

Trend Review Risk Assessment – Record of workshop

12 November 2015 at 10am
Main Conference Room, Bureau of Meteorology
Level 15, 300 Elizabeth Street, Surry Hills

Attendees

Chair - Andrew McCrindell (Bureau of Meteorology)
Independent Risk Assessor - Warren Williams (Airservices Australia)
Ashwin Naidu (Bureau of Meteorology)
John Darnley (Meteorological Authority, Bureau of Meteorology)
LCDR Sam Dale (Royal Australian Navy)
Graham Rennie (Qantas)
William Tidmarsh (Qantas)
Glenn Warwick (CASA)
Richard Hesseon (CASA)
Adrian Slootjes (Virgin Australia)
Anthony Sturgess (Virgin Australia)
LCDR Barbra Parker (Royal Australian Navy, METOC) (from 10.30am)
Captain Brian J Greeves (AusALPA)

Minutes – Gillian Davenport (SelectRight)

1. Introduction and Welcome

The Chair, Andrew McCrindell, welcomed all attendees to the workshop and acknowledged the traditional owners of the land.

He explained that the workshop was being held as recommended in the draft report of the Trend Review Working Group (TRWG):

Recommendation 1: The TRWG recommends that a risk assessment by an independent risk assessor be completed in order to analyse and better assess the implementation issues that need to be resolved prior to the transition to a TAF issued routinely every three hours.

and its purpose was to conduct an independent risk assessment of another key recommendation of the TRWG, namely:

Recommendation 2: The TRWG recommends that subject to the implementation of appropriate risk mitigation that the TTF service be ceased and that, where appropriate, the TAF be routinely issued every three hours instead of every six hours. In addition, the TAF should be amended to provide similar responsiveness, accuracy and operational meteorological information as the current TTF.

The Chair outlined the agenda for the day and introduced Warren Williams from Airservices Australia who conducted the independent risk assessment.

The meeting noted that RAAA, AOPA and smaller operators were not in attendance, despite being invited to participate. Brian Greeves of AusALPA informed the meeting he had some feedback from a recent Trend Review workshop with pilots (REX, Sunstate-Qantaslink, Virgin Australia, General Aviation, Cobham-Qantaslink (B717), Qantas) discussing the issues, focusing on what the present system does, what the new system will do and any identifying any gaps. He would share the concerns raised on their behalf during this workshop.

The outcomes of this assessment will be written up and distributed for all attendees for comment and then be placed on website on 1 December for public reference when preparing responses to draft review report.

2. Agree Terms of Reference

Draft terms of reference had been circulated prior to the risk assessment. The Chair clarified that the meeting was to risk assess replacing TTF with a TAF routinely issued every 3 hours. He briefly went through the ToR document, highlighting the timelines. The deadline to be compliant with international (ICAO) standard is November 2018, but the Bureau intends to make the change by November 2016. It will be an overnight change.

In response to a query from CASA regarding italicized text in Appendix A (ref page 4, ICAO Annex 3, Clause 6.3.1), the Chair clarified that he had added this text. Landing forecasts are optional but this clause in Annex 3 is relevant if landing forecasts are prepared. Australia has a list of registered differences on landing forecasts with ICAO because the code for TTF is different. The option to use a landing forecast as a mitigation strategy against removal of TTF was considered by the TRWG and reasons for not pursuing it are outlined in the draft report.

It was raised that AIP Book has been updated since the ToR was written so the first reference in Appendix A should now be to clause 3.6.3 and the dates in the references to AIP Book in the first and third points should be updated to 12 November 2015 as the most recent edition.

All in attendance agreed to the Terms of Reference, with the amendment above. The finalised Terms of Reference are in Attachment 1.

