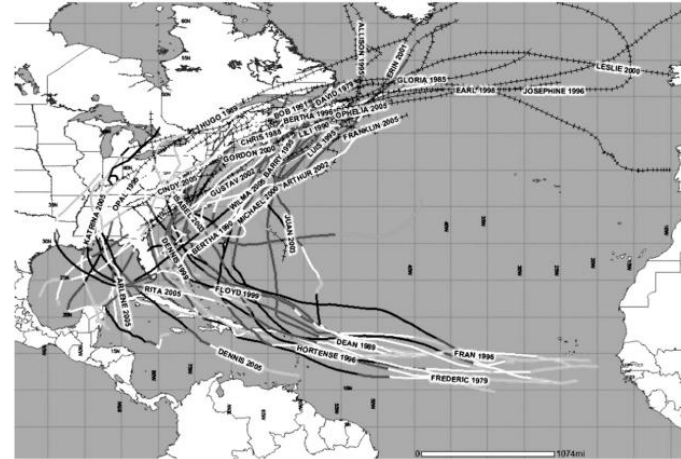


# Moving Objects Database Technology for Weather Event Analysis and Tracking

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## Objective

- Develop database management, analysis, and query capabilities that will integrate key elements to support both the research and understanding of dynamic weather events, like tropical cyclones and the decision processes related to them
  - Develop a Moving Objects Software Library (MOSL) to provide a representation of moving objects (e.g., tropical cyclones), enabling the execution of operations on them and integration into databases
  - Develop a spatial-temporal query language (STQL), which will enable users to pose ad-hoc queries on weather data like tropical cyclone data and retrieve satellite data based upon user queries



Example: AD-HOC TRAJECTORY: "List all tropical cyclones that starts from Windsor, Ontario, to St. John's, Newfoundland from 1979 to 2005"

## Accomplishments

- Designed and implemented a Moving Objects Software Library which provides a representation of moving objects (e.g., tropical cyclones), enables the execution of operations on them, and integrated into moving objects databases
- Designed and implemented a spatiotemporal query language to pose ad-hoc queries on moving objects (e.g., tropical cyclone data) and a Satellite Data Retrieval component to manipulate satellite data for additional data analysis
- Designed and implemented a centralized Moving Object Data Base repository

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TRL<sub>in</sub> = 2      TRL<sub>out</sub> = 4