Theodore H. Asch

P.O. Box 150475, Lakewood, Colorado 80215 EMAIL: tasch@aquageoframeworks.com

PHONE: +1 (720) 415-7312

State of California Registered Geophysicist #1038 State of Texas Registered Geophysicist #11834 State of Nebraska Registered Geologist #0430

Experience

Aqua Geo Frameworks, LLC – Research Geophysicist, October 2015 – Present

- Design, conduct, process, model and interpret ground-based and airborne geophysical surveys and investigations of groundwater resources and developing hydrogeological frameworks.
- Techniques include electromagnetic (AEM,TEM, MT), electrical (DC), and potential field (gravity, magnetics) plus continuing software development.
- Projects in the last few years include multiple locations in California, Colorado,
 Nebraska, Arizona, Wyoming, North Dakota, Alaska, Indiana, Iowa, and Florida.

• XRI Geophysics, LLC – Research Geophysicist, February 2013-September 2015

- Design, conduct, process, and interpret ground-based and airborne geophysical surveys and investigations using electromagnetic (TEM, MT), electrical (DC), and potential field (gravity, magnetics) plus continuing software development.
- o Have developed familiarity with QGIS and develop customized Google Earth kmz's.
- o Project locations include the western and central U.S.

• U.S. Geological Survey (USGS) - Research Geophysicist, February 2003 - February 2013

- Designed, acquired, processed, and interpreted magnetotelluric (MT and AMT), electromagnetic (EM61, EM31, EM38, GEM-2), resistivity & IP (AGI SuperSting R8), and magnetic (G-858) data
- PI of the development team for the ALLTEM, a US Department of Defense SERDP- and ESTCP-funded electromagnetic induction system designed for detection and discrimination of unexploded ordnance; ALLTEM project chief (2007 to 2011)
- o Developed several electromagnetic dipole inversion schemes
- Developed custom modules for Geosoft's Oasis Montaj.
- Directed and conducted UXO detection, quality assurance and remediation projects for Utah, Colorado, and Alabama National Guard bureaus
- Developed, coordinated and conducted training globally for geophysicists of the Afghanistan Geological Survey.

• U.S. Army Corps of Engineers, Sacramento District – Geophysical Technical and Quality Assurance Specialist August 1999 - February 2003

 Directed, managed, acquired, processed, interpreted, and consulted in the exploration process for Ordnance and Explosives (OE) at closed/transferred or transferring U.S.
 Army bases in the western U.S and developed innovative quality assurance protocols.

- Provided resolution and alternate solutions to technically complex problems (magnetic and electromagnetic clutter, hot rocks, and cultural effects) in a politically charged and highly visible project environment (public/regulatory/congressional scrutiny).
- Designed and conducted the OE RI/FS Ordnance Detection & Discrimination Study
- Interpreted possible structural traps of both water and petroleum sources.
- Williamson and Associates, Seattle, Washington Contract Geophysical Field & Programming Consultant – July 1997 - March 1999
 - Acquired, maintained, and interpreted towed VES DC resistivity data as part of an international telephone fiber-optic cable installation survey in and near Malaysia, Singapore, Taiwan, South Korea, Mexico, Honduras, Costa Rica, Panama, and Colombia.
 - System consisted of a 7-dipole VES array towed on the sea floor with subsurface and surface control. Code development included writing and modifying existing QuickBasic data acquisition and post-processing programs.
- Geothermal Energy Research and Development Co. (GERD), Tokyo, Japan Contract Geophysical Field & Programming Consultant - May 1994 - August 1999 (GERD is a Japanese engineering geophysics contractor specializing in reservoir engineering and geophysical exploration for geothermal sources using magnetotellurics.)
 - Acquired high quality Magnetotelluric field data over likely geothermal sources in Japan.
 - Performed 1-D (Bostick) and 2-D (GRRI and OCCAM2D) inversion analyses of the data and produced 2-D subsurface images.
 - o Inversion procedures included writing and debugging original code and developing a user-friendly GUI interface.
 - Designed, conducted, and interpreted large high quality magnetotelluric surveys of northern Japan (Honshu and Hokkaido) including both small scale MT profiling surveys over likely geothermal sources and engineering foundation studies and large scale crustal surveys across Honshu.
 - Performed initial 1-D (Bostick) and 2-D (GRRI and OCCAM2D) magnetotelluric inversion analyses of the data. Produced 2-D subsurface images. Inversion procedures included writing, debugging, and enhancing original code and developing a userfriendly GUI interface.
 - Developed detailed and regional electrical conductivity-depth sections over geothermal sources, faults, and crustal structure.
 - These studies led to the successful development of numerous geothermal energy sources in Japan. The MT crustal studies provided base models and implications for crustal scale seismic activity under the Japan Arc. Many papers in peer-reviewed journals or conferences resulted from this work.

