

The proposed plan for developing and integrating environmental-fatigue research results into the DoD airframe fatigue management framework involves several steps. The first is developing scientific understanding for a relevant material under loading and environmental conditions pertinent to real world applications. Second, to incorporate this understanding into engineering methods that are rigorous, simple to implement, and are validated in laboratory conditions representative of realistic operation. Lastly, to support/collaborate with DoD labs and small businesses who interface with airframe structural managers to perform field level validation and integrate these methods into an airframe prognosis protocol. The first two steps are addressed in the scientific research on-going in the TCC program; it is the last step that is the focus of the proposed work. The result will be an additional engineering tool for the airframe structural prognosis community which can be applied to targeted environment-induced issues to help maintain fleet safety while reducing costly over-conservatism.