

## **Local and Global Evidences for Fossil Organic Matter in Present Soils and Detrital Supplies**

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The estimation of the continental organic matter (OM) stock has become the subject of a considerable amount of work for the global carbon cycle appraisal. Almost all studies addressing this problem consider that the soil OM depends directly on the vegetal net primary production and thus, neglect the fossil OM contained in bedrock sedimentary formations. Our aim is to assess such a contribution in modern stocks, at the local and global scale.

At a local scale, optical analysis of the OM occurring in soils, underlying bedrocks as well as in recent lacustrine and fluvial sediments, in various French basins, shows a significant fossil OM contribution to soils and modern sediments. Its importance in soils depends on the bedrock organic content and increases with depth. In modern stream and lake sediments the presence of fossil OM depends on its abundance in bedrock formations, inefficiently protected by the vegetal cover.

At a global scale, the amount of organic carbon liberated by carbonate rocks chemical weathering has been estimated to ca. 0.09 Gt.y<sup>-1</sup>. This yield is not a direct supply to soils and rivers, because a part of the liberated OM can be stored at depth or mineralised. However, it is non-negligible for the carbon cycle. Global and local investigations confirm fossil OM contribution in modern soils and fluvial organic stocks and questions the problem of their evaluation based solely on climatic data and current vegetal production.