SNOW_DEPTH

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SNOW_DEPTH

```
all_data <- read.csv(file= "../data/all.csv")
```

Centralna poloha dat

Hodnota vyberoveho medianu je 1, modus je 0 a vyberovy priemer je 6.60858. Data teda nie su nahromadene centralne a ako neskor uvidime ani z nromalneho rozdelenia, co pri vyske snehu dava zmysel.

```
getmode(na.omit(all_data$SNOW_DEPTH)) %>%
  print(cat("Modus: " ))
```

```
## Modus: [1] 0
```

```
median(all_data$SNOW_DEPTH, na.rm = TRUE) %>%
  print(cat("Median: "))
```

```
## Median: [1] 1
```

```
mean(all_data$SNOW_DEPTH, na.rm = TRUE)%>%
  print(cat("Mean: "))
```

```
## Mean: [1] 6.60858
```

Variabilita

Vyberovy rozptyl je 102.5846 a variancny koeficient 1.532614, co hovori o relativne velkej variabilite dat.

Variacne rozpatie je 207, čo je ale sposobene vychýlenoou hodnootou z roku 1994, kedy z ničoho nič namerali 207 cm snehu, pričom chvílu pred tym bol iba 1cm a potom tiež. Predpokladáme, že je to chyba. Nahradzovať to ale veľmi nebudeme, keďže s týmito dátami, nebudeme veľa pracovať.

Medzi kvantilova odchylka je iba 5. To znamena, že gro dát sa nachádza na malom intervale.

```
var(all_data$SNOW_DEPTH, na.rm = TRUE) # rozptyl
```

```
## [1] 102.5846
```

```
EnvStats::cv(all_data$SNOW_DEPTH, na.rm = T) # variacny koeficient
```

```
## [1] 1.532614
```

```
max_snow <- max(all_data$SNOW_DEPTH, na.rm= TRUE)
min_snow <- min(all_data$SNOW_DEPTH, na.rm= TRUE)
var_rozpatie <- max_snow - min_snow
print(cat("Variacne rozpatie", var_rozpatie))
```

```
## Variacne rozpatie 207NULL
```

```r
# Interquartile range
Q1_slp <- quantile(all_data$SNOW_DEPTH, 0.25, na.rm = T) # 25% hodnot je mensich a 75% vacsich
Q3_slp <- quantile(all_data$SNOW_DEPTH, 0.75, na.rm = T) # 75% hodnot je mensich a 25% vacsich

(IQR(all_data$SNOW_DEPTH, na.rm = T ) / 2) %>%# interquartile range
  print(cat("Medzikvantilova odchýlka: "))
```

```
## Medzikvantilova odchýlka: [1] 5
```

```r
summary(all_data$SNOW_DEPTH)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.    NA's
##     0.0     0.0     1.0     6.6    10.0   207.0  408068
```

```r
all_data['SNOW_DEPTH'] %>% profiling_num()
```

```
##     variable    mean std_dev variation_coef p_01 p_05 p_25 p_50 p_75 p_95  p_99
## 1 SNOW_DEPTH 6.60858 10.1284       1.532614    0    0    0    1   10   28 37.33
##   skewness kurtosis iqr              range_98 range_80
## 1 3.188859 36.71543  10 [0, 37.3299999999999]  [0, 22]
```

Asymetria

Šikmost (skewness) je 3.188859. Je vyrazne kladna, teda rozdelenie je zasikmene do lava.

