

Controls for multi-scale temporal variation in ecosystem methane exchange during the growing season of a permanently inundated fen



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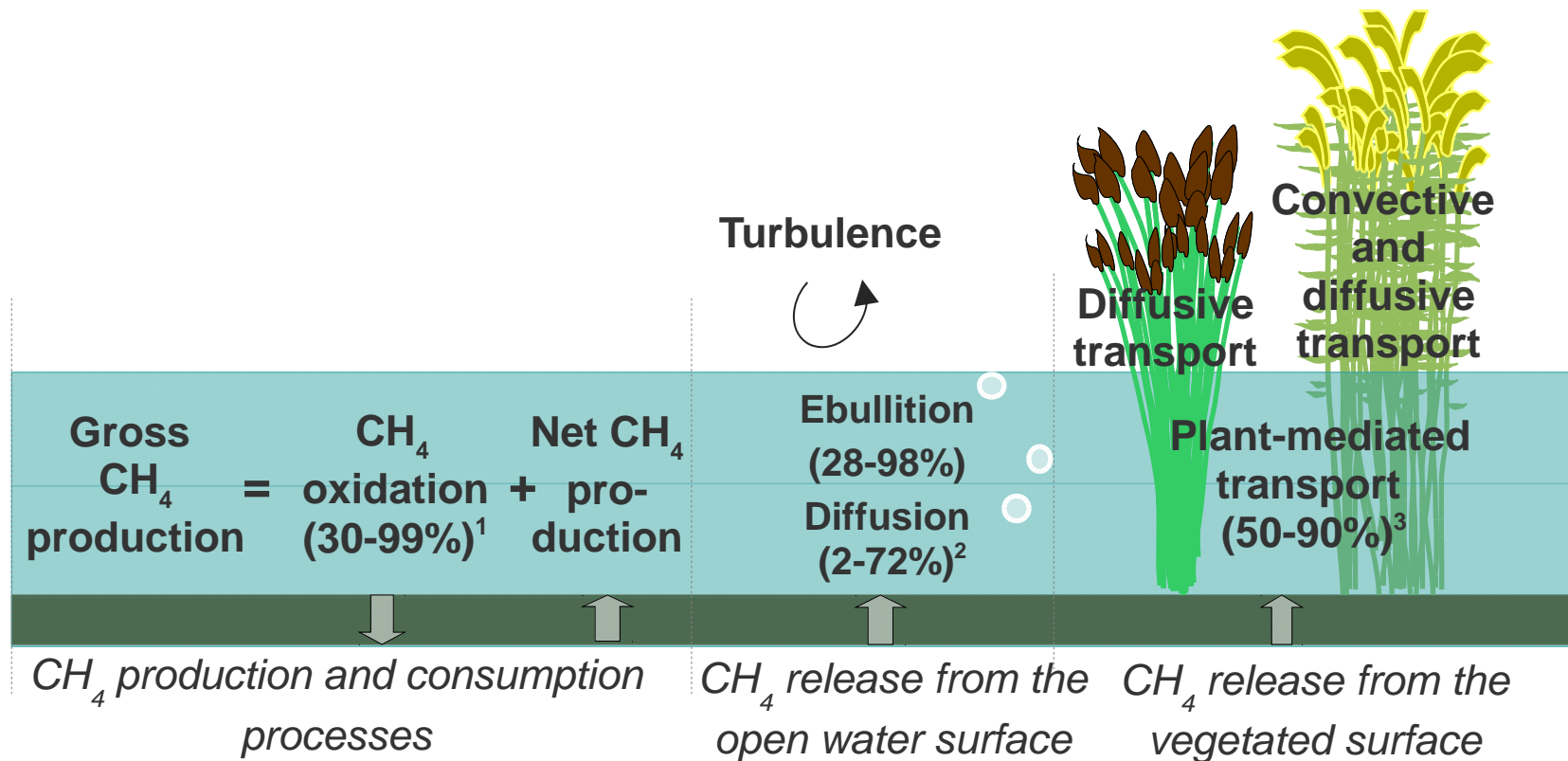
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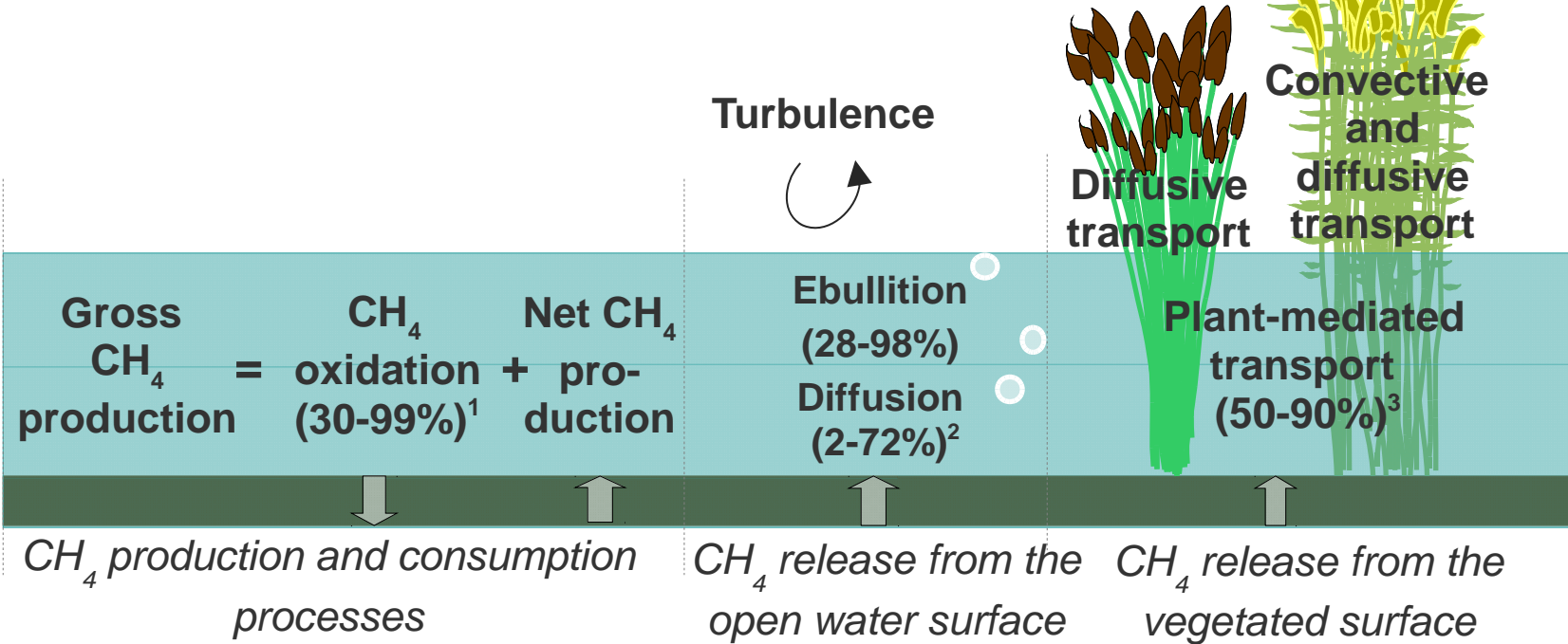
Submitted to Agricultural and Forest Meteorology

