

**Report from IFATCA Technical Operations Committee (TOC) Meeting
Dar es Salaam, Tanzania
December 7-9, 2015
Bill Holtzman, NATCA Rep to TOC**

Executive Summary

TOC is working these papers/proposals for the April 2016 Conference in Las Vegas.

Title	Issue(s)	Conclusions and/or Proposal
Digitizing Flight Strips <i>Netherlands</i>	IFATCA has no policy on this topic.	The paper may propose the publication of a manual on this topic.
Review of Technical and Professional Manual <i>Spain</i>	The TPM needs housecleaning.	The paper aims to establish regular maintenance of the TPM. It proposes a drafting group to accomplish this.
Airport CDM <i>Netherlands</i>	Airport partners need to collaborate with transparency.	The ICAO A-CDM Manual is to be published around the time of the IFATCA Conference. IFATCA policy to be developed.
Airspace Redesign <i>USA</i>	Airspace redesign projects often pushed too fast	The paper reviews ICAO airspace design guidance and documents FMS and other issues with recent redesign efforts.
Free Route Airspace <i>Netherlands</i>	ANSPs want standardized methods for direct routings	Direct routes introduce complexity and randomize confliction points. Controllers need enhanced tools to manage these. Existing policies were proposed for revision.
RNAV Visuals <i>UK</i>	What is an RNAV visual?	ICAO calls these “visually guided approaches”. They are being deployed without published standards. Policy may be proposed depending on ICAO events.
Space Weather <i>UK</i>	Satellite nav and comm can be distorted by solar activity	Detection, forecasting and space weather data dissemination are key to protecting users from the effects of space weather events. Policy is proposed to mitigate these risks.
Commercial Space <i>Slovenia</i>	Increasing space launch activities will affect ATC	How space launches, return flights and high altitude drones will integrate with the current system is unknown and may be dependent on emerging technologies.
Review of Advanced Approach Procedures <i>Spain</i>	IFATCA manuals contain many outdated policies on these.	The paper reviews these policies and deletes or modifies them.
Pronunciation of Words <i>Nigeria</i>	The use of five letter waypoint names have potential issues.	The paper discusses the management of five-letter name codes. There seems to be an impending shortage due to the high volume of new procedures, but the data is not clear.
Flight Plan Quality <i>Netherlands</i>	How do you reduce the amount of erroneous flight data?	This paper was terminated as the proposer did not respond to requests to further detail the issue.

TOC Attendees

Ben Gorrie, Australia – TOC Chair	Duncan Auld, EVP-Technical
Bill Holtzman, USA	Renee Pauptit, Netherlands
Blaz Gorican, Slovenia	Raimund Weideman, Germany
Ignacio Baca, Spain	Kimmo Koivula, Finland
Benjamin van der Sanden, Netherlands	Luis Barbero, UK
Jean Francois Lepage, Rep ICAO ANC	Dominic Abah, Nigeria
Rick Taylor, Australia	Martin Dai, Tanzania
Dominic Abeh, Nigeria	Sholobela Zephania, Zambia

Other Attendees

Keziah Ogutu, Kenya, EVP Africa	Numerous Tanzanian controllers
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This was a very successful meeting, with more African involvement by far than any TOC meeting in the past 6 years at least. Our African colleagues from Tanzania, Zambia, Nigeria and Kenya were vocal, engaged and provided great insights. Credits go to EVPT Duncan Auld and TOC Chair Ben Gorrie for reaching out and creating this great opportunity. I reached out as well to our colleagues there and connecting them with NATCA.

Monday, December 7, 2015

Digitizing Flight Strips

Benjamin van der Sanden, Netherlands

Discussion centered on the potential integration of Stop Bars and other airport systems with the digital flight strip system and thereby gaining the advantage of automation.

Additional discussion involved the vulnerability of electronic systems to failure. Paper systems are less vulnerable because they are simple. There are appropriate circumstances when it makes sense to retain paper strips, primarily in low traffic environments in which there is limited coordination required. When traffic increases and there is a need to share information efficiently and automatically, then electronic systems are preferred.

There are a number of external reasons to use electronic systems, including making the flight data available for analysis and to standardize systems throughout the ANSP.

Still, some tower controllers insist that paper strips are quicker and easier for many situations, especially VFR pop-ups.

A possible outcome of the paper might be to write a manual concerning digitizing flight strips. This could discuss various experiences where electronic flight strip systems were implemented, lessons learned and best practices.

Development of Principles of Automation

At last year's conference in Bulgaria, the paper on Screen Display tasked the Executive Board "to develop principles for alerts and the display of operational information."

Coincidentally, there was an effort in the UK to develop such a document and it involved controllers. Duncan feels this document will suffice to satisfy the intent of the action item.

Review of TPM

Ignacio Baca, Spain

The Technical and Professional Manual (TPM) has numerous policies that are outdated, and the Manual also may need restructuring. In the past, individual papers were written to update specific sections of the TPM. But it would be more professional and efficient to establish a process for regular maintenance.

