Climate variability across scales – from the butterfly's wings to the age of the Earth
– an online seminar series from Nov 2020 to March 2021 –

Linking Climate Variability Across Scales

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Abstract:
The PAGES CVAS group was launched following the discovery that the accepted picture of atmospheric variability based on Mitchell's famous "educated guess" spectrum (published in 1976) was in error by a large factor. Rather than being dominated by a series of narrow scale-range quasi-oscillatory processes with an unimportant white noise "background", it turned out that the variance was instead dominated by a few wide range scaling processes albeit occasionally interspersed with superposed quasi-oscillations. This review covers both evidence and data analysis techniques that exploit fluctuations rather than spectra. Particular attention is paid to its key fluctuation exponent *H* that makes the interpretation straightforward. I also discuss consequences of scaling including intermittency and extremes. I discuss some of the implications for the future of climate modelling: do we continue to "chase the details" by explicitly modelling as many structures and interactions as possible - or do we seek to exploit the collective behaviour of huge numbers of interacting components, to discover high level, collective, statistical laws?

The speaker: Shaun Lovejoy studied Physics in Cambridge/UK and obtained a PhD in Physics from McGill university in Montreal/Canada, where he went on from Lecturer to full professor in 1997. (Co)initiator of the CVAS working group.

More information: http://www.physics.mcgill.ca/~gang/Lovejoy.htm

Dates and speakers

1. **Jürg Schmidli** – IAU Frankfurt, Germany **"Variability at sub-daily time scales – from seconds to hours".** Tuesday **10.11.2020** 16:00-17:00 *(video on youtube, link below)*
2. **Christian Grams** – IMK-TRO/KIT, Germany **"Synoptic to sub-seasonal surface climate variability in the Atlantic-European region: the role of weather regimes.".** Thursday **26.11.2020** 16:00-17:00 *(video on youtube)*
3. **Tine Nilsen** – UIT, Norway **"Decadal variability and the scaling paradigm". 3.12.2020** 16:00-17:00 *(video on youtube)*
4. **Michel Crucifix** – UC Louvain, Belgium **"The challenge of centennial climate variability".** Friday **18.12.2020** 11:00-12:00 *(video on youtube)*
5. **Heather Andres** – MUN, Canada **"Millennial climate variability and Dansgaard-Oeschger events". 21 Jan 2021** 16:00-17:00 *(video on youtube)*
6. **Julie Schindlbeck-Belo** – GEOMAR Kiel, Germany **"The links between volcanism and climate". 20.1.2021** 16:00-17:00 *(video available on request)*
7. **Oliver Friedrich** – GEOW HD, Germany **"Glacial/Interglacial climate variability (10^5-10^7 years".** 27.1.2021 11:00-12:00 *(video on youtube)*
8. **Valerio Lucarini** – Reading, UK **"Heatwaves and Cold Spells and Assessing Their Response to Climate Change".** Wednesday 10.2.2021 11:00-12:00 *(video on youtube)*
9. **Mario Trieloff,** GEOW Heidelberg, **"Climate variability on time scales of 10^8 years: stabilisation through the carbonate silicate cycle". Friday 5.3.2021** *(video on youtube)*
10. **Shaun Lovejoy**, McGill University/Canada – "**Linking Climate Variability Across Scales" – 18.3.2021** 15:00-16:00

All times stated are CET (Berlin). Past lectures are available via the PAGES youtube channel: https://www.youtube.com/playlist?list=PLSaCdvmD4wMLH_QfoKHyc5n4d-0_KBHDL

Registration: The link to the online meeting (Zoom) will be sent a day before the seminar to the first 75 registered participants. For technical questions and registration, please send an email to paleodyn@iup.uni-heidelberg.de with the mail header "CVAS lecture series". **Contact:** Kira Rehfeld (krehfeld@iup.uni-heidelberg.de)