Summary of the 50th Meeting
Special Committee 206
Aeronautical Information Services (AIS) and Meteorological (MET) Data Link Services

Executive Summary

The 50th meeting of SC-206 was held March 15th, 2018, at the Harris facility in Melbourne, Florida.

- **SG1 — Aircraft-based Observation (AbO) Requirements**
  - SG1 efforts are on track
  - SG1 met with an FAA Certification representative this week regarding EDR implementation within ADS-Wx
    - Before the FAA implements guidance from the EDR Guidance Document, they need to ensure that there is EDR guidance in the ADS-B MOPS
  - Coordination is complete on all parameters except for True Heading
    - They are evaluating the impact of True Heading on various Weather Surveillance (WxS) applications
      - This evaluation is contained in a working paper
  - SG1 hopes to close this out within the next month
  - Steve Darr will make sure the FPAW planners understand the desire to present SC-206 status at the FPAW meetings
  - SG1 is trying to determine how to specify winds for ADS-B based upon the applications being used
  - 7 of the 8 SG1 Working Papers have been presented to date and are available on the CSC workspace location
  - Any questions or comments related to SG1 activities should be directed to the SG1 leadership

- **SG5 — DO-358A (MOPS for FIS-B via UAT)**
  - There is a lot of remaining work to be done based upon SG5’s open Action Items and Pre-FRAC comments
  - SG5 plans to hold two additional Face to Face meetings prior to the June Plenary
  - Paul Freeman noted that Harris is conducting testing with respect to MRMS and will be holding a design review with the FAA and MITRE
    - Paul noted that Harris conducted a trade study and changes to the MOPS (wrt MRMS) was one of their parameters
    - Paul added that SG5 is trying to keep changes to the MOPS to a minimum
      - If SG5 is not able to have the MOPS document ready for FRAC by June, that may help with any future document changes due to the addition of MRMS
  - Paul noted that Harris will be broadcasting the 6 new products over the key sites, then to the rest of the NAS by the end of June
    - MRMS will be later
  - SG5 worked with AOPA to develop a White Paper related to the provision of Temporary Restricted Areas (TRAs)
- The White paper was approved by SG5 and the SC-206 leadership, and will be presented to the RTCA PMC the week of March 19th
  - The possible inclusion of MRMS and TRAs in the MOPS, and the progress on the Test Material section, may impact the document development schedule
  - However, SG5 would prefer to make the TOR schedule if they cannot meet the accelerated 3-month schedule

**Merging MASPS with the WG-76 SPR**
- The level of detail in the WG-76 service descriptions may need to be increased for their services to make it consistent with the DO-364 appendices
- WG-76 is reporting that 90% of their OSA work has been completed
- WG-76 document work is being posted to the RTCA Workspace
- The FAA is considering an Advisory Circular (AC) to invoke DO-364
- Bill Carson and Eldridge Frazier will attend the EUROCAE meeting in Moscow in June and speak with them in person
  - Bill and Eldridge will report back to the SC-206 membership during the June Plenary
- If WG-76 and SC-206 rejoin, we need to determine what it will take to merge their SPR into a common MASPS; assuming their document will be complete
  - Need to determine if the two documents are in agreement, and if not either make them consistent or describe why they are different

**SC-206 TOR update discussion**
- There was no discussion related to any specific SC-206 Terms of Reference (TOR) changes

**Next SC-206 meetings:**
- June 11-15, 2018 at AOPA Headquarters in Frederick, MD
- September 17-21, 2018, at RTCA in Washington, DC
- December 10-14, 2018, at RTCA in Washington, DC
The 50th meeting of SC-206 was held March 15th, 2018, at the Harris facility in Melbourne, Florida.

Presentations are posted at: https://workspace.rtca.org/apps/org/workgroup/sc-206/documents.php?folder_id=7425

Thursday Plenary
The Plenary session convened at approximately 0830 on Thursday, March 15th.

