



## CatVolc: A new database of geochemical and geochronological data of volcanic-related materials from the Catalan Volcanic Zone (Spain)

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The Catalan Volcanic Zone (CVZ) in northeastern Spain constitutes an intraplate alkaline volcanic region linked to the opening of the Western Mediterranean and the development of the European Rift System. Volcanic activity in the CVZ started in the L'Empordà area (ca. > 12 - 8 Ma), extended to La Selva (7.9 - 1.7 Ma), and finally migrated to the Garrotxa Volcanic Field (< 0.7 - 0.01 Ma). Despite ongoing scientific interest in the CVZ dating back to the early 19th century, certain aspects remain insufficiently defined. These include a comprehensive understanding of the spatial and temporal evolution of the magma plumbing system(s) and ascent mechanisms, as well as the chronology of volcanism across the CVZ. Unraveling these unresolved questions requires geochemical, petrological, and geochronological data, which, in the case of the CVZ, are scattered and have never been integrated or analysed within a unified framework. This study introduces the CatVolc (Catalan Volcanism) database, consolidating existing geochemical and geochronological data of volcanic-related materials within the CVZ. The current version of the database incorporates geochemical analyses from 405 rock samples (296 juvenile magmatic rocks -including lavas and pyroclasts- and 109 xenoliths), and radiometric/thermoluminescence dating data from 57 rocks (55 volcanogenic and two dykes), 4 paleosols samples developed between volcanic deposits and 1 sample from sediments. Each entry in the CatVolc database provides general information about the sampling site, sample lithology, whole-rock analyses (including major and trace elements), isotopic ratios, mineral chemistry, and radiometric/thermoluminescence dating details, if available. An initial analysis of the information contained in the CatVolc database highlights the critical limitations of the current state of knowledge and allows suggesting potential future directions for volcanic-driven investigations in the CVZ. Furthermore, the outcomes affirm the CatVolc database as an essential tool for understanding the spatial and temporal evolution of magmatic systems and volcanic activity in the CVZ, particularly within the Garrotxa Volcanic Field. This validation is crucial for advancing the assessment of volcanic hazards in the region and gaining a comprehensive understanding of future volcanic activity.

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