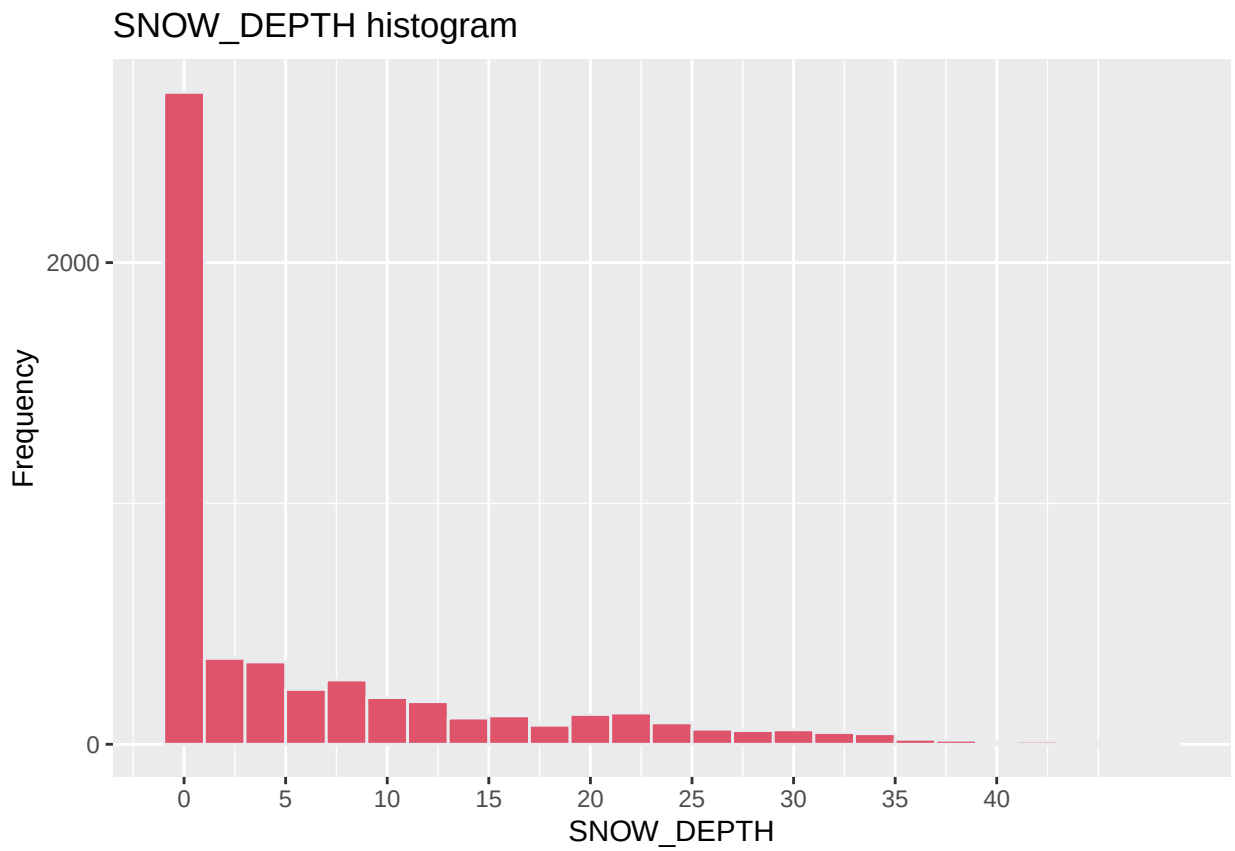
Špicatost (kurtosis) - 36.71543 je kladna a vysoka teda spicatejsia ako data z normálneho rozdelenia.

Histogram

Ako vidime rozdelenie snehu vzdialene pripomina exponencialne rozdelnenie

```r
df <- all_data %>%
  dplyr::filter(SNOW_DEPTH < 100)

ggplot(df, aes(x=SNOW_DEPTH)) +
  geom_histogram(bins = 40, binwidth = 2,fill="2", color="#e9ecef") +
  labs(title = paste("SNOW_DEPTH histogram")) +
  xlab("SNOW_DEPTH") +
  ylab("Frequency") +
  scale_x_continuous(breaks = seq(-20, 40, by = 5)) +
  scale_y_continuous(breaks = seq(0, 20000, by = 2000))
```



