

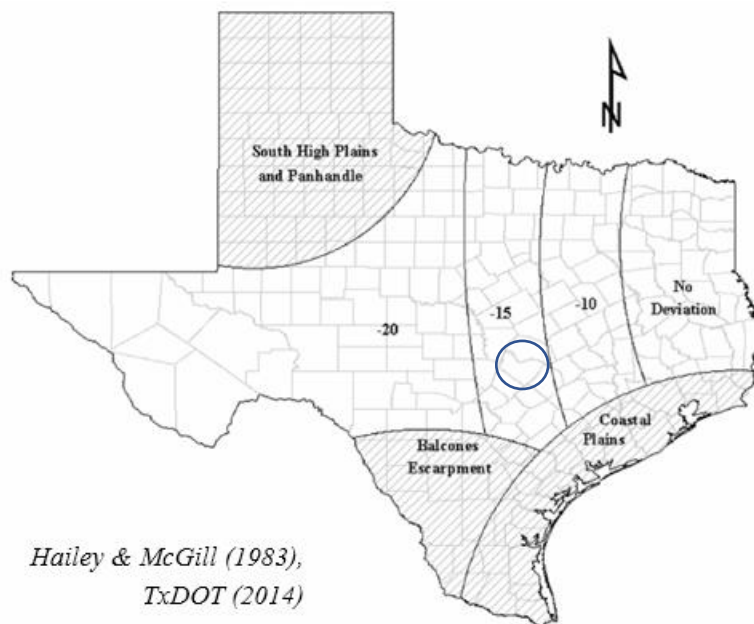
HMS-PrePro

Supplementary Information – Curve Number Reduction Factor

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CN Reduction Factor

The SCS Curve Number is based on empirical runoff observations. For this reason, HMS-PrePro provides a user-option for incorporating a CN reduction factor. In some regions, historical calibration studies have been performed to test the accuracy of SCS curve number predictions compared with gauge observations. The figure below depicts a Texas Department of Transportation (TxDOT) calibration study where curve number predictions were calibrated to historical rain events. A recommended CN reduction value was proposed for different regions of the state.



TxDOT Curve Number Reduction Calibration Study

The CN reduction factor may be applied to each HMS-PrePro run to reduce the composite curve number values by a specified percentage. For example, Travis County, TX, USA (circled) falls within the -15% reduction region. When HMS-PrePro is run for Travis County, TX, USA, a 0.85 reduction factor may be applied to all subbasins in the watershed. According to comparisons with local models, the curve number reduction factor provides favorable runoff results. The CN reduction factor is optional and may be used as an initial step in model parameterization.

Hailey, J.L. and McGill, H.N. (1983). Runoff curve number based on soil-cover complex and climatic factors, Proceedings 1983 Summer Meeting ASCE, Montana State University, Bozeman, MT, June 26-29, 1983, Paper Number 83-2057.

TxDOT (2014). Hydraulic Design Manual. *Texas Department of Transportation*.