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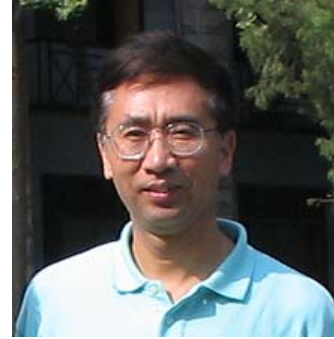
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Website: www.geo-em.com**PROFESSION:**

Geophysicist

CAREER SUMMARY:

Geophysicist of TTI Exploration using geophysical methods for mineral, oil and gas exploration.

Independent Consultant. Providing consulting geophysical services on mineral, oil and gas exploration, environmental and engineering problems, geophysical data processing and interpretation, and R & D projects.

Research Geophysicist of Geophex, Ltd. Responsible for the development of electromagnetic (EM) methods in unexploded ordnance (UXO) detection and discrimination, and in airborne EM data processing and interpretation.

Research Scientist of Geoterrex-Dighem, a division of CGG Canada Ltd. Responsible for the advancement of airborne EM mapping methods for environmental and minerals applications, and for consulting with the hardware group in sensor design and real time processing.

Professor of Changchun University of Earth Sciences for 12 years. Executed and conceived research projects on electromagnetic methods and their applications. Taught courses in applied geophysics, including airborne electromagnetic methods, potential field and seismic methods.

EMPLOYMENT RECORD:

2009.10-present	Geophysicist, TTI Exploration, Newport Beach, CA, USA.
2008.11-2009.9	Research Geophysicist, Geophex, Raleigh, NC, USA
2006.2-2008.11	Independent Consultant, Geo-EM, LLC., Raleigh, NC, USA
1999-2006.1	Research Geophysicist, Geophex, Raleigh, NC, USA
1993-1999	Research Scientist, Geoterrex-Dighem, a division of CGG Canada Ltd., Toronto, Ontario, Canada.
1981-1992	Professor of Dept. of Applied Geophysics, Changchun University of Earth Sciences, Changchun, Jilin, China.
1987-1988	Visiting Scholar of Dept. of Geological Sciences, Brown University, Providence, Rhode Island, USA.

RESEARCH EXPERIENCE:

2006.2-present	HEM/magnetic data collection, QC, data processing and interpretation. MT data processing and interpretation. Developed time-domain helicopter-borne EM interpretation and data processing algorithms, including CDI, differential CDI, B-field computation,
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- anomaly picking, noise removal, inversions, and airborne geophysical data leveling.
- 1999-2006.1 Developed airborne and ground EM interpretation methods for environmental applications, including conductivity and susceptibility mapping, landmine identification, inversions to layered earth and sphere, UXO anomaly picking and characterization, non-metal object detection, and optimizing decision thresholds.
- 1993-1999 Developed helicopter-borne EM interpretation and data processing algorithms, including inversions for resistivity, magnetic permeability and dielectric permittivity, spherics rejection, differential resistivity, depth of investigation, airborne geophysical data leveling, and resistivity mapping techniques in magnetized areas, etc.
- 1987-1992 Developed soil salinity investigation methods using electrical soundings and electromagnetic frequency-domain soundings. Developed SVD filtering algorithms for electromagnetic noise rejection and analysis. Proposed the full-wave apparent resistivity for frequency soundings and developed the algorithm. Developed SVD inversion algorithms for INPUT and TRIDEM airborne electromagnetic systems. Developed an inversion algorithm for determining node spacing in MT numerical modeling.
- 1985-1986 Interpretation theory for airborne electromagnetic methods and their applications.
- 1982-1984 Developed algorithms for time-domain airborne electromagnetic methods, including apparent resistivity transformation, sphere model forward and inverse problems.
- 1977-1981 Designed the scale modeling system for electromagnetic methods, and developed a set of interpretive diagrams for a time-domain electromagnetic system. Electromagnetic theory in geophysics, airborne magnetic data interpretation.

