

# RONALD VOORDOUW, Ph.D., P.Geo

## EDUCATION

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2006	<b>MEMORIAL UNIVERSITY OF NEWFOUNDLAND</b> , <i>St John's, Newfoundland</i> Ph.D. (Geology): with emphasis on igneous petrology, geological mapping Thesis: Geology of Mesoproterozoic anorthosite intrusions in the vicinity of Nain, Labrador
1997	<b>UNIVERSITY OF CALGARY</b> , <i>Calgary, Alberta</i> B.Sc. (hons): Geology

## STRENGTHS

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My main strength and interest lies in creating testable deposit models by integrating different exploration methodologies and analytical techniques. I believe that this strength is built on a strong set of fundamental geological skills (mapping, petrography) and a desire to maintain a well-rounded knowledge of geoscience and exploration techniques. Other interests include geological modeling, GIS, geochemical modeling and geostatistics.

## EMPLOYMENT HISTORY

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2011–Present	<b>EQUITY EXPLORATION CONSULTANTS LTD.</b> Project Geologist since 2011
2009–2010	<b>COUNCIL FOR GEOSCIENCE</b> , <i>Pietermaritzburg, South Africa</i> Geological mapping, GIS data compilation and analysis
2007–2008	<b>UNIVERSITY OF JOHANNESBURG</b> , <i>Johannesburg, South Africa</i> Detailed analysis of platinum group minerals with SEM-EDS-based image analysis
2006	<b>ALTIVUS MINERALS CO.</b> , <i>St John's, Newfoundland</i> Target generation and grass-roots assessment of numerous prospects and showings
2000–2006	<b>MEMORIAL UNIVERSITY OF NEWFOUNDLAND</b> , <i>St John's, Newfoundland</i> Extensive geological mapping supplemented with petrographic, mineralogical, whole rock geochemistry and geochronology work
1999	<b>UNIVERSITY OF CALGARY</b> , <i>Calgary, Alberta</i> Research assistant conducting petrographic and EPMA work

## SIGNIFICANT PROJECTS

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2012–13	<b>Detour Trend Project, Quebec</b> Managed ~28,000+ m of diamond drilling, ~100+ line-km of IP/Resistivity and ~30+ line-km of HLEM surveys on Archean orogenic gold and VMS prospects in the Abitibi greenstone belt.
2012	<b>Cassiar Project, B.C.</b> Managed ~8,500 m diamond drill program around a ~1 MOz orogenic gold system in the northern Cordillera.
2011	<b>Redton/Falcon Project, B.C.</b> Conducted geological mapping & prospecting of several Cu-Au-Mo porphyry prospects while managing a ~55 km IP-Res survey and collection of ~1100 soil samples.
2011	<b>Kliyul Project, B.C.</b> Managed a ~35 km IP-Res survey over a Au-Co porphyry target in the northern Cordillera, in addition to conducting prospecting and geological mapping.
2011	<b>Eskom Project, South Africa</b> Co-managed trenching and ~500 m of unconsolidated sediment drilling as part of a pre-feasibility study to evaluate a potential construction site for a nuclear power plant.
2010	<b>Boulevard Project, Yukon</b> Co-managed 15 person camp, collection of ~10,000+ soil samples and ~3,000 m of diamond drilling on an intrusion-related gold prospect in the White Gold District.
2009	<b>KZN South Coast Mapping Project, South Africa</b> Conducted 1:50,000 mapping of complexly deformed, Mesoproterozoic, metamorphic and igneous rocks.
2007 – 2009	<b>Two Rivers Mine Project, South Africa</b> Planned, executed and synthesized the core logging, sampling, petrographic analysis and SEM-EDS-based image analysis for a segment of the UG2 chromitite seam (Bushveld Complex).
2000 – 2006	<b>Nain Area PhD Project, Labrador</b> Organized and conducted 24 weeks of mapping in a remote part of Labrador, the results of which were integrated with detailed laboratory work in a PhD thesis.

## FIELDWORK

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Oct 2012, Parts of 2013	<b>Detour Trend Project, Quebec</b> Total of 18+ weeks managing diamond drilling and geophysical surveys from a 35-man helicopter-accessible camp in northwestern Quebec.
May–Sept 2012	<b>Cassiar Project, B.C.</b> Seven weeks of managing a diamond drill program, as well as re-logging historic core, from a 12-man, roadside, trailer camp.
Aug–Nov 2011	<b>Redton/Falcon Project, Omineca Mountains, B.C.</b> Three weeks of geological mapping, prospecting and sampling of several Cu-Au-Mo porphyry prospects.
July 2011	<b>Kliyul Project, Omineca Mountains, B.C.</b> Geological surveying and prospecting of a diorite-associated Cu-Au porphyry prospect.
Dec 2010–Jan 2011	<b>Eskom Project, Western Cape, South Africa</b> Four weeks of detailed trench mapping and drilling of Miocene-to recent-aged faults

