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Biography

Sandy is Professor of Tectonics and Geodynamics in the School of Earth, Atmosphere and Environment, Faculty of Science. Before moving to Monash University he was Professor and Chair, Department of Earth Sciences, University of Toronto. Sandy was educated in Scotland (BSc Hons, University of Dundee) and Sweden (PhD, Uppsala University).

Qualifications

Employment

Professor

School of Earth Atmosphere and Environment
MONASH UNIVERSITY
26 Jul 2010 → present

Professor

University of Toronto
Toronto, Canada
1 Jul 1989 → 1 Jul 2010

Research output

The Development of Fault Networks at the Termination of Continental Transform Faults When Their Connecting Plate Boundary Is "Misaligned"

Withers, M., Cruden, A. R. & Quigley, M. C., Oct 2023, In: *Tectonics*. 42, 10, 19 p., e2023TC007823.

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The effects of inward and outward dipping craton margin geometry on upper crustal deformation: Insights from analogue modelling: Craton margin geometries

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Magnetic fabrics reveal three-dimensional flow processes within elongate magma fingers at the margin of the Shonkin Sag laccolith (MT, USA)

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Saucers, Fingers, and Lobes: New Insights on Sill Emplacement From Scaled Laboratory Experiments

Arachchige, U. N., Cruden, A. R., Weinberg, R., Slim, A. & Köpping, J., Nov 2022, In: *Journal of Geophysical Research: Solid Earth*. 127, 11, 30 p., e2022JB024421.

Catastrophic growth of totally molten magma chambers in months to years

Annen, C., Latypov, R., Chistyakova, S., Cruden, A. R. & Nielsen, T. F. D., 23 Sept 2022, In: *Science Advances*. 8, 38, 9 p., eabq0394.

Eo-Paleoarchean detrital zircon in the Winnipeg River terrane, Western Superior Province: Provenance and implications

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Emplacement of a felsic dyke swarm during progressive heterogeneous deformation, Eastern Elba Dyke Complex (Island of Elba, Italy)

Papeschi, S., Mazzarini, F., Musumeci, G. & Cruden, A. R., Jun 2022, In: *Journal of Structural Geology*. 159, 16 p., 104600.

Forging isotopically juvenile metamorphic zircon from and within Archean TTG gneiss: Whole-rock Sr-Nd-Pb and zircon U-Pb-Hf-REE constraints

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The building blocks of igneous sheet intrusions: Insights from 3-D seismic reflection data

Köpping, J., Magee, C., Cruden, A. R., Jackson, C. A. L. & Norcliffe, J. R., 2022, In: *Geosphere*. 18, 1, p. 156-182 27 p.

Comment on: Geochronology of calcite-filled joints, southeast Canada: Insight into Late Cretaceous deformation of eastern North America – Jennifer Spalding, David A. Schneider and Julie Brown

Davis, D. W., Sutcliffe, C. N. & Cruden, A. R., Jun 2021, In: *Terra Nova*. 33, 3, p. 339-340 2 p.

Inheritance of Penetrative Basement Anisotropies by Extension-Oblique Faults: Insights From Analogue Experiments

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Reactivation of Magma Pathways: Insights From Field Observations, Geochronology, Geomechanical Tests, and Numerical Models

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Review of drones, photogrammetry and emerging sensor technology for the study of dykes: best practises and future potential
Dering, G. M., Micklethwaite, S., Thiele, S. T., Vollgger, S. A. & Cruden, A. R., 15 Mar 2019, In: Journal of Volcanology and Geothermal Research. 373, p. 148-166 19 p.

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Tiny particles building huge ore deposits – Particle-based crystallisation in banded iron formation-hosted iron ore deposits (Hamersley Province, Australia)
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Rapid, semi-automatic fracture and contact mapping for point clouds, images and geophysical data

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Ingress of magmatic Ni-Cu sulphide liquid into surrounding brittle rocks: physical & structural controls

Saumur, B. M. & Cruden, A. R., Nov 2017, In: Ore Geology Reviews. 90, p. 439-445 7 p.

The role of deformation in the formation of banded iron formation-hosted high-grade iron ore deposits, Hamersley Province (Australia)

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High spatial resolution mapping of folds and fractures using Unmanned Aerial Vehicle (UAV) photogrammetry
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On the emplacement of the Voisey's Bay intrusion (Labrador, Canada)
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Physical and chemical controls on ore shoots – insights from 3D modeling of an orogenic gold deposit
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Australian Research Council (ARC): A\$537,675.00

20/04/23 → 19/04/26

Projects

Add mountains and shake: plate boundary fault and earthquake patterns

Cruden, S., Finch, M., Quigley, M. C. & Riller, U.

1/09/22 → 31/08/25

Advancing Mineral Exploration Models for Orogenic Gold Deposits

Tomkins, A., Cruden, S., Maas, R., Micklethwaite, S., Wilson, C., Cayley, R., Gibson, H. & Hitchman, S.

Australian Research Council (ARC), Monash University, University of Melbourne, University of Western Australia, Crocodile Gold Corporation, Geological Survey of Victoria, Intrepid Geophysics, Newmarket Gold Victorian Holdings Pty Ltd

17/03/16 → 31/12/19

Australian Virtual Experimental Laboratory: a multimode geoscience facility

Foley, S. F., Mavrogenes, J. A., Putnis, A., Brugger, J., Clark, S. M., O'Neill, S., Cruden, S. & Evans, K. A.

Macquarie University, Australian National University (ANU), Curtin University, Monash University

1/01/16 → 31/12/16

Enabling 3D stochastic geological modelling

Ailleres, L., Jessell, M., de Kemp, E. A., Caumon, G., Wellmann, J. F., Armit, R., Droniou, J., Lindsay, M. D., Cui, T., Betts, P., Cruden, S., Kemp, C., Gessner, K., Spampinato, G. P. T., Harrison, M. & Kessler, H.

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1/03/20 → 28/02/21

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Cruden, S., Fiorentini, M., Barnes, S., Bunger, A. & Jackson, C. A. L.

Australian Research Council (ARC)

1/07/19 → 30/05/23

The First Australian High Pressure Synchrotron Facility for Geoscience Research

Cruden, S., O'Neill, H., Rushmer, T. & Turner, S. P.

Australian Research Council (ARC)

1/01/12 → 31/12/12

Three-dimensional Bayesian Modelling of Geological and Geophysical data

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Three-dimensional subduction models of overriding plate deformation and mantle flow using laboratory and numerical methods

Schellart, W., Cruden, S. & Stegman, D.
Australian Research Council (ARC), Monash University
4/01/11 → 1/10/14