Date of the CVA	11/01/2021

Section A. PERSONAL DATA

Name and Surname	David Cruset Segura		
DNI	47911558M	Age	33
Researcher's identification number	Researcher ID		
	Scopus Author ID	57190390722	
	ORCID	0000-0003-3683-5125	

* Obligatorio

A.1. Current professional situation

Institution	Consejo Superior de Investigaciones Científicas			
Dpt. / Centre				
Address	Lluis Solé i Sabaris, s/n, 08028, Barcelona			
Phone	(+34) 664242522	Email	davidcruset@gmail.com	
Professional category	Higher degree in technical and professional activities (1)		Start date	2019
Keywords	Geochemistry			

A.2. Academic education (Degrees, institutions, dates)

Bachelor/Master/PhD	University	Year
Earth Sciences PhD program	Universitat de Barcelona	2019
Master's degree in Reservoir Geology and Geophysics	Universitat de Barcelona	2013
Degree in Geology	Universitat de Barcelona	2012

A.3. General quality indicators of scientific production

Scientific experience and publications:

Ten scientific papers in peer-review journals indexed by ISI/Scopus. Five of them as leading and corresponding author. Three of the papers are published in Q1 Journals, five in Q2 journals and one in a Q3 journal.

One paper in peer-review journals not indexed by ISI/Scopus.

Three book chapters, one of them as leading corresponding author. This last chapter was awarded with the "Springer best paper award" of conference track 7 in the 1st Conference of the Arabian Journal of Geosciences that took place in Hammamet, Tunisia.

Eleven presentations in international conferences,four of them as leading and corresponding author.

H index (Google scholar): 5

Number of citations (Google scholar): 54

Impact factors and journal quartile of already published articles (Web of science):

Cantarero et al. (2018): Global and Planetary Change. **4.448**, **Q1**.
Times cited (Google Scholar): 5

Cruset et al., (2020): Marine and Petroleum Geology. **3.790, Q1.**
Times cited (Google Scholar): 4

Cruset et al., (2020): Minerals. **2.380, Q2.**
Times cited (Google Scholar): not yet cited.

Cruset et al., (2020): Journal of the Geological Society. **3.100, Q2.**
Times cited (Google Scholar): 1

Cruset et al., (2020): Data in Brief
Times cited (Google Scholar): not yet cited

Cruset et al. (2018): Global and Planetary Change. **4.448**, **Q1**.
Times cited (Google Scholar): 13

Cruset et al. (2016): Journal of Geodynamics. **1.806**, **Q3**.
Times cited (Google Scholar): 16

Muñoz-López et al. (2020): Geofluids. **1.534, Q2.**
Times cited (Google Scholar): not yet cited

Muñoz-López et al. (2020): Solid Earth. **2.921, Q2.**
Times cited (Google Scholar): 1

Nardini et al. (2019): Minerals. **2.380**, **Q2**.
Times cited (Google Scholar): not yet cited.

Section B. SUMMARY OF THE CURRICULUM

My main research aim is to characterize the evolution of fold and thrust belts and sedimentary basins from a fluid flow approach. To develop this research, I have integrated during my scientific career a wide variety of structural, petrographic, geochemical and geochronological analytical methods to fracture-filling calcite, dolomite, quartz, celestite and illite/chlorite systems in Iberian compressional and rift systems (southern Pyrenees, Catalan Coastal Ranges, Iberian Range and Betic chain) and in the Andean foothills of Argentina. To achieve this aim, I use a combination of analytical methods such as carbon, oxygen and strontium isotopy, clumped isotopes and fluid inclusions thermometry, major elements and Rare Earths analysis, Raman spectroscopy and uranium-lead (U-Pb) geochronology together with petrographic observations and the structural analysis of fractures. In parallel, also I have participated in the sedimentological study of intramontane basins formed within the Betic Chain, in southern Spain.

The results of my research resulted in three book chapters, eleven peer-review scientific papers (ten of them in published in journals indexed by ISI/Scopus) and eleven conference contributions. These publications have been cited in several international research articles.

During the duration of my PhD studies, I made three student stays in European institutions such as the Institut für Geowissenschaften at Goëthe Universität Frankfurt am Main and the Imperial College of London, where I learned the use of different analytical methods such as Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LS-ICP-MS), clumped isotopes thermometry and Uranium-Lead (U-Pb) dating. Furthermore, during this period, I participated for a time of up to 165 hours in teaching activities of the Faculty of Earth Sciences of the University of Barcelona to acquire expertise in teaching at undergraduate level. These activities consisted in support in practical lectures and field trips. Furthermore, I also participated in expositions for the Live Research fair organized by the “Parc Científic de Barcelona”. In

this exposition an application for electronic devices such as tablets and mobile phones was presented to students from primary and secondary schools.

I have participated in two national (Spanish) research projects funded by the Ministry of Science, Innovation and Universities: CGL2015-6335-C2-1-R and PGC2018-093903-B-C22. I am part of the Grup Consolidat de Recerca "Geologia Sedimentària" (2014SGR-251 and 2017SGR-824) funded by the Catalan Government.

My present and future research is focused on to understand the thermal and geodynamic evolution of sedimentary basins. Also, I want to decipher the control of diagenetic processes on the thermal conductivity and porosity of rocks as well as its application to geothermal and greenhouse gas storage projects.

Section C. MOST RELEVANT MERITS (ordered by typology)

C.1. Publications

AC: Autor de correspondencia; (nº x / nº y): posición firma solicitante / total autores

1 **Scientific paper**. D. Muñoz-López; D. Cruset; I. Cantarero; A. Benedicto; C. M. John; A. Travé. 2020. Fluid dynamics around a thrust fault inferred from petrology and geochemistry of calcite veins. An example from the Southern Pyrenees Geofluids. Hindawi. 2020, pp.8815729.

