

**Crassicollaria and Calpionella zones in the Neuquén Basin (Argentine Andes):  
First approach to the correlation  
of the Tithonian/Berriasian boundary with western Tethys**

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Calpionellids are presently considered as primary markers of the Tithonian/Berriasian boundary, mainly due to the absence of provincialism and its isochronic apparition in the whole Tethys (WIMBLEDON et al., 2011). In the Neuquén Basin, with a proved connection with Tethys since Early Jurassic times, calpionellid apparition is an expected finding. For the first time, the study on calpionellid distribution in the well-documented Las Loicas section of the Vaca Muerta Formation (Neuquén Basin, Argentine Andes), allows the recognition of the Crassicollaria and Calpionella zones. The Crassicollaria Zone (Upper Tithonian) is composed of *Calpionella alpina* Lorenz, *Crassicollaria* cf. *C. brevis*, *Crassicollaria* cf. *C. intermedia*, *Crassicollaria massutiniana* (Colom), *Tintinnopsella remanei* (Borza) and *Tintinnopsella carpathica* (Murgeanu and Filipescu). The Calpionella Zone, Alpina Subzone (Lower Berriasian), is detected by the explosion of the small and globular form of *Calpionella alpina* Lorenz dominating over very scarce *Crassicollaria massutiniana* (Colom). The FAD of *Nannoconus wintereri* can be clearly correlated with the uppermost part of the Crassicollaria Zone and the FAD of *Nannoconus kamptneri minor* with the first records of the Calpionella Zone. Ammonites were identified on the basis of abundant material defining zones according to the classic ammonite biostratigraphy of the Andes (VENNARI et al., 2014).

Calpionellid distribution in Las Loicas section is very similar to that reported for the same zones in Cuban and Mexican sections in paleowestern Tethys (LOPEZ-MARTINEZ et al. 2013 a, b), pointing to a good correlation of calpionellid bioevents between both areas. Additional studies (in process) are necessary to establish a more accurate calpionellid biozonation and its correlation with other fossil groups, but the present work confirms similar calpionellid bioevents in western Tethys and the Andean region strengthening the Paleopacific-Tethyan correlations already known from other fossil groups.

LOPEZ-MARTINEZ, R. et al., 2013a. Journ. South Amer. Earth Sci., **47**, 142–151.

LOPEZ-MARTINEZ, R. et al., 2013b. Geol. Carpathica, **64**, 195–208.

VENNARI, V. et al. 2014. Gondw. Res., **26**, 374–385.

WIMBLEDON, W.A.P. et al., 2011. Riv. Ital. Paleont. Strat., **17**, 295–307.