Electromagnetic Instruments, Inc., El Cerrito, California – Operations Geophysicist – January 1995 - April 1998

- Designed, conducted, interpreted magnetotelluric (MT) and STRATAGEM field surveys throughout North and South America, Asia, and Australia.
- Developed geophysical data analysis and interpretation software (1-D, 2-D forward and inversion imaging codes) in FORTRAN, Visual Basic, C++, QuickBasic, and TruBasic;
- o Responsible for customer support and hardware/software client issues.
- Wrote data acquisition and interpretation software manuals and field procedure manuals.

U.S. Bureau of Reclamation and the U.S. Army Corps of Engineers – Contract Geophysical Programming Consultant – January 1992 - April 1993

- Developed a user-friendly fast 1-D electrical resistivity inversion program in QuickBasic including graphics for PC's.
- Developed SPGEN, a Self-Potential forward and inversion modeling programs in QuickBasic including graphics for PC's applicable to both onshore and offshore situations.
- Utilized in towed SP surveys over reinforced concrete mats along the banks of the Mississippi River and on potentially hazardous leaking dams and levees around the United States.

The Water Resources Research Center of the Jacob Blaustein Institute, Sede Boqer, Israel Research Geologist and Geophysicist – December 1982 - April 1984

- Interpreted geological, electrical, aeromagnetic, gravimetric, and seismic data to investigate and map the relief and structure of the basement under Israel to determine local fresh water and in situ petroleum reserves for Professor Arie Issar.
- Developed isopach (thickness) maps of the three regional aquifers by interpreting and integrating all geophysical data available including borehole logs, onshore and offshore seismic, dc resistivity, magnetic, gravity, and magnetotelluric data.
- Developed a map of the basement geology structure in that part of the Middle East including interpretation of possible structural traps of both water and petroleum resources. Many boundaries of the block-like basement structures were drilled to great depths (5,000-10,000 ft). Some yielded both fresh and saline water sources and some indicated very viscous oil in shale.

• Electromagnetic Surveys Inc., Berkeley, California – Project Geophysicist – June 1981 to September 1982

 Designed, conducted, and interpreted deep resistivity surveys and time domain and frequency domain electromagnetic surveys for geothermal power, mineral prospects, and petroleum resources in the Western U.S. and the North Slope of Alaska.

Education

Ph.D., 1984-1990, University of California, Berkeley, CA

Major: Exploration Geophysics;

Minors: Hydrogeology and Applied Engineering Mathematics

Dissertation: Mapping and Monitoring of Electrical Resistivity with Subsurface Arrays.

• Master of Science, 1978-1981, University of California, Berkeley, CA.

Major: Exploration Geophysics.

Research Project: Final Report on a Study of the Interaction of Seismic Waves and the Electrical Properties of Rocks.

Bachelor of Science, 1974-1978, University of California, Davis,

Major: Geology.

Dean's List: 1976, 1977, 1978

Selected Publications

Abraham, J.D., Bedrosian, Asch, T.H., Ball, L.B., Cannia, J.C, Philips, J.D., and Lackey, S., 2011, Evaluation of Geophysical Techniques for the Detection of Paleochannels in the Oakland Area of Eastern Nebraska as Part of the Eastern Nebraska Water Resource Assessment: U.S. Geological Survey Scientific Investigations Report 2011-5228, p. 40. http://pubs.usgs.gov/sir/2011/5228/

Abraham, J.D., Cannia, J.C., Cameron, K., and Asch T.H., 2015, Watershed scale characterization of glacial and bedrock aquifers in eastern Nebraska: NovCare 2015, Lawrence, KS, May 19-21.