3. Background Presentation

The Chair gave a brief presentation (Attachment 2) to provide background and an overview of the Trend Review process. He went through the list of relevant rules for flight planning that apply to this change as identified in the draft report and asked for comments about any other relevant rules that should be considered. Participants raised additional concerns regarding:

- Inconsistency between AIP and CASA regulations part 91 and part 121. As Part 91 allows an exemption for fuel buffers based on TTF, how will this apply when TTF is removed? Operators need certainty about how CASA will apply this clause and the requirement for buffers when TTF is removed but the regulations still refer to TTF.
- General misunderstanding amongst pilots of the relationship between TAF and TTF, such as when there could be a 30% risk in TAF that is not conveyed in TTF because risks in TTF are coded for 50% probability or more. Many pilots believe TTF is the most reliable product and use the TAFs as a secondary product for forecasts beyond the TTF timeframe. CASA clarified that there is no regulatory requirement for pilots to consider the TAF for decisions within the timeframe of the TTF because the TTF supercedes the TAF. Some operators such as Virgin Australia apply procedures to use the most restrictive of TTF and TAF, even though legal requirement is for TTF only.
- Forecasters focus on the TTF and the TAF is the secondary forecast, the TAF may not be updated to reflect some short term changes in TTF - currently forecasters spend a lot of time preparing TTF during significant weather events.

LCDR Barbra Parker joined the workshop at 10.30am.

In response to queries from participants about the benefits identified by the TRWG, the Chair clarified:

- Australia will register a difference to keep the code SPECI for METAR observations on the half hour that are in SPECI conditions – TRWG identified a need to retain this difference and means a retention of the status quo for observation codes SPECI and METAR in Australia. It is not a problem as both coding systems are accepted by ICAO.
- There is no difficulty going to a 3hr TAF in terms of ICAO compliance as it exceeds the international requirement for routine TAF update. In places where a TTF is currently issued, the TAF will be routinely issued every 3 hours, with amends as required. Similar to regional airport TAFs, when an amendment is required for the current hour the TAF AMD will commence from the previous hour.

In relation to the issues raised by the TRWG, the following additional points were raised:

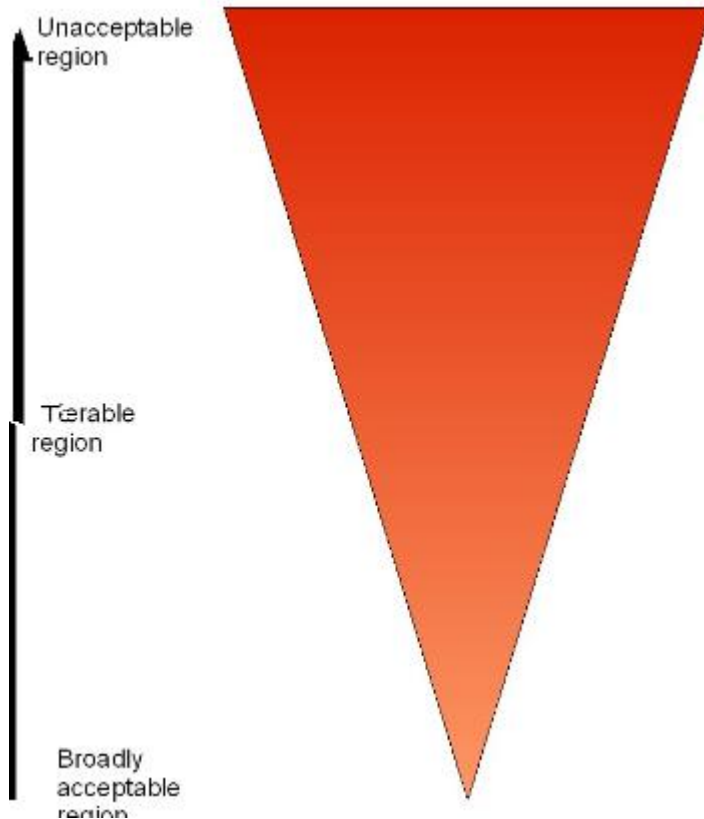
- Point 5 regarding PROB30 and PRB40 forecasts resulting in diversions could also be seen as a benefit if it allows better decision making.
- Installation of superior observation equipment in airports where there are currently no observers present may present an issue for meeting the November 2016 deadline. The Bureau confirmed this process was

underway at Coolangatta.

- There is currently no plan to broadcast the 3 hourly TAF over VOLMET but this has not been ruled out.

4. Agreement on the ASNS 31000 Risk Procedure

Warren Williams outlined the process for the risk assessment to be conducted in accordance with the ASNZ 31000 Risk Management Process and the ALARP diagram.



Warren explained that he would take the group through discussing the current situation, identifying the risks the current system addresses, how the future system will address those risks and identify any emerging risks. Through the discussions the group will determine where the current and future system leads the industry to sit on a level of risk tolerability.