June-Aug 2010	<b>Boulevard Project, Yukon</b> ~80 days of drilling, soil sampling, <i>in situ</i> XRF analysis, and geological mapping of gold prospects in the White Gold district
May-Aug 2009	<b>Margate Area Project, KwaZulu-Natal South Coast, South Africa</b> ~60 days of 1:50,000 mapping of complexly deformed igneous and metamorphic rocks in the Natal Metamorphic Province
April 2009	<b>Eastern Limb Project, Bushveld Complex, South Africa</b> Five day field reconnaissance tour of the Eastern Limb, Bushveld Complex, on behalf of the South African Committee on Stratigraphy (SACS)
Aug 2008	<b>North Spirit Lake Greenstone Belt, Ontario, Canada</b> Reconnaissance prospecting, mapping and sampling of greenstone belt
April 2008	<b>Rustenburg Section, Bushveld Complex, South Africa</b> Two day visit to one of the Bushveld's largest PGE mines to orient new MSc student
Oct 2007	<b>Two Rivers Platinum Mine, Eastern Bushveld Complex, South Africa</b> 14 days of logging and sampling UG2 PGE deposit in drill core to kick off post-doc research
Sept 2007	<b>Rhino Andalusite Mine, South Africa</b> Single-day excursion to an andalusite mine
July 2007	<b>Barberton Greenstone Belt, South Africa</b> Supervised undergraduate mapping projects and visited the Sheba Gold Mine
June 2007	<b>Namaqua-Natal and Damara Mobile Belts, South Africa</b> Supervised undergraduate mapping of complexly deformed Proterozoic rocks
May 2007	<b>Inhaca and Portuguese Islands, Mozambique</b> Supervised honours student mapping projects in a modern sedimentary environment
Oct 2006	<b>Notakwanon Uranium Prospect, Labrador</b> Several days of radiometric prospecting for uranium and REE mineralization in an alkali granite complex
Sept 2006	<b>Viking Gold Prospect, Newfoundland</b> Five days of geological mapping, prospecting and sampling of shear zone-hosted gold
Aug 2006	<b>Rocky Brook Uranium Prospect, Newfoundland</b> Two days of detailed radiometric prospecting
July 2006	<b>Merasheen Island Gold Prospect, Newfoundland</b> 1 week program focussed on mapping and sampling of a high-sulphidation gold system
July 2005	<b>Michikamau Nickel Prospect, Labrador</b> One-month exploration program focussed on mapping and sampling of magmatic sulphide prospect
Aug 2004	<b>Kiglapait Mountains, Labrador</b> Guided and assisted a 4 week geological mapping and sampling program of complexly deformed Archean rocks in a remote part of Labrador
Parts of 2000-02	<b>Nain Area, Labrador</b> Conducted 24 weeks of 1:10,000 mapping on plutonic rocks that lie just north of the Voisey's Bay nickel deposit

## PUBLICATIONS (PEER REVIEWED)

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- 2012 **Voordouw, R.J.** and Rajesh, H.M. (2012). Granitoids from the Margate Terrane and their implications for tectono-magmatic models of the Natal Metamorphic Province (South Africa). *South African Journal of Geology*, 115: 47-64, doi: 10.2113/gssajg.115.1.47
- 2010 **Voordouw, R.J.** (2010a). A D<sub>3</sub> shear zone in the Margate Terrane and its implications for regional deformation in the Natal Metamorphic Province (South Africa). *South African Journal of Geology*, 113:183-194, DOI 10.2113/gssajg.113.2.183
- 2010 **Voordouw, R.J.** (2010b). Igneous structure and texture of the ~1.3 Ga Hosenbein anorthosite intrusion (Nain, Labrador) and implications for the crystallization of massif-type anorthosite. *Atlantic Journal of Geology*, 45:19-35.
- 2010 **Voordouw, R.J.**, Gutzmer, J., and Beukes, N. (2010). Zoning of platinum group mineral assemblages in the UG2 chromitite determined through *in situ* SEM-EDS-based image analysis. *Mineralium Deposita*, 45:147-159, doi: 10.1007/s00126-009-0265-z.
- 2009 **Voordouw, R.J.**, Gutzmer, J., and Beukes, N. (2009). Intrusive origin for Upper Group (UG1, UG2) stratiform chromitite seams in the Dwars River area, Bushveld Complex, South Africa. *Mineralogy and Petrology*, 97:75-94, doi: 10.1007/s00710-009-0072-3.
- 2009 **Voordouw, R.J.**, and Beukes, N. (2009). Alteration and metasomatism of the UG2 melanorite and its stratiform pegmatoids (Bushveld Complex, South Africa) – characteristics, timing and origins. *South African Journal of Geology*, 112:47-64.
- 2008 Myers, J.S., **Voordouw, R.J.**, and Tettelaar, T. (2008). Proterozoic anorthosite-granite Nain batholith: structure and intrusion processes in an active lithosphere-scale fault zone, northern Labrador. *Canadian Journal of Earth Science*, 45, p. 909-934.
- 2006 **Voordouw, R.J.** (2006). Geology of Mesoproterozoic anorthosite intrusions in the vicinity of Nain, Labrador. Unpublished PhD thesis, Memorial University of Newfoundland, 340 pp., 1:500 000 and 1:20 000 geological maps

