

## **Debra E. Buxton – Hydrologist, GS-12**

Modeling experience entails use of the original Modflow and Modflow-2000. Pre-processors used include Arcmodel, and MFI2K. Post-processors used include rasa-post.aml - plots potentiometric contours, Zonebudget – computes a flow budget for model subregions, and development of a FORTRAN program that used a digitizer to calculate time-of-travel along the streamlines of model generated flow nets. Long Island modeling experience included being Project chief of North Fork Aldicarb/Tritium modeling study which was a ground-water simulation study that compared ground-water flow paths and time-of-travel of 2 cross-section models to the movement and dispersion of aldicarb, and used tritium concentrations to indicate the age of the ground water. New Jersey modeling experience includes work on Rasa 3, which added the Rio Grande Water Bearing Zone as a new layer to the RASA model and work on a ground water-surface water interaction study in the Mullica and Great Egg Harbor River Basins to investigate ground-water conditions and GW-SW interactions over time.

### Reports

Bohn-Buxton, D.E., Buxton, H.T., and Eagen, V.K., 1995, Use of numerical flow-net analysis to predict the distribution of aldicarb in the upper glacial aquifer on the North Fork, of Long Island, New York: U.S. Geological Survey Open-File Report 95-761, 30 p.

Buxton, D.E., and Dunne, Paul, 1993, Water-quality data for the Millstone River at Weston, New Jersey, and the Shark River at Remsen Mill, New Jersey, March-September 1992: U.S. Geological Survey Open-File Report 93-444, 16 p.

Buxton, D.E., Hunchak-Kariouk, Kathryn, and Hickman, R.E., 1998, Relations of surface-water quality to streamflow in the Hackensack, Passaic, Elizabeth, and Rahway River basins, New Jersey, water years 1976-93: U.S. Geological Survey Water-Resources Investigations Report 98-4049, 102 p.

Buxton, D.E., Hunchak-Kariouk, Kathryn, and Hickman, R.E., 1999a, Relations of surface-water quality to streamflow in the Wallkill and Upper Delaware River basins, New Jersey, water years 1976-93: U.S. Geological Survey Water-Resources Investigations Report 99-4016, 98 p.

Buxton, D.E., Hunchak-Kariouk, Kathryn, and Hickman, R.E., 1999b, Relations of surface-water quality to streamflow in the Raritan River basin, New Jersey, water years 1976-93: U.S. Geological Survey Water-Resources Investigations Report 99-4045, 100 p.

Buxton, H.T., and Bohn, D.E., 1990, Refining the conceptualization of a ground-water flow system from head maps and hydrologic sections: in Franke, O.L., and

others, 1990, Study guide for beginning course in ground-water hydrology: Part I—Course participants: U.S. Geological Survey Open-File Report 90-183, 180 p.

Hunchak-Kariouk, Kathryn, Buxton, D.E., and Hickman, R.E., 1999, Relations of surface-water quality to streamflow in the Atlantic Coastal, lower Delaware River, and Delaware Bay basins, New Jersey, water years 1976-93: U.S. Geological Survey Water-Resources Investigations Report 98-4244, 147 p.

Ivahnenko, Tamara, and Buxton, D.E., 1994, Agricultural pesticides in six drainage basins used for public water supply in New Jersey, 1990: U.S. Geological Survey Water-Resources Investigations Report 93-4101, 56 p.

Sloto, R.A., and Buxton, D.E., 2005, Water budgets for selected watersheds in the Delaware River basin, eastern Pennsylvania and western New Jersey: U.S. Geological Survey Scientific Investigations Report 2005-5113, 37 p.

Sloto, R.A., and Buxton, D.E., 2006, Estimated ground-water availability in the Delaware River basin, 1997-2000: U.S. Geological Survey Scientific Investigations Report 2006-5125, 67 p.

#### Articles and Proceedings

Buxton, D.E., and Stedfast, D.A., 1993, Estimating the vulnerability to pesticide contamination of drainage basins used for public supply in New Jersey: Proceedings of the Fourth National Conference on Pesticides, November 1-3, 1993, Blacksburg, Virginia.

#### Fact Sheets

Vowinkle, Eric F., Clawges, R.M., Buxton, D.E., Stedfast, D.A., and Louis, J.B., 1996, Vulnerability of public drinking water supplies in New Jersey to pesticides: U.S. Geological Survey Fact Sheet FS-165-96.

#### Posters

Hopple, J.A., Buxton, D.E., Vowinkle, E.F., Storck, D.A., Louis, J.B., Carter, G.P., Apalinski, E.J., and Kong, M., 2001, Approach to determine susceptibility of source waters in New Jersey to contamination: Poster for the AWRA Regional Meeting, May 10-11, 2001, Port Jervis, New York.

#### Anonymous Web-based Reports for NJDEP SWAP

Methods to determine the susceptibility of source water to public water supplies in New Jersey to contamination, 2003

Susceptibility of source water to community and noncommunity surface-water supplies and related wells in New Jersey to contamination by disinfection byproduct precursors, 2004

Susceptibility of source water to community and noncommunity surface-water supplies and related wells in New Jersey to contamination by inorganic constituents, 2004

Susceptibility of source water to community and noncommunity surface-water supplies and related wells in New Jersey to contamination by volatile organic compounds, 2004