Abraham, J.D., Asch, T.H., Cannia, J.C., and Ivancie, P.G. (2019) Colorado South Platte River alluvial aquifer characterization with airborne electromagnetics: in abstracts from SAGEEP 20019, Portland, Oregon, March 17-21, 2019.

https://library.seg.org/doi/pdf/10.4133/sageep.32-023

Abraham, J.D., Cannia, J.C., Asch, T.H., and Cameron, K. (2019) Comparison of a decade of examples of AEM vs Drilling results for Groundwater Exploration: The Good, the Bad and the Ugly: in abstracts from the AGU-SEG Airborne Geophysics Workshop, Fort Lauderdale, FL June 10-13, 2019 https://www.youtube.com/playlist?list=PL7Ihm2Mh3MZ5p6-aallmWUu-gMuw3qs0C

Aboud, E. Saud, R., Asch, T., Aldamegh, K., and Mogren, S., 2014, Water exploration using magnetotelluric and gravity data analysis; Wadi Nisah, Riyadh, Saudi Arabia. NRIAG Journal of Astronomy and Geophysics, v.3, No.2, December 2014, p. 184-191. http://dx.doi.org/10.1016/j.nrjag.2014.09.002

Asch, T. and Morrison, H. F., 1986, A field survey to monitor subsurface contaminants with borehole-to-surface resistivity measurements: in The Lawrence Berkeley Laboratory Earth Sciences Division Annual Report, 1985, Rept. No. LBL-20450, UC-13, 54-57.

Asch, T. and Morrison, H.F. 1987, Mapping and monitoring nuclear waste repositories with subsurface electrical resistivity arrays: 57th Annual International Meeting, Society of Exploration Geophysics Expanded Abstracts, 6, 79.

- Asch, T. and Morrison, H.F., 1988, Mapping and monitoring of toxic wastes with subsurface electrical resistivity arrays: ASEB/SEG International Geophysics Conference, Extended Abstracts, Exploration Geophysics, 19, p. 226-228.
- Asch, T.H. and Morrison, H.F., 1989, Mapping and monitoring electrical resistivity with surface and subsurface electrode arrays: Geophysics, 54, no. 2, p. 235-244.
- Asch, T., 1993, Report on the interpretation of dipole-dipole resistivity profiles along leaking levees and dam abutments using RES2pc: Contracted by the U.S. Bureau of Reclamation, Denver.
- Asch, T., and Staes, E.G., 2001, An ordnance detection and discrimination study at former Fort Ord, CA: Proceedings, UXO Forum 2001, 8 pp.
- Asch, T., Cormier, M., Klaff, T.L., Murray, C., Petersen, G., and Staes, E., 2002, Receiver operating characteristics (ROC) curves in the Ordnance Detection and Discrimination Study at former Fort Ord, CA: Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP) 2002 Proceedings, Las Vegas, NV.
- Asch, T., Klaff, T., Murray, C., Staes, E., Petersen, G., and Cormier, M., 2002, An overview of the ordnance detection and discrimination study at former Fort Ord, CA: Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP) 2002 Proceedings, Las Vegas, NV.
- Asch, T., 2003, The geophysical quality control process in OE investigations: It is not an option!: Proceedings, SAGEEP 2003, p. 1424-1430.
- Asch, T.H., 2005, Summary and integration of geophysical investigations of the Tooele Army Depot (TEAD), Tooele, Utah: U.S. Geological Survey Open-File Report 2005-1338, 46 p.
- Asch, T.H., Rodriguez, B.D., Sampson, J.A., Wallin, E.L., and Williams, J.M, 2006, Deep resistivity structure of Yucca Flat, Nevada Test Site, Nevada: U.S. Geological Survey Open-File Report 2006-1261, 88p.
- Asch, T.H., Rodriguez, B.D., Sampson, J.A., Wallin, E.L., Williams, J.M, and Deszcz-Pan, M., 2006, Deep resistivity structure of Rainier Mesa-Shoshone Mountain, Nevada Test Site, Nevada: U.S. Geological Survey Open-File Report 2006-1356, 49p.
- Asch, T., and Hunter, L., 2006, A case study illustrating some limitations of airborne geophysical investigations for munitions of explosive concern: Proceedings, SAGEEP 2006, paper 170, p. 1657-1671.
- Asch, T., and Cole, C., 2006, Integration of geophysical investigations of the Tooele Army Depot (TEAD), Tooele, Utah: Proceedings, SAGEEP 2006, paper 100, p. 952-964.
- Asch, Theodore, Burton, B.L., Powers, M.H., Rodriguez, B.D., and Bedrosian, P.A., 2007, Electrical characterization of Success Dam in Porterville, CA: Proceedings of the 20th Annual Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP), p. 41–60.
- Asch, T.H., Deszcz-Pan, Maria, Burton, B.L., and Ball, L.B., 2008, Geophysical characterization of American River levees, Sacramento, California, using electromagnetics, capacitively coupled resistivity, and dc resistivity: U.S. Geological Survey Open-File Report 2008–1109, 12 p.
- Asch, T.H., Deszcz-Pan, M., Burton, B.L., and Ball, L.B., 2008, Geophysical characterization of American River levees, Sacramento, California, using electromagnetics, capacitively coupled resistivity, and dc resistivity: U.S. Geological Survey Open-File Report 2008-1109, 354 p.

