

Training and Technology Transfer by GeothermEx Technical Staff

<u>Date</u>	<u>Place</u>	<u>Course Title</u> (*course given solely by GeothermEx personnel)	<u>Course Presented for</u>	<u>Sponsor</u>
September 1976	Snowbird, Utah	Geothermal Energy and Electric Utilities: A Background for Decision	Attendees from utilities, development companies, investment groups and government agencies	Geothermal Resources Council
May 1979	San Francisco, California	An Introduction to the Exploration and Development of Geothermal Resources	Attendees from industry, government agencies and financial institutions	Geothermal Resources Council
April 1980	San Francisco, California	An Introduction to the Exploration and Development of Geothermal Resources	Attendees from industry, government agencies and financial institutions	Geothermal Resources Council
November 1980	Sacramento, California	Geothermal Reservoir Assessment: Single-and Two-Phase	Attendees from industry, government agencies and financial institutions	Geothermal Resources Council
December 1980	Santa Cruz, Bolivia	Introduction to Well Log Analysis (1 week course)*	Selected Engineers from the Bolivian National Oil Company (YPFB)	Bolivian National Oil Company (YPFB)
April 1981	Reno, Nevada	Introduction to Geothermal Log Interpretation (2 day course)	Attendees from industry, government agencies and financial institutions	Geothermal Resources Council
April 1981	Anchorage, Alaska	Well Log Analysis (1 week course)*	Graduate and undergraduate students	Department of Petroleum Engineering, University of Alaska
June 1982	Long Beach, California	Small-Scale Geothermal Power Plants (3 day course)	Attendees from industry, government agencies and financial institutions	Geothermal Resources Council
June 1982	San Juan Province, Argentina	Training in Chemical Sampling of Ground Water (3 week course in Spanish)*	Selected geologists and engineers of the Government of San Juan Province, Argentina	Government of San Juan Province, Argentina

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January 1982 - January 1985	Manila, Philippines	Geothermal Engineering (A series of courses given one 2 week course per quarter, 12 courses in all)*	Selected Engineers of the Philippines National Oil Company	United Nations Development Program
April 1983	Reno, Nevada	Workshop on High-temperature Geothermal Wells: Planning, Drilling and Completion (3 day course)	Attendees from industry, government agencies and financial institutions	Geothermal Resources Council
June 1983	Santa Cruz, Bolivia	Gas Detection and Evaluation for Well Logs (1 week course)*	Selected engineers from the Bolivian National Oil Company (YPFB)	Bolivian National Oil Company (YPFB)
October 1984	Millbrae, California	Engineering and Economic Assessment of Geothermal Resources (2 day course)	Attendees from industry, government agencies and financial institutions	Geothermal Resources Council
June 1985	Oro Preto, Brazil	Advanced Well Log Analysis (3 week course)*	Selected engineers from the Brazilian National Oil Company (Petrobras)	Brazilian National Oil Company (Petrobras)
November 1985 - April 1986	Richmond, California	Geothermal Engineering (6 month training program in all aspects of geothermal engineering)*	One engineer selected for practical training with GeothermEx from the geothermal staff of the Italian National Oil Company (AGIP)	Italian National Oil Company (AGIP)
September 1985	Kailua-Kona, Hawaii	Engineering and Economic Assessment of Geothermal Reservoirs (2 day course)	Attendees from industry, government agencies and financial institutions	Geothermal Resources Council
October 1986	Palm Springs, California	Testing Geothermal Wells (2 day course)	Attendees from industry, government agencies and financial institutions	Geothermal Resources Council
February 1988	San Francisco, California	Drilling of High-Temperature Geothermal Wells (3 day course)	Attendees from industry, government agencies and financial institutions	Geothermal Resources Council

