



August 18, 2011

Office of Water Quality Water-Quality Information Note 2011.04

Subject: Release of New Version of DOTABLES for Computation of Oxygen Solubility

A new version of the DOTABLES program for computing oxygen solubility in water as a function of water temperature, barometric pressure, and salinity now is available online, either at <http://water.usgs.gov/software/DOTABLES/> or through the Water Resources Applications Software page link to Water Quality and Chemistry (<http://water.usgs.gov/software/lists/geochemical>).

In the new DOTABLES program, the Benson and Krause (1980, 1984) equations replace the equations from Weiss (1970) that have been used by the USGS since 1981. Details describing the research and rationale that resulted in this change are described in Office of Water Quality Technical Memorandum 2011.03 (<http://water.usgs.gov/admin/memo/QW/qw11.03.pdf>).

The new version of DOTABLES improves the accuracy of USGS oxygen-solubility predictions, eliminates discrepancies between our methods and those cited in Standard Methods, and makes our methods consistent with those used within the wider science community. This change, moreover, will have no significant effect on historical USGS data that were computed with the previous version, because differences between method predictions generally are on the order of less than a few thousandths of a milligram per liter. The new online DOTABLES program also offers new functionality over the old program. For example, the user can compute solubility and percent saturation for one point on the fly, or can generate tables in a web browser, or more easily export tables to a spreadsheet. The new version also added the ability to use a variety of units when inputting values of water temperature, barometric pressure, and salinity and that are carried through to the output tables.

Changes to the dissolved-oxygen chapter of the National Field Manual also are underway to incorporate information regarding use of the new equations, and should be in place before the end of the 2011 calendar year.

Questions regarding the new DOTABLES program should be referred to the Office of Water Quality, 412 National Center, Reston, VA 20192 via the [Feedback Form](#) (http://answers.usgs.gov/cgi-bin/gsanswers?pemail=owq_webmaster&subject=DOTABLES+Feedback).

If this Note was forwarded to you and you would like to have your name placed on the WaQI Notes distribution, please send email to nlsnow@usgs.gov.

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Signed,

The Office of Water Quality
8/18/11

Distribution: All WRD Employees