

# 8imsc talk

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## **Numerical experimentation with regional atmospheric models**

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While the need for determining the climatic noise with the help of multiple runs in numerical experimentation with global models is acknowledged since the 1970s, regional atmospheric modelers in the past have done experiments usually as a simple pair of "control" and "experimental" simulation. The effect of the experimental modification is then considered as being described by the difference between the two simulations. This approach assumes implicitly that the state of the regional atmosphere in such models would be determined by the initial conditions, that no "noise" would be generated on regional scales. However, this assumption is invalid as is shown by examples. For long-term differences the noise level is indeed rather small, but for episodes large differences in the synoptic configuration (e.g. with respect to the speed of cyclones) intermittently emerge.

The problem is demonstrated with the case of the effect of an interactive ocean surface wave field on the formation of extratropical storms. In previous studies, this interaction was claimed to cause storms to intensify (through increased latent heat fluxes) or damped (through increased momentum flux) cyclogenesis, but an ensemble simulation indicates that the found effects are mostly random.