Several pathways



¹ reviewed by Bastviken et al. 2008; ² reviewed by Bastviken et al. 2010; ³ reviewed by Meijide et al. 2011

Several pathways



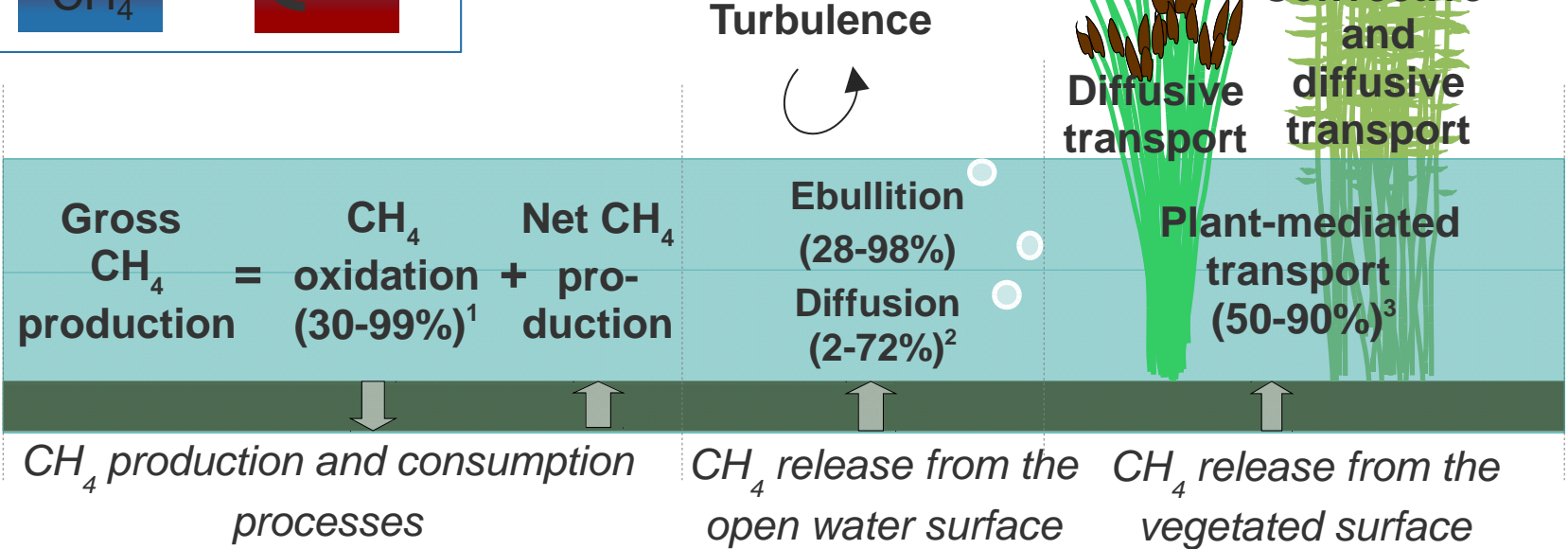
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Several pathways



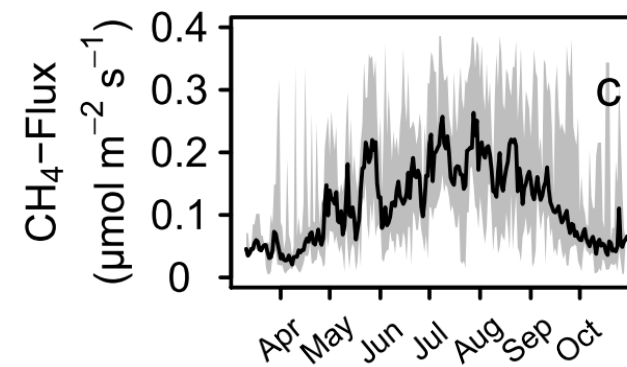
Godwin et al. 2013:

