

**Summary of the 44th Meeting
 Special Committee 206
 Aeronautical Information Services (AIS) and Meteorological (MET) Data Link Services**

Executive Summary

SG1/6 — MASPS for AIS/MET Data Link Services

- SC-206 approved the MASPS for release for Final Review and Comment (FRAC).
- The MASPS provides minimum aviation system performance standards for data link services systems that provide aeronautical and meteorological information.
- The FRAC public comment period closes July 29, 2016.

SG4 — MOPS for Eddy Dissipation Rate (EDR) Reporting

- SG4 made progress on the MOPS. They did a lot of writing this week.
- They are “pioneering” a type of MOPS that has not been done before.
- Scope is the biggest challenge, and keeping the focus on onboard data and calculation of EDR. It would be easy to make the scope bigger than it should be.

SG5 — Update of DO-358 (MOPS for FIS-B via UAT)

- SG5 did not meet this week, as the FIS-B product design is still being finalized. Their first face-to-face will be at the next plenary.
- Eight telecons have been held, with good participation, broad knowledge base, and new members. Primarily discussions of the new FIS-B weather products: Lightning, Cloud Tops, Icing, Turbulence, and One-Minute Automated Weather Observation System (AWOS).

SG7 — Guidance for the Use of Data Linked Forecast and Current Wind Info in ATM Operations

- Primary concern is need to establish consensus on content. The Terms of Reference are so general that they apply to much more than just the three NextGen operations (IM, TBO, Wake) SG7 has been considering. To meet the FRAC schedule, scope reduction may be necessary; need consensus on the content to define specifics. Possible due date extension also depends on consensus on content.

SC-206 roadmap:

SG	Deliverable	2016 plenary meetings		2017 plenary meetings			
		Sept	Dec	March	June	Sept	Dec
1/6	AIS/MET MASPS	Resolution	PMC				
7	Winds Guidance	Release	Resolution	PMC			
4	EDR MOPS				Release	Resolution	PMC
5	DO-358 update				Release	Resolution	PMC

Release = Release doc for FRAC (public comment)

Resolution = Resolution of FRAC comments

PMC = RTCA PMC approval for publication

Monday — Opening Plenary

The 44th meeting of SC-206 was held June 13 – 17, 2016, at Nav Canada facilities in Ottawa.

Co-chairs Rocky Stone and Allan Hart welcomed the attendees to the meeting.

Mark Libant (Manager, Flight Information Systems) welcomed the group to Nav Canada's facilities and provided logistical information.

See RTCA Workspace for documents and briefings presented at this meeting:

http://workspace.rtca.org/apps/org/workgroup/sc-206/documents.php?folder_id=5390

1. Eldridge Frazier: Public meeting announcement

Pursuant to the Federal Advisory Committee Act, Eldridge Frazier was the Designated Federal Officer (DFO) for this meeting and read the following announcement:

In accordance with the Federal Advisory Committee Act, this Advisory Committee meeting is open to the public. Notice of the meeting was published in the Federal Register on May 23, 2016. Attendance is open to the interested public. With the approval of the Chairs, members of the public may present oral or written statements. Persons wishing to present or obtain information should coordinate with the RTCA Program Director Karan Hofmann and Chairs Allan Hart and Rocky Stone.

2. Karan Hofmann: RTCA proprietary references policy

RTCA seeks to develop standards that don't require proprietary information for compliance. However, patented technology and copyrighted material that are required for compliance may be included in a standard if RTCA determines it provides significant benefit. If your company holds a patent or copyright relevant to an SC-206 document being developed, advise Karan Hofmann, Allan Hart and Rocky Stone.

3. Karan Hofmann: RTCA membership policy

Organizations with a representative participating on RTCA Committees must be members of RTCA.

