

Study of mass, momentum and climate relevant gas fluxes across the sea Surface in European Arctic

Badanie strumieni masy, pędu oraz gazów istotnych dla klimatu na morzach Arktyki Europejskiej

I will show what I have done for these two years as well as what is important part of my work that you can know more about air-sea interaction.

Calculate climatology of the air-sea flux of CO₂ and ocean sinks of the anthropogenic CO₂ budget is important because there is still a lot of open question on carbon sinks, especially for the northern hemisphere. The CO₂ partial pressure data is used in the monitoring of direction and magnitude of the net air-sea interface ocean carbon flux. We used for calculated a millions of measurements of this pressure. However the regional and temporal means, which we compute in our study, depend on parametrization of gas transfer velocity as well as on the wind/waves fields used for calculations.

The standard way of parametrizing fluxes in circulation models is by using wind speed (U10), a parameter available both in models with an active atmosphere and in reanalyses. There are also several wind speed climatologies which can be used for calculating regional or global mass, momentum and energy fluxes. Those climatologies are also used in calculating the net air-sea CO₂ flux. However, the very functions used to calculate fluxes from winds have evolved over time and still have large differences (especially in the case of aerosol source function).