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## MYTHS OF 'NATURALISTIC' DECISION MAKING IN AVIATION

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### ABSTRACT

The increasing availability of sophisticated technological decision aids has altered the character of many 'naturalistic' decision-making environments. The aviation domain, once primarily 'naturalistic,' has evolved into a complex hybrid ecological system, combining probabilistic cues with highly accurate data and information. Despite these changes, many myths regarding the nature of the aviation environment and appropriate decision processes persist in aviation research, including the notions that expert intuitive judgment processes are sufficient in these environments, that analysis has no place in expert decision-making in dynamic environments, and that "intuitive" displays can eliminate the need for analysis. While completely naturalistic environments are conducive to the intuitive use of probabilistic cues for situation assessment, the new high-technology hybrid 'naturalistic' environment requires analytical examination of data and information. Because decision makers in hybrid naturalistic environments are required to use both analytical and intuitive processing, decision-aiding systems should recognize and support this requirement. One of – if not *the* - most important functions of adaptive decision aids may be to help pilots to monitor the processes by which they make decisions by *prompting process* as well as providing information in an appropriate manner. In order to be truly adaptive, decision aids must help aviators to navigate within and between decision contexts, especially when they are initiating a new task or changing contexts (e.g., transitioning from a visual to an instrument approach in an automated cockpit, or vice versa), and to respond effectively to the demands of the situation.

Note: An earlier version of this paper was presented at the 7<sup>th</sup> International Conference on Naturalistic Decision Making, 2005.