

Bob Houston, M.Sc., RPG
DOGAMI Legislative Coordinator,
Hydrocarbon and Metallic Ore Geologist
Oregon Department of Geology and Mineral
Industries

Portland Office
800 NE Oregon Street, Suite 965
Portland OR 9723
Cell Phone: 541-619-4653
Email: robert.houston at oregon.gov



License

- Registered Professional Geologist – Oregon (RPG)

Certification

- OHLA iLearn Environmental Health Specialist Trainee (EHST) Examination Certificate, 01/08/2015, Validity Period: 3 Years
- Wilderness and Remote First Aid, American Red Cross, 05/14/2014, Validity Period: 2 Years
- Adult First Aid/CPR/AED, American Red Cross, 05/14/2014, Validity Period: 2 Years

Education

- **2001 M.Sc., Oregon State University;** Major: Economic Geology; Thesis (Pub. # 7): Geology and Structural History of the Butte District, Montana; Minor: Glacial Stratigraphy; Thesis (Pub. # 6): Glacial Stratigraphy and History of the Blue River Drainage, Lane County, Oregon.
- **1997 B.Sc., Oregon State University;** Major: Geology; Thesis (Pub. # 11): Bedrock geology of the Bacona 7.5 minute quadrangle, Columbia County, Oregon: Unpublished B.Sc. thesis, Corvallis, Oregon, Oregon State University, 36 p., 3 plates.

Continuing Education

- 2014 Project Management Communications and Teamwork: Portland State University - Center for Executive and Professional Education;
- 2013 Management Development Series - Foundational Training Program: Oregon Department of Administrative Services;
- 2010 Responsibilities and Requirements Serving as an Expert Witness for the State Workshop: Oregon Department of Justice;
- 2009 Rule Writing Workshop: Oregon Department of Justice;
- 2005 Geology and Some Engineering Aspects of Coal bed Methane and Gas Shales Short Course: University of British Columbia & CBM Solutions Ltd.;
- 2004 Expert Witness Workshop: Oregon Department of Justice;
- 2003 Practical Drilling Skills: Oil & Gas Consultants International, Inc.;
- 2002 Successful Cementing: Best Practices: Oil & Gas Consultants International, Inc.;

- 2002 Drilling Optimization and Well Planning: Oil & Gas Consultants International, Inc.

Professional Experience

- 2016–Present Hydrocarbon and Metallic Ore Geologist, Geologist, Oregon Department of Geology and Mineral Industries (DOGAMI);
- 2002–2016 Energy Resource Geologist, DOGAMI;
- 2000–2002 Natural Resource Specialist-Reclamationist, DOGAMI;
- 1999 Teaching Assistant, Field camp, Oregon State University, Oregon;
- 1999 Field Assistant/Geologist, California Institute of Technology, Isla de Tiburon, Mexico;
- 1997–Present Field Geologist, Houston Exploration and Research, Springfield, Oregon (Academic investigations for peer review publication);
- 1997 Student Internship/Geologist, U.S. Geological Survey, Denver, Colorado;
- 1996–Present Lecturer, Broad geologic concepts presented to K through 12 students, Houston Exploration and Research Springfield, Oregon;
- 1996–1997 Research Assistant/Field Geologist, Oregon State University, Oregon;
- 1996 Research Assistant/Lab Assistant, Oregon State University, Oregon.

Professional Society and Affiliation

- Society of Economic Geologists - Fellow Member

Awards and Honors

- 2000 Michael Thompson Foster Scholarship, Tobacco Root Geological Society;
- 1998 Grant recipient, Atlantic Richfield International Oil and Gas Company;
- 1998 Scholarship, Tobacco Root Geological Society;
- 1997 National Association of Geoscience Teachers (NAGT)/U.S. Geological Survey (USGS) Cooperative Summer Field Training Program, USGS, Denver, Colorado.

Research Interest

Primary Research Interest: Understanding the structural control of fluid pathways and the thermal evolution of ore deposits and related hydrothermal systems. Purpose: To improve the knowledge of the spatial and temporal distribution deposits, hydrothermal systems, and emplacement models. Methods: Geologic, fault/fracture, vein, and alteration mapping (Anaconda method), microthermometric analysis, and structural restoration of mineralized/nonmineralized hydrothermal systems.