1. Opening Remarks:
   - DFO - Eldridge Frazier read the opening statement as the Designated Federal Officer
   - RTCA – Karan Hofmann made some opening remarks
     - Karan noted that RTCA extended a special thank you for all the work that SC-206 has done and for all of the documents that have been developed and the impacts of those documents
     - Karan made an opening statement regarding proprietary information and membership requirements for RTCA participation
     - Karan also made an announcement for the upcoming 2018 RTCA Aviation Symposium
   - Harris – Paul Freeman gave some opening remarks regarding the Harris facility
   - Chairman – Rocky Stone opened the meeting at 0845 noting that this is the 50th SC-206 Plenary session
     - Rocky provided a short summary of where SC-206 is at in their current work plan
       - SC-206 is very near completion of the existing Terms of Reference (TOR) items
       - SG1 is still active developing specifications on weather parameters in ADS-B
     - Rocky noted that there will be one item to discuss today to potentially add to the SC-206 TOR
       - That item is with respect to opening up DO-364 to coordinate with the EUROCAE WG-76 SPR
     - Rocky added that he continues to work with the Collaborative Decision Making (CDM) community and the airline industry on the potential value of adding a minimum information requirement for pilot participation in CDM
       - Rocky, Tom Evans, and Eldridge Frazier participated in a conference call with the CDM Steering Group (CSG) on Monday, March 12th
       - Rocky added that there is interest from CDM, but no tasking yet

2. Attendees / Introductions
   - Rocky Stone, Co-chair United Airlines
   - Tom Evans, Co-chair NASA
   - Joe Bracken, Secretary* AvMet Applications, Inc.
   - Moin Abulhosn FAA Aircraft Certification
   - Ken Bath Harris
   - Ketan Bharucha* Harris
   - Bill Carson The MITRE Corporation
   - Kin Chan* Harris
   - Stephen Darr Dynamic Aerospace
   - Tammy Farrar* FAA Aviation Weather
   - John Ferrara Consultant
3. The meeting agenda was approved

4. The minutes of the previous SC-206 Plenary (December 5-7, 2017 at Harris) were approved

5. Sub-Group Reports
   a. SG1: CSC and Other SC Coordination (ISRAs)
      o Steve Darr provided the SG1 report (Reference the SG1 Plenary Update slide presentation)
      o Steve noted that SG1 met with an FAA Certification representative this week regarding EDR implementation within ADS-Wx
         - Before the FAA implements guidance from the EDR Guidance Document, they need to ensure that there is EDR guidance in the ADS-B MOPS
      o SG1 is considering removing the emitter category to free up some bits
      o Reference slides 5 and 6 from the SG1 Plenary Update slide deck
         - These slides identify the parameters not being provisioned for and why
         - Coordination is complete on all parameters except for True Heading
            - They are evaluating the impact on various Weather Surveillance (WxS) applications
               i. This evaluation is contained in a working paper
                  - SG1 hopes to close this out within the next month
      o Next steps
         - Steve asked the attendees what level of support does SC-206 want with respect to FPAW
Rocky responded that FPAW encompasses a broad spectrum of the aviation community
   i. It is important that FPAW be informed of what is being done within SG1
   ii. Rocky strongly supports reporting of SC-206 efforts
   iii. Steve noted that he will make sure the FPAW planners understand the desire to present SC-206 status at the FPAW meetings

Questions:
   - Tom Evans noted that SG1 appears to be on track and on schedule
   - Steve responded in the affirmative that SG1 is on track
   - Rocky asked if SG1 has received input from Boeing and/or Airbus on airborne wind accuracy
     - Steve responded that for all of the MASPS / MOPS documents that RTCA has developed, wind accuracy from the FMS can be more accurate than the winds from the INS systems
       i. There is a similar derivation of winds from the systems, but it depends on where they system is deriving the winds from
          1. The INS is updated at 10hz
          2. The FMS is updated in 30 second updates at 10hz
     - Various applications are looking for different levels of accuracy
     - SG1 is trying to determine how to specify winds for ADS-B based upon the applications being used
   - Andrew Mirza asked if the various Working Paper documents are available
     - Steve responded that they are available once they’re presented to the CSC
       i. 7 of the 8 have been presented to date and are available on the CSC workspace location
   - Steve noted that any additional questions or comments should be directed to the SG1 leadership

