



WAVES TO WEATHER

Annual Meeting

27-28 November 2023 - Parkhotel Landau

Plenary sessions: Jugendstil-Festhalle – Kleinen Saal

Program

Please note that the hotel restaurant will be closed on Sunday.

Monday 27 th November 2023	
10:00 – 10:20	Presentation of W2W (G. Craig)
10:20 – 10:30	Lessons learned in the central management, dissemination & outreach (A. Laurian)
10:30 – 10:40	Legacy of the Equal Opportunity Committee and EO activities (C. Hoose)
10:40 – 10:50	Legacy of the computing services and ENSTools (R. Redl)
10:50 – 11:00	Legacy of the Early Career Scientists Committee and activities (S. Schmidt)
11:00 – 11:15	<i>Coffee break</i>
11:15 – 12:00	Multiscale predictability – gained knowledge and what's next? (Linus Magnusson, ECMWF) – Chair: K. Krüger
12:00 – 13:30	<i>Lunch (buffet)</i>
13:30 – 14:40	Talks RA-A (A1 → A6; 10' per talk) (see list on p.4) – Chair: M. Riemer
14:40 – 14:55	<i>Coffee break</i>
14:55 – 15:45	Talks RA-A (A7 → A8; 10' per talk) (see list on p.4) – Chair: M. Riemer
15:45 – 16:30	Deep-convection initiation: formidable challenges and recent progress (Daniel Kirshbaum, McGill Univ.) – Chair: M. Puh
16:30 – 17:00	<i>Coffee break</i>
17:00 – 20:00	Visit of the Christmas market (see map on page 6)
20:00 –	<i>Dinner at the hotel</i>
Tuesday 28 th November 2023	
08:00 – 08:30	<i>SG breakfast (for SG members only)</i>
08:30 – 09:50	Talks RA-B (B1 → B5; 10' per talk) (see list p.4) – Chair: C. Keil
09:50 – 10:15	<i>Coffee break</i>
10:15 – 11:00	Talks RA-B (B6 → B8; 10' per talk) (see list p.4) – Chair: C. Keil
11:00 – 11:45	Understanding long-term variability of the Madden-Julian Oscillation leveraging in-situ observations (Juliana Dias, NOAA) – Chair: H. Jung, <i>then group picture</i>
12:00 – 13:30	<i>Lunch</i>
13:30 – 14:55	Talks RA-C (C2 → C5; 10' per talk) (see list p.4) – Chair: A. Fink
14:55 – 15:15	<i>Coffee break</i>
15:15 – 16:15	Talks RA-C (C8 → T4; 10' per talk) (see list p.4) – Chair: A. Fink
16:15 – 17:30	<i>Closing words by SG members, e.g. about legacy – End of the meeting</i>

Keynote presentations

Linus Magnusson (ECMWF, UK)

Mon. 27th, 11:15 – 12:00

Multiscale predictability – gained knowledge and what’s next?

The atmosphere exhibits predictability on different spatial and temporal scales, which contributes to the forecast skill. While the mid-latitude wave guide has a limit of practical predictability around two weeks, “boundary conditions” can provide forcings that extended the predictability under certain circumstances. These are often called “windows of opportunity”. On other hand, local weather (extremes) are often modulated by small scale features with low predictability or difficult to model. This could lead to low forecast skill (or none at all) for specific extremes.

The practical predictability of the weather is limited by insufficient knowledge about the initial state together with imperfect models. However, the forecast skill varies from day to day, and sometimes result in very large errors for relatively short time-scales. These events are known as forecast busts. In many cases they are related to weather events that acts as predictability barriers.

The different scales make it difficult to set a number on the limit of predictability. Instead, we need knowledge on how to estimate the skill in a specific situation. Optimally an ensemble system should give a guidance. But for that it needs to be fit for purpose in terms of simulating the phenomena, capturing teleconnection and give correct uncertainty estimations.

In this presentation these different aspects will be discussed, in the light of the knowledge gained over the past decade in W2W and other projects, with a focus on severe weather predictions.

Daniel Kirshbaum (McGill University, Canada)

Mon. 27th, 15:45 – 16:30

Deep-convection initiation: formidable challenges and recent progress

Deep convection initiation (DCI) vexes both conceptual understanding and numerical weather prediction (NWP), owing to its multi-scale, multi-phase, and turbulent nature. At its core, DCI is a nonlinear threshold problem, where multiple factors come together in localized regions to produce clouds that successfully transition from shallow to deep. Once DCI occurs, it shapes the development of clouds and precipitation over a broader mesoscale region. The necessary factors for DCI are familiar from adiabatic parcel theory: deep moist instability and sufficient localized lifting to release it. While these conditions are relatively simple and reasonably predictable in modern NWP models, they only indicate where and when DCI is possible. Within such regions, more intricate and complex processes determine precisely if, when, and where DCI occurs. These include, among others, vertical perturbation pressure gradients, entrainment and detrainment, precipitation and cold pools, and various external circulations that interact with active clouds (e.g., turbulent eddies and internal gravity waves). While some of these processes are inherently unpredictable, others can and should be better understood. This presentation focuses on efforts to build understanding in key relevant areas and identify potentially profitable directions of future inquiry. Topics of interest include progress in the understanding and quantification of vertical-shear effects, entrainment and detrainment, boundary-layer controls on incipient cumuli, and the explicit representation of cumulus convection in NWP models.

