SM1_FA_Geology **– Facies Associations of the Nicobar Fan**

Based on drilling of two sites, U1480 and U1481 (MCNEIL et al., 2017) divided the Nicobar, from base to top, in Units IIIB, IIIA, IIC, IIB, IIA, I, which they are summarized in the Fig. 1. The Facies Association (FA) here follows the description of PICKERING et al. 2019 who described eight facies associations for the Nicobar Submarine Fan sediments and the linkage to the described of Nicobar Fan Units.

The basal sedimentary package overlies in unconformity the Late Cretaceous to Paleocene pre-Fan volcano-sedimentary units and corresponds to the Unit IIIB containing chalk and tuffaceous mudstones siliciclastic sediments deposited between early Oligocene to early Miocene (MCNEIL et al., 2017, PICKERING et al., 2019).

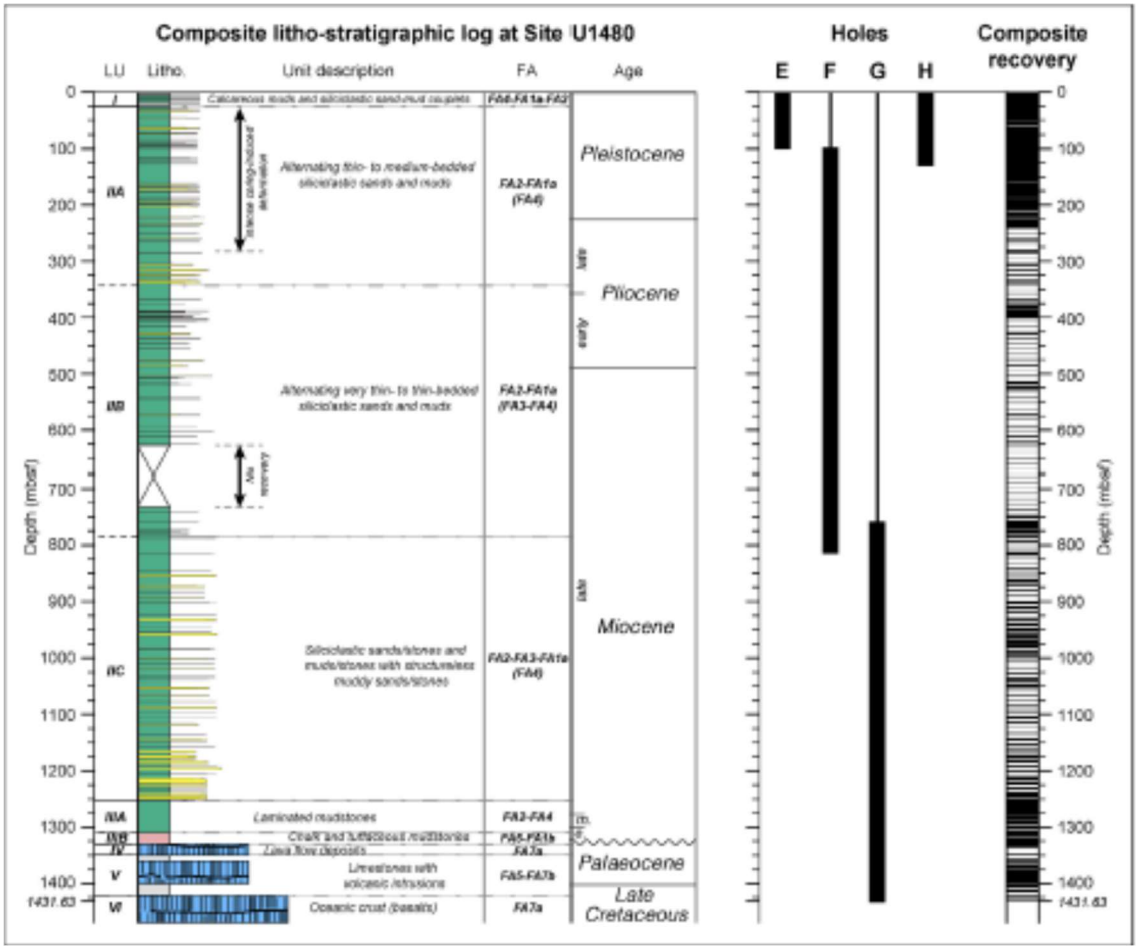
The Unit IIIA (middle Miocene) comprises interlayered thin to medium bedded, gray-green or brown mudstone and siltstones deposited in low-concentration turbidity currents.