b. SG5: FIS-B MOPS
   - Paul Freeman provided the SG5 update (Reference slide 3 of the SG5 Plenary Update slide presentation)
   - Paul noted that there is a lot of remaining work to be done based upon SG5’s open Action Items and Pre-FRAC comments
   - Regarding the Test Materials sections of the MOPS that MITRE is working on:
     - Work is underway by MITRE, but still a lot of work remains
       - Additional updates are needed
     - Garmin has offered to assist MITRE
   - Harris is conducting testing with respect to MRMS
     - They will be holding a design review Tuesday, March 20th that will include participants from FAA and MITRE
       - Harris plans to present to the SBS office their intent for use of an MRMS product as a replacement of the WSI NEXRAD mosaic
       - MRMS is updated more frequently
     - Paul noted that this is a Harris proposal and intends to present a design that the FAA concurs with
       - Harris will only be able to make the switch after this is approved by the FAA
Summary of the 50th meeting  
RTCA SC-206 – AIS/MET Data Link Services

- Tom Evans asked on the status of the FIS-B covering MRMS
  - Paul responded that during the design review they plan to review the advantages of MRMS with respect to latency and update rates
  - The FAA will either approve or disapprove the concept during the design review
    i. If approved, Harris will conduct a test campaign
- Bill Carson asked Paul how much editing will be required in the MOPS to account for any MRMS additions
  - Paul responded that they conducted a trade study and changes to the MOPS was one of their parameters
  - Paul added that SG5 is trying to keep changes to the MOPS to a minimum
    i. If SG5 is not able to have the MOPS document ready for FRAC by June, that may help with any future document changes due to the addition of MRMS
- Eldridge asked about the rollout of the FIS-B Regional Control Stations (RCS)
  - Paul responded that they plan to complete the rollout to the rest of the NAS by the end of June
    - Harris will be broadcasting the 6 new products over the key sites, then to the rest of the NAS
  - MRMS will be later
- Eldridge provided a brief update on the Temporary Restricted Area (TRA) White Paper
  - AOPA requested that SG5 raise the issue with the FAA of the need for adding TRAs to FIS-B
  - SG5 took on the task and worked with AOPA to develop a White Paper, which was approved by SG5 and the SC-206 leadership
  - This White Paper will be presented to the RTCA PMC the week of March 19th
    - A recommendation was made to have Harris alter the ground stations to uplink the TRA notices
  - Paul noted that the inclusion of MRMS and TRAs in the MOPS may impact the document development schedule
    - However, SG5 would love to have the document ready by the end of December as per the TOR

6. Merging MASPS (DO-364) with the WG-76 SPR
   - Bill Carson provided the update (Reference the Inclusion of Working Group 76AIS/MET slide presentation)
   - Bill noted that the level of detail in the WG-76 service descriptions may need to be increased for their services to make it consistent with the DO-364 appendices
   - Bill added that WG-76 is reporting that 90% of their OSA work has been completed with the OPA work not far behind
   - Steve Darr asked how WG-76 is conducting their OSA/OPA work
     o Bill responded that some of the WG-76 work is on the RTCA Workspace but that it’s hard to tell exactly how, or by what formal process, they arrived at their results
     o Bill added that if any additional WG-76 work has been updated since November, we may not have the latest or know how much work they’ve done
Summary of the 50th meeting  
RTCA SC-206 – AIS/MET Data Link Services

- Karan Hofmann agreed to look for latest WG-76 documents and post to Workspace accordingly

