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## A possible case of neoteny in new anomalocystitid mitrates (Echinodermata, Stylophora) from the upper Emsian (Lower Devonian) of Navarra (Spain)

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In the western Pyrenees (Navarra, northern Spain), the Arizacun Limestone located in the Basque domain of the Baztan valley has yielded a diverse, well-preserved, fully marine, Early Devonian assemblage (lower part of the upper Emsian), dominated by brachiopods, tentaculitids and trilobites. Although a minor component of this fauna, echinoderms are represented by crinoids and locally abundant remains of fully articulated mitrate stylophorans. Stylophorans are an extinct class of unattached, benthic echinoderms, consisting of a flattened body (theca) and a single feeding arm (aulacophore). The mitrates from Navarra represent not only the first record of stylophorans in the Devonian of Spain, but also their youngest occurrence in the Iberian Peninsula. They consist of a monospecific assemblage of small-sized anomalocystitids, morphologically identical (*i.e.* reduced extension of cuesta-shaped thecal ornamentation, large placocystid plate) to similarly-sized juvenile individuals of *Placocystites forbesianus* from the Wenlock of Britain. The absence of larger specimens in Navarra questions a possible ecological partitioning of juvenile versus more mature individuals, or more likely, a possible case of heterochrony (neoteny).

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## Middle Devonian Global Events: examples from the Iberian Peninsula (Spain)

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Recent study of Upper Eifelian to basal Frasnian (Middle-Upper Devonian) deposits from the Iberian Range (IR) and Central Pyrenees (CP), has revealed new, more detailed information of both the conodont sequence and global Middle Devonian bioevents. Five selected sections in the IR (Camino de Molino) and CP (Renanué, La Guàrdia d'Ares, Compte and Villech) were analysed. They document four global Devonian events of different magnitude and facies: the Kačák Event, the Pumilio Event, Taghanic Event, and Frasnian Event. The position of the two levels of the Kačák Event is tentatively traced in three sections: Camino de Molino, Renanué and La Guàrdia d'Ares. The record of the Pumilio Event is close to Bed 44 in the Renanué section. A thin black multilayer of the Villech section corresponds to a regressive pulse of the Taghanic Event. The Frasnian Event is recognized in three Pyrenean sections: Villech, La Guàrdia d'Ares and Compte. Using the conodont biostratigraphic high-resolution method, the Middle Devonian global events seem to be multiphase at least for the Kačák and Taghanic. The analysed stratigraphic framework allows recognition, characterization and timing of these four global bioevents in different settings of the Iberian Peninsula.