



Multi-isotope composition of fresh water sources for the North German coastal areas

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The hydrological cycle in different climate zones is reflected by specific water isotope signatures. Traditionally, investigations focused on the fractionation of the isotopes H-1, H-2, O-16, and O-18. With the development of new analytical methods, also the consideration of the O-17 isotope came into the focus of interest.

We investigated the multi-isotope composition of different sources for fresh water (precipitation, river waters, coastal beach springs, fresh waters emerging from coastal marine sediments (SGD)) at sites with relevance for the North German coastal areas (North Sea and Baltic Sea).

Stable isotope measurements were conducted by means of the new Picarro cavity ring down spectrometer (CRDS) system (L2140-i) giving results in the usual delta-notation versus V-SMOW, and H-2 and O-17 excess values are derived. Results are compared to continuous measurements at the GNIP station in Cuxhaven (NW-Germany) and the GMWL. Stable isotope measurements were conducted by means of the new Picarro cavity ring down spectrometer (CRDS) system (L2140-i) giving results in the usual delta-notation versus V-SMOW, and H-2 and O-17 excess values are derived. Results are compared to continuous measurements at relevant GNIP stations and the GMWL. It is found that the slopes between normalized O-17 and H-2 contents as well as H-2 and O-17 excess values differ for the investigated sources.