- Asch, T.H., Sweetkind, D., Burton, B.L., and Wallin, E.L., 2009, Detailed geophysical fault characterization in Yucca Flat, Nevada Test Site, Nevada: U.S. Geological Survey Open-File Report 2008-1346, 64 p., plus two appendixes.
- Asch, T.H. Webring, M.W., Jeffcoat, K.E., and Sullivan, J.S., 2009, Wyoming Mine Geophysical Characterization: U.S. Geological Survey Administrative Report to U.S. Department of Bureau of Land Management, March, 2009, 61 p.
- Asch, T.H., Abraham, J., Lewis, B., and Earle, J., 2009, Hough Mine Geophysical Characterization: U.S. Geological Survey Administrative Report to U.S. Department of Bureau of Land Management, March, 2009, 38 p.
- Asch, T.H., Sullivan, J., and Abraham, J., 2009, Geophysical Characterization of the Descarga Mill Tailings, Randsburg, California: U.S. Geological Survey Administrative Report to U.S. Department of Bureau of Land Management, March, 2009, 32 p.
- Asch, T.H. and Sweetkind, D.S., 2010, Geophysical characterization of range-front faults, Snake Valley, Nevada: U.S. Geological Survey Open-File Report 2010-1016, 226 p.
- Asch, T.H. and Sweetkind, D.S., 2011, Audiomagnetotelluric characterization of range-front faults, Snake Range, Nevada: Geophysics, v. 76, No. 1, p. B1-B7.
- Asch, T.H., Abraham, J.D., and Irons, T., 2015, A discussion on depth of investigation in geophysics and AEM inversion results: Presented at the Society of Exploration Geophysicists Annual Meeting, September 2015, New Orleans
- Asch, T., Gottschalk, I., Knight, R., Abraham, J.D., Cannia, J., and Van Der Maaten, K., 2018, An airborne electromagnetic investigation of the Marina, California hydrogeologic framework: abstract in Symposium on the Application of Geophysics and Engineering to Environmental Problems (SAGEEP), March 25-28, Nashville, TN
- Asch, T.H., Abraham, J.D., and Cannia, J.C., 2019, Airborne Geophysical Investigations of Saltwater Intrusion Along Coastal California: presented at AGWA-AGWT Annual Meeting on February 12, 2019 in Ontario, California.
- Asch, T.H., Abraham, J.D., and Cannia, J.C. (2019) Airborne electromagnetic for characterizing water quality due to saltwater intrusion: in abstracts from the AGU-SEG Airborne Geophysics Workshop, Fort Lauderdale, FL June 10-13, 2019 https://www.youtube.com/playlist?list=PL7Ihm2Mh3MZ5p6-aallmWUu-gMuw3qs0C
- Ball, L.B., Burton, B.L., Powers, M.H., and Asch, T.H., 2014, Digital geospatial presentation of geoelectrical and geotechnical data for the lower American River and flood plain, east Sacramento, California: U.S. Geological Survey Data Series 902, 12 p., http://dx.doi.org/10.3133/ds902. ISSN 2327-638X (online)
- Cannia, J.C. and Asch, T.H., 2018, NGWA Groundwater Week Workshop: *Airborne Electromagnetic Surveys for Hydrogeologic Frameworks and Groundwater Management:* Workshop presented at the National Ground Water Association meeting in Las Vegas, Nevada, December 6, 2018.
- Corwin, R. F. and Asch, T., 1993, Report on mapping flow paths along seepage zones along incipient fracture zones around a salt mine in upstate New York: Submitted to U. S. Army Corps of Engineers, WES.
- Corwin, R. F. and Asch, T., 1993, Interim report on mapping and monitoring leaking fracture zones in central New Mexico using self potential and dc resistivity: Submitted as part of an ongoing project to the U.S. Bureau of Reclamation, Denver.

