Joseph Coyne
NGT-1-01001

Summary of Research Progress

My work at NASA Langley has focused around Aviation Weather Information (AWIN) displays. The majority of my time at LaRC has been spent on the Workload and Relative Position (WaRP) Study. The goal of this project is to determine how an AWIN display at various positions within the cockpit affects pilot performance and workload. The project is being conducted in LaRC's Cessna 206H research aircraft. During the past year the design of the experiment was finalized and approved. Despite facing several delays the data collection was completed in early February.

After the completion of the data collection an extensive data entry task began. This required recording air speed, altitude, course heading, bank angle, and vertical speed information from videos of the primary flight displays. This data was then used to determine root mean square error (RMSE) for each experimental condition. In addition to the performance data (RMSE) taken from flight path deviation, the study also collected data on pilot's accuracy in reporting weather information, and a subjective rating of workload from the pilot. The data for this experiment is currently being analyzed.

Overall the current experiment should help to determine potential costs and benefits associated with AWIN displays. The data will be used to determine if a private pilot can safely fly a general aviation aircraft while operating a weather display. Clearly a display that adds to the pilot's already heavy workload represents a potential problem. The study will compare the use of an AWIN display to conventional means of acquiring weather data. The placement of the display within the cockpit (i.e., either on the yoke, kneeboard, or panel) will be also compared in terms of workload, performance and pilot preference.