## PRESENTATIONS

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- 2009 **Voordouw, R.J.** (2009a). Intrusive nature of UG1 and UG2 chromitite and economic implications. PPM Colloquium, Nov 4<sup>th</sup> 2009, University of Johannesburg
- 2009 **Voordouw, R.** (2009b). Intrusive nature of UG1 and UG2 chromitite and economic implications. Presentation for Geological Society of KwaZulu-Natal, Oct 29<sup>th</sup> 2009, University of KZN
- 2008 **Voordouw, R.** (2008a). Mineralogy of UG2 chromitite and its enveloping silicate rocks at Two Rivers Platinum Mine, Eastern Bushveld Complex. PPM Colloquium, Nov 10<sup>th</sup> 2008, University of Johannesburg
- 2008 **Voordouw, R.J.** (2008b). Origin of layering in anorthositic and gabbroic rocks. GSSA-SEG Joint Conference, July 2008, Johannesburg.
- 2004 **Voordouw, R.J.** (2004). Anorthosite plutons of the Nain batholith: sheets and shear zones. Program and Abstracts, CGU-AGU-SEG-EEGS Joint Assembly, Montreal, May 2004.
- 2003 **Voordouw, R.J.** (2003). Geology of Proterozoic anorthosite intrusion in the Nain Plutonic Suite, Labrador. Program and Abstracts, GACMAC Joint Annual Meeting, May 2003, Vancouver.

## COURSES

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2013	Deposits in Mafic and Ultramafic Rocks – Nickel and Elements of the Platinum Chromite Group. AEMQ Short Course, Quebec City, November 11 <sup>th</sup> 2013.
2013	Introduction to Resource Estimation. AMEBC Short Course, Round-Up Conference, Vancouver, January 25 <sup>th</sup> 2013.
2012	Mexico: Emerging Trends in Established Mining Districts. MEG Short Course, Vancouver, December 12 <sup>th</sup> , 2012.
2012 & 13	Dangerous/Predatory Wildlife Shotgun Defence Training. Executive Firearms Training, Port Coquitlam & District Hunting & Fishing Club, Coquitlam BC.
2012	Exploration Safety Workshop for Project Managers. AMEBC Workshop, Vancouver, Mar 30 <sup>th</sup> 2012.
2012	Applied Structural Geology in Exploration: Deciphering Ore Plunge Controls in Your Deposit. AMEBC Short Course, Round-Up Conference, Vancouver, January 20 <sup>th</sup> 2012.
2012	Exploration Geochemistry, AME BC Round-Up Short Course, Vancouver, January 21–22 2012.
2011	White Hot Yukon – Rocks and Beyond: New Perspectives on the Metallogenic Framework of the Yukon. MEG Short Course, Vancouver, December 15 <sup>th</sup> 2011.
2011	Geophysics for Geologists: A Workshop on the Basics in Application of Airborne Geophysics and its Role in Exploration. Fugro Airborne Surveys Short Course, Vancouver, November 24 <sup>th</sup> 2011.
2011	Alkalic Porphyry Deposit Mapping Course, Copper Mountain, BC. MDRU Short Course 61, Princeton BC, May 14 – 20 2011.
2009	Geostatistics for Non-Geostatisticians: Unpacking the Geostatistical Toolbox. Geological Association of South Africa, Johannesburg, Aug 28 <sup>th</sup> 2009.

## ASSOCIATION/SOCIETY MEMBERSHIPS

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Since 2006	Professional Engineers & Geoscientists Newfoundland & Labrador – P.Geo since 2013
Since 2010	Geological Society of South Africa (GSSA)
Since 2011	Association for Mineral Exploration British Columbia (AMEBC)
Since 2012	Society of Economic Geologists (SEG)