4. Chairmen's remarks

The high-level goals for the week are:

- SG1/6: Get SC-206 approval to release the MASPS for FRAC
- SG4: Further develop the EDR MOPS
- SG7: Further develop the winds guidance doc

5. Introductions

- | | |
|--------------------------------|----------------------------|
| 1. Allan Hart, Co-chair | Honeywell |
| 2. Rocky Stone, Co-chair | United Airlines |
| 3. Moin Abulhosn | FAA Aircraft Certification |
| 4. Louis Bailey | Boeing |
| 5. Joe Bracken | AvMet |
| 6. Bill Carson | MITRE |
| 7. Geoffrey Chisholm (telecom) | FAA Enterprise Services |
| 8. Stephen Darr | Dynamic Aerospace |
| 9. Ernie Dash | AvMet |
| 10. John Dutton | FAA ATO |
| 11. Tom Evans | NASA |

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12. Tammy Farrar	FAA Aviation Weather
13. John Ferrara (telecom)	Consultant
14. Eldridge Frazier	FAA Aviation Weather
15. Bill Geoghagan	NATCA
16. Izabela Gheorghisor	MITRE
17. Karan Hofmann (telecom)	RTCA
18. Amanda Hoprich	AvMet
19. Ryan Howe-Veenstra	Honeywell
20. Ed Johnson	FAA
21. Marc Libant	Nav Canada
22. Clark Lunsford	MITRE
23. Gary Marsh	Panasonic Weather Solutions
24. Michael McPartland	MIT Lincoln Labs
25. Joel Metcalf	GE Aviation
26. Andrew Mirza (telecom)	UK Met Office
27. Jim Mills	US Air Force
28. Dan Mulally (telecom)	Panasonic Avionics
29. Mark Mutchler	FAA Small Airplane Directorate
30. Madhu Niraula (telecom)	Rockwell Collins
31. Lee Nguyen (telecom)	FAA Aircraft Certification
32. Mark Phaneuf	ALPA
33. Tim Rahmes	Boeing
34. Bill Watts (telecom)	Delta Air Lines
35. Jeff Wright (telecom)	Delta Air Lines
36. Steve Young	NASA

6. The minutes of the previous meeting (Atlanta) were approved after discussion.

SG5 said in Atlanta that they would review and comment on the FIS-B weather product vendor change from WSI to Harris.

Rocky said that is not in SG5’s Terms of Reference (TOR). Moin noted that is where the five new weather products come from. It was said there have been complaints about the vendor change. Eldridge said review and comment on the vendor change is not an RTCA function; it’s an FAA function. SG5 as an RTCA body cannot review and comment on the vendor change.

7. Agenda for the week:

Monday	Tuesday	Wednesday	Thursday	Friday
Opening Plenary — Individual SG meetings	Individual SG meetings	Plenary — Individual SG meetings	Individual SG meetings	Closing Plenary

8. Opening Status for SG1/6 — AIS/MET MASPS

Co-Chairs: Bill Carson and Steve Darr

- MASPS status
 - All sections now “Done.” No major changes will be made prior to FRAC
 - The latest version was posted to RTCA Workspace on May 27th
 - Will present it on Wednesday for SC-206 consideration for approval to begin FRAC
 - No known issues at this time

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Questions:

What should be done with our SPR (DO-324 / ED-175)?

>> This depends a lot on what WG-76 does. They may want to reopen it. If they do, there will be coordination with RTCA, and SC-206 will have a decision to make. The MASPS does say that its assessments supersede those related to uplink in DO-324 / ED-175. Also, the future of SG6 has not been decided yet. It could be to develop an AIS/MET MOPS or to update DO-324 / ED-175 jointly with WG-76.

Would WG-76's multiple specific services fit into our generic use cases MASPS?

>> Mark Libant said they are very interested in aligning their work with ours. They would like to use the same analysis methodology. They are open to collaboration and to the idea that the documents could be used in conjunction.

9. Opening Status for SG4 — MOPS for EDR Reporting

Co-Chairs: Tammy Farrar and Bill Watts

- Bi-weekly telecons. Slow progress in writing. Received test plan framework recommendations from FAA Team last week. Discussing a face-to-face in DC this fall.
- Close coordination between SG4 and FAA Team. SG-4 government co-chair participates in FAA Team telecons. FAA Team Program Manager participates in SG4 telecons.

10. Opening Status for SG7 — Guidance for the Use of Data Linked Wind Info in ATM Operations

Co-Chairs: Ernie Dash and Michael McPartland

- Work since March plenary
 - Bi-weekly telecons
 - ATC Winds TIM (March 22nd)
 - Face-to-face meeting (May 9th). Reviewed MIT LL RTA Simulation Status
 - MITRE (Lesley & Clark) volunteered to draft input for IM section and annex
 - Distributed aircraft operations survey to A4A, NBAA, UK MET
 - TBO/RTA simulation underway

Discussion

At the March 22nd ATC Winds TIM, Don Walker said the FAA will provide winds information to aircraft for TBO and IM.

