

Curriculum Vitae - Richard Spikings

Personal Details

RICHARD ALAN SPIKINGS

British, 26th March, 1971

Department of Mineralogy
University of Geneva
Rue des Maraichers, 13
1205 Geneva 4, Switzerland
Tel. +41 22 379 31 76 (office), Fax. +41 22 379 3210
richard.spikings@unige.ch

Academic positions and education

October 2004 - present Scientific collaborator level III, scientific research, manager of the thermochronology laboratory (two noble gas mass spectrometer facilities and a fission-track laboratory), **University of Geneva**, Switzerland.

March 2002 – October 2004 Post-doctoral Research Fellow, **University of Geneva**, Switzerland.

April 2001 – March 2002 Wissenschaftlicher Mitarbeiter in Geology (tenured). **University of Potsdam**, Germany.

March 1998 – March 2001 Post-doctoral Research Fellow in Geology, **Eidgenössische Technische Hochschule (ETH), Zürich**, Switzerland.

March 1994 – January 1998 Postgraduate studies towards a Ph.D (Earth Sciences), **La Trobe University**, Melbourne, Australia, "Thermochronology and Tectonics of the Mount Isa, Murphy and Georgetown Inliers, Northeastern Australia".

September 1989 – June 1993 1st class BSc. (hons) in Geochemistry, **St. Andrews University**, Scotland. Thesis "Rare Earth Elements in Carbonatites, Central Namibia".

Awards

March 1994 – January 1998 Scholarships: 1. Australian Geodynamic Cooperative Research Center Postgraduate Scholarship AUS15000/a, 2. La Trobe University Postgraduate Scholarship, AUS15000/a.

September 1989 - June 1990 St Andrews gold medal: biochemistry medal (1st place), solid-state chemistry medal (1st place), general chemistry medal (1st place), organic chemistry medal (1st place).

Grants Awarded from Swiss Institutions (total value since 2000: CHF 2,003,144)

April 2013 Swiss NSF "Advancing U-Pb high temperature thermochronology by combining single grain and intra-grain dating". **CHF 267,720.00**

March 2011 Swiss NSF (200020_134443) "Thermochronology and tectonics of the Northern Andes (Colombia and Ecuador)". **CHF 152 575.00.**

April 2010 Swiss NSF "Thermochronology and Tectonics of the circum-Maracaibo region, and experimental analysis of multi-domain diffusion thermochronology". **CHF 239 480.**

December 2009 Foundation Ernst and Lucie Schmidheiny. "Upgrading the ⁴⁰Ar/³⁹Ar laboratory at the University of Geneva". **CHF 17 943.**

October 2009 Swiss NSF (206021_128146) R'Equip "Upgrading the ⁴⁰Ar/³⁹Ar laboratory at the University of Geneva". **CHF 62 943.**

March 2008 Swiss NSF (200020_119871) "Thermochronology and tectonics of the Northern Andes (Colombia and Ecuador)". **CHF 204 230.00.**

June 2007 Swiss NSF (206021_117359) "Acquisition of a Fission Track Analytical Facility". **CHF 114 845.**

June 2007 Funds Ernst and Lucie Schmidheiny. "Acquisition of a Fission Track Analytical Facility". **CHF 20 000.**

June 2007 Société Académique de Genève (Funds Birkigt). "Acquisition of a Fission Track Analytical Facility". **CHF 20 000.**

May 2007	Funds Gomarín. "Acquisition of a Fission Track Analytical Facility". CHF 40 000.
April 2007	Swiss NSF (200020_116572) "Probing lithosphere processes through geochemical and geochronological studies: intracontinental rifting and subduction-related magmatism in Southern Peru". CHF 264 803.
July 2006	Swiss Academy of Sciences SCNAT, "Thermochronology of the South Caribbean Plate Boundary Zone: Dutch Antilles and the Sierra Nevada de Santa Marta, Colombia". CHF 2 900.
July 2006	Fonds Birkigt. "Thermochronology of the South Caribbean Plate Boundary Zone: Dutch Antilles and the Sierra Nevada de Santa Marta, Colombia". CHF 3 750.
March 2005	Swiss NSF (21_54773.21) "Thermal and tectonic history of the Western and Central cordilleras of Colombia". CHF 200 000.
February 2005	Société Académique de Genève "The geological evolution of mountain belts and continental interiors: multiple reasons for automating the ⁴⁰ Ar/ ³⁹ Ar laboratory". CHF 10 000.
March 2002	Swiss NSF (20_56794.20) "Cretaceous and Tertiary geodynamic evolution of the Andean forearc in Ecuador". CHF 381 955.
September 1999	Swiss NSF (20_56794.99) "Thermal history of the Western Cordillera, Ecuador".

Graduate students (MSc and PhD)

Ryan Cochrane, August 2009 - ongoing. Thermochronology and tectonics of the Northern Andes (Colombia and Ecuador). **PhD Thesis**, University of Geneva.

Roelant Van der Lelij, August 2008 – ongoing. Thermochronology and Tectonics of the circum-Maracaibo region, and experimental analysis of multi-domain diffusion thermochronology. **PhD Thesis**, University of Geneva.

Mariel Reitsma, November 2007 – 2011. The life and death of a continental rift: the Mitu Rift of southeastern Peru. **PhD Thesis**, University of Geneva.

Flora Boekhout, September 2007 – 2011. Geochronological and geochemical characterisation of Triassic-Volcanic volcanic rocks in the Arequipa Block, Peru. **PhD Thesis**, University of Geneva.

Roelant Van der Lelij, August 2006 – April 2008. Thermochronology of the South Caribbean Plate Boundary Zone: Dutch Antilles and the Sierra Nevada de Santa Marta, Colombia. Supervisor: Dr. Richard Spikings. **MSc Thesis**, University of Geneva.

Jenny Skoog, August 2005 – August 2007. Thermochronology of the East African Rift system in northern Tanzania. **MSc Thesis**, University of Geneva and Trinity College, Dublin (Ireland).

