

Cassian Pirard

Ph : +66/ 095-446-3000

E-mail : Cassian.pf.Pirard@gmail.com

Website: www.chiangmaidoctor.com/cassian-pirard

Nationality : Belgian

Birthday : 15-08-1981

Family Status : Married, 1 child

Education

- 2007-2012** PhD in Earth Materials and Processes. The Australian National University (RSES)
Research Project advisors: Prof. J.Hermann, Prof. H.StC.O'Neill, Dr. D.Rubatto, Prof. R.Arculus,
- 2005-2006** Diploma of specialisation in mineralogy, metallogeny and petrology (DEA)
achieved with "greatest distinction (>90%). University of Liège, Belgium
Research Project advisors: Prof. A.-M. Fransolet, Dr. F.Hatert, Dr. J.Vander Auwera
- 2003-2005** Diploma of License in Earth Sciences, achieved with greatest distinction (>90%).
University of Liège, Belgium.
Research Project advisors : Prof.A.-M. Fransolet, Dr. J.Vander Auwera, Prof. E.Pirard. Dr. F.Hatert
- 2001-2003** Diploma of candidate in Earth Sciences, achieved with great distinction (>80%).
University of Liège. Belgium
- 2000-2001** First year candidate in Engineering Sciences. University of Liège, Belgium
- 1999-2000** Year 13th at St Thomas of Canterbury, Christchurch, New Zealand
- 1993-1999** High School studies at the Royal Athenaeum Charles Rogier (Liège I).

General abilities

Languages French (native)
English (excellent)
Thai (basic)
Dutch (basic)

Softwares Office, Adobe (Good knowledge)
CorelDraw, MatLab, Statistica, ArcView, AutoCad, HTML (basic)
SketchUp (Good knowledge)
Professional software (see below)

Skills Medical Clinic management (online activities, supplies, hardware)
Land management (landscaping, agriculture, hydrology, pedology)
House building (masonry, electricity, plumbing, welding)
Horse care, horse training

Teaching experiences

2018-2019	Science activities organiser for international and bilingual school students
2017	Adjunct assistant professor at Chiang Mai University in Earth Sciences
2016-2019	Adjunct researcher for post-graduate students in analytical techniques Casual teaching support in geology subjects & field trip support/organiser Honours, MSc & PhD supervisor
2013-2015	Lecturer and course coordinator for mineralogy (2 B.Sc) and igneous petrology (3 B.Sc), masters courses and honours advisor.
2011-2013	Student support and thesis examiner in petrology and mineralogy at James Cook University
2012	Casual lecturer in igneous petrology at James Cook University
2011	Student support in petrology, mineralogy and analytical techniques at Vrije Universiteit Amsterdam Casual lecturer in petrology, mineralogy and analytical techniques at Vrije Universiteit Amsterdam
2010	Field trip organiser to the New Caledonia ophiolite for RSES
2008-2009	Tutor for Magmatic and Metamorphic Petrology (Prof. R.Arculus; Prof. J.Hermann). Field tutor for Australia's Environment (Dr. J.Mavrogenes)
2006	Field tutor in igneous and ore deposits localities in Belgium; Eifel volcanic zone in Germany (Prof.A.-M Fransolet; Dr. F. Hatert)
2005	Fieldtrip organiser to Sicilian and Aeolian volcanoes
2003-2005	Tutor in General Geology and Paleozoology (Prof.E.Poty) Tutor in Mineralogy & Crystallography (Prof. A.-M. Fransolet) Helper in Radiocrystallography & Crystallochemistry (Dr. F.Hatert)

Scientific abilities

Processing & modelling	MELTS, pMELTS XRD processing (quantitative) & identification programs IoGAS, Glitter, SILLS, Isoplot Hf-isotope processing, U-Pb processing Standard & advanced trace element geochemistry processing
Analytical	Optical Microscopy, cathodoluminescence (Excellent knowledge) XRD, XRF (Good theoretical and practical knowledge) (<i>Phillips generators, Fe-tube, Cu-tube, Mo-tube</i>) Electron probe (Excellent theoretical and practical knowledge) (<i>Cameca SX-50, SX-100, JEOL</i>) Mass Spectrometer (Basic technical knowledge; Good analytical knowledge) (<i>LA-ICP-MS (Agilent, Varian), MC-LA-ICP-MS (Neptune)</i>) Ion microprobe (practical knowledge) (<i>SHRIMP II, SHRIMP RG</i>) Experimental petrology (good practical and theoretical knowledge) (<i>piston cylinder, multi-anvil, 1atm furnaces</i>) Rock processing (Excellent knowledge) (<i>Hydraulic press, jaw crusher, disk mill, ring mill</i>) Mineral separation (Excellent knowledge) (<i>Frantz, Lithium heteropolytungstate, Bromoform, Methylene Iodide, Clerici,</i>) Sample preparation (Excellent knowledge) (<i>Polished thin section, mount preparation; all materials for microprobes</i>)