Eldridge noted that subsequent to this meeting there was another meeting (that did not include SG7) with the SBS office, in which the FAA Chief Scientist indicated the FAA does not provide winds. That is the mandate they are working from.

IM winds requirements have been defined with a view to how bad can the info be and IM still work. Rocky said he sees SG7 asking not how bad can the winds info be, but how much better the system could be with better winds info. We want to maximize capacity and minimize variance in aircraft inter-arrival rate. The only way to achieve that is more accurate winds.

Eldridge said we want SG7 to try to meet the original schedule. But a one-quarter slip may be possible with good justification and clear benefit.

11. Opening Status for SG5 – DO-358 Update

Co-Chairs: John Ferrara and Paul Freeman

- Eight telecons have been held, with good participation, broad knowledge base, new members including a vendor of noncertified tablet products - a huge application of FIS-B. Primarily briefings by Harris on details of the new weather products: Lightning, Cloud Tops, Icing, Turbulence, One-Minute Automated Weather Observation System (AWOS).
- SG5 members provided inputs resulting in product design improvements by Harris. The contract and schedule with Harris was in place before SG5 restarted, limiting how much SG5 members can help.
- Harris/FAA internal design review was held June 9. SBS program office asked for additional inputs from SG5 members and added two weeks for this before the program is frozen.
- The update to DO-358 will focus on the new FIS-B weather products and how they will be decoded and used. There are also some errors to correct. The first SG5 face-to-face meeting will be at the September 2016 plenary.

Regarding the SBS program office having asked for additional inputs from SG5 on the new products, Eldridge expressed concern about SG5 (with a component of SBS people) driving the design. There is a larger community involved in giving feedback on the design of those products, including AOPA, ALPA, and GAMA.

Until the design is settled, can SG5 really get going?

>> Yes. But it did prevent them from attending the plenary this week.

Rocky said if SG5 is giving formal feedback to SBS that is not appropriate. Karan also emphasized that SBS can ask SG5 members to give all the informal feedback they want, but it's not going to be official RTCA/SC-206/SG5 input.

Moin cautioned that we don't want to put out products that could have been better.

SG5 has the right experts, and we would hope its members do provide informal feedback, but it won't be official RTCA feedback.

John said the comments provided by SG5 members have been good and well received, but they are not firm recommendations. His concern is SG5 members will not have time to make all their comments before the design is frozen, and these comments will have to go into a bucket for future recommendations.

The design will be solidified in coming weeks, but it's looking like it could have been better. That means the MOPS could have been better. Will the MOPS be accepted or a waste of industry time?

>> Moin said the MOPS will be workable, although maybe it would have been better. There is no risk at this moment that the MOPS won't be accepted though.

>>John said when SG5 gets done the MOPS will match the products. The issue is whether the products could have been better. There is no doubt that's true, but products can always be better. The products will be acceptable, just maybe not what everybody would like to see.

12. FIS-B Data Source Transition — Eric Demaree, Harris Corp

- Harris has operated the FIS-B system under contract to the FAA for the past 8 years using weather and aeronautical source data provided by WSI.

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- Over the past year, Harris has been working to change the data source from WSI to the Harris Weather Distribution System (HWDS). The change will be transparent to avionics – there are no changes to product rates, uplink formats, look-ahead ranges, etc.
- The data source transition has been FAA (ATO) approved. Key Site deployment and a Service Acceptance Test will be conducted with FAA oversight, targeted for end of June. After FAA approval, the FIS-B data source will be transitioned across all FIS-B servers across the NAS.

Comments / questions:

The transition may be transparent to the avionics, but some changes may be noticed by pilots.

Where does the HWDS data come from?

>> The raw data comes from government sources, Harris processes and formats it.

Is that also true for the five new weather products?

>> Lightning is from a third party provider. Not certain about the others.

Have there been latency tests regarding mosaics?

>> The latency will be at least 40% better than WSI. It's produced every 2 minutes, but FIS-B only uses it every 5 minutes.

Regarding the new one-minute AWOS product, pilots should know that it is not looked at for accuracy and may not be correct.

>> True, but this is an additional product and does not replace FIS-B METARs and SPECIs.

SUA is so tactical in nature that FIS-B may not have current info to broadcast.

