

Benjamin R. Bloss

Geophysicist

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Summary

Geophysicist with over 14 years of experience using electric and electromagnetic methods. I offer expert consulting services in resource and environmental contaminant mapping, and integrated geologic interpretation. Proven ability to manage projects and field crews, consistently delivering on-time, high-quality results in deadline-driven environments. My background includes research with the geophysics department at the Colorado School of Mines and the U.S. Geological Survey, as well as guiding strategic planning, project execution, and growth as the senior geophysicist at a technology startup in Norway. Currently, as the owner and principal geophysicist of my consulting firm, I leverage my extensive experience to help solve your unique geologic problems.

Experience

Principle EM Geophysicist | *Bloss Geo LLC* | Colorado, USA

January 2025 – Present

- Airborne EM geophysics – processing, inversion, modelling
- Geologic interpretation of geophysical models
- Providing geophysical consulting services to various clients, leveraging over 14 years of experience in the field.
- Conducting electric and electromagnetic geophysical surveys, data analysis and processing, and interpretation for diverse projects.
- Managing client relationships and ensuring the delivery of on-time, high-quality results.

Senior EM Geophysicist | *EMerald Geomodelling* | Oslo, Norway

November 2021 – December 2024

- Technical analysis and feasibility assessments of potential projects
- Survey planning and project orchestration
- Daily QA/QC of airborne EM data during acquisition campaigns
- Parsing, processing, archiving, and interpretation of geospatial data
- Development of open-source tools in python for processing and inversion of AEM data and interpretation of large, high-density, geophysical models.
- Developing workflows for processing, inversion, and interpretation of geophysical data
- Automatic and manual processing and inversion (modeling) of geophysical data
- 3-dimensional (3D) Geophysical model interpretation using machine learning
- Works closely with the technology group to develop new workflows and software solutions
- Reporting and presentation of interpretations and findings

Geophysicist | *U.S. Geological Survey – Geology, Geophysics, and Geochemistry Science Center* | Denver, CO, USA

September 2010 – September 2021

- Airborne time- and frequency-domain electromagnetic data QA/QC, processing, inversion, and analysis using Aarhus Workbench, EM1DFM, and GeoBiPy
- Airborne magnetic data QA/QC, processing, and analysis using Geosoft Oasis Montaj
- Interpretation of geophysical models
- Database management, processing, analysis, and figure creation using Geosoft Oasis Montaj
- Technical evaluations of proposed airborne contracts
- Interfacing with collaborators and stakeholders of large airborne projects

- Checking daily deliveries of data as it is collected for quality and completeness
- Three-dimensional imaging and figure creation using Datamine Profile Analyst and iGIS GeoScience3D
- Ground geophysical data processing, imaging, and reporting
- Project task chief
- Preparing scientific reports, figures, and data for public release and publication
- Performing lab-based physical properties tests (including frequency based electrical resistivity, magnetic susceptibility, and density) on rock samples and drill cores
- Writing and managing scripts and software tools to process, format, import, and export large datasets to enable open access
- Managing Science Center field safety communication devices
- Site access permitting for ground data collection
- Extensive field work experience (including international trips) using time- and frequency-domain electromagnetics (TEM, FEM), magnetotellurics (MT), controlled source electromagnetics (CSEM), ground and borehole Nuclear Magnetic Resonance (NMR), ground penetrating radar (GPR), DC resistivity, gravity, and magnetic methods

Education

Master of Science in Geophysics | Colorado School of Mines | 3.73 GPA

May 2017

- Research focus: Electromagnetic geophysical methods
- Thesis title: Powerline Contamination in Time-Domain Electromagnetic data: Experiment, Theory, and Basic Building Blocks
- Supervisor: Dr. Andrei Swidinsky
- Committee: Dr. Yaoguo Li and Dr. Paul Bedrosian

Bachelor of arts in Geology | University of Colorado at Boulder | 3.36 GPA

May 2011

- Area of concentration: Geophysics
- Minor: Mathematics

Skills

Software: Geosoft Oasis Montaj, Esri ArcGIS, QGIS, Aarhus Workbench, Aarhus SPIA, Datamine Profile Analyst, iGIS Geoscene3D, Petros Eikon EMIGMA, LaTeX, SeismicUnix, Adobe Illustrator, Microsoft 365 apps

Inversion Kernels: SimPEG, AarhusInv, GeoBiPy, EM1DFM, Geosoft Voxi

Programming Languages: Python, Matlab, Fortran, C++

Python Packages: NumPy, Pandas, GeoPandas, Rasterio, Shapely, Matplotlib, Seaborn, SciPy, PyYAML, Scikit-learn

Operating Systems: Windows, Mac, Linux

Geophysical Methods: Time-domain electromagnetics (TEM), frequency-domain electromagnetics (FEM), Airborne EM (AEM), magnetotellurics (MT), controlled source electromagnetics (CSEM), ground and borehole Nuclear Magnetic Resonance (NMR), ground penetrating radar (GPR), DC resistivity, gravity, and magnetic methods

Professional Affiliations

American Geophysical Union (AGU)

Society of Exploration Geophysicist (SEG)

European Association of Geoscientists and Engineers (EAGE)

Geological Society of America (GSA)

Environmental and Engineering Geophysical Society (EEGS)

List of selected publications and references available upon request