Fortieth Meeting of the
Informal South Pacific ATS Coordinating Group
(ISPACG/40)

Brisbane, Australia
5-7 May 2026

Agenda Item 4: Information and Working Papers

Power Outage at Jacksons Air Traffic Services Centre, Port Moresby Papua New Guinea

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SUMMARY

This working paper outlines the operational impacts of a total and sudden power failure at the Jacksons Air Traffic Served Centre (ATSC) on 28 July 2025. While the technical trigger involved electrical faults, this paper primarily focuses on the profound impact on Air Traffic Management (ATM) operations, the immediate procedural responses implemented by controllers to maintain airspace safety, the contingency gaps identified during the crisis, and the comprehensive plans now in place to manage future contingencies.

1. INTRODUCTION

1.1 On 28 July 2025, at approximately 13:40 local time, the Jacksons ATSC experienced a complete and prolonged loss of all critical Air Traffic Management (ATM) and Communication, Navigation, and Surveillance (CNS) systems.

1.2 From an engineering perspective, the outage was the result of a cascading failure. Degraded Uninterruptible Power Supply (UPS) batteries failed to bridge the power supply during a transition from mains power to the backup generator. Concurrently, a short circuit in the Airfield Lighting (AFL) console in the tower tripped the main distribution board breaker, Because the facility's power distribution design did not adequately segregate ATS and non-ATS loads, this created a single point of failure that severed power to all critical systems. While immediate technical remediation is underway, the primary lessons learned revolve around operational contingency management.

2. DISCUSSION

2.1 Operational Impacts The sudden power outage resulted in a catastrophic loss of situational awareness and communication capabilities. Every primary system failed simultaneously, including radar surveillance, primary VHF/HF voice communications, flight data processing (CADAS), and weather reporting (AWOS). Internal communications and PRTG monitoring systems were also taken offline. At the time of the outage, controllers had no indication that a system failure was imminent and were effectively stunned, losing immediate access to communicate with pilots in the airspace. Furthermore, the NOTAM office was unable to issue NOTAMs regarding the outage until the CADAS system was restored hours later.

2.2 **ATM Response and Management** Despite the severe disruption, air traffic service personnel responded swiftly and proactively to manage the crisis. Operations were managed through the following critical actions:

- **Procedural Control:** Controllers and Flight Service Officers immediately reverted to manual procedural control, without electronic flight strips or radar, personnel relied on pen, paper, and physical flight progress strips to write down flight information and maintain an impromptu operational picture.
- **Emergency Communications:** With primary voice switches offline, controllers deployed standby hand-held VHF radios to re-establish communication with aircraft operating in the vicinity of Jacksons Airport and the terminal control area (TMA).
- **Traffic Management:** Personnel rapidly assessed the position and trajectories of all traffic operating in the airspace to ensure separation. Instructions were issued to pilots to hold their present positions, and all departures were grounded, using handheld radios, staff successfully sequenced six inbound aircraft to land one at a time. Four enroute aircraft were diverted or held, and twelve overflying aircraft were monitored using procedural separation.
- **Interagency Coordination:** Supervisors initiated urgent coordination with adjacent FIRs, including Brisbane and Oakland Centres, to manage international crossing traffic. Incoming traffic into the Papua New Guinea (PNG) airspace was restricted, and Traffic Information Broadcast by Aircraft (TIBA) procedures were implemented, Domestic operators and outstations were also notified to consider holding inbound aircraft out of the Port Moresby FIR.

Crucially, due to these manual interventions, there was no loss of separation, and no safety occurrences were recorded.

While a small number of domestic flights were delayed for approximately 45 minutes, no international flights were affected. Partial restoration of critical ATM systems was achieved by 05:00UTC, with full restoration by 08:00UTC.

2.3 Identified Operational and Contingency Gaps The internal investigation highlighted significant deficiencies in existing contingency planning, which had not anticipated a power failure of this magnitude. Key operational gaps included:

- Disaster Recovery System (DRS) Readiness: The DRS was in simulation mode at the time of the outage and could not be rapidly activated for live operations. Critical configuration scripts required to transition the DRS to live mode were stored on a powered-down file server, rendering them inaccessible. Furthermore, network design restrictions prevented the DRS Voice Communication System from accessing external WAN, limiting its utility as a fallback.
- Training and Preparedness: Operational staff had not received scenario-specific training or cross-functional drills for a total CNS/ATM blackout. The lack of a rehearsed fallback communication protocol meant valuable minutes were lost in initiating backup communications.
- Hazard Identification: The Safety Management System (SMS) hazard register did not reflect total facility power loss as a credible risk, meaning mitigation planning and emergency procedures for such an event were incomplete.
- Interagency Coordination: The response was largely reactive. There was a lack of predefined roles, responsibilities, or a formal Memorandum of Understanding (MoU) with the National Airports Corporation (NAC) and adjacent Air Navigation Service

Providers (ANSPs) for managing shared infrastructure failures and rapid service degradation.

2.4 Contingency Planning and Remediation to ensure robust management of future contingencies, NiuSky Pacific Limited is implementing sweeping operational and engineering reforms:

- DRS Overhaul and Drills: The DRS will now be maintained in a live-ready configuration at all times, capable of switching from simulation to live operations without reliance on powered servers. Essential configuration scripts are being stored on independent, offline-accessible mediums. Furthermore, quarterly DRS activation drills involving both operational and engineering staff are now mandated to ensure familiarity with emergency use under realistic conditions.
- Procedural Updates: Dedicated procedures are being developed for the complete loss of the main CNS/ATM system, which includes a structured communication strategy, point of contacts during occurrences, and clear fallback processes.
- SMS and Governance Reform: Total facility power loss and infrastructure degradation are now mandated to be formally registered in the SMS hazard register, NiuSky is also establishing a formal MoU with NAC covering shared infrastructure hazard management and joint incident escalation
- Engineering Redundancy (Brief): To support operational resilience, a capital program is actively underway to install a new 630 Amps Automatic Transfer Switch (ATS) and a second dual 40kVA UPS parallel system. This multi-phase project will ensure true redundancy, properly balance loads, completely segregate ATS from non-ATS loads (like the AFL console), and definitively eliminate the single points of failure exposed on 28 July.

3. ACTION BY THE MEETING

3.1 The meeting is invited to note the information provided.

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