Diego Villagomez, April 2005 – 2010. Accretionary and post-accretionary cooling, exhumation and tectonic history of the central and western Andes of Colombia. **PhD Thesis**, University of Geneva.

Cristian Vallejo, March 2003 – January 2007. Accretionary and post-accretionary history of the Cordillera Occidental, Ecuador. **PhD Thesis**, ETH- Zürich.

Leonard Luzieux, March 2003 – December 2006. A geodynamic reconstruction of oceanic, allochthonous, western Ecuador. **PhD Thesis**, ETH- Zürich.

Peter Abegglen, March 1999 – March 2001. Geologie des intermontanen Beckens von Chota (Pliozän, Nordecuador)-Westteil. **MSc. Thesis**, ETH- Zürich.

Stefan Tobler, March 1999 – March 2001. Geologie des intermontanen Beckens von Chota (Pliozän, Nordecuador)-Westteil. **MSc. Thesis**, ETH- Zürich.

List of peer reviewed publications

(including those in press and submitted)

Spikings, R.A., Foster, D.A. and Kohn, B.P., 1997. Phanerozoic denudation history of the Mount Isa Inlier, Northern Australia: a record of the response of a Proterozoic mobile belt to intraplate tectonics. *International Geological Reviews* 39, 107 – 124.

Spikings, R.A., Seward, D., Winkler, W. and Ruiz, G. 2000. Low temperature thermochronology of the northern Cordillera Real, Ecuador: tectonic insights from zircon and apatite fission track analysis. *Tectonics* 19, 649 – 668.

Spikings, R.A., Foster, D.A., Kohn, B.P. and O'Sullivan, P.B., 2001. The Late Neoproterozoic to Recent thermal history of the Precambrian Georgetown Inlier, northeast Australia. *Australian Journal of Earth Sciences* 48, 9 - 24.

Spikings, R.A., Winkler, W, Seward, D. and Handler R., 2001. Along strike variations in the thermal and tectonic response of the continental Ecuadorian Andes to the collision with heterogeneous oceanic crust. *Earth and Planetary Science Letters* 186, 57 - 73.

Spikings, R.A., Winkler, W, Seward, D. and Handler R., 2001. Along strike variations in the thermal and tectonic response of the continental Ecuadorian Andes to the collision with heterogeneous oceanic crust. *Earth and Planetary Science Letters* 186, 57 - 73.

Spikings, R.A., Foster, D.A., Kohn, B.P. and Lister, G.S., 2001. Post-orogenic thermal history of the Mesoproterozoic Eastern Successions, Mount Isa Inlier, Australia. *Precambrian Research* 109, 103 - 144.

Beate, B., Monzier, M., **Spikings, R.,** Cotton, J., Silva, J., Erwan, B. and Eissen, J-P., 2001. Mio-Pliocene adakite generation related to flat subduction in Southern Ecuador: The Quimsacocha volcanic center. *Earth and Planetary Science Letters* 192, 499 – 508.

Spikings, R.A., Foster, D.A., Kohn, B.P. and Lister, G.S., 2002. Post-orogenic (<1500 Ma) thermal and tectonic reactivation history of some Palaeo- Mesoproterozoic provinces in NE Australia. *Tectonophysics* 349, 327 – 365.

Spikings, R. and Crowhurst, P., 2004. (U-Th)/He thermochronometric constraints on the Late Miocene – Pliocene tectonic development of the northern Cordillera Real and the Interandean Depression, Ecuador. *Journal of South American Earth Sciences* 17, 239 – 251.

Spikings, R.A., Winkler, W., Hughes, R.A., Handler, R., 2005. Thermochronology of the Cordillera Occidental and the Amotape Complex, Ecuador: unravelling the accretionary and post-accretionary history of the Northern Andes. *Tectonophysics* 399, 195 – 220.

Winkler, W., Villagomez, D., **Spikings, R.,** Eguez, A., Tobler, S. and Abegglen, P., 2005. The Chota Basin and its significance for the formation of the Inter-Andean Depression in Ecuador. *Journal of South American Earth Sciences* 19, 5 – 19.

Spikings, R.A., Kohn, B.P. and Foster, D.A., 2006. A regional scale low temperature (<110°C) thermal history study of the Mt. Isa and Murphy Inliers, NE Australia. *Australian Journal of Earth Sciences* 53, 151 - 166.

Vallejo, C., **Spikings, R.,** Luzieux, L., Winkler, W., Chew, D., Page, L., 2006. The Early Interaction between the Caribbean Plateau and the NW South American Plate. *Terra Nova* 18, 264 - 269.

Luzieux, L.D.A., Heller, F., **Spikings, R.,** Vallejo, C.F., Winkler, W., 2006. Origin and cretaceous tectonic history of the coastal Ecuadorian forearc between 1°N and 3°S: Paleomagnetic, Radiometric and Fossil evidence. *Earth and Planetary Science Letters* 249, 400 - 414.

Chew D.M., Schaltegger U., Kosler J., Whitehouse M.J., Gutjahr M., **Spikings R.A.,** Miskovic A., 2007. U-Pb evidence for the evolution of the Gondwanan margin of the north-central Andes. *Geological Society of America Bulletin* 119, 697 - 711.

Marshik, R., **Spikings, R.,** Kusku, I., 2007. Geochronology and stable isotope signature of alteration related to hydrothermal iron oxide ores in Central Anatolia. *Mineralium Deposita*, DOI: 10.1007/s00126-007-0160-4.

Spikings, R., Dungan, M., Foeken, J., Carter, A., Page, L., Stuart, F., 2008. Tectonic response of the central Chilean margin (35°-38°S) to the collision and subduction of heterogeneous oceanic crust: a thermochronological study. *Journal of the Geological Society* 165, 941 - 953.

