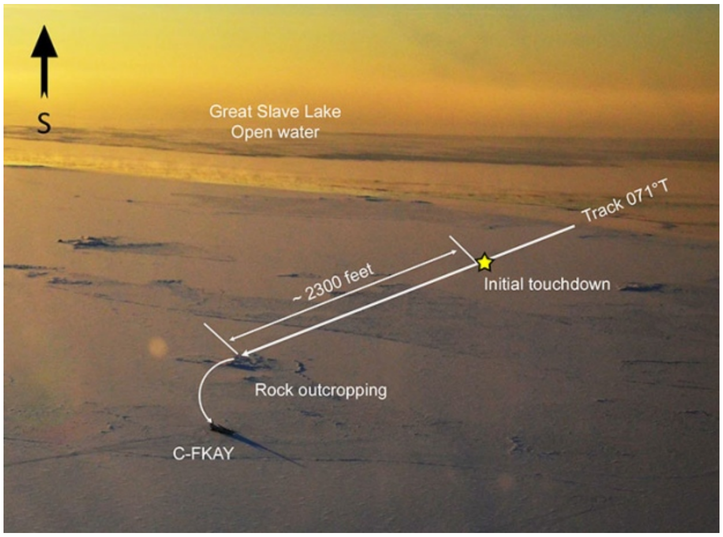
The pilot reported for duty at 05:00 to prepare for the flight. A pre-flight inspection was performed, wing covers were removed, and no contamination was observed on the wings. The pilot filed an IFR flight plan and checked for enroute icing condition reports. There were no reported airmen's meteorological information (AIRMET) and pilot weather report (PIREP) for the flight-planned route. No other weather information was requested or offered.

The airplane departed Yellowknife at approximately 06:42, with an IFR clearance to 8000 feet above sea level. During the climb, the aircraft encountered cloud layers; at approximately 06:51, flying through 6000 feet asl, it encountered icing conditions. The aircraft continued to climb and levelled off at 8000 feet asl, where cruise power was set.

The airspeed did not accelerate beyond 120 knots indicated airspeed (KIAS), and the flight began to descend with cruise power set. At 06:59, the pilot contacted the Edmonton, Alberta, Area Control Centre (ACC) and requested a lower altitude, as he was unable to maintain 120 KIAS. Edmonton ACC cleared the flight to 6000 feet asl direct to Fort Simpson.

During the controlled descent, airspeed continued to decline below 120 KIAS, even with the application of maximum continuous power. At 07:06, a request was made to Edmonton ACC to return to CYZF because of severe icing. Flight 223 was ultimately cleared to Yellowknife at 3000 feet asl.

The pilot experienced periods of elevator buffeting and uncommanded forward pitch movements during the turn. He continued the descent in order to maintain 110 KIAS. Flap position remained fully up, as the pilot was concerned that movement would further affect tailplane effectiveness.



At 07:17, the pilot advised Yellowknife Tower that the aircraft was in severe icing conditions and unable to maintain altitude. It was cleared to 2100 feet asl (minimum vectoring altitude). At 07:19, the pilot experienced a significant uncommanded pitch forward and advised ATC that they were unable to maintain 2100 feet asl; a Mayday was declared.

At 07:20, when the aircraft was 300 feet above ground level, the pilot experienced a series of wing drops and an associated rate of descent of 1200 feet per minute at 100 to 110 KIAS. In response, the power lever was pushed fully forward, exceeding the maximum continuous rating of 1865 foot-pounds of torque. No flap selections were made.

While still in darkness, the aircraft contacted the frozen surface of Great Slave Lake at 07:21 and continued moving for 2300 feet before it struck a rock outcropping with the nose and left main landing gear. The aircraft came to rest approximately 600 feet from the outcropping and 2900 feet from the initial touchdown point. There were no injuries to the occupants, but the aircraft was severely damaged. There was no post-impact fire.

Passenger evacuation was ordered once the pilot had assessed the situation. Passengers attempted to open the main cabin door but were unable to do so. After several failed attempts to evacuate, the passengers succeeded in exiting via the left cockpit door with the aid of cockpit lighting.

The plane's survival kit had been stored in the belly of the plane and damage sustained in the landing made it hard to access. Not all of its contents could be recovered. Passengers' baggage and winter clothing had also been stored in the belly of the plane and were not accessible.

They used foil blankets from the survival kit for warmth and started a fire on a nearby island while waiting for the weather to clear enough for rescue aircraft to be dispatched. The pilot and five passengers had to wait for hours in sub-zero temperatures to be rescued. RCMP were the first to reach the plane in an all-terrain vehicle.

Probable Cause:

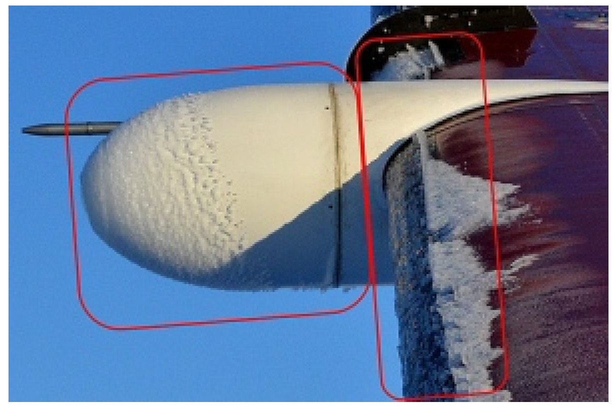
Findings as to causes and contributing factors from the Canadian Transportation Safety Board (TSB):

1. Not using all enroute information led the pilot to underestimate the severity and duration of the icing conditions that would be encountered.

2. Inadequate awareness of aircraft limitations in icing conditions and incomplete weight-and-balance calculations led to the aircraft being dispatched in an overweight state for the forecast icing conditions. The aircraft center of gravity was

not within limits, and this led to a condition that increased stall speed and reduced aircraft climb performance.

3. The pilot's expectation that the flight was being undertaken at altitudes where it should have been possible to avoid icing or to move quickly to an altitude without icing conditions led to his decision to continue operation of the aircraft in icing conditions that exceeded the aircraft's performance capabilities.



4. The severity of the icing conditions encountered, and the duration of the exposure resulted in reductions in aerodynamic performance, making it impossible to prevent descent of the aircraft.

5. The inability to arrest descent of the aircraft resulted in the forced landing on the surface of Great Slave Lake and the collision with terrain.

6. The Type C pilot self-dispatch system employed by Air Tindi did not have quality assurance oversight or adequate support systems. This contributed to the aircraft being dispatched in conditions not suitable for safe flight.

Air Tindi Follow-up:

Al Martin, president of Air Tindi, says the airline's policy is now more black and white when it comes to the Caravans and potential icing conditions. "If there's a potential for icing, we just don't fly the aircraft," he said.

Another big change the company has made is to have an extra staff member on hand 24/7 in Yellowknife to help pilots cross check weather forecasts and loads.

IFALDA comments:

All aviation passenger-carrying commercial operators must maintain a documented system of operational control, for the control and supervision of flights. Pilot self-dispatch systems represent single points of failure. Competency-based training and a robust system of continuous qualification for ground-based operational control staff, whether licensed or not, promote safety and lead to a “second set of eyes” following the flight and available to pass along information and instructions to the cockpit necessary for the safe operation of the flight. IFALDA recommends a scalable flight dispatch system to support Canadian Type-C operations.

