

GEO AquaWatch Forecasting Series - Stumpf/Quast

October 26, 2023 · 8:44 AM · ID: 306029749

Chat

Merrie Neely sent a chat · 9:04 AM

We are recording today's talk and it will be posted on our website later today!

Merrie Neely sent a chat · 9:04 AM

<https://www.geoaquawatch.org/geo-aquawatch-webinar-series/>

Merrie Neely sent a chat · 9:09 AM

I have sent an updated email out to the community with the corrected link - so sorry about any struggles you might have had to login to today's webinar.

Merrie Neely sent a chat · 9:10 AM

We are recording today's talk and it will be posted on our website later today!

<https://www.geoaquawatch.org/geo-aquawatch-webinar-series/>

Merrie Neely sent a chat · 9:11 AM

We will be moderating questions for our speakers here in the chat and we will have a short time at the conclusion of each talk for questions of that speaker. Feel free to type your questions here, or unmute and ask directly at the conclusion of each talk.

Merrie Neely sent a chat · 9:23 AM

Rick - are you or any of your US Agency Partners able to advise states or regions on what actions are recommended to reduce HAB's in their area - based on your longterm monitoring? e.g. rainfall in relation to fertilizer application, adding buffers from farmland or nonpoint source polluters, etc.?

Carsten sent a chat · 9:26 AM

Hi Rick, can you say a few words to the forecasting method?

Felipe Lobo sent a chat · 9:29 AM

Thank you very much, Rick.

Carsten sent a chat · 9:31 AM

Thank you very much, Rick!

Merrie Neely sent a chat · 9:35 AM

Thank you so much Rick! Great talk!

Rick Stumpf sent a chat · 9:36 AM

on recommendations for treatment. Identifying when and where the nutrients drive the blooms helps with planning. Many states don't really know how many lakes have problems. And they definitely don't know if they have gotten worse. Just this information can help with management strategies.

Merrie Neely sent a chat · 9:41 AM

Thank you for that reply Rick.

Rick Stumpf sent a chat · 9:51 AM

You noted that some ML methods have explainability, this is important, can you provide references to Merrie?

Felipe Lobo sent a chat · 9:52 AM

Thank you for your talk Ralf. Is the model that are you training/validating would be available for other end-users?

Eirini Politi, Brockmann Consult sent a chat · 9:53 AM

do you expect that 4 years of training data will capture sufficiently those unpredictable climate (extreme) events that may affect the forecasting model's capability?

Merrie Neely sent a chat · 9:56 AM

Thank you so much Ralf for your talk! Very exciting for our upcoming discussion at our biennial meeting on November 13th!

Ralf Quast (BC) sent a chat · 9:57 AM

The reference for the Temporal Fusion Transformer (TFT) is <https://doi.org/10.1016/j.ijforecast.2021.03.012>

Merrie Neely sent a chat · 9:57 AM

Thank you for the reference Ralf.

Ralf Quast (BC) sent a chat · 9:57 AM

There are several blogs on towardsdatascience considering TFT. Unfortunately they are not public. You need to subscribe.

Ralf Quast (BC) sent a chat · 9:58 AM

You find information on gradient boosting decision trees here <https://lightgbm.readthedocs.io/en/latest/index.html>

Ralf Quast (BC) sent a chat · 10:00 AM

... and in a conference paper

https://proceedings.neurips.cc/paper_files/paper/2017/file/6449f44a102fde848669bdd9eb6b76fa-Paper.pdf

Ralf Quast (BC) sent a chat · 10:01 AM

Gradient boosting decision trees are considered explainable (in comparison to neural networks) and the LightGBM incorporates a specific mechanism for extracting features, which can be analyzed

Felipe Lobo sent a chat · 10:01 AM

Thank you for the info, Ralf!!

Carsten sent a chat · 10:18 AM

Vagelis, is it possible to apply your forecasting to other sites? What would be needed and is the model free?

Eirini Politi, Brockmann Consult sent a chat · 10:20 AM

Vagelis, thanks for the talk. I understood that (contrary to the method Rick presented

earlier) you did not use a 3d model in the lake to look at currents and material transport. Is your method able to forecast spatial distributions of water quality, or are you looking at "regional/lake averages" or "location forecasts"? I am sorry if I missed that in your talk!

Evangelos Romas (EMVIS) sent a chat · 10:21 AM

The ML models are trained for specific areas of interest, without accounting for circulation patterns.

Evangelos Romas (EMVIS) sent a chat · 10:22 AM

On contrary the proces based model have a 3d hydrodynamic model which resolves the circulation pattern in the reservoir, and then applies the WQ models.

Eirini Politi, Brockmann Consult sent a chat · 10:22 AM

thanks!

claudia giardino / mariano bresciani sent a chat · 10:22 AM

Thanks a lot to Merrie and all speakers!

Carsten sent a chat · 10:22 AM

Thank you, bye bye!

Kersti Kangro sent a chat · 10:22 AM

Thank you!