Bendezú, R., Page, L., **Spikings, R.,** Pecksay Z., Fontboté, L., 2008. Infra-red (CO₂) laser ⁴⁰Ar/³⁹Ar analysis of alunites from the Miocene Colquijirca District, central Peru. *Mineralium Deposita* DOI 10.1007/s00126-008-0195-1.

Chew, M.D., Magna, T., Kirkland, C.L., Mišković, A., Cardona, A., **Spikings**, R.A., Schaltegger, U., 2008. Detrital zircon fingerprint of the Proto-Andes: evidence for a Neoproterozoic active margin? *Precambrian Research* 167, 186 - 200.

Vallejo, C., Winkler, W., **Spikings**, R.A., Luzieux, L., Heller, F., Bussy, F., 2009. Mode and timing of terrane accretion in the forearc of the Andes in Ecuador Backbone of the Americas: Shallow Subduction, Plateau Uplift, and Ridge and Terrane Collision, Eds. Suzanne M. Kay, Víctor A. Ramos, William R. Dickinson, *Geological Society of America Special Memoir* 204, 197 – 216.

Miskovic, A, **Spikings**, R. A., Chew, D.M., Kosler, J., Schaltegger, U., 2009. Tectono-magmatic evolution of Western Amazonia: geochemical characterisation and zircon U-Pb geochronologic constraints from the Peruvian Eastern Cordilleran granitoids. *Geological Society of America Bulletin* 121, 1298 - 1324.

Baumgartner, R., Fontbote, L., **Spikings**, R., Ovtcharova, M., Schaltegger, U., Schneider, J., Gutjahr, M., Page, L., 2009. Submitted. Bracketing the age of magmatic-hydrothermal activity at the Cerro de Pasco polymetallic deposit, Central Peru: A U-Pb and $^{40}\text{Ar}/^{39}\text{Ar}$ study. *Economic Geology* 104, 479 - 504.

Chiaradia, M., Merino, D., **Spikings**, R., 2009. Rapid transition to adakite-like magmatism, long-lived deep crustal magmatic maturation and the formation of giant porphyry-type mineralization (Yanacocha, Peru). *Earth and Planetary Science Letters* 288, 505 - 515.

Marton, I., Moritz, R., **Spikings**, R., 2010. Application of low-temperature thermochronology to hydrothermal ore deposits: formation, preservation and exhumation of epithermal gold systems from the Eastern Rhodopes, Bulgaria. *Tectonophysics* 483, 240 - 254.

Bonev, N., **Spikings**, R., Moritz, R., Marchev, R., 2010. Evidence from the Kulidjik nappe for an early Alpine thrust tectonics in the Rhodope Massif, Bulgaria. *Tectonophysics* 488, 256 - 281.

Van der Lelij, R., **Spikings**, R.A., Kerr, A., Kounov, A., Cosca, M., Chew, D., Villagomez, D., 2010. Thermochronology and Tectonics of the Leeward Antilles: evolution of the Southern Caribbean Plate Boundary Zone. *Tectonics* doi:10.1029/2009TC002654.

Spikings, R., Crowhurst, P.V., Winkler, W., Villagomez, D., 2010. Syn- and post accretionary cooling history of the Ecuadorian Andes constrained by their in-situ and detrital thermochronometric record. *Journal of South American Earth Sciences* 30, 121 - 133.

Moritz, R., Márton, I., Ortelli, M., Marchev, P., Voudouris, P., Bonev, N., **Spikings**, R., Cosca, M., submitted. A review of age constraints of epithermal precious and base metal deposits of the Tertiary Eastern Rhodopes: coincidence with Late Eocene-Early Oligocene tectonic plate reorganization along the Tethys. *Economic Geology*

Marchev, P., **Spikings**, R., Kibarov, P., Ovtcharova, M., Márton, I. Moritz, R., submitted. $^{40}\text{Ar}/^{39}\text{Ar}$ and U-Pb geochronology of the Iran Tepe volcanic complex, Eastern Rhodopes. *Tectonophysics*.

Villagomez, D., **Spikings**, R., Mora, A., Cardona, A., Guzman, G., Van der Lelij, R., Parra, M., 2011. Low temperature thermochronology of the Sierra Nevada de Santa Marta, Colombia: vertical tectonics at a continental crust-oceanic plateau, plate boundary zone. *Tectonics*, doi:10.1029/2010TC002835.

Villagomez, D., **Spikings**, R., Magna, T., Kammer, A., Winkler, W., Beltran, A., 2011. Geochronology, geochemistry and tectonic evolution of the Western and Central cordilleras of Colombia. *Lithos* 125, 875 – 896.

Weisenberger T., Rahn M., van der Lelij, R., **Spikings**, R., Bucher, K., 2012 (in press). Timing of low-temperature mineral formation during exhumation and cooling in the Central Alps, Switzerland (Central Alps, Switzerland). *Earth and Planetary Science Letters*.

Dissertori, G., Luckey, D., Nessi-Tedaldi, F., Pauss, F., Wallny, R., **Spikings**, R., van der Lelij, R., and Izquierdo, G. A., 2012, (in press). A visualization of the damage in Lead Tungstate calorimeter crystals after exposure to high-energy hadrons. Nuclear Instruments and Methods in Physics Research, Section A.