- Questions
  - Rocky stated that Bill’s report is a comprehensive look at what would be involved
    - Rocky added that from an airline perspective, he would like to see one Standard for AIS and MET
      - With respect to SC-206 and WG-76 rejoining, in order to develop one Standard, we would have to do it quickly
      - Rocky added that he is curious of any potential differences between the two documents
    - Regarding the question on invoking DO-364 or the WG-76 document; or both
      - Moin Abulhosn stated that the FAA is considering an Advisory Circular (AC) to invoke the DO-364 document
      - Rocky asked if WG-76 publishes their document, will there need to be changes to the AC
      - Moin responded that the FAA has invoked a EUROCAE document in the past and that there is precedent for it to be done
  - It was pointed out that there is a WG-76 meeting the last week of March
    - Eldridge responded in the affirmative and noted that funding was made available for Bill and Eldridge to attend the EUROCAE meeting in Moscow in June and speak with them in person
    - Bill and Eldridge will report back to the SC-206 membership during the June Plenary
  - Rocky commented by asking Bill if there is more urgency than what he originally thought
    - Bill responded in the affirmative
      - Bill added that if the groups do rejoin, we need to determine what it will take to merge the SPR into a common MASPS; assuming their document will be complete
      - We need to determine if the two documents are in agreement, and if not either make them consistent or describe why they are different
  - Rocky asked Bill what it would take to add an additional service to the MASPS related to a tool similar to the Traffic Aware Strategic Aircrew Request (TASAR) presentation (reference the Industry Coordination section of this report)
    - Rocky added by asking if there is a path forward; whether with WG-76 or not
    - Bill responded by asking if a new service would be placed in the appendix of the MASPS or would a “full blown” service analysis be needed to accompany the material in Section 3
      - SC-206 could keep adding generic information or provide specifics
  - Mark Mutchler stated that the idea would be that anyone could take the MASPS with any service (or any of the 12 WG-76 services) and determine the minimum requirements necessary
    - The individual could then go to the Regulatory Authority and state that they meet the minimum requirements and ask where to go from there
    - Mark recommended that SC-206 evaluate the 12 services that WG-76 has identified and see if there is anything new or something SC-206 needs to add
  - Rocky noted that, when looking at TASAR, the applications in the uplink service (FIS-B) are more of a situation awareness tool
Polygons can be used by the algorithm to generate an enhanced path.
TASAR may actually result in adding a whole new class of use of the data.
Mark added that the requirements may need to be more stringent based on
the use of the data.
  - Bill noted that Section 3 of the MASPS was intended to be a
    minimum set.

7. Industry Coordination
   - TASAR CDM Presentation
     o David Wing (NASA) provided the TASAR update (reference the TASAR - Traffic
       Aware Strategic Aircrrew Requests slide presentation)
     o Rocky noted that this tool could be related to a possible TOR addition about cockpit
       CDM participation
     o David stated that this is basically a traffic awareness planner (TAP) tool
     o Steve Darr asked if there is a bias to using existing waypoints versus a free flight
       option
       - David responded that there is the option for the pilot to build a route
     o Rocky attempted to wrap context around the tool and what could be done within SC-
       206
       - SC-206 could help provide specifications on what the minimum inputs could
         be
       - We would need to determine if the WSI NEXRAD mosaic is okay, if MRMS
         is needed, or what sort of forecast tools would be useful
       - ATC is going to be concerned if the downstream sector would be saturated
       - Rocky asked if SC-206 could construct OSA’s and OPA’s around a scenario
         to ascertain the minimum inputs necessary
         - This could bring value to the CDM community and the TASAR tool
           could be used as a starting point
       - Researchers have already identified what they believe are the necessary
         inputs
         - But there will eventually need to be a list of approved inputs as the
           minimum input set
       - Rocky added that there may be controversy as to what that minimum data set
         needs to be
         - Different users have different needs based on the tools they use
         - The minimum data set will be needed to obtain approval by ATC for
           the cockpit to participate in CDM
       - David added that when the playbook becomes stale, this tool would allow the
         cockpit to make an informed request of a change
     o Rocky asked David if SC-206’s ability to determine and provide a minimum set of
       data would be helpful or has NASA already determined the minimum
       - David responded that what would help would be to have a consistency
         between what the cockpit and ATC is seeing at the time
       - David added that NASA would like to see turbulence brought into this tool
         also
       - Weather products have been developed for human consumption
         - NASA is now looking at weather products for algorithm
           consumption
         - With weather product information, there are some new things that
           NASA could do with their algorithms
o Rocky noted that he thinks that TASAR is missing the sector loading polygon(s) for specific areas where most flights may be headed
  - David responded that NASA is working with Alaska airlines and are looking to develop a prototype between the airborne and ground tool
    - This could integrate airborne weather radar
    - They are building in a cross check capability of congested sectors which the pilot could take into consideration
    - David sees a lot of benefit in determining what data can feed into a system like this and the minimum set of data that would be good to have

o Mark Mutchler noted that the FAA is looking at how to replace some of the basic functions the pilots execute today, and this tool would / could feed directly into that
  - In the future, there could be as many as 200,000 flights in the air at one time
  - David responded that a tool like this would be beneficial

