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Introduction to Fieldtrip in the Pyrenees

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This guide represents a brief view of the current knowledge on, mostly, Devonian stratigraphy and conodonts after about 30 years of intense research focused initially in answering the basic questions such as to obtain first a collection that could be of help for dating rocks and arrange the lithological units in the proper order; then, we tried to respond to subsequent questions such as do we have sufficient conodonts in the Pyrenees to establish a basic biostratigraphic local framework? Are these collections relevant for supraregional correlations and for contributing to the progress on international research?

Initially, after the election of Europe as the place for celebrating the ICOS IV (Mendoza, Argentina 2013) we proposed a general vision of three key Perigondwanan areas, The Spanish Pyrenees, the Prague Synform and the Carnic Alps as the most representative areas for showing the progress in conodont research in the last decades. The Pyrenean was primarily envisaged as a fieldtrip for conodont workers. When the International Subcommittee on Devonian Stratigraphy (SDS) joint the conference, the fieldtrip focused on some selected Devonian sections of interest for knowing the Geological development and history of the Devonian Pyrenean basin (s) and its potential correlation with other, mostly, European regions, even if in some of these sections the conodont research had not started or was only in a preliminary stage. Later the International Subcommittee on Silurian Stratigraphy (ISSS) decided to participate in this conference as well. Consequently, we decided to include some selected outcrops to show the main features of the Silurian in the Pyrenees and, specifically, the two main facies, the overall black carbonaceous graptolitic shales with *Orthoceras* limestone crossing the Silurian/Devonian boundary and the more restricted, but European widespread, "Ockerkalk" facies.

The progress we had acquired during the last 30 years would have been impossible without the previous, extraordinary and enormous work that the Dutch geologists of the Leiden School accomplished in the 1960's and 1970's. They laid out the basic stratigraphical framework, realised a very detailed mapping, carried out sedimentological and petrological studies, presented the first tectonical comprehensive interpretation (pre- Plate Tectonics) and started with a selected and preliminar study of Silurian-Lower Carboniferous rocks. Their legacy has been instrumental for the further development of the Geological knowledge of this Variscan Mountain belt, and we thank all them for their pioneer scientific spirit and the detailed and comprehensive work they carried out.

We are also in debt with our lovely friend and master, Prof. Dr. Peter Carls, who knowing the potential of a key section for contributing to solve the long standing interfacial problem in the Lower Devonian of Europe and the possibility of this area for intercontinental correlations coached and proposed one of us (JIVR) to start a research and scientific carrier in this wonderful, but hard, territory, full of interesting topics for geologists and an open land for conodont workers. Subsequently, J-CL also benefits from this primordial action, as she was enchanted with the Pyrenean Geology and conodont project that both Peter Carls and Nacho Valenzuela-Ríos offer her. Also, other students as Carlos Martínez-Pérez, Sofie Gouwy and Pilar Clariana have taken advantage of this initial proposal of Prof. Carls and the subsequent development by Prof. Valenzuela-Ríos who mentored and supervised them.

We hope you can enjoy a taste of the Variscan Pyrenean Geology and conodont beauty of this land and understand the love we have to these mountains. We want to share with you not only the scientific progress but also the inherent emotional development of this progress.

In doing so, we have arranged this field trip in five days according to the following schedule (Fig. 1).