Boekhout, F., **Spikings**, R., Sempere, T., Chiaradia, M., Ulianov, A., Schaltegger, U., 2012. Mesozoic arc magmatism along the southern Peruvian margin during Gondwana breakup and dispersal. *Lithos* 146-147, 48-64. DOI: [10.1016/j.lithos.2012.04.015](https://doi.org/10.1016/j.lithos.2012.04.015)

Chiaradia, M., Schaltegger, U., **Spikings**, R., Wotzlaw, J.-F., Ovtcharova, M., in press. How accurately can we date the duration of magmatic-hydrothermal events in porphyry systems? *Econ. Geol.*

Villagomez, D., **Spikings**, R., in press. Thermochronology and Tectonics of the Western and Central Cordilleras of Colombia. *Lithos*

Spikings, R., submitted. Exhumation of continental crust due to the collision, accretion and subduction of buoyant and anomalously thick oceanic indentors. *Terra Nova*

Cochrane, R., **Spikings**, R., Putlitz, B., Gerdes, A., Ulianov, submitted. Time-scales of oblique rifting: Triassic anatexis and juvenile melt penetration along western Gondwana. *Tectonics*

Cochrane, R., **Spikings**, R.A., Chew, D., Wotzlaw, J.-F., Chiaradia, M., Tyrell, S., Schaltegger, U., Van der Lelij, U., submitted. Isotopic closure, volume diffusion and the thermal history of the Earth's crust. *Earth Plan. Sci. Lett.*

Conference abstracts

Spikings, R.A., Foster, D.A., Gleadow, A.J.W and Kohn, B.P., 1996. Phanerozoic tectonic and denudational history of the Mt. Isa Inlier, Queensland. *Geological Society of Australia*, Abstracts No. 41, p. 414.

Spikings, R.A., Foster, D.A., Gleadow, A.J.W. and Kohn, B.P., 1996, Phanerozoic Faulting and erosional history of the Mt. Isa and Murphy Inliers, Australia. *International Workshop on Fission Track Dating* Abstracts, University of Gent, Belgium, 1996. p. 108.

Spikings, R.A., Foster, D.A. and Kohn, B.P., 1997. Denudation and Tectonics of the Mt. Isa and Murphy Inliers. Abstracts, Geodynamics and Ore Deposits Conference, *Australian Geodynamics Cooperative Research Centre*, Ballarat, Victoria, p. 133.

Spikings, R.A., Ruiz, G., Winkler, W. and Seward, D. 1998. The Geodynamic history of the Cordillera Real and Oriente Foreland Basin, Ecuador.- 16. Geowissenschaftliches Lateinamerika-Kolloquium, Bayreuth October 14-16, *Terra Nostra* 98/5, p.161.

Spikings, R.A., Seward, D. and Winkler, W., 1999. Low temperature thermochronology of the northern Cordillera Real, Ecuador: insights into tertiary tectonics. Abstracts *International Symposium on Andean Geodynamics*, Göttingen, October 4-6, p. 707 - 711.

Spikings, R.A., 1999. A Thermal Record of the Assembly and Break-Up of Rodinia and Gondwana in the Palaeoproterozoic Mt. Isa and Georgetown Terranes, Northeastern Australia. EUG 10, The Journal of Conference Abstracts, 4, p. 804.

Ruiz, G., **Spikings, R.A., Winkler, W. and Seward, D., 1999.** Development of a Foreland Basin in a Retro-Arc position, Oriente Basin (Ecuador). EUG 10, The Journal of Conference Abstracts, 4, p. 311.

Ruiz, G., **Spikings, R.A., Winkler, W. and Seward, D., 1999.** Apatite and zircon fission-track analysis of the Ecuadorian Sub-Andean zone: a record of the Oriente Geodynamics since early Jurassic. Abstracts *International Symposium on Andean Geodynamics*, Göttingen, October 4-6, p. 634 – 635.

Spikings, R.A., Kohn, B.P. and Foster, D.A., 2000. $^{40}\text{Ar}/^{39}\text{Ar}$ and apatite fission-track thermochronology of Palaeoproterozoic cratons in NE Australia. In W.P. Noble, P.B. O'Sullivan and R.W. Brown eds. 9th International Conference on Fission Track Dating and Thermochronology, Lorne. Geological Society of Australia Abstracts No. 58, 297 – 299.

Spikings, R.A., Seward, D. and Winkler, W., 2000. Post-Palaeocene tectonic history of the Northern Cordillera Real, Ecuador: tectonic insights from zircon and apatite fission-track analysis. In W.P. Noble, P.B. O'Sullivan and R.W. Brown eds. 9th International Conference on Fission Track Dating and Thermochronology, Lorne. Geological Society of Australia Abstracts No. 58, 301 - 303.

Ruiz, G., Seward, D., Winkler, W., **Spikings, R., Poda, O., 2001.** Apatite and Zircon Fission Track Analysis of the Ecuadorian Sub-Andean Zone: A Record of the Cretaceous and Tertiary Andean Geodynamics. 8-12.3.2001, EUG 11, Strasbourg, France, Journal of Conference Abstracts, 6, 712

Spikings, R.A., Winkler, W., Seward, D., Handler, M. and Ruiz, G., 2001. Variations in the cooling and denudation history of the continental Ecuadorian Andes to collision with oceanic crust: evidence from $^{40}\text{Ar}/^{39}\text{Ar}$ and fission-track thermochronology. 8-12.3.2001, EUG 11, Strasbourg, France, Journal of Conference Abstracts, 6, 712

Vallejo, C, Ruiz, G., Hochuli, P.A., **Spikings, R.A., Winkler, W., 2001.** Basin settings and depositional environment of the Napo Group (Subandean Zone and Oriente Basin, Ecuador). 8-12.3.2001, EUG 11, Strasbourg, France, Journal of Conference Abstracts, 6, 251

Spikings, R.A., 2001. Cenozoic evolution of the Ecuadorian Eastern Cordillera: a thermochronological approach. DMG, 9.14.9.2001, Potsdam, European Journal of Mineralogy 13, 178.

Spikings, R.A., Seward, D. and Winkler, W., 2002. The timing and geographical extent of accretion of oceanic crust in Ecuador; a combined $^{40}\text{Ar}/^{39}\text{Ar}$ and fission-track approach. In "Fission-track analysis: theory and applications" Eds (Luis Barbero and Ferrán Colombo), GEOTEMAS 4, p. 147.

Spikings, R.A., Winkler, W., Seward, D., Ruiz, G. and Handler, R., 2002. Terrane accretion and orogenic growth in Ecuador. ISAG 2002, Toulouse, p. 617.