Scientific works and Experiences

2019-2020	Environmental issues advisor for NGO in the Lanna region
2017-2023	Adjunct Fellow Researcher at James Cook University
2014-2016	Advanced Geochemical & Isotopic Services Manager of James Cook University
2015	SGTSG 2015 (New Caledonia / Caloundra) Conference Organiser
2011-2013	Post-doctoral Researcher at the Department of Earth & Environmental Sciences of James Cook University (Dr. C.Spandler). SGGMP 2013 (Mission Beach) Conference Organiser
2011	EPMA-XRF lab manager for the Department of Petrology of VU (Prof. G.Davies; Dr. F.Brouwers, Prof.P.Vroon).
2011	Research assistant for RSES (Prof. J.Hermann)
2007	CO2CRC Report: New Caledonia: Geology and Mining – Overview report (Australia; Japan).
2006	Mineralogical and analytical ore expertises for Magotteaux S.A. (Belgium)
2005	Geophysical exploration and hydrographic survey for G-Tec (Belgium)
2004-2005	Geological mapping, sedimentary and hydrogeological & geophysical study of Devonian rocks in Ferrières area (Ardennes)

Scientific distinctions

2013	Awarded FSE Faculty Grant (Australia)
2010	Awarded ANU & RSES Scholarship extension (2010) (Australia)
2008	Awarded Marie Curie Scholarships for Eurispet events (Canberra, Budapest)
2007	Awarded vice-chancellor ANU travel scholarship (Australia) Awarded ANU & RSES Scholarship (2007-2010) (Australia)
2005	Awarded A.G.A.B. Prize (Belgium) Awarded ULg Earth and Mineralogical Sciences Prize (Belgium)
1999	Awarded Biology Prize and Science Prize; Royal Athenaeum Liège I (Belgium)

Public outreach

2018-2019	Science activities & Science camps organisation (self-employed)
2012-2016	JCU University open day participant (JCU, Townsville)
2009	National Science Week: RSES organiser (CSIRO, Canberra)
2008	Questacon “Rock your world” day: RSES Organiser (Questacon, Canberra)
2006-2020	Redactor & moderator in forums of Futura-Sciences web portal (http://www.futura-sciences.com/) (920 000 members)
2005	AGAB public talks in Liège, Belgium University science days : Exhibition organisations, (ULg, Belgium)

