

Interactive comment on “Temporal variability of live (stained) benthic foraminiferal faunas in a river-dominated shelf – faunal response to rapid changes of the river influence (Rhône prodelta, NW Mediterranean)” by A. Goineau et al.

Anonymous Referee #2

Received and published: 12 November 2011

This manuscript tries to discuss how benthic foraminiferal faunas respond to temporal changes of the Rhone River inputs, both organic and terrigenous matters. Coastal environments are highly variable in comparison to deeper seas. In particular, prodelta locates at unstable and changeable environments from sea surface to bottom through a year. It is interest how benthic foraminifera respond to variable prodelta environmental conditions. There are not so many researches that monitor benthic foraminiferal communities through several seasons at prodelta environments. The authors have collected a lot of fundamental data from river to prodelta. This manuscript certainly

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provides quite interesting view points of river-prodelta environmental system where anthropogenic impact may take place. Dataset are quite valuable and important. However, it is still required to improve a couple of points.

The authors try to discuss about food inputs at prodeltaic environments. Exactly, it is important that phytodetritus deposition takes place after spring bloom. Opportunistic species certainly gather on seasonal phytodetrital layers. This is quite reasonable result. But, hydrological and sedimentological environments also should give quite strong influences to benthic foraminiferal communities. I ask to the authors that they should pay attention to changes in sediment characters among samples, in particular to silt-clay size fractions. Because, river transports quite a lot of clay fractions to the sea. Clay fractions should deposit on prodeltaic areas with forming sedimentary patches on sediment surface. Patchy distribution of these clayey sediments should give strong influences to benthic foraminifera, as detrital organic matters in finer fractions should be different from coarser fractions.

The authors try to refer Goineau et al., 2011b for discussing about patchy distributions of foraminiferal faunas. However, the paper is not appeared yet. The authors should also discuss patch topics in this manuscript, as we cannot refer the manuscript.

Faunal compositions of benthic foraminifera strongly change in time to time. The authors mainly use percentage data. But, absolute numbers in unit volume should show important information about life cycle and/or life history of each species.

The authors stress that growth speed of some benthic species are extremely high. There are many investigations in terms of growth rate of benthic foraminifera. Please discuss carefully about growth of foraminiferal populations. Except for newly-born juvenile specimens, most of benthic foraminifera add new chambers a couple of days intervals. Growth rates should also be different from single-chambered species and multi-chambered species. Please carefully discuss about this point.

It is a pity that the authors did not use down core foraminiferal community data,

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even though they have analysed up to 5 cm in down cores. Responses of benthic foraminifera to environmental changes should be different from infaunal species to epifaunal species.

Colonisation of benthic foraminifera on specific sediment, for instance, flood deposits may take place with several different mechanisms. Down slope transportation with dense clayey flow is one of important mechanisms at deltaic environments. In the case, it may remains some fabrics in sediments. If the authors measure sediment fabrics for every cores, it may be important to show these data.

There are many ecological observations for shallow water benthic foraminifera, such as food preferences, growth rates and reproduction cycles. The authors are requested to introduce these observational data into discussions for establishment of ecosystem modeling about prodelta-dwelled benthic foraminiferal community.

Interactive comment on Biogeosciences Discuss., 8, 9033, 2011.