Oligocene-Miocene Palynofloras from Northern South America

Diana Ochoa 1, Andrés Pardo 1, Millenandy Romero 1, Angelo Plata 1, Silvane Da Silva 1, Francy Carvajal 1, Jose Abel Flores 1, Juan Carlos Silva 1, Sebastian Rosero 1, Clemencia Gómez 1, Sergio Adrian Lopez 1

1Instituto de Investigaciones en Estratigrafía-IES, Universidad de Caldas, Colombia. 2Grupo de Geociencias Oceánicas, Universidad de Salamanca, Spain. 3Agencia Nacional del hidrocarburos, Colombia.
Contacting email: diana.acho@gmail.com

ABSTRACT

The Oligocene-Miocene transition was characterized by a rapid drop in global temperatures, which has been associated with the M1 glaciation and a major coral extinction event. In Colombia, some of the studied Oligocene-Miocene sections are terrestrial and they do not have a precise chronostratigraphic framework. In order to improve the age control of these terrestrial sequences, we have analyzed the palynological record from several sections and drilling-cores in different basins (including the Sinú-San Jacinto, Lower Magdalena, and Cauca-Patía basins, Colombia). Other techniques such as marine micropaleontology, detrital zircon U-Pb analysis and cathodoluminescence, were used as independent chronological techniques. We identified the palynological taxa that have also been previously correlated with the Oligocene-Miocene transition in sediments from other oil-producer basins. Our results indicate that: i) palynomorphs described in the palynostratigraphic zonation built for the easternmost Colombian basins (i.e. Llanos and Eastern Cordillera) can also be recognized in other areas from northern South America, ii) there was a drop in the accumulated number of morphospecies, which may be closely related to the climatic shifts of the Oligo-Miocene transition.

Future research will be focused on evaluating particular palynological events across basins, in order to produce a biostratigraphic zonation. In addition, further analysis will include information obtained from recent wells drilled by the National Hydrocarbon Agency-ANH in the Colombian Caribbean basins. This new information will allow us to better understand changes in the palynofloral association trough time, the timing and evolutionary trends of modern neotropical forests, and their relationship with the Neogene Andes uplift and the Panama Isthmus closure.

FUTURE WORK

- Refinement and inclusion of new palynological data
- Biostratigraphic dating of new outcrops sections and wells from Western Colombia, including other chronostratigraphic techniques, such as marine microfossils, cathodoluminescence and U/Pb dating.
- Integration of dating data to improve the tectonic evolution model for the Western Cordillera in the northern Andes.

REFERENCES