Daytime stable stra- tification $\Delta T/\Delta z < 0$	Nighttime convective mixing $\Delta T/\Delta z > 0$
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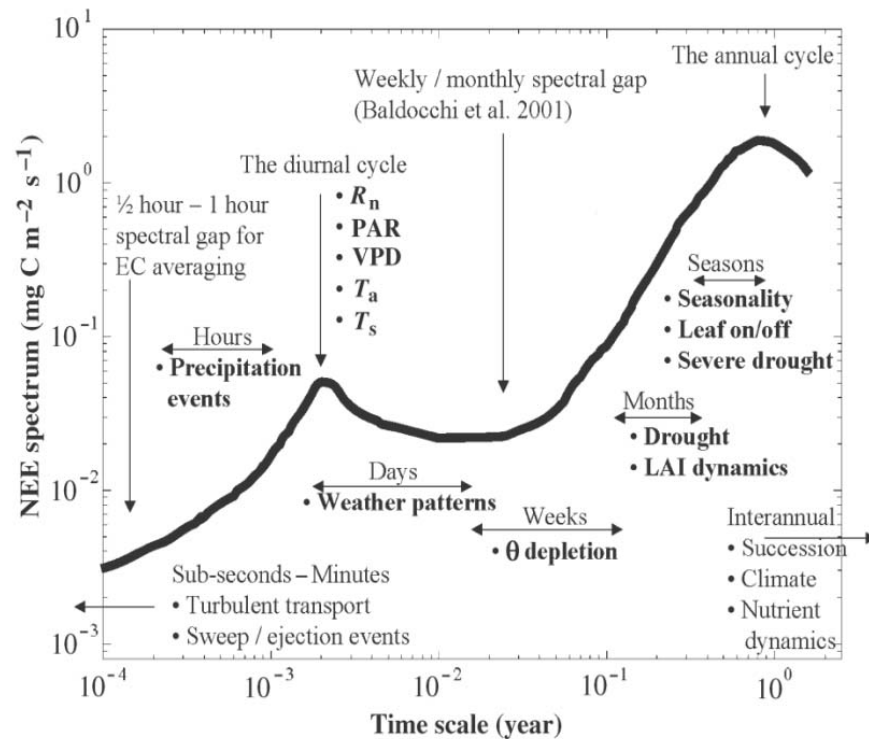
Study Site: The Hütelmoor



Research question

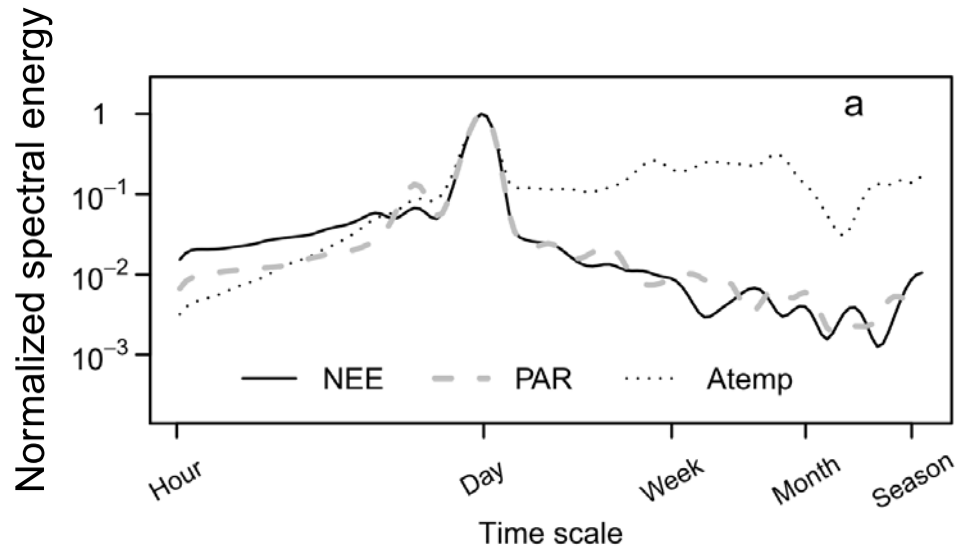


- What controls the ecosystem CH₄ exchange on specific time scales and at specific stages of the growing season?

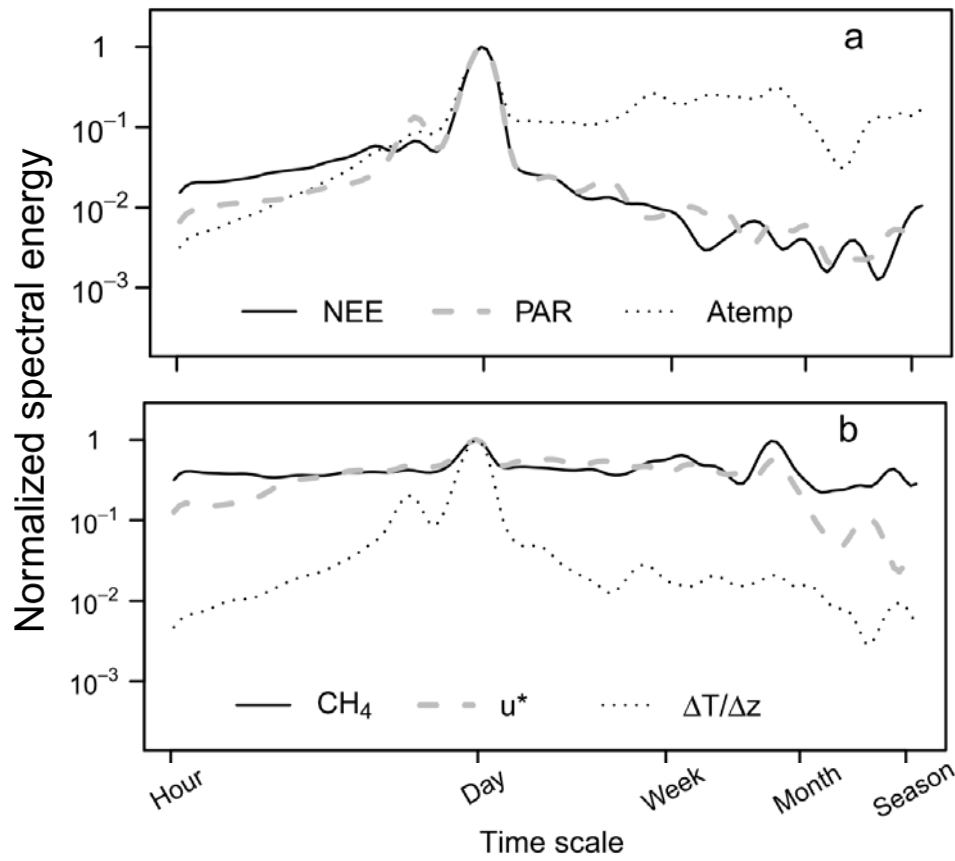


An example from the net CO₂ flux (Stoy et al. 2005)