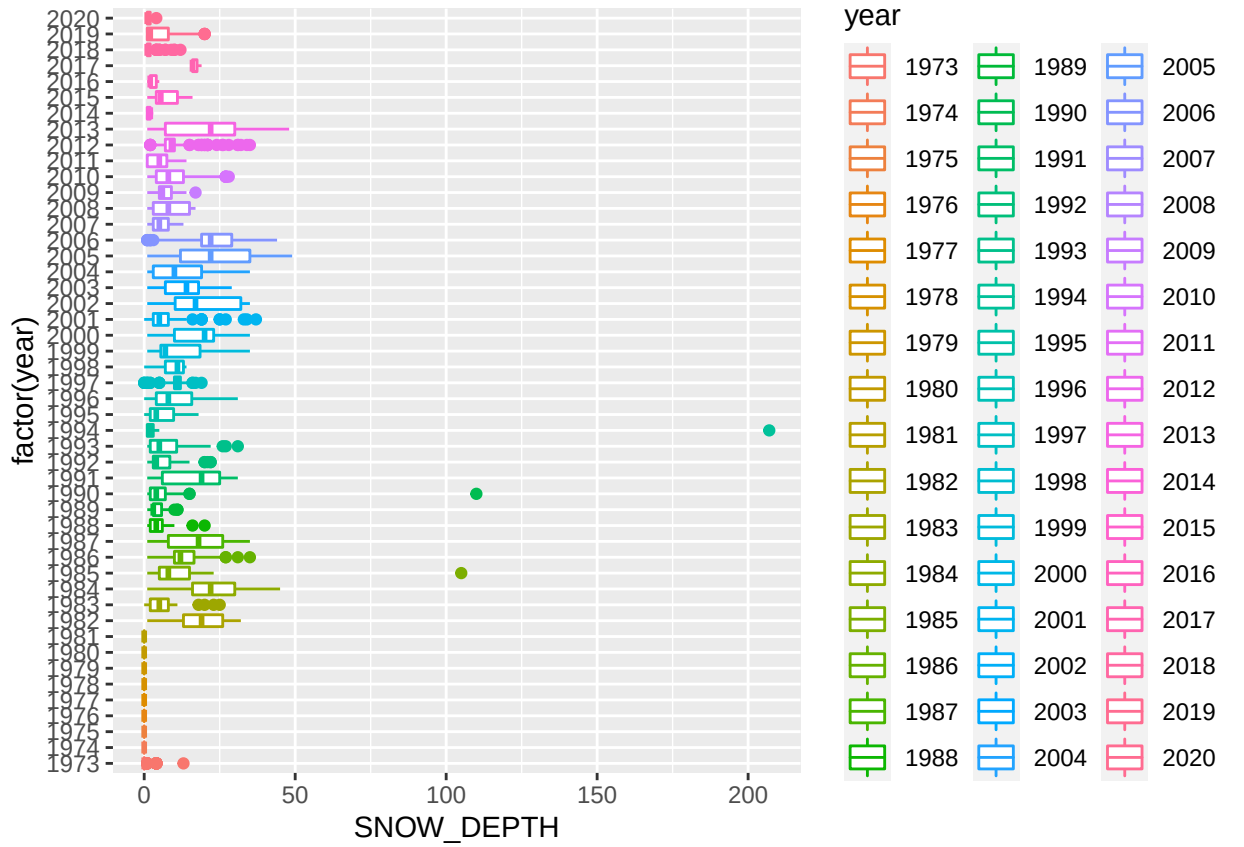
Boxplot

Na boxplote vidime aj vychylene hodnoty.

```
df <- all_data %>%
  dplyr::mutate(
    year = ymd_hms(DATE) %>%
      lubridate::year() %>%
      map_chr(~ as.character(.x))
  ) %>%
  dplyr::select(all_of(c('year', 'SNOW_DEPTH')))

ggplot(data = df, aes( SNOW_DEPTH,factor(year), colour=year)) +
  geom_boxplot()
```

