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Using a Pangeo platform on Azure to tackle global environmental challenges

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Met Office

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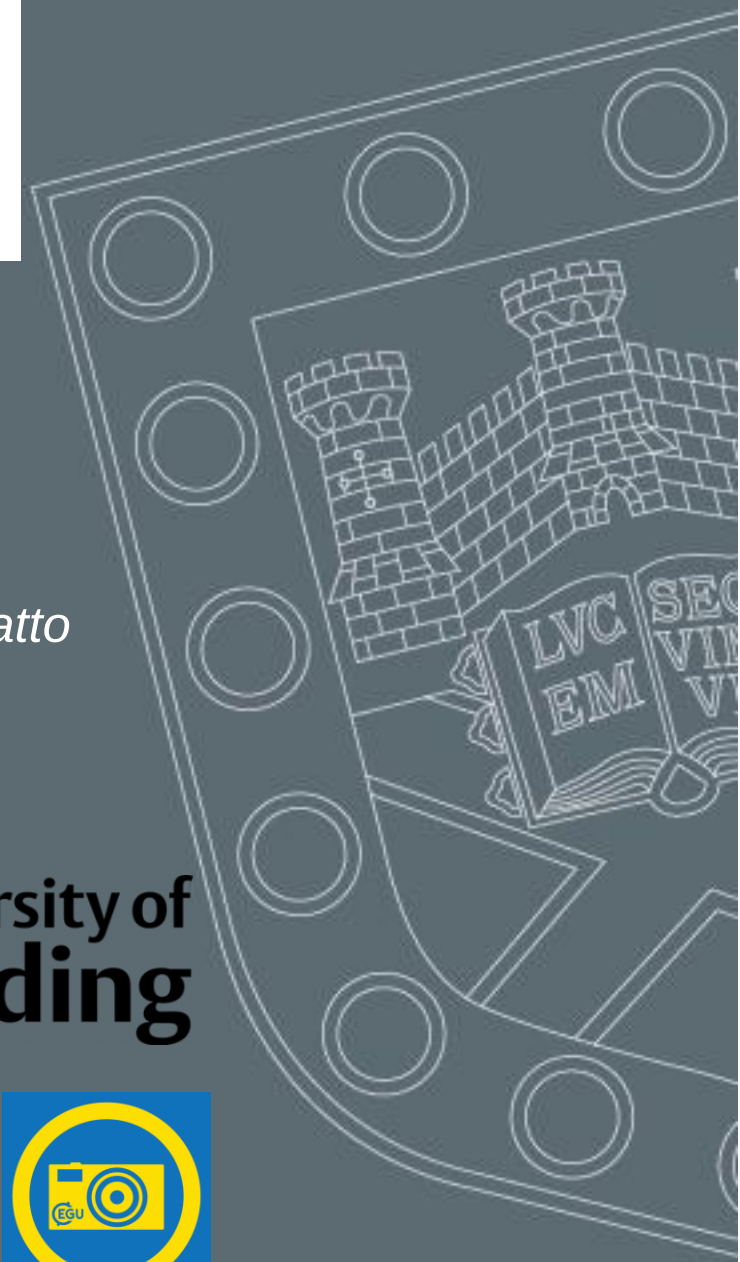


Contents

- Introduction – ‘Panzure’ managed by the Met Office
- User experience:
  1. My PhD – Indonesian Borneo droughts and fires
  2. EICDT Grand Challenges – Icelandic volcanic eruption, COVID-19 in UK, etc.
- Lessons learnt and plans ahead

‘Panzure’ managed by the Met Office

for illustrative purpose only

- https://www.turing.ac.uk/research/research-projects/supporting-pangeo-community-driven-platform-big-data-geoscience
- We utilised the platform to perform collaborative research to explore and tackle global environmental challenges.

Detecting drought drivers in Indonesian Borneo

By identifying ocean-atmosphere and land-atmosphere causal links leading to low rainfall anomalies, we seek to develop climate risk assessment and resilience building strategies for droughts and peatland fires in Central Kalimantan Province, Indonesian Borneo.

Source of pictures:
The Guardian (2015)

Project website: kali-project.com/

Poster: https://jceei.org/wp-content/uploads/TLam_Poster_EI2021.pdf

Work based on Kretschmer et al. (2021) – Quantifying causal pathways of teleconnections. *BAMS*

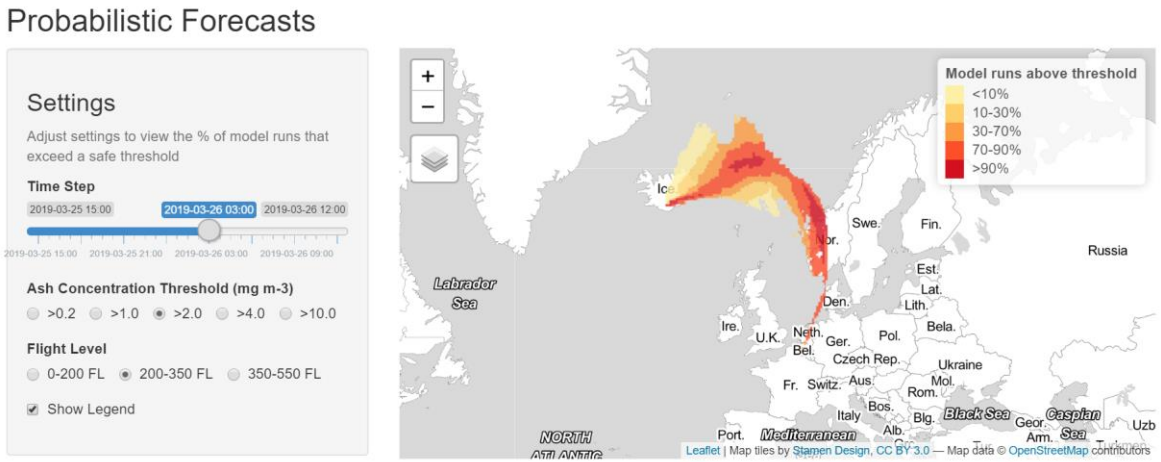
Credits to: *Marlene Kretschmer, Samantha Adams, Rachel Prudden, Elena Saggioro, Anna Harper, Rosa Barciela, Peter Challenor*