>> The current DO-358 FIS-B MOPS indicates pilots should not use FIS-B SUA data for that very reason and recommends it be removed from the uplink. Not sure if it is still being uplinked.

13. Industry Initiatives — Rocky Stone

Rocky is participating in two efforts relevant to SC-206 that the group should be aware of:

- FAA Equip 2020
 - Equip 2020 encourages air transport operators and General Aviation to equip with ADS-B Out before the 2020 deadline. Last September Equip 2020 set up an ADS-B In working group that Rocky co-chairs. It's developing strategies for getting from where we are today, with in-trail procedures being the only ADS-B In application, to other potential ADS-B In applications like IM. For industry, ADS-B In comes down to a cost/benefit analysis. There has been a lot of work on the benefit side. Rocky is looking at the cost side. One example: a MOPS for basic IM was published last year based on federated avionics, not integrated in the cockpit. It requires one nav database for the IM system and another for the FMS. This increases cost. Another example: Some air and ground systems are trying to do the same thing but overlapping, creating avionics costs. We could have Terminal Sequencing and Spacing (TSAS) do more and have IM take over in the end game.
 - No decisions or recommendations have been made yet.
- PBN Time, Speed, Spacing (TSS) Task Force
 - This RTCA NextGen Advisory Committee (NAC) group is developing a 15-year plan for deployment of TSS and related capabilities. They are looking at the whole suite of controller tools (e.g. Time-Based Flow Management (TBFM)) and asking how much

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we can maximize capacity. They are also looking at how much further the addition of IM would take us and if there is a business case for IM.

- Rocky showed an IM presentation given to the Task Force. IM consists of ground and flight-deck capabilities used in combination by ATC and flight crews to manage aircraft spacing. Fast-time simulations show IM can significantly reduce inter-arrival spacing and thereby increase throughput.

This concluded the opening plenary session.

Tuesday

Sub-Group meetings were held all day.

Wednesday

14. MASPS Presentation to Plenary for Approval to Release for FRAC — Bill Carson and Steve Darr

- The purpose of this document is to provide minimum aviation system performance standards for AI & MET data link services systems. There were approximately 20 significant contributors.
- MASPS contents were reviewed:
 - Section 1 – Purpose and Scope
 - Section 2 – Approach and Methodology
 - Section 3 – System Performance Requirements
 - 3.1 Introduction
 - 3.1.1 Operational Performance Assessment Process
 - 3.1.2 Operational Safety Assessment Process
 - 3.2 Operational and Safety Requirements and Recommendations
 - 3.3 Real Time, Aircraft-based MET Observation Service System Requirements
 - Section 4 – Interoperability Requirements
 - Section 5 – Performance Verification
 - Section 6 – Membership
 - Annex A – Use Cases
 - Special Activity Airspace Notification Service
 - Eddy Dissipation Rate Turbulence Service
 - Weather Surveillance Service
 - Annex B – Operational Performance Assessment
 - Annex C – Operational Safety Assessment
- The three use cases are representative of the myriad of data link services that could be implemented. They were used to inform the development of requirements, the purpose of which is to assure that AI and MET Data Link Services systems function in an acceptable manner.
- The requirements are based on one specific intended use: information transfer. Requirements are allocated to the type of communication mode (Broadcast, Publish/Subscribe and Request/Reply). These are minimum requirements that designers, manufacturers, installers, service providers, and users of AI and MET Data Link Services systems should evaluate when developing, deploying, and/or using such a system.
- Certification and operational approvals will be granted by relevant authorities, who may invoke the MASPS in granting such approvals.
- Section 3.3 contains additional requirements beyond that of Section 3.2 in order to address direction from the TOR to define requirements for the transmission of parameters to enable applications described in DO-339. A commensurate level of detail was not deemed necessary

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- for AIS, because other standards already describe AIS data requirements.
- Louis pointed out the use case for cross link should be bolstered up to benefit future cross link applications that may be proposed.
 - Feedback to RTCA on its MASPS development guidance:
 - It overdoes the methodology. The methodology used is in Sections 1, 2, and 3. This guidance needs to be clearer.
 - The OSA is done first and used as input to the OPA. It would make more sense to have the OSA come before the OPA in the document.
 - FRAC process:
 - SC-206 affirms in plenary that MASPS is ready for FRAC June 17th.
 - MASPS released for FRAC comments by June 27th.
 - Reviewers submit comments to the doc managers using the provided Excel template.
 - If not already done, the Doc managers will upload comments to Workspace for transparency.
 - FRAC comment period closes July 29th.
 - Comment resolutions are presented at the Sept plenary and SC-206 approves forwarding the MASPS to Karan.
 - From there it goes to the PMC for approval in December.