o Rocky asked David if there is any value in taking the data set that NASA has identified and determine if SC-206 and the processes that SC-206 follows would be beneficial in providing a minimum set
  - David responded that having a group like SC-206 work on specifying an information set and doing a safety and operational analysis around it would be helpful

o Jim Mills stated that he sees TASAR as a very beneficial tool, and that we need to determine how this fits in with the CDM community
o David concurred with trying to make this tool more applicable in the tactical regime by including the important data / constraints and allow the tool to consider those constraints
o Rocky noted that the tool must maintain safety and possibly allow those that are equipped to participate in the route selection process
  - In order to do this, a minimum set of information is necessary and a means to flag an aircraft as a CDM participating aircraft
o David noted that one specific gap within the TASAR tool are weather polygons

• Horizon 2020 Presentation
o Nicolas Fezans (DLR) provided the Horizon 2020 update (reference the Horizon 2020 slide presentation)
  - Reference Slide 4
    - Nicolas noted that there are two certification conditions of icing; Appendix C and Appendix O
      - Appendix O refers to supercooled large droplet icing
      - This effort is related to FAR Part 25 aircraft
    - Direct Ice Detection for Appendix O conditions
      - Looks at a range of different systems
        i. Vibratory, visual, electrical, sensor, etc.
    - Indirect Ice Detection for Appendix O conditions
      - Looks at aerodynamic impacts of ice accretions
      - Early drag increases that are un-noticeable to the pilot
    - For Appendix O conditions, there are no real aircraft certification means to date
  - Reference Slide 6
Summary of the 50th meeting
RTCA SC-206 – AIS/MET Data Link Services

- Some Appendix C ice detection systems are not able to detect Appendix O icing conditions
- It is extremely difficult for pilots to make the distinction between Appendix C and Appendix O icing conditions
○ Reference Slide 8
  - There are aspects of the nowcasting of icing conditions up to 15 minutes in advance
  - This could ultimately be provided to the cockpit and will be tested as part of the test demonstration
○ Questions
  - Rocky asked Nicolas if there has been any coordination done between DLR and WG-76 in terms of the nowcast and provision of that icing information to the cockpit
    - Nicolas responded in the negative
  - Rocky asked Steve Darr if there are any items here related to the SG1 activity
    - Steve responded that they are working on two separate items related to icing
      i. Icing status
      ii. Status of ice protection system
    - They are looking at remote sensing and bringing that into the icing status flags
    - Steve added that they should have more than 2 bits available to provide these flags