Referee Contact Details

On request

Publications

- | | |
|---|--|
| Reviewed publications | <p>[1] Pirard, C. & Hatert, F. (2008) The sulphides and selenides of the Musonoi Mine, Kolwezi, Katanga, Democratic Republic of Congo. <i>Canadian Mineralogist</i>, 46, p219-231.</p> <p>[2] Namur, O., Charlier, B., Pirard, C. Toplis, M., Liegeois, J.-P. & Vander Auwera, J. (2011). Temporary plagioclase buoyancy on a tholeiitic basalt: implications for the origin of anorthosites in the Sept Iles layered intrusion, Canada. <i>Geochimica & Cosmochimica Acta</i>, 75 (17), p4998-5018</p> <p>[3] Pirard, C. & Hatert, F. (submitted) Alteration products of Cu-U-Se deposit at Musonoi Mine, Kolwezi, Katanga, Democratic Republic of Congo. <i>Canadian Mineralogist</i></p> <p>[4] Spandler, C. & Pirard, C (2013). Element recycling from subducting slabs to arc crust: A review. <i>Lithos</i>, 170-171, p208-223</p> <p>[5] Pirard, C., Hermann, J. & O'Neill, H.St.C. (2013). Petrology and geochemistry of the crust-mantle boundary in a nascent arc, Massif du Sud ophiolite, New Caledonia, South-West Pacific. <i>Journal of Petrology</i>, 54, 9.</p> <p>[6] Pirard, C. & Hermann, J. (2015) Stability of alkali amphibole and the position of the wet solidus in the metasomatised mantle wedge at sub-arc conditions. <i>Contributions to Mineralogy & Petrology</i>, 169, 1.</p> <p>[7] Pirard, C. & Hermann, J. (2015) Focused fluid transfer through the mantle above subduction zones. <i>Geology</i>, 43, 915-918</p> <p>[8] Pirard, C. & Spandler, C. (2017). The zircon record of high-pressure metasedimentary rocks of New Caledonia: implications for regional tectonics of the south-west Pacific. <i>Gondwana Research</i>, 46, 79-94</p> <p>[9] Spandler, C., Hammerli, J. & Pirard, C. (2018). Neodymium isotope disequilibria in subducted sediments, and potential consequences for subduction-zone recycling. <i>Geology</i>, 46, 815-818.</p> |
| To be submitted/
reviewed
publications | <p>[10] Pirard, C., Hatert, F. & Fransolet, A.-M. (<i>submitted</i>). Alteration sequences of aluminium phosphates in granitic pegmatites.</p> <p>[11] Pirard, C., Hermann, J. & O'Neill, H.StC. (<i>in preparation</i>) Focused melt transport in the sub-arc mantle (<i>to be submitted to Journal of Petrology</i>).</p> <p>[12] Pirard, C. <i>et al.</i> (<i>in preparation</i>) Slab melt differentiation in the New Caledonia sub-arc mantle (<i>to be submitted to Australian Journal of Earth Sciences</i>)</p> <p>[13] Pirard, C. <i>et al.</i> (<i>in preparation</i>) Zircon recycling in the New Caledonia subduction zone (<i>to be submitted to Minerals</i>)</p> |
| Theses and Reports | <p>[14] Pirard, C. (2005). Geological mapping of the Ferrières-Izier topographical map, Ardennes massif, Belgium (<i>in French</i>). Geological mapping report, Liège, Belgium, 192p.</p> <p>[15] Pirard, C. (2005) Cu-U-Se mineralization of thrust-slice “2400”, Musonoi Mine, Kolwezi, Katanga, Democratic Republic of Congo (<i>in French</i>). License thesis, Liège, Belgium. 123p.</p> <p>[16] Pirard, C. (2007) Alteration sequences of the granitic pegmatite of Montebres-en Soumans, Massif Central, France (<i>in French</i>). DEA Thesis, Liège, Belgium, 110p.</p> <p>[17] Pirard, C. (2007) New Caledonia : Geology and Mining. CO2CRC Report, Canberra, Australia, 58p</p> <p>[18] Pirard, C., Hermann, J. (2008) Interactions between felsic melts and peridotites in sub-arc conditions: Comparison between experimental results and</p> |

natural samples. RSES Annual Report 2007. Canberra, Australia, p104.

[19] Pirard, C. (2008) Interactions between fluids and mantle in sub-arc environments: an experimental and field study. RSES PhD MidTerm report, July 2008. Canberra, Australia, 111p.

[20] Pirard, C. & Hermann, J. (2008). Experimental investigation of fluid transfer in sub-arc mantle conditions. RSES Annual Report 2008. Canberra, Australia

[21] Pirard, C. Hermann, J. & O'Neill, H.StC. (2009). Melt transport in the mantle : Transition from dunite channels to pyroxenite dykes in the upper mantle section of New Caledonia. RSES Annual Report 2009, Canberra, Australia, p97-98.

[22] Pirard, C. (2012). Transfer of melts in the sub-arc mantle: Insights from high-pressure experiments and from the New Caledonia ophiolite. Ph.D. thesis, Canberra, Australia, 401p.

[23] Pirard, C. (2019). Introduction to the modalities of the burning season and characteristics of the particulate matter pollution in Chiang Mai province, Thailand. Clinical Research report, Chiang Mai, Thailand, 11p.

[24] Pirard, C. (2019). COVID-19 contagiousness, morbidity and mortality in relation with particulate matter air pollution in Chiang Mai Province, Thailand: modelisation and empirical results. Clinical Research report, Chiang Mai, Thailand, 8p.

