B23D-04 - Methane Emissions across Aquatic Ecosystems - From Headwater Streams to the Open Ocean

Tuesday, 10 December 2019

14:25 - 14:40

Moscone West - 3001, L3

Swirl Topics

Climate - SWIRL

Abstract

Aquatic systems are an important but poorly constrained source of methane (CH_4) to the atmosphere. The coastal ocean in particular has been insufficiently represented in global methane budgets and assessments like the IPCC 5th report. Here, we present a combination of revised and new global methane emissions from freshwater systems including rivers and streams, lakes and reservoirs, freshwater aquaculture ponds; brackish systems including inner estuaries, coastal vegetated wetlands (mangroves, salt-marshes, seagrasses), coastal aquaculture ponds; and marine systems including continental shelves, in comparison to previous estimates of methane emissions from the open ocean, freshwater wetlands, and rice paddies. We find that human impacted sites have higher emissions than more natural ones. We also assess the main factors controlling methane emissions in different aquatic systems, as well as identifying drivers that may become increasingly important under global change.

Authors

Judith Andrea Rosentreter
Southern Cross University

Alberto V. Borges
University of Liege

Peter A Raymond
Yale University

Bridget R Deemer
Southwest Biological Science Center

Meredith Holgerson
St. Olaf College

Shaoda Liu
Yale University

Chunlin Song
Yale University

Carlos M Duarte