Winkler, W., **Spikings, R., Villagomez, D., Eguez, A., Abegglen, P. and Tobler, S., 2002.** The Chota Basin and its significance for the formation of the Inter-andean valley in Ecuador. ISAG 2002, Toulouse, p. 705.

Ruiz, G., Seward, D., Winkler, W. and **Spikings, R.A., 2002.** Detrital provenance and Exhumation in the Ecuadorian Sub-Andean Zone: a key region leading to the understanding of Andean Geodynamics. ISAG 2002, Toulouse, p. 565.

Villagomez, D., Eguez, A., Winkler, W. and **Spikings, R., 2002.** Plio-Quaternary sedimentary and tectonic evolution of the central Inter-andean Valley in Ecuador. ISAG 2002, Toulouse, p. 689.

Spikings, R.A., Winkler, W., Seward, D., Handler, R. and Ruiz, G., 2002. The thermal and tectonic response of the Ecuadorian continental margin to the accretion and subduction of heterogeneous oceanic crust. VIII Congreso Ecuatoriano, Quayaquil, Ecuador, August. **(Key note presentation)**

Spikings, R.A., Winkler, W., Seward, D., Hughes, R., Handler, R. and Crowhurst, P., 2003. The relationship between orogenesis, terrane accretion and the subduction of oceanic ridges in the Ecuadorian Andes. EGS-AGU-EUG Joint Assembly, Nice, 6th – 11th April.

Crowhurst, P.V. and **Spikings**, R.A., 2003. Late Miocene – Recent tectonic development of the northern Cordillera Real, Ecuador: new insights using U-Th-He thermochronology. SGTSG Kalbarri, Australia, September.

Luzieux, L., Vallejo, C., Winkler, W., Heller, F., **Spikings**, R. and Hochuli, P., 2003. Origin and accretionary history of oceanic terranes along the Ecuadorian margin between 2°S-1°N: Preliminary results. Swiss Geosciences Meeting, Basel, 28th – 29th November.

Vallejo, C., Winkler, W., **Spikings**, R., Luzieux, L., Hochuli, P. and Heller, F., 2003. Provenance analysis of accreted units in the Western Cordillera of the Ecuadorian Andes, preliminary results. Swiss Geosciences Meeting, Basel, 28th – 29th November.

Winkler, W., Villagómez, D., **Spikings**, R., Tobler, S., Abegglen, P. and Egüez, A., 2003. The Inter-Andean Depression in Ecuador, revisited. Swiss Geosciences Meeting, Basel, 28th – 29th November.

Spikings, R., Winkler, W., Hughes, R., Handler, R. and Crowhurst, P., 2003. Orogenesis, terrane accretion and the subduction of oceanic ridges in the Ecuadorian Andes: a ⁴⁰Ar/³⁹Ar, fission-track and (U-Th)/He study. Swiss Geosciences Meeting, Basel, 28th – 29th November.

Dungan, M.A., Davidson, J.P., Frey, F.A., Hildreth, W., Lopez-Escobar, L., **Spikings**, R., Selles, D. and Rodriguez, C., 2003. Do along-strike geochemical patterns in the Quaternary Southern Volcanic Zone of the Andes (SVZ: 33° - 41°S) record major discontinuities in the Andean crust? Terrane processes at the Pacific margin of Gondwana (TAPMOG) meeting.

Spikings, R. and Crowhurst, P., 2004. A comparison of thermal histories derived from apatite fission track analysis and apatite (U-Th)/He analysis: an example from the Cordillera Real, Ecuador. EGU Assembly, Nice, 25th – 30th April.

Page, L., **Spikings**, R. Bendezú and Fontboté, L., 2004. Step-wise infra-red (CO₂) laser ablation ⁴⁰Ar/³⁹Ar analysis of hydrothermal alunites: an example from Colquijirca district, central Peru. EGU Assembly, Nice, 25th – 30th April.

Spikings, R., Winkler, W., Hughes, R., Handler, R. and Crowhurst, P., 2004. ⁴⁰Ar/³⁹Ar, fission-track and (U-Th)/He data from the northern Andes: interactions between the Pacific, Caribbean and South American plates. 10th International Conference on Fission Track Dating and Thermochronology, Amsterdam.

Spikings, R. and Crowhurst, P., 2004. Complimentary thermal histories derived from fission track and (U-Th)/He analyses of apatites: an example from the Cordillera Real, Ecuador. 10th International Conference on Fission Track Dating and Thermochronology, Amsterdam.

Bendezú, R. Baumgartner, R., Fontboté, L. Page, L., Pecskey, Z and **Spikings**, R., 2004. ~2 My of pulsed high sulfidation hydrothermal activity in the Cerro de Pasco-Colquijirca "super district", Peru. Combining furnace and infra-red laser ⁴⁰Ar/³⁹Ar, and K/Ar analysis on alunite. Society of Economic Geologists, Perth, Australia, September 2004.

Luzieux, L., Vallejo, C., Winkler, W., Heller, F., **Spikings**, R. and Hochuli, P., 2004. A palaeomagnetic investigation of allochthonous blocks in the Ecuadorian forearc between 1°N-3°S. Swiss Geosciences Meeting, Lausanne, November.

Spikings, R. and Crowhurst, P., 2004. The relative response of the apatite (U-Th)/He and fission-track systems to the same thermal histories: an example from the Eastern Cordillera, Ecuador. Swiss Geosciences Meeting, Lausanne, November.

Chew, D., Daly, S., Page, L. and **Spikings**, R., 2004. Constraints on the Grampian Orogeny through dating blueschist metamorphism and ophiolite obduction in western Ireland.

Winkler, W., **Spikings**, R., Ruiz, G., Seward, D., Martin-Gombojav, N. and Egüez, A. 2005. The Andean Amazon Basin (Ecuador): evidence for tectonic orogenic growth in the clast supplying Andean cordilleras. EGU Assembly, Vienna, 25th – 30th April.

