



ICAO

*International Civil Aviation Organization***Seventh Meeting of the Surveillance Implementation  
Coordination Group (SURICG/7)**

Video Teleconference, 24 – 27 May 2022

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- Agenda Item 8:** Update on surveillance activities and explore potential cooperation opportunities
- a) States/Administrations

**UPDATE ON SURVEILLANCE ACTIVITIES IN NEW ZEALAND**

(Presented by New Zealand/Airways New Zealand)

**SUMMARY**

This paper is an update of previous reports, providing information on New Zealand's Air Traffic Management surveillance activities.

**1. INTRODUCTION**

1.1 This paper reflects the status of Air Traffic Management surveillance activities in New Zealand.

**2. DISCUSSION**

2.1 New Zealand's current surveillance structure is based on MSSRs, PSRs, Multilateration and ADS-B.

2.1.1. The MSSRs/PSRs are over thirty years old, and at the end of their economic operational life. This is most evident with the PSRs which are becoming more prone to breakdown, with failed parts becoming more difficult to purchase or fix.

2.1.2. The Wide Area Multilateration system (WAM) at Queenstown is used for approach and enroute surveillance, and the Multilateration (MLAT) system at Auckland for surface movements. Both will reach the end of their operational life around 2024/2025 and are currently being programed for replacement.

2.1.3. ADS-B, as the New Zealand governments preferred surveillance system going forward, was introduced between 2016 and 2018 with 27 sites providing country wide coverage of controlled airspace and a significant amount of uncontrolled airspace.

2.1.4. All data from these surveillance systems was migrated to an IP based network over the last few years.

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2.2 From Dec 31, 2022, ADS-B will be mandated for use within ALL controlled airspace within the NZCC FIR, and become the prime surveillance system in New Zealand.

2.2.1. Regulatory requirements state ADS-B is to be backed up by a non-GNSS contingency surveillance system to cover the main trunk Jet routes between Auckland- Christchurch-Wellington-Auckland. Consideration should also be given to PSR replacement.

2.2.2. An RFP was issued in 2019 to purchase new MSSR/PSR equipment and negotiations are currently progressing with the selected vendor to finalize the purchase of this equipment.

2.2.3. When the non-GNSS contingency surveillance system is operational the older remaining MSSRs/PSRs are planned to be removed from service.

2.3 MLAT is used to provide surface movements only at Auckland, especially in the event of Low Visibility Operations (LVO) such as FOG., Other New Zealand airports have been using ADS-B only to provide enhanced situational awareness of surface movements since 2018.

2.4 Since the Covid Pandemic no further work has been done on the trial drone surveillance system. Airways continues to employ its UAS Traffic Management (UTM) system “Airshare”, for drone management though-out New Zealand – operational since 2014.

2.5 New Zealand will continue to follow the use of low-cost ADS-B avionics such as electronic conspicuity (EC) devices, which may provide cost benefit to users and operational advantages to ATC. Currently these types of devices are not permitted to be used in controlled airspace, and they are not covered by any regulatory rules. Due to a lack of regulation, there are implications around clutter and/or erroneous information on controllers’ screens if permitted to be displayed, therefore use of the data is restricted to lab use and for Search and Rescue (SAR) purposes only.

2.6 Due to New Zealand’s isolation from neighboring countries, there is currently no ADS-B data sharing occurring

### **3. OTHER PROJECTS ASSOCIATED WITH SURVEILLANCE**

3.1 Airways new Air Traffic Management system “SkyX” is programmed to be operational in the first quarter of 2023.

3.1.1. The new system will employ the advances already made in the use of MODE S DAPS data, and in the future, look to further enhance safety net features such as Short-Term Conflict Alert (STCA) and Minimum Safe Altitude Warning (MSAW).

3.1.2. SkyX will provide a base for the introduction of new system features such as Medium-Term Conflict Detection (MTCDD), Time Based Flow Management (TBFM) together with Terminal Sequence and Spacing (TSAS) in the following years. The increased data input from surveillance systems such as ADS-B and MLAT will have a greater impact on trajectory modelling for each of these new systems.

3.1.3. SkyX also provides a platform for the introduction of Controller Pilot Data Link Communications (CPDLC) for domestic en-route airspace

3.2 A joint project between Australia and New Zealand is working on the introduction of a Satellite-based augmentation system called the Southern Positioning Augmentation Network (SouthPAN). This new system will improve GNSS accuracy to be less than a metre, and in some devices

down to 10 centimeters. The procurement phase is underway with some initial SouthPAN services expected in late 2022. Once operational it will add increased capability, flexibility, and more cost-effect navigation options, and a higher level of integrity for ADS-B

#### **4. CONCLUSION**

4.1 In line with ICAO, New Zealand aviation is heavily invested in the use of GNSS for surveillance and navigation. This is seen in the ongoing investment upgrades by airspace users, Airways, and the New Zealand government regulatory authorities to support this new technology.

4.2 These new technologies will continue to help improve safety and provide significant cost benefits to the Users, Airways and New Zealand.

#### **5. ACTION BY THE MEETING**

5.1 The meeting is invited to:

- a) note the information contained in this paper; and
- b) discuss any relevant matter as appropriate

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