README

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Weather station loction

The BOM_weather_station_locations contins the raw data obtained from ?

stations.xlsx - is a copy of Bom_weather_stations_download2014728_export.xlsx (with non-data rows removed manually)

createStationDF.R - will process the sations.xlsx file into an R dataframe, it will extract just the QLD data and rename problematic column/variables names and then write the data frame to qldStations.rds. TODO: looks like the file contains historic stations, probably need to remove stations with an End year prior to the period covered by our data.

haversine.R - contains a function to calculate the distance between two lat/long locations in metres

closestStations.R - contains a function which will load the qldStations.rds and locate the nearest 3 weather stations to the supplied lat/long location, the distance column will indicate how far away the sations are (in metres)

```
source("closestStations.R")
```

```
## Loading required package: tidyverse
```

```
## -- Attaching packages ---------------------------------------------------------- tidyverse 1.3.0 --
```

```
## v ggplot2 3.3.2     v purrr   0.3.4
## v tibble  3.0.3     v dplyr   1.0.1
## v tidyr   1.1.1     v stringr 1.4.0
## v readr   1.3.1     v forcats 0.5.0
```

```
## -- Conflicts ------------------------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

```
stations <- closestStations(-27.51511, 153.0306 )

print(glimpse(stations))
```

```
## Rows: 3
## Columns: 13
## $ Site      <dbl> 40383, 40767, 40221
## $ Dist      <chr> "40", "40", "40"
## $ Site_name <chr> "GREENSLOPES PRIVATE HOSPITAL", "BRISBANE RPA HOSPITAL", ...
## $ Start     <dbl> 1965, 1988, 1890
## $ End       <chr> "..", "..", "1956"
## $ Lat       <dbl> -27.5119, -27.4983, -27.5000
## $ Lon       <dbl> 153.0450, 153.0337, 153.0167
## $ Source    <chr> "GPS", "GPS", "....."
## $ STA       <chr> "QLD", "QLD", "QLD"
```

```
## $ Height_m  <chr> "39", "32", "6"
## $ Bar_ht    <chr> "..", "..", ".."
## $ WMO       <chr> "..", "..", ".."
## $ distance  <dbl> 1464.283, 1894.026, 2168.462
## # A tibble: 3 x 13
##    Site Dist  Site_name Start End     Lat   Lon Source STA   Height_m Bar_ht
##   <dbl> <chr> <chr>     <dbl> <chr> <dbl> <dbl> <chr>  <chr> <chr>    <chr>
## 1 40383 40    GREENSLO~  1965 ..    -27.5  153. GPS    QLD   39       ..
## 2 40767 40    BRISBANE~  1988 ..    -27.5  153. GPS    QLD   32       ..
## 3 40221 40    DUTTON P~  1890 1956  -27.5  153. .....  QLD   6        ..
## # ... with 2 more variables: WMO <chr>, distance <dbl>
```