



Dynamic and transfert of carbon in Loire catchment using carbon isotopes

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Rivers have a major role in carbon transfer between continent and ocean. The organic matter exported from land represents a major source of DOC and POC in oceans. The composition and reactivity of this matter will influence its behavior and fate within the coastal areas and continental shelf. It is thus important to characterize the exported matter and its temporal variability. Stable carbon isotope ratios ($\delta^{13}\text{C}$) and ^{14}C activity can provide unique information on carbon sources, turnover and exchange processes.

We present here a study of the carbon cycle in the Loire River and its major tributaries by combining carbon isotopes measurements and classical biogeochemical parameters (DOC, POC, DIC, pH, Temperature, Alkalinity, pH, chlorophyll ...). Three campaigns were performed in April, July and October 2013. The changes in ^{14}C signature due to the controlled liquid release of five nuclear power plants are used to get additional information on the carbon dynamics within the river.

First results show a conservative behavior of the organic carbon concentrations contrary to the inorganic carbon all along the Loire River. However, the reactivity of the organic matter varies with rivers catchments and seasons. An inventory of the distribution of the different carbon phases within the Loire River and its tributaries is presented.