Human Factors

research and technology division

Alternative Perspectives on Risk

Objective

Risk perception is a key component in decision making, especially in dynamic environments, such as space and aviation. As systems grow in complexity and diversity of participants, those responsible for regulation, procedures and operations must be aware of differences in risk perception between the various users, as well as the different types of risk that affect the users' decisions. A study was designed to determine how individuals in different operational roles perceive and respond to the risks associated with operations within the ATM system. Specifically, we examined (1) whether air traffic controllers and airline pilots differ in their perceptions of risk (or threat) associated with varying traffic configurations and different ATC environments (existing rules vs. free flight), and (2) whether the two groups respond differently (i.e., choose different maneuvering

Approach

Scenarios of evolving enroute traffic situations were presented on a desktop computer. Participants indicated the amount of risk perceived in individual snapshots displayed sequentially to represent evolving traffic scenarios. In addition, they indicated their preferred response to each situation by selecting maneuvering options.

Impact

Traffic conditions had a greater effect on risk judgments than either professional role or ATC environment. Controllers preferred to use horizontal maneuvers to resolve perceived conflicts, while pilots were equally likely to use horizontal, vertical, or combination maneuvers. Findings from this study will assist in developing new regulations and procedures for a free flight traffic environment. They will also shed light on theoretical issues relating to agentsí perceptions of risk and their choices of options.

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URL: http://humanfactors.arc.nasa.gov/ihs/