- Corwin, R. F. and Asch, T., 1993, Interim report on mapping erosion control concrete mats along the Mississippi river using self potential and dc resistivity: Submitted to the U.S. Army Corps of Engineers, WES.
- Esfahani, A.A. and Asch, T., 2012, Classifying Overlapping Data by Combining Meta Learners and Bayesian Networks: Poster at Conference on Mathematical Geophysics of the International Union of Geodesy and Geophysics, 18-22 June, 2010, Edinburgh, Scotland.
- Friedel, M.J., Asch, T.H., and Oden, C., 2012, Hybrid analysis of multiaxis electromagnetic data for discrimination of munitions and explosives of concern: Geophysics Journal International, doi: 10.1111/j.1365-246X.2012.05522.x
- Fujinawa, Y., Kawakami, N., Asch, T.H., Yamane, K., Y., Takasugi, S., and Honkura, Y., 1995, Two-dimensional inversion of magnetotelluric data of the north-eastern part of the Japan Arc (Part 1): Abstracts, EOS, American Geophysical Union, Fall meeting 1995, 76, 46 suppl., p. 548.
- Fujinawa, Y., Kawakami, N., Asch, T.H., Yamane, K., Takasugi, S., and Honkura, Y., 1995, Preliminary results of two-dimensional inversion of the north-eastern part of the Japan Arc: Abstracts, Japan Earth and Planetary Science Joint Meeting, 1995, p. 58.
- Fujinawa, Y., Kawakami, N., Asch, T.H., Yamane, K., Takasugi, S., and Honkura, Y., 1996, Georesistivity structures in the central part of north-eastern Japan Arc (abstract): Programme and Abstracts, Seismological Society of Japan, 1996, no. 2, p. 83.
- Fujinawa, Y., Kawakami, N., Asch, T.H., Yamane, K., Takasugi, S., and Honkura, Y., 1996, Two-dimensional inversion of magnetotelluric data of the north-eastern part of the Japan Arc (Part 2): Abstracts, Japan Earth and Planetary science Joint Meeting, 1996, p. 706.
- Fujinawa, Y., Asch, T., Kawakami, K., Uyeshima, N. and Y. Honkura, 1997, Studies of the georesistivity structure in the central part of the northeastern Japan arc: Journal Geomagnetism Geoelectricity, 49, no. 11/12, p. 1601-1617.
- Fujinawa, Y., Kawakami, N., Asch, T.H., Yamane, K., Takasugi, S., and Honkura, Y., 1998, Two-dimensional features of resistivity structure in the central region of northeastern part of Japan Arc: GERD (Geothermal Energy Research and Development Co.) Reprint Series, no. 3, p. 13.
- Fujinawa, Y., Kawakami, K., Inoue, J., Asch, T., Takasugi, S. and Y. Honkura, 1999, 2-D georesistivity structure in the central part of the northeastern Japan arc: Earth Planets Space, 51, no. 10, 1035-1046.
- Fujinawa, Y., Kawakami, N., Inoue, J., Asch, T.H., Takasugi, S., and Honkura, Y., 2002, Understanding of seismic activity using conductivity data in the central part of northeastern Japan: in Seismotectonics in Convergent Plate Boundary, Eds. Y. Fujinawa and A. Yoshida, pp. 123-140.
- Fujinawa, Y, Kawakami, N., Inoue, J., Asch, T.H., and Takasugi, S., 2002, Conductivity distribution and seismicity in the northeastern Japan Arc: Earth, Planets and Space, 54, no. 5, p. 629-636.
- Gottschalk, I, Knight, R., Asch, T., Abraham, J., and Cannia, J. (2020) Using an airborne electromagnetic method to map saltwater intrusion in the northern Salinas Valley, California: Geophysics, Vol 85., Issue 4, B119-B131. https://doi.org/10.1190/geo2019-0272.1