Sources: CBC and ASN Database

Runway Contaminants- Moving from Art to Science

Global Reporting Format - GRF

Bernard Gonsalves – Director Global ATM IFALDA

Edited by Dave Porter – Special Assistant to the President IFALDA

Part I - The ICAO Global Reporting Format

Dispatchers rely on a plethora of content, formats and codes in working with Runway conditions- water, ice, snow, slush. Worse; a variety of unit measurements. Turn those factors into determinants for Dispatch decisions and RATOW calculations; the proverbial 'holes in the cheese' can line up quick. The toughest part for Dispatchers is to synthesize all this information to determine the Runways Distances Available (LDA, TORA, ASDA), after factoring in the various dynamic variables of Wind, Surface Conditions, Contaminants, Slope, Brake Settings, Reverse Thrust Credit, Runway Condition (rubber deposits, grooving) and such.

Add the global context, this becomes even more complex for international Dispatchers who now must deal with multiple Airports across the network who use a variety of formats to report runway conditions with their unique data metrics. Which naturally leads to confusion in reading and interpreting these critical dispatch variables.

Universal Problem

Each Airport follows their locally developed standards for reporting runway surface conditions. Many rely on pilot reports and in some cases, friction measurement devices that are invariably subjective and do not follow agreed upon standards from runway to runway. This often leads to a myriad of inconsistent reports that are prone to different interpretations…all differently applied to each flight, each airport, each runway. Furthermore, there is no defined frequency for reports leading to ad-hoc information that, during weather events, may change every hour…often decaying within minutes of reporting. It is not unusual for Dispatchers to get caught out in planning and releasing flights under their watch; the uncertainty factor possibly leading to a Runway Excursion. According to IATA, runway excursions represented 24% of all accidents in 2018. Runway contamination was a contributing factor in 57% of 186 accidents analyzed.

Meanwhile at ICAO

This article seeks to capture important changes in international Standards and Recommended Practices (SARP's) being introduced by the International Civil Aviation Organization (ICAO) as of November 4, 2021. For context, these SARPs are directed towards the Regulatory agency of its 192 Member countries who in turn are responsible for issuing Operational Specifications (Ops. Specs) under their Airline AOC registry.

Heralding these changes is the "Global Reporting Format" (GRF) by means of a globally standardized reporting format for runway surface conditions where Dispatchers, Pilots and Controllers can interpret the common 'language' derived from a report locally generated at each airport using a Runway Condition Assessment Matrix (RCAM) instead of using anecdotal and subjective pilot reports. Naturally, pilot reports can get skewed subject to each airplane's weight, type, tail wind etc.

ICAO definitions of a Dispatcher – Licensing, Functions and Duties

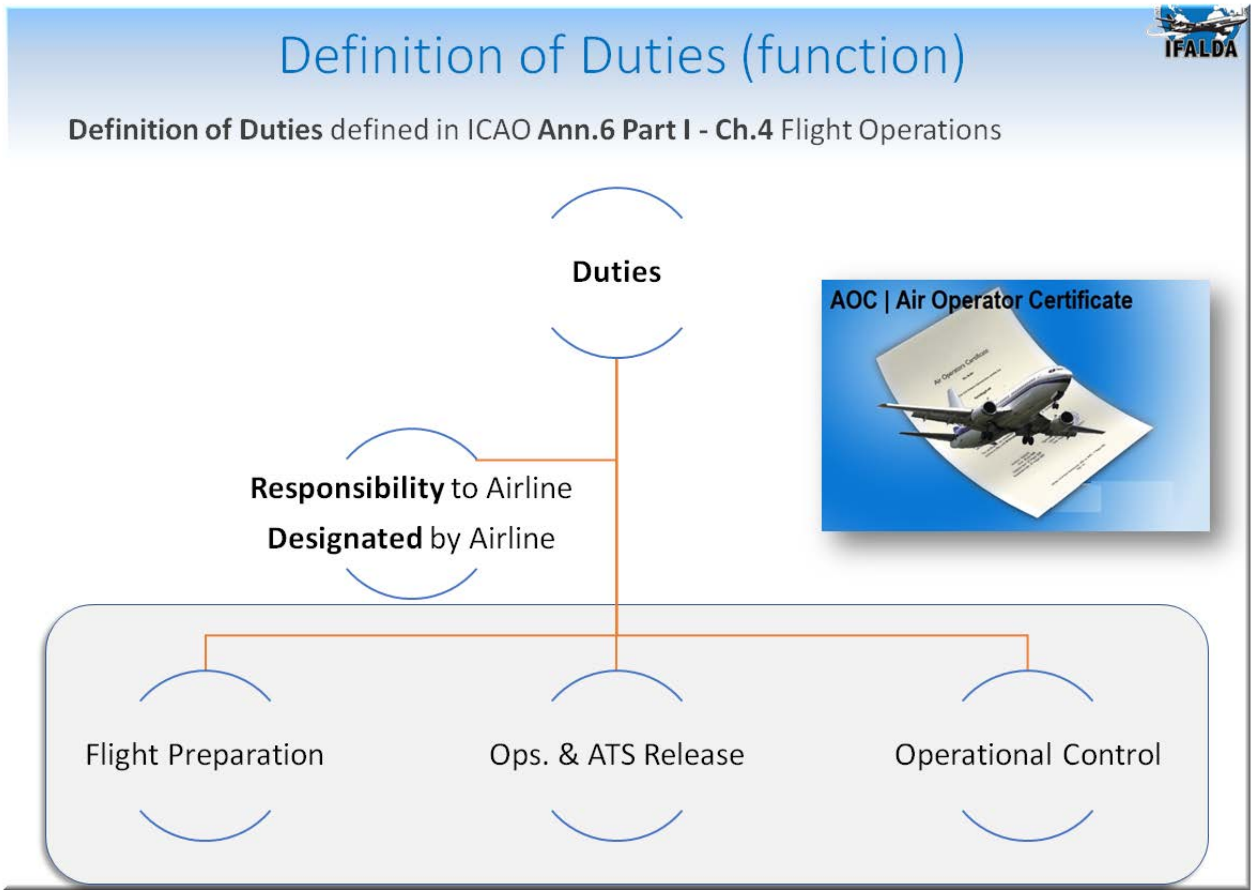
But first, a quick refresher for the ICAO perspective on Flight Dispatcher Licensing, Functions and Duties. Flight Dispatchers are variously known as the 'airman' on the ground. ICAO does not mandate a License, but certainly requires a minimum set of qualifications. ICAO defines a Dispatcher as "A person designated by the operator (airline) to engage in the control and supervision of:

- flight operations, whether licensed or not,
- suitably qualified in accordance with Ann.1" (this is where the Licensing requirements are listed)

ICAO Annex 6, Part I further goes on to define the Function of a Dispatcher as one ….." who supports, briefs and/or assists the pilot-in-command in the safe conduct of the flight. ". Dispatchers thus operate in a regulatory environment where the State Regulator designates the Operational Control function to the Airline and in turn, assumed by its designated Ops Specs Post Holder. The Airline in turn delegates the Responsibility for the exercise of Operational Control either to the Pilot in Command (PIC) or jointly to the PIC and to the Dispatcher. Under PIC/Dispatcher joint responsibility systems, ICAO Standards also require that each Airline demonstrates to its Regulatory agency that it meets multiple criteria before assigning any duties to a Dispatcher. Here are a few:

- Airline specific Training
- Qualification flight
- Demonstration of knowledge to Airline
    - Ops. Manual
    - Radio equipment (communications & surveillance)
    - NAV Equipment
- Demonstration of knowledge to Airline for areas of responsibility & individual authority to exercise flight supervision
    - Seasonal MET phenomena
    - Effects of MET conditions on radio reception
    - Peculiarities & limitations of each NAV system used
    - Aeroplane Loading instructions
- Demonstration of knowledge & skills related to human performance relevant to Dispatch duties

- Demonstration of ability to perform duties



Understanding Changes to the Runway Condition Report

As of November 2021, the biggest improvement that ICAO brings to Fight Safety with the GRF is mandating Airports to monitor, inspect and report Runway Conditions through a Runway Condition Report. The RCAM in the GRF format is issued by Airport Runway inspectors. **This includes declaring a runway condition code zero where traffic will be suspended on a specific runway**. RCAMs are characterized by two distinct features:

RCAM surface descriptions: Runway condition reports are based on 18 types of contaminants or contaminant pairs, up from the earlier seven "basic" types of contaminants. For Dispatchers this could well be a concern, possibly requiring you to convert the 18 contaminant RCAM surface description types to one of the 7 "basic" contaminant types currently covered under the current FOM. Dispatchers would need to ascertain how your current airline terms of aircraft performance data processes & software will be re-adapted from the current seven or so "basic" contaminants that are supported by Airplane AFM & EFB software providers. This is a potential safety risk and you would need to speak with your Flt Ops Technical leads to make sure you have the 18 contaminants covered under your General Operating Manuals (GOMs)s.