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October 1988	San Diego, California	Drilling, Sampling and Logging in Hot and Hostile Environments (2 day course)	Attendees from industry, government agencies and financial institutions	Geothermal Resources Council
October 1988	San Diego, California	Geothermal Property Evaluation (2 day course)	Attendees from industry, government agencies and financial institutions	Geothermal Resources Council
May 1989	Athens, Greece	Geothermal Exploration and Engineering (2 week course)*	Selected geologists and engineers from the Public Petroleum Corporation of Greece	Public Petroleum Corporation of Greece
June 1989	Berkeley, California	Responses of a Geothermal Field During Exploitation (2 day course)	Attendees from industry, government agencies and financial institutions	Geothermal Resources Council
August 1990	Kailua-Kona, Hawaii	Assessment of Geothermal Reservoirs and Estimation of Reserves (2 day course)	Attendees from industry, government agencies and financial institutions	Geothermal Resources Council
March 1990	San Francisco, California	An Introduction to Geothermal Resources (2 day course)	Attendees from industry, government agencies and financial institutions	Geothermal Resources Council
June 1991	Sacramento, California	Geothermal Energy - An Introduction to Risk Analysis (2 day course)	Attendees from industry, government agencies and financial institutions	Geothermal Resources Council
March 1992	San Francisco, California	An Introduction to Geothermal Resources (2 day course)	Attendees from industry, government agencies and financial institutions	National Geothermal Association
May 1992	San Jose, Costa Rica	Injection of Fluids into Geothermal Systems (3 day course in Spanish)	Attendees from government agencies of Latin American Countries	United Nations

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August - October 1992	Tokyo, Japan	Theory and Mechanics of Numerical Simulation of Geothermal Reservoirs (2 month course)*	Engineers of Geothermal Research and Development Company of Tokyo	Geothermal Energy Research and Development Company, Tokyo and Government of Japan
October 1992	San Diego, California	How to Make Your Project Financeable: Steps Towards a Financial Analysis (1 day course)	Attendees from industry and financial institutions	Geothermal Resources Council
December 1992	Uenotai (Honshu I.), Japan	Geothermal Fluid Sampling and Analysis (3 day course)*	Geochemists and engineers of Akita Geothermal Energy Company	Akita Geothermal Energy Co., Tokyo
January 1992 - November 1993	Quito, Ecuador	Several Seminars, including preparation of manuals on drilling, well design and well testing (in Spanish)	Attendees from Latin American electric utilities	OLADE (Organization for Energy Development in Latin America)
1990-1993	Uenotai (Honshu I.), Japan	Several on-site training programs on drilling, well completion and blow out prevention and control.*	Engineers and technicians of Akita Geothermal Energy Company and Dowa Mining Company	Akita Geothermal Company, Tokyo
May 1993	Mexicali, Mexico	The Injection of Geothermal Fluids (3 day Bilingual course)	Attendees from industry and government agencies in Mexico and USA	Mexican National Utility (CFE) and Geothermal Resources Council
July 1993	San Jose, Costa Rica	Central American Seminar in Geothermal Training: Drilling Technology (4 day course in Spanish)	Staff members from the utility companies in Central America and Mexico	National Geothermal Association
July 1993	San Jose, Costa Rica	Central American Seminar in Geothermal Training: Exploration Technology (3 day course in Spanish)	Staff members from the utility companies in Central America and Mexico	National Geothermal Association

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July 1993	San Jose, Costa Rica	Central American Seminar in Geothermal Training: Environmental Assessment (3 day course in Spanish)	Staff members from the utility companies in Central America and Mexico	National Geothermal Association
October 1993	Burlingame, California	Tetrad Geothermal Reservoir Simulation Workshop (4 day course)	Attendees from industry and government	Geothermal Resources Council
May 1984	Morelia, Mexico	Financing of Geothermal and Wind Generation Projects (3 day Bilingual course)	Attendees from industry, government agencies and financial institutions from Mexico and U.S.	Mexican National Utility (CFE), U.S. Department of Energy, Geothermal Resources Council. and American Wind Energy Association
May - June 1994	Sendai, Japan	Geothermal Reservoir Engineering Training Course (5-day course)*	Staff members from the utility company	Tohoku Electric Power Company (Fourth largest utility company in Japan)
July 1994	San Jose, Costa Rica	Central American Seminar in Geothermal Training: Reservoir Engineering (3 day Bilingual course)	Staff members from Central American utilities	National Geothermal Association
September 1994	Sendai, Japan	History Matching and Forecasting Future Reservoir Performance Using Numerical Reservoir Simulation*	Staff members from the utility company	Tohoku Electric Power Company (Fourth largest utility company in Japan)
February 1995	Sendai, Japan	Impacts of Fluid Injection in Geothermal Reservoirs*	Staff members from the utility company	Tohoku Electric Power Company (Fourth largest utility company in Japan)

