

PS Palynological Events from Maastrichtian to Eocene in the Middle Magdalena Valley Basin, Colombia*

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Abstract

Middle Magdalena Valley Basin is located between Central and Eastern Cordilleras of the Colombian Andes and is one of the most explored petroleum provinces in the country with reservoirs within Upper Cretaceous to Cenozoic strata. Therefore, high quality biostratigraphic information for the basin is very important to improve and test geological models, well drilling and perform better stratigraphic correlations. Palynological data have been produced from drilled wells during the last several years in the area. This information was used to propose a sequence of biostratigraphic events from Maastrichtian to Eocene to improve present biozonation for the basin. Graphic Correlation tool was used to obtain this sequence, integrate all data in a composite section and find the total or composite stratigraphic range for each taxon. Results show the order of biostratigraphic events. Some of this data has been recognized regionally and others are restricted to the basin, they are useful to distinguish lithological units and perform regional and local correlations. This new data is contributing to improve palynological zonation for the basin and is being used with success in oil exploration.

References

Jaramillo, C., M. Rueda, G. Bayona, C. Santos, P. Florez and F. De la Parra, 2009, Biostratigraphy breaking paradigms: dating the Mirador Formation in the Llanos Basin of Colombia SEPM Special Publication No 93, p 29-40.

Jaramillo, C., F. Muñoz, M. Cogollo and F. De la Parra, 2005, Quantitative biostratigraphy for the Paleocene of the Llanos foothills, Colombia: Improving palynological resolution for oil exploration, in Powell, A.J. and J. Riding, eds., Recent Developments in Applied Biostratigraphy: The Micropaleontological Society, Special Publication, p. 145-159. London.

Jaramillo, C. and M. Rueda, 2004, Impact of Biostratigraphy in Oil exploration: Convención técnica ACGGP Bogotá.

Jaramillo, C. and D. Dilcher, 2001, Middle Paleogene Palynology of Central Colombia, South America, A study of pollen and spores from tropical latitudes, *Paleontografica* 258, 87- 123p.

ABSTRACT

Middle Magdalena Valley Basin (MMVB) is located between Central and Eastern Cordilleras of the Colombian Andes and is being one of the most explored petroleum provinces in the country with reservoirs within Upper Cretaceous to Cenozoic strata. Therefore, high quality biostratigraphic information for the basin is very important to improve and test geological models, well drilling and perform better stratigraphic correlations. Several palynological data have been produced from drill wells during last years in the area. This information was used to propose a **sequence of biostratigraphic events from Maastrichtian to Eocene** to improve present biozonation for the basin. **Graphic Correlation** tool was used to obtain this sequence, integrate all data in a composite section and find the total or composite stratigraphic range for each taxon. Results show the order of biostratigraphic events. Some of these datums have been recognized regionally and others are restricted to the basin, both of them are useful to distinguish lithological units and perform regional and local correlations. These new data improved present palynological zonation for the basin, which is being used with success in **oil exploration**.