- Haines, S. S., Burton, B. L., Sweetkind, D. S., Asch, T. H., 2008, Electrical Resistivity and Seismic Surveys at the Nevada Test Site, Nevada, April 2007, U.S. Geological Survey Open-File Report 2008–1368, 33 p.
- Hobza, C.M., Asch, T.H., and Bedrosian, P.A., 2011, Hydrostratigraphic Interpretation of Test-Hole and Geophysical Data, Upper Loup River Basin, Nebraska: U.S. Geological Survey Open-File Report 2011-1289.
- Hunter, L.E., Serafini, D.C., Powers, M.H., Haines, S.A., Asch, Theodore, and Burton, B.L., 2006, Geophysical evaluation of the Success Dam foundation, Porterville, CA: Proceedings of the Association of State Dam Safety Officials (ASDSO) Conference, Boston, Mass., p. 27–45.
- Inoue, J., Asch, T.H., Kawakami, N., Takasugi, S., Tanaka, K., and Takeuchi, M., 1995, Magnetotelluric sounding at the Bandai volcano (part 3) - Resistivity structure beneath the Bandai volcano by 2-D inversion analysis: Proceedings of the Society of Exploration Geophysics of Japan, 92, p. 218-222.
- Kawakami, N., Fujinawa, Y., Asch, T.H., Takasugi, S., 1994, Preliminary results of two-dimensional inversion of magnetotelluric data of the north-eastern part of the Japan Arc: Abstracts, Society of Geomagnetism and Earth, Planetary and Space Sciences, Fall Meeting, 96, p. 95.
- Kawakami, N., Asch, T.H., Takasugi, S., and Fujinawa, Y., 1995, Investigation method of resistivity structure across the Tohoku district (Part 2): Proceedings of the Society of Exploration Geophysics of Japan, 92, p. 223-227.
- Kawakami, N., Fujinawa, Y., Asch, T. and S. Takasugi, 1997, Local galvanic distortions in the central part of north-eastern Japan (Part 1): Journal Geomagnetism Geoelectricity, 49, no. 11/12,p. 1387-1400.
- Kawakami, N., Asch, T.H., Takasugi, S., and Fujinawa, Y., 1998, Local three-dimensional galvanic distortions in the central part of northeastern Japan (abstract) GERD (Geothermal Energy Research and Development Co.) Reprint Series, no. 3, p. 12.
- Klaff, T., Asch, T., Murray, C., Cormier, M., Staes, E., and Petersen, G, 2002, An evaluation of UXO detection instruments through profile comparisons from the ordnance detection and discrimination study at former Fort Ord, CA: Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP) 2002 Proceedings, Las Vegas, NV.
- Knight, R., Smith, R., Asch T.H., Abraham, J.D., Cannia, J., and Viezzoli, A. 2016, Subsurface mapping with airborne geophysics in the Central Valley of California: Expanded Abstract, Society of Exploration Geophysicists 2016 Annual Meeting, Dallas, TX.
- Legault, J.M., Plastow, G., Abraham, J.D., Asch, T.H., Hisz, D, and Parkin, H.S., 2018, Helicopter time-domain em results over the Wahpeton aquifer, Fargo, North Dakota: abstract in Symposium on the Application of Geophysics and Engineering to Environmental Problems (SAGEEP), March 25-28, Nashville, TN
- Legault, J.M., Asch, T.H., Hisz, D., Khaled, K., Abraham, J.D., Parkin, S., and Honeyman, R. (2019) Further characterization of the Spiritwood Valley Aquifer in North Dakota using helicopter time domain electromagnetics: in abstracts from SAGEEP 20019, Portland, Oregon, March 17-21, 2019. https://library.seg.org/doi/pdf/10.4133/sageep.32-014
- Levin, O., Asch, T. and Issar, A., 1983, Report on the hydrogeology of the Judea Group aquifer in the central Negev: Report to the Israel National Water Agency.