Reports per runway third, not per runway: Also know that the GRF will be encountered by Dispatchers and Pilots via SNOWTAMs or ATIS containing three surface descriptions in 'thirds' for the same runway. This may create a situation, where Dispatchers will need to adapt quickly to the new Report to narrow down the significant contaminants to be applied and used in aircraft performance calculations and flight following.

Critical Contaminants (Bias toward landing?): Dispatchers should be cautious in reading and interpreting Contaminant Reports. Runway inspectors may be inclined to focus on gathering and reporting contaminant data for the (third of the) Runway Landing segment which is generally characterized by its slipperiness and perhaps ignore the RATOW calculation criteria for takeoff which requires contaminant type, depth, coverage, and appearance.

The GRF in the summer months and in warmer climates…not just freezing contaminants

Most Dispatchers would naturally consider runway contamination in the context of snow and ice. Airports will, this being the primary format used for transmitting runway conditions. Interestingly, with GRF becoming an international standard, some airports will issue Runway Condition Reports even during the summer and now occasionally publish a SNOWTAM. Do think also of operations on a shorter runway that isn't grooved after a rain shower which could equally represent a contaminated runway – slippery, wet and with poor braking action.

This requirement would therefore require some adaptation by Airports in tropical areas as well where routine inspections of runways are not the norm. Tropical areas experience rapidly changing weather phenomena and it will be interesting to observe how Airports in tropical areas adapt to these rapidly changing weather contaminants on the runway and RCAM issuances.

What to expect from the GRF and some impact statements

The implementation the GRF will see a need for Dispatcher training and the adaptation required for current Performance calculations – AFM and EFB - to work with the revised list of contaminants. Here are some of the changes and their impact on daily operations

- Mandatory for Pilots to report the runway braking action special air-report (AIREP) when the runway braking action encountered is not as good as reported.
- An approach to land shall not be continued below 300 m (1 000 ft) above aerodrome elevation unless the pilot-in-command is satisfied that, with the runway surface condition information available, the aeroplane performance information indicates that a safe landing can be made.
- Sufficient data should be available in the AFM and or EFB such that the maximum landing and takeoff weights and at the time of each takeoff and landing will allow the flight to be dispatched with reasonable assurance that a safe minimum performance for that flight will be achieved.
- Airport elevation or pressure-altitude either in the standard atmosphere or in specified still air atmospheric conditions will need to be considered
- The following flight stages are considered, as applicable:
  a) Take-off. The take-off performance data shall include the accelerate-stop distance and the take-off path.

b) Accelerate-stop distance. The accelerate-stop distance shall be the distance required to accelerate and stop assuming the critical engine to fail suddenly at a point not nearer to the start of the take-off than that assumed when determining the take-off path
c) The distance shall be based on operations with all the wheel brake assemblies at the fully worn limit of their allowable wear range.

Meanwhile in Canada- Science not Art

On March 10, 1989, 24 people died when a Fokker F-28 jet crashed in Dryden, Ontario. Investigators faulted how information about the runway was passed on to the pilots. The accident prompted a research project to find a more scientific way to test runways.

Much of the research was conducted in North Bay, a former military base in Ontario that gets plenty of snow. The project, assisted by NASA and the FAA, resulted in the "Canadian System" in 1998. Tests in North Bay provided a numerical rating of a runway's slickness, better known as the Canadian Runway Friction Index (CRFI). That information is passed on to dispatchers and pilots, who use it to calculate how much distance they need to stop after touchdown.

Using a precise measurement of Friction rather than anecdotal reports of braking action is where the ICAO GRF is leading to.

Part II – Runway Contaminants – Dispatch Considerations for Flight Safety

Safety doesn't happen by accident.

On December 8, 2005, a major U.S. airline flight #1248, a Boeing 737-7H4, landed on runway 31C at Chicago Midway Airport during a snowstorm. Runway 31C, a 6,522-foot runway, was covered by 1/16th of an inch of snow during adverse weather conditions that included low ceilings and a tailwind. According to the NTSB investigation, Flight 1248 pilots had agreed early on that they would try to land at Midway so long as the tailwind component did not exceed 10 knots and the runway-braking action was not rated "poor" for any part of the runway. The tailwind was 8 to 9 knots when the plane landed, and the runway condition was rated "fair" on the first half of the runway and "poor" on the second half.

The crew believed the landing would be safe relying on company-provided data in the OPC (on-board performance computer) that was used to calculate their stopping distance. The OPC software factored an 8-knot tail wind (exceeding company maximum of 5kts) and assumed fully operational Thrust reversers that would deploy normally in the 6 to 7 second margins. The aircraft failed to stop on the runway, rolling through a blast fence and perimeter fence and coming to rest on a roadway after striking two vehicles.

Simulations that replicated the accident airplane configuration, use of deceleration devices, and weather and runway conditions showed that, under these conditions, the airplane would have required about another 753 feet beyond the end of the runway to come to a stop.

Flight 1248 from Baltimore landed and ran off the end of the runway at 7:15 p.m. on Dec. 8. The accident aircraft struck 2 vehicles and resulted in the death of a 6-year-old boy as he rode with his family.

The Holes in the Cheese

Had Midway closed the airport based on an RCAM (Runway Condition Assessment Matrix) evaluation given the ICAO-established criteria for such an evaluation, this accident probably would not have happened. According to ICAO, runway excursions represent the highest risk category for accidents, with runway braking action being the primary factor – quite naturally where the Runway is wet or contaminated. But GRF is not the panacea… here are some of the factors that come into play in the daily working day of a Flight Dispatcher.

NTSB Findings

- ≥ The U.S National Transportation Safety Board determined that the probable cause of this accident was the pilots' failure to use available reverse thrust in a timely manner to safely slow or stop the airplane after landing, which resulted in a runway overrun. This failure occurred because the pilots' first experience and lack of familiarity with the airplane's autobrake system distracted them from thrust reverser usage during the challenging landing.
- ≥ Contributing to the accident were the Airlines'

1) failure to provide its pilots with clear and consistent guidance and training regarding company policies and procedures related to arrival landing distance calculations.
2) programming and design of its on-board performance computer, which did not present inherent assumptions in the program critical to pilot decision-making.
3) plan to implement new autobrake procedures without a familiarization period; and
4) failure to include a margin of safety in the arrival assessment to account for operational uncertainties.

Also contributing to the accident was the pilots' failure to divert to another airport given reports that included poor braking actions and a tailwind component greater than 5 knots. Contributing to the severity of the accident was the absence of an engineering materials arresting system, which was needed because of the limited runway safety area beyond the departure end of runway 31C

We will consider the multitude of data points and inter-related factors that Dispatchers "synthesize" in performing their Duties of Dispatch and Following while using the accident of Flight 1248 as a case for the safety risk of Runway Excursions in point.

In the case of Flight 1248, here is how the holes in the cheese lined up

LDA Checks

The basic formula for friction using high school physics is:

Velocity squared / 2 X Gravity X stopping distance

……always check Performance calculations for the correct ASDA (Accelerate Stop Distance Available).