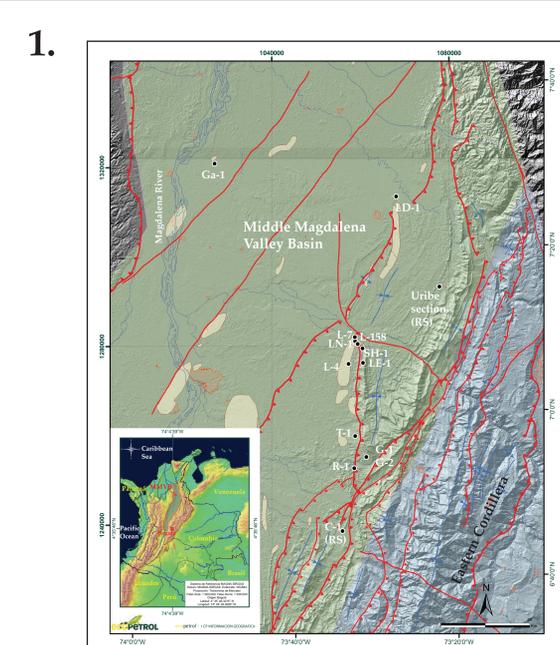
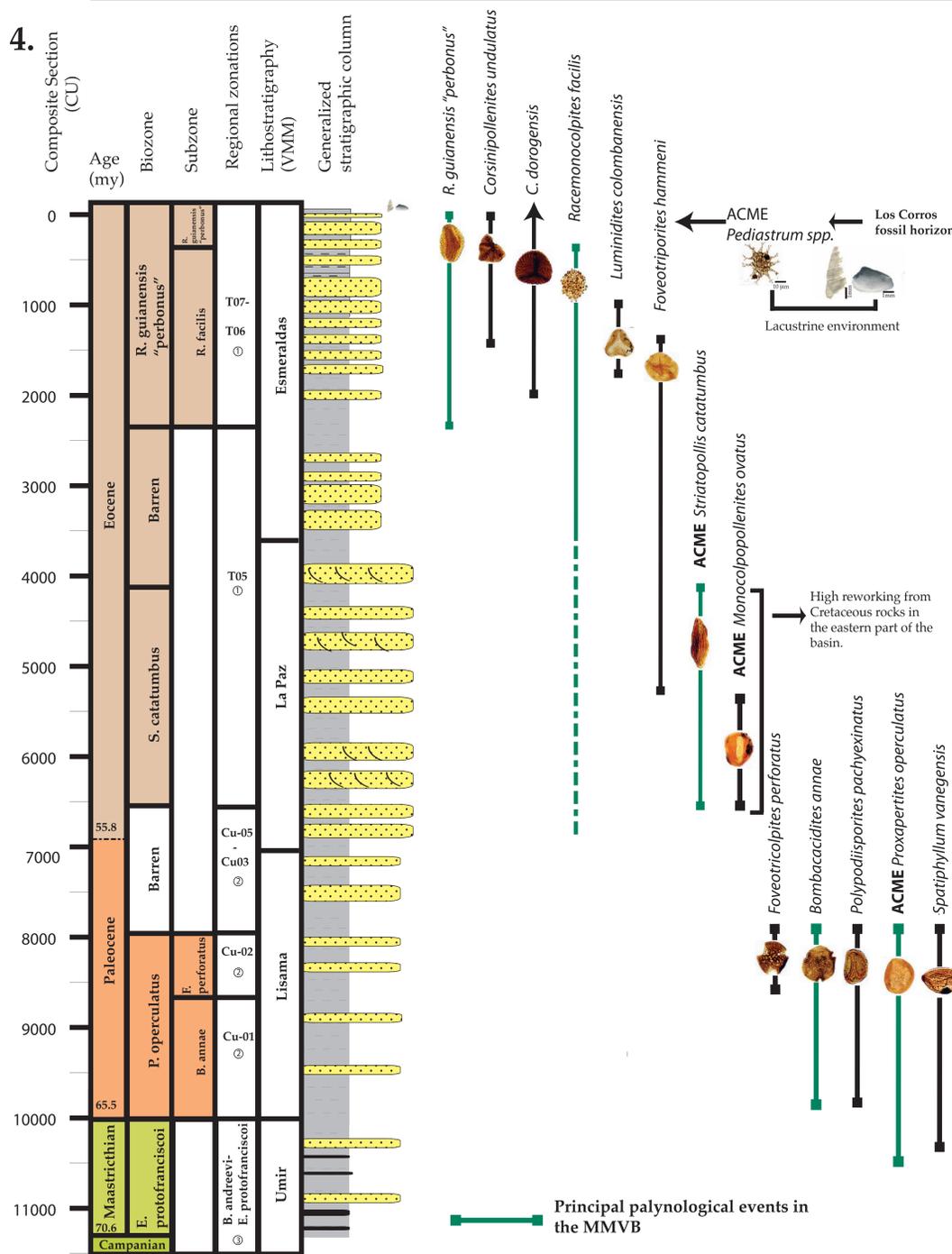


Fig. 1. MMVB and Location of 14 wells with palynological data used in this study. Reference Sections (RS).

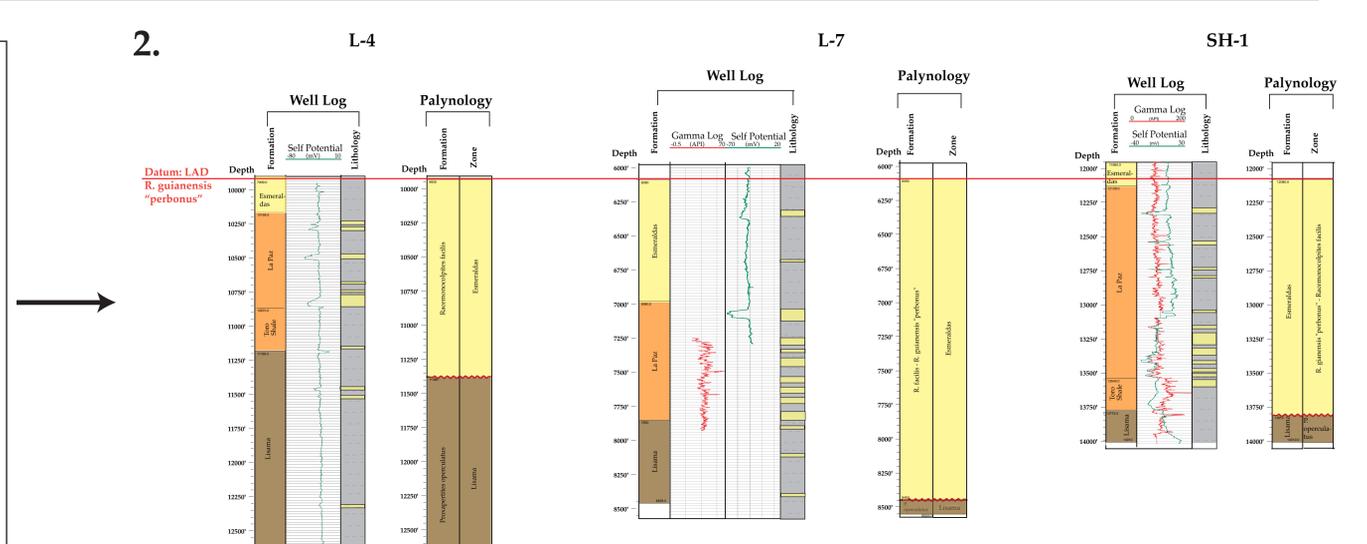


Fig. 2. Comparison between log and palynological results in three wells in the MMVB. The biostratigraphic data helps to identify the absence of a lithological unit (La Paz formation) in the area and the presence of an unconformity. However, the palynological data from the different wells had not been integrated in a composite sequence of events for the basin.

