shower_statistics.R

mcint

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################################################################################
# This is a file (function) that is essentially a wrapper for more meaningful
# functions in radiant.R. However, the specificity of the needs of this function
# made it appropriate to move it to a different space.
################################################################################

save.radiant.statistics <- function(file = "radiant_statistics.csv",
                                    all.showers = TRUE,
                                    aggression = 0.0)
{
  # iniate.R just re-sources all files in the project.
  # source("initiate.R")

  events <- load.events()
  showers <- load.showers()

  shower.data <- data.frame()
  if (all.showers){
    indices <- 1:nrow(showers) # all showers
  } else {
    indices <- c(12, 19, 29, 107, 139, 150, 192) # important shower indices
  }
  # Go over every given shower, find the mean radiant with associated statistics,
  #  and bind them all into a single data frame.
  for (i in indices){
    print(paste(i, showers[i,]$name))
    shower <- showers[i,]
    radiant.stats <- mean.radiant(events,
                                  shower,
                                  aggression = aggression)
    shower <- cbind(shower, radiant.stats)
    shower.data <- bind_rows(shower.data, shower)
  }

  # Go over the showers mentioned in Novacheck 2012 that data are available for.
  #  Find the mean radiant with associated statistics, and bind them all into
  #  a same data frame as above.
  novacheck.dates <- list('20091020', '20091120', '20091214', '20100103')
  for (i in 1:length(novacheck.dates)){
    date <- novacheck.dates[[i]]
    shower.events <- find.events(events, date)
    radiant.stats <- mean.radiant(shower.events)
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    radiant.stats$peak.date <- date
    shower.data <- bind_rows(shower.data, radiant.stats)
  }

  # remove unnecessary data columns
  shower.data <- subset(shower.data,
                        select = -c(start.date, end.date, gamma, v, r, zhr))

  write.csv(shower.data, file = file)
}
```