

Boise Hydrogeophysical Research Site: Control Volume/Test Cell and Community Research Asset

Details

Meeting [2008 Fall Meeting](#)

Section [Hydrology](#)

Session [Hydrogeological Research Sites and Observatories I](#)

Identifier H51K-07

Authors [Barrash, W*](#), [CGISS/Dept. of Geosciences Boise State University, MG206, MS1536 1910 University Dr., Boise, ID 83725, United States](#) [Bradford, J H](#), [CGISS/Dept. of Geosciences Boise State University, MG206, MS1536 1910 University Dr., Boise, ID 83725, United States](#) [Malama, B](#), [CGISS/Dept. of Geosciences Boise State University, MG206, MS1536 1910 University Dr., Boise, ID 83725, United States](#)

Index Terms [Groundwater hydraulics \[1828\]](#) [Groundwater hydrology \[1829\]](#) [Hydrogeophysics \[1835\]](#) [Modeling \[1847\]](#)
[Instruments and techniques: modeling \[1894\]](#)

Abstract

The Boise Hydrogeophysical Research Site (BHRS) is a research wellfield or field-scale test facility developed in a shallow, coarse, fluvial aquifer with the objectives of supporting: (a) development of cost-effective, non- or minimally-invasive quantitative characterization and imaging methods in heterogeneous aquifers using hydrologic and geophysical techniques; (b) examination of fundamental relationships and processes at multiple scales; (c) testing theories and models for groundwater flow and solute transport; and (d) educating and training of students in multidisciplinary subsurface science and engineering. The design of the wells and the wellfield support modular use and reoccupation of wells for a wide range of single-well, cross-hole, multiwell and multilevel hydrologic, geophysical, and combined hydrologic-geophysical experiments. Efforts to date by Boise State researchers and collaborators have been largely focused on: (a) establishing the 3D distributions of geologic, hydrologic, and geophysical parameters which can then be used as the basis for jointly inverting hard and soft data to return the 3D K distribution and (b) developing subsurface measurement and imaging methods including tomographic characterization and imaging methods. At this point the hydrostratigraphic framework of the BHRS is known to be a hierarchical multi-scale system which includes layers and lenses that are recognized with geologic, hydrologic, radar, seismic, and EM methods; details are now emerging which may allow 3D deterministic characterization of zones and/or material variations at the meter scale in the central wellfield. Also the site design and subsurface framework have supported a variety of testing configurations for joint hydrologic and geophysical experiments. Going forward we recognize the opportunity to increase the R&D returns from use of the BHRS with additional infrastructure (especially for monitoring the vadose zone and surface water-groundwater interactions), more collaborative activity, and greater access to site data. Our broader goal of becoming more available as a research asset for the scientific community also supports the long-term business plan of increasing funding opportunities to maintain and operate the site.

Cite as: Author(s) (2008), Title, *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract H51K-07

