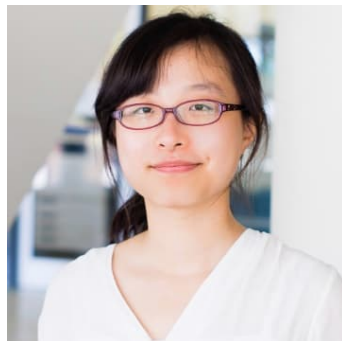


ARIA ZHANG, M.Sc., GIT

HYDROGEOLOGIST/GROUNDWATER MODELER



EDUCATION

M.Sc., Earth Sciences -Water
University of Waterloo, Canada, 2022

B.Sc., Environmental Earth Sciences
University of Alberta, Canada, 2017

PROFESSIONAL REGISTRATION

Geoscientist-in-Training, EGBC

SUMMARY

Aria Zhang has a B.Sc. (Honors) and an M.Sc. in Earth Sciences with specialization in hydrogeology and geochemistry. She joined Robertson GeoConsultants Inc. in 2023. She has four years of experience related to mining hydrogeology, hydrogeochemistry and modeling.

Aria's knowledge and experience includes 3D transient groundwater flow and transport modeling, reactive transport modeling, mine waste characterization, and ARD remediation. She is also experienced in geospatial data, database management, and data analysis, with proficiency in Python, SQL, and ArcGIS.

PROFESSIONAL HISTORY

2023-present: Hydrogeologist/Groundwater Modeler, Robertson GeoConsultants Inc.
2020-2022: Research Assistant, University of Waterloo, Waterloo, ON
2018-2020: Environmental Data Technician, Matrix Solutions Inc., Calgary, AB
2017-2018: Junior Environmental Scientist, Challenger Geophysical, Calgary, AB
2017: Junior Geologist, CEPro Environmental Services, Calgary, AB
2016: Research Assistant, University of Alberta, Edmonton, AB

PROJECT EXPERIENCE

MINING HYDROGEOLOGY AND MODELING

Rum Jungle Mine, NT, Australia (2025-present) for NT Government

- Simulated pit dewatering and backfilling, waste rock relocation, waste capping, and seepage control system operation using MODFLOW-NWT, MT3D-USGS, and MODFLOW-USG-Transport for water and contaminant load predictions to support remediation planning and water treatment facility design and construction

Las Tortolas Tailings Impoundment, Chile (2023-present) for Anglo American Sur

- Updated numerical groundwater flow and transport model to Life of Mine (LOM) conditions under scenarios of seepage control measures to support mitigation planning for the West Dam Sector
- Updated model surfaces with stratigraphic information and geological modeling for the Main Dam Sector
- Developed custom Python scripts for model post processing, visualization, and reporting
- Tailing consolidation and draindown simulations

- Site-wide conceptual water and load balance modeling for current and LOM conditions, including estimating recharge, seepage, and seepage control scenarios; assessed downstream impacts and recommended seepage control system design and implementation
- Pumping test and step test analysis and interpretation
- Technical report writing for site-wide EIA, numerical modeling, and drilling and well installation programs for submission to DGA, SMA, and other Chilean regulatory agencies
- Responsible for project data and document requests, hydro-geochemistry database and geospatial data management

Myra Falls Mine, BC (2024-present) for Myra Falls Mine

- Data processing, assessment, and reporting for pumping well performance monitoring

Sandy Flat Mine, NT, Australia (2023-present) for NT Government

- Post-process and visualize transient groundwater flow and transport model for reporting
- Slug test analysis and interpretation

Faro Mine, Yukon (2023-present) for CIRNAC

- Field investigation, well development, water level survey, and water quality sampling

Bouchard-Hebert Mine, Quebec (2023-2024) for Breakwater Resources Ltd.

- Developed conceptual hydrogeological model (CHM) through data review, compilation, analysis, and visualization of site-wide hydrogeology, including constructing geological cross sections, groundwater flow fields, groundwater level time trends with time series analysis, and water and load balance model
- Supervised drilling and well installation; conducted field investigations, including well development, hydraulic testing, water level survey, water quality sampling, and tailings and waste rock sampling
- Pumping test and slug test analysis and interpretation with AQTESOLV
- Technical report writing for CHM and field programs

Langlois Mine, Quebec (2023-present) for Breakwater Resources Ltd.

- Developed conceptual hydrogeological model (CHM), including constructing geological cross sections, groundwater flow fields, groundwater level time trends with time series analysis, and water and load balance model
- Field investigation, well development, water level survey, water quality sampling, and tailings test pitting, logging, and sampling

MINING HYDROGEOCHEMISTRY AND REMEDIATION

Kam Kotia Mine, Ontario (2020-2022) for Ontario Ministry of Mines

- Field investigation, instrumentation, sampling, and monitoring of groundwater, pore water, and pore gas in a legacy tailings impoundment remediated with an engineered cover
- Laboratory characterization of the hydrogeological, geochemical, and mineralogical properties of mine waste, soil, and aqueous samples
- Data analysis, interpretation, and numerical modeling of the variably saturated flow and gas transport in an engineered composite cover to assess cover performance
- Reactive transport modeling of the coupled thermo-hydrogeochemical processes

Sudbury Integrated Nickel Operations, Ontario (2022) for Glencore

- Field sampling, testing, and monitoring of seepage quality of a tailings impoundment remediated with municipal biosolids
- Field tracer test and sampling to evaluate a permeable reactive barrier (PRB) for groundwater remediation

Detour Lake Mine, Ontario (2021) for Agnico Eagle Mines Limited

- Field sampling, testing, and monitoring of water balance, seepage quality, and pore gas in waste rock piles

SITE ASSESSMENT AND REMEDIATION**Phase I/II Environmental Site Assessment and Contaminant Site Remediation (2018-2020) for Alberta Orphan Well Association, BC Oil and Gas Commission, Canadian Natural Resources Limited, Cenovus Energy, and Suncor Energy**

- Processed borehole logs, water chemistry, soil quality, and hydraulic testing data; conducted statistical analysis and environmental searches
- Applied and modified environmental guidelines (Alberta Tier 1 & Tier 2, BC CSR & site remediation protocols) based on site-specific conditions
- Managed EQULS and Access databases, tracked project deliverables, and prepared reports

PUBLICATIONS AND CONFERENCE PRESENTATIONS

Performance of a Composite Cover at Kam Kotia Mine, ON – Hydrology, Gas Transport, and Geochemistry. *30th Annual BC MEND Metal Leaching/Acid Rock Drainage Workshop.* Vancouver, BC. December 6-7, 2023.

Zhang, A., Wilson, D., Ptacek, C. J., & Blowes, D. W. (2024). **Reactive transport modelling of tailings hydrogeochemistry under a composite cover.** *Journal of Contaminant Hydrology.* 261 (104290). <https://doi.org/10.1016/j.jconhyd.2023.104290>

Zhang, A., Bain, J. G., Schmall, A., Ptacek, C. J., & Blowes, D. W. (2023). **Geochemistry and mineralogy of legacy tailings under a composite cover.** *Applied Geochemistry.* 159(105819). <https://doi.org/10.1016/j.apgeochem.2023.105819>

Zhang, A., Bain, J. G., Schmall, A., Ptacek, C. J., & Blowes, D. W. (2023). **Seasonal hydrology and gas transport in a composite cover on sulfide tailings.** *Canadian Geotechnical Journal.* <https://doi.org/10.1139/cgj-2022-0606>