REFEREE FOR:

Geophysics
 Exploration Geophysics
 Geophysical Prospecting
 Journal of Environmental and Engineering Geophysics
 IEEE Transactions on Geoscience and Remote Sensing
 International Journal of Applied Earth Observation and
 Geoinformation
 Near Surface Geophysics
 The Department of Defense Environmental Security Technology
 Certification Program (ESTCP)
 The Department of Defense Strategic Environmental Research and
 Development Program (SERDP)

RESEARCH FUNDING: NASA

The Department of Defense Environmental Security Technology Certification Program (ESTCP)
The Department of Defense Strategic Environmental Research and Development Program (SERDP)
The Defense Advanced Research Projects Agency (DARPA)
Naval Research Laboratory
The U. S. Army Night Vision Laboratory Countermine Division
U. S. Army Corps of Engineers
U. S. Air Force
The Provincial Science and Technology Committee of Jilin, China
Ministry of Geological and Mineral Resources of China

PUBLICATIONS:

The subject matter of publications includes ground and airborne EM and resistivity, filtering and computation techniques, the design of new interpretation methods, and UXO/landmine detection and identification. A list of publications is attached.

EDUCATION:

1978-1981

Graduate student, graduating in geophysics, Changchun University of Earth Sciences, Changchun, Jilin, China.

1974-1977

Undergraduate student, graduating in geophysics, Changchun University of Earth Sciences, Changchun, Jilin, China.

AFFILIATIONS:

Society of Exploration Geophysicists
Australia Society of Exploration Geophysicists

LANGUAGES:

Mandarin, English

CITIZENSHIP:

USA and Canada

Publications by Haoping Huang

Journals or Books

- Zeng, Z., Huang, H. and Liu F., 2009, Identifying landmines by incorporating measurement uncertainties into EMIS library and decision threshold, *Journal of Environmental and Engineering Geophysics*, **14**, 39-46.
- Huang, H., 2008, Airborne geophysical data leveling based on line-to-line correlations, *Geophysics*, **73**, No. 3, F83-F89.
- Huang, H., and Rudd, J., 2008, Conductivity-depth imaging of time-domain EM data based on pseudo-layer half-space model, *Geophysics*, **73**, No. 3, F115-F120.
- Huang, H., SanFilipo, B., Oren, A. and Won, I. J., 2007, Coaxial-coil towed EMI sensor array for UXO detection and characterization, *Journal of Applied Geophysics*, **61**, 217-266.
- Huang, H., and Cogbill, A. H., 2006, Repeatability study of helicopter-borne electromagnetic data, *Geophysics*, **71**, No. 6, G285-G290.
- Huang, H and Zeng, Z., 2006, Optimizing decision threshold using the receiver operating characteristic curves for unexploded ordnance discrimination; in *Discrete and Computational Mathematics*, Ed. by Liu, F et al., p. 107-120, Nova Publishers.
- Huang, H., SanFilipo, B., and Won, I. J., 2006, Optimizing decision threshold and weighting parameter for UXO discrimination, *Geophysics*, **71**, No. 6, G313-G320.
- Huang, H., SanFilipo, B., Oren, A. and Won, I. J., 2005, Broadband electromagnetic gradiometer for UXO detection and discrimination, accepted for publication in *Geophysics*.

