

ABSTRACT SUBMISSION FORM

Abstract submission closes on 21st July 2016. Late submission of an abstract may only be accepted subject to the discretion of the HUMS2017 Committee.

Title: A Corrosion Management System for Seahawk

Authors: (Name, Organisation/Affiliation)

James Waldie¹, Simon Jacob¹, Peter Trathen², Darren Gerrard², Chris Loader².

¹BAE Systems Australia, 40 River Boulevard, Richmond, VIC, 3121.

²Defence Science Technology Group (DST Group), 506 Lorimer St Fishermans Bend, VIC, 3207.

Abstract (200 words max):

Developing a Corrosion Prognostic Health Management (CPHM) system for fixed- or rotary-wing aircraft requires analysis of real time environmental data using corrosion models to predict future airframe corrosion state within a Health and Usage Monitoring (HUMS) architecture. The S-70B-2 Sikorsky Seahawk has experienced a variety of corrosion problems during its operational service with RAN and, in 2013, it was estimated the annual cost of corrosion maintenance on the Seahawk fleet was \$24m. A CPHM system is currently being trialled by the Defence Science and Technology (DST) Group and BAE Systems Australia (BAESA) on a number of S-70B-2 aircraft operated by RAN in order to demonstrate and evaluate the efficacy of CPHM for optimisation of corrosion maintenance on a rotary-wing platform.

This paper examines the individual components of the trial: corrosion sensors and witness plates developed by DST Group, a BAESA corrosion management system called Environmental Degradation Monitoring and Prognostics (EDMAP) based off a proven and successful BAESA HUMS architecture, and a corrosion prognostic algorithm to model future initiation and propagation of corrosion pitting in the presence of chromate based primers. The challenges in developing these systems to further the goal of matching current and future corrosion status with maintenance opportunities is discussed in the context of helping to transition away from current schedule-based practices towards an efficient condition-based maintenance philosophy.