Ensemble Approach to Soybean Rust Forecasting for the 2006 Pipe

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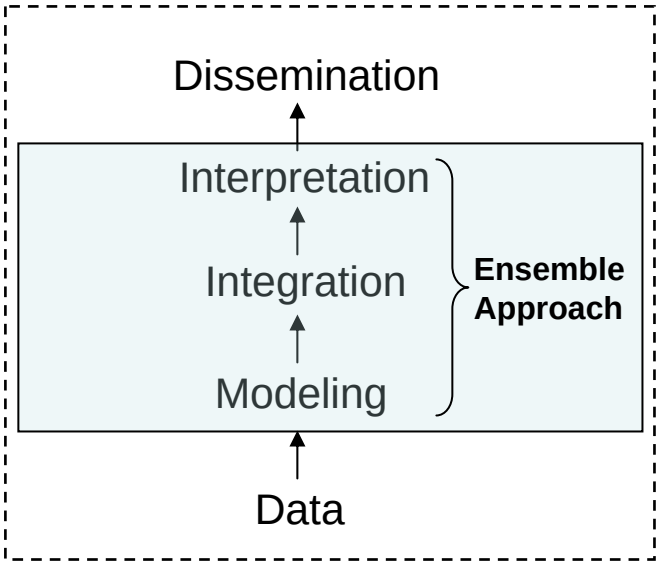
Ensemble Approach in the IT Paradigm for Plant Pathology



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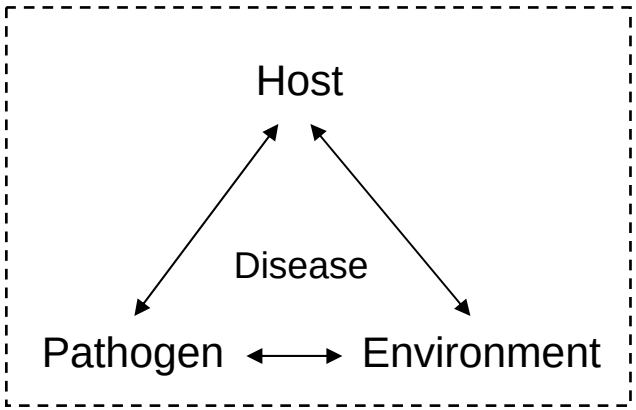

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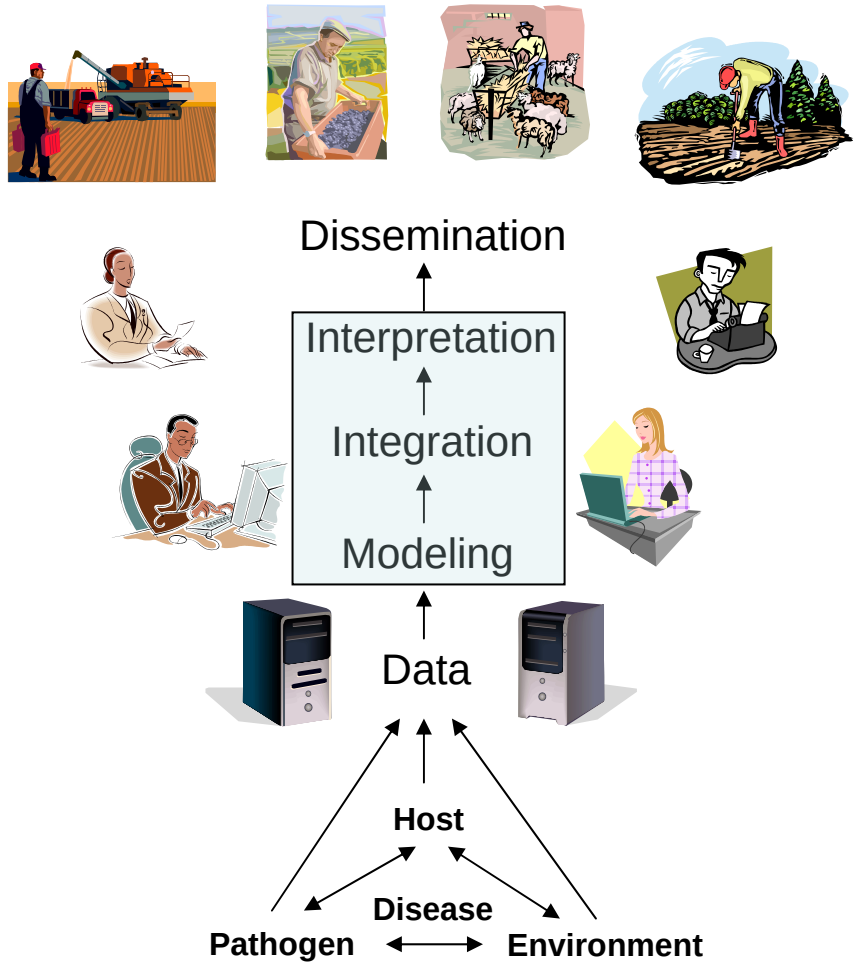


Why Ensemble Forecasts

Ensemble forecasts are designed to capture the *probabilities* for weather events and the range of *uncertainty* inherent in each forecast situation so that the forecaster knows what to convey to the public.

Source: UCAR/COMET. 2004. Ensemble Forecasting Explained.