It is critical to verify if the Flight Ops Manual includes reverse thrust credit in Landing Distance calculations in the EFB (Electronic Flight Bag (OPC… On-board laptop Performance Computer… in this case…the aircraft was not equipped with an EFB).

Flight 1248: OPC-related information in the Airlines' FOM stated that reverse thrust was not included in the landing distance calculations at Midway when the accident occurred.

Wind Limitations

Check the FOM for authorized Tail Wind & Cross Wind components in normal operations. Check also the Tailwind landing component for 'poor braking action' reported.

Flight 1248: The Airlines' FOM, chapter 2 ("Operational Considerations"), page 2.2.6 stated "landing is not authorized … when wind limitations are exceeded." The FOM, chapter 2, page 2.2.9, further indicated that the Airlines' maximum tailwind component for landing under poor braking action conditions is 5 knots; under all other conditions, the maximum tailwind component for landing is 10 knots.

Decisions.. Decisions.. Decisions… - EFB's Friend or Foe

Check your EFB Software configurations for the "third of the runway" to be used for landing carefully for the braking action selection. Verify with the EFB administrator for the maximum tail wind configurations hard-coded in the EFB. Ensure that the OPC display will reflect the corrected landing distance associated with the input of a computed tail wind to over-ride a maximum tailwind component of 5 knots for poor braking action.

Flight 1248: The pilot and the first officer were concerned about the weather, the NTSB acknowledged. They listened to D-ATIS at least four times before approaching Chicago.

But both pilots and the flight dispatcher agreed to follow through with the landing. The pilots used the OPC to calculate expected landing performance. Data entered included expected landing runway, wind speed and direction, airplane gross weight at touchdown, and reported runway braking action. The OPC then calculated the stopping margin.

But traction deteriorated to poor toward the end of the runway as the pilot tried to bring the Boeing 737-700 to a safe stop,

Braking Action: Poor or Fair

Caution for the braking action selection. Depending on whether WET-FAIR or WET-POOR conditions are input. This makes all the difference in the OPC with providing one with the remaining runway distance after stopping. Both calculations will be based on taking a stopping credit assuming engine thrust reverser deployment at touchdown.

Flight 1248: The WET-FAIR selection gave 560 feet. Had the WET-POOR selection been made, it would show 30 feet remaining runway distance. Based on its assumptions, the OPC display reflected the landing distance assuming a maximum tailwind component of 5 knots for poor braking action even though the computed tailwind component exceeded 5 knots.

The Safety Board's investigation revealed that if the OPC had used the actual tailwind component of 8 knots instead of the company limit of 5 knots, the stopping margin for poor braking action would have been -260 feet. Because of its negative value, this number would have been presented as bracketed white digits inside of a red block (instead of the standard black digits against white background) to alert that they could not safely land on the runway. The Board notes that calculations performed using Boeing using an 8-knot tailwind component, and poor braking action indicated that the airplane would have stopped 2,070 feet beyond the end of the runway. Similar calculations performed using fair braking action indicated that the airplane would have stopped 260 feet beyond the end of the runway.

Reverse Thrust Credit

Check that the EFB/Performance Manuals allow for Reverse thrust Credit

Flight 1248: The accident pilots were not aware that the 737 stopping margins computed by the OPC were designed to incorporate the use of reverse thrust for the 737-700 model only, which resulted in more favorable stopping margins. Post-accident interviews with pilots indicated that some (including the accident crew) assumed that none of the 737 OPC landing distance calculations took into account the use of reverse thrust. Because of this, the accident pilots believed that their intended use of reverse thrust during the landing roll would provide them with several hundred feet more stopping margin than the OPC estimated.

- Therefore, the Safety Board concludes that if the pilots had been presented with stopping margins associated with the input winds or had known that the stopping margins calculated by the OPC for the 737-700 already assumed credit for the use of thrust reversers, the pilots may have elected to divert.

Runway Calculations- Pure Physics- The laws of Kinetic and Potential Energy

Check the company's Autobrake landing policy

Flight 1248: According to the NTSB, Flight 1248 touched down at a ground-speed of 132 knots (airspeed slower at 124 knots with a tail wind). The pilots had set the automatic brake system to apply maximum stopping power. The airplane rolled for about 5,000 feet, slamming through an airport fence and coming to rest in a nearby roadway. The NTSB calculated that it would have traveled an additional 300 feet if it had not hit the fence and other obstructions. That meant that the airplane would have traveled 5,300 feet before stopping.

Using the landing speed and the stopping distance of 5,300 feet, the formula yields a friction coefficient of 0.15.

OPT & Rev Thrusts, MELs

Do a Safety case and Hazard Identification Risk Analysis for thrust deployment

Flight 1248: Note: The Airlines' planned deceleration procedures specified that reverse thrust be selected within 2 seconds of touchdown and maintained until the airplane decelerated through 80 knots, followed by smooth throttle movement to forward idle thrust as the airplane decelerated from 80 to 60 knots. Boeing's published reverse thrust procedures were similar to the Airline except that thrust reversers were to be maintained until the airplane decelerated through 60 knots, followed by smooth throttle movement to reverse idle thrust as the airplane decelerated from 60 to 30 knots.

Flight data recorder information revealed that the thrust reversers were not deployed until 18 seconds after touchdown,

Autobrakes

Do a Safety case and Hazard Identification Risk Analysis for Auto Brake Procedures in the FOM. Check for the company policy issuances for use of autobrakes… Is the fleet equipped, trained and briefed?

Flight 1248: Before touching down, the pilot set the plane's automatic brakes. The brakes worked, but the reverse thrusters, failed to deploy when commanded.

Noticing the plane was not decelerating normally, the captain applied manual brakes, calling on the maximum braking power available, the NTSB said. The first officer also moved his seat farther forward to exert as much pressure on the manual brakes as possible.

While barreling down the runway, the first officer noticed the reverse thrusters were not working. They kicked in 18 seconds after touchdown, 14 seconds before the plane hit a fence, the NTSB said. Post flight analysis indicated the reverse thrusters started working on the final 100 feet of runway.

The company's new autobrake system procedures made this the very first flight where either pilot had landed using autobrakes. Up to and around the week of the accident, the Airlines' policy did not permit the use of autobrakes because the company's fleet was not then fully equipped with autobrakes.

Reverse Thrust Credit

Ensure OPC configurations for Thrust Credits

Flight 1248's Ops Spec for the 737-700 covered FAA authorization for thrust reverser credit in calculating en-route operational landing distances.

If the thrust reverser credit had not been allowed in calculating the stopping distance for flight 1248, the OPC would have indicated that a safe landing on runway 31C was not possible. "As a result," the Board said in its recommendation letter, "a single event, the delayed deployment of the thrust reversers, can lead to an unsafe condition, as it did in this accident."

Although only a recommendation, the effect would be impact Dispatch and Planning on contaminated runway operations, where not gaining the thrust reverser credit would significantly decrease stopping distance calculations.

The Board recommended that the FAA:

Immediately prohibit all 14 Code of Federal Regulations Part 121 operators from using the reverse thrust credit in landing performance calculations. (A-06-16) (Urgent)

A copy of the recommendation letter may be found at the following link on the Board's website:
https://www.ntsb.gov/safety/safety-recs/RecLetters/A06_16.pdf

Braking Action

All the braking action reports provided by ATC to the accident pilots were mixed and reported poor braking action on some portion of the runway. For example, 8 to 9 minutes before touchdown, the pilots received a braking action report of "fair…except at the end it's poor," and 3 minutes before touchdown they received a braking action report of "good for the first half, poor for the second half." The Airlines' policy requires to defer to the more critical braking action assessment when they receive mixed braking action reports. Therefore, because "poor" braking conditions were reported for a portion of the runway and FOM indicates a maximum 5-knot tailwind to land if such conditions are reported. The Safety Board concluded that because the pilots did not use the more critical braking action (poor) during their landing distance assessment (which, combined with the associated tailwind limitation, would have required them to divert), they were not in compliance.