- Huang, H., 2005, Depth of investigation for small broadband electromagnetic sensors, *Geophysics*, **70**, No. 6, G135-G142.
- Huang, H., SanFilipo, B., and Won I. J., 2005, Planetary exploration using a small electromagnetic sensor, *IEEE Trans. Geoscience and Remote Sensing*, **43**, No. 7, 1499-1506.
- Huang, H., and Won, I. J., 2004, Electromagnetic detection of buried metallic objects using quad-quad conductivity, *Geophysics*, **69**, 1387-1393.
- Won, I. J., and Huang, H., 2004, Magnetometers and electro-magnetometers: The leading Edge, **23**, 448-451.
- Tarokh, A. B., Miller, E. L. , Won, I. J. and Huang, H., 2004, Statistical classification of buried objects from spatially sampled time or frequency domain electromagnetic induction data, *Radio Science*, Vol. **39**, Np. 4, July/August, 2004, p RS4S05-1-RS4S05-11.
- Huang, H., and Won, I. J., 2003, Automated anomaly picking from broadband electromagnetic data in UXO survey: *Geophysics*, **68**, 1870-1876.
- Huang, H., and Won, I. J., 2003, Detecting metal objects in magnetic environments by broadband electromagnetic method: *Geophysics*, **68**, 1877-1887.
- Huang, H., and Fraser D. C., 2003, Inversion of helicopter electromagnetic data to a magnetic conductive layered earth: *Geophysics*, **68**, 1211-1223.
- Huang, H., and Won, I. J., 2003, Real-time resistivity soundings using a hand-held broadband electromagnetic sensor: *Geophysics*, **68**, 1224-1231.
- Huang, H., and Won, I. J., 2003, Characterization of UXO-like targets using broadband electromagnetic induction sensors: *IEEE Trans. Geoscience and Remote Sensing*, **41**, No.3, 652-663.
- Huang, H., and Won, I. J., 2003, Automated identification of landmines using normalized electromagnetic induction spectroscopy: *Geoscience and Remote Sensing*, **41**, No.3, 640-651.
- Huang, H., and Fraser, D. C., 2002, Dielectric permittivity and resistivity mapping using high frequency helicopter-borne EM data: *Geophysics*, **67**, 727-738.
- Huang, H., and Fraser, D. C., 2002, The use of quad-quad resistivity in helicopter electromagnetic mapping: *Geophysics*, **67**, 459-467.
- Huang, H., and Fraser, D. C., 2001, Mapping of the resistivity, susceptibility and permittivity of the earth using a helicopter-borne electromagnetic system: *Geophysics*, **66**, 148-157.
- Huang, H., and Won, I. J., 2000, Conductivity and susceptibility mapping using broadband electromagnetic sensors: *Journal of Environmental and Engineering Geophysics*, **5**, No. 4, 31-41.
- Huang, H., and Fraser, D.C., 2000, Airborne resistivity and susceptibility mapping in magnetically polarizable areas: *Geophysics*, **65**, 502-511.
- Huang, H., and Fraser, D.C., 1999, Airborne resistivity data leveling: *Geophysics*, **64**, 378-385.
- Huang, H., and Fraser, D.C., 1998, Magnetic permeability and electric resistivity mapping with a multifrequency airborne EM system: *Exploration Geophysics*, **29**, 249-253.
- Huang, H., and Fraser, D.C., 1996, The differential parameter method for multifrequency airborne resistivity mapping: *Geophysics*, **61**, 100-109.
- Huang, H., and Palacky, G. J., 1991, Damped least-squares inversion of time domain airborne electromagnetic data based on singular value decomposition: *Geophysical Prospecting*, **39**, 827-844.

Proceedings

- Huang H., Deszcz-Pan M. and Smith B., 2008, Limitations of Small EM Sensors in Resistive Terrain: Presented at The International Symposium on the Application of Geophysics to Engineering and Environmental Problems.
- Huang, H., 2007, Locating good conductors by using the B-field integrated from partial dB/dt waveforms of time-domain EM systems,, *SEG 2007 Technical Program Expanded Abstracts*, 688-692.
- Huang, H., 2007, Airborne geophysical data leveling based on line-to-line correlations,, *SEG 2007 Technical Program Expanded Abstracts*, 708-712.