• IATA Turbulence Database Presentation
  ○ Katya Vashchankova (IATA) provided the IATA Turbulence database effort update (reference the IATA Turbulence Program slide presentation)
  ○ Katya reported that IATA is in the process of determining if they would be a good broker in sharing turbulence information
    - There are issues with ownership of the data and sharing with some airlines that are not participating
  ○ There is concern amongst the airlines that existing tools are not good enough to mitigate the impacts of turbulence
  ○ A survey was taken about switching to a more real time means of turbulence data sharing
    - A majority of the respondents would welcome a data driven approach to turbulence management
  ○ Katya posed the question “what is real time turbulence data?”
    - The current methods of turbulence data usage result in limited benefits
      - At the end of the day, the industry would like to have a means of sharing the data
      - Reference Slide 4
        i. IATA was tasked by the airlines to look at a means to share the data
  ○ Katya noted that IATA has a number of data sharing processes in place today
    - Therefore, this would be nothing new to them
  ○ There is only ground to ground transfer of the data envisioned at this time
    - Therefore, this effort is limited in scope with no provision of getting the information to the aircraft
IATA would be the data broker and will not be involved in air/ground or ground/air processes
  - Reference Slide 6
    - The turbulence data options at this time would be EDR, RMSG, or DEVG
    - The initial focus would be on EDR; primarily the NCAR Version 2 algorithm
  - Reference Slides 7 & 8
    - Data quality control will be part of the intended platform
  - Reference Slide 9
    - Katya stated that based upon interactions with the airlines at the various workshops, the airlines needed some additional information of how the tools would be used
      - IATA will need to educate their members on the best approaches
  - Reference Slide 10
    - In 2018, IATA will be looking at ways to operationally use the data and will be coordinating with the airlines and the subject matter experts
    - There is a real time turbulence reporting mechanism being implemented in the Chinese market to help from an in-flight safety benefit
    - Katya noted that IATA has a strong position on data ownership
  - Questions
    - Rocky noted that with respect to the technical aspects of what IATA is attempting to do, SC-206 has written DO-370; the EDR Guidance Document
      - The intent of the document was to make EDR algorithm outputs compatible
      - Rocky asked if one of the technical IATA items is to address translations between different algorithms
        1. IATA is not there yet in terms of how compatible the outputs are
        2. Their scope is limited by starting with the airlines, but could grow the platform organically from there
        3. There is more research as part of the process to determine how the different data types can be reconciled
    - Dan Mulally noted that if someone is going to interpret RMSG, they are going to need a lot of additional parameters to make the comparison
      - RMSG is a more complicated metric
        1. Katya responded that they will initially be focusing on EDR
        2. Responses during the workshops indicate that some situational awareness is better than no situational awareness
    - Tim Rahmes asked in reference to Slide 5 and with respect to the suppliers and the airlines, if the suppliers will be able to see what the data format is
      - Katya asked for clarification of the term “supplier”
        1. Tim responded that he is referring to the service suppliers
        2. Katya responded that IATA is only focusing on the airlines at this time
    - Ed Johnson asked in reference to Slide 3 and with respect to data rights, that if IATA would be obtaining turbulence report data in near real time, what is IATA’s concept of data rights protection
Rocky added that there is a clear difference between turbulence reporting via ADS-B versus other means of reporting.

1. Rocky clarified by stating that airlines reporting directly between aircraft via ADS-B should not be concerned with ownership issues; unlike when the EDR is downlinked via data link and then distributed.
   1. When downlinked via data link is the case where airlines consider that they have ownership of the data.

Katya agreed.

The airlines should not be precluded from sharing the data.

8. TOR Changes / Rejoining with WG-76
   - TOR Changes
     o Rocky noted the coordination with CDM community that began in January.
     - Unfortunately, there is no means of asking and getting an immediate answer as to what level of involvement would be required of SC-206.
     - There is interest, but he’s not sure at this time if the interest would translate into a TOR change.
     - Karan noted that a note could be added to the TOR, even if there is no definite tasking at this time.
     - SC-206 could add a note in the TOR to monitor a specific activity.
       i. There is precedent as another group has done that in the past, but given themselves a time constraint to monitor.
     o The decision on rejoining with WG-76 and updating DO-364 is TBD.
       - A decision should be able to be made after the June WG-76 meeting in Moscow.
     o No additional TOR changes were suggested at this time.
     o The decision on whether or not to update the TOR will be moved to the June SC-206 Plenary Meeting.

9. Future Meeting Plans and Dates
   - SC-206 agreed to decide at the June Plenary on the need for any additional meetings beyond December 2018.

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Current plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 11-15, 2018</td>
<td>Frederick, MD (AOPA)</td>
<td>SC-206 approves FIS-B MOPS for FRAC</td>
</tr>
<tr>
<td>Sept 17-21, 2018</td>
<td>Washington, DC (RTCA)</td>
<td>FIS-B MOPS FRAC resolution; SC-206 approves release to RTCA</td>
</tr>
<tr>
<td>Dec 10-14, 2018</td>
<td>Washington, DC (RTCA)</td>
<td>PMC Approves FIS-B MOPS for publication</td>
</tr>
</tbody>
</table>

10. Action Item Review
    - All Open Action items were reviewed and dispositioned as necessary.
      o 310 – closed
      o 312 – closed
      o 315 – closed
      o 316 – open
      o 318 – open
Summary of the 50th meeting
RTCA SC-206 – AIS/MET Data Link Services

• 319 – closed
• 320 – closed
### 11. Other business
- There was no new business discussed at this time

### 12. Adjourn
The Plenary session adjourned at approximately 1215 on March 15th.

CERTIFIED as a true and accurate summary of the meeting.

Joe Bracken, Secretary

Rocky Stone, Co-chair

Tom Evans, Co-chair