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GeoHydros, LLC
Specialized Geological Modeling
27 Keystone Ave.
Reno, NV 89503

Education

M.S. – Geology – University of Wyoming, Laramie, Wyoming — *2000*

B.A. – Geology – Colgate University, Hamilton, New York — *1993*

California State University at Stanislaus (AP coursework) — *1987 – 1989*

Professional Background

California Professional Geologist, license # 8034 — *2005 – Present*

Florida Professional Geologist, license # 2517 — *2008 – Present*

LeanAg Technologies, LLC, – VP Development — *2014 – Present*

Co-founder of LeanAg Technologies, LLC providing data driven crop intelligence. Responsible for development of analytics and process automation for crop specific spectral data collected using UAV platforms.

GeoHydros LLC / H2H Associates LLC / Hazlett-Kincaid Inc, Reno, Nevada
Groundwater & Geologic Modeler — *2001 – Present*

Responsibilities for all entities have included: all phases of geologic structural and groundwater modeling using EarthVision, MODFLOW and FEFLOW; geospatial analysis using GIS; database design and administration; near surface geophysical survey design and deployment; groundwater well production and performance testing; geospatial software application development, user interface development and Linux / Windows systems administration. Projects addressed a diverse set of problems, including structural and stratigraphic geologic investigations, geotechnical parameter and soils modeling, and groundwater flow and contaminant transport modeling.

Integral Development Corporation, Mountain View, California – Release Manager — *2000 – 2001*

Responsibilities for Integral included: compiling and packaging frequent releases of a sophisticated, Java-based capital marketplace software system that enables derivative and currency exchange between global financial institutions; scripting in Unix shells and Windows environments; and computer network engineering to administer over eighty Sun Microsystems machines in both on- and off-site locations. This position served as an important career step towards combining automation methods with geospatial data analysis.

TriHydro Corporation, Laramie, Wyoming – Field Technician, Hydrogeologist — *1997 – 2000*

Responsibilities included: remediation of decommissioned and active oil refining facilities; geophysical surveys and data analysis; groundwater modeling, GPS and GIS mapping; groundwater, surface water and air sampling, hydrogeologic surveys, installation of remediation equipment, logging geoprobe, hollow stem auger and air rotary boreholes and report preparation. The most notable accomplishment was the development of a near-surface geophysics program combining electromagnetic survey equipment with GPS location technology to produce maps depicting the location of buried containers and pipelines.

EarthVision Projects of Note

Geologic Structural Modeling in multiple structural settings – Nevada Test Site – United States Department of Energy

Currently serving as Geologic Modeling Consultant for EarthVision structural geologic model development and migration in support of process (Flow and Transport) modeling teams. The most complex of these Hydrostratigraphic models articulate more than 75 Hydrostratigraphic Units traversed and offset by over 100 faults over hundreds of square kilometers. The geologic models comprise thrust faults, extensional faults, caldera collapse features and transverse faults. In addition to development of automated model production, output and quality control routines, the framework models have been translated and exported to specialized process simulators developed by national laboratories. Model development requires integration of multiple forms of data including surface geology, remote sensing, borehole lithology and borehole geophysics, seismic survey, gravity and aeromagnetic survey data.

DSCP Hydrogeologic Modeling – Philadelphia, Pennsylvania – Tetra Tech EC, United States Department Of Defense
Developed site- and regional-scale 3D geologic framework models (GFM) of a heterogeneous multi-aquifer system beneath the former DSCP facility that has been impacted by more than two million gallons of light non-aqueous phase liquid. Model includes several structural surfaces created from borehole stratigraphic data, geostatistically defined 3D lithologic zones created from borehole lithology data, 3D parameter distributions created from soil contaminant data, and underground structures created from GIS, CAD, and map engineering data. As part of this work, developed a set of software programs to address and capitalize on wells that do not fully penetrate the recognized stratigraphic units that statistically distributes model uncertainty such that all stratigraphic units are more accurately modeled. This software was used to constrain model boundaries and identify discontinuities in the key confining layer. Created a routine for exporting the 2D and 3D components of the GFM from EarthVision into FEFLOW for subsequent groundwater flow and fate and transport modeling currently being performed to support site closure under Pennsylvania Act 2.