- Huang and Rudd, 2006 Conductivity-depth imaging of time-domain AEM data based on pseudo-layer half-space model, 76th Annual International Meeting, Society of Exploration Geophysics, Expanded Abstracts, 765-769.
- Huang H., Bill SanFilipo and I. J. Won, 2006, Optimizing decision threshold and weighting parameter for UXO discrimination, Presented at The International Symposium on the Application of Geophysics to Engineering and Environmental Problems, April 2-6, 2006, Seattle, Washington.
- Huang, H., San Filipo, B., Oren, A., and Won, I. J., Coaxial electromagnetic sensor for UXO detection, Presented at The International Symposium on the Application of Geophysics to Engineering and Environmental Problems, April 3-7, 2005, Atlanta, Georgia. (Proceedings 1378-1388).
- Huang, H., San Filipo, B., Norton, S., and Won, I. J., 2005, Identification of buried landmines using electromagnetic induction spectroscopy: evaluation of a blind test against ground truth, Detection and Remediation Technologies for Mines and Minelike Targets X: Proceedings of SPIE, **5794**, 233-241.
- SanFilipo, B., Won, I. J., Shipman, M., Huang, H., Norton, S., 2005, Application of multi-frequency EMI measurements for mine detection and clutter discrimination, Detection and Remediation Technologies for Mines and Minelike Targets X: Proceedings of SPIE, **5794**, 221-232.
- Smith, B. D., Otton, J. K., Zielinski, R. A., Abbott, M. M., Huang, H., and Witten, A. J., 2004, Conductivity depth imaging of areas of shallow brine plumes at the USGS OSPER Site, Osage Co. Oklahoma, Presented at 11-th International Petroleum Environmental conference, Tulsa, OK.
- Huang, H., 2004, Depth of investigation for small broadband electromagnetic sensors, Presented at The International Symposium on the Application of Geophysics to Engineering and Environmental Problems, 644-653. February 22-26, 2004, Colorado Spring, Colorado (Proceedings on CD).
- Huang, H., and Won, I. J., 2004, Detecting UXO using quad-quad conductivity in magnetic terrains, Presented at The International Symposium on the Application of Geophysics to Engineering and Environmental Problems, 1654-1661. February 22-26, 2004, Colorado, Spring, Colorado (Proceedings on CD).
- Huang, H., Won, I. J., and SanFilipo, B., 2003, Detecting buried non-metal objects using soil magnetic susceptibility measurements: *in* Russell S. Harmon, John H. Holloway, Jr., J. T. Broach, Eds., Detection and Remediation Technologies for Mines and Minelike Targets VIII: Proceedings of SPIE, **5089**, 1181-1188.
- Huang, H., and Won, I. J., 2003, Automated anomaly picking from broadband electromagnetic data in UXO survey: Presented at The International Symposium on the Application of Geophysics to Engineering and Environmental Problems, 1414-1423. April 6-10, 2003, San Antonio, TX (Proceedings on CD).
- Huang, H., and Won, I. J., 2002, Real-time electromagnetic induction soundings: Presented at The International Symposium on the Application of Geophysics to Engineering and Environmental Problems, February 10-14, 2002, Las Vegas, Nevada (Proceedings on CD).
- Huang, H., and Won, I. J., 2002, Automated identification of landmines using normalized electromagnetic induction spectroscopy: Presented at The International Symposium on the Application of Geophysics to Engineering and Environmental Problems, February 10-14, 2002, Las Vegas, Nevada (Proceedings on CD).
- Won, I. J., Huang, H., Norton, S., San Filipo, B., 2002, Detection and identification of landmines using electromagnetic induction spectroscopy: Presented at 2002 IEEE International Geoscience and Remote Sensing Symposium (IGARSS), June 24-28, 2002, Toronto, Ontario, Canada.
- Huang, H., and Won, I. J., 2002, Identification of mineral deposits using airborne electromagnetic spectra: Society of Exploration Geophysics, Expanded Abstracts, 5-8.
- Huang, H., and Won, I. J., 2001, Conductivity and susceptibility mapping using broadband electromagnetic sensors: Presented at The International Symposium on the Application of Geophysics to Engineering and Environmental Problems, March 4-7, 2001, Denver, Colorado (Proceedings on CD).

