

In Russia SOLAS activities are currently developing at P.P.Shirshov Institute of Oceanology (IORAS), Main Geophysical Observatory (MGO) and Moscow State University (MSU). Sea-air interaction laboratory (SAIL) at IORAS develops the analysis of global wave and wind data, available from VOS, satellites and numerical modeling. The main objective is to quantitatively estimate the impact of wind waves on air-sea energy and mass exchanges and in particular on the gas fluxes between the ocean and the atmosphere. SAIL/IORAS is also developing methodologies for the creating global and regional ocean-atmosphere surface flux fields and for estimation of sampling errors in surface fluxes. MGO (Prof. Bortkovsky group) during the last years developed the model of air-sea gas exchange which was successfully used for the computations of air-sea fluxes of CO₂ and O₂ in different ocean regions. Using this model and numerical simulations with a climate model, MGO developed the estimates of climatic CO₂ and O₂ fluxes in several areas of Gulfstream and Kuroshio zones and projected these estimates on the mid and late 21st century. This allowed for the assessment of the role of mean wind speed changes in modification of oceanic CO₂ uptake under anthropogenic warming. Radiochemical lab of the Chemical Department of MSU (Prof. Sapozhnikov group) develops the analysis of different metals in surface ocean layer using field observations in the Northwest Pacific and Black sea. MSU designs sophisticated laboratory and filed equipment for analyzing metals in the ocean.