2 **Scientific paper**. D. Cruset; I. Cantarero; A. Benedicto; C. M. John; J. Vergés; R. Albert; A. Gerdes; A. Travé. 2020. From hydroplastic to brittle deformation: controls on fluid flow in fold and thrust belts. Insights from the Lower Pedraforca thrust sheet (SE Pyrenees) Marine and Petroleum Geology. Elsevier. 120, pp.104517.

3 **Scientific paper**. D. Cruset; I. Cantarero; A. Benedicto; C. M. John; J. Vergés; R. Albert; A. Gerdes; A. Travé. 2020. Geochronological and geochemical data from fracture-filling calcites from the Lower Pedraforca thrust sheet (SE Pyrenees) Data in Brief. Elsevier. 31, pp.105896.

4 **Scientific paper**. D. Muñoz-López; G. Alías; D. Cruset; I. Cantarero; C. M. John; A. Travé. 2020. Influence of basement rocks on fluid evolution during multiphase deformation: the example of the Estamariu thrust in the Pyrenean Axial Zone Solid Earth. Copernicus. 11, pp.2257-2281.

5 **Scientific paper**. D. Cruset; J. Vergés; R. ALbert; A. Gerdes; A. Benedicto; I. Cantarero; A. Travé. 2020. Quantifying deformation processes in the SE Pyrenees using U-Pb dating of fracture-filling calcites Journal of the Geological Society. Geological Society of London. 177, pp.1186-1196.

6 **Scientific paper**. D. Cruset; J. Ibáñez-Insa; I. Cantarero; C. M. John; A. Travé. 2020. Significance of Fracture-Filling Rose-Like Calcite Crystal Clusters in the SE Pyrenees Minerals. MDPI. 10, pp.522.

7 **Scientific paper**. N. Nardini; D. Muñoz-López; D. Cruset; et al; A. Travé. 2019. From Early Contraction to Post-Folding Fluid Evolution in the Frontal Part of the Bóixols Thrust Sheet (Southern Pyrenees) as Revealed by the Texture and Geochemistry of Calcite Cements Minerals. MDPI. 9-117, pp.1-29.

8 **Scientific paper**. D. Cruset; I. Cantarero; J. Vergés; C. M. John; D. Muñoz-López; A. Travé. 2018. Changes in fluid regime in syn-orogenic sediments during the growth of the south Pyrenean fold and thrust belt Global and Planetary Change. Elsevier. 171, pp.207-224.

9 **Scientific paper**. I. Cantarero; G. Alías; D. Cruset; E. Carola; P. Lanarri; A. Travé. 2018. Fluid composition changes in crystalline basement rocks from ductile to brittle regimes Global and Planetary Change. Elsevier. 171, pp.273-292.

10 **Scientific paper**. D. Cruset; I. Cantarero; A. Travé; J. Vergés; C. M. John. 2016. Crestal graben fluid evolution during growth of the Puig-reig anticline(South Pyrenean fold and thrust belt) Journal of Geodynamics. Elsevier. 101, pp.30-50.

11 **Scientific paper**. D. Cruset; A. Travé; I. Cantarero; J. Vergés. 2015. Evolución diagenética durante el crecimiento del anticlinal de Puig-reig (cinturón de pliegues y cabalgamientos surpirenaico) Geogaceta. 58, pp.27-30.

12 **Book chapter**. N. Nardini; D. Muñoz-López; D. Cruset; I. Cantarero; J. D. Martín-Martín; A. Travé. 2019. Evolution of the fluid system during the formation of the fault-related Bóixols anticline (Southern Pyrenees) Petrogenesis and Exploration of the Earth's Interior. Advances in Science, Technology & Innovation (IEREK Interdisciplinary Series for Sustainable Development). Springer. pp.219-221.

13 **Book chapter**. D. Cruset; J. Vergés; I. Cantarero; A. Travé. 2019. From rock-buffered to open fluid system during emplacement of the Lower Pedraforca thrust sheet (South Pyrenees) Petrogenesis and Exploration of the Earth's Interior. Advances in Science, Technology & Innovation (IEREK Interdisciplinary Series for Sustainable Development). Springer. pp.215-217.

14 **Book chapter**. L. F. Martínez; A. Travé; D. Cruset; D. Muñoz-López. 2019. Montagut Fault System: Geometry and fluid flow Analysis (Southern Pyrenees, Spain) Petrogenesis and Exploration of the Earth's Interior. Advances in Science, Technology & Innovation (IEREK Interdisciplinary Series for Sustainable Development). Springer. pp.211-214.

C.2. Participation in R&D and Innovation projects

1 Fluid migration during the evolution of inverted basins and orogenic belts: Application for CO2 storage (PGC2018-093903-B-C22) Anna Travé. (Universitat de Barcelona). 01/01/2019-31/12/2021. 127.050 €.

2 Fluid migration during the evolution of an orogen: diagenetic, hydrothermal and metamorphic characterization for gas and CO2 storage and resource exploration (CGL2015-66335-C2-1-R) Anna Travé. (Universitat de Barcelona). 01/01/2016-31/12/2018. 98.100 €.

C.3. Participation in R&D and Innovation contracts

Structure Inheritance, Extensional Control on Rift Generation and Subsequent Compression Equinor. Jaume Vergés. 15/06/2019-15/06/2020. 500.000 €.

C.4. Patents