# Base Oxfordian GSSP: the Subalpine Basin candidate sections (SE France)

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**Abstract**

The Callovian/Oxfordian boundary has been studied across more than 60 outcrops in the Subalpine Basin (SE France) over the past few decades, producing remarkably consistent results. In conformity with recommendations for GSSP candidates, the most reliable of these sections appeared to be Thuoux and Savournon (Fortwengler et al., 1997; Fortwengler et al., 2012). More recently, integrated stratigraphic studies of the Thuoux and Saint-Pierre-d'Argençon sections have included biostratigraphy (ammonites, nannofossils and dinoflagellates), chemostratigraphy, physical stratigraphy, and cyclostratigraphy (Pellenard et al., 2014). Following these analyses, a new section, Lazer, was proposed as a very promising Callovian-Oxfordian GSSP candidate during a workshop organised in the Subalpine Basin by the French Jurassic group in 2013 (Pellenard, 2013). Lazer is located near Laragne-Montéglin, 15 km from Thuoux and 4 km from Savournon, a section previously proposed by the Oxfordian Working Group (Melendez et al., 2007). The Savournon section now appears less suitable for precise lithology and high-resolution stratigraphic studies. We therefore consider that Thuoux and Lazer are the best candidates for a GSSP section in the Subalpine Basin. These two sections have the highest sedimentation rate, with clear marker beds and the complete ammonite zonation recognised for Western European basins, based on Cardioceratidae, Oppeliidae, Aspidoceratidae, and Perisphinctidae. Such ammonite assemblages enable precise correlations between biogeographic provinces, in particular with

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the Boreal Domain, where Cardioceratidae are often dominant. In this contribution, we propose a synthesis of the stratigraphic data from the Subalpine Basin, focusing particularly on the geochemical signal (d13Ccarb, d13Corg, TOC, and d15N), and cyclostratigraphy based on Magnetic Susceptibility (MS) and Gamma-Ray Spectrometry (GRS). Ammonite fauna more recently collected from Lazer confirm the precision of the biostratigraphic framework, marked by the disappearance of all Callovian genera and the abrupt appearance of *Brightia thuouxensis*, allowing the Callovian-Oxfordian boundary to be accurately identified between the *paucicostatum* and *thuouxensis* horizons, consistent with the biostratigraphy of the Thuoux, Savournon, and Saint-Pierre d'Argençon sections. Nannofossils and dinoflagellates also show great consistency in all sections, further justifying the biostratigraphic framework now established in the Subalpine Basin. The Thuoux section is the main focus, with Lazer as an auxiliary section, and these two sections are confidently proposed as firm candidates for the base Oxfordian GSSP.

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