With apologies for possible multiple postings

Dear Colleagues,

We would like to draw your attention to the session

'New model- and data-based approaches to study climate behavior'

(session **NP2.4**, Programme Group 'Nonlinear Processes in Geosciences') to be held as part of the upcoming General Assembly of the European Geosciences Union (Vienna, Austria, 8-13 April 2018).

This session will be devoted to both empirical and first-principle–based approaches to modeling and prediction in climate dynamics. A detailed description is given below.

The deadline for receipt of abstracts is 10 January 2018, 13:00 CET. An Abstract Processing Charge (APC) of €40.00 gross must be paid for each abstract submission.

Possibilities of financial support are available through the Roland Schlich travel support programme for Early Career Scientists, as well as for Established Scientists from low- and middle-income countries. Requests for financial support must be submitted, together with an abstract, by 1 December 2017.

General information on the General Assembly is available at the address

https://www.egu2018.eu/ ; instructions for submitting abstracts and requests for financial support can be found there as well.

Identification of the session:

Programme Group 'Nonlinear Processes in Geosciences', Session NP2.4

Please forward this announcement to colleagues you think may be interested.

With kind regards,

Juergen Kurths, Henk Dijkstra, Alexander Feigin, Michael Ghil, Dmitri Kondrashov, and Sergey Kravtsov

Conveners

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DESCRIPTION OF THE SESSION

New model and data-based approaches to study climate behavior

The session is concerned with the development and application of new empirical, as well as first-principle approaches to modeling and prediction of climate. In spite of the progress in the first-principle modeling of climatic phenomena, predictive capabilities of these dynamical models are fundamentally restricted by the Earth system complexity: inherent sensitivity to initial conditions, sensitivity to model parameters, and complex nonlinearities and feedbacks involved hinder the development of robust prediction methods solely based on first principle model usage. At the same time, shortness of climatic time series restricts capabilities of purely empirical modeling. The main intention of this session is to bring together specialists who use empirical models as well as who use first-principle knowledge — from mathematical statistics and statistical physics to complex systems science — to present and combine different modern approaches for analyzing climatic processes and their predictability.

Specific topics include but are not limited to the following:

• Data-driven (empirical) approaches to modeling climate variability: stochastic empirical models, qualitative and quantitative forecast, optimal model selection, etc.;

• Combination of empirical and first-principle modeling; improving empirical models by analysis of time series generated by first principle models, etc.;

• Use of dynamical systems and statistical methods for studying climate dynamics and constructing reduced-order models;

• Characterizing forced and internal fluctuations by using of methods based on fluctuation dissipation theorem and response theory;

• Efficient expansions of spatially distributed data: from EOFs and its extensions to spatiotemporal and/or nonlinear decompositions;

• Complex network approaches to investigation of teleconnection patterns and their stability;

• Empirical modeling and predictability of extreme events;

• Model intercomparison in terms of their predictive capabilities on different time scales.