Association of Applied Geochemists

www.appliedgeochemists.org

OBITUARY FOR VALE DAVID JOHN GRAY (1961–2019)

The exploration geochemical community recently lost one of its most energetic members, Dr David Gray. He died following a battle with brain cancer on 21 November 2019 at his home in Australia surrounded by his family.

David was a senior principal geochemist in the Commonwealth Scientific Industrial Research Organisation (CSIRO) and one of the international leaders in exploration hydrogeochemistry. David would be more widely recognised had he not been such a selfless researcher. He always put the team, project, and organisation ahead of his own personal gain. David was a mentor for many, and he would engage with students and senior colleagues in the same manner: always constructive, supportive and considered. David formally supervised a number of students, including three PhD students, not to mention the many more, like me, he unofficially mentored as undergraduates, postgraduates or colleagues.

David was a Fellow of the Association of Applied Geochemists (AAG), a member and former President of the Australian Regolith Geoscientists Association, and served on the Editorial Board for *Geochemistry: Exploration, Environment, Analysis*.

David's early years were spent in Sydney (Australia) before moving to Perth with his job at CSIRO. He completed his BSc (Honours) in inorganic chemistry at the University of Sydney in 1982 before completing his PhD in soil science from the same institution in 1986, researching the geochemistry of uranium and thorium during weathering. David joined CSIRO in 1987 where he remained until his early retirement due to failing health in 2017. David helped establish hydrogeochemistry as an exploration tool, a tool now widely implemented by Australian state geological surveys and mineral explorers.

David remained an active Honorary Fellow of CSIRO. He was still passing on his ideas of simplifying exploration transition metal indices for groundwater by scaling with pH until the last weeks before his death. He was always positive. Except for his last few days, David's quality of life had been good, something I would attribute to David's positive personality. David's optimism is something that those that spent time in the field with him would know all too well. He was always convinced you could collect another few samples, even as darkness was descending, and he would literally bounce in and out of vehicles all day, every day, to ensure he got as much done as possible in the field.

His dedication to his science in the office was also admirable: he spent years trawling through pdf versions of water reports and pulling out data, doing quality assurance–quality control checks. This work resulted in the Australian continental-scale hydrogeochemistry data that was summarised in a recent news article: see https://www.csiro.au/en/Research/MRF/Areas/Resourceful-magazine/Issue-19/The-groundwater-explorer. The 320,000 quality groundwater data points are all thanks to David's tenacious nature for collecting and curating results and being certain that "true backgrounds" and major element data would show patterns for application in mineral exploration and other fields if we just had enough samples (there was always more David would look for).

David was 58 and is survived by his wife, Celia, and children Ahren, Alex, Bec, Adam and Nathan.

I wrote this article while taking a break from interpreting groundwater data, the methodology of which I learned from David over the last 15 years. I will raise a glass of wine (preferably David's preferred sauvignon blanc) to his memory after I submit this memorial and continue to work on the data and so further David's legacy. I am forever grateful for David's many years of mentorship and for hiring me. A terrific boss, teacher, scientist, colleague and friend. He will be missed.

For those who wish to make a donation in David's honour, see the AAG's Distinguished Geochemists Fund. https://www.appliedgeochemists.org/association/distinguished-applied-geochemists-

Ryan Noble

RECENT ARTICLES PUBLISHED IN *EXPLORE*

The following abstract is for an article that appeared in issue 184 (September 2019) of the *Explore* newsletter.

"Rapid Hydrogeochemistry: A Summary of Two Field Studies from Central and Southern Interior British Columbia, Canada using a Photometer and Voltammeter to Measure Trace Elements in Water"

Ron Yehia[1], David R. Heberlein[2], Ray E. Lett[3]

Two Geoscience BC–funded studies in the central and southern interior of British Columbia (BC) (Canada) have been carried out to test the feasibility of using portable photometer and voltammeter instruments in the field to detect trace element and anion anomalies in stream waters that drain known mineral occurrences. Two-hundred-and-fifty water samples in total were collected and analyzed: 79 at Poison Mountain in 2014, and 171 west of Nazko in 2016. The samples were analyzed in the field by a photometer for Al, Ca, Cl, Cu, Fe, Mg, Mn, Mo, Ni, K, Si, SO_4 and Zn and by a voltammeter (Nazko area only) for As, Cu, Cd and Pb. Anomalous Cu and SO_4 levels measured by photometer in stream water reflect the Cu-sulfide mineralization at the Poison Mountain porphyry Cu–Mo deposit. In the Nazko area, there were elevated Cu and As levels as detected by the voltammeter in stream water near two known mineral occurrences. Sixty-three water samples were also sent to a commercial laboratory for cation and anion analysis to compare values obtained by the photometer and voltammeter. Results revealed an acceptable correlation between the field measurements and the laboratory analysis for most analytes. The Poison Mountain and Nazko surveys show that the photometer and voltammeter are fast and cost effective instruments for rapid trace element analyses in the field.

1 MYAR Consulting, Vancouver BC, myar@telus.net
2 Heberlein Geoconsulting, North Vancouver BC, dave@Hebgeoconsulting.com
3 Geochemist, Victoria BC, raylett@shaw.ca