

Supplementary table 1 : Lithostratigraphic subdivision of Ydouban Group (Reichert, 1972)/

Formation	Thickness	Lithological Characters
Formation V of In Fereren	> 1 500 m	Sandstone to argillaceous succession at the top : friable shaly clay with rare sandstone levels. at the bottom : alternating sandstone and quartzitic sandstone with shale containing a conglomerate level.
Formation IV (In Alata)	400 to < 50 m	Quartzitic succession Clear, fine to medium quartzites with conglomeratic levels with subordinate shaly clay intercalations.
Formation III of Ararous	>1 500 m	Heterogeneous succession Brown friable clay and sandy shales, friable powdery sandstone, gray-black ultrafine hard quartzites, and important lenses of rocks various carbonates including calcschists to limestone and massive dolomites.
Formation II of Tin Adierouf-Ekia	700 to 1 300 m	Shale to clayey succession at the top : brown, gray, blackish, more or less ferruginous red shales, with quartzitic sandstone level. at the bottom : most often zoned, purple red shales, white, gray, blackish with significant ferruginous pigment, often more or less coaly.
Formation Ib of In Orfan-Niangay	1 500 to 2 000 m	Clayey sandstones succession at the top : yellowish brown to gray clay shale with lenticular quartzite levels in the middle : more or less calcareous shale with quartzites more or less carbonated and feldspathic at the bottom : shale with lenticular sandstone levels with interbedded conglomerates
Beli-Garous Formation	500 m (Eastward) Thickening up towards the West	Border facies : Shales with subordinate quartzitic sandstone lenses, quartzitic calcareous sandstone, limestones and lenticular dolomites increasing from East to West, intraformational breccias and conglomerates silicified rocks.
Basal formation (Firgoun sandstone)	10 to 50 m	Transgression facies Quartzitic sandstones and conglomerates
Precambrian		Major unconformity Birimian basement (in the Southern part)