May 7, 2002

D13R with Preliminary V5.0 Topo – Sensitivity Analysis

This document describes the simulation of D13R with preliminary V5.0 topography (Fig 1) referred to as D13RwNT. Results from this simulation are compared with D13R (D13R1198) which was simulated using SFWMMv3.5 topography (Fig 2). This is essentially a topography sensitivity analysis since both simulations were made with SFWMMv3.5 model code which has been calibrated for the SFWMMv3.5 topography but has not been calibrated for the new (v5.0) topography

Objective

To determine the sensitivity of the selected CERP plan as modeled in D13R (Nov98) to changes in topography.

Background

As part of the initial CERP update, D13R will be simulated with an upgraded version of the South Florida Water Management Model (version 5.0). This version of the model will include an extended period of record (1965-2000), improved evapotranspiration and precipitation for this extended period of record, many source code modifications and a complete re-calibration and verification of the new version of the model.

In an effort to gain an understanding of how topography might affect results, independently of other modifications, it was suggested that alternative D13R be modeled with the new topo. Several data sources were used to compile the latest topo for use in the South Florida Water Management Model, as of November 2001. Documentation of this effort is available online at http://www.sfwmd.gov/org/pld/hsm/pubs/November2001Elev.pdf. During initial calibration of SFWMMv5.0, which uses more gaging stations than the previous v3.5 calibration, some areas of unreliable topo, not updated with the November 2001 topo, were adjusted. This occurred predominantly in the Big Cypress National Preserve. Also some interpolation was used to smooth discrepancies at the edges between November 2001 topo and SFWMMv3.5 topo. The calibration has yet to be reviewed and finalized so further topo adjustments could occur. The topo used in this sensitivity is hence referred to as SFWMM v5.0 preliminary topo (v5.0P topo). Differences between the V5.0 preliminary and SFWMMv3.5 topo are shown in Fig 3. Care should be taken in reviewing the results of this sensitivity run. A true comparison can only be made after calibration of SFWMM version 5.0.

Assumptions

Version 3.5 of the SFWMM was used with all input files exactly the same as in D13R (Nov 98) except for topo input and for NSM based stage import targets which were adjusted so as to reflect the same ponded depth targets. It is emphasized that since SFWMM v3.5 was not calibrated for the v5.0 preliminary topo, the simulation is essentially a topo sensitivity analysis.

Performance Measures

Where possible NSMv4.5 has been included in the performance measures, but in many cases, in order to reflect both the v3.5 and v5.0 preliminary topo in the performance measures, it was necessary to omit NSM from the performance measures.