Fairbanks Disposal Pit 3D Conceptual Model – Gainesville, Florida – WRS Inc, FDOT
Coupled seismic, resistivity and borehole data to build a 3D GFM in a karst setting to identify potential conduits between the surficial and water-supply aquifers. Constructed the model using the EarthVision™ software by compiling numerous data streams into a central database from which lithologic and seismic data were extracted, correlated, and incorporated into the GFM. Model described the structural surface of key aquifers and confining units, as well as the probable location of karst collapse features thought to be contaminant pathways to the water supply aquifers. Used geophysical and field testing data to delineate hydraulic conductivity distributions within heterogeneous surficial units and evaluate the competency of shallow clay lenses as barriers to vertical contaminant migration.

Pennridge Water Resource Protection Model – Bucks County, PA – Borton Lawson Engineering
Generated a GFM of the regional fractured bedrock aquifer that was used as the basis for groundwater flow modeling to support a basin-wide wellhead protection program. The GFM simulated a complex faulted, folded and intruded structural setting consisting of 65 stratigraphic units and 2 fault blocks. The GFM was constructed from a rich set of outcrop structural measurements that were used to project stratigraphic and structural surfaces to depth. The surfaces were then extracted and used to construct the framework for a 35-layer finite-element groundwater flow model using the FEFLOW software.

Indian Refinery Geologic & Contaminant Characterization Model – Lawrenceville, Illinois – TriHydro Corp.
Developed a series of 3-D Probability Models for areas of concern within the refinery to predict the location of buried wastes relative to permeable soils and groundwater. Various data sets were incorporated into the model to better characterize the extent of impacted materials, including ground penetrating radar surveys, electrical conductivity surveys and borehole logs.

Rapid Site Characterization Modeling – Kansas City, Kansas – Delta Environmental Consultants
Produced volumetric and probability modeling of impacted soils and groundwater correlating geophysical, borehole and analytical data to produce a rapid characterization of the site of a former refinery. This modeling effort was performed to support the EPA Triad approach to Rapid Site Characterization.

MODFLOW Projects of Note

Groundwater Flow and Contaminant Transport Modeling – Various Sites, North Carolina – Duke Energy
Designed and calibrated 3-D groundwater flow and fate-and-transport models using MODFLOW-GMS, PEST, and MT3D to predict performance of coal ash pond closure scenarios. Groundwater models were optimized and calibrated to support models of various constituents of interest (COI) in transport modeling. Project deliverables included 250 year forecasts of COI concentrations at on and offsite receptor locations, sensitivity analyses and new tools to facilitate data extraction and processing from model output binaries.

Dissolved-phase Contaminant Transport Modeling – High Springs, Florida – The Coca-Cola Company
Developed 2-D and 3-D groundwater flow and fate-and-transport models using MODFLOW-GMS, PEST, and MT3D to assess the impact on groundwater and surface water quality associated with the infiltration of effluent from a reverse osmosis facility. Several different realizations of the model were developed to predict the possible range in transport pathways and times associated with known but undefined karst conduit pathways. The goal of the modeling effort was to ensure that effluent disposal would not adversely impact water quality at the production well or nearby springs.

Rapid Infiltration & Water Supply Impact Modeling – Florida – Apex Companies
Developed numerous 2-D and 3-D groundwater models to address the impacts of both recharge to and withdrawal from the aquifer systems underlying small communities throughout Florida. The models were required for permitting by regulatory agencies to determine whether proposed changes in water usage due to growth would result in unacceptable change to the groundwater system, and were developed using the GMS – MODFLOW software platform in conjunction with EarthVision.

Dissolved-phase Contaminant Transport Modeling – Pennsylvania – SSM Inc
Developed several 2-D and 3-D groundwater flow / fate-and-transport models using MODFLOW-GMS, MT3D, and RT3D to characterize the transport of dissolved-phase volatile organic compounds released to surficial aquifers from leaking underground storage tanks at various locations in Pennsylvania. The models were required under Pennsylvania Act 2 as part of the site investigation and closure process.

Database Projects of Note

Nevada Department of Environmental Protection – Carson City, Nevada
Developed an Adobe Flex based product for cataloging and executing air quality modeling program (AERMOD) in support of permit application evaluation. Desktop application was designed to include an ArcSDE based model result rendering component providing a visual analytical tool to support the permitting process.

Woodville Karst Plain Hydrogeologic Characterization – Tallahassee, Florida – Florida Geologic Survey
Developed a web-based interactive database to store, manage, and disseminate hydrologic data being continuously collected in the Woodville Karst Plain by the Florida Geological Survey. The database currently contains flow, temperature, and conductivity data from seven hydraulic meters deployed in large underwater cave systems as well as groundwater level data from 13 transducers deployed in wells, springs, and sinkholes. Developed a user interface that provides for graphical analysis and download of data via the internet.