Waiver

Does the Airline operate under a Waiver?

Flight 1248: At the time of the accident of Flight 1248, the Airline was operating under a Regulation Waiver from the FAA to land at ½ statute miles (RVR 2400) for landing. AC120-118 issued in 2018 changed that and now recommends that "Operators should consider the possible need for an adequate buffer beyond that required by these operating rules if braking action is reported or expected to be less than "good." Further details may be found in AC 91-79 and AC 121.195-1. "

R E S A

Advocacy for Stopways at Airports. Stopways can be used to increase the ASDA & TORA for performance planning. However there is also another ICAO recommendation in the form of Runway End Safety Areas (RESA). Do note however that a RESA cannot be used for performance planning; a stopway can. If a stopway is not published on the runway end, then the ASDA/TORA will be the same. The RESA does not form part of the runway declared distance and therefore should not be considered when calculating V1

Flight 1248: The FAA recommends a safety buffer of 1,000 feet at the end of runways to guard against runaway landings. The space at Midway is less than 200 feet.

Midway is one of "perhaps 20-25 airports around the nation" that are hemmed in by roads, neighborhoods, bays and rivers, says Richard Marchi, senior vice president for technical and environmental affairs at the Airports Council International-North America.

Most of those airports are limited by their relatively short runways, originally to built accommodate the more modest needs of planes before the jet age. Many are stuck with the layouts inherited from the 1920s and '30s, unable to build the 2-mile-long runways favored at newer airports. They also do not have room for the 1,000-foot safety zones at each runway end that have been required since 1988.

Chicago city officials have consistently dismissed suggestions that the city relocate some of the roads and streets that surround the 1-mile-square Midway property

"It's not a matter of money, at Midway or anywhere else," Marchi said. "Chicago is spending huge amounts of money to expand O'Hare (Airport). And it would do the same at Midway if it was politically viable to do so. But it's just not."

Engineered Material Arresting System

Several airports with space constraints have installed special beds of material that stop jets before the end of the runway. But Marchi says there may not be enough room for them at Midway. The beds, known as an Engineered Material Arresting System, were first installed at New York's Kennedy Airport nearly a decade ago and have kept three planes, including a Boeing 747 freighter, from going off into a nearby bay. More recently, EMAS has been installed at Little Rock, where in 1999 an American Airlines jet landing in heavy rain went off the end of the runway.

Obstacles POLES, OTHER OBSTACLES REDUCE LANDING ZONE ON MIDWAY RUNWAY

Flight 1248: Light poles, utility lines and other obstacles has resulted in a displaced threshold of 696 feet of the already short runway at Midway Airport. Landing on the remaining 5,826 feet of the 6,522-foot runway requires precision even in good weather. Touching down safely in sloppy, icy conditions on Midway's Runway 31 Center, tests the abilities of an airline's best pilots. Obstacles on and off the airport, coupled with the angle of the plane's descent on an ILS glide slope, prevent pilots from using the full length of the runway during landings.

The reciprocal end of 31 Center, allows for 6,059 feet of landing space - 233 feet more for use.

Regulatory

Most of the runway safety areas at Midway, which opened in 1927 next door to a Chicago public school, measure less than 100 feet long.

Almost 300 of the U.S.' 427 commercial airports have runways that do not meet the 1,000-foot standard. They must comply or provide alternate safety methods by 2015. According to the FAA, none of the four landing approaches to Midway meet the 1,000-foot standard, the FAA said.

Extending the zones to 1,000 feet would require major demolition of dozens--perhaps hundreds--of homes and businesses surrounding the airport, especially on the southwest, southeast and northwest corners. An expansion of runway safety areas beyond the existing northeast corner of the airport would primarily affect remote parking lots.

Almost 700 homes and more than 100 businesses would be uprooted if the city complied with the FAA standards, according to Erin O'Donnell, a deputy Chicago aviation commissioner who manages Midway.

Effects on other Airports

A tailwind that is 10 percent of the landing airspeed will increase the landing distance about 21 percent, according to the FAA Pilot's Handbook of Aeronautical Knowledge.

FAA officials, air-traffic controllers and city aviation officials said that controllers and the supervisor in the Midway tower considered landing planes on the 13C end of the runway…opposite end of 31C, which would have required receiving agreement from the FAA radar facility in Elgin, where controllers handle approaching and departing aircraft in the Chicago area, as well as a signoff from the FAA's national air-traffic command center in Herndon, Va.

Redirecting Midway arrivals to 13C would have interrupted the pipeline of planes approaching and departing the southwest Side airport while flight patterns were reconfigured during the busy evening travel period.

Effects on O'Hare

In addition, using 13C to land in bad weather would require extending the final approach pattern to the airport to about 10 miles, affecting the use of Runway 22 Left for departures at O'Hare, officials said.

While making the runway change increases the controller and pilot workloads, it is a common request made by pilots uncomfortable about the landing.

"It's not unusual to get pilot requests for a different runway based on the wind, the type of aircraft and the runway configuration we are on," said Ron Adamski, president of the controller's union at Midway. "If the pilots are adamant about it, air-traffic control is not going to be put in a position of saying no."

The policies of many airlines require pilots to land on a different runway or divert to another airport to avoid tailwinds. Pilots at Northwest Airlines often request different runways at Midway based on wind, cloud ceilings or conditions at the airport, Midway controllers said.

Conclusion

Philosopher and Mathematician Kurt Godel postulated nearly a century ago

"We learn from that, build on to it, and move on".

With the upcoming ICAO global changes coming up November 2021 with the GRF format and the lessons learned from Flight 1248, it would be safe to say that a significant reduction in Runway Excursions and Accidents is imminent. The ICAO Global Reporting Format will likely have an important part to play in getting to safer landings and takeoffs.

……..

En Route Automation Modernization (ERAM)

By Dave Porter-Special Assistant to the President IFALDA
Source: U.S. FAA NextGen Website

As of March 27, 2015, En Route Automation Modernization (ERAM) has replaced the 40-year-old En Route Host computer and backup system used at 20 FAA Air Route Traffic Control Centers nationwide. The transition to ERAM was one of the most complex, challenging, and ambitious programs deployed by FAA. In effect, this transition represented a live transplant of the "heart" of today's air traffic control system while maintaining safe and efficient flight operations for the flying public.

ERAM R-Side Sector

ERAM technology is the heart of the Next Generation Air Transportation System (NextGen) and the pulse of the National Airspace System (NAS), helping to advance our transition from a ground-based system of air traffic control to a satellite-based system of air traffic management.

Integrated Initial Flight Plan Processing System (IFPS) – is the European version of ERAM from a flight plan standpoint. Designed to smooth the reception, processing, and distribution of flight plans in Europe. Uses Route Availability Document (RAD) to accept/reject user flight plans.

The National Airspace Data Interchange Network (NADIN), is considered the FAA "node" within the global Aeronautical Fixed Telecommunication Network (AFTN) network. Currently, flight plans are submitted via NADIN, and are subsequently forwarded to ERAM at the appropriate ARTCC. The most current version of NADIN is the NADIN Message Re-Host (NMR) which provides the routing functions for flight plan submissions.

ERAM is vital to the future of air navigation, providing the foundational platform required for FAA to enable NextGen solutions, via modernization programs such as System Wide Information Management, Data Communications, and Automatic Dependent Surveillance- Broadcast.

Going forward ERAM will provide benefits for users and the flying public by increasing air traffic flow and improving automated navigation and conflict detection services, both of which are vital to meeting future demand and preventing gridlock and delays.

