# Water regimes affected methane emissions in peatland and gley marsh



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### Introduction

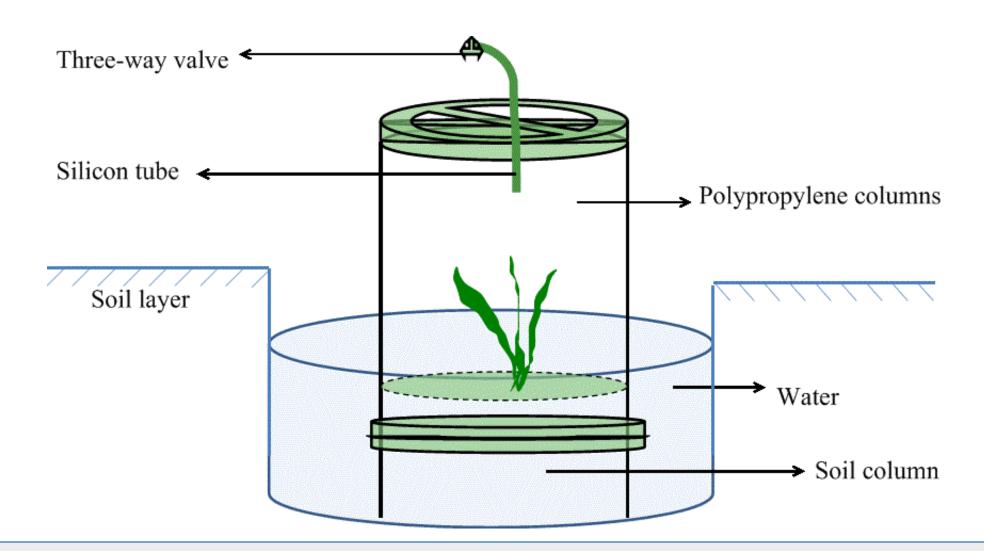
- The increasing frequency of extreme drought and intense precipitation events with global warming may affect methane emissions from different types of wetlands by regulating dryingwetting cycles.
- ➤ The objective was to investigate the effects of different water regimes on CH<sub>4</sub> emissions.

### Methods

Location: Sanjiang Plain Northeast China.

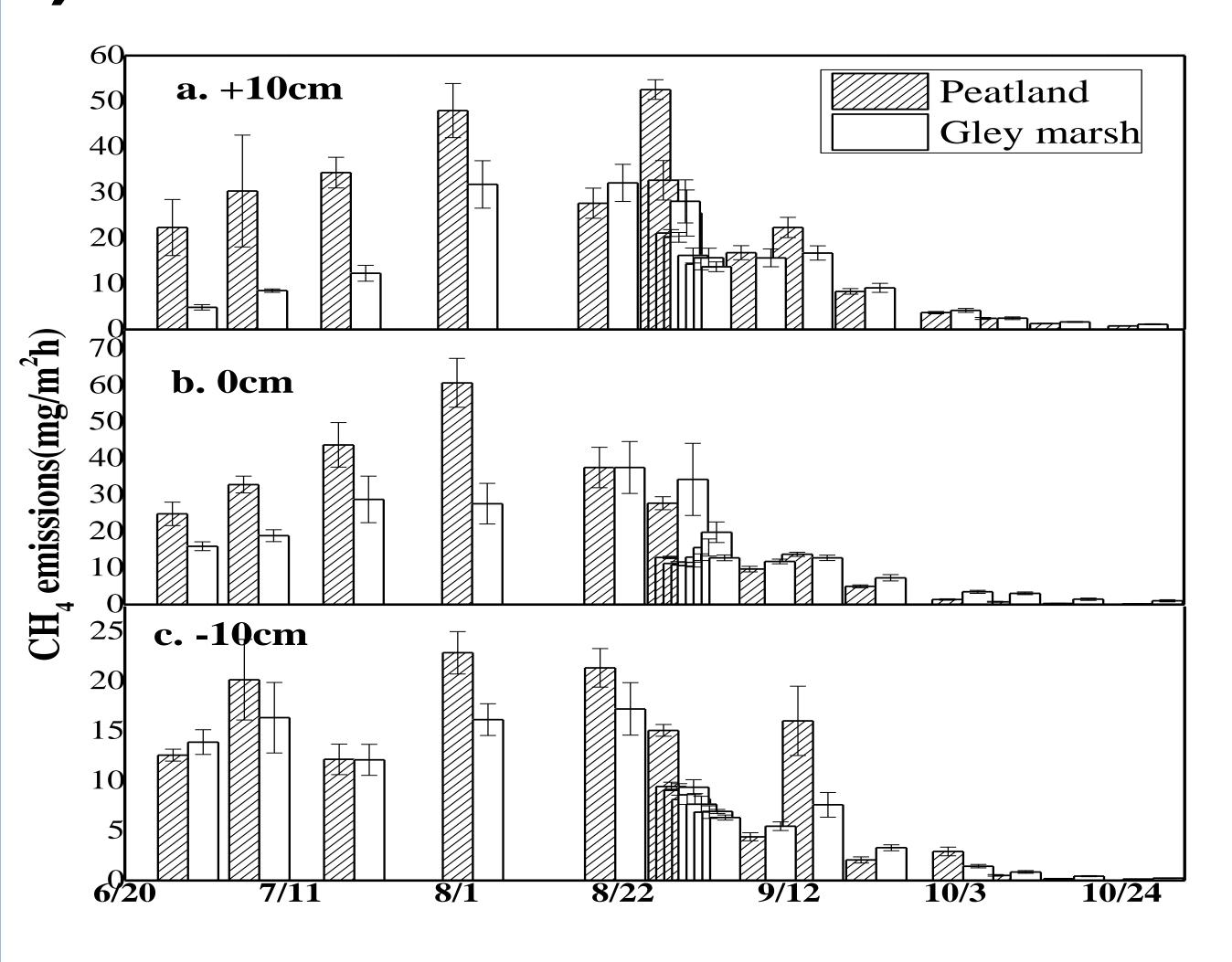
**Treatments:** Two drying-wetting cycles (7 and 15 days) and three constant water tables (+10, 0, -10cm).

