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Age Control on the Zaire Deep-Sea Fan: From 100 ka to Decadal Scale

The comprehensive survey of the Zaire deep-sea fan (Ifremer-TotalFinaElf ZaiAngo project) gives a unique opportunity to quantify the cyclicities controlling the deposition of a still active turbidic system. On the base of a correlation on ODP site 1075, radiocarbon dating and $^{210}\text{Pb}_{\text{exc}}$, we are able to give an age control on the Zaire deep-sea fan growth for the last 780 ka. The age of three successive systems, identified on swath bathymetry and high resolution seismic, and corresponding to major avulsions of the Zaire canyon, are estimated. The average lifetime of channel-levee groups, within the fans, is estimated to be closely linked to the obliquity cycle for the two oldest fans, and to the precession cycle for the most recent fan. The average lifetime of a channel-levee system, within the groups, is estimated at about 15 ka in the two oldest fans and 4 ka in the most recent fan. Radiocarbon dating on the active channel-levee system allows postulating an age of 20 ka for the channel-levee system, 13 ka for an abandoned lobe complex and 7 ka for the most recent lobe complex. $^{210}\text{Pb}_{\text{exc}}$ activity on this lobe complex allows extrapolating ages between 2 ka and 8 ka for a single lobe. In addition, the counting of the turbiditic layers on a 90 metres high turbiditic levee permits to calculate a cyclicity of about 30 years for overbank deposits.