MEGHÍVÓ

Az MTA MTB Légkördinamikai és Szinoptikus Meteorológiai Albizottsága

tisztelettel meghívja következő előadó ülésére.

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A időjárás analízis és a rövidtávú előrejelzés hibáinak kvantitatív értékelése

Az előadásra minden érdeklődőt szeretettel várunk!

Weidinger Tamás
elnök

Szintai Balázs
titkár

A magyar nyelvű előadás angol összefoglalója:

A QUANTITATIVE ASSESSMENT OF ANALYSIS AND SHORT-RANGE FORECAST ERRORS

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MTA – MTB presentation

Monitoring or analyzing the state of chaotic systems via intermittent observations is a scientifically challenging task and is a prerequisite for numerically projecting the state of such systems into the future. In atmospheric and related sciences statistical procedures called Data Assimilation (DA) schemes are used to estimate the state of the system in the space of numerical models (i.e., selected variables on finite grids). DA schemes combine information from observations and a very short-range numerical model forecast and rely on estimates of error variances and covariances associated with each source of input. As in real life applications the true state is unknown and no error variance estimates independent of the DA schemes are available, error variances in DA schemes are often considered as tuning parameters.

This presentation will introduce a new technique for the unbiased estimation of error variances in the initial state (i.e., analysis field) and numerical forecasts of chaotic systems. The method is independent of any assumption or tuning parameter used in DA schemes. In a simulated forecast environment, the method is demonstrated to reproduce the true analysis and forecast error within the predicted error bounds. The method is then applied to forecasts from four leading Numerical Weather Prediction centers to assess the performance of their corresponding data assimilation and modeling systems. A general relationship between the quality of shadowing (i.e., error variances in the initial and forecast states), the strength of chaotic behavior, and the effectiveness of the observing and DA systems will also be introduced and used to interpret the experimental results.