

PNG AIC: STATE-OF-THE-ART FLIGHT RECORDER ANALYSIS CAPABILITY

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As the national agency charged with the responsibility to investigate aviation accidents, the PNG AIC recently invested in a State of the Art flight recorder playback and analysis capability.

Given the digital nature of modern aircraft, the 'black boxes' are increasingly one of the most important sources of information for investigators. While the AIC appreciates that established countries are more than willing to assist lesser established countries with flight recorder analysis when there is a major accident, for every major accident, there are numerous serious incidents that ICAO requires us to investigate. It is simply impractical to impose on the good nature of our international colleagues for these more frequent serious incidents. To investigate without expertise in flight data analysis seriously limits the effectiveness and independence of our investigations. Having our own capability enables us to not only improve aviation safety in Papua New Guinea, but enables us to contribute internationally due to the global nature of aviation.

Plane Sciences Inc. based in Ottawa, Canada, is managed by former Transportation Safety Board of Canada subject-matter-experts who were responsible for the original development of the TSB flight recorder lab which pioneered many techniques used around the world today. Plane Sciences specialise in assisting governments around the world to develop their flight recorder expertise. The AIC acquired Plane Sciences most recent *Memory Access Retrieval System (MARS)* which is the only available commercial system in the world designed to read the memory chips directly from the memory boards of the flight recorders.

The majority of authorities with established flight recorder capabilities use the original default method agreed to in the early 90's when solid state was introduced, which is to substitute the memory from a crash-damaged recorder into a working recorder of the same make and model. This method was never intended to be long term and is increasingly problematic for many reasons. PNG AIC used the new *MARS* method for the recovery of the flight data and voice information for the September 28, 2018 Air Niugini B737 accident into the sea. The memory boards from the sea water and impact damaged recorders were removed, cleaned, dried and plugged directly into *MARS* which read the chips one by one. This is a superior method compared to substituting the crash-damaged memory into a working recorder which is an 'all or nothing' method with no diagnostics if things don't work. All of the data and voice information was recovered with *MARS*.



The AIC also used the latest in data analysis/flight animation software from Plane Sciences to develop a comprehensive flight animation of the accident using the recovered flight data and voice information. This animation is not only invaluable to the investigation process, but will also be used to communicate our findings to the aviation community to support the AIC's safety recommendations to prevent recurrence.