

Sedimentary facies description

The sedimentary facies sampled from the three investigated wells were ascribed based on Bourquin et al. (1998). The following descriptions refer to the observed facies illustrated in Figure 4 of the manuscript:

- A) This facies classified as Gm by Bourquin et al. (1998), consists of clast-supported conglomerates, ungraded to weakly graded, poorly sorted and characterized by sub-angular to sub-rounded clasts (Fig. 4A). It corresponds to lag deposits at the base of the channels deposited under high hydrodynamic conditions (Bourquin et al., 1998).
- B) The sandstone facies illustrated in the upper and lower pictures (Fig. 4B) were respectively classified as St and Sp by Bourquin et al. (1998). Both St and Sp are composed by fine to coarse grained sandstones and are moderately to well sorted. St exhibits trough cross-beds, while Sp shows planar cross-beds. These facies are interpreted as traction deposits (Bourquin et al., 1998)
- C) This clay-rich facies classified as Fl by Bourquin et al. (1998), corresponds to reddish clay laminae alternated with pinkish siltstone or fine sandstone laminae (Fig. 4C). It shows bioturbation and current ripples. This facies was deposited from suspension (overbank or waning flood) and has been associated to flood plain deposits (Bourquin et al., 1998).
- D) This facies classified as Gmu by Bourquin et al. (1998), corresponds to matrix-supported conglomerates, locally clast-supported, ungraded to weakly inversely graded and poorly sorted (Fig. 4D). It is characterized by sub-angular to sub-rounded clasts and shows no evidence of sedimentary structures. Gmu is attributed to deposition by subaerial or subaqueous plastic debris flows (Bourquin et al., 1998).
- E) This facies classified as Dn by Bourquin et al. (1998), is composed of red clays with dolomite nodules that may be coalescent (Fig. 4E). It may contain root traces and vertically elongated dolomite concretions that increase in size upwards. It is interpreted as a paleosol formed under arid conditions with intermittent heavy rainfalls as the result of extended emersion favorable to soil formation (Spötl and Wright, 1992; Bourquin et al., 1998).

References

- Bourquin, S., Rigollet, C., & Bourges, P. (1998). High-resolution sequence stratigraphy of an alluvial fan–fan delta environment: stratigraphic and geodynamic implications—an example from the Keuper Chaunoy Sandstones, Paris Basin. *Sedimentary Geology*, 121(3-4), 207-237. DOI: 10.1016/S0037-0738(98)00081-5
- Spötl, C., & Wright, V. P. (1992). Groundwater dolocretes from the Upper Triassic of the Paris Basin, France: a case study of an arid, continental diagenetic facies. *Sedimentology*, 39(6), 1119-1136. DOI: 10.1111/j.1365-3091.1992.tb02000.x