

Transfer of Chemical Substances through the Marine Water – Atmosphere Boundary Layer – Lucyna Falkowska, Anita Lewandowska, Józef Magoński

Summary

The processes occurring at the marine water – atmosphere boundary layer and involving selected important components of our environment are discussed. Special attention is focused on the specific role of the marine water surface microlayer in transfer of those components, properties of aerosols, fundamental question of CO₂ absorption/desorption balance and environmental conditions enabling re-emission of mercury from marine water into the atmosphere. Simple laboratory experiments on CO₂ absorption from atmosphere and desorption of CO₂ from marine water are shown as an initial point for any wider discussion on the global carbon budget. The emission of mercury to the atmosphere is considered to be promoted by the solar radiation. Under strong solar radiation the ability of organic matter to reduce these ions is enhanced thus making the emission more effective. The phenomenon observed seems to be confirmed by the analysis of the data for months of low and high radiation intensity. A significant role of atmospheric iron in eutrophication of southern Baltic is emphasized. Concentration of this element in dry and wet deposition is, however, too low to prevent limitation of phytoplankton growth in marine water.