Synergistic Activities

Oregon Department of Geology and Mineral Industries Service:

- 2016–Present National Cooperative Geologic Mapping Program/ USGS STATEMAP funded project and other geologic investigations statewide.
- 2013 Drafted “clean fill” rule language and led the OAR 632-030-0025 rules advisory committee meetings.
- 2011–2013 Initiated, organized and led DOGAMI Mined Land Reclamation student internship program;
- 2007 Member, agency strategic plan development committee.

- 2007–2009 Drafted “Oil & Gas” and “Geothermal” Oregon Administrative Rules (OAR 632-010, 632-015, and 632-020) and led rules advisory committee meetings
- 2005–2007 Drafted and presented “Oil & Gas” and “Geothermal” (ORS 520 and 522) statutory language changes to several legislative committee hearings.

Service to Earth Science community:

- 2013 Non-faculty advisor, Oregon Society of Economic Geologists student chapter Namibia, Africa Field Trip September 2nd to 13th;
- 2013–Present Non-faculty advisor, Oregon Society of Economic Geologists student chapter;
- 2011–2012 Member, Revenue Resources Committee, Lane Regional Air Pollution Authority, Lane County, Oregon;
- 2010–2012 Chair, Budget Committee, Lane Regional Air Pollution Authority, Lane County, Oregon;
- 2006–2010 Vice Chair, Budget Committee, Lane Regional Air Pollution Authority, Lane County, Oregon;
- 1997–2000 Student Member, Oregon Society of Economic Geologists student chapter;
- 1997–2000 Student Member, Society of Economic Geologists.

Selected Presentations and Invited Talks

- Joint Keynote Speaker: Geology and Evolution of the Butte District, Montana; Mining and Mineral Symposium, Montana Tech., Butte Montana, May 8-10, 2015;
- Exploration, development and discovery: Oregon’s First High Temperature Geothermal Project and other activities, State of Oregon Geothermal Summit, 2013;
- Mining, Oil and Gas, and Geothermal State of the State of Oregon, Northwest Mining Association, Reno, Nevada, 2013;
- Recent developments in conventional and enhanced/engineered geothermal systems, Namibian Geological Survey and National History Museum, Namibia, Africa, 2013;
- Parvin Butte, Lane County, Oregon: Mining, landuse, and compliance issues, Oregon Solutions, 2012;
- Advances in geothermal development and recent activities in Oregon, Oregon Energy Society, 2012;
- Hydraulic fracturing practices in Oregon, Association of County Councils, Eugene, Oregon, 2012;
- Geothermal Drilling and Regulatory Requirements, Malheur County Public Forum, Ontario, Oregon, 2012;
- Coal bed methane and geothermal drilling activities in Oregon. Oregon State University, 2011;
- Bully Creek Geothermal Field Developments, DOGAMI Governing Board Meeting, Ontario, Oregon, 2011;
- Oregon’s recent drilling activities for Coal Bed Methane in Coos County and developing an Engineered Geothermal System at Newberry Volcano, Oregon State University, Corvallis, Oregon, 2011;
- Hydraulic Fracturing and Developing an Engineered Geothermal System at Newberry Volcano, DOGAMI Governing Board Meeting, Albany, Oregon, 2011;
- Hydraulic Fracturing, State of Oregon Senate Environment and Natural Resources Committee, Salem, Oregon, 2011;
- Conventional Geothermal Resource vs. Enhanced Geothermal Systems vs. Engineered Geothermal Systems, NW Energy Association, Portland, Oregon, 2010;
- Oil and Gas Development and Regulatory Considerations, NW Energy Association, Portland, Oregon, 2008;

- Coal Bed Methane Development and Regulatory Considerations, Coos County Public Information Meeting, Coos Bay, Oregon, 2007;
- Newberry Volcano Geothermal Potential and Development, DOGAMI Governing Board Meeting, Condon, Oregon, 2002;
- The Butte District, Montana – New Field Data and Reassessment of Post-Mineral Structural Tilting, Tobacco Root Geological Society, 25th Annual Field Conference, 2000.
- The Butte District, Montana - New field data and reassessment of post-mineral structural tilting, Poster Presentation, Geol. Soc. America Annual meeting, Denver, Colorado, 1999.

