Supplementary Materials: Location- and Time-Specific Hydrological Simulations with Multi-Resolution Remote Sensing Data in Urban Areas

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Table S1. Calibrated WetSpa parameters.

WetSpa Parameters	Value
kep	0.75
krun	24.67
Pmax	10.00
kss	−0.43
ki	0.83
g0	1000.00
gmax	1050.00
kg	5.3×10^{-5}

Table S2. User input file for WetSpa.

```
timestep = '1 h'
# would youw like to youse the default manning values? (min = 0.025; max = 0.055)
defaultManning = 'N'
# if not, set your own values:
minManning = 0.01
maxManning = 0.055
# 3 options are availables for Manning coefficient calculation, choose one of them (see manual)
ManningOption = '1'
# for option 3 you need a default manning value:
ManningValue = 0
# do you want to calculate the runoff coefficient based on an imperviousness map?
#(if yes, make sure your imperviousness map is saved in the folder basic_maps as "imperviousness_start")
imp_map = 'N'
# if not, what is the value of imperviousness in your urban cells?
imp_value = 0.95
# parameters for depression capacity calculation (see manual for more details)
b = 9.5
Sdu = 0.5
# would you like to use the default thresholds for the calculation of velocity?
# (defaults: min = 0.001, max = 3.0)
defaultVelocity = 'Y'
# if not, set your own:
minVelocity = 0.001
maxVelocity = 1
# parameters for flow direction calculation (in order to remove false depressions)
Core_Depth = 80000
Core_Volume = 80000
Core_Area = 80000
Catchment_Precipitation = 80000
# threshold to derive the stream network form the flow accumulation
Stream_threshold = 200
```

# would you like to set a min threshold for the slope map calculation?
Slope_min = 'Y'
# if so, what is the value of your threshold?
Slope_threshold = 0.03
# whould you like to create a map that visualize the region with slope< slope_threshold?
Slope_threshold_map = 'Y'
# return period for hydraulic radius calculation (choices: t2, t10, t100)
return_period = 't10'
# threshold to derive the sub-catchments form the flow accumulation
Subcatchment_threshold = 30000
#parameters for Initial Soil Moisture calculation
Smin = 0.1
Smax = 1.0
# special case (Vcatchment)
Vcatchment = 'N'

Table S3. List of Proba-V images.

ProbaV image	Date	Use
ProbaV TOC S5	6 March 2015	seasonal LAI maps
ProbaV TOC S5	11 April 2015	ground-truthing
ProbaV TOC S5	16 April 2015	ground-truthing
ProbaV TOC S5	21 April 2015	ground-truthing
ProbaV TOC S5	26 April 2015	ground-truthing & seasonal LAI maps
ProbaV TOC S5	1 June 2015	ground-truthing & seasonal LAI maps
ProbaV TOC S5	11 June 2015	ground-truthing & seasonal LAI maps
ProbaV TOC S5	1 July 2015	ground-truthing Apex image
ProbaV TOC S5	11 July 2015	ground-truthing & seasonal LAI maps
ProbaV TOC S5	1 August 2015	ground-truthing
ProbaV TOC S5	26 August 2015	ground-truthing & seasonal LAI maps
ProbaV TOC S5	1 October 2015	ground-truthing & seasonal LAI maps
ProbaV TOC S5	21 November 2015	seasonal LAI maps