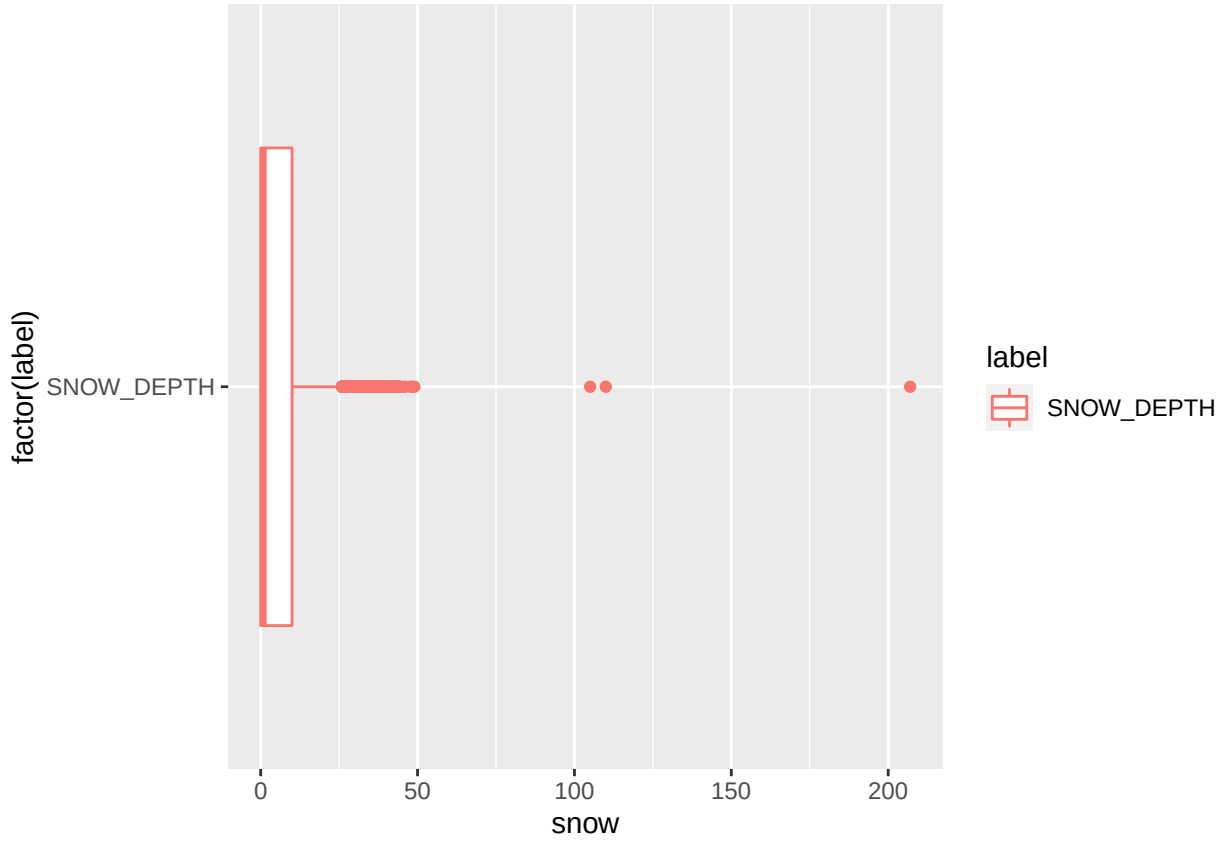
```
## Warning: Removed 408068 rows containing non-finite values (stat_boxplot).
```




```
df <- all_data %>%
  dplyr::select('SNOW_DEPTH') %>%
  tidyr::gather(key='label', value = 'snow')

ggplot(data = df, aes( snow,factor(label), colour=label)) +
  geom_boxplot()
```

```
## Warning: Removed 408068 rows containing non-finite values (stat_boxplot).
```