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May 1995	Florence, Italy	Drafting a Geothermal Project for Funding (The Geothermal Resource: Data Requirements of the Fuel Supply)	International Congress participants from industry and government	International School of Geothermics-World Geothermal Congress
May 1995	Florence, Italy	Data Management and Related Software in Geothermal Applications (Reservoir Simulation, Present Technology and Comparison with the Petroleum Industry)	International Congress participants from industry and government	International School of Geothermics-World Geothermal Congress
June 1996	Morelia, Mexico	Financial Features of Geothermal-Electric Projects	Attendees from industry, government and financial institutions	Geothermal Resources Council
February 1997	Bali, Indonesia	Geothermal Power in Asia '97	Attendees from industry, government and financial institutions	IBC Asia Limited
May and July 1997	Irvine, California and Klamath Falls, Oregon	Introduction to Geothermal Energy (Well Testing, Reservoir Engineering and Field Development)	Attendees from industry, government and financial institutions	Geothermal Resources Council
September 1997	Mexicali, Mexico	Optimization of Geothermal Drilling and Field Performance (Matching of Power Plant Design with Well Characteristics; Production/Injection Strategies to Optimize Field Performance; Workover and Make-Up Well Drilling to Maintain Production)	Geothermal Industry Professionals	Geothermal Resource Council
April 1998	Richmond, California	Geothermal exploration techniques and reservoir management strategies (1 week course)*	3 Trainees from China	United Nations
July 1998	San José, Costa Rica	Fundamentals of Numerical Simulation for Geothermal Reservoirs (one month course)*	Reservoir Engineers from Instituto Costarricense de Electricidad (ICE, the Costa Rican electric utility))	ICE

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October 1999	Reno, Nevada	Computer Modeling of Geochemical Processes	Geothermal Industry Professionals	Geothermal Resource Council
May 2000	Beppu, Japan	Financing of Geothermal Projects	Geothermal Industry Professionals; Government Officials	World Geothermal Congress 2000
September 2000	San Francisco, California	Injection Technology	Geothermal Industry Professionals	Geothermal Resources Council
June 2001	Richmond, California and various geothermal fields in California and Nevada	Geothermal Exploration, Drilling and Resource Assessment*	Senior Generation Managers	National Hydroelectric Power Company (India)
2004 - 2005	San Francisco and Sacramento, California	Geothermal Energy's Contribution to the Renewable Energy Portfolio of the State of California	Public and Private Utility Companies	California Energy Commission
June 2005	New York	Introduction to Geothermal Energy for Power Generation*	Senior Portfolio Managers	Goldman Sachs
November 2005	Los Angeles, California	Geothermal Power Options for LADWP	Senior Generation Managers	Los Angeles Department of Water and Power (LADWP)
September 2006	San Diego, California	Geochemical Methods in Geothermal Exploration and Development	Geothermal Industry Professionals	Geothermal Resources Council
November 2006	Amman, Jordan	Geothermal Resource Exploration and Development	Senior Energy Managers and Resource Development Specialists	Ministry of Energy and Mineral Resources (National Resources Authority)
May 2007	San Francisco, California	Ensuring Resource Adequacy in Geothermal Projects	Financiers and Investors	Geothermal Energy Association

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November 2008	São Miguel, Azores	Training on Geothermal Geochemistry and Geochemical Database Management (2-day course)*	Technical Personnel at Sociedade Geotérmica dos Açores (SOGEO)	SOGEO
October 2008	Reno, Nevada	Reservoir Development Strategy: Siting Wells for Production and Injection	Attendees from industry, government agencies and financial institutions	Geothermal Resources Council
October 2009	Reno, Nevada	Planning, Development, and Operations: Getting More Geothermal Projects Online	Attendees from industry, government agencies and financial institutions	Geothermal Resources Council
October 2010	Las Vegas, Nevada	Drilling Success Rates During the Exploration, Development and Operations Phases	Developers and Financiers	Geothermal Energy Association
October 2010	Sacramento, California	Reservoir Engineering I: Well Testing	Attendees from industry, government agencies and financial institutions	Geothermal Resources Council
March 2011	Istanbul, Turkey	Workshop on Geothermal Risk	Attendees from industry and financial institutions	International Finance Corporation
October 2011	San Diego, California	Reservoir Engineering: Well Testing & Numerical Simulation	Attendees from industry, government agencies and financial institutions	Geothermal Resources Council