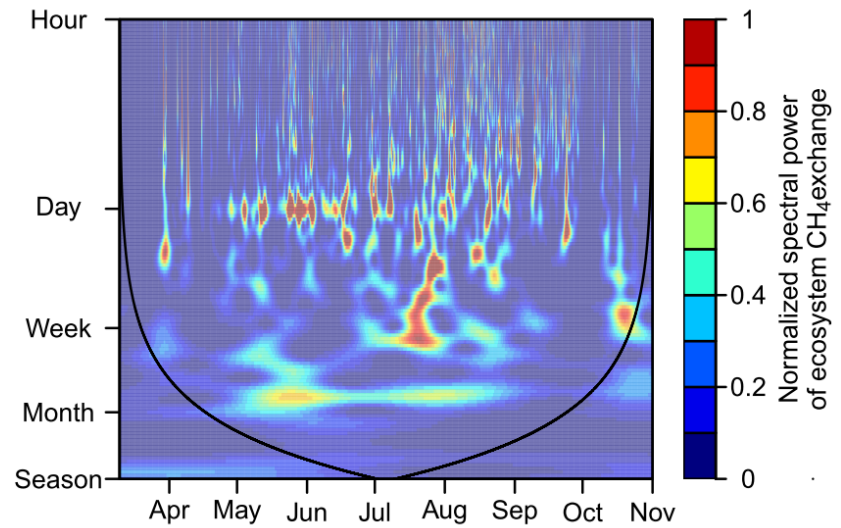
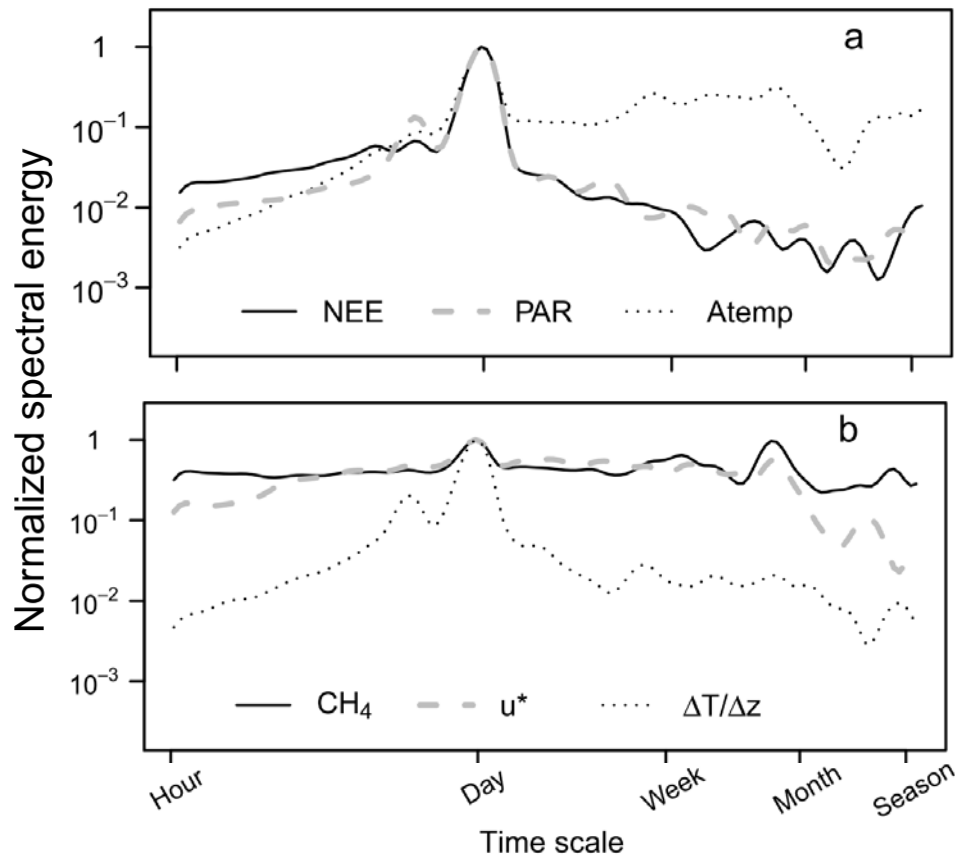
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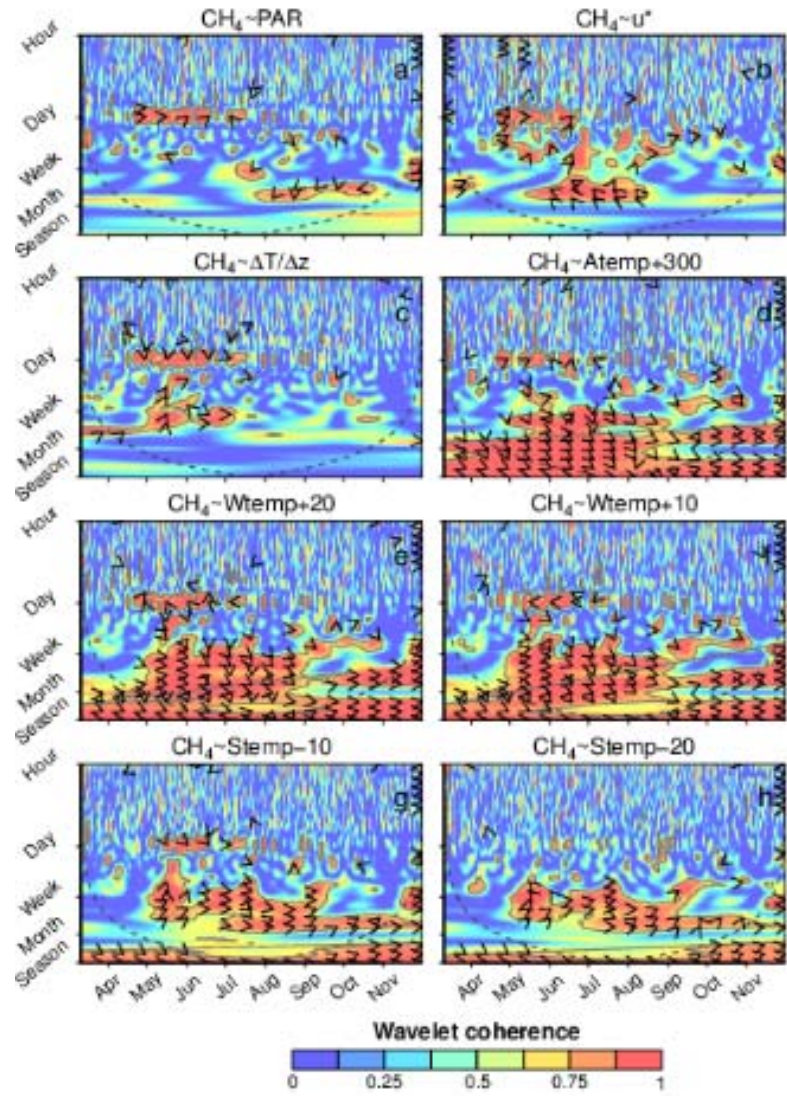
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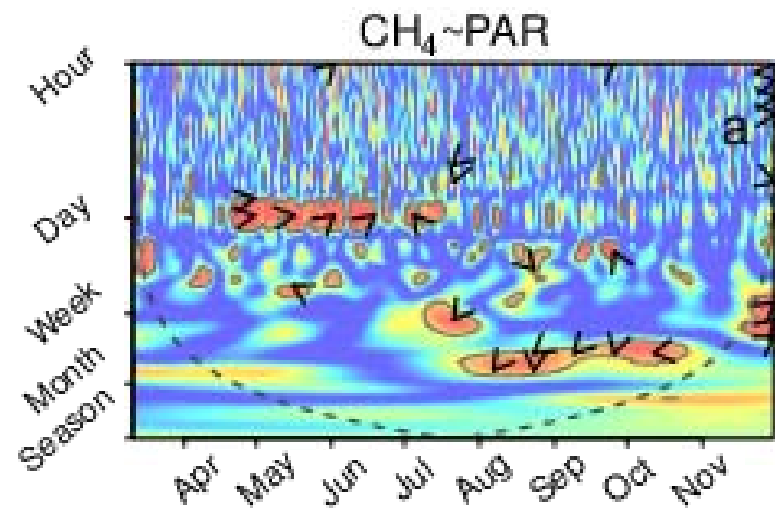