FDEP Hazardous Waste Database – Florida – Florida Department of Environmental Protection
Developed a desktop database application for use by FDEP to store and access historical hazardous waste records. The application was written in Visual Basic and Microsoft Access, and was formatted in compliance with EPA's STORET database. The primary purpose of the database was to provide better access to data through stored procedures and dynamic queries, and to establish spatial indexing of environmental data.

Field Projects of Note

Guantanamo Bay – Cuba – United States Navy Construction Battalion
Planned and deployed a geophysical survey of Naval Base perimeter patrol road in support of planned bridge building and low water crossing design to solve access issues during high precipitation events. The project planners required knowledge of bedrock depth and potential karst features in the vicinity of proposed bridge pilings. Geophysical methods included ground penetrating radar and electrical resistivity.

Texaco Refineries – Casper, Wyoming; Sunburst, Montana; Lawrenceville, Illinois
Planned and deployed geophysical surveys of decommissioned oil refineries to identify and locate underground objects with the potential to contain petroleum product. Project required integration of data from Trimble GPS and Geonics EM-61 induced conductivity survey tools to produce georeferenced map products for excavation contractors to remove identified objects.

Selected Publications & Presentations

Lance Prothro, Margaret Townsend, Heather Huckins-Gang, Dawn Reed, Sigmund Drellack, Kevin Day and Todd Kincaid, 2015, Developing a 3-D Seismic-Attribute Framework Model of Yucca Flat, Nevada National Security Site.

Day, K.E., Kincaid, T.R., 2013, A New Hydrostratigraphic Framework Model (HFM) of Pahute Mesa, Nevada, MODFLOW and More 2013: Translating Science into Practice, Colorado School of Mines, Golden, Colorado

Day, K.E., Kincaid, T.R., 2013, Benefits of Automation in Hydrostratigraphic Framework Modeling: A New HFM for Pahute Mesa, Nevada, UGTA TIE Annual Meeting, Furnace Creek, Death Valley, NV

Day, K.E., Kincaid, T.R., 2009, 3-D Solids & Parameter Modeling to Facilitate TRIAD-Compliant Rapid Site Characterization, American Society of Civil Engineers 24th Central PA Geotechnical Conference.

Day, K.E., Kincaid, T.R., 2007, A Web-Based Tool for Analytical Comparison of Hydrologic Data in the Woodville Karst Plain, NGWA 4th Conference on Hydrogeology, Monitoring and Management of Ground Water in Karst Terrains.

Hazlett, T.J., Kincaid, T.R., Meyer, B.A., and Day, K.E., 2006, Innovative Ground Water Supply Protection Modeling, Bucks County, Pennsylvania, Program with Abstracts, NGWA 2006 Focus Conference on Eastern Regional Ground Water Issues, Portland ME, Sep. 18-19, 2006.

Day, K.E., Hazlett, T.J. and Kincaid, T.R., 2004, The Comprehensive Geologic Framework Model – Basis for Advanced Flow & Transport Modeling, Abstract No: 80575, GSA Abstracts with Programs Vol. 36, No. 5.

Day, K.E., 1999, Aquifer heterogeneity in groundwater flow modeling, Geological Society of America Annual Meeting, Denver, Colorado, Abstracts with Programs vol.31, no. 7.

Day, K.E., 1993, Revised structural interpretation of the Sunset Lake Slice, Taconic Allochthon, western Vermont, Northeastern Geologic Society of America Convention, Burlington, VT, Abstracts with Programs, Abstract no.

29411.

Technical Skills and Certifications

Computer Software Proficiency

- PC, Mac, Unix (Solaris) and Linux environments
- Software proficiency includes: EarthVision, GMS (MODFLOW, MODPATH, MT3DMS, RT3D, PEST), ArcGIS, FEFLOW, Adobe suite, MS Access (VBA Development), Excel, MySQL, Adobe Flex/Flash, LabTech
- Programming skills include experience in MATLAB, R, Visual Basic, Perl, PHP, SQL, Actionscript , JavaScript, c and bourne shell scripting
- Web Server and web development has included Apache, Qmail and Postfix mail server administration, Flash, PHP/MySQL and Javascript

Certifications

- February 2008: Florida Professional Geologist Certification received
- May 2005: California Professional Geologist Certification received
- July 2000: Solaris System Administrator I Certification received
- December 1999: Trimble GPS Certification received
- December 1997: ESRI ArcView GIS Certification received
- July 1997 OSHA: 40 hr. HAZWOPPER Certification received