ESTIMATING CHATTAHOOCHEE RIVER TRIBUTARY STREAM TEMPERATURES IN THE VICINITY OF ATLANTA, GEORGIA

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Abstract. Recent development of the Georgia Department of Natural Resources, Environmental Protection Division (GaEPD) Chattahoochee River Water Quality Model (GaEPD-RIV1) required hourly estimates of 47 tributary stream temperatures in the Atlanta, Ga., vicinity for a sustained period of about six months. An interagency team consisting of the U.S. Geological Survey, GaEPD, and Law Environmental, Inc., engineers devised an "index station" method of estimating hourly stream temperatures at unmeasured sites by using data from nearby sites having stream temperature recorders.

Methods of estimating "Stream Temperature Characteristics in Georgia (Dyar and Alhadeff, 1997)" were expanded to include calculations of daily (hourly) variations from selected index stations located nearby and transferring those variations as estimates to unmeasured sites. To assess the index station method of estimating stream temperatures at unmeasured sites, 16 of the 47 sites were equipped with stream-temperature recorders, including the Suwannee Creek site shown in figure 1 below. The figure shows a comparison of modeled hourly versus actual recorded stream temperatures. The method assumes similar climate and unnatural effects occurring at both the index and unmeasured sites.

LITERATURE CITED

Dyar, T.R., and Alhadeff, S.J., 1997, Stream-temperature characteristics in Georgia: U.S. Geological Survey Water-Resources Investigations Report 96-4203, 150 p.

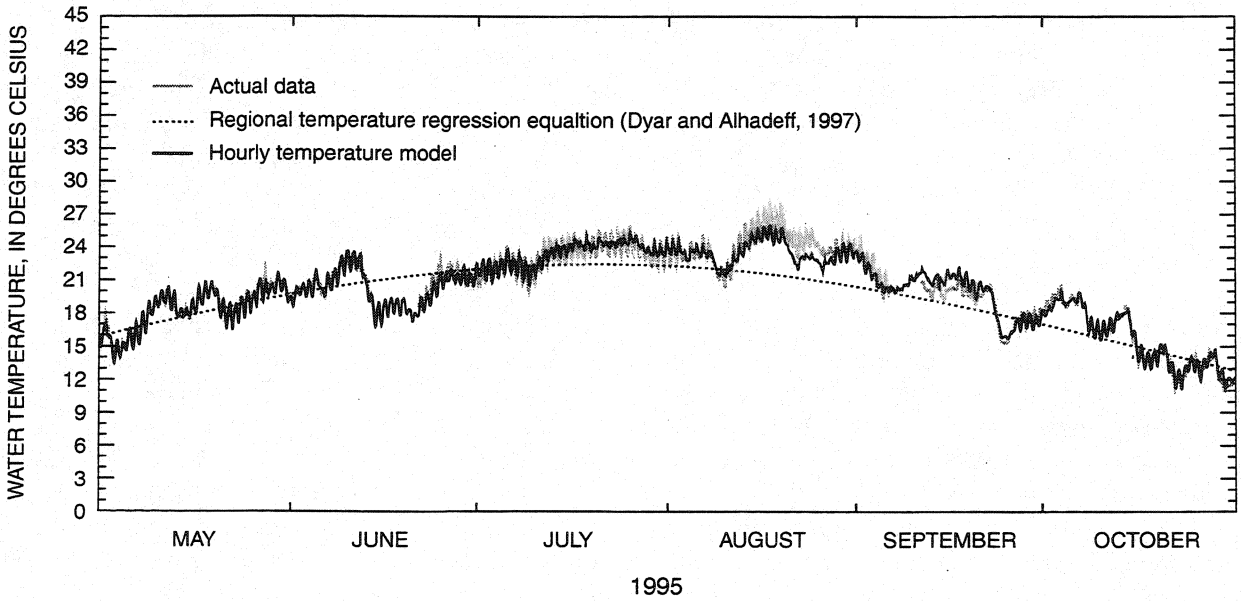

Figure 1. Modeled and actual temperature data at Suwannee Creek, May through October 1995.