Spikings, R.A., Crowhurst, P.V. and Winkler, W., 2005. (U-Th)/He derived thermochronological constraints on the post middle Miocene tectonic history of the Ecuadorian Andes. ISAG, Barcelona, September 12th – 14th, 705 – 708.

Villagomez, D., **Spikings**, R., Gorin, G. and Winkler, W., 2005. Geochemical, geochronological and isotopic characterisation of the mafic basement and the cover sequences within the Interandean Depression, Ecuador. ISAG, Barcelona, September 12th – 14th, 787 – 790.

Vallejo, C., Winkler, W., **Spikings**, R., Luzieux, L. and Hochuli, P.A., 2005. Geochronology and provenance analysis of basement and clastic cover sequences within the northern Western Cordillera, Ecuador. ISAG, Barcelona, September 12th – 14th.

Luzieux, L., Heller, F., **Spikings**, R., Vallejo, C. and Winkler, W., 2005. Palaeomagnetic investigations on the coastal blocks of Ecuador 1°N-3°S: recorded Cretaceous rotations and its implication for the origin and accretion of the blocks. ISAG, Barcelona, September 12th – 14th, 461 – 463.

Winkler, W., Ruiz, G. M. H., Martin-Gombojav, N., **Spikings**, R. A. and Eguez, A., 2005. The uplift of the Andean cordilleras in Ecuador as recorded by heavy minerals and detrital zircon ages in the Andean Amazon Basin sediment series. . ISAG, Barcelona, September 12th – 14th, 802 – 803.

Dungan, M.A., Langmuir, C.H., **Spikings**, R., Leeman, W.P., Goldstein, S., Davidson, J.P., Costa, D., Selles, D. and Bachman, O., 2005. Assimilative recycling of the plutonic roots of Andean arc volcanoes: rates, physical mechanisms, and geochemical consequences. ISAG, Barcelona, September 12th – 14th, 239 – 241.

Villagomez, D., **Spikings**, R., Winkler, W. and Gorin, G., 2005. Nature and origin of the Interandean Depression in Ecuador. Swiss Geosciences Meeting, Zürich, November.

Baumgartner, R., Fontbote, L., Page, L., Ovtcharova, M. and **Spikings**, R., 2006. 5 My of magmatic and hydrothermal activity at Cerro de Pasco, Central Peru: A ⁴⁰Ar/³⁹Ar and U/Pb geochronological study. SEG, Keystone, USA.

Vallejo, C., Luzieux, L., **Spikings**, R., Winkler, W., Heller, F., 2006. Mode and timing of terrane accretion in the forearc of Ecuador. GSA meeting Backbone of the Americas — Patagonia to Alaska, Mendoza, Argentina.

Spikings, R., Dungan, M., Foeken, J., Carter, A., Page, L., 2007. Tectonic response of the central Chilean margin (35°-38°S) to the collision and subduction of heterogeneous oceanic crust: a thermochronological study. GEOSUR, November, Santiago de Chile.

Moritz, R., Marton, I., Chambefort I, Noverraz C., Marchev, P., Petrunov, R., **Spikings**, R., Bonev, N., 2007. Diversity of epithermal gold ore formation events in southeastern Europe: a record of a protracted 60 m.y.-long geodynamic and metallogenic evolution of the Tethyan arc. 39th International October Conference on Mining and Metallurgy, Bor, Serbia.

Villagomez, D., **Spikings**, R., Seward, D., Magna, T., Winkler, W., 2007. Tectonic evolution of the Northern Andes: constraints from thermochronology and geochronology. Swiss Geosciences Meeting, Geneva, November.

Bonev, N., **Spikings**, R., Moritz, R., Marchev, P., 2008. Structural and ⁴⁰Ar/³⁹Ar geochronology constraints on the Kulidjik Nappe: a record of an early alpine thrust tectonics in the northeastern Rhodope Massif, Bulgaria. Symposium on the Geology of the Aegean, April 28th – 30th, Austin, Texas.

Spikings, R., Dungan, M., Foeken, J., Carter, A., Page, L., 2008. Tectonic response of the central Chilean margin (35°-38°S) to the collision and subduction of heterogeneous oceanic crust: a thermochronological study. International Symposium on Andean Geodynamics, Nice.

Chew, D., Schaltegger, U., Košler, J., Magna, T., Whitehouse, M.J., Kirkland, C.L., Mišković, A., Cardona, A., **Spikings**, R., 2008. U-Pb geochronologic evidence for the Neoproterozoic-Palaeozoic evolution of the Gondwanan margin of the North-Central Andes. International Symposium on Andean Geodynamics, Nice.

Villagómez, D., **Spikings**, R., Seward, D., Magna, T., Winkler, W., Kammer, A., 2008. Thermotectonic history of the Northern Andes. International Symposium on Andean Geodynamics, Nice.

Winkler, W., Vallejo, C., Luzieux, L., **Spikings**, R., Martin-Gombojav, N., 2008. Timing and causes of the growth of the Ecuadorian cordilleras, as inferred from their detrital record. International Symposium on Andean Geodynamics, Nice.

Kouzmanov, K., Schaltegger, U., Ovtcharova, M., Von Quadt, A., Guillong, M., **Spikings**, R., Fontboté L., Rivera, L., 2008. U-Pb and $^{40}\text{Ar}/^{39}\text{Ar}$ age constraints for the timing of magmatism and mineralisation in the giant Toromocho Porphyry Cu-Mo deposit, Central Peru. XIV Congreso Peruano de Geología, Lima, 29 September – 3rd October.

Rahn, M., Selbek, R., **Spikings**, R., Zaugg, A., Burkhalter, R., 2008. Volcanic ash layers in OSM sediments: Clues to their origin and the post-sedimentary tectonic history. 6th Swiss Geoscience Meeting, Lugano.

