**Purpose**

3-PG2Py is a pure Python version of 3-PG2 (a modified version of 3-PG with respect to water balance prediction) to facilitate its extension and application to broader communities. Except the single plot simulation same as the original 3-PG2, 3-PG2Py includes two global sensitivity analyses algorithms, i.e., the variance-based sensitivity analysis method and Fourier amplitude sensitivity test, and the state-parameter estimation using ensemble Kalman filter algorithm. Additionally, an interface for spatial simulation was also implemented. 3-PG2Py is compatible with Python2.7+. With 3-PG2Py, the users could adapt the model easily to more diversified applications, especially computationally intensive ones.

**Usage**

usage: python main.py -m <running mode> -a <end age the simulation>

Arguments:

-m: running mode and could be one of ['r', 'spatial', 'VB', 'FAST', 'EnKF'], in which ‘r’ means single plot simulation, ‘spatial’ means the spatial simulation, ‘VB’ means the variance-based GSA, ‘FAST’ means the FAST GSA, and ‘EnKF’ means the state-parameter estimation using ensemble Kalman Filter.

-a: end age of the simulation.

Optional arguments:

-h: help information.

**Installation**

3-PG2Py is compatible with Python 2.7+.

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