The paper is a discussion of the changes that are currently needed and/or desired and proposes a method for accomplishing this. If the intent of a policy needs to be revised, that would likely require a paper. But changes in terminology, deletions of policy (for instance when the policy has been fulfilled), grammatical changes and other non-content updates could be handled by this process. The structure of the Manual may be updated by this group as well.

The page numbering system is simply awful, as a change to the first policy in a section requires updating every other policy in that section. JF would like to eliminate the page numbering entirely. The numbering of the sections also is not necessarily useful. The organization of the sections is antiquated and probably not appropriate.

Duncan proposed a drafting group from TOC and PLC to be tasked with this responsibility.

Should the online TPM be made public? There are a number of issues with this, one of which is that the document should be updated, fact-checked and proofread before doing this. Another issue is whether the supporting working papers should also be public. The general feeling was that this would be inappropriate. One suggestion was to charge users for working papers.

ACDM

Renee Pauptit, Netherlands

A-CDM is the application of CDM to an airport. Airport CDM is about partners (airport operators, aircraft operators/ground handlers, ATC and the Network Operations) working together more efficiently and transparently in the way they work and share data. The Airport CDM project aims to improve the overall efficiency of operations at an airport,

with a particular focus on the aircraft turn-round and pre-departure sequencing process. One of the main outputs of the CDM process will be more accurate Target Take Off Times which can be used to improve en route and sector planning of the European ATM Network. This is being achieved through implementation of a full set of Departure Planning Information messages (DPIs) sent to Network Operations. The advantages for the network will start to multiply as more and more airports implement A-CDM

The ICAO A-CDM Manual will identify the actors and stakeholders of A-CDM, describe the method and tools used to improve results and defines key performance indicators. It will provide an implementation road map with best practices and successful examples. It is expected to be published just prior to the Las Vegas Conference.

Different approaches were taken by European/Asian and American ANSPs. ICAO mostly settled on the European approach.

The main issue with this paper is how to coordinate with the publication of the Manual.

Airspace Redesign

Bill Holtzman, USA

There's a worldwide push to implement optimized profile descent procedures. These procedures enable significant fuel savings, increase the efficiency of the airspace and reduce frequency congestion.

Some ANSPs, particularly in Africa, have pushed to deploy new procedures without input from controllers. ICAO has specific policy about this already established and the paper discusses those citations and provides additional guidance.

Meanwhile, the implementation of PBN procedures in the US has encountered numerous issues with FMS and other aspects that were not previously known or understood. Some of these are outright failings of the FMS to work properly. The paper seeks to document these issues and raise awareness, as some manufacturers have been reluctant to update products that are already certified.

The following recommended policies will be proposed at the Conference:

The development, validation and implementation of PBN procedures should involve all affected parties, in particular, local operational controllers and representatives of airspace users.

Organisational processes, and support should exist for operational staff to initiate airspace and procedure changes.

The introduction of PBN procedures should be accompanied by training for controllers and pilots that is commensurate with the complexity of the procedure.

Free Route Airspace

Renee Pauptit, Netherlands

Rather than receive direct clearances on an ad hoc basis, aircraft would prefer to be able to ignore the fixed route network and be able to file with a mostly direct path. This would enable more efficient fuel planning and reduce fuel burn and emissions.

There are a number of different “free flight” methods around the world including:

- Random/free routes – point-to-point routes generally filed by users, possibly limited to airspace beyond a set distance from the origin and destination airports
- Flex routes – defined and published at regular time intervals (such as oceanic tracks)
- User preferred routes – random/free routes subject to additional limitations such as proximity to airspace boundaries

Without the use of a fixed route structure, there can be infinite conflict points. The use of free routes then can increase complexity significantly, since higher vigilance is required to detect conflicts. Accurate, easy-to-use and versatile conflict detection tools are thus needed to mitigate the challenge of free routes.

The following policy language was proposed to revise existing policy:

Trajectory prediction and conflict detection tools should be available on situation displays used to control airspace where dynamic and flexible routes are permitted.

In airspace where dynamic and flexible routes are permitted, the ATS system should be capable of processing associated flight plans.

Tuesday, December 8, 2015

RNAV Visual Approaches

Luis Barbero, UK

IFATCA is concerned that ANSPs have been deploying RNAV Visual approaches without standards. ICAO has not published Standard and Recommended Practices (SARPs) governing these procedures.

ICAO has developed a Concept of Operations for RNAV Visual approaches:

- Inclusion of missed approach procedure at the beginning of the visual segment.
- Inclusion of go around instructions.
- Uniform naming conditions.
- ATC separation of aircraft.
- Navigational requirements (RNP level etc.).
- Weather minima.
- Prescribed track compliance.

SARPs are expected in 2-3 years. ICAO has been working with IFATCA and incorporating our input in a reasonable fashion. Meanwhile, IFATCA has published guidance to its members not to fly these procedures until standards are published.