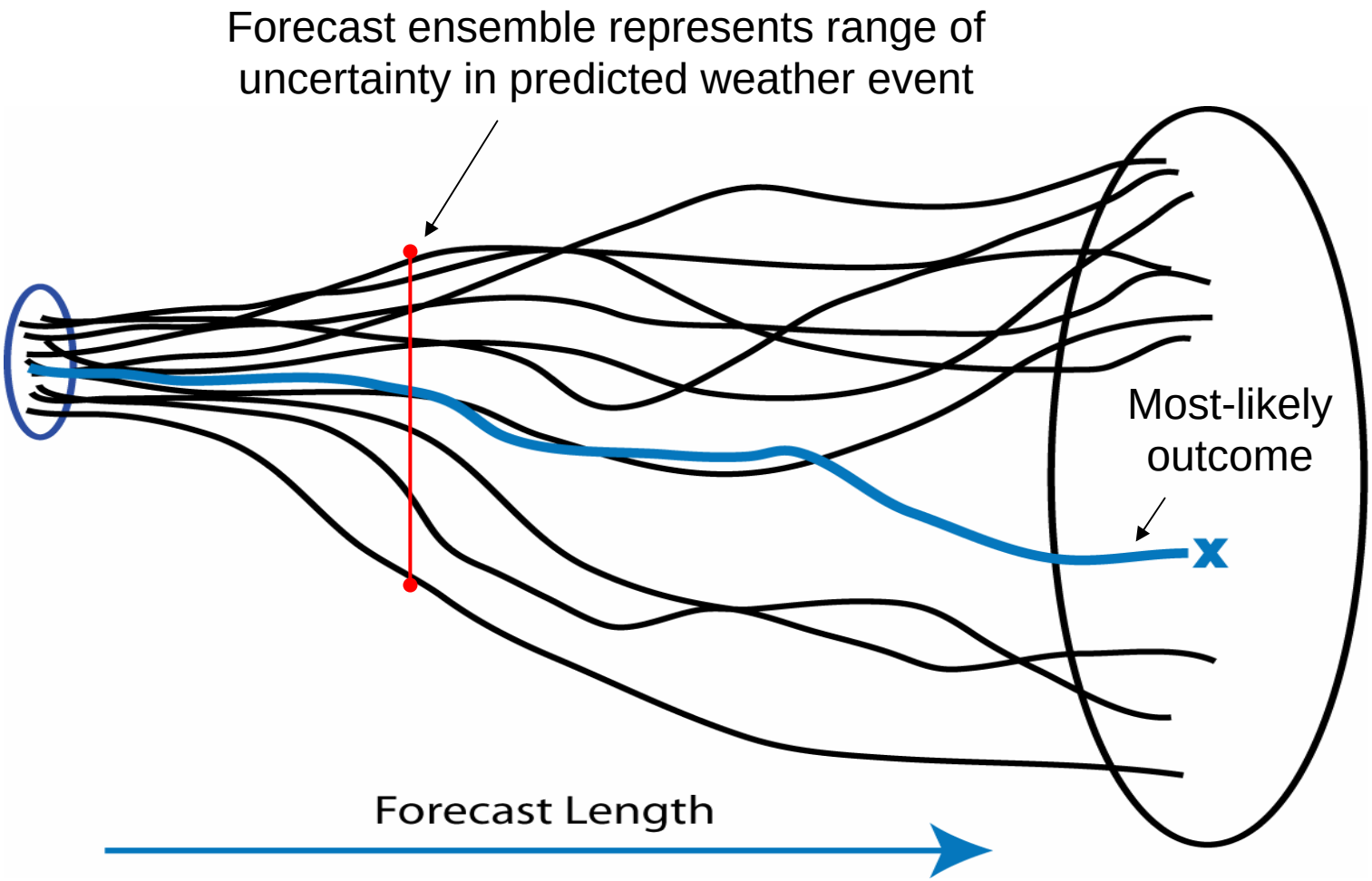
Ensemble Products

Ensemble products use various statistical and graphical methods to combine multiple model runs, which can be based on one of the approaches. Ensemble products can include information about the *level of uncertainty*, the most likely forecast outcomes, and the *probabilities* of those outcomes.

Source: UCAR/COMET. 2004. Ensemble Forecasting Explained.

