

A.4 Zone 3 – Mid Atlantic Zone

Zone Three				
Functional Area	Contract	Team Member	Prime/Sub	Customer
3.16	N/A	Tempus	Sub	Joint POW/MIA Accounting Command (JPAC) Search and Recovery Program
<p><u>Program Classification: Unclassified</u></p> <p>3.16 Logistics Support: JPAC conducts global search, recovery, and laboratory operations to identify unaccounted-for Americans from past conflicts in order to support the U.S. Department of Defense’s personnel accounting efforts. To support this effort Tempus modified a Pilatus PC-12 aircraft with integrated multi-band synthetic aperture radar and deployed it to the South Pacific in support of the Joint POW/MIA program.</p> <p><u>Primary Processes and Procedures:</u> The effort supported the Accounting Command’s search and recover operations of downed World War II airman under the triple canopy jungles of Papua New Guinea. As a subcontractor to EH Group, Tempus integrated a Foliage Penetration (FOPEN) radar into a cost effective platform (Pilatus PC-12) and supported flight operations in Papua New Guinea to search for WWII crash sites. Tempus delivered a modified aircraft with five racks of experimental radar equipment in 28 days, (a significantly shorter period than the 9 months that a government engineering team estimated), and at one-tenth the operating cost of other proposed government aircraft. The modification of the aircraft included structural, electrical, avionics, and communication modifications, all issues tested, either through analysis or by test flight. All performed while staying within the original type certificate, or capability, of the aircraft. The highlight of the tasks associated with the modification included:</p> <ul style="list-style-type: none"> • Installing five racks of MB-SAR equipment into the PC-12 and routing adequate power to the radar. This required tapping into the PC-12’s existing electrical system to draw power away from other areas of the aircraft. The Tempus engineers had to confirm that all of the receivers, transmitters, and black boxes were mounted properly and had correct power coming to them to operate efficiently. • The next challenge was the placement of the MB-SAR’s antenna, which measures 2’x2’ and resembles a mini fridge. To minimize the drag on the aircraft, the engineers integrated the antenna into the PC-12’s cargo door, which could then be removed and transported to Papua New Guinea in a larger aircraft. • Custom software was written to ensure that the aircraft and sensor systems would communicate properly and collect accurate data in regards to the aircraft’s location. Other challenges included form and fit architecture, structural and avionics modifications, and certification issues, which had to be approved by the FAA. <p>The aircraft was flown to Port Moresby, Papua New Guinea, and flown for over 270 hours over a 30-day period resulting in the collection of 200 terabytes of radar data. The primary process and procedures for the task, often hampered by the weather, included the use of the FOPEN radar to penetrate through dense foliage, essentially pulling back the blanket of merbau trees, climbing palms, and over two thousand species of ferns that cover the valleys and mountains of the island of New Guinea. The data would later be downloaded to computers running algorithms programmed to differentiate man-made objects from those occurring naturally: a fuselage versus a fallen tree, a section of wing versus an out-cropping of rocks.</p>				