Policy may be proposed at the Conference but it's dependent on ICAO developments.

Space Weather

Luis Barbero, UK

Increased use of satellite navigation makes the air traffic system vulnerable to disturbances caused by solar activity.

There are a number of phenomena associated with space weather including solar flares, CMEs, radiation storms and galactic cosmic rays. These can affect aviation in three ways.

- The reliability of HF communications used, for example, over the polar regions.
- The accuracy of navigation and avionics systems.
- Radiation can affect the health of crew and passengers.

As much as possible, controllers need to know in advance when space weather will affect air traffic operations. The following policy is proposed:

IFATCA believes that severe space weather poses a risk to aviation. The appropriate mitigation of that risk requires:

- *Detailed understanding of the actual impact severe space weather has on aviation.*
- *Contingency procedures for activation in cases where severe space weather negatively impacts aviation communication, navigation and/or surveillance.*
- *Development of accurate models and techniques to analyse and forecast space weather events.*
- *Determination of the type of space weather information that is relevant for the aviation community and how it shall be disseminated.*

Commercial Space

Blaz Gorican, Slovenia

There are numerous projects involved with high altitude operations and moving into space:

- Google Loon balloons operate at FL 500+ providing internet to remote areas.
- Google Solara is a solar-powered drone intended to do the same thing.
- The Facebook Aquila is a similar device but operating at even higher altitudes.
- Virgin Galactic's Space Ship One is intended to fly tourists into space with aircraft-launched rockets.
- Amazon is also working on a space tourism vehicle.
- SpaceX and Orbital ATK provide commercial launch services.

The entry of high altitude drones into the airspace system may not have a big impact at first, but coupled with increasingly higher performance aircraft the higher strata could begin to get congested in the coming years.

Regarding space-destined vehicles, large volumes of airspace are presently cleared to accommodate launches. With the frequency of launches increasing, ANSPs and governments are looking to find ways to reduce their impact on the ATM system. ICAO is tinkering with the idea of establishing tighter separation minima between spacecraft and aircraft for this purpose. Numerous factors affect any concept in this realm, including:

- Launch vs re-entry
- Trajectory predictability
- Surveillance update rate and tracking
- Equipment incompatibility such as satellite vs barometric altimetry.

There is a lot of chatter in the rocket industry about launching rockets from airports and the idea of ballistic travel, but these ideas are ill-considered and essentially fantasy.

Whether ICAO would regulate space travel and those vehicles that climb above traditional aircraft altitudes is an open question. Perhaps another international body will be created for this. There is no agreement as to that altitude at which outer space begins.

No policy is proposed.

Revision of Advanced Approach Policy

Ignacio Baca, Spain

This paper reviews existing policy on advanced approaches and proposes changes.

Much of the discussion concerned need for the approach capabilities of the aircraft to be displayed to controllers. Much was proposed for deletion as the concepts have been fulfilled or are no longer relevant.

Wednesday, December 9, 2015

Pronunciation of Words and Five Letter Name Code

Dominic Abah, Nigeria

This paper includes a discussion of the assignment of five letter names to waypoints. We had been briefed on how this is regulated by ICAO at the previous meeting in Montreal. ICAO does not have strict rules about this other than that no waypoint name can be used twice and no name can begin with "X". There are issues with very similar names in close proximity to each other.

There are about 90,000 pronounceable names left in the ICAO database. Some feel these will be consumed in the next decade by all of the new procedures. No documentation seems to exist with any kind of forecast or analysis of the sustainability of the naming system, although one would expect such review to be fairly elemental. ICAO is not disseminating any statistics on how many new names are issued each year.

Less pronounceable names could still be assigned to waypoints in new PBN procedures that are typically not use in radio transmissions. Some would like to standardize the way names are pronounced but due to regional inflection and speech styles this is not really feasible.

No policy is proposed.

Flight Plan Quality

Benjamin van der Sanden, Netherlands

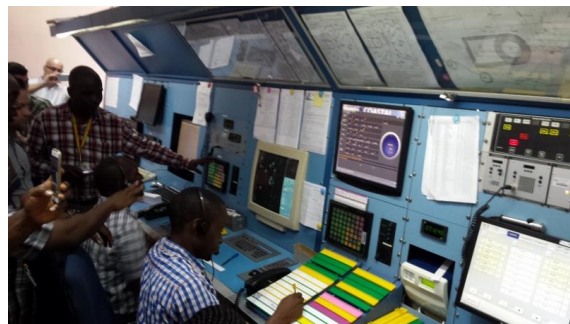
This issue was brought by New Zealand to revise policy from Sofia. TOC asked for further clarification and none was given, so the paper was dropped.

Notes

Our hosts gave us a great tour of approach, center and tower. They have an ADS-B antenna at Dar es Salaam Airport but most of the country is non-radar.



TOC Meeting



Dar es Salaam Approach

Deadline for papers is January 7, 2016. TOC members must submit them by December 31.