Allan asked the group to keep in mind something that will be of interest to the PMC: Does the MASPS supersede, replace, or augment DO-324/ED-175? Does it address the lack of acceptance of DO-324/ED-175? We will return to this, probably at the next plenary.

This concluded Wednesday's plenary session.

Thursday

Sub-Group meetings were held all day.

Friday – Closing Plenary

15. MASPS approval by SC-206

- SC-206 unanimously approved the draft MASPS for release for FRAC.
- SG1/6 outlined the work plan for FRAC.

16. Standards Coordination — Ed Johnson

- Ed and Steve Darr have been talking with Don Walker (SC-186 WG3) and some members of SC-209. They were requested to brief a joint meeting of SC-186 SG3 and SC-209 and their EUROCAE counterparts on the status of the SC-206 MASPS. There is interest in particular in Section 3.3. Ed and Steve put together a status briefing for them to review next week in Brussels. They will brief the full MASPS to the group in October.

17. Closing status for SG4 – EDR MOPS

- FAA Team update and discussion with Mike Emanuel on Monday.
 - Mean EDR standard recommendations have been submitted
 - Airline Peak EDR performance needs have been ascertained, standard validation process developed, and initial standard validation results provided
 - New Peak EDR standard process has been outlined and scheduled
 - Mean/Peak EDR compliance test plan has been outlined

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- All deliveries are on time; future deliverables are on track
- Next steps:
 - Peak EDR standard
 - Peak EDR standard validation
 - Mean and Peak EDR standard compliance test plan
- Made progress on the MOPS. SG4 did a lot of writing this week.
- SG4 is “pioneering” a MOPS of a type that has never been done before.
- Scope is the biggest challenge, and keeping the focus on onboard data and calculation of EDR. It would be easy to make the scope bigger than it should be.

18. Closing Status for SG7 - Guidance for the Use of Data Linked Wind Info in ATM Operations

- This week:
 - Reviewed preliminary TBO/RTA simulation results. Expect final results in August.
 - Airline surveys still coming in.
 - Reviewed Sections 3, 5, and Appendix C. Lots of discussions. Slow progress.
 - Made decisions on how to move forward with TBO/RTA simulations.
 - Established work plan for completion.
- Concerns
 - Mapping TBO/RTA to A-IM. This has been mitigated by MITRE’s input to the doc.
 - MITRE A-IM results likely not available until August.
 - Limited input from ATC and industry, although ATC and Boeing participated this week.
 - Time crunch to develop a mature document between June and September. Will schedule two face-to-face meetings and hold weekly GTMs.
 - Consensus on content has not been established.
- TOR options
 - The TOR is so general that it applies to much more than just the three NextGen operations (IM, TBO, Wake) SG7 has been considering. Consensus on explicit content is required to control activity areas.
 - To meet the FRAC schedule, scope reduction may be necessary. But need consensus on the content to define specifics.
 - Possible due date extension also depends on consensus on content.

Questions / discussion:

Is it your intention to release the document prior to the Sept plenary?

>> Yes, but it may not be the final draft.

Has this become a science project or will this document be useful to industry?

>> Consensus on content has not been established. Defining the scope is a big issue now. We need to take a step back and clearly agree on what the purpose of the document is. But what we deliver will be something usable and not a science project.

Rocky said he would encourage SG7 to stay with IM, 4D TBO, and Wake.

Ernie said the question is, what recommendations will SG7 make? We don’t want to start with the recommendations and write the doc to justify them. We want the analysis to lead to the recommendations.

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Eldridge noted there was excellent industry input this week that needs to be taken into consideration and that can lead to a good, useful document. But we may have to be patient with SG7.

Ernie sees a white paper on scope/approach, and Rocky’s help would be welcome.

Allan noted that the drivers for this document were the MIT LL trade studies and how to slice the trade spaces to optimize performance and how to combine uplinked forecast winds and crosslinked real time winds.

Rocky said the problem is that the trade space is so broad. Zeroing in on IM, 4D TBO, and Wake helps. Characterizing how the trade space works within those three applications is really key to what the recommendations will point to.