Ensemble Products

Example of a Spaghetti Plot

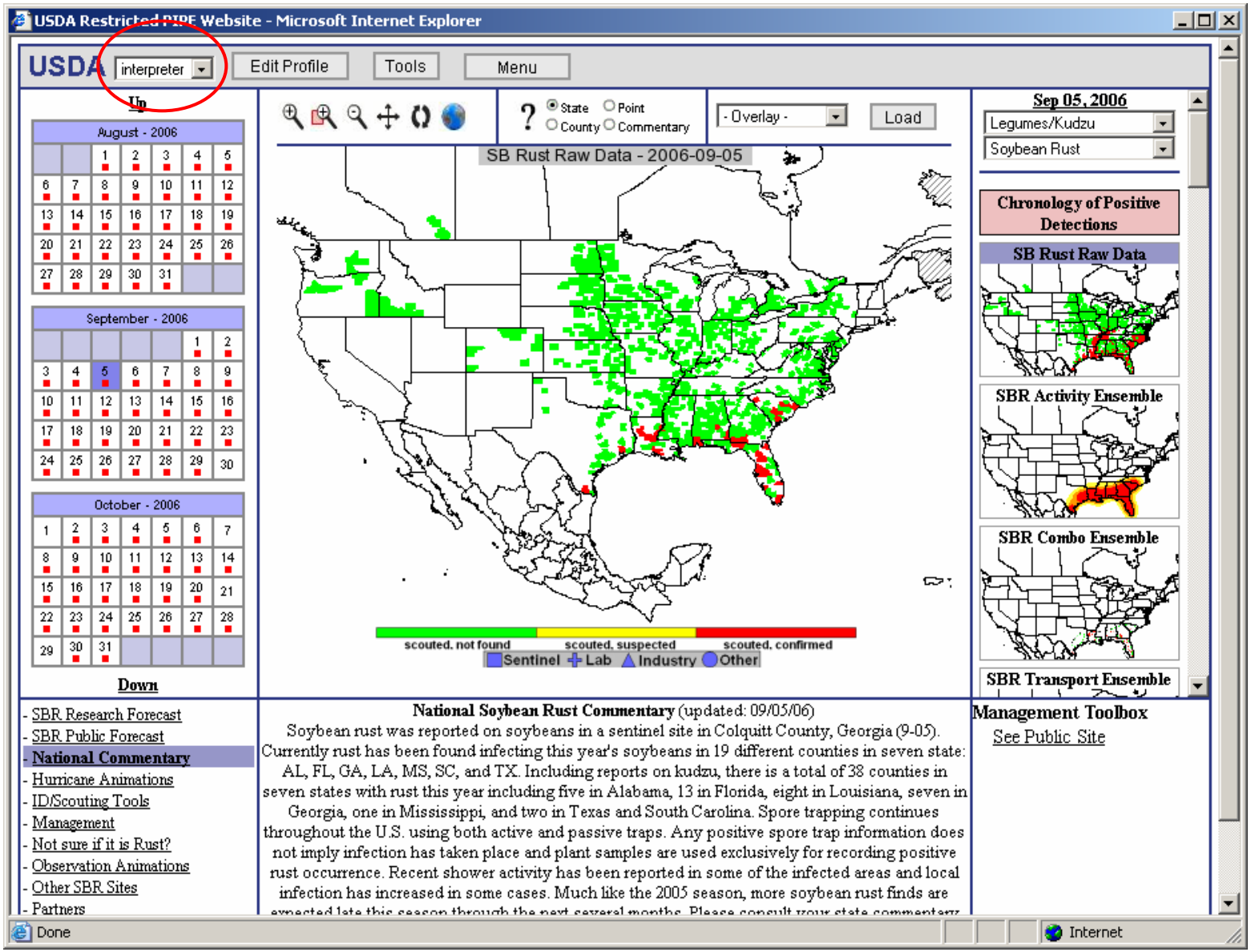


Ensemble Forecasting Approaches

- Vary initial conditions of a single model.
- Vary numerical methods of a single model.
- Vary physical parameterization of a single model.
- Combine output from multiple models.
- Combine output from multiple models plus human interpretation (used by National Hurricane Center).

The goal of the ensemble approach for the soybean rust forecasting is to provide trained interpreters meteorological output from multiple numerical weather prediction models and disease movement and severity output from multiple pest prediction models.

Legume PIPE (Interpreter Screen)



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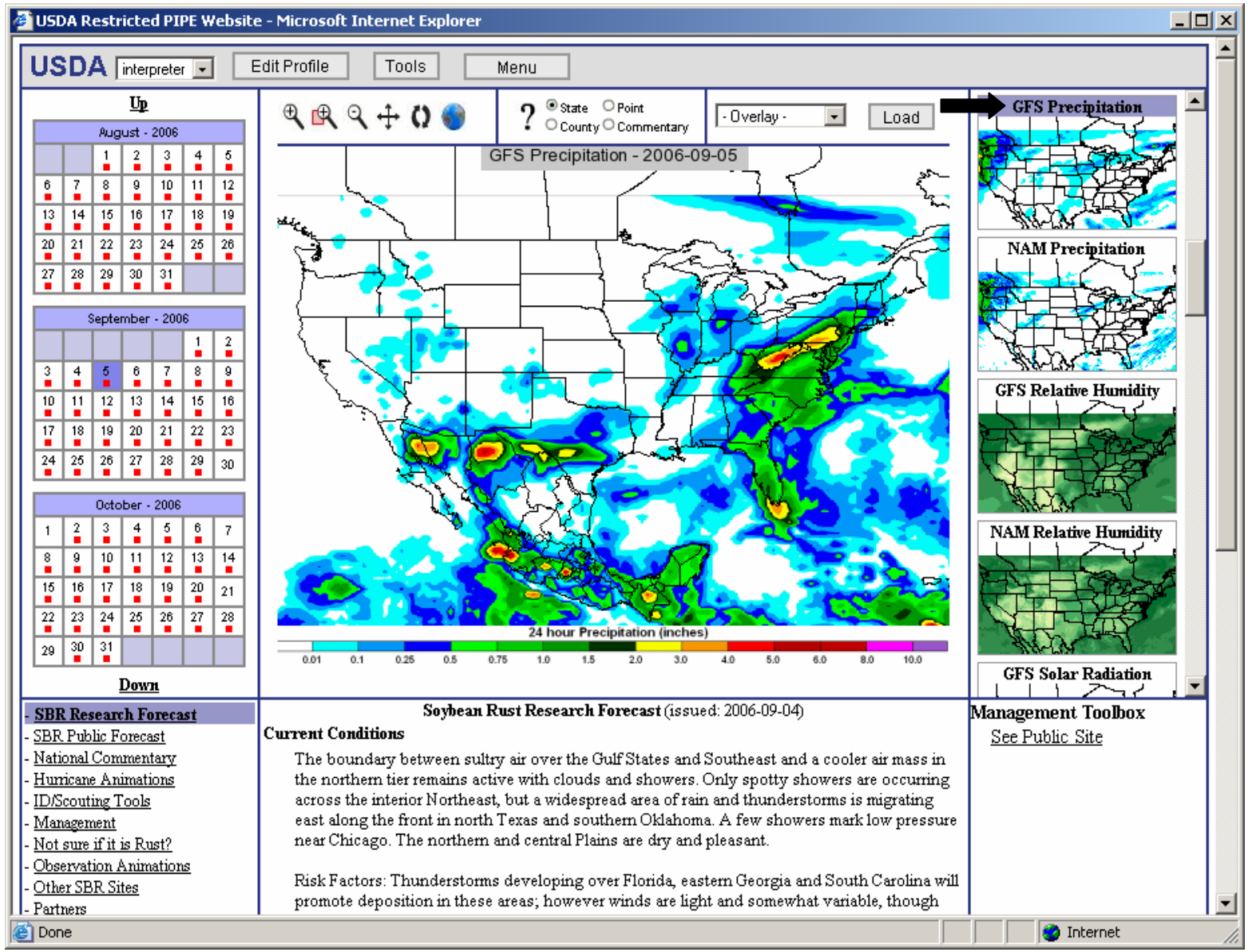