- Huang, H., and Won, I. J., 2001, Inversion of multifrequency electromagnetic data to a conductive and permeable sphere: Presented at The International Symposium on the Application of Geophysics to Engineering and Environmental Problems, March 4-7, 2001, Denver, Colorado (Proceedings on CD).
- Huang, H., and Fraser, D.C., 1999, 3-D parameter-space electromagnetic mapping using helicopter-borne systems: 69th Annual International Meeting, Society of Exploration Geophysics, Expanded Abstracts, 299-302.
- Huang, H., Hodges, G., and Fraser, D. C., 1998, Mapping dielectric permittivity and resistivity using high frequency helicopter-borne EM data: 68th Annual International Meeting, Society of Exploration Geophysics, Expanded Abstracts, 817-820.
- Huang, H., and Fraser, D.C., 1997, Airborne resistivity data leveling: Presented at The High-Resolution Geophysics Workshop, January 6-8, 1997, Tucson, AZ (Proceedings on CD).
- Huang, H., 1991, Application of airborne electromagnetic methods to engineering problems: Annual of the Chinese Geophysical Society 1991, 148(in Chinese).
- Huang, H., Wang, Y., and Zhao, Y., 1990, A study of electrical and electromagnetic methods for soil salinity investigation: Annual of the Chinese Geophysical Society 1990, 332(in Chinese).
- Huang, H., and Piao, H., 1990, Full-wave apparent resistivity response for electromagnetic soundings: Annual of the Chinese Geophysical Society 1990, 395(in Chinese).

Chenese Journals or Books

- 李庆宣, 黄皓平, 1994, 地磁扰动与工伤事故的相关性研究, 长春科技大学学报, 1994, 第 24 卷, 第 3 期。
- 黄皓平, 朴化荣, 1992, 频率测深的全波视电阻率异常特征, 长春地质学院建院四十周年论文集, 地质勘探技术, 77-84, 吉林科技出版社。
- 黄皓平, 1992, 航空电磁法应用的新领域—盐渍土及次生盐渍化调查, 1992 年, 第 22 卷, 第 2 期, 218-222。
- 朴化荣, 黄皓平, 1992, 电磁法勘探的新进展, 物探化探译丛, 1992, 第 4-5 期, 79-84。
- 黄皓平, 朴化荣, 1992, 水平多层大地上垂直磁偶极频率测深的全波视电阻率, 地球物理学报, 1992 年, 第 35 卷, 第 3 期, 389-395。
- 黄皓平, 1992, 从频率域信噪比分析看奇异值分解去噪声的效果, 物探化探计算技术, 1992 年, 第 14 卷, 第 2 期, 113-119。
- 黄皓平, 1991, 电磁法数据处理的奇异值分解法, 地球物理学报, 1991, 第 34 卷, 第 5 期, 644-650。
- 黄皓平, 1991, 信号频段上干扰噪声的剔除, 物探化探计算技术, 1991, 第 13 卷, 第 1 期, 59-64。
- 黄皓平, 1991, 从探测深度看时域航电的找矿效果, 矿产与地质, 1991 年, 第 1 期, 50-53。
- 黄皓平, 1990, 大地电磁响应数值计算中结点分布的最优化问题, 长春地质学院学报, 1990, 第 20 卷, 第 4 期, 459-466。
- 黄皓平, 1990, 土壤电性填图的航空电磁法, 土壤学进展, 1990 年 18 卷 5 期, 47-52。
- 黄皓平, 1990, 国外航空电磁法在浅海测深中的应用, 国外地质勘探技术, 1990 年 2 期, 16-18。
- 黄皓平, 1990, 视电阻率的计算, 区域地球物理数据处理及其应用, 86-92, 吉林科技出版社。
- 黄皓平, 王维中, 1990, 时间域航空电磁数据的反演, 地球物理学报, 1990, 第 33 卷, 第 1 期, 87-97。
- 黄皓平, 1989, 航空电磁浅海测深的理论和应用, 海洋测绘, 1989, 第 35 卷, 9-17。

黄皓平, 王延良, 1985, 脉冲航电响应转换为视电阻率的电算方法, 长春地质学院学报, 1985, 第 4 期, 85-92。

黄皓平, 王延良, 1985, 脉冲航电在煤田普查中应用的可行性探讨, 煤田地质与勘探, 1985, 第 5 期, 49-54。

黄皓平, 朱仁学, 1984, 导电导磁球形矿体上空脉冲航电响应的解释方法, 长春地质学院学报, 1984, 第 1 期, 107-116。

黄皓平, 习洪都, 王延良, 朱大富, 朴化荣, 1983, 脉冲航电响应的视电阻率变换及其在地质填图中的应用, 长春地质学院学报, 1983, 第 3 期, 135-144。

教科书

黄皓平, 1986, 航空电磁法勘探, 长春地质学院教材出版科。