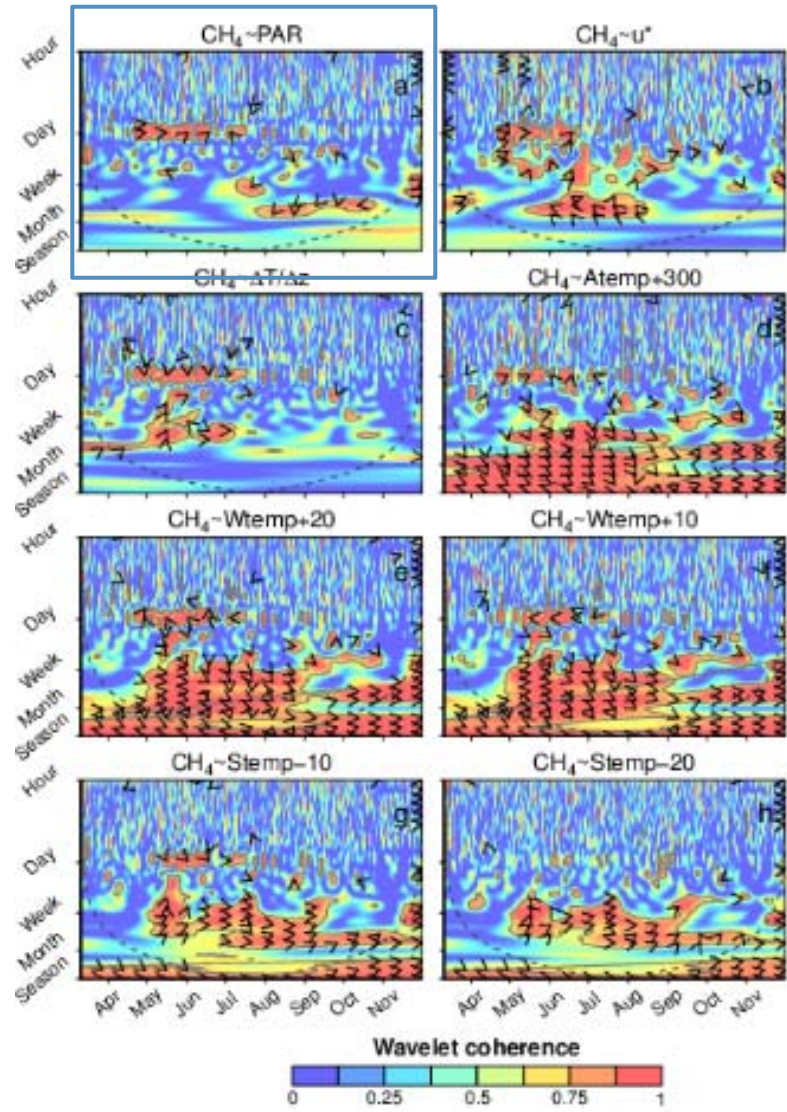
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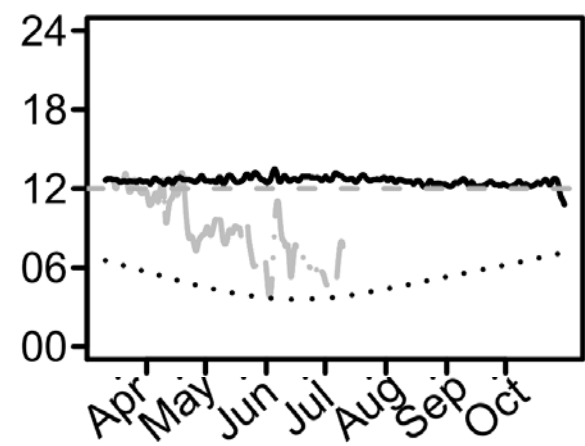
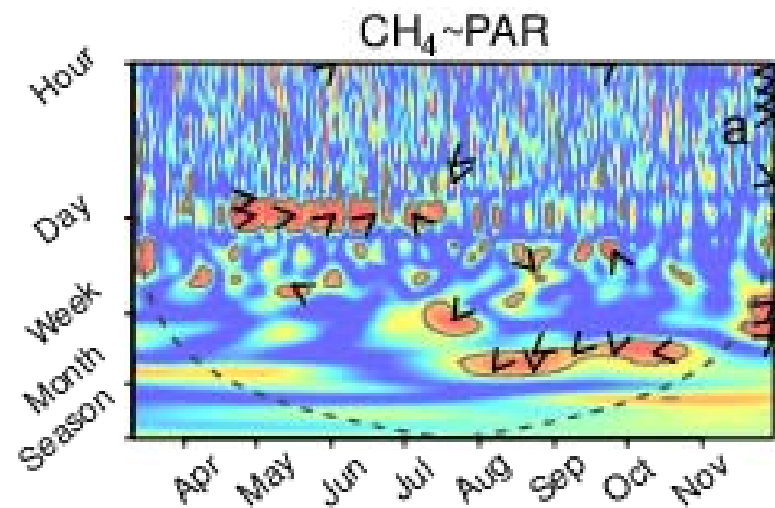
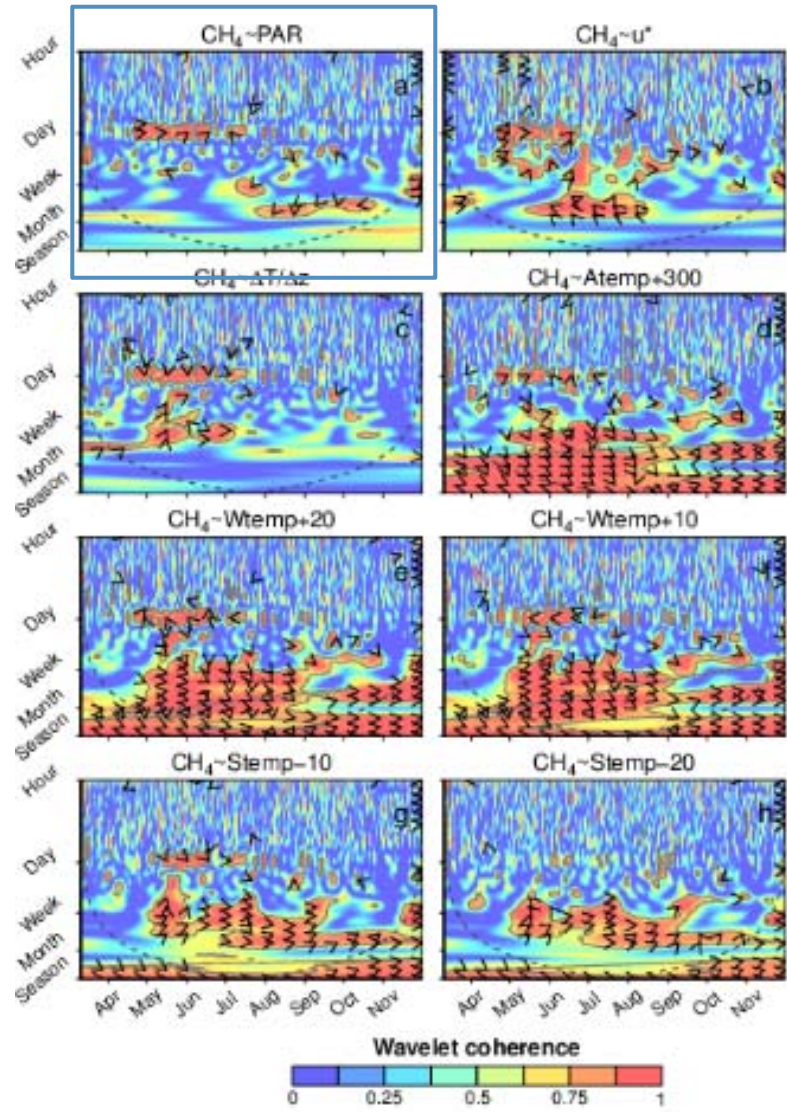
