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Comparison of air-sea fluxes in REMO and BSIOM at the Baltic Sea

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To investigate the Baltic Sea and its catchment area, we have coupled the regional atmospheric model REMO with the Baltic Sea ice ocean model BSIOM.

One of the problems that occur when coupling two independently developed models is that the way of calculating the air-sea fluxes do not necessarily match. For example, in the atmospheric model the solar radiation at the surface is simulated explicitly, whereas in the ocean model it is parametrized using the cloud cover.
When running in an uncoupled mode, imbalances or biases in the fluxes do not necessarily lead to biases in the simulations due to the static nature of the boundary conditions. In the coupled mode, however, the counterpart dynamically reacts to these imbalances what can lead to considerable deviations in the affected variables.

In our study we investigate the differences in the surface fluxes of the two models and compare them with observations. We also analyze how these differences affect the coupled model simulations.