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## Development of an Atmospheric Scene Simulation Model

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**Abstract:** The **Cloud Scene Simulation** Model (CSSM) was developed to generate high resolution synthetic **cloud** backgrounds for a variety of DoD **simulation** systems. This report describes recent efforts to enhance that model and presents plans for future areas of development. Recent efforts were focused in two areas: cirrus model development and software support. Cirrus model development began with a detailed survey of the technical literature to identify models and data from which we could derive cirrus statistics and characteristics for use in the model. We then decided to implement two cirrus types within the model: precipitating and non-precipitating types. Cirrus databases were identified in the literature survey and several were chosen for analysis. These data were used to tune models within the current non-precipitating model. The CSSM was then tuned through comparison to the cirrus observations and statistically tested against the observations. Our future development plans were focused on the implementation of an enhanced cirrus uncinus model and a climatological preprocessor for the CSSM. The cirrus uncinus model design simulates the vertically developed particle distributions observed in nature. The climatological preprocessor will use climatological **cloud** and meteorological databases along with statistical information to build typical weather conditions for a user specified location/date/time.

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