ERAM R-Side Sector

ERAM increases capacity and improves efficiency in our skies. En Route controllers are able to track 1,900 aircraft at a time instead of the previous 1,100 flight capability. Additionally, now coverage extends beyond facility boundaries, enabling controllers to handle traffic more efficiently. This extended coverage is possible because ERAM can process data from 64 radars versus the 24-radar processing with the legacy Host system.

For pilots, ERAM increases flexible routing around congestion, weather, and other restrictions. Real-time air traffic management and information-sharing on flight restrictions improves airlines' ability to plan flights with minimal changes. Reduced vectoring and increased radar coverage leads to smoother, faster, and more cost-efficient flights.

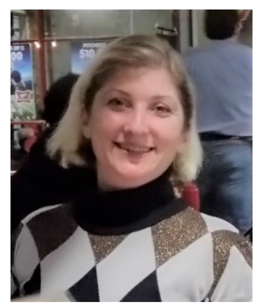
For controllers, ERAM provides a user-friendly interface with customizable displays. Trajectory modeling is more accurate, allowing maximum airspace use, better conflict detection and improved decision making. ERAM substantially increases the number of flights that can be tracked. Two functionally identical channels with dual redundancy eliminate a single point of failure. ERAM also revolutionizes controller training with a realistic, high-fidelity system that challenges developmental practices with complex approaches, maneuvers, and simulated pilot scenarios that are unavailable using today's system.

Air traffic controllers and facilities are the backbone of safe NAS operations, transporting the flying public to their destinations efficiently. With ERAM, controllers benefit from increased collaboration and seamless data sharing between Centers.

………

ICAO EUR/NAT VOLCEX-21

By: Sevda Tantan – IFALDA VP-East



On behalf of IFALDA I joined ICAO EUR/NAT VOLCEX21 Preparatory Workshop at 5th& 6th of October 2021 via hybrid. Meeting was at Hilton Nordica in Reykjavik, Iceland but lots of participant joined this meeting via hybrid.

At the beginning of the meeting, they mentioned volcanic activities in Iceland and three potential mountains that are likely to erupt.

- First one is **Krysuvik-Fagradalsfjall**. The NE-SW trending volcanic system comprises a 50 km long. An eruption started on the 19th of March 2021. The aviation color code has been maintained Orange because the eruption has been ongoing with no direct threat to the aviation. Krysuvik might be experiencing another magmatic intrusion at a 5-6km depth. More data are needed to define the scenario and identifying hazards. Most likely an eruption near Keilir would be similar to what featured at Fagradalsjall.

- Second one is **Askja**. Consisting of a central volcano rising to 1516 m asl and a fissure swarm (about 190km long and up to 20km wide). A caldera complex lies within the central volcano. Last eruption was in 1961. A magmatic intrusion is most likely ongoing in Askja underneath the lake Oskjuvatn. In case of an eruption, the most likely scenario is an effusive eruption… but an explosive eruption(rhyolitic) cannot be excluded.

- Third one is **Grimsvotn**. It consists of a central volcano and a fissure swarm about 100km long and 18 km wide, rising to 1722m asl . Last eruption was in 2011. An eruption in expected in Grimsvotn either triggered by a flood or not. An explosive event is the most likely scenario.

However, they cannot exclude another volcano/volcanic system will reactivate in the coming weeks/months and will feature an eruption anywhere in Iceland (e.g. Hekla,Katla)

They announced that the next EUR/NAT volcanic ash exercise (VOLCEX21) will be conducted on 16 November 2021. They sent VOLCEXX21 Exercise Directive draft, according to which the Exercise will take place on 16 Nov 2021 between 08:00 – 16:00 UTC. Unlike the previous exercise this time FPL changes will not be processed in the system during the exercise. Instead rerouting will be simulated as part of the ATFM network impact simulations based on the exercise assumption that all flights will reroute around large areas of predicted high ash concentration.

Air Reports (AIREP) will be part of this exercise, in particular the display of AIREPs on the EVITA crisis map, together with the ash cloud, flights and airspace data. Pilots are the first in the reporting chain. However, for the purpose of VOLCEX21 AIREPs fake reports will also be created and uploaded directly by the AOs dispatch offices and ANSPs ATC units. ANSPs must decide who will upload the information from their side. In the majority of cases, it will be FMP terminals. ANSPs are also required to send the Special AIREPs via MWOs to VAAC. It was agreed that the airline dispatch offices in addition to them uploading onto the NOP will send their fictitious Special AIREPs by email to VAAC London.

NM will organize a dedicated training session for everybody interested on 09 NOV 2021. Invitations to this training session will be sent out mid/end Oct. An online training module is also available explaining the correct usage of EVITA and AIREP to AO's, ANSP's and other interested parties. This E-learning module can be accessed on the EUROCONTROL Training zone (registration required). Go to https://trainingzone.eurocontrol.int and select Catalogues > Training Catalogue > Network Operations > Crisis & Contingencies or enter EVITA into the Search function.

The next VOLCEX Workshop will be held in Spain in the first week of February 2022.

Figure 1. Eyjafjallajökull – 63.633°N19.633°W

During the exercise, the Special AIREPs will be sent via the following communications lines:
1. Pilots to Air Traffic Controllers (subject to prior coordination)
2. Airline Dispatch will upload the simulated special AIREPs on the NM NOP/EVITA using the link as provided above under sub section 2; the same special AIREPs will be sent to V AAC London by e-mail.
3. ANSPs simulating the role of ATC SUP will upload the simulated special AIREPs using the link as provided in 12 (2)
4. ANSPs will send Special AIREPs via AFTN (or email, or fax) to the relevant MWO

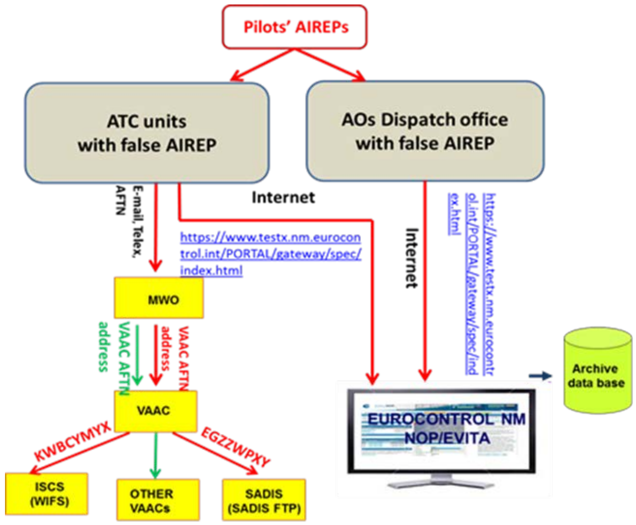


Figure 2 AIREPS

In case of a diversion situation:

- NMOC determine the scope of airports suitable for diversions using the Airport Corner interface.
- If an airport is part of the Airport Corner Diversion Capabilities provision process, NMOC sends a request electronically to the dedicated Diversion Capabilities Point of Contact of the airport.
- If an airport is not part of the Airport Corner Diversion Capabilities provision process, the "Current process" explained below will be used.
- The Diversion Capabilities Point of Contact at each airport that received the request via e-mail log in to the Airport Corner and provide their minimum diversion capabilities for the requested period.
- NMOC publish a dedicated link containing current diversion capabilities on the Headline News of the Network Operations Portal https://ext.eurocontrol.int/airport_corner_public/dc_requests Diversion capabilities in-formation updates will be automatically reflected on this page.