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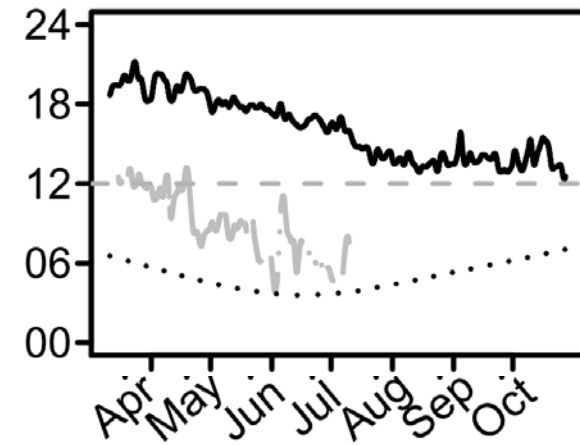
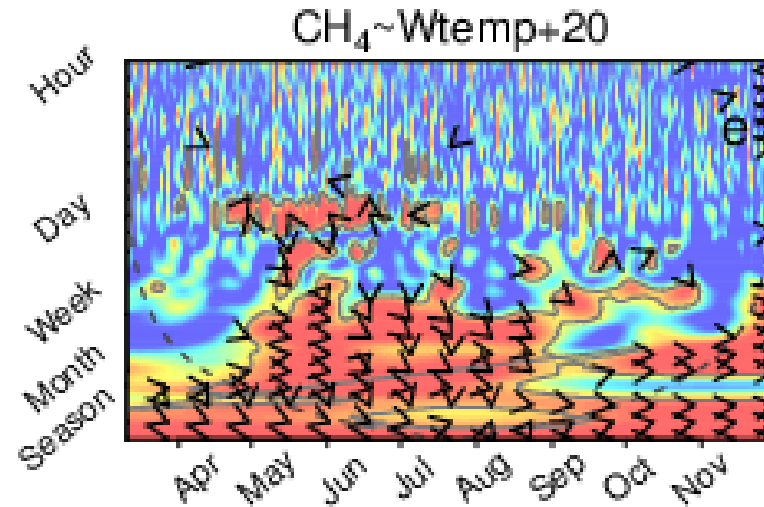
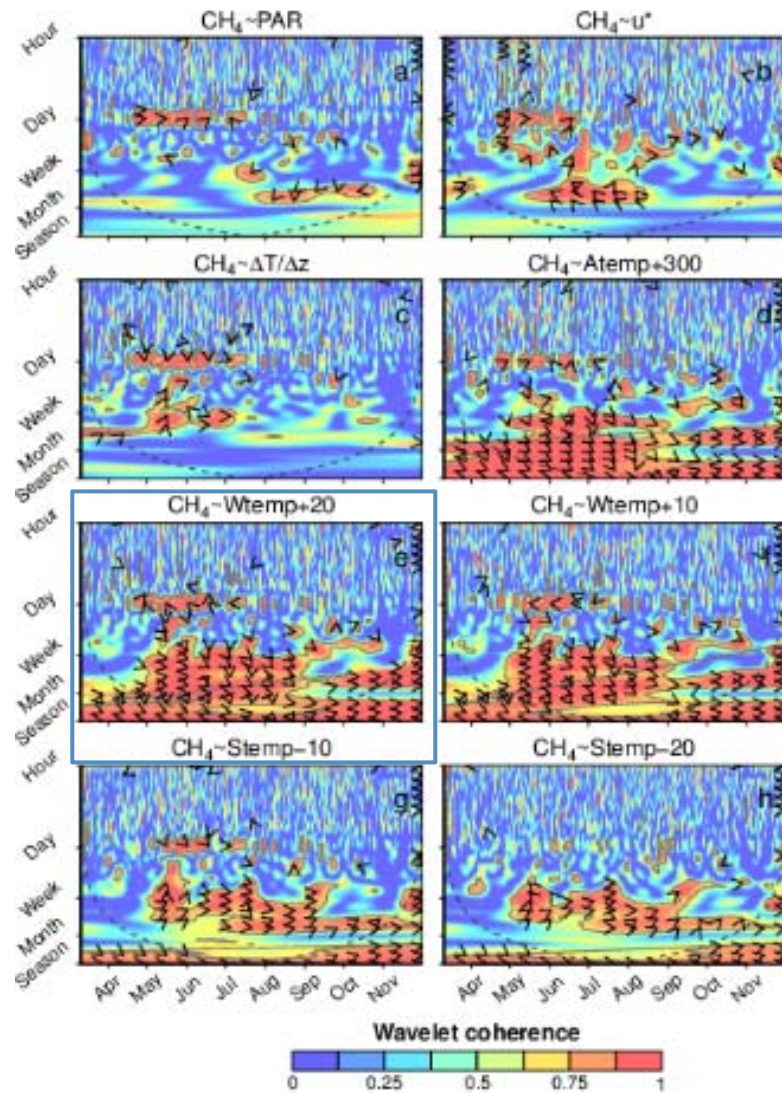
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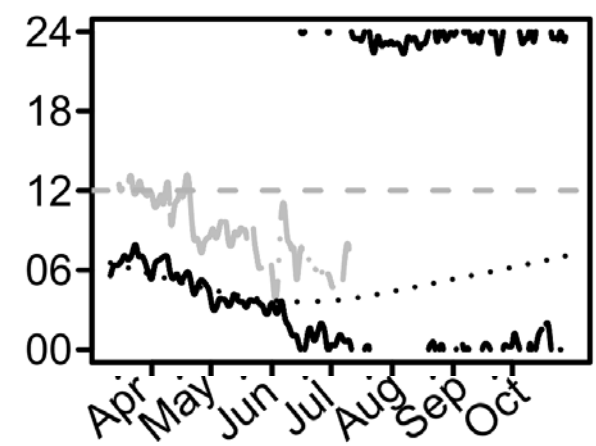