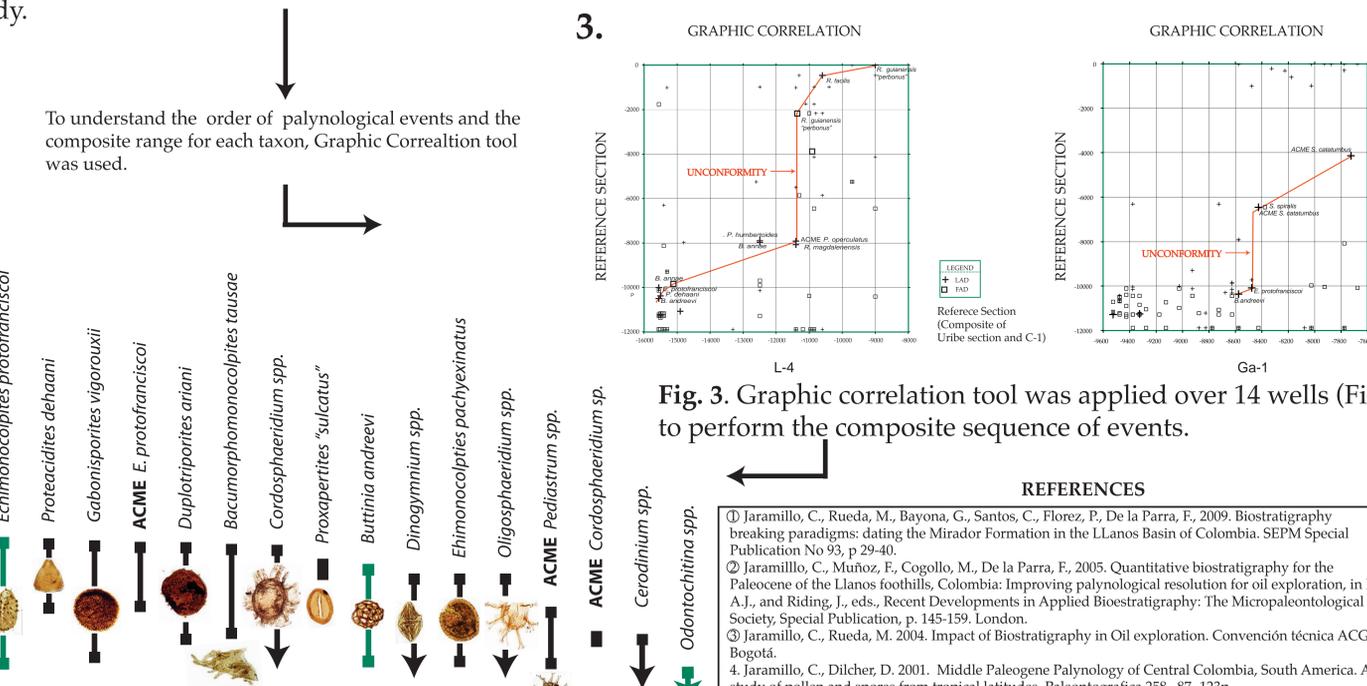


Fig. 3. Graphic correlation tool was applied over 14 wells (Fig.1), to perform the composite sequence of events.

Fig. 4. Sequence of palynological events from Maastrichtian to Eocene in the MMVB based on Graphic Correlation results. Comparison with regional zonations: ①Jaramillo et al, 2009, ②Jaramillo et al, 2005, ③Jaramillo & Rueda, 2004.

- REFERENCES**
- ① Jaramillo, C., Rueda, M., Bayona, G., Santos, C., Florez, P., De La Parra, F., 2009. Biostratigraphy breaking paradigms: dating the Mirador Formation in the Llanos Basin of Colombia. SEPM Special Publication No 93, p 29-40.
 - ② Jaramillo, C., Muñoz, F., Cogollo, M., De La Parra, F., 2005. Quantitative biostratigraphy for the Paleocene of the Llanos foothills, Colombia: Improving palynological resolution for oil exploration, in Powell, A.J., and Riding, J., eds., Recent Developments in Applied Biostratigraphy: The Micropaleontological Society, Special Publication, p. 145-159. London.
 - ③ Jaramillo, C., Rueda, M. 2004. Impact of Biostratigraphy in Oil exploration. Convención técnica ACGGP. Bogotá.
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