LISEM Event Selection

PAZ

20/10/2018

Paths and data sets

Data used here was tested in "LISEM_EvRain_2min.R"

```r
setwd("/Users/DayTightChunks/Documents/PhD/shiny-hydro-app")
path_master =
  file.path("/Users/DayTightChunks/Documents/PhD/Models/phd-model-master/Analysis/Data")

# Hydrochemical Sample Information
# Use this table to select detailed events to
#   visualize against LISEM (namely, those with an EventLabel)
# constraints = read.csv(file.path(path_master, 'BEACH_R/visuals_b2l_R04.csv'))
#constraints = constraints[complete.cases(constraints$EventLabel), ]
#constraints = constraints[complete.cases(constraints$delta.obs), ]

rain2min =  read.csv2("Data/Rain2min.csv", header = T, dec = ".")
rain2min$Date <- as.POSIXct(strptime(rain2min$Date,
                                     "%d/%m/%Y %H:%M",
                                     tz="EST"))
names(rain2min) = c("Date", "Rain2min.mm")
sum(is.na(rain2min$Rain2min.mm))
```

```
## [1] 0
```

```r
h_temp = rain2min[, c("Date", "Rain2min.mm")]
names(h_temp) = c("Date", "Rain.mm")
time_step = 2
```

Event selection and test

```r
##################################
# Edit Section - Event Selection
##################################
day = 243
bbreak = F
if (day == 183){
  # FIRST EVENT
  start_lisem = '2016-03-30 21:18:00'
  beach_break = '2016-03-31 00:00:00'
  end_lisem = '2016-03-31 00:40:00'

} else if (day == 188) { # April 5
  #start_lisem = '2016-04-05 03:00:00' # # v1
  start_lisem = '2016-04-05 16:10:00'
  end_lisem = '2016-04-05 18:00:00'
```

```r
    beach_break = end_lisem
    # } else if (day == 200) { # April 17 # v1

} else if (day == 199) { # April 16
    # April 16 & 17, long day with continous intensity
    start_lisem = '2016-04-16 04:00:00'
    # beach_break = '2016-04-17 00:00:00' # v1
    # end_lisem = '2016-04-17 03:02:00' # v1
    end_lisem = '2016-04-16 09:00:00'
    beach_break = end_lisem

} else if (day == 214) {
    # April 30 & May 1st
    start_lisem = '2016-04-30 22:00:00'
    beach_break = '2016-05-01 00:00:00'
    end_lisem = '2016-05-01 03:00:00'

} else if (day == 225) { # First Likely runoff event on the 12th!
    # May 11 & 12
    # start_lisem = '2016-05-11 18:00:00'
    #beach_break = '2016-05-12 00:00:00'
    #end_lisem = '2016-05-12 10:00:00'
    start_lisem = '2016-05-12 07:00:00'
    end_lisem = '2016-05-12 10:00:00'
    beach_break = end_lisem

} else if (day == 242) { # "May 29" <- Runoff event

    start_lisem = '2016-05-29 16:30:00'
    end_lisem = '2016-05-29 19:00:00'
    beach_break = end_lisem

}  else if (day == 243) { # "May 30" <- Infiltration event

    start_lisem = '2016-05-30 08:30:00'
    end_lisem = '2016-05-30 13:00:00'
    beach_break = end_lisem
    # 7:00 to 11:30 at 10mm
    # 4:10 to 8:40 at 10mm
}

if (bbreak) {
  head_event = h_temp %>%
    filter(Date >= as.POSIXct(start_lisem, tz="EST") &
           Date < as.POSIXct(beach_break, tz="EST"))
  tail_event = h_temp %>%
    filter(Date >= as.POSIXct(beach_break, tz="EST") &
           Date <= as.POSIXct(end_lisem, tz="EST"))

  print("Subtract from BEACH: Day 1")
  # LISEM rain (head event), subtract from BEACH TSS
  print(cumsum(head_event$Rain.mm)[length(head_event$Rain.mm)])
  print("Subtract from BEACH: Day 2")
```

```r
  # LISEM rain (tail event), subtract from BEACH TSS
  print(cumsum(tail_event$Rain.mm)[length(tail_event$Rain.mm)])

  print("Target: ")
  print(beach_break)

} else {
  event = h_temp %>%
    filter(Date >= as.POSIXct(start_lisem,  tz="EST") &
             Date < as.POSIXct(end_lisem,  tz="EST"))

  # LISEM rain (event), subtract from BEACH TSS
  print("Subtract from BEACH: ")
  print(cumsum(event$Rain.mm)[length(event$Rain.mm)])

  print("Target: ")
  print(beach_break)
}
```

```
## [1] "Subtract from BEACH: "
## [1] 8.2
## [1] "Target: "
## [1] "2016-05-30 13:00:00"
```

```r
x1 <- h_temp %>%
  filter(Date >= as.POSIXct(start_lisem,  tz="EST") &
           Date <= as.POSIXct(end_lisem,  tz="EST"))


x1$tmp = time_step
x1$tmp[1]=0
x1$time = cumsum(x1$tmp)
x1$rain = x1$Rain.mm * 60
x1$time[x1$Date==as.POSIXct(beach_break, tz="EST")]
```

```
## [1] 270
```

```r
# CHECK ABOVE!
```

Save event

```r
# SAVE
if (F){
  x1 = x1[, c("time", "rain")] # Minutes, mm/hr
  name = paste("Event_", as.character(day), ".txt", sep = "")
  write.table(x1, name, sep = "\t", row.names = F, col.names = F)

}
```