- Murray, C., Asch, T., Klaff, T., Cormier, M., Staes, E., and Petersen, G, 2002, A free-air evaluation of UXO detection instruments in the ordnance detection and discrimination study at former Fort Ord, CA: Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP) 2002 Proceedings, Las Vegas, NV.
- Morrison, H. F. and Asch, T., 1990, Mapping and monitoring of a nuclear repository using borehole-to-surface and crosshole dc resistivity methods: in an Interim Report on Monitoring a GNRP (Government Nuclear Repository Project).
- Moulton, C.W., Asch, T.H., Wright, D.L., Smith, D.V., Wigton, P.H., and Coffee, R.D., 2016, Development of the ALLTEM, an Electromagnetic System for Detection and Discrimination of Munitions and Explosives of Concern, *in* Smith, K.S., Phillips, J.D., McCafferty, A.E., and Clark, R.N., eds., 2016, Developing integrated methods to address complex resource and environmental issues: U.S. Geological Survey Circular 1413, p. 134-137.
- Phillips, J.D., and Asch, Theodore, 2016, Estimating bedrock depth using constrained gravity inversion, Tooele Army Depot, Utah, *in* Smith, K.S., Phillips, J.D., McCafferty, A.E., and Clark, R.N., eds., 2016, Developing integrated methods to address complex resource and environmental issues: U.S. Geological Survey Circular 1413, p. 131-133.
- Staes, E.G., and Asch, T., 2001, Phase I results of the Ordnance Detection and Discrimination Study (ODDS), Fort Ord project, California: Proceedings, UXO Forum 2001, 7 pp.
- Tsang, C.F., Lee, K.H., and Asch, T., 1991, A sensitivity analysis of the borehole-to-surface dc resistivity method applied to contaminant transport: Lawrence Berkeley Laboratory Earth Science Division Annual Report: 1990.
- Williams, J.M., Rodriguez, B.D., and Asch, T.H., 2005, Magnetotelluric data, central Yucca Flat, Nevada Test Site, Nevada: U.S. Geological Survey Open-File Report 2005-1238.[Data only]
- Williams, J.M., Rodriguez, B.D., and Asch, T.H., 2005, Magnetotelluric data, northern Yucca Flat, Nevada Test Site, Nevada: U.S. Geological Survey Open-File Report 2005-1239. [Data only]
- Williams, J.M., Rodriguez, B.D., and Asch, T.H., 2005, Magnetotelluric data, northern Frenchman Flat, Nevada Test Site, Nevada: U.S. Geological Survey Open-File Report 2005-1240. [Data only]
- Williams, J.M., Rodriguez, B.D., and Asch, T.H., 2005, Magnetotelluric data, southern Yucca Flat, Nevada Test Site, Nevada: U.S. Geological Survey Open-File Report 2005-1241. [Data only]
- Williams, J.M., Rodriguez, B.D., and Asch, T.H., 2005, Magnetotelluric data, across Quartzite Ridge, Nevada Test Site, Nevada: U.S. Geological Survey Open-File Report 2005-1242. [Data only]
- Williams, J.M., Rodriguez, B.D., and Asch, T.H., 2005, Magnetotelluric data, north central Yucca Flat, Nevada Test Site, Nevada: U.S. Geological Survey Open-File Report 2005-1243. [Data only]
- Williams, J.M., Sampson, J.A., Rodriguez, B.D., and Asch, T.H., 2006, Magnetotelluric data, Rainier Mesa/Shoshone Mountain, Nevada Test Site, Nevada: U.S. Geological Survey Open-File Report 2005-1215, 247 p. [Data only]
- Wright, D.L., Asch, T.H., Moulton, C.W., Smith, D.vG., Hutton, S.R., Wallin, E., Brown, P.J., and Nabighian, M.N., 2004, Test results from two prototype electromagnetic systems at the SERDP standardized UXO test site at Yuma Proving Ground, Arizona, SAGEEP 2004, p. 1702-1713.

- Wright, D.L., Moulton, C.W., Asch, T.H., Hutton, S.R., Brown, P.J., Nabighian, M.N, and Li, Y., 2005, ALLTEM, a triangle wave on-time time-domain system for UXO applications: Proceedings, SAGEEP 2005, p. 1357-1367.
- Wright, D.L., Moulton, C.W., Asch, T.H., Brown, P.J., Hutton, S.R., Nabighian, M.N., and Li, Y., 2006, ALLTEM for UXO applications—First field tests: Proceedings of the Symposium on the Application of Geophysics to Engineering and Environmental Problems, April 2–6, 2006, p. 1761–1775.