

## The Pliocene in the marines blue marl of Ouled Maallah North (Dahra, Algeria).

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**Abstract.** The locality of Azaizia has been the subject of a detailed study. Indeed, the stratigraphic section of the lower Pliocene of Azaizia, offers a succession of markers ranging from *Sphaeroidinellopsis*, *Globorotalia margaritae*, *Gl. Puncticulata*, *Globorotalia crassaformis* indicating the base of the Pliocene (Zanclean), The nannofossils reveal the presence of "*Ceratolithus acutus* (B 5.36 Ma, T 5.04 Ma)" from the extreme base of the Pliocene (Zanclean), *Amaurolithus primus* (T 4.58 Ma) "and" *Reticulofenestra pseudoumbilicus* (T 3.7 Ma) » These data are exceptional, because of the presence, for the first time, of the extreme base of Zanclean in the Chélif basin and in the Dahra massif. This stratigraphic section becomes a reference section.

**Keywords:** Messinian Gypsum, Pliocene Blue Marl, Ouled Maallah Azaizia Dahra, stratigraphy, paleogeography, sedimentary

The absence of the extreme base of the Zanclean stage in the Chélif the disruptions of many contemporary and accurate scientific works in this area. So, it will be necessary to find this limit, and extract the full stratigraphic section model of the early and middle Pliocene from the field.

### Materials and Methods

the preliminary data were obtained from the field prospection and the dating of the geological land. Two methods of relative dating are used for marine deposits: planktonic foraminifers observed with a binocular loupe and calcareous nannofossils observed with the optical Microscope.

### 1 Results

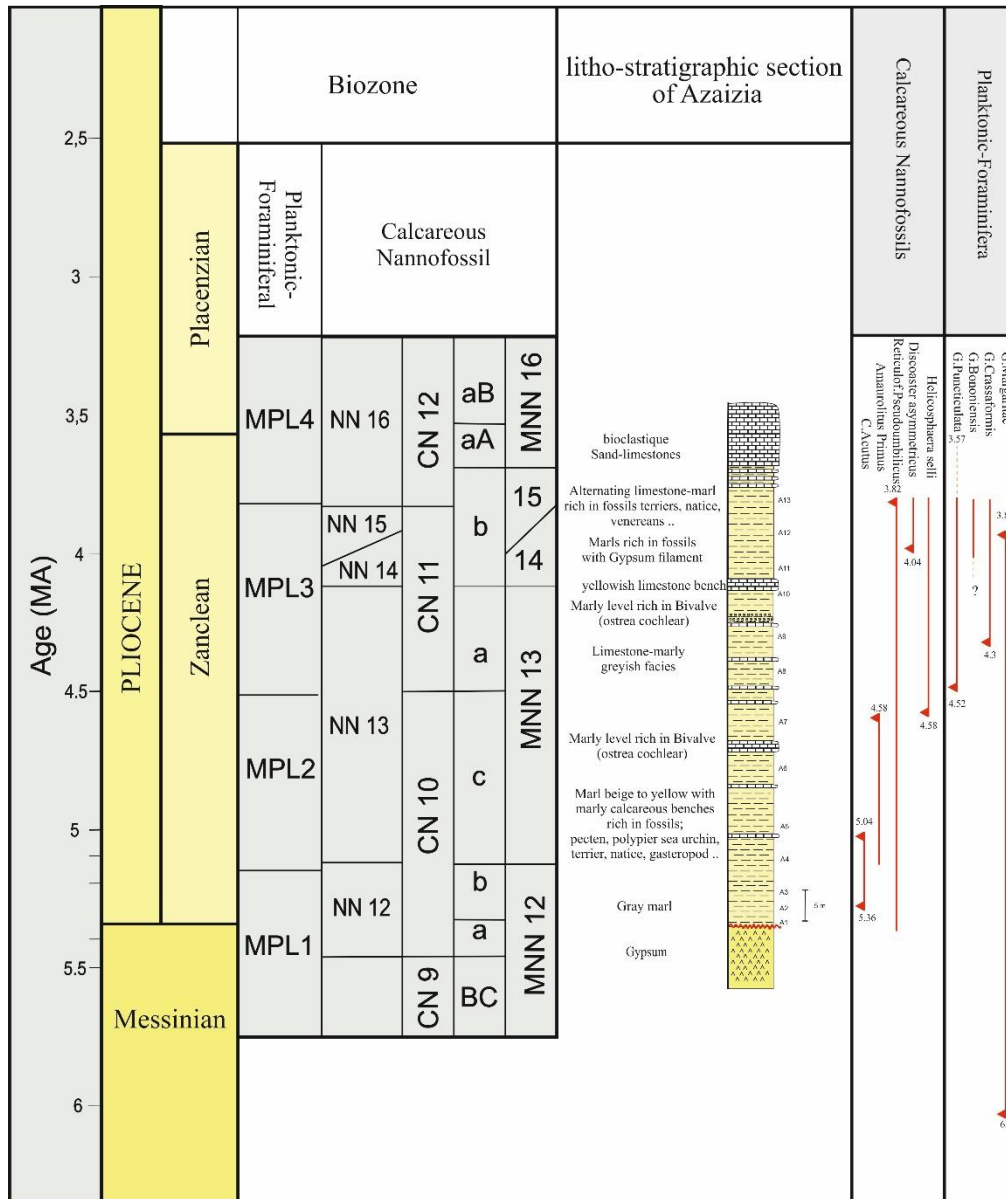
The Dahra massif is the seat of a large mio-plio-quadernary sedimentation marked by a brittle and plicative tectonic whose anticlinal and synclinal folds, oriented West-East, are visible from the opening of the Chélif to Ténès (Derder et al., 2011, Maghraoui et al., 2002).

