

# CHAOS 2009

## 2<sup>nd</sup> Chaotic Modeling and Simulation International Conference

June 1 - 5, 2009 Chania Crete Greece

[www.chaos2009.net](http://www.chaos2009.net)

### **Order in the Weather Chaos**

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The predictability limit position is a function of the forecasting model being used but not the chaoticity of the real atmospheric motions only. Two possible ways exist to overcome the present-day predictability limit: to complicate forecasting models more and more (the “brute force” approach); and to make using different mutual orderings in the heterogeneous atmospheric motion variations in order to filter out unpredictable components from forecasting model solutions (the “new knowledge” approach). Two new kinds of such ordering are considered in this paper that can be used in the frame of the “new knowledge” approach. One of them consists of a synchronous propagation of the planetary waves in the extratropical westerlies. The so-called quasi-synchronous model of the low-frequency atmospheric dynamics is depicted taking this ordering in explicit consideration. Even if this model is a toy-model in fact it is capable to overcome the weekly predictability limit inherent to all of the contemporary comprehensive forecasting models. The second kind of the ordering consists of the existence of essential super harmonics in the annual course of the planetary wave dynamics. The super harmonics of the synoptic waves are phase-locked, and amplitudes of some super harmonics are prominent by time-localised “rhythms”.

**Keywords:** The Lorenz’s chaoticity paradigm, the predictability limit, co-existence of chaos and order in weather variations, filtered weather forecasting models.