Boney, N., Marton, I., Moritz, R., **Spikings**, R., Marchev, P., 2009. Tectonic, magmatic and hydrothermal processes associated with tertiary crustal extension in the eastern Rhodope massif, Bulgaria. EGU Vienna, Austria.

Villagomez, D., **Spikings**, R., Van der Lelij, R., Cardona, A., Guzman, G., Ojeda, G., Cortes, E., 2009. Thermochronology and tectonics of the Sierra Nevada de Santa Marta: Constraining the evolution of the Southern Caribbean Plate Boundary Zone. XII Congreso Colombiano de Geología, September, Boyacá.

Villagomez, D., **Spikings**, R., Winkler, W., Kammer, A., 2009. Late Cretaceous-Tertiary thermal and tectonic evolution of the Western and Central cordilleras of Colombia. XII Congreso Colombiano de Geología, September, Boyacá.

Villagómez, D., **Spikings**, R., Winkler, W., Kammer, A., 2009. Late Cretaceous-Tertiary tectonic evolution of Western Colombia. Circum-Caribbean and North Andean tectonomagmatic evolution: impacts on palaeoclimate and resource formation, workshop, University of Cardiff, 2-4 September, p. 15.

Van der Lelij, R., **Spikings**, R., Kounov, A., Cosca, M., Chew, D., 2009. Thermal and Tectonic History of the Leeward Antilles, Aruba and Bonaire. Circum-Caribbean and North Andean tectonomagmatic evolution: impacts on palaeoclimate and resource formation, workshop, University of Cardiff, 2-4 September.

Spikings, R., Winkler, W., 2009. Thermochronology and tectonics of the Ecuadorian Andes: When did the Caribbean Plateau collide with NW South America? Circum-Caribbean and North Andean tectonomagmatic evolution: impacts on palaeoclimate and resource formation, workshop, University of Cardiff, 2-4 September, p. 37.

Reitsma, M., Schaltegger, U., **Spikings**, R., Winkler, W., Carlotto, V., 2010. Constraining the age of the Mitu Group, South-East Peru: U-Pb ages of detrital and igneous zircons. EGU Assembly, Vienna.

Boekhout, F., Sempere, T., **Spikings**, R., Schaltegger, U., 2010. The Jurassic-early Cretaceous Ilo batholith of southern coastal Peru: geology, geochronology and geochemistry. EGU Assembly, Vienna.

Van der Lelij, R., **Spikings**, R., Kerr, A., Kounov, A., Cosca, M., Chew, D., Villagomez, D., 2010. Thermochronology and Tectonics of the Leeward Antilles: evolution of the Southern Caribbean Plate Boundary Zone and accretion of the Bonaire Block. EGU Assembly, Vienna.

Bonev, N., **Spikings**, R., Moritz, R., Stampfli, G., Dilek, Y., Marchev, P., 2010. Mesozoic-Cenozoic geodynamic evolution, tectonics and $^{40}\text{Ar}/^{39}\text{Ar}$ timing of crustal extension in the north Aegean region, the eastern Rhodope Massif, Bulgaria-Greece. Geological Society of America, Ankara.

Reistsma, M., Schaltegger, U., **Spikings**, R., Winkler, W., Carlotto, V., 2010. Constraining the age of the Mitu Group, south-east Peru: U-Pb ages of detrital and igneous zircons. Peruvian national Congress, Cusco.

Van der Lelij, R., **Spikings**, R., Kerr, A., Kounov, A., Cosca, M., Chew, D., Villagomez, D., 2010. Thermochronology of the Leeward Antilles. 12th International Conference on Thermochronology, Glasgow, 16th-20th August.

Spikings, R., 2011. Vertical displacement of continental crust in response to the collision, subduction and accretion of arc crust and passive ridges, examples from the northern, central and southern Andes. Geological Society of America Penrose Meeting, Manizales, Colombia, 17-21 January, 2011. **KEYNOTE.**

Van der Lelij, R., **Spikings**, R., Kerr, A.C., Kounov, A., Cosca, M.A., Chew, D., Villagomez, D., 2011. Thermochronology and tectonics of the Leeward Antilles: evolution of the Southern Caribbean Plate Boundary Zone and accretion of the Bonaire Block. . Geological Society of America Penrose Meeting, Manizales, Colombia, 17-21 January, 2011.

Spikings, R., Villagomez, D., 2011. Rock uplift and exhumation of continental crust in response to the collision of heterogeneous oceanic crust, examples from the northern, central and southern Andes. European Union of Geosciences General Meeting, Vienna, 2011.

Cochrane, R., **Spikings**, R., Winkler, W., Ulianov, A., Chiaradia, M., 2011. Triassic to Early Cretaceous evolution of Ecuador: insights from U-Pb LA-ICP-MS geochronology, geochemistry and provenance studies. European Union of Geosciences General Meeting, Vienna, 2011.

Van der Lelij, R., **Spikings**, R., Ulianov, A., and Chiaradia, M., 2011. From the Rheic ocean to the Proto-Caribbean Sea in Venezuela: 300 million years of magmatism in the Northern Andes. Geophysical Research Abstracts v13, EGU General Assembly. Vienna.

Dissertori, G., Luckey, D., Nessi-Tedaldi, F., Pauss, F., Wallny, R., **Spikings**, R., and van der Lelij, R., 2011. On the mechanisms of damage in lead tungstate crystals exposed to high hadron fluences. IEEE Nuclear Science Symposium, Valencia, Spain.

Van der Lelij, R., **Spikings**, R., Ulianov, A., and Chiaradia, M (2011). 300 million years of magmatism in North-Western Venezuela: Vestiges of the closure of the Iapetus and Rheic oceans and the Breakup of Pangaea. XIV Congreso Latinoamericano de Geologia, Colombia.