Publications

- Houston, R.A., 2015, Geologic Overview and Preliminary Results: Temporal and Spatial Distribution of Auriferous Gravels Derived from the Butte District, Montana—A Consequence of Regional Tectonics and Early Paleocene Rapid Exhumation, Montana Bureau of Mines and Geology: Open-File Report 669, p. 25-33.
- Houston, R.A., 2014, Geology of the Butte District, Montana: Ore Deposits of Northern Idaho and Western Montana, Oregon SEG Student Chapter Field Trip Guidebook, p. 27-38
- Houston, R.A., and Dilles, J.H., 2013, Structural Geologic Evolution of the Butte District, Montana: Economic Geology, v. 108, no. 6, p. 1397-1424.
- Houston, R.A., and Dilles, J.H., 2013, Geology of the Butte Mining District, Montana, Montana Bureau of Mines and Geology: Open-File Report 627, 1 sheet(s), 1:24,000.
- Dilles, J., Field, C., Houston, R.A., Kent, A., Zhang, L., Reed, M., Rusk, B., Miller, B., Martin, M., Rye, R., Snee, L., and Stein, H., 2006, Lessons from Butte, Montana: Exploration and Mining Applications from Recent Research: Society of Economic Geology Abstracts with Programs.
- Houston, R.A., 2004, Glacial Stratigraphy and History of the Blue River Drainage, Lane County, Oregon: Oregon Geology, vol. 66, number 1. p. 5-14.
- Houston, R.A., 2001, Geology and structural history of the Butte district, Montana: Unpublished M.Sc. thesis, Corvallis, Oregon, Oregon State University, 45 p., 10 plates.
- Houston, R.A., 2000, The Butte District, Montana – New Field Data and Reassessment of Post-Mineral Structural Tilting, Field Trip Guide: Tobacco Root Geological Society, 25th Annual Field Conference, p. 48-52.
- Houston, R.A., 1999, The Butte District, Montana - New field data and reassessment of post-mineral structural tilting: Geol. Soc. America Abstracts with Programs, p. A-382.
- Dilles, J.H., Reed, M.H., Roberts, S., Zhang, L., and Houston, R.A., 1999, Early magmatic-hydrothermal features related to porphyry copper mineralization at Butte, Montana: Geol. Soc. America abstracts with Programs, p. A-380.
- Houston, R.A., 1997, Bedrock geology of the Bacona 7.5 minute quadrangle, Columbia County, Oregon: Unpublished B.Sc. thesis, Corvallis, Oregon, Oregon State University, 36 p., 3 plates.
- Niem, A.R., Niem, W.A., and Houston, R.A., (*Submitted*), Geology of the Pittsburg 7.5-minute quadrangle, Oregon: U.S. Geological Survey Open-file Report, Scale 1:24,000.
- Niem, A.R., McKnight, B.K., Houston, R.A., and Niem, W.A., (*Submitted*), Geology of the Vernonia 7.5-minute quadrangle, Oregon: U.S. Geological Survey Open-file Report, Scale 1:24,000.
- Niem, A.R., Houston, R.A., and Niem, W.A., (*Submitted*), Geology of the Bacona 7.5-minute quadrangle, Oregon: U.S. Geological Survey Open-file Report, Scale 1:24,000.

To be submitted (working titles):

- Houston, R.A., Geology and Structural History of the Blue River District, Oregon. Economic Geology, *in progress*.

- Houston, R.A., Fluid-inclusion evidence for the formation of gold bearing veins, Blue River District, Oregon. *Economic Geology*, *in progress*.
- Houston, R.A., Obsidian hydration dating and correlation of glaciation and ice margin oscillations with the Blue River and McKenzie River drainage systems, Oregon, *in progress*.