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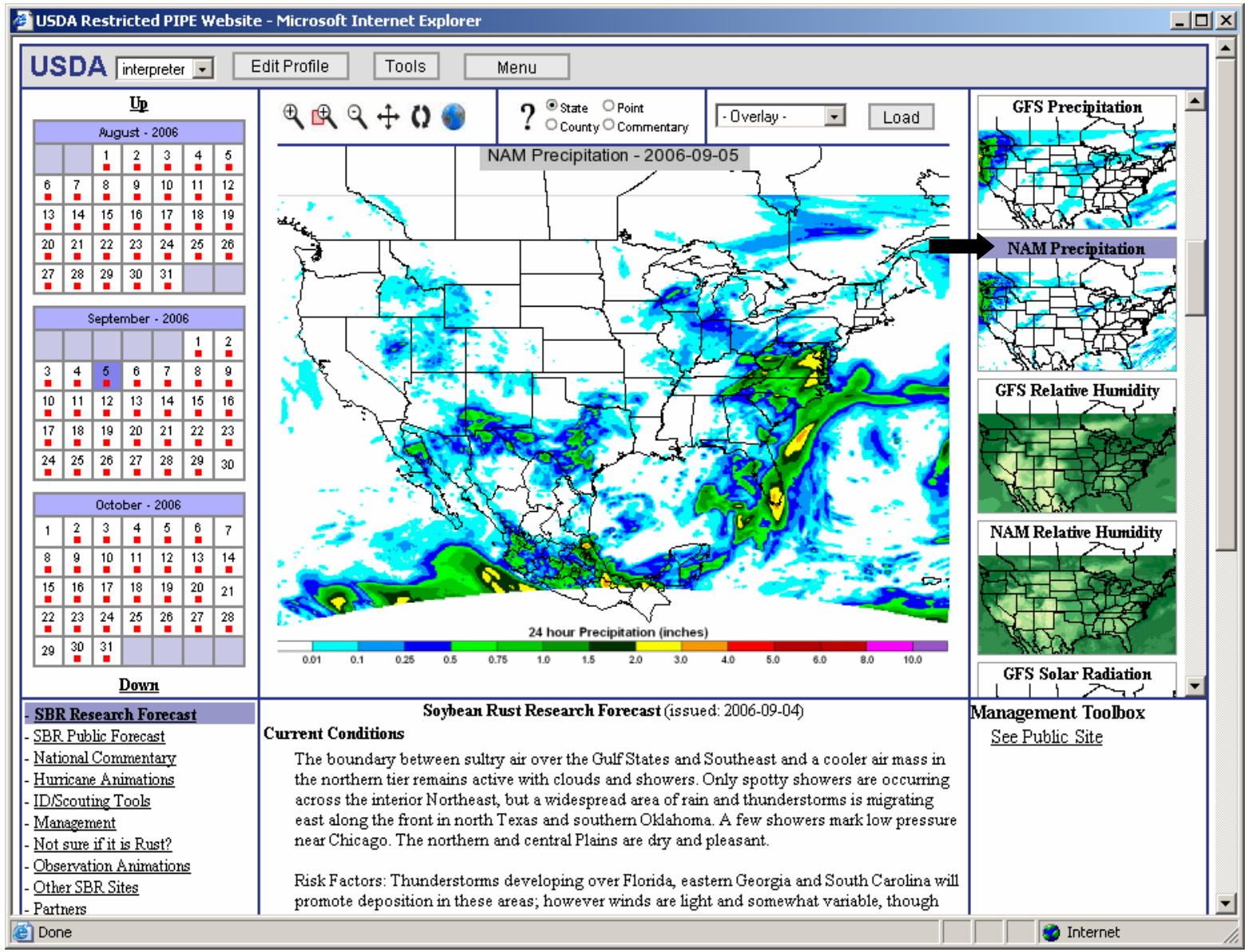