Abstracts

- [25] Pirard, C. (2005). Study of Cu-U-Se mineralization of Musonoï Mine, Kolwezi, Katanga, Democratic Republic of Congo. GB Junior Meeting, Liège, Belgium. *Geologica Belgica*. 8(3), p122-123 (Oral).
- [26] Pirard, C. & Hatert, F. (2005). Vegard's law application to selenium-bearing digenite of Musonoï Mine, Katanga, DRC. 4th Belgian Crystallography Symposium, Brussels, Belgium (Poster).
- [27] Pirard, C. (2006). Characterisation, origin and setting of thrust-slice 2400, Musonoï Mine, Kolwezi, Katanga, DRC. MDSG Winter Meeting 2006, London, United Kingdom (Oral).
- [28] Pirard, C. & Hatert, F. (2006). Uranyl-selenites, Unique minerals of Musonoï Mine, Katanga, DRC. 19th general meeting of IMA, Kobe, Japan (Poster).
- [29] Pirard, C. & Hatert, F. (2006). Sulphides and Selenides from thrust-slice 2400, Musonoï Mine, Katanga, D.R. Congo. 2nd Belgian Geological Congress 2006, Liège, Belgium. *Geologica Belgica*, 10(3-4), p211-212 (Oral).
- [30] Pirard, C., Hatert, F. & Fransolet, A.-M. (2007). Alteration sequences of aluminium phosphates from Montebbras pegmatite, Massif Central, France. PEG2007, Porto, Portugal (Poster).
- [31] Pirard, C. (2007). New Caledonia ultramafics: Last missing link of the subduction factory. Kioloa PhD conference (Oral)
- [32] Pirard, C. (2008). Time and chemical evidences for supra-subduction dykes in Massif du Sud, New Caledonia. Eurispet Isotopes applied to geological problems, Eurispet Canberra, Australia (Oral).
- [33] Ewing, T. & Pirard, C. (2008). Hf isotope measurements and U-Pb dating of rutile – challenges and preliminary results. Eurispet Canberra, Australia (Oral).
- [34] Pirard, C. (2008). Overview of the ophiolitic sequence in the New Caledonia ultramafics based on field observations. Annual RSES PhD Conference (Oral).
- [35] Pirard, C. (2008). Overview of the ophiolitic sequence in the New Caledonian ultramafics based on field observations. RSES-EMS conference.
- [36] Pirard, C. (2008). How can experimental petrology help to shed some light on the subduction factory blackbox ? Kioloa PhD conference (Oral).

- [37] Pirard, C. (2008). Record of metasomatic events in the obducted lithospheric mantle of New Caledonia. Eurispet Lithosphere in extensional settings, Budapest, Hungary (Oral).
- [38] Pirard, C., Hermann, J. (2008). Experimental investigation of fluid transfer in sub-arc mantle conditions. EMPG XII, Innsbruck, Austria (Oral).
- [39] Pirard, C., Hermann, J. & O'Neill, H.StC. (2009). Melt transport in the mantle : transition from dunite channels to pyroxenite dykes in the upper mantle section of New Caledonia. Goldschmidt 2009, Davos, Switzerland. *Geochimica & Cosmochimica Acta*, 73, 13S, pA1032 (Oral).
- [40] Pirard, C. (2009). Experimental evidence for high pressure Na-amphibole in sub-arc environments and implications for the subduction factory. RSES-EMS conference
- [41] Hermann, J., Spandler, C., Pirard, C. & Mavrogenes, J. (2009) Trapping high pressure fluids in piston cylinder experiments: implications for trace element recycling in subduction zones. Kangaroo Island 2009 Conference on geochemistry, mineralogy and petrology. Kangaroo island, Australia (Oral)
- [42] Pirard, C. & Hermann, J. (2010). Experimental evidence for high pressure stability of Na-rich amphibole in subduction zone environment. AESC2010, Canberra, Australia (Oral).
- [43] Pirard, C. & Hermann, J. (2010). Mantle wedge metasomatism: formation of hydrous phases, wet solidus and consequences for trace element transport. State of the Arc Conference (SOTA 2010), Santorini, Greece (Oral)
- [44] Pirard, C. & Hermann, J. (2010). Focused flow of subduction zone fluids in the mantle wedge. State of the Arc Conference (SOTA 2010), Santorini, Greece (Oral)
- [45] Pirard, C. (2010). Aluminium phosphates: Why these miserable colourless minerals bear some petrological interest ? RSES-EMS conference.
- [46] Pirard, C., Hermann, J. & O'Neill, H. (2011). Evidence of slab melt transfer in the New Caledonian fore-arc ophiolite. Goldschmidt 2011, Prague, Czech Rep.
- [47] Hermann, J., Pirard, C. (2011). How does the slab component get across the mantle wedge? Goldschmidt 2011, Prague, Czech Rep.
- [48] Pirard, C., Hermann, J. & O'Neill, H. (2011). Characteristics of the crust-mantle transition in a sub-arc environment. SGGMP conference, Murramarrang, Australia
- [49] Pirard, C., Hermann, J. & O'Neill, H. (2012). The New Caledonia Ophiolite: new insights on the formation of the Loyalty basin during the Cretaceous and Paleogene. IGC 2012, Brisbane, Australia
- [50] Hermann, J., Pirard, C. & Kovacs, I. (2012). Interaction of subduction zone fluids with the mantle wedge. IGC 2012, Brisbane, Australia
- [51] Hammerli, J., Spandler, C., Kemp, A.I.S. & Pirard, C. (2015). In-situ Nd isotope measurements on accessory minerals: Insights into isotope equilibration during metamorphism. EGU 2015, Vienna, Austria.
- [52] Hermann, J., Stepanov, A.S. & Pirard, C. (2015). Melting of subducted felsic crust. Goldschmidt 2015, Prague, Czech Rep.