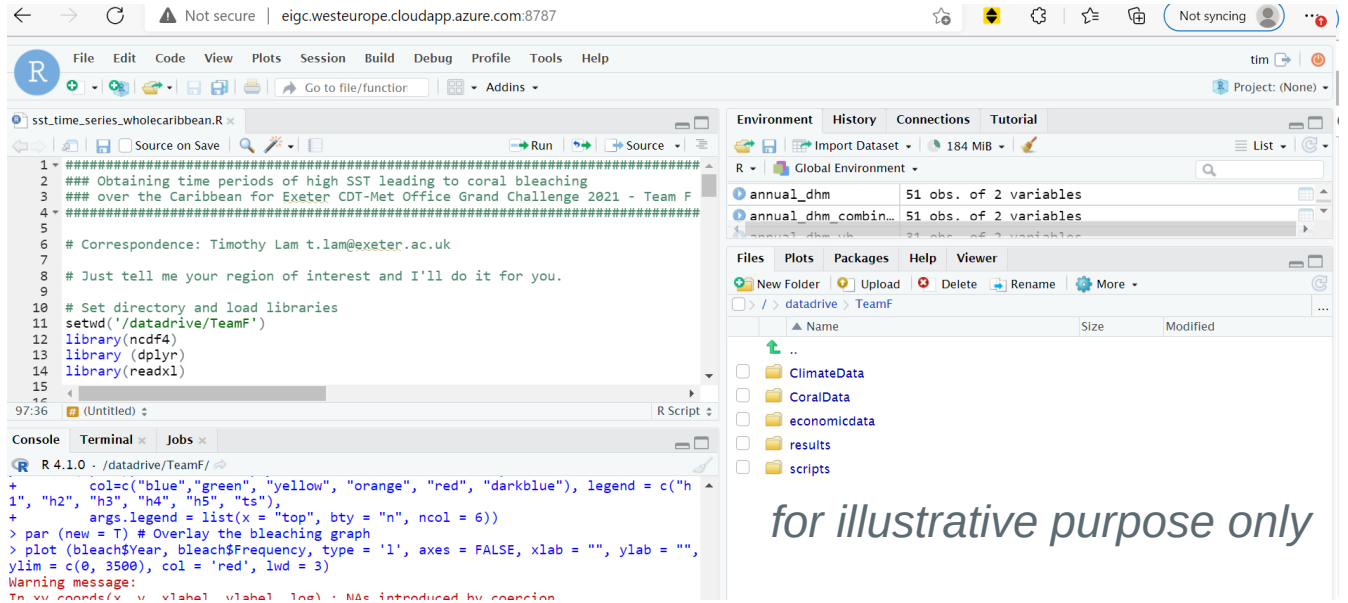
Sharing is encouraged

EICDT Grand Challenges

Sharing is encouraged

- Grand Challenge 2020: 4 teams





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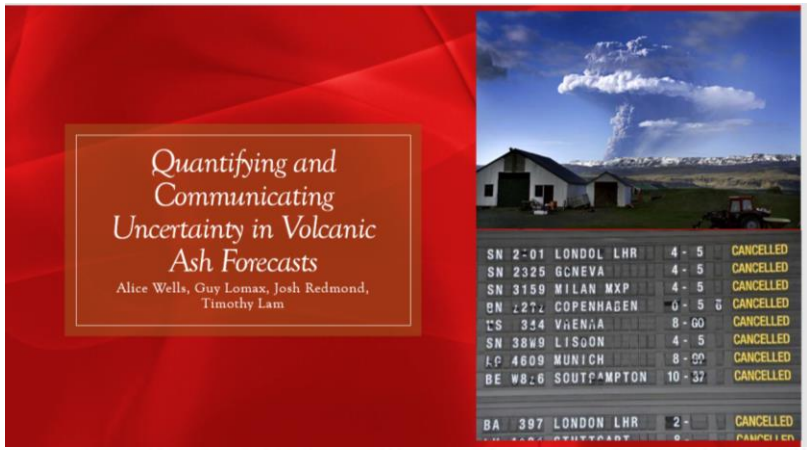

Credits to:
Alice Wells, Guy Lomax, Josh Redmond

Other teams worked on COVID-19 lockdown impacts, pollen forecasting and dispersion of radioactive materials following a nuclear accident in Japan.

Lessons learnt

- The Pangeo project enables interactive, scalable and reproducible research on various environmental challenges across the globe.
- Effectiveness depends on the user-friendliness of software ecosystem, availability of datasets, and durability of the platforms.

Plans ahead

- Continue to support and improve Pangeo platform on Azure
- Explore possible avenues, e.g. Pangeo on JASMIN https://help.jasmin.ac.uk/article/4797-cluster-as-a-service-pangeo
- Offer Pangeo Lectures for Environmental Scientists

Sharing is encouraged