Van der Lelij, R., **Spikings**, R., Ulianov, A., and Chiaradia, M (2011). Were the basement rocks of the Venezuelan Andes and the Maya Block connected before the amalgamation of Pangaea? XIV Congreso Latinoamericano de Geologia, Colombia.

Van der Lelij, R., **Spikings**, R., Kerr, A., Kounov, A., Cosca, M., Chew, D., and Villagomez., D., 2011. Tectonic Evolution of the Leeward Antilles: Late Cretaceous to Eocene Caribbean – South American interactions and amalgamation of the Bonaire Block. XIV Congreso Latinoamericano de Geología, Colombia.

Van der Lelij, R., **Spikings**, R., Ulianov, A., and Chiaradia, M., 2011. Did Laurentia and Gondwana play terrane tennis in the Palaeozoic? The implications of a Iapetus convergent margin in the Merida Terrane, Venezuela. *9th Swiss Geoscience Meeting*, Zurich.

Cochrane, R.S., **Spikings**, R.A., Winkler, W., Ulianov, A., Chiaradia, M., 2011. Tectonics of Ecuador: Multiphase approach to solving Triassic – Early Cretaceous Evolution. XIV Congreso Latinoamericano de Geología

Cochrane, R.S., **Spikings**, R.A., Ulianov, A., Villagómez, D., 2011. Origin of the widespread S-Type Magmatic belt within Ecuador and Colombia: Preserved locus of separation between Oaxaquia and North-West South America? XIV Congreso Latinoamericano de Geología

Cochrane, R.S., **Spikings**, R.A., Wotzlaw, J., 2011. Apatite ID-TIMS U-Pb Thermochronology: Decoding the Pre-Caribbean thermal history of Southern Ecuador. XIV Congreso Latinoamericano de Geología

Spikings, R., 2011. Reactivation of the western South American margin in response to the collision, subduction and accretion of oceanic plateaus and passive ridges: examples from the northern, central and southern Andes. . XIV Congreso Latinoamericano de Geología, Colombia. **KEYNOTE**.

Spikings, R., Villagomez, D., 2011. The tectonic history of the Northern Andean Segment (north of 5°S) since the Triassic: a thermochronological and tectonic study. XIV Congreso Latinoamericano de Geología, Colombia. **KEYNOTE**.

Cochrane, R., **Spikings**, R., Wotzlaw, J., 2011. Apatite ID-TIMS U-Pb Thermochronology: An example from southern Ecuador. *9th Swiss Geoscience Meeting*, Zurich.

Nessi-Tedaldi, F., Dissertori, G., Luckey, D., Paus, F., Wallny, R., **Spikings**, R., Van Der Lelij, R., 2011. [On the Mechanisms of Damage in Lead Tungstate Crystals Exposed to High Hadron Fluences](#). IEEE Nuclear Science Symposium and Medical Imaging Conference, 23 – 29 October, Valencia, Spain.

Cochrane, R.S., **Spikings**, R.A., Chew, D., Wotzlaw, J., 2012. Apatite U-Pb Thermochronology: A combined LA-ICP-MS and ID-TIMS study from Southern Ecuador. *European Union of Geosciences General Meeting*, Vienna 2012.

Cochrane, R.S., **Spikings**, R.A., Chew, D., Wotzlaw, J., 2012. Apatite U-Pb Thermochronology: an ID-TIMS and LA-ICP-MS study from Southern Ecuador. *Earth in Evolution Meeting, Goldschmidt*, Montreal 2012.

Spikings, R., 2012. Using thermochronology to quantify the timing and quantity of exhumation and rock uplift along active continental margins. *Cenozoic geodynamic evolution of the Maghreb margin: relationships between magmatism, tectonics and exhumation meeting*, Brest, France, June 2012.

Mederer, J., Moritz, R., Ulianov, A., **Spikings**, R., Selby, D., 2012. The Kapan mining district in the Lesser Caucasus: multiple ore-forming events during northeastwards subduction of the Tethys below the Eurasian margin. *European Mineralogical Conference*, Frankfurt, September 2012.

Egli, D., Mancktelow, N., **Spikings**, R., 2012. $^{40}\text{Ar}/^{39}\text{Ar}$ dating of Alpine shear zones in the Mont Blanc area. *10th Swiss Geoscience Meeting*, Bern.

Van der Lelij, R., **Spikings**, R., Gerdes, A., Ulianov, A., 2012. Early Palaeozoic tectonic process in north-western Gondwana as revealed by zircon hafnium isotope analysis: tectonic switching along an active margin. *10th Swiss Geoscience Meeting*, Bern.

Cochrane, R., **Spikings**, R.A., Chew, D., Wotzlaw, J-F., Chiaradia, M., Tyrell, S., Schaltegger, U., Van der Lelij, R., 2012. Extracting accurate thermal histories from crustal rocks. *10th Swiss Geoscience Meeting*, Bern.

Cochrane, R.S., Spikings, R.A., Chew, D., Wotzlaw, J., 2012. Apatite U-Pb Thermochronology: A combined LA-ICP-MS and ID-TIMS study from Southern Ecuador. European Union of Geosciences General Meeting, Vienna, 2012.

Cochrane, R.S., Spikings, R.A., Chew, D., Wotzlaw, J., 2012. Apatite U-Pb Thermochronology: an ID-TIMS and LA-ICP-MS study from Southern Ecuador. Earth in Evolution Meeting, Goldschmidt, Montreal, 2012.

Reiser, M., Schuster, R., **Spikings**, R., Tropper, P., Fuegenschuh, B., 2013. The pre-Cenozoic evolution of the Apuseni Mountains (Romania) in the light of new (thermo)geochronological data. *European Union of Geosciences General Meeting*, Vienna 2013.

Spikings, R., Cochrane, R., Van Der Lelij, R., Villagomez, D., 2013. From Pangaea to the present: geochronology, thermochronology and isotopic tracking of tectonic processes along the Northern Andes. American Geophysical Union Meeting of The Americas. Cancun, Mexico, May 2013.