

IntelliAQ Workshop

Cologne, Germany and online

Mon, March 6th – Tuesday, March 7th, 2023

Venue: University of Cologne, Meteorological Institute, Pohligstr. 3, 50969 Cologne;
Entrance: **Hönninger Weg 100** (at the corner)

Press bell for “Hörsaal Universität” and go to the 4th floor.

Online participation:

<https://fz-juelich-de.zoom.us/j/94536030862?pwd=VE5TL3U1c1o5cmVtc2wzWDI6M3krUT09>

Meeting-ID: 945 3603 0862, passcode: 527215

Agenda

All times given in CET (= local time Germany)

Monday, March 6th, 2023

09:00 – 09:30	Registration and check-in (lobby 4th floor)
09:30 – 10:00	Welcome and introduction to the workshop (Martin Schultz and Paul Griffiths)
10:00 – 10:40	Paul Griffiths: A minute treatment of atmospheric chemistry – lecture and Q&A
10:40 – 11:10	Coffee break
11:10 – 11:40	Martin Schultz: The IntelliAQ project – lecture and Q&A
11:40 – 12:00	Anna Krause: Evaluating the multi-task learning approach for land use regression modelling of air pollution
12:00 – 12:20	Clara Betancourt: Graph machine learning for improved imputation of missing tropospheric ozone data
12:20 – 12:30	Discussion
12:30 – 13:30	Lunch break
13:30 – 13:50	Zhongbo Shi: Evaluating the causal effects of interventions on air quality using machine learning and synthetic control approaches

Monday, March 6th, 2023 (continued)

- 13:50 – 14:10 **Sebastian Hickman**: Forecasting daily ozone air pollution across Europe with transformers
- 14:10 – 14:30 **Kazuyuki Miyazaki**: Driving mechanisms of global surface ozone and its bias in the chemical reanalysis products using machine-learning approach
- 14:30 – 15:30 Open Discussion
Suggested topics:
- Availability and exploitation of EO data (benchmarks?)
 - Evaluation of CTM and ML models
 - Reproducibility of AI and AQ research
 - Categorisation of ML problems/AQ applications
 - Where are the limits and what are limiting factors?
- 15:30 – 16:00 **Coffee break**
- 16:00 – 16:30 **Bing Gong**: Deep Learning for Weather Prediction
- 16:30 – 17:00 Poster viewing
- 17:00 Adjourn of day 1
- 19:30 – 22:30 **Sponsored conference dinner**
The conference dinner will take place at the restaurant **Mashery**, Roonstr. 36, 50674 Köln (<https://www.mashery-hummus.de/>). We will meet at 19:30 h CET in the restaurant.
The dinner will be a set menu with all vegetarian and vegan food and provisions for people allergic to either gluten or lactose. The dinner, including drinks, is sponsored by the ERC project IntelliAQ.

Tuesday, March 7th, 2023

- 10:00 – 10:20 **Kelsey Doerksen**: Integration of open-source remote sensing data for the investigation of subgrid scale drivers of pollution inferred from model-based inference and machine learning
- 10:20 – 11:00 **Christian Lessig**: AtmoRep: Large Scale Representation Learning for Atmospheric Data
- 11:00 – 11:30 **Coffee break**
- 11:30 – 12:00 Open Discussion
Suggested topics:
- AI method selection
 - Interpretability and uncertainty quantification
 - Computational aspects
 - Where are the limits and what are limiting factors?

Tuesday, March 7th, 2023 (continued)

12:00 – 12:30	Concluding remarks and final discussion
12:30 – 13:30	Lunch break – End of IntelliAQ workshop
13:30 – 17:00	ML4O3 Kickoff Meeting ML4O3 is a working group of the TOAR-II initiative working towards an assessment of tropospheric ozone analyses with machine learning. All participants of the IntelliAQ workshop are invited to join and contribute. The ML4O3 working group welcomes new members.
15:20 – 15:50	Coffee break
17:00	Adjourn of day 2

Logistics information

Ice-breaker event: If you arrive in Cologne on Sunday, feel free to join the informal (self-pay) ice-breaker event starting at 18:00 h. Paul and Amirpasha will be happy to meet you at the Früh brewhouse (<https://www.frueh-am-dom.de/>) on Sunday evening at 18:00 h CET for an informal get-together with optional dinner. You can stay at Früh for typical Cologne food or go on to one of the other many restaurants in Cologne from there (possibly after enjoying a Kölsch or two). Please note that Brewhouse food tends to have a lot of meat, so you may prefer to plan for another restaurant for dinner. If you cannot be at the Früh at 18:00 h, but would like to meet people later, please let Paul or Amirpasha know. We don't anticipate a late night, however.

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Travel: It is easy to get to Cologne from almost anywhere. There are three airports within easy reach: Cologne/Bonn, Frankfurt, or Düsseldorf. You will usually find good train connections to Cologne central station ("Hauptbahnhof"); it takes about 1 hour, regardless from which airport you travel. Should you face serious delays or other problems, please contact Amirpasha Mozaffari (ph: +49-172-9541-722, accessible via call, SMS, Whatsapp, Telegram, Signal, iMessage). Please note that we cannot reimburse any travel costs.

Accommodation: Unless you have already done so, you may wish to quickly find a hotel in Cologne. There are plenty of hotels in Cologne. Prices and availability may vary depending on trade fairs etc. We suggest to look at the hotel "Ibis Koeln Centrum" (<https://all.accor.com/hotel/1449/index.de.shtml?dateIn=2023-03-05>). Rooms are around 90-100 €/night. Mention that you are a guest of the University of Cologne if you are booking. Please note that we cannot reimburse any accommodation costs.

Online participation via zoom:

<https://fz-juelich-de.zoom.us/j/94536030862?pwd=VE5TL3U1c1o5cmVtc2wzWDI6M3krUT09>
Meeting-ID: 945 3603 0862, passcode: 527215

The above Zoom link will function during the core hours of the workshop beginning on Monday morning and closing on Tuesday at 17:00 h CET.

If you connect, please make sure that your full name is visible in your Zoom details.

We ask you to mute your microphones unless you are asking a question or want to contribute to a discussion. We also ask that you please turn on your camera when asking a question so that others can see who you are.

Presentations: If you prepare a presentation for the workshop, please use 16:9 aspect ratio and pptx or pdf format. Please indicate clearly on your slides if you present material that is not to be re-distributed further. Where possible, we encourage you to license your presentation material under a CC-BY 4 license.

Posters: Poster boards will be A0 size in portrait orientation. Posters will be set up in the lobby in front of the lecture hall and can be on display during the entire workshop. There is a dedicated poster viewing time on Monday afternoon.

Food: All catering will be provided free of charge thanks to sponsoring by the IntelliAQ project. All food will be vegetarian and include sufficient vegan options. Gluten-free and lactose-free food shall also be available. The caterer is <https://querdurchsbeet-koeln.de/>.

Conference dinner: (sponsored)

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Link to this document

<https://indico3-jsc.fz-juelich.de/event/68>

