



WORKING PAPER

THIRTEENTH AIR NAVIGATION CONFERENCE

Montréal, Canada, 9 to 19 October 2018

COMMITTEE A

Agenda Item 2: Enabling the global air navigation system

2.1: Aerodrome operations and capacity

Title

Remote Aerodrome Air Traffic Services

(Presented by the ITF)

SUMMARY

This paper provides information regarding remotely provided aerodrome air traffic services (ATS), commonly known as remote air traffic control towers or remote towers, and asks ICAO to ensure that any implementation of this new technology by States or air navigation service providers (ANSPs) remains safe.

Action: The Conference is invited to:

- a) note the information on the use and development of remote towers presented in this paper,
- b) request the ICAO Secretariat to work with all stakeholders to ensure that the sequential and the multiple modes of operation of remotely provided aerodrome air traffic services remain safe,
- c) request the ICAO Secretariat to update Annex 11 and other relevant documentation (including Doc 4444) to cater for this emerging technology, and
- d) request the ICAO Secretariat to initiate a study on the potential added value of remote towers focusing especially on potential safety benefits.

1. INTRODUCTION

1.1 The provision of aerodrome air traffic services (ATS) from remote locations has become a reality in some places. A direct out-of-the-window view is replaced in using this emerging technology to provide a live video feed presented to the operator (this operator being either an air traffic control officer (ATCO) or an aerodrome flight information services officer (AFISO)).

1.2 Those responsible for the implementation of this new concept have run safety cases to evidence that the service provision remains as safe. However, currently, there are no specific guidelines, recommended practices or standards established at the global level to regulate this emerging technology.

1.3 The reproduction of a digital view from two or more aerodromes to the one location (commonly referred to as a 'remote tower centre') raises the potential that one operator (as in 1.1) may provide an air traffic services to two or more aerodromes on a sequential basis (one after the other).

1.4 The use of this technology to provide an operator (as in 1.1) with images from two or more aerodromes where both aerodromes (or more) are provided with an air traffic service by that single operator simultaneously is more commonly referred to as 'the multiple mode of operation'. For now, there is no example of the operational use of this method.

1.5 In the ICAO ASBU B1-81, remote towers are expected to bring an added value in terms of safety as well as in terms of costs of service provision and ultimately costs charged to airspace users.

2. CHALLENGES AHEAD

2.1 Same services provided?

When remote towers are mentioned, the first assertion made is that there is no difference to the service provided, yet no proof of that assertion has been made.

The first instances of remote towers in operation are used not only to provide an ATS but also MET services. This raises the question regarding the integrity of observations made based on digital reproduction as opposed to the standard observations made on-site and in person. This is simply one example of how the role of the human eye has changed in the service provision.

2.2 What is needed to provide aerodrome ATS?

The current ICAO documentation does not provide a minimum set of equipment required to provide aerodrome ATS for international traffic. The introduction of remote towers permits those responsible for implementation to determine the necessity of the equipment against that which is currently available in traditional towers (e.g., are binoculars required?), therefore setting a minimum list of requirements is essential.

2.3 Impact of the multiple and the sequential modes of operation

When one operator (as in 1.1) provides an aerodrome ATS to several aerodromes sequentially (1.3) or simultaneously ('the multiple mode', 1.4), it comes with previously unforeseen risks.

Here are examples of previously unencountered issues:

- For the sequential mode, the minimum time period between the provision of an air traffic service to different aerodromes, the maximum combinations that may be done in a given timeframe, the impact on fatigue etc.
- For the multiple mode, how to use the radio: one different radio for each site or should the radio-frequencies be coupled? And if so how to avoid misunderstanding, e.g. vehicle or aircraft on aerodrome A replying to a communication for a vehicle or aircraft on aerodrome B?
- For the multiple mode and with consideration to the requirement to maintain a continuous monitoring watch, is this feasible on a compressed view and if so under which conditions?

- For the multiple mode, how to ensure that the operator (as in 1.1) keeps an acceptable situational awareness at all times. Indeed, monitoring simultaneous movements (especially when simultaneous landings or take-offs are occurring) on different aerodromes has been shown in various trials to be very challenging.
- For both the multiple and the sequential modes, the risk of confusion between different runways with the same magnetic orientation.
- For both the multiple and the sequential modes, the impact of spatial disorientation for the operators (as in 1.1), e.g. when the visual presentation from aerodrome A faces north and aerodrome B faces south.
- For both the multiple and the sequential modes, is it still possible to select one aerodrome as a flight plan alternate when ATS for both the destination and alternate is provided from the same remote location?

2.4 These are just a few examples. The ITF is of the view that regulations should be put in place to ensure that current safety levels are maintained.

2.5 Benefits of remote towers

The ICAO ASBU B1-81 contains many claims about benefits from remote towers and it would be interesting to monitor which are actually delivered and which are not. In particular, is there any safety enhancement provided by existing remote tower implementations?

3. CONCLUSION

3.1 The absence of any guidance, recommendations or standards may lead to a gap in what is the minimal equipment and procedures necessary to provide a safe aerodrome ATS. Additionally, the technology allows for a whole new way of providing an ATS (1.4) which may present previously unforeseen unsafe consequences.

3.2 Many virtues have been attributed to remote towers and as the number of operational implementations grows, it may be prudent to measure the actual benefits from remote towers.

3.3 The Conference is invited to:

- a) note the information on the use and development of remote towers presented in this paper,
- b) request the ICAO Secretariat to work with all stakeholders to ensure that the sequential and the multiple modes of operation of remotely provided aerodrome air traffic services remain safe,
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