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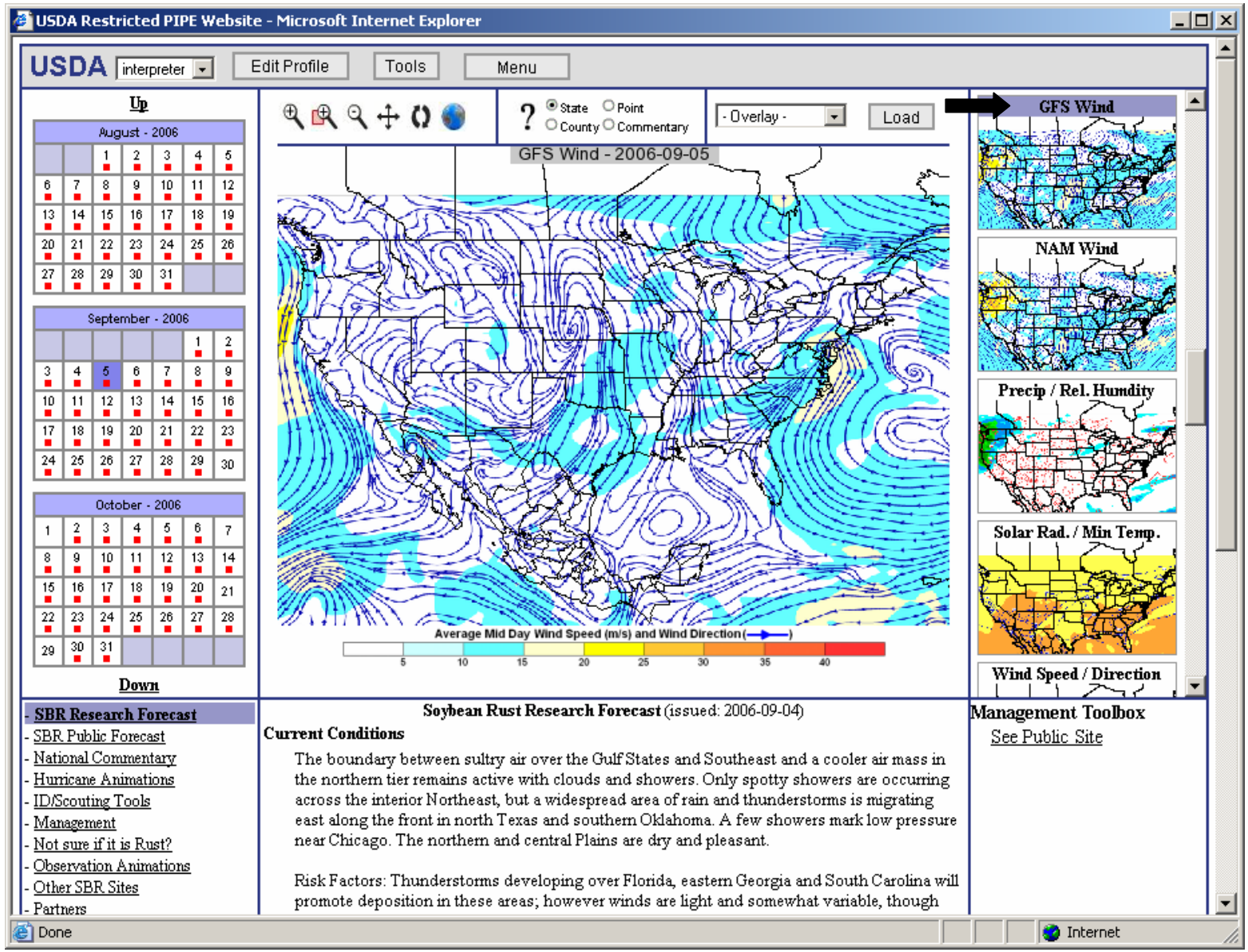

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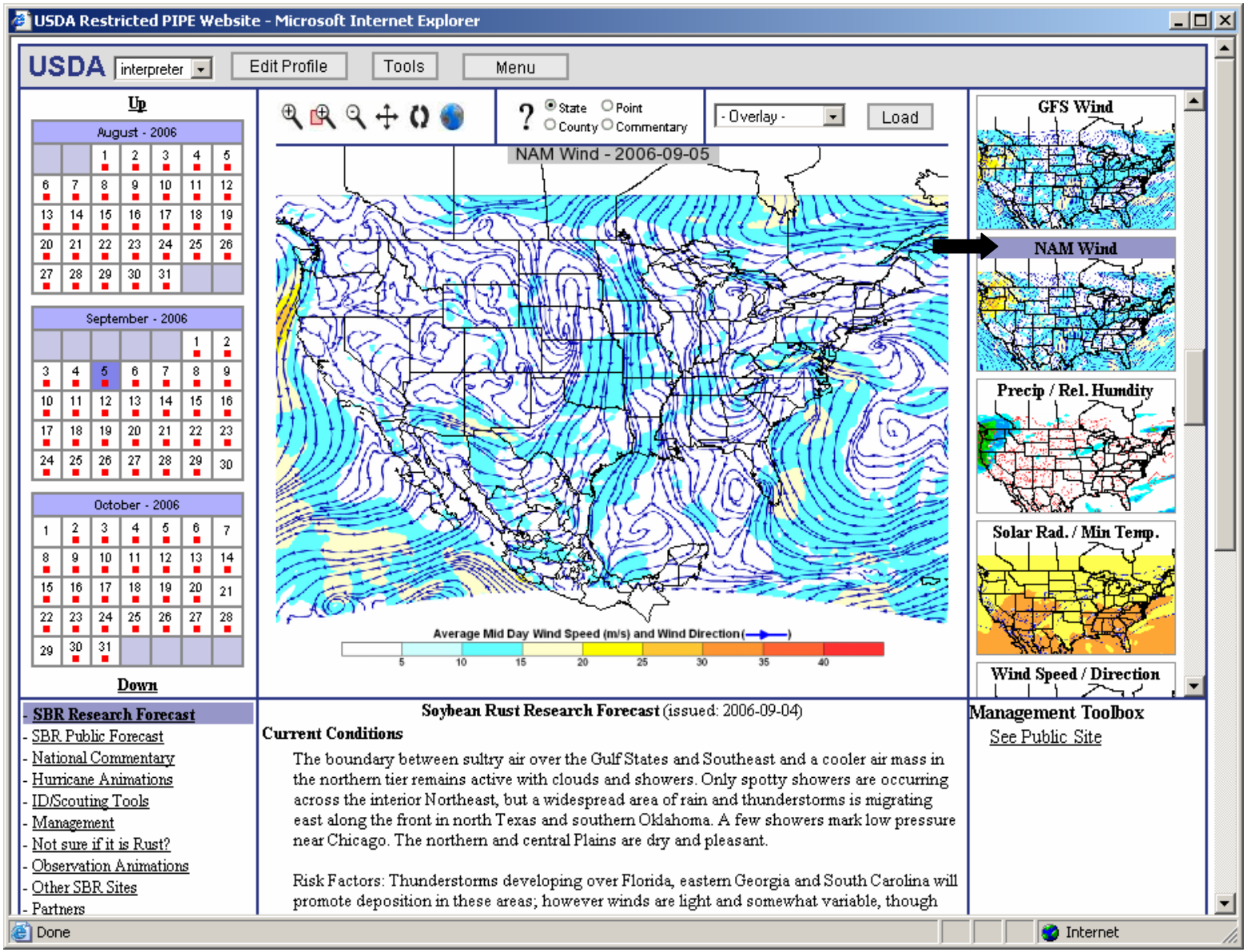