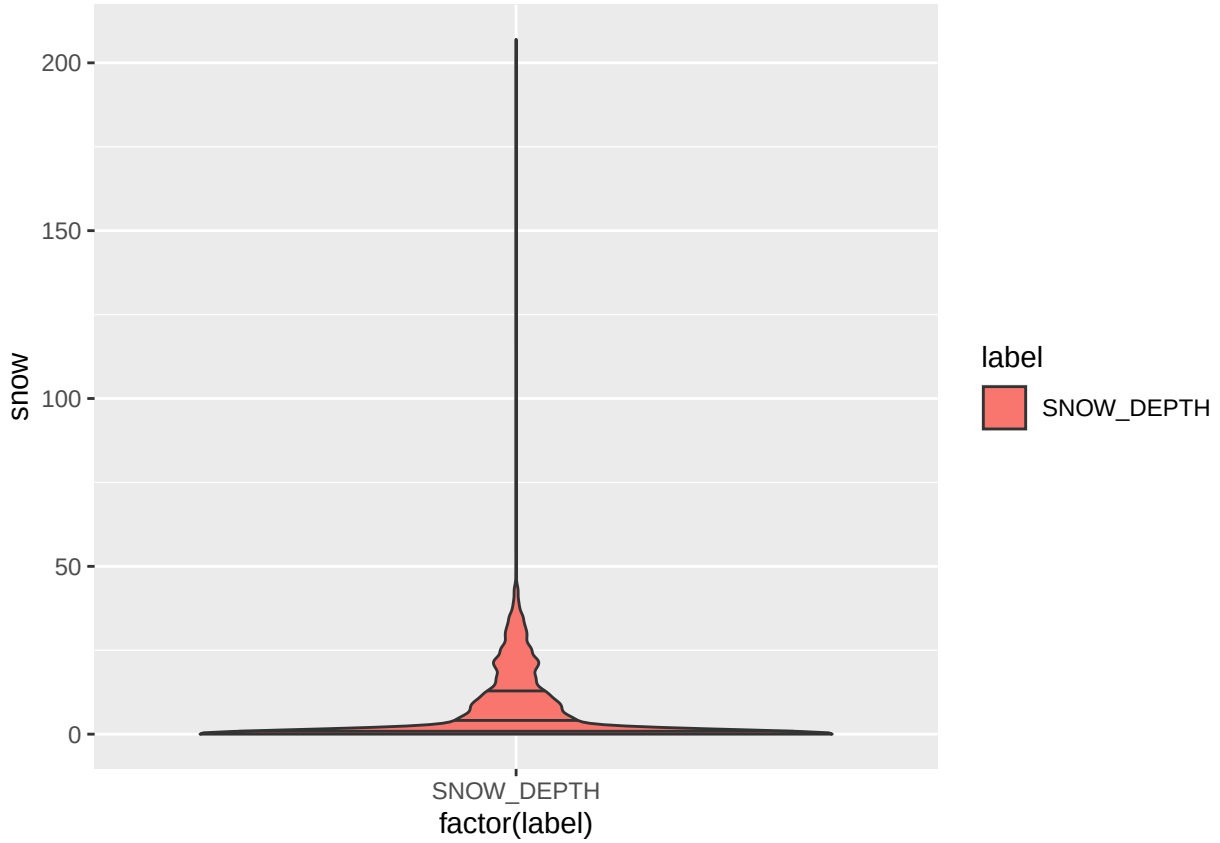
Violin

```
df <- all_data %>%
  dplyr::select('SNOW_DEPTH') %>%
  tidyr::gather(key='label', value = 'snow')

ggplot(data = df, aes(factor(label), snow, fill=label)) +
  geom_violin(draw_quantiles=c(0.25, 0.5, 0.75))
```

```
## Warning: Removed 408068 rows containing non-finite values (stat_ydensity).
```

```
## Warning in regularize.values(x, y, ties, missing(ties), na.rm = na.rm):
## collapsing to unique 'x' values
```