We need to decide before the Sept plenary whether SG7 needs to slip so we can inform the PMC.

19. Future meetings

Date	Location	Notes
Sept 12 – 16, 2016	Kansas City, MO (FAA / NWS)	FRAC resolution for MASPS FRAC release for Winds Guidance
Dec 12 – 16, 2016	DC (RTCA)	FRAC resolution for Winds Guidance
March 13 – 17, 2017 Week might be shifted	Hampton, VA (NIA)	
June 12 – 17, 2017	Seattle (Boeing Longacres)	FRAC release for EDR MOPS FRAC release for FIS-B MOPS
Sept 11 – 15, 2017	Washington, DC (RTCA)	FRAC resolution for EDR MOPS FRAC resolution for FIS-B MOPS
Dec 4- 8, 2017	TBD	If needed

We need to start thinking about the future of SC-206.

After PMC approval of the MASPS, SG6 has three options:

- Re-align with WG-76, especially if they update the SPR (DO-324 / DO-175)
- Develop an AIS/MET data link MOPS
- Update the MASPS based on feedback

After publication of the winds guidance doc, there may be a need to update it.

In the future, will we need a whole week for plenary meetings?

>> Let’s keep that in mind going forward. Monday could be a travel day.

20. WG-76 status — Allan Hart

- WG-76 is disseminating an AIM/MET needs questionnaire to end-users, asking for confirmation of its now 16 proposed services and the information they will provide. Questionnaire responses are expected around October with analysis targeted for the end of November.
- The main activity now is refining the Service Descriptions.
- Will conduct OPA and OSA to update SPR requirements in ED-175 / DO-324. Methodology for OPA/OSA is under discussion (but use of ED-78A is envisaged).
- The current 16 services:

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- Uplink AIM
 - Airspace info update
 - Digital NOTAM
 - Obstacle info
- Uplink MET
 - Winds and temps aloft
 - Wind/temp data for flight management
 - Aerodrome weather
 - Hazardous weather
 - Environmental conditions in critical phases of flight
 - Atmospheric info
 - Weather imagery
 - RVR (to be confirmed)
- Uplink AIM/MET
 - Digital ATIS
 - Runway info
 - Taxiway info
- Downlink/crosslink
 - Special AIREP/AUTOMET
 - Real-time aircraft derived data

Discussion:

Louis asked if we open up the TOR to clarify the work of SG7, should any of the WG-76 services be added to SG7's winds doc? Right now the TORs two bullets for SG7 contradict each other. If we open up the TOR to clean that up, that would be the time to add one or two of these services.

>> Let's discuss that at the next SG7 telecon. Right now the doc is focused on winds and temperatures.

Are IM, 4D TBO, and Wake "services"?

>> Louis said they are applications. And multiple services that provide data (maybe some of WG-76's services) can influence these applications. If we open up the TOR for SG7 to clarify scope, we could take that opportunity to also take that into account. It would add to the challenge, but increase specificity and actually narrow the scope.

SG7 needs to clearly define the scope and content of their document. They are not there yet.

21. 1090 MHz Spectrum Congestion Analysis — Jim Baird, FAA

- The goal is to mitigate 1090 MHz congestion on affected systems (ADS-B, TCAS, SSRs, Wide Area Multilateration (WAM), ASDE-X).
- Without mitigation, ADS-B and TCAS will fail to meet required performance sometime beyond 2020 due to traffic growth and interference impacts.
- Preliminary findings based on modeling:
 - The largest portion (~50%) of 1090 interference is from replies to TCAS interrogations. The next largest portion (~25%) is from ADS-B broadcasts. The final 25% is everything else.
 - ADS-B Air-to-Air appears to be the most impacted system, specifically at longer ranges (~90 miles). Other systems appear less sensitive (e.g., TCAS, ADS-B Air-to-Ground).

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- WAM and Hybrid TCAS alternatives appear to provide the greatest improvements. SSR-based alternatives appear to provide the least improvements.
- Hybrid TCAS retro-fit is the most expensive alternative (>\$1B). Hybrid TCAS forward-fit and Mode S Ext. Lockout are least expensive (<\$1M).
- No significant safety risks were identified for any alternative assessed. Hybrid TCAS is potentially more susceptible to failure due to dependency on ADS-B and GPS. In stressed spectrum environments, loss of GPS could cause failures of other systems.
- Final report to be published by August 2016.

