Materials and methods

Modflow 6 through the Flopy interface (Bakker et al. 2016). 1 steady state, 1 transient period divided into 214 timesteps producing a weekly output between December 2015 and January 2020.

Calibration dataset

Parameterization

In order to obtain a suitable set of initial parameter values for the five LUMPREM2 models, a single LUMPREM2 model was first calibrated against head measurements in well NI1802-1.

LUMPREM (Doherty xxxx), calibrated

Composite Model

A single layer Modflow 6 model quadtree grid x cells with refinement at observation locations and along the creek. The outer boundary was represented using four instances of GHB package. Recharge RCH.

Five LUMPREM2 models, a single-layer MODFLOW 6 model. Flux, flow and stage was represented using the SFR package.

Workflow

1. Calibrate LUMPREM2 model

2. Calibrate model

3. Non-linear uncertainty analysis using IES