Distribution and Estimation of Short Term Deposition Rate of Atmospheric ^{10}Be in Sambhar Lake, Rajasthan, India

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Atmospheric ^{10}Be used as tracer to find out sedimentation rate, paleoclimatic variation, past solar activities. ^{10}Be is highly particle reactive, it binds to the aerosols and is subsequently deposited in natural archives as wet and dry deposits; and it can be present in different phases such as exchangeable, organic, carbonate and residual of lake sediments.

Here an attempt has been made to understand the ^{10}Be distribution in the different phases of sediments of Sambhar lake (a hypersaline lake), Rajasthan, India. For this study, surface sediment samples were collected using 5cm PVC pipe from different parts of the Lake and were further sub-sampled at 1cm interval. ^{10}Be concentration in the water soluble phase of the sediments is 9±6% and varying between 0.27±0.08 to 1.29±0.29×10^7atoms/g. This percentage is positively correlated with the percentage of evaporite mineral present in the sediments in the acid soluble phase, it varies from 5.73±0.93 to 16.60±1.92×10^7atoms/g. Present day ^{10}Be deposition rate is 8.7x10^6 to 1.54x10^7 atoms/ cm^2/a. In the sediments 30-60% of ^{10}Be is derived from primary and recycled component and 70-40 % from Dry deposit (dust input). In the wet deposits 20% of ^{10}Be is primary and 80% is recycled component.