It was clarified that the change to a 3 hourly TAF relates only to sites that currently have TTF, plus other sites identified by the Review. Sites that currently do not have TTF will continue to have 6 hourly TAF.

5. Risk Assessment

Warren asked the meeting to focus on defining the risk the TTF is managing and to determine if participants perceive industry is currently in a tolerable area of risk. He posed as the key questions: What is the current risk that TTF is managing? Was it implemented in response to anything?

In discussing these questions, participants gave examples to show how forecast products are used in flight planning to achieve operational efficiency and how removal of the TTF may affect efficiency. Brian Greeves from AusALPA presented the issues and perspectives raised in a preceding workshop with pilots from major airlines, regional airlines and General Aviation. Points raised included:

- Perception amongst pilots that the TTF gives a more accurate forecast and allows fine-tuning of operations, in particular how much fuel to carry. By having accurate information, operators can mitigate risks and operate more efficiently.
- The TTF was introduced to address an operational issue and allows some flexibility to operators in determining the need for an alternate and use of TTF negates the requirement for fuel load buffers. It is used for PNR decision-making and anticipated runways during flights, in effect being used as a landing forecast in some situations and a flight planning forecast in others.

- Efficiency gains through use of the TTF are relatively more important for short haul flights (one hour or less) that fall wholly within the forecast period of the TTF. For those flights, TTF may be the only forecast referred to and there is a perception that TAF cannot provide the required accuracy of information.
- Decisions about fuel load and diversion are made with reference to regulatory requirements, operator policy and captain's discretion. While regulations apply to all, individual operators have different levels of risk tolerability, and there are different requirements for short and long haul flights so no generalised rule can be made about how TTF, TAF and other information are used in flight planning currently, except to say that generally operators take a conservative approach in the flight planning stage. Information used in-flight can be highly variable between operators and circumstances, from sole reliance on TTF to use of a wide range of information.
- The impact on operational efficiency is likely to have a greater impact on smaller operators using short range/duration aircraft as a greater proportion of their operations are within the forecast period of the TTF and there is a heavier reliance on the exemption from fuel buffers enabled by the TTF. Removal of the TTF will have the greatest effect on those who rely most heavily on it.
- Operators flying to a series of regional airports can currently use the TTF when returning to a major airport on the last leg of the day. As it is less restrictive than TAF that may be the difference between them being able to make their final flight. Removal of the TTF could be seen as managing the risk for them, or could be seen as a penalty.
- TTF has served Australia well and is seen as very accurate. The replacement TAF needs to be seen as being as accurate. Bureau confirmed both forecasts have the same level of accuracy, with the difference that the TTF is updated more frequently. Industry has developed this perception over time that TTF is more accurate.
- TAF at major airports is currently not amended promptly for changes that occur within TTF duration. The new paradigm will see TAFs amended to adjust for changes in short range forecasts. Forecasters are currently busy preparing and issuing TTF during adverse weather events.
- Use of the TTF is different for short haul and long haul flights. There is regulatory backing to adjust fuel buffers if flight is within forecast period. It is an existing risk that over-reliance on TTF could be problematic if TTF is not accurate. Its perceived accuracy could be causing operators to underestimate risk. While the likelihood for the risk is low, there would be a high consequence due to little room for maneuvering in-flight when fuel buffers have been relaxed.
- CASA stated that the TTF, while useful, is not necessary. If it ceased to be issued immediately, safety functions would still be met. The TTF provides for operational efficiency over the current TAF.

It was determined that there was a difference between what TTF is used for, and what risk it is managing. Its use has changed over time so some of the risks identified are existing risks rather than related to the change.

In summary, participants agreed:

- The worst credible outcome for having no TTF was an aircraft landing with less than mandated fuel reserves (less than 30 minutes fuel). Replacement of the TTF with a 3 hourly TAF will manage this risk to the same level, but is likely to result in a reduction in operational efficiency.
- The main use of TTF is to allow operational efficiencies. It also allows better tactical decision making during a flight as it can be used to validate TAF due to it being updated more frequently.
- Most operators are conservative in the strategic planning stage before departure but cannot generalize about how operators make tactical decisions to address risk during flights. Operators have different approach to risk in flight, with some operators requiring pilots to use all available information in flight, with other operators using only TTF once airborne.