The area of Ouled Maallah offers a marine series of blue marls transgressive and discordant above a massive expanses of gypsum (Messinian); the gypsum acquired an anticlinal morphology, which should constitute shoals during the Pliocene transgression of the blue marl (Brives, 1857, Perrodon, 1957).

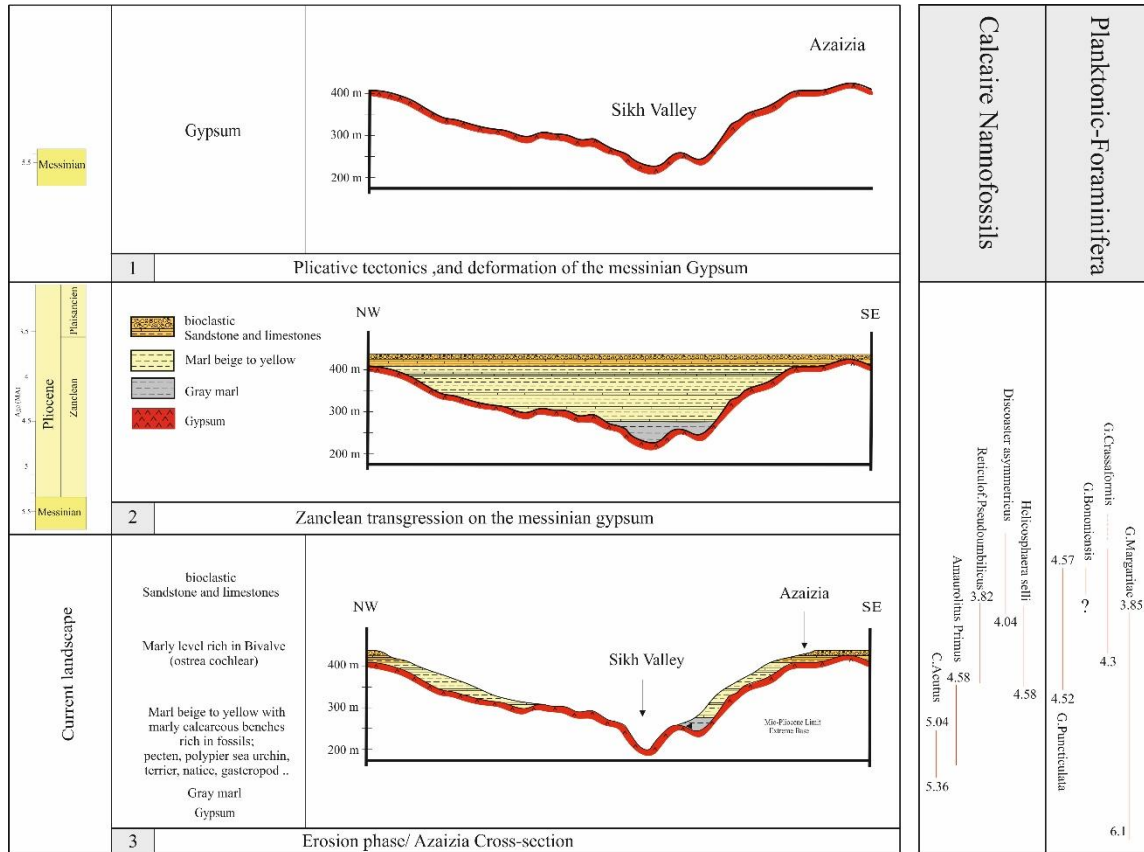
Exposed North-West, the cross-section of blue marls to whitish is raised from Sikh valley to the locality of Azaizia (Ouled Maallah North); they rest on 70 m of massive gypsum and reach the maximum of their thickness (150 m thick) with white marl-limestones fossiliferous to *Neopycnodonte* (*Ostrea*) cochlear, resting on projections of gypsum. Blue marls are abundant rich in marine fauna (solitary Scleractinia, Gastropods, Scaphopods, bivalves, ...).

Planktonic foraminifers have revealed, from bottom to top, the succession of markers: *Globorotalia margaritae*, *Gl. puncticulata*, *Gl. bononiensis* *Gl. crassaformis*, indicating respectively the lower and middle Pliocene, (Belkebir et al., 1996).

The same samples subjected to the analysis of calcareous nannofossils recorded, from the very beginning, the presence of *Ceratolithus acutus*, *helicosphaera sellii* *amaurolithus primus*, *amaurolithus delicatus*, *helicosphaera sellii*, *reticulofenestra pseudoumbilica*, *discoaster asymmetricus* and *discoaster tamalis*, indicating respectively the NN12 To the NN14+NN15 (Martini 1971).



In addition to these stratigraphic results, the preliminary data allow on the one hand to seal the top of the Miocene cycle by the presence of *G. margaritae* and *Ceratolithus acutus* and to resolve a stratigraphic (local) gap between the Messinian gypsum and the base of the Pliocene blue marl on the other hand. This gap would correspond to an erosion / emergence of post-gypsum deposits and a plicative tectonics that affected the gypsum that should constitute shoals during the Pliocene transgression.



## 2 Discussion

Comparing to the litho-stratigraphy cross sections made by pioneers, our data processed by the planktonic foraminifers and the calcareous nannofossils are exponential, and well demonstrated especially in the Azaizia cross section, the results needs to be correlated with others lithostratigraphic sections from Oulad Maallah sector to confirm the Azaizia, as a reference cross section in the bas chelif basin (Algeria) . insert here the Fourth Section Discussion which should be the most detailed section (Times New Roman 10).

## 3 Conclusions

The main results obtained concerning the Azaizia cross section are encouraging but remain insufficient, more data needs to be revealed from biostratigraphy and paleoenvironments and cartography studies to have better understanding about the Mio-Pliocene passage in Bas Chélif Basin (Algeria).

## References

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