Question:

There are placeholders for future capabilities in DO-260B (MOPS for 1090 ES ADS-B) as far as the message set. Did your analysis consider some of these other anticipated messages?

>> We assessed what would happen to the fruit environment in the future if we added another 1 or 2 squitters/sec to the ADS-B broadcast. Adding 1 squitter/sec might be OK. Adding 2 squitters/sec you're starting the really push it.

22. Open action items were reviewed.

#	Assigned to	Action required	Date assigned	Status
263b	Eldridge	Ask Jim Baird to brief SC-206 on the 1090 MHz congestion analysis after the report comes out from FAA Systems Engineering. Will inform whether ADS-B will be available for AIS & MET information.	Dec 2011 DC	Closed
269	Rocky	Coordinate with ARINC re data labels for SG1 (e.g. EDR, weight, wake circulation). This action is dependent on whether we do further maturation of the DO-339 parameters in the MASPS. -- In communication with Paul Prisaznuk. ARINC doesn't want to build a standard until SC-206 knows very definitively what we want, e.g. what the parameters and rates will be. FAA suggests to keep this action open.	June 2012 Atlantic City	Open <i>Parking lot</i>
282	Moin	Clarify what type of AIS/MET data link MOPS would be needed (as follow on to the MASPS), if one or multiple MOPS are needed, or one with different sections for different systems.	March 2014 Kansas City	Open <i>Parking lot</i>
290	Rocky	Regarding the "next step" after the WVTT White Paper: <ul style="list-style-type: none"> ○ "Collaborate with the FAA on the decisions necessary to implement the recommendations in the White Paper ○ How can weather data be transmitted in near real-time to support ATM, wake vortex, and weather applications ○ ADS-B, request/reply via Enhanced Mode S, others?" Provide a better understanding of what "Collaborate with FAA" means.	Sept 2015 Chicago	Closed

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		--PMC digesting white paper. Need time to socialize it. Steve Bradford, Chief Scientist for NextGen, is expected to task FAA response to the PMC. This is mostly relevant SG1, but SC-206 can track it with this action item.		
294	Tammy Farrar, Bill Watts	Determine whether to add another intended use “Air Traffic Operations” to the EDR MOPS. --Decided to add it.	March 2016	Closed
295	Allan, Rocky	In order to close out Action Item #290 (part 1): Brief SC-186/SC-209 on SC-206 activities relevant to Action Item # 296 below.	June 2016	Open
296	Allan, Rocky	In order to close out Action Item #290 (part 2): Initiate ISRA with SC-186 WG3 (ADS-B) and SC-209 (Transponder), which meet jointly for the most part. We want them to put the weather parameters from Section 3.3 of the MASPS into one of their two MOPS (which one to be determined later). The idea is that parameters be available through ADS-B via extended squitter or Mode S. More study will be needed on specifics.	June 2016	Open

23. Any other business

The WMO has asked to be notified when the MASPS comes out for FRAC comments.

At the Friends and Partners in Aviation Weather in August, Steve Darr will speak to the group about the MASPS.

Anyone asked to do a briefing on SC-206 needs to get buy-in from Rocky, Allan, Eldridge, and Karan. Send the slides to them before the briefing.

Jennifer at RTCA shows that SC-206 has three open ISRAs:

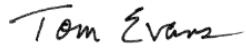
1. SC-214 > SC-206 – Safety and performance requirements for D-HZWX
 - SC-206 response: This is OBE. The joint 206/214 Tiger Team did the work, but SC-214 dropped D-HZWX from their SPR. This ISRA is closed.
2. SC-206 > SC-217 – Expanded data quality requirements coverage
 - SC-206 response: This was previously closed by mutual agreement.
3. SC-206 > SC-186 – Feasibility of routinely transmitting an air reference vector or directly transmitting wind speed and direction
 - SC-206 response: This was never a formal ISRA, only draft. It should be closed.

Many thanks from the group to Mark Libant and Faycel Farza and Nav Canada for making this a successful week. It was a great location.

Summary of the 44th Meeting
RTCA SC-206 – *AIS/MET Data Link Services*

This concluded the 44th meeting of SC-206.

CERTIFIED as a true and accurate summary of the meeting.



Tom Evans, Secretary



Rocky Stone, Co-chair



Allan Hart, Co-chair