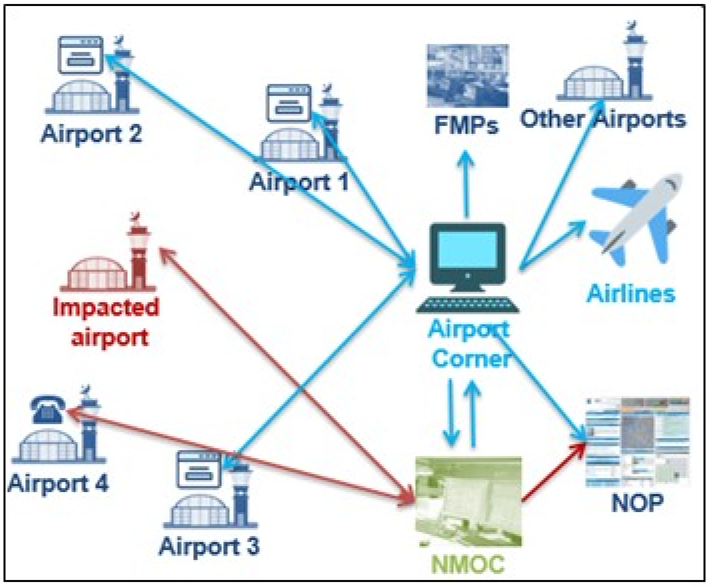


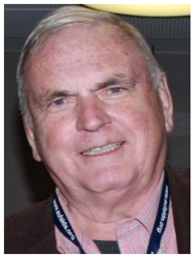
Figure 3 - Diversion capabilities request process via the Airport Corner interface

---

Under the Hood

By: Dave Porter
Special Assistant to the President
IFALDA

(Note…the views in this article are those of the author and not necessarily those of IFALDA)



ICAO, under the ATMRPP (Air Traffic Management Requirements and Performance Panel) is working towards the modernization of the air traffic management system worldwide. The protocols are TBO (Trajectory Based Operations) and FF-ICE (Flight and Flow in a Collaborative Environment).

In the U.S. this has been subsumed into the FAA NEXTGEN program.

The goal is to convert plain language instructions from the air traffic control system to flights on the ground and in the air…into digital machine language instructions. This starts out with filing flight plans, amending flight plans before takeoff, amending flight plans after takeoff while enroute, along with providing meteorological information and aeronautical data to support dynamic aeronautical decision-making.

From a dispatcher's point-of-view, it will involve dispatchers submitting trial ATC flight plans before completing the final product of an operational flight plan, with the ATC flight plan of choice included. Generally, the dispatcher would choose or develop a flight plan route, including waypoints, fixes, airways, altitude and speed then submitting a trial ATC flight plan to all enabled air traffic service units (ATSU) in each ARTCC and FIR through which the flight is planned to transit.

Within a few moments, using a software dashboard specific to the flight, the dispatcher would either receive a green approved response or a red unable response from each enabled ATSU. An unable response would result from ATC ground and enroute delay programs, closed airways or other operational air traffic constraints. The dispatcher could continue to submit trial flight plans until one was determined to be acceptable by all ATSUs.

Once in the air, if an enroute event occurs, such as a SIGMET indicating severe weather, a volcanic ash advisory or some other area through which the pilot and dispatcher agree that should be avoided, the dispatcher can again submit a trial flight plan to find the best way around the event.

ICAO, FAA and other States are collaborating under several programs to develop these abilities. Inevitably, new terms of reference and new acronyms have been developed to describe and streamline the processes and procedures developed.

It is useful to have a lexicon available to understand how all of this "under-the-hood" stuff is coming together…so, here we go…..(note…there are literally hundreds of new acronyms so I will start with a dozen or so….)

MR TBO

...no, it isn't Mister TBO...it is **Multi Region Trajectory-Based Operations**.

Trajectory Based Operations (TBO) is an air traffic management (ATM) concept that enhances strategic planning of aircraft flows to reduce capacity-to-demand imbalances in the National Airspace System (NAS) and provides tools to air traffic management personnel and controllers to help expedite aircraft movement between origin and destination airports. Through improved strategic planning and management of traffic flows, TBO helps reduce reactive decision-making and use of static miles-in-trail restrictions.

Aircraft trajectory is the core tenant of TBO. Defined in four dimensions - latitude, longitude, altitude, and time - the trajectory represents a common reference for where an aircraft is expected to be - and when - at key points along its route. The trajectory is defined prior to departure, updated in response to emerging conditions and operator inputs, and shared between stakeholders and systems.

FF-ICE

Flight & Flow Information for a Collaborative Environment- The FF-ICE is guided by the requirement to eliminate or reduce the limitations of the present Flight Plan and to accommodate the future environment detailed in the Global Air Traffic Management Operational Concept (ICAO Doc 9854)

The principles of the FF-ICE can be summarized as follows:

- provide a flexible concept that allows new technologies and procedures to be incorporated as necessary in a planned manner. This flexibility should also consider the effects of evolving information and communications standards.
- allow aircraft to indicate their detailed performance capabilities, such as the required navigation performance (RNP) level.
- allow for an early indication of intent.
- incorporate information for increased and more automated CDM.
- avoid unnecessary limitations on information.
- support 4D management by trajectory.
- avoid the filing of unnecessary and ambiguous derivable information.
- adopt a "file-by-exception" philosophy when information cannot be standardized.
- allow for the provision of information security requirements.

- consider the cost impact on providers and consumers of flight information.
- incorporate requirements enabling a broad set of flight mission profiles.
- ensure information is machine-readable and limit the need for free-text information and,
- ensure that definitions of information elements for the FF-ICE are globally standardized.

AIXM

Aeronautical Information Exchange Model. The AIXM, as originally developed by EUROCONTROL in coordination with FAA, is a conceptual and an exchange model for aeronautical information. It is designed to assist with the harmonization and electronic distribution of the Aeronautical Information Publication (AIP). AIXM is a model that describes the entities, and relationships for aeronautical features such as airports, runways, airspace, terminal procedures and other features. AIXM describes Extensible Markup Language (XML) messages and features used to exchange information about the aeronautical data.

iWXXM

ICAO Meteorological Information Exchange Model iWXXM has been developed jointly by ICAO and WMO, the World Meteorological Organization. The purpose is not so much to translate TAC (Traditional Alphanumeric Codes) into machine language (XML); rather, it is intended to replace TAC. Ultimately, aviation weather products such as METAR, SPECI, TAF, SIGMET and VAA will be directly promulgated as machine language products.

IWXXM products are used for operational exchanges of meteorological information for use in aviation. Unlike the traditional forms of the ICAO Annex III / WMO No. 49 products, IWXXM is not intended to be directly used by pilots and dispatchers. IWXXM is designed to be consumed by software acting on behalf of pilots and dispatchers, such as display software. Operationally it can be considered an XML format for representing ICAO Annex 3 TAC products (METAR, SPECI, TAF, SIGMET, AIRMET, TCA, VAA).

XML products will have robust error-checking to eliminate technical and data quality errors but may not be capable of checking that the end use product is actually representative of existing or forecast weather conditions; something that a pilot or dispatcher could do rather simply when reading TAC products.

Traditional Alphanumeric Codes (TAC) – METAR, TAF, SIGMET, ...

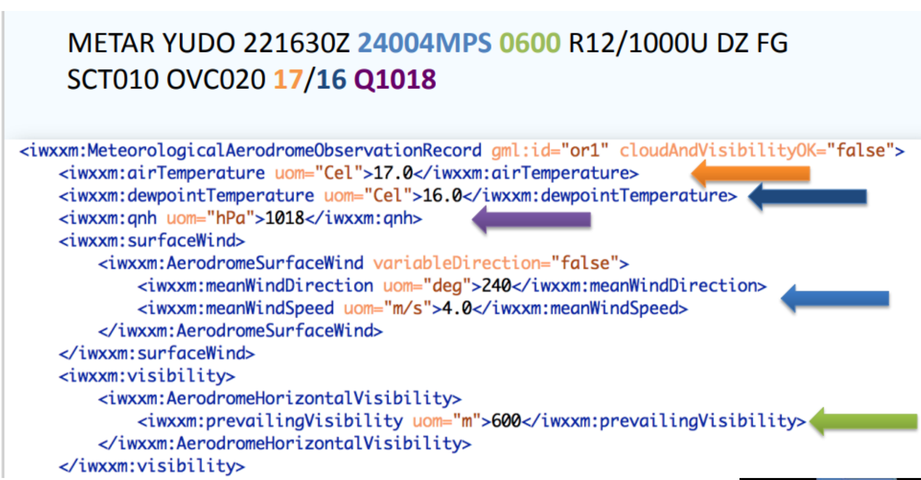
Useful for:

• Human readability (pilots, dispatchers)

• Machine readability (visualization, storage, weather models, ...)

