

## TEMPORAL DYNAMICS OF METHANE FLUXES IN TEMPERATE URBAN WETLANDS

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ABSTRACT BODY: Recent concerns about wetland restoration have highlighted the potential conflict of the hydrological and ecological benefits of wetlands and greenhouse gas emissions particularly methane. Therefore it is pivotal to quantify emission rates and effects of meteorological, hydrological and ecological drivers of methane fluxes in wetlands. Novel fast methane (CH<sub>4</sub>) gas analyzers are now enabling continuous ecosystem scale measurements and assessment. We have set up two eddy flux stations – one in a constructed freshwater wetland in the Olentangy River Wetland Research Park (ORWRP) Ohio and one in a restored tidal salt marsh in the Meadowlands of New Jersey (MNJ). Continuous methane fluxes were measured with the LI7700 over one growing season and additional measurements with chambers were conducted at several locations in each site. Methane emissions were highly variable in space and time. The mean daily dynamics of methane emission are related to major drivers of methane production. In ORWRP a late afternoon peak of methane emission is correlated to soil temperature and no other meteorological or hydrological driver seem to explain the pattern observed. In MNJ a correlation of methane fluxes to night time CO<sub>2</sub> fluxes was observed. At both sites methane production and emission is increasing at the beginning of the growing season.

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