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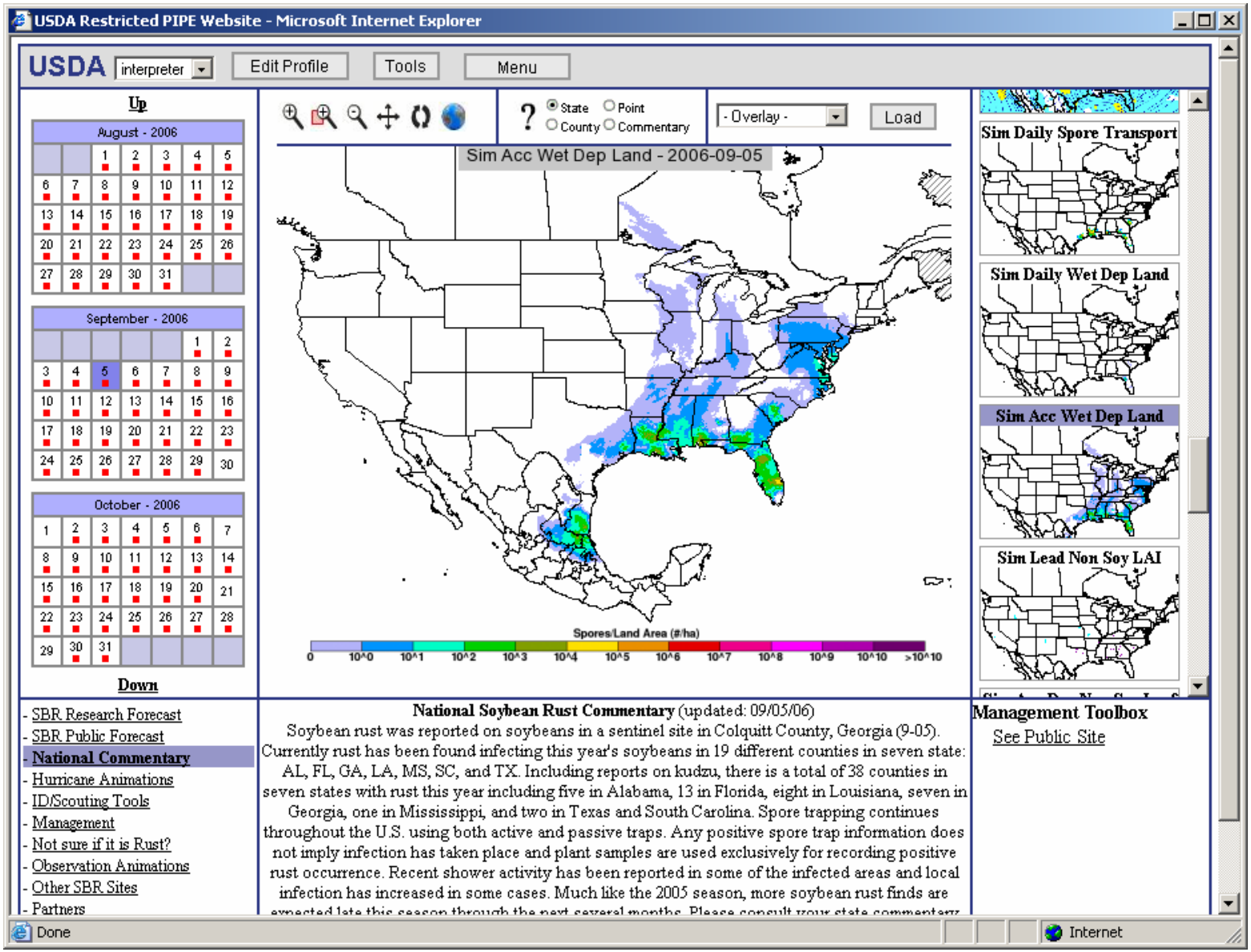