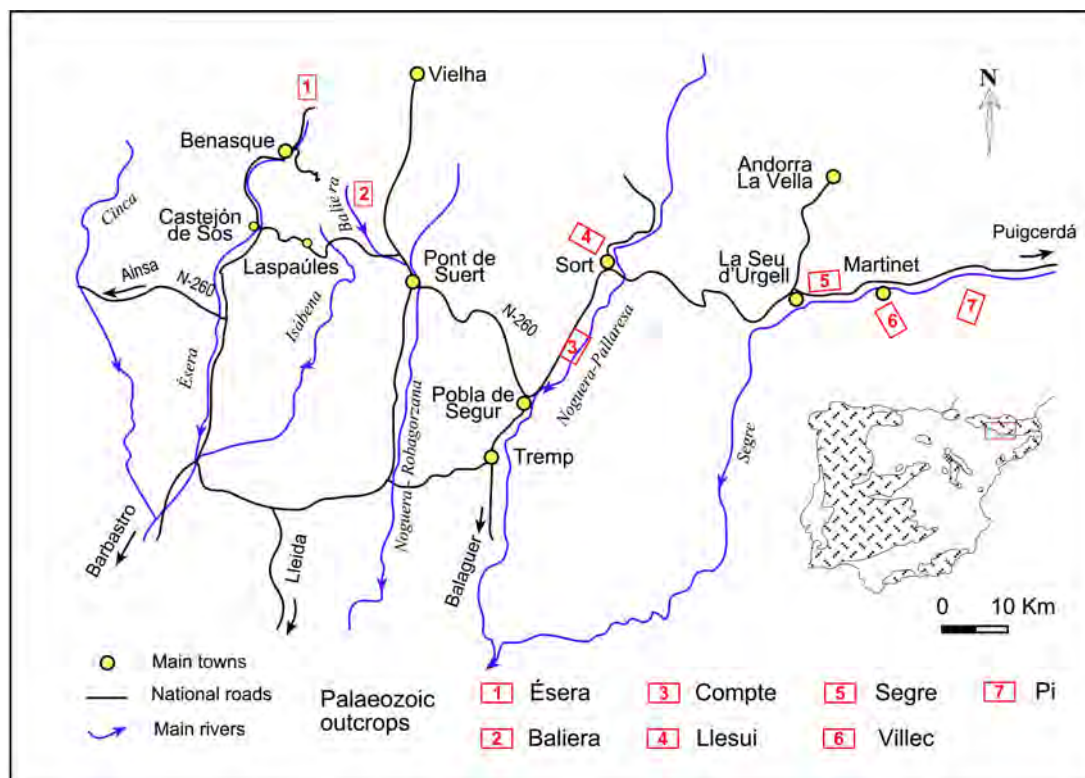


Figure 1. Location map of the sections and areas we will explore in the Pyrenean Fieldtrip.

We will be working in the Pyrenean Southern facies area that is further subdivided into four Subfacies areas according to the Dutch geologists and followed by many Pyrenean workers, Sierra Negra, Baliera, Renanué and Compte. In this trip we will explore three of these Subfacies areas.

The first day, we will travel from Valencia to the Benasque region, along the Esera river where the typical Silurian and Lower Devonian strata in the Sierra Negra Subfacies are exposed. The second day we will examine one relevant section for contributing to the ongoing discussions regarding the redefinition of the Emsian, Baliera 6, which develops in typical Baliera Subfacies. Then, we will move to the Compte Subfacies, and we will start looking at a potential section (Pi) for analysing the Famennian and the Devonian/Carboniferous boundary; the section Pi is still in the initial steps of research, but has already provided key conodonts for these topics. The same day, we will go stratigraphically down to visit the Lower Devonian sections at Segre. This set of sections constitutes one of the worldwide referents for the Lochkovian conodont biozonation and for the European Pragian conodont biozonation. The next day we will go over to the Villec area, a heavily tectonic set of outcrops exposing the whole Devonian in a disrupted sequence. We will focus in the Pragian/Emsian boundary, the Emsian in a particular facies setting, the Eifelian and the Eifelian/Givetian and Givetian/Frasnian transitions and the lower Frasnian. Finally, a partial Famennian section will be inspected. The last day we will visit first the typical Ockerkalk-type development of Silurian facies in the Pyrenees and then, we will move to the Compte sections to explore an almost continuous, but tectonically disrupted Devonian sequence, starting with the lower Lochkovian to the lower Emsian, and then, the Lower Givetian to Famennian strata.