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Theme -Theme 5: Arctic Observations in the context of Global Observing initiatives

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Poster title (brief) Sources of atmospheric methane in Arctic: observations and model simulation

Abstract - text box
Methane is the second most important greenhouse gas after carbon dioxide in terms of its impact on climate change. The influence of methane is due to about 20% of the total change in balance of radiation fluxes in atmosphere since the pre-industrial era, when its concentration was more than twice lower than modern values. Average atmospheric methane concentration (CH4) in the Arctic is generally higher than in other regions of the globe. The Arctic is one of the most sensitive regions to climate change and state of the Arctic environment is at the same time an important indicator of global changes, which are appeared in this region most significantly.
In this work we present the results of analysis of long-term methane observations on Arctic stations and our own measurements of CH4 and its isotope composition (δ13C CH4) during marine expeditions in Arctic Seas in 2018 and 2019. Also we use GEOS-Chem chemical-transport model to estimate the impact of anthropogenic methane emissions in Europe and Russia on CH4 near-surface composition in Arctic.