Juliana Dias (NOAA, USA)

Tue. 28th, 11:00 – 11:45

Understanding long-term variability of the Madden-Julian Oscillation leveraging in-situ observations (Juliana Dias, Maria Gehne and George Kiladis)

Many studies have suggested that the Madden-Julian Oscillation (MJO) is a main source of subseasonal-to-seasonal (S2S) predictability and that its amplitude has been increasing over the last few decades. Potential long-term variability of the MJO is an important topic of research because changes in MJO propagation and amplitude characteristics could alter its role as a source of S2S predictability. Understanding long-term variability of the Madden-Julian Oscillation is challenging because characterizing its behavior outside of the satellite era lacks detailed information about its observed state, and relies on general circulation models' typically poor MJO representation. In this presentation, we discuss the contrast between long-term variability of the MJO from 1942 to present derived from global reanalysis products with the MJO behavior inferred from tropical in-situ observations during the same period.

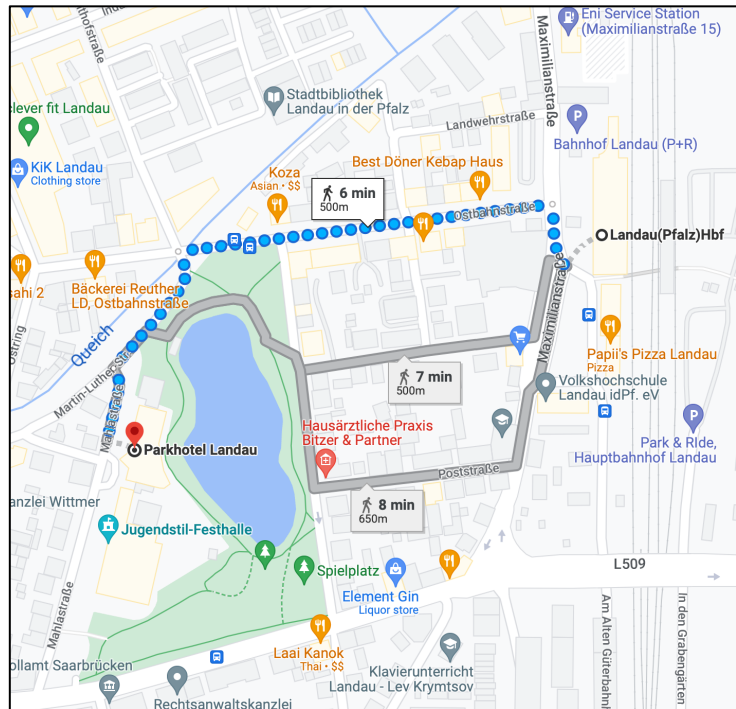
Talks per Research Area

(presenters in blue, guests highlighted, RA coordinators bold)

RA-A	RA-B	RA-C
Craig George	Barthlott Christian	Beckert Andreas
Farokhmanesh Fatemeh	Brinkmann André	Birner Thomas
Groot Edward	Grams Christian	Chen Jieyu
Hauser Seraphine	Höhlein Kevin	Chung Brett
Janjic-Pfander Tijana	Hoose Corinna (Lena Frey)	Czajka Beata
Krüger Konstantin	Jakub Fabian	Dias Juliana
Magnusson Linus	Jung Hyunju	Eisenstein Lea
McTaggart-Cowan Ron	Keil Christian	Fink Andreas
Neuhauser Christoph	Keshtgar Behrooz	Fischer Christoph
Polster Christopher	Kirshbaum Daniel	Garny Hella
Prestel Isabelle	Kuntze Patrick	Grazzini Federico
Puh Matjaz	Kunz Michael	Hewson Tim
Redl Robert	Lüttmer Tim	Kiefer Selina
Reynolds Carolyn	Maier Richard	Knippertz Peter
Riemer Michael	Manev Mihail	Krieg Jasper
Schäfler Andreas	Matsueda Mio	Lemburg Alexander
Schmidt Sören	Matsunobu Takumi	Lerch Sebastian
Schneider Simon	Mayer Bernhard	Lo Nicolas Chun Cheong
Selz Tobias	Miltenberger Annette	Löffel Sheena
Werth Kai	Oertel Annika	Mayer Amelie
Westermann Rüdiger	Ruckstuhl Yvonne	Meyer Jörg
	Schlemmer Linda	Pinto Joaquim
	Tost Holger	Quinting Julian
		Rautenhaus Marc
		Rein Felix
		Rupp Philip
		Satheesh Athul
		Schulz Benedikt
		Späth Jonas
		Wirth Volkmar

Venue

The W2W Annual Meeting will take place in the **Parkhotel Landau** (Mahlastraße 1, 76829 Landau in der Pfalz; <https://www.parkhotel-landau.de>; Tel.: +49 6341 1450). The hotel is located 500m away from the Landau central train station. The plenary session will take place in the **Jugendstil-Festhalle (Kleinen Saal)**, next to the hotel (Mahlastraße 3).



How to get there?

- If you are travelling by **plane**: the closest airports are Stuttgart and Frankfurt, both located ca. 2h30 away from the hotel by train.
- If you are travelling by **train**: Munich is located ca. 4h away. Mainz is located ca. 2h away. Karlsruhe is located ca. 1h away.
- If you are **driving**: there is parking available at the hotel.

Hotel rooms are reserved and paid centrally by W2W for all participants.

Childcare can be offered at the meeting in the room “HinGAABe”.

Visit of the Christmas market on Monday 27 November between 17:00 – 20:00

The Christmas market is called “Kunsthandwerklicher Thomas-Nast-Nikolausmarkt” (<https://www.suedlicheweinstrasse.de/barrierefrei/pfaelzerfestefueralle/kunsthandwerklicher-thomas-nast-nikolausmarkt>).

It is located about 900m away from the hotel (see map below).