Fig.1 ***South Florida Water Management Model v5.0***

Preliminary Topography

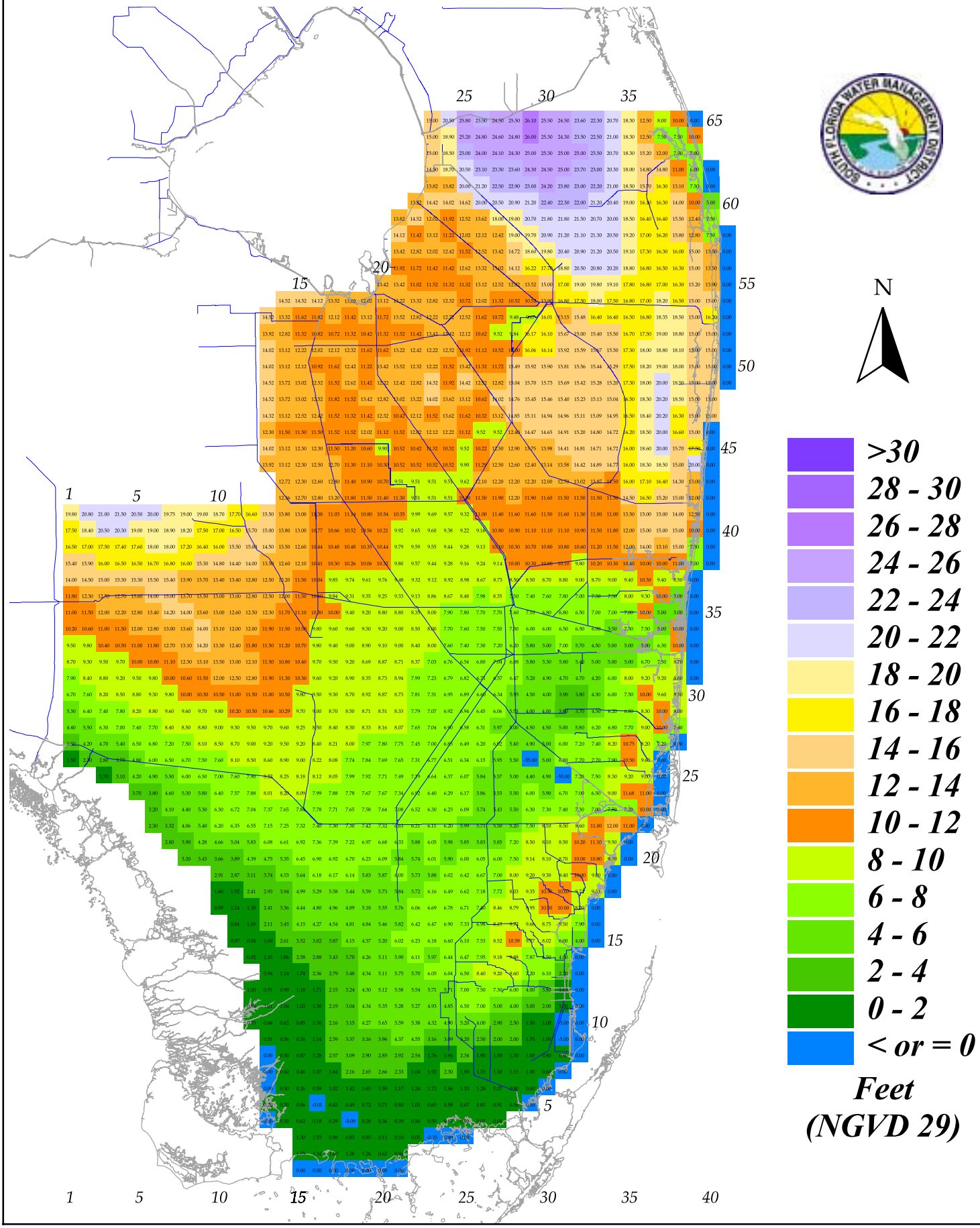

Fig. 2 *South Florida Water Management Model v3.5 Topography*

