Regional Dust and Salt Concentration Maps of Southwest Asia in Support of the Prevention of Sand Induced Circuit Card and Electrical Interconnect System Corrosion

The goal was to generate seven maps that collectively depict the dust and salt concentration potential of a portion of southwest Asia in support of the project entitled: *Prevention of Sand Induced Circuit Card and Electrical Interconnect System Corrosion*. This is the summary of one of three tasks under a larger project. This task was to better understand the distribution and composition of airborne dust and sand that appear to be a likely source of environmental contamination resulting in corrosion of aircraft circuit boards. We reported our results for a portion of southwest Asia in 2007. Our analyses resulted in a three-fold composite map showing dust and salt emission potential with a simple rating system ranging from low potential to high potential.

Summary of Project Details: We mapped dust for southwestern Asia by creating a dust potential rating from low to high attributed to landform type and produced associated maps. We created a salt potential map from regional rainfall, without geologic reference. As with dust, we created a salt content potential rating system. We then created a composite and salt potential map by integrating three factors that contribute to salt-rich dust. These were landforms, precipitation and geologic rock types. We created a geologic-based salt potential map and an overall composite map based on landforms, precipitation and geology. All of the individual component maps had associated rating systems from low to high.

Management Implications: We estimated the relative concentration of potential dust and associated salt content in southwest Asia based on projections for the soil ability to emit sand and dust, or the likelihood that the soil contained soluble salts, and produced a series of maps. The composite map shows the combination of dust and salt potential for anthropogenically disturbed surfaces during dry soil conditions. Most of the area mapped was considered high or moderate potential.