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The four papers in the Weather Track all involved analyses and simulation of concepts aimed at predicting capacity or other resource utilization. The authors represented organizations covering a broad spectrum from academia, government, and industry. Brief highlights of each paper follow.

Air Traffic Analysis and Mosaic ATM compared three methods to estimate en route capacity using actual and forecasted weather. The most complicated model, which flies groups of aircraft on parallel tracks and then determines if track changes are required to miss the weather, performed the best. This method had the complementary benefit of potentially helping traffic managers identify viable paths through weather-impacted regions.

Lincoln Laboratory estimated en route capacity through an extension of a previously developed controller-workload model by adding the effects of weather blockage. Their model showed that the weather increased workload in three key ways: workload associated with re-routing, workload from increased inter-sector coordination owing to reduced sector transit time, and workload from increased conflict resolution due to less airspace being available. The validation of their technique was challenging, as it is with many of these predictive models, as a solid measure of what the true capacity is does not exist.

The Dutch National Aerospace Laboratory tried to predict which runways Schiphol controllers would use two days into the future. These predictions may then help the community living near the airport plan their daily lives. Their success rate, after several refinements to an algorithm that uses weather factors and historical controller preferences, resulted in an accurate prediction of the actual configuration 70-75% of the time.

Finally, UC Berkeley generated different capacity scenarios, with various probabilities of occurrence, from available weather forecasts near several terminal areas. Models attempting to improve ground-delay-program decisions would then use these probabilistic scenarios. To date, these models have had limited use, as the probabilistic scenarios have not been readily available. The authors tried several approaches to develop the scenarios, and suggested that one using dynamic time warping was the best for the conditions studied at the San Francisco, Boston, and Los Angeles main airports.