Measurements: A cylindrical sampling container.



#### Results

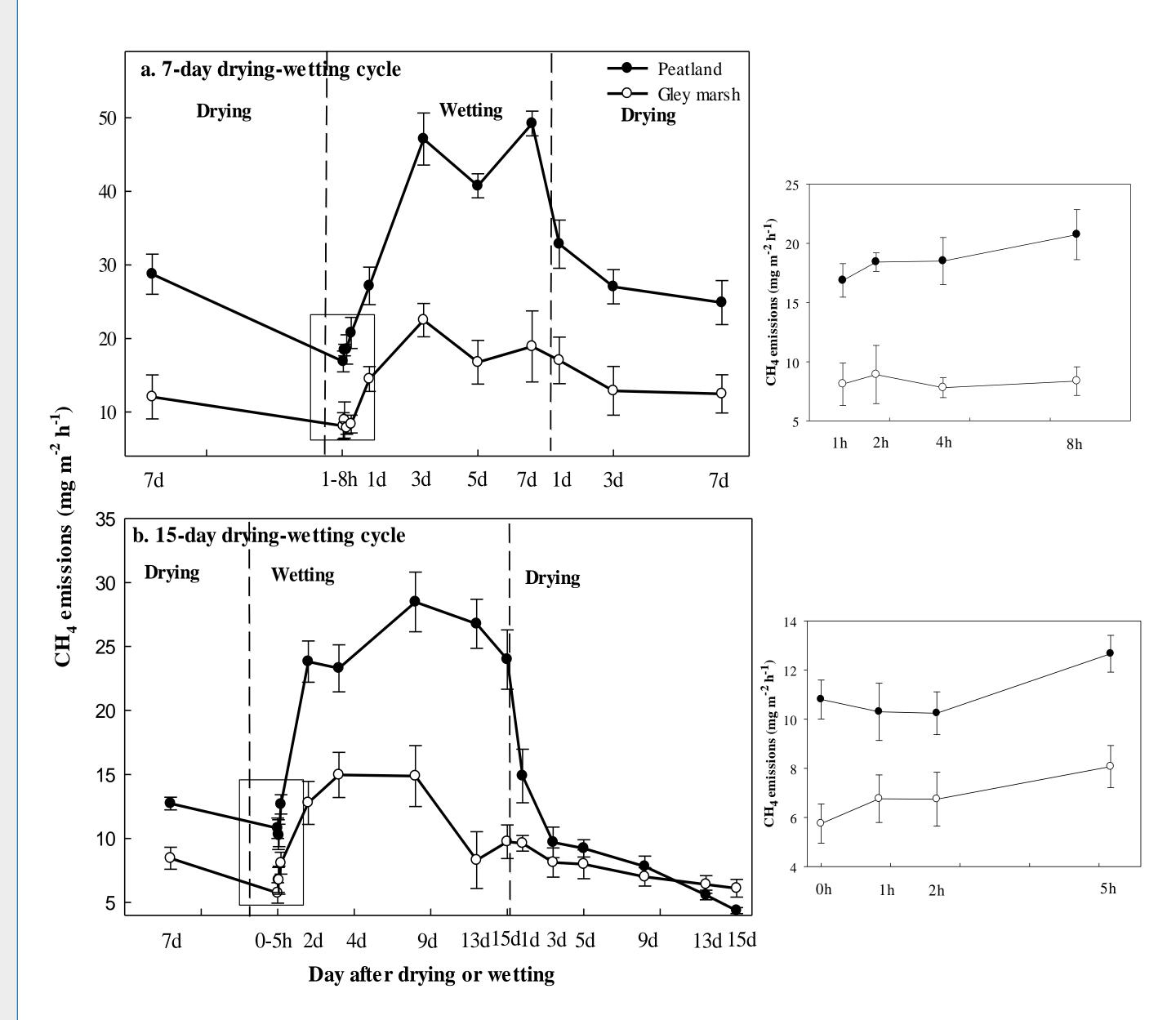
### 1) Constant water tables



Error bars represent SE. n=8

Site	<b>10cm</b>	0cm	-10cm
Gley	15.0 ± 2.3 <sup>c</sup>	17.4 ± 3.0 <sup>c</sup>	9.1 ± 1.2 <sup>d</sup>
marsh			
Peatland	$23.0 \pm 3.4^{a}$	23.8 ± 2.7 <sup>a</sup>	$11.3 \pm 1.3^{b}$

# 2) Drying-wetting cycles



a. Methane emissions in the 7 days' cycle; b. In the 15 days' cycle. Error bars represent SE. n=8

Emission pulses were observed on the first or third day after water table increased.

# Conclusions

- ➤ The large pulses of CH<sub>4</sub> were emitted during short duration drying-wetting cycles.
- ➤ Accurate estimates of CH<sub>4</sub> budgets should incorporate weather events that cause rapid changes in the soil moisture regime.