Java Newhall (Soil Climate) Simulation Model (jNSM) Release Notes:

Date: 12/31/2012

Background. In response to a USDA-NRCS need to better understand soil climate in soil survey, the Java Newhall Simulation Model (jNSM) was developed in 2011. jNSM is an update to a traditional soil climate simulation model called Newhall Simulation Model (NSM) by Franklin Newhall (Van Wambeke et al., 1992; Van Wambeke, 2000). jNSM requires serially complete monthly average values for precipitation and air temperature inputs for at least one calendar year. Soil available water storage and the mean annual air temperature to mean annual soil temperature relationship can be adjusted to reflect local or regional conditions. Output reports include soil moisture and temperature regime classification, biological window calendars and precipitation/potential evapo-transpiration climographs, plus a summary of model inputs and user information. The jNSM version 1.5.1 (and Companion CCE software called XML2CSV Conversion Tool version 1.2.0, used to convert jNSM output XML files to CSV files) software has been CCE certified (#18175) and was distributed to NRCS computers (NASIS Users) via SMS push during July and August 2012.

*The jNSM v1.5.1 was recently updated to jNSM v1.6.0 to correct an error in the bio5mst calculation (found in the original 1990’s source code). This error was only found to occur during individual year model runs and manifests with values greater than 360. jNSM v1.6.0 is slated for CCE certification (#526925) and release via SCCM push again in December 2012.*

Explanation. The jNSM software is a mesoscale model that is appropriate for use in regional geospatial analyses that support the MLRA update of published digital soil geographic databases (SSURGO/STATSGO2). This software can be used with monthly, serially complete records from weather stations, Soil Climate Analysis Network (SCAN) stations, and local soil climate monitoring sensors. Such data sources can be used with jNSM to refine soil moisture and temperature regime boundaries to assist in correlation, map soil and temperature regimes with existing vegetation, study orographic and “rain shadow” effects in the soil landscape, and study the change of soil climate through time to help formulate climate change adaptive strategies.

See the jNSM web page (http://soils.usda.gov/technical/classification/jNSM/index.html ) for recorded presentations from the July 12, 2012 jNSM Training Webinar along with Webinar PowerPoint presentations. The jNSM web page also provides the jNSM version User Guide, sample datasets, and model background information. A public version of the jNSM software bundle is also available at this site.