Carbon dioxide dynamics and air-sea CO2 fluxes in several Southern European Seas

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Underway measurements of the surface partial pressure of CO2 (pCO2), surface oxygen saturation (%O2), sea surface temperature (SST) and sea surface salinity (SSS) were obtained with a 1 min frequency during the March-April and September-October 2008 EU IP SESAME (Southern European Seas: Assessing and Modelling Ecosystem changes) cruises on board the BILIM in the Cilician basin, Levantine basin, Eastern Aegean, Straits & Marmara Sea and Black Sea. Cross analysis of pCO2, %O2, SST and SSS allows to identify the major drivers of pCO2 dynamics in these areas (temperature change effect on the solubility coefficient, biological activity, river inputs, ...). The relative horizontal variability and seasonal change is analysed across the 5 ecosystems. Air-sea CO2 fluxes were computed and atmospheric CO2 source-sink status of the 5 regions is evaluated.