A concern for dispatchers and pilots is that the initial XML product will not be readily understood at first glance...if it is even available to pilots and dispatchers.

A comparison of TAC vs XML below for the airport "YUDO":


METAR YUDO 221630Z 24004MPS 0600 R12/1000U DZ FG
SCT010 OVC020 17/16 Q1018

```
<iwxxm:MeteorologicalAerodromeObservationRecord gml:id="or1" cloudAndVisibilityOK="false">
    <iwxxm:airTemperature uom="Cel">17.0</iwxxm:airTemperature>
    <iwxxm:dewpointTemperature uom="Cel">16.0</iwxxm:dewpointTemperature>
    <iwxxm:qnh uom="hPa">1018</iwxxm:qnh>
    <iwxxm:surfaceWind>
        <iwxxm:AerodromeSurfaceWind variableDirection="false">
            <iwxxm:meanWindDirection uom="deg">240</iwxxm:meanWindDirection>
            <iwxxm:meanWindSpeed uom="m/s">4.0</iwxxm:meanWindSpeed>
        </iwxxm:AerodromeSurfaceWind>
    </iwxxm:surfaceWind>
    <iwxxm:visibility>
        <iwxxm:AerodromeHorizontalVisibility>
            <iwxxm:prevailingVisibility uom="m">600</iwxxm:prevailingVisibility>
        </iwxxm:AerodromeHorizontalVisibility>
    </iwxxm:visibility>
```

TAC Version

XML Version

FIXM

Flight Information Exchange Model

What is FIXM?

The Flight Information Exchange Model (FIXM) is an exchange model capturing Flight and Flow information that is globally standardized.

FIXM is the equivalent, for the Flight domain, of AIXM (Aeronautical Information Exchange Model) and iWXXM (ICAO Weather Information Exchange Model) both of which were developed in order to achieve global interoperability for, respectively, AIS and MET information exchange. FIXM is therefore part of a family of technology independent, harmonized and interoperable information exchange models designed to cover the information needs of Air Traffic Management.

According to the ICAO SWIM concept, FIXM is one of the models that belong to the "Information Exchange Models" layer of the ICAO SWIM Global Interoperability framework.

FIXM contains flight information items that satisfy, and are traceable to, ICAO requirements for Flight information exchange. FIXM is flight-specific and deals flight planning using globally understood machine language.

Source: www.fixm./aero/

NCR

NAS Common Reference

On any given day, nearly 5 terabytes of data—pertaining to flight movements, weather data, air traffic flow constraints, and more—move across the Federal Aviation Administration's (FAA) System Wide Information Management (SWIM) enterprise between data producers and end users.

While this data richness unlocks the potential for enhanced operational awareness and analysis, its sheer volume can create challenges for airline operators and other users of SWIM data who have to drill down to find the right information for their particular need.The FAA SWIM Program Office develops and deploys information services that disseminate digital data essential to the real-time awareness of air traffic operations in the National Airspace System (NAS). An overarching mission of FAA SWIM is to deliver the right information, to the right users, at the right time.

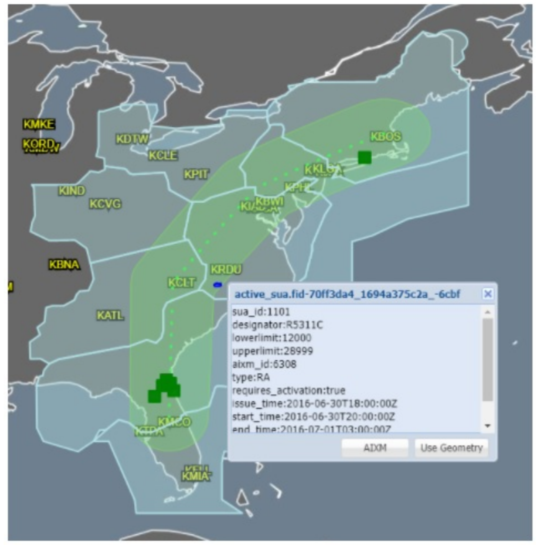
Currently, users of FAA operational data via SWIM need to connect to producer services individually to access different types of operational NAS data, such as en route flight data, terminal weather data, and aeronautical data.

Users must develop separate interfaces to these services, as well as derive their own logic for parsing, storing, and correlating this data in space and in time.

In support of FAA, the U.S. DOT Volpe Center developed a test tool that enables visualization of data sets that SWIM NCR correlates spatially and temporally in response to user requests.

The NAS Common Reference (NCR) is the newest information service that FAA SWIM plans to deploy to help fulfill its mission.

NCR is a common, reusable service that leverages industry standards to ensure SWIM users can receive data from many SWIM producers in a consistently correlated manner. With NCR, users of enterprise SWIM data will have the ability to interface with a single SWIM service to access real-time, correlated data they need for decision-making.



In support of FAA, the U.S. DOT Volpe Center developed a test tool that enables visualization of data sets that SWIM NCR correlates spatially and temporally in response to user requests. (Volpe image)

Screenshot of the NAS Common Reference interface showing data overlaid on a map of the U.S. East Coast.

Source U.S. DoT Volpe Center

FLXM

Flow Information Exchange Model

FLXM picks up where FIXM leaves off and deals with multiple flights involved in various ATC delay mitigation programs. Some technical and institutional background…. FAA's FLXM includes the required information exchange needs within the ATFM Information Domain as described in Chapter 3.1 of the ICAO Document 9971, Manual on Collaborative ATFM.

FLXM development is divided into releases in order to provide the required artifacts as the model development continues.

- FAA Order 7210.3BB refers to Traffic Management Initiatives (TMI),

  - ICAO Doc 9971 uses the term "ATFM measure" to describe techniques implemented to balance capacity and demand.
- FLXM Release 1 modeled information exchange for two ATFM measures.
  - Ground Delay Program (GDP) and,
  - Reroute.
- Release 2 extended Release 1 models to include additional ATFM measures:
  - Airspace Flow Program (AFP),
  - Ground Stop (GS),
  - Miles in Trail (MIT),
  - Minutes in Trail (MINIT), and
  - Altitude-based measures.
- Future FLXM releases will be updated as FLXM expands to model additional ATFM measures, methods, and other required data exchanges for the ATFM domain.

FD-CDM

<u>Flight Deck Collaborative Decision Making</u>

FD CDM involves the use of digital taxi instructions (DTI) using the electronic flight bag (EFB).

This is enough for this edition of Flight Dispatcher's World. In the next edition we will plan to cover other arcane NEXTGEN terms, including:

- CSS-FD
- PCAN
- eFPL
- eASP
- eAU

……….

****Publisher's note. All articles in *<u>Flight Dispatcher's World</u>* were written and edited by IFALDA members in good faith and with the most current information available. We are an all-volunteer organization, and we are human; we make mistakes. If you discover errors of commission or omission in this newsletter, please contact Dave Porter – Special Assistant to the President IFALDA at dhporter@ifalda.org and I will work with the Publisher to review the issue and make corrections as appropriate in the next edition of FDW.****