Break at 11.50am for lunch.

On resumption, participants assessed that currently industry sits at just above lower tolerability limit.

Warren guided discussion to developing an assessment of where industry would be in risk tolerability after the change. To focus the discussion, he summarised the change being assessed as:

- removal of TTF with METAR/SPECI issued at the same frequency as today.
- TAF changes to 3 hourly routine issue in locations specified.
- TAFs to use more amendments to reflect changes to forecasts in the first 3 hours.
- More TAF amendments with triggers to amend TAF the same as currently in TTF.
- The TAF can be amended immediately a forecast change is noticed. Currently TTF has to wait for the next observation.

Based on the current uses of the TTF, participants identified risks or potential consequences resulting from cessation the TTF:

- Perception that this change will decrease usefulness of information. However, this assumption is based on misconception that TTF is more accurate than TAF.
- Removal of the TTF would reduce operational efficiency. Buffers would be applied as required by TAF assessments so operators would have to reduce flying times, or increase fuel load. For some smaller operators complying with these changes may not be viable.
- Need to make sure that TAF provides same level of accurate information as TTF and is perceived as providing equivalent information to deliver operational solutions. The perception that TAF is too conservative may lead to the revised TAF still being considered inferior to the current TTF. Transition to the 3hrly TAF gives an opportunity to consider additional improvements to the TAF.
- Change to TAF could result in an increase in diversion activity. Diversions at end of long haul flights are a risk in themselves. Currently TTF gives better information than TAF because it is updated and it gives a high level of confidence.
- Increased fuel requirements due to stricter buffer requirements of TAF. Until aviation regulations are changed (part 91 and Part 121), references to the non-existent TTF may result in pilots misinterpreting buffer applicability if they consider that the concessions for TTF can be applied to the 3 hour TAF.
- Risk associated with a change in rules between 3 hourly and 6 hourly TAF. How does an operator know which TAF rules apply given that the codes are the same.
- Reduced availability of information for some operators if there is no replacement product on VOLMET/AERIS.
- Need for education about assessing risks for smaller operators.

It was acknowledged that some of the scenarios or risks identified exist under the current system – removal of the TTF is highlighting these risks even though they are being managed currently and will remain under the change but are not caused by the change.

Although the focus of the risk assessment is on safety issues, the potential for additional regulatory burden must be considered. If the TTF removal triggers changes to CASA regulations, any additional financial burden will need to be considered as an impact before changes to regulations will be approved. A clear consequence of the removal of TTF without regulatory change is that all aircraft will be required to carry more fuel. This could be a safety risk as some operators may be pushed to act outside the regulations.

Participants initiated discussion about impending changes in the Bureau and how these may affect aviation forecasts. Although not a result of the TTF/TAF change being considered, participants felt these should be considered in this context and how they may interplay with and affect the implementation of the change to removing TTF. Changes of concern include:

- Proposed centralisation of forecasters and potential for loss of local knowledge.
- Introduction of Remote Automatic Weather Stations.
- Ongoing BoM resources in 6 hour TAF locations.
- Forecaster workload, accuracy and timing of TAF.

The Chair responded that these risks can be added to the list of issues to be considered, but this change must be pursued regardless of the outcome of the Bureau organizational changes. He referred to the resourcing table in the draft report showing staffing allocations at aerodromes. While acknowledging that future changes in the Bureau may affect staffing levels or focus, these changes will be managed by Bureau and the removal of the TTF will not in and of itself have an affect on staffing levels. The changes should lead to a workload reduction for the forecaster, as currently they have to constantly update the TTF forecast with the issue of SPECI; after the change the forecaster will be able to focus on monitoring TAF and amending when it is needed. Examples of a similar effect of amended TAF are in the appendices of the draft Trend Review Report.

Participants highlighted that some broader issues arise when consider a change to the forecast product including:

- Are we trying to improve on the TTF with the replacement product?
- Is it an opportunity to review fuel buffer rules? The biggest issue discussed during the workshop has been the change to buffer requirements when the TTF is removed so this may indicate an opportunity to review buffer rules - what is their basis and are they being managed in the most appropriate way?