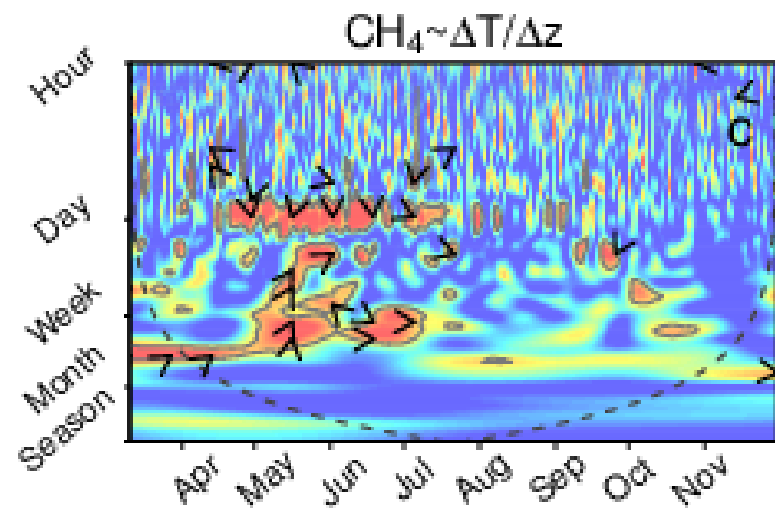
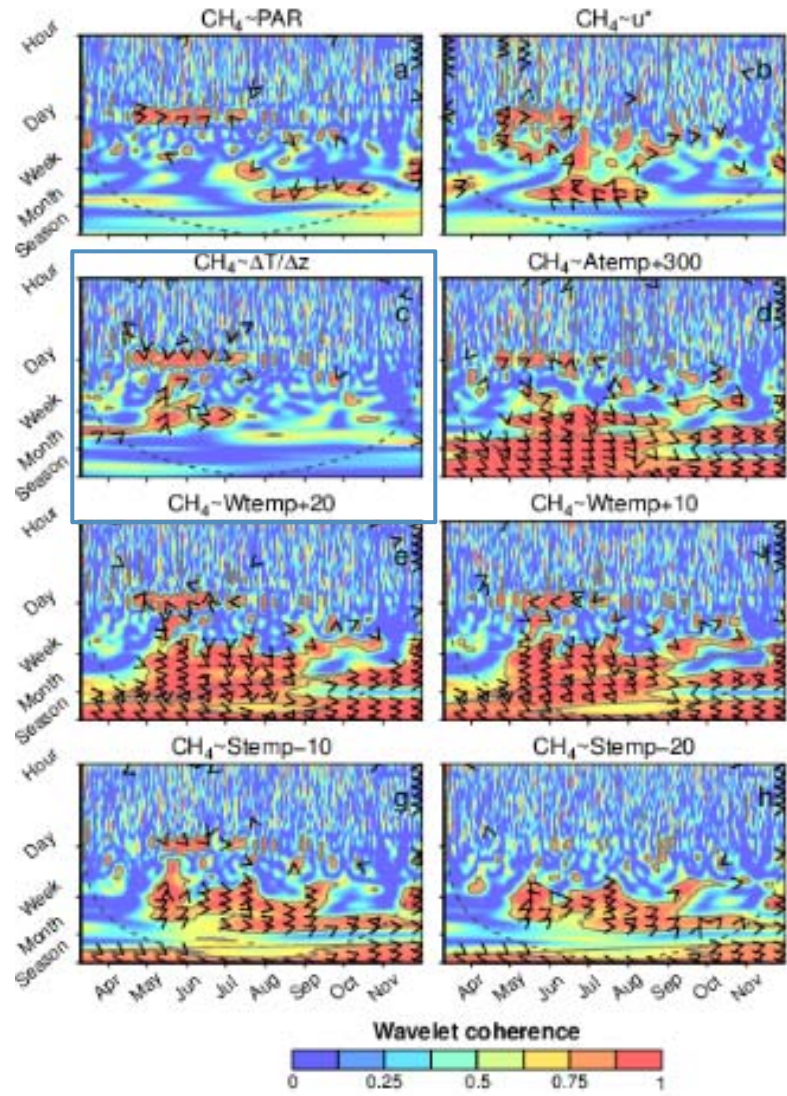
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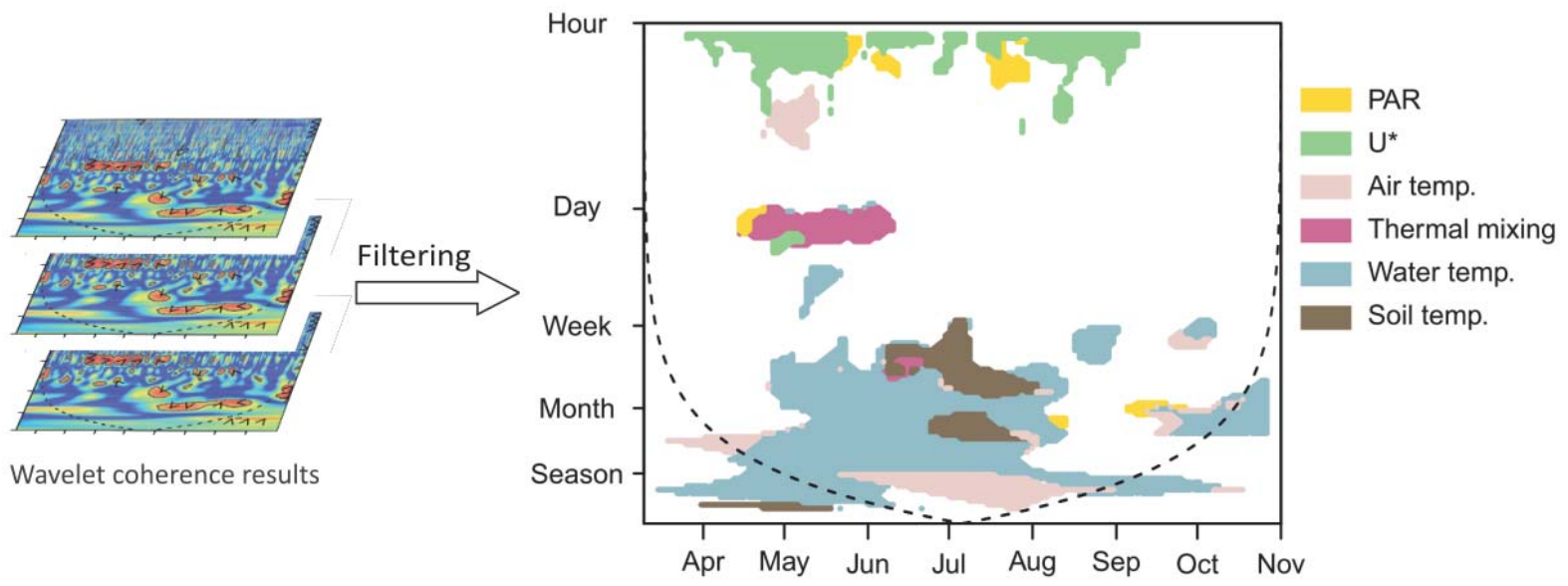
Results:



Results:



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Take home messages

- Controls act time scale specific, Their impact might change over the course of the growing season
- In shallowly flooded ecosystems convective mixing of the water column is a hardly considered, but important driver