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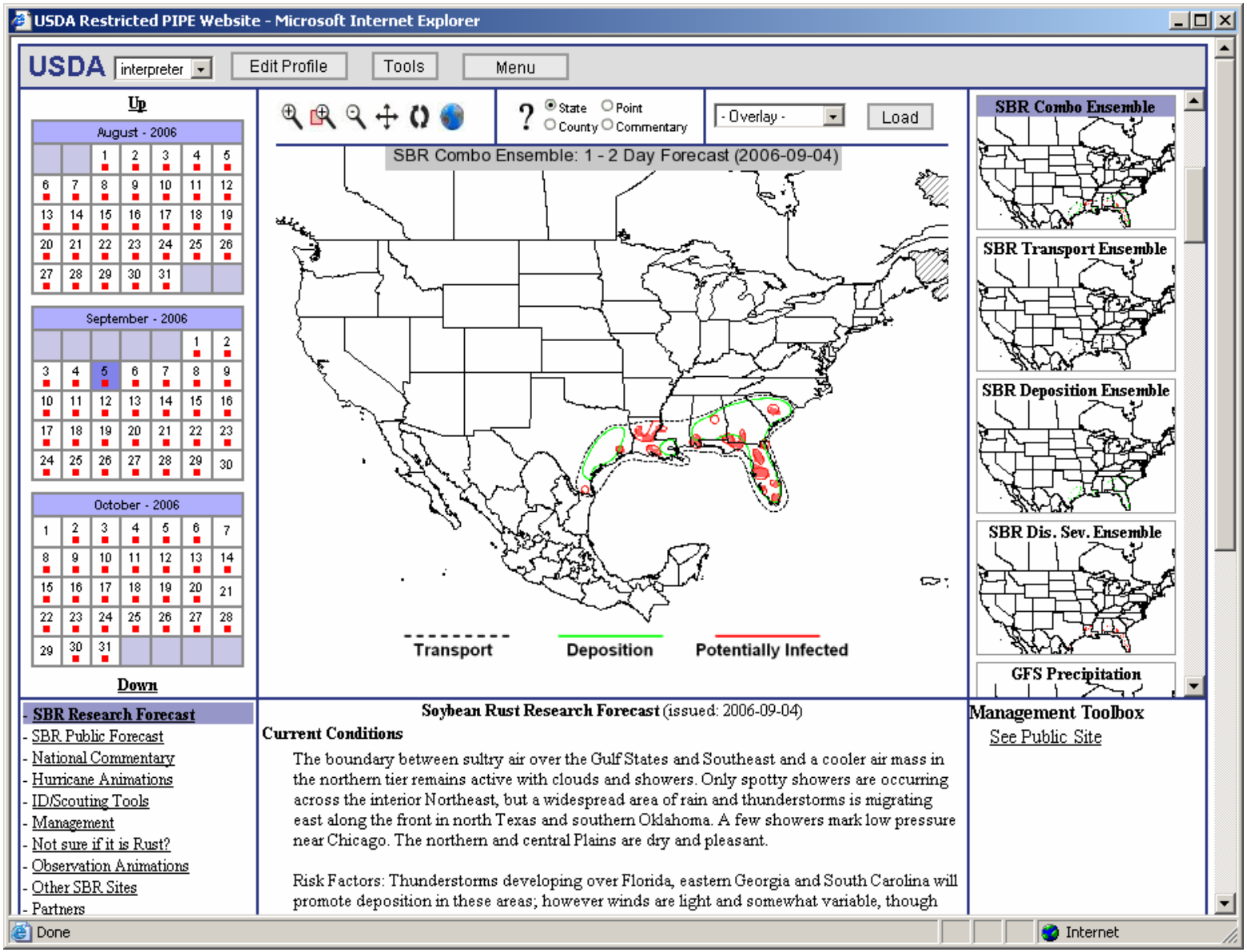

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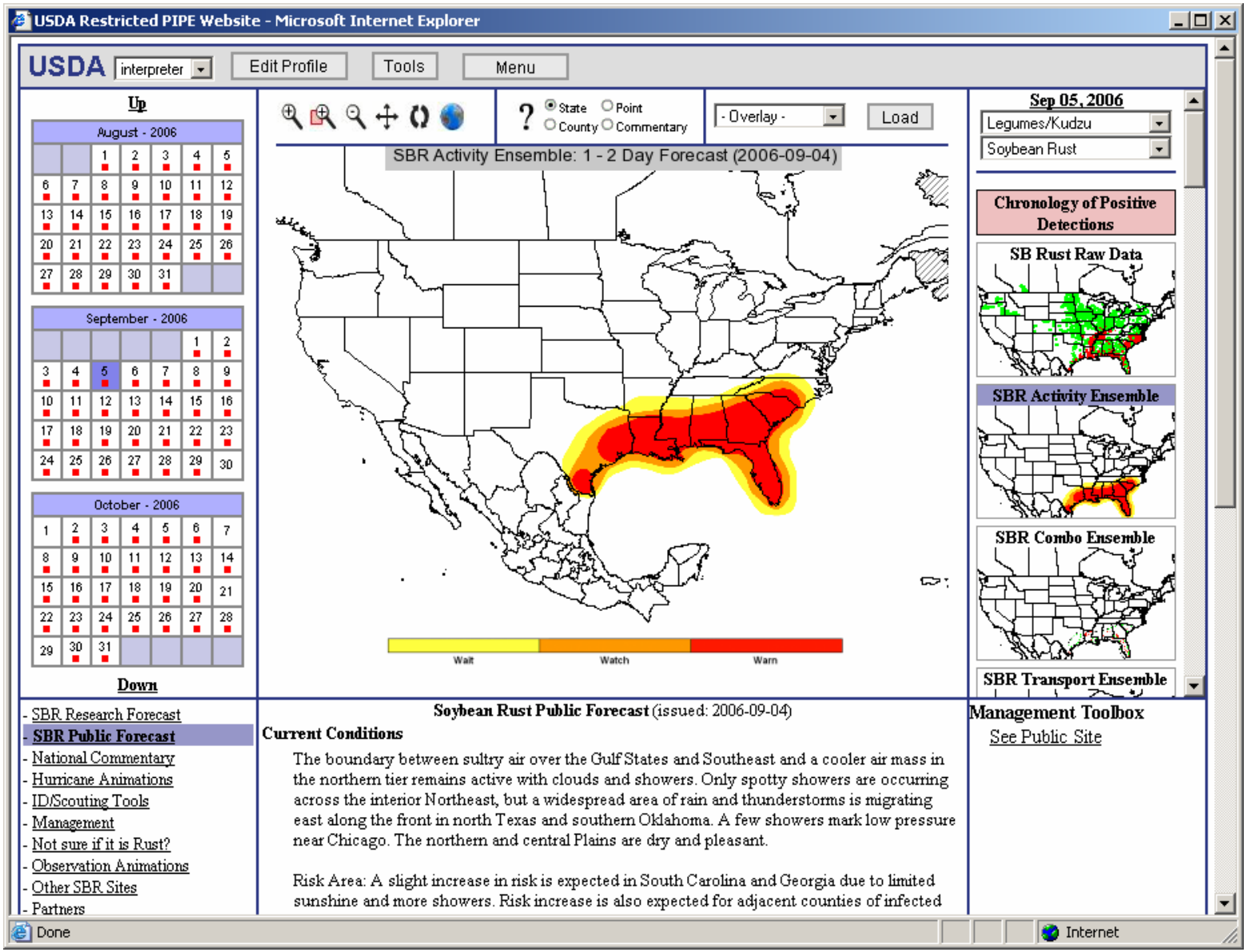