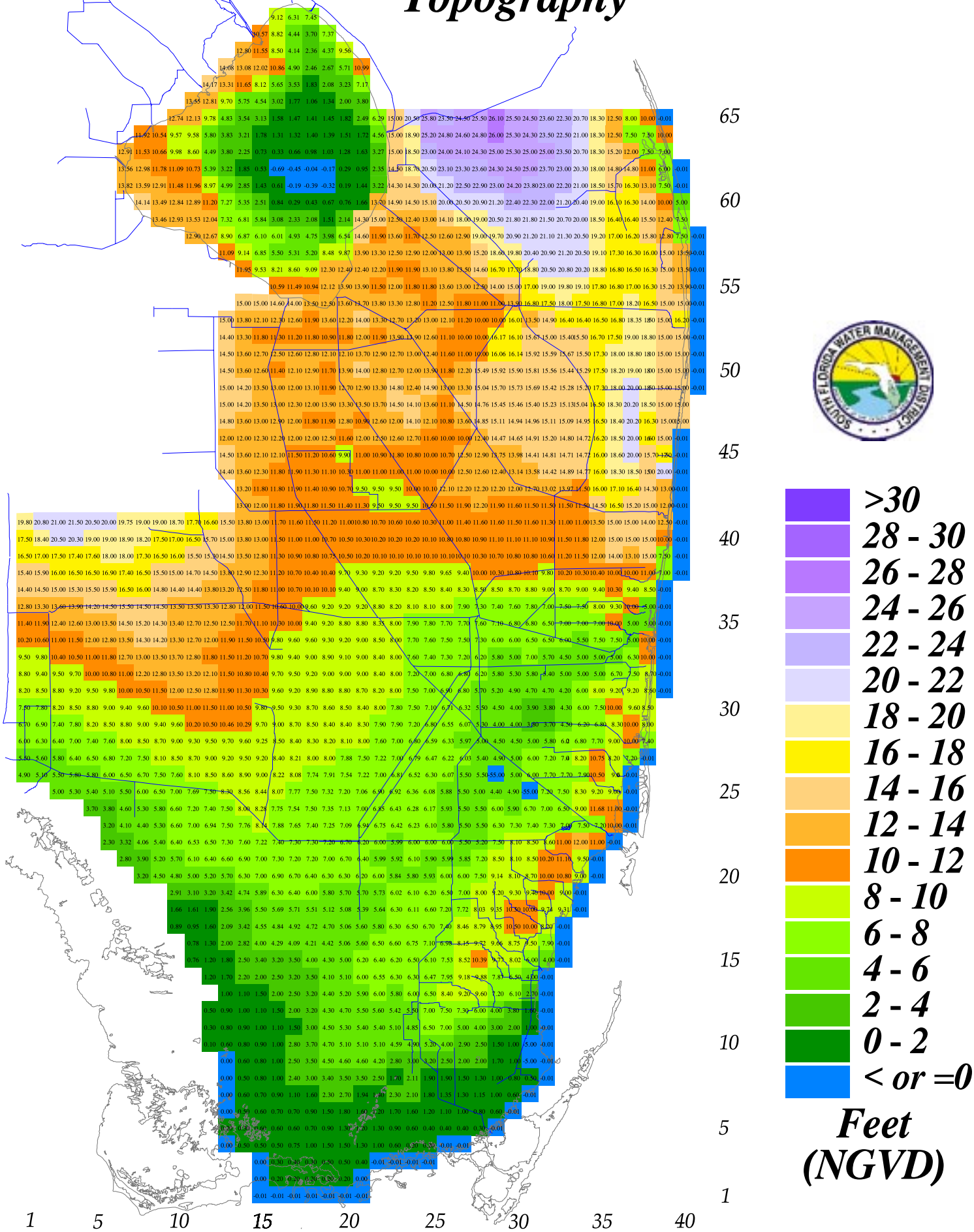
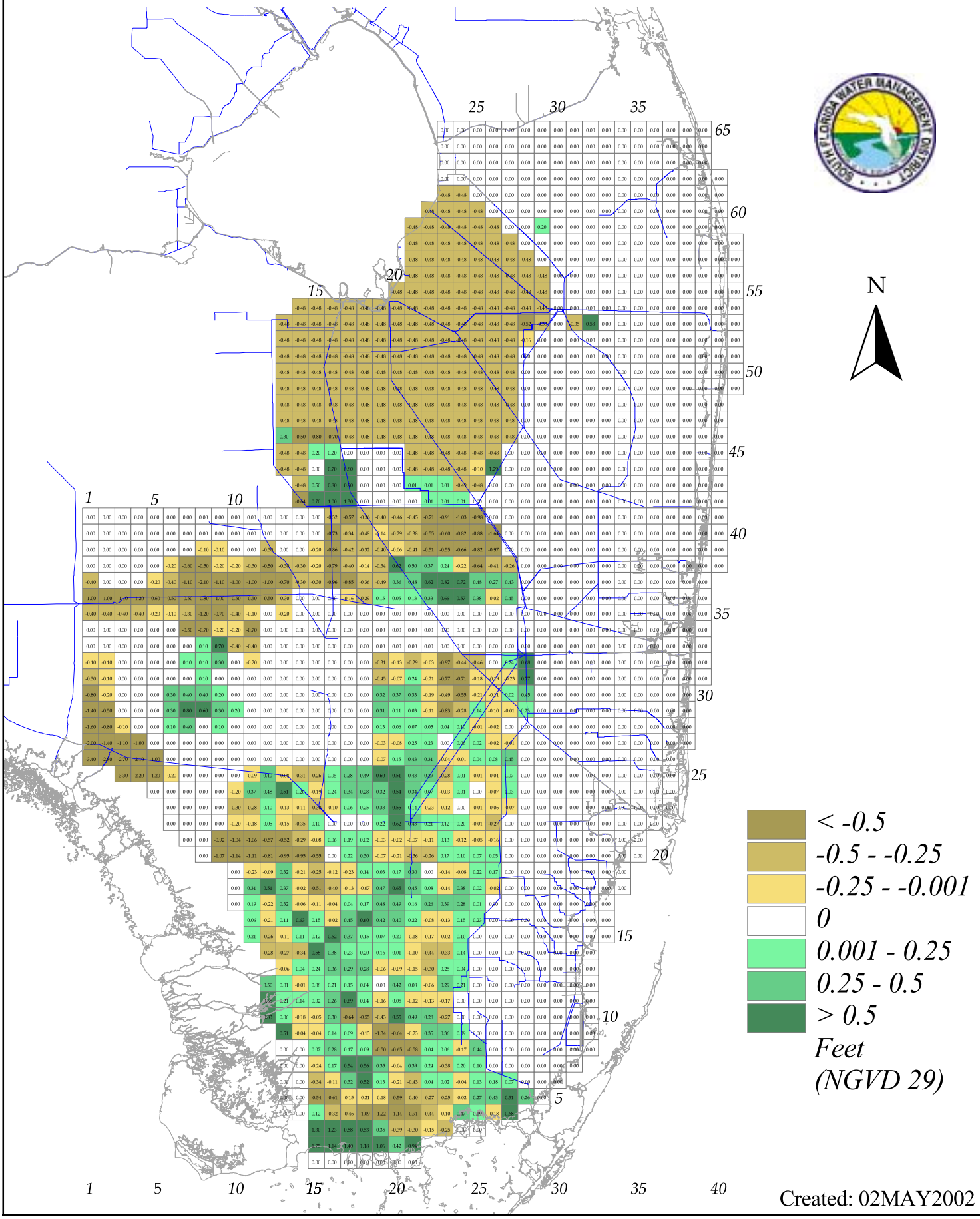
Fig. 3 ***South Florida Water Management Model v5.0 Preliminary minus v3.5 Topography***