UiT Group Climate Meeting

Running CESM2 with synthetic volcanic forcing

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Plan

- Run CESM2 (community Earth system model) with volcanic forcing
- Volcanoes are the only external forcing
- Obtain estimate of the temperature response

Example

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FPP — filtered Poisson process

Current affairs

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Creating synthetic volcanic forcing data

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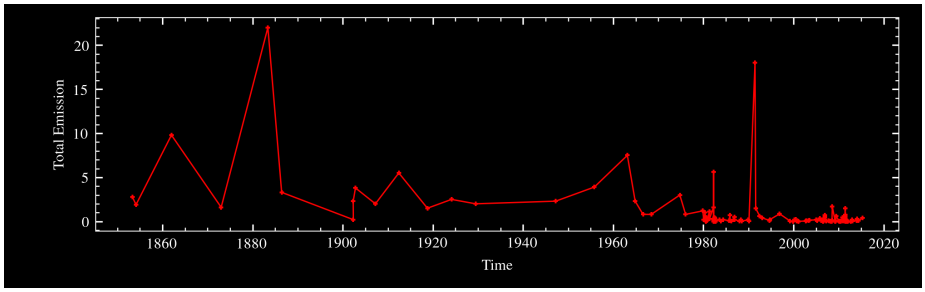
Post industrial volcanoes



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FPP generated volcanoes

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Large single volcano

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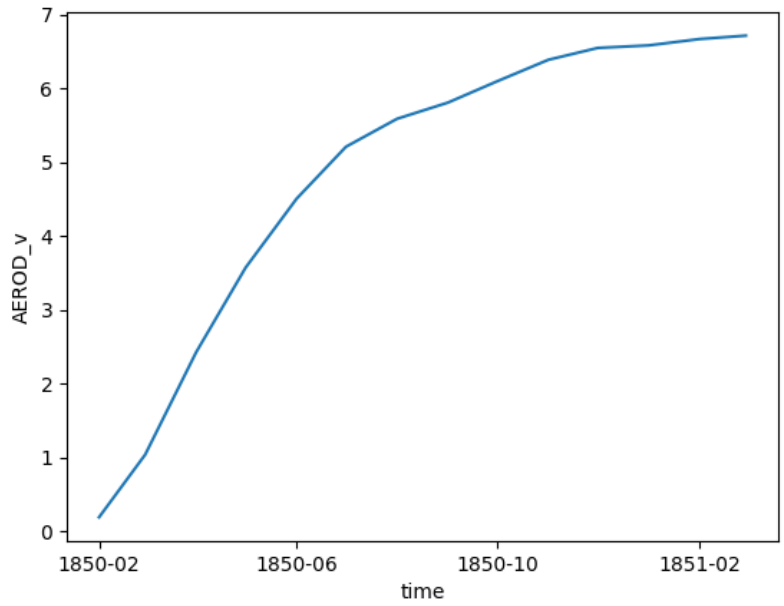
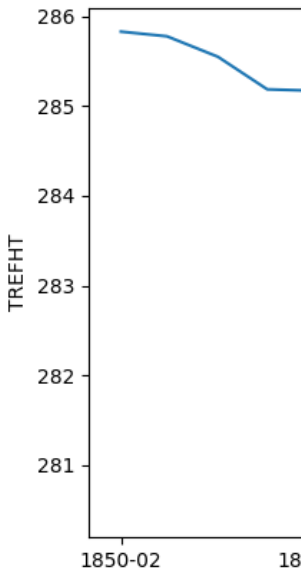
Historical run, unchanged		

Note: How do I do this? Two images side-by-side should not be hard!?





Historical run with large eruption in 1850-01-15

Experiments

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1. Small ensemble over 5 to 10 years → Look at internal variability
2. Longer run with volcanoes generated from an FPP
3. Volcanoes that cluster together

Questions

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What is an appropriate frequency of volcanoes?

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Is the response the same as that you get from, say CO2?

What about solar?

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Is the response dependent on altitude? Magnitude/total emitted aerosols?

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