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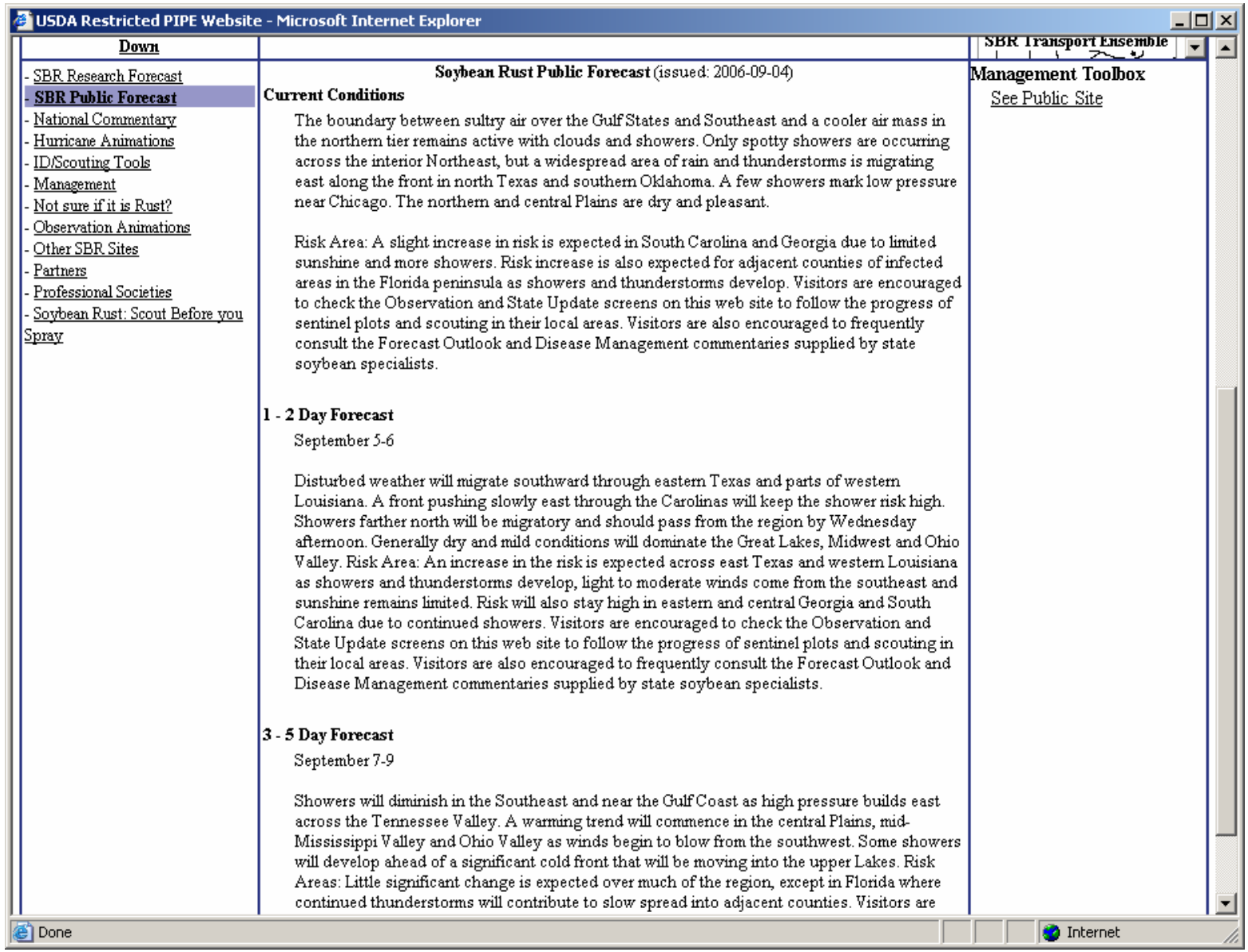

Thank you!

Questions?