Q-Q plot

```
ggplot(data = all_data, aes(sample=SNOW_DEPTH)) +
  stat_qq() +
  stat_qq_line()
```

```
## Warning: Removed 408068 rows containing non-finite values (stat_qq).
```

```
## Warning: Removed 408068 rows containing non-finite values (stat_qq_line).
```

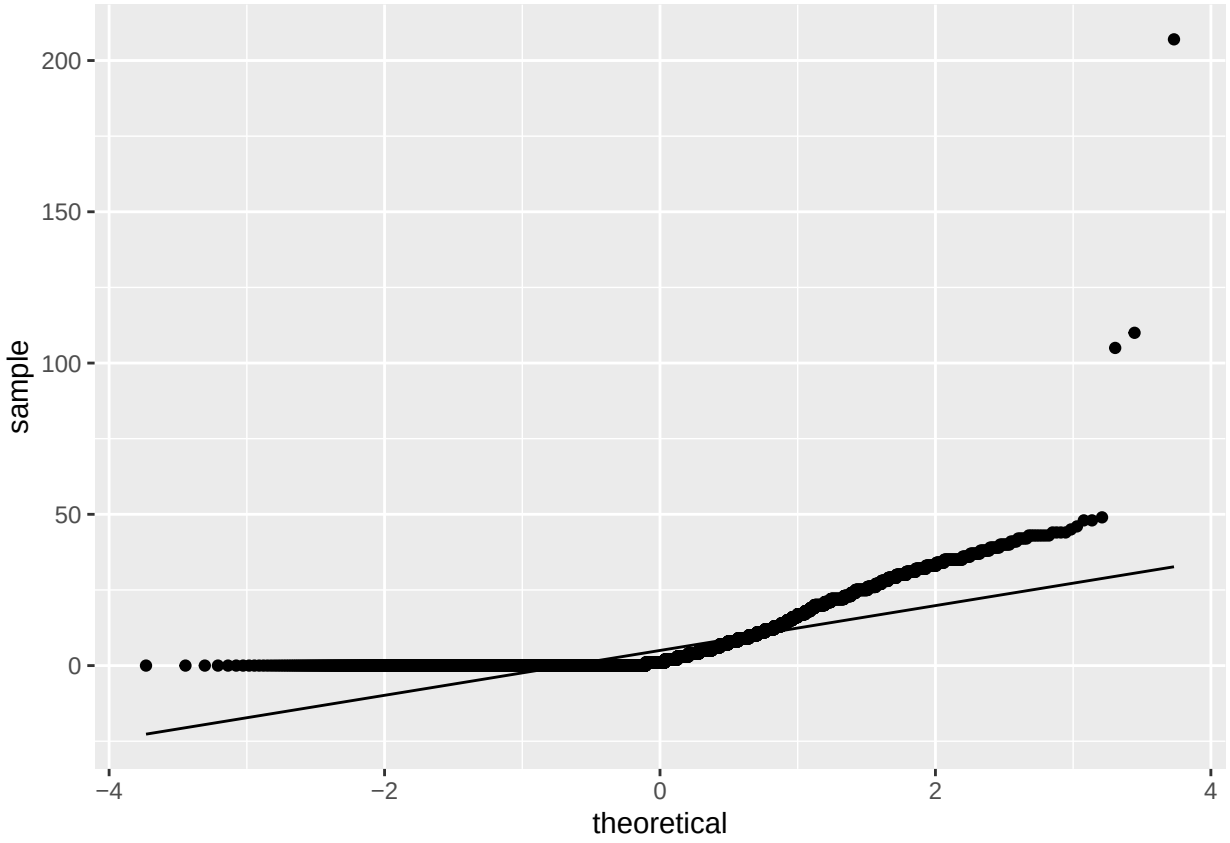