The Unit II is the thickest section of the Nicobar Fan, reaching up to 1250 m in the site U1480. The basal unit, the Unit IIC (Upper Miocene), overlies in conformity the Unit IIIA. It consists of siliciclastic sandstone/siltstone and mudstone interlayers with structureless muddy sandstones and subordinate hemipelagic sediments. They are interpreted as structureless mud hemipelagites (FA2) deposited in low-concentration turbidity currents, sediment gravity flows (SGF, FA3) and turbidity sediments (FA1a). Hemipelagites deposited in low turbidite currents occur a common facies association (FA4).

The Unit IIB deposited between Upper Miocene and early Pliocene contains alternating very thin- to thin-bedded siliciclastics sands and muds represented by muddy turbidites (FA2), SGF`s (FA3), and sandy turbidites (FA1A). Structureless muds (hemipelagites, FA4)) are also present in the unit IIB.

The upper unit, the Pliocene-Pleistocene Unit IIA, consists of alternating thin to medium bedded siliciclastics sands and muds represented by the turbidites of Facies Associations FA2-FA1a (FA4).

The upper most unit, 26-m thick Quaternary Unit I, comprises biogenic calcareous mud with ash beds and siliciclastic fine-grained sand and muds.



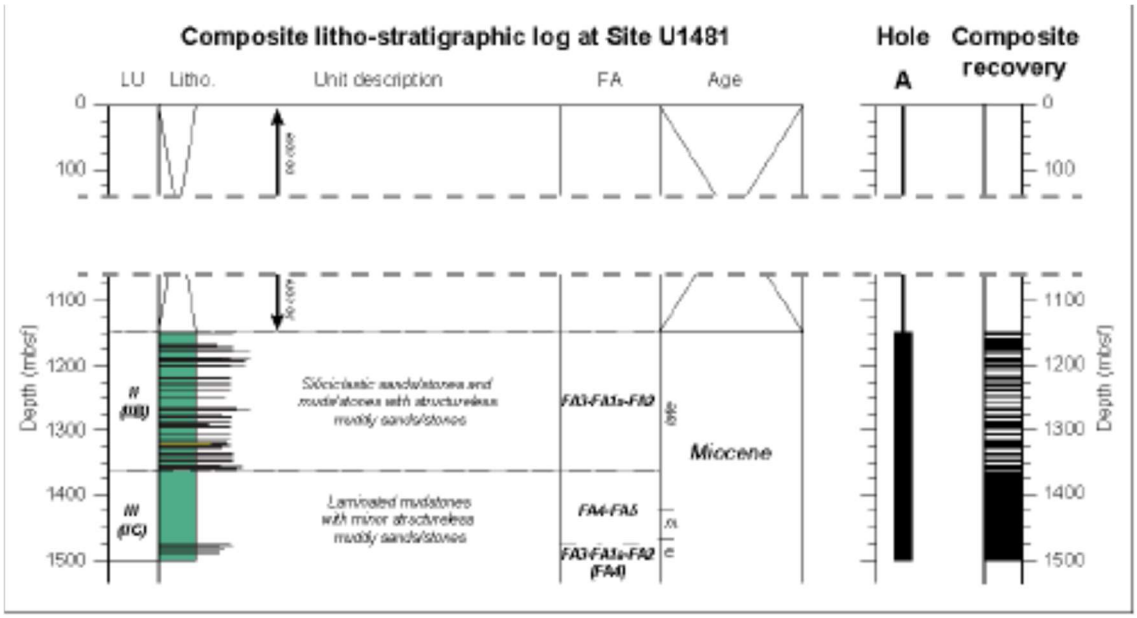


Figure 1 Simplified lithostratigraphic columns of cores at IODP-Expedition 362, sites U1480 and U1481, with the division between units, Facies Association (FA), age and composite recovery. Composite recovery represents the recovery of samples per lithological unit and describes an organization of the structure taken from the seabed. (after MCNEIL et al., 2017 in PICKERING et al., 2019).

References

MCNEILL, L. C. et al., 2017. Expedition 362 methods. Proceedings of the International Ocean Discovery Program, 362. https://doi.org/10.14379/iodp.proc.362.102.2017.

PICKERING, K.T. at al., 2019. Sedimentology, stratigraphy and architecture of the Nicobar Fan (Bengal–Nicobar Fan System), Indian Ocean: Results from International Ocean Discovery Program Expedition 362. Sedimentology. https://doi.org/10.1111/sed.12701.