Meteorite Analysis

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# 1. Read the cleaned data into R.

library(tidyverse)  
library(rmarkdown)  
library(pander)  
library(latexpdf)  
  
meteorite\_clean <- read\_csv("/Users/Natifu/github\_projects/meteorite\_analysis/clean\_data/meteorite\_clean")

# 2. Find the names and years found for the 10 largest meteorites in the data.

meteorite\_clean %>%   
 slice\_max(mass, n = 10) %>%   
 mutate(mass\_kg = mass/1000) %>%   
 select(name, year, mass\_kg) %>%   
 pander()

|  |  |  |
| --- | --- | --- |
| name | year | mass\_kg |
| Hoba | 1920 | 60000 |
| Cape York | 1818 | 58200 |
| Campo del Cielo | NA | 50000 |
| Canyon Diablo | 1891 | 30000 |
| Armanty | 1898 | 28000 |
| Gibeon | 1836 | 26000 |
| Chupaderos | 1852 | 24300 |
| Mundrabilla | 1911 | 24000 |
| Sikhote-Alin | 1947 | 23000 |
| Bacubirito | 1863 | 22000 |

# 3. Find the average mass of meteorites that were recorded falling, vs. those which were just found.

meteorite\_clean %>%   
 group\_by(fall) %>%   
 summarise(avg\_mass = mean(mass)) %>%   
 pander()

|  |  |
| --- | --- |
| fall | avg\_mass |
| Fell | 68033 |
| Found | 133354 |

# 4. Find the number of meteorites in each year, for every year since 2000.

meteorite\_clean %>%   
 filter(year >= 2000) %>%   
 group\_by(year) %>%   
 summarise(number\_discoveries = n()) %>%   
 pander()

|  |  |
| --- | --- |
| year | number\_discoveries |
| 2000 | 235 |
| 2001 | 186 |
| 2002 | 203 |
| 2003 | 209 |
| 2004 | 141 |
| 2005 | 146 |
| 2006 | 167 |
| 2007 | 71 |
| 2008 | 96 |
| 2009 | 103 |
| 2010 | 89 |
| 2011 | 121 |
| 2012 | 53 |
| 2013 | 2 |

# 5. Visualise results

meteorite\_clean %>%   
 filter(year >= 2000) %>%   
 group\_by(year) %>%   
 summarise(number\_discoveries = n()) %>%   
 ggplot(aes(x = year, y = number\_discoveries)) +  
 geom\_col(alpha = 0.8, colour = "white", fill = "dark green") +  
 scale\_x\_continuous(breaks = c(2000, 2001, 2002, 2003, 2004,  
 2005, 2006, 2007, 2008, 2009,  
 2010, 2011, 2012, 2013),  
 expand = c(0.02, 0.02)) +  
 scale\_y\_continuous(breaks = c(0, 25, 50, 75, 100, 125, 150, 175, 200, 225, 250),  
 limits = c(0, 250),  
 expand = c(0, 0)) +  
 labs(title = "Number of Meteorite Discoveries", subtitle = "from 2000 to 2013",  
 x = "Year", y = "Discoveries") +  
 theme\_light()