6. Develop controls

Having identified the risks above, participants suggested treatments to address the risks:

- Education and training for all stakeholders will be essential in implementation of this change, as in any change process. Training will be required for pilots, operators and forecasters to ensure understanding of change.
- Mandated buffers in regulations should be changed to reflect the change to a 3 hourly TAF or there will be a potential for excessive fuel carriage. There is a risk of a transition period when the Regulations do not reflect the forecast products available. CASA would need assurance that TAF reliability and accuracy is similar or better than the TTF to inform any evaluation of potential regulation changes. The process to commence regulatory change is at the request of industry after finalisation of the report.
- Consider if this change should be used as an opportunity to review the application of fuel buffer levels for every TAF.
- Convey to industry and operators that the new TAF is no less accurate than the TTF. Need to allay concerns that the TTF is being replaced by an inferior product and promote confidence in the accuracy of the system.
- Provide assurance that BoM forecasters will have ability to apply attention to TAF and issue amendments as required to enhance its currency.
- Consider having a 'ghosting' period where TTF and 3 hour TAF are prepared together in the lead up to cut over date to give assurance of the accuracy of TAF.
- Need to examine the impact of information being removed from VOLMET/AIRES before deciding if it needs to be replaced. In many situations there were other sources, so the impact needs to be assessed and a proportional response implemented.

Risks arising from these treatments were also identified:

- Applying different rules and buffers around the 3 hourly TAF with the intent of creating similar efficiencies to TTF could create confusion with 6 hourly TAFs because the code is the same.
- Consider whether education and training can be undertaken before November 2016 given potential changes within the Bureau associated with the Review of Aviation Weather Services.
- Timelines for installation of new equipment at Hobart and Gold Coast required for the changeover.

Some risks identified do exist currently so they already have mitigation strategies. For example:

- Risk that people start treating 6 hour TAF and 3 hour TAF in the same way. This risk is already managed in an international context as pilots deal with different length TAFs in other countries. Each operator is responsible for training and educating their staff.
- If current system is maintained, an education program would be needed anyway. There would be a big cost to industry to code Australian exceptions to international schema.
- Reliance on 6 hourly TAF instead of TTF can happen today. For example if a forecaster is sick at Canberra airport, no TTF is issued, and TAF is used instead. If TTF is not available at any major airport today for whatever reason, the latest TAF becomes the primary forecast.

7. Summary of assessment outcome and next steps

Overall, the majority of participants agreed that the safety risk profile would not be changed as a result of implementing a 3 hourly TAF there being a tolerable level of safety risk after the TTF is removed. Virgin Australia stated that it has begun mitigating for the worse conditions in either TTF or TAF, this change would improve the risk profile for their operation. AusALPA assessed that the change will result in an improvement to the safety risk profile, but operator efficiency will decrease if the fuel buffer rules were still in place.

Participants acknowledged there will be a transition period as operators adjust to any new operating arrangements resulting from removal of the TTF. Qantas stated its requirement for a parallel process to ensure amendment to buffer regulations at same time as TTF removal.

Participants discussed the process following this workshop:

- Bureau will receive submissions on the draft Trend Review report by the end of January 2016. A technical and executive group, comprising representatives from the Bureau, Airservices, DOIRD, Defence and CASA will evaluate submissions prior to release of the final report.
- After the final report is released, this group will appoint a lead to coordinate implementation of the change across the industry. Although Bureau is responsible for implementing the change to forecasts, it

is anticipated an implementation group will be formed to oversee implementation of change across all stakeholders.

- It was proposed that Airservices Australia could record the risks identified in the final report on its risk register.
- The Bureau will take responsibility for the quality assurance of TAF forecast product during the change.
- Operators will assume the risk of interpreting and using the new forecast product.

Immediate actions arising from this workshop:

- Notes from the risk assessment will be sent to all participants and to REX and RAAA for comment before being posted to the Bureau website.
- Glenn Warwick would begin preparation of an internal discussion paper for CASA on options for regulation change.

8. Other business

Barbra Parker asked why the Defence aerodromes were not stated at Recommendation 3. The Chair responded that Defence can determine the aerodromes and he would discuss this issue further with RAN METOC, RAAF and Army outside of the workshop to explore where 3 hour TAF was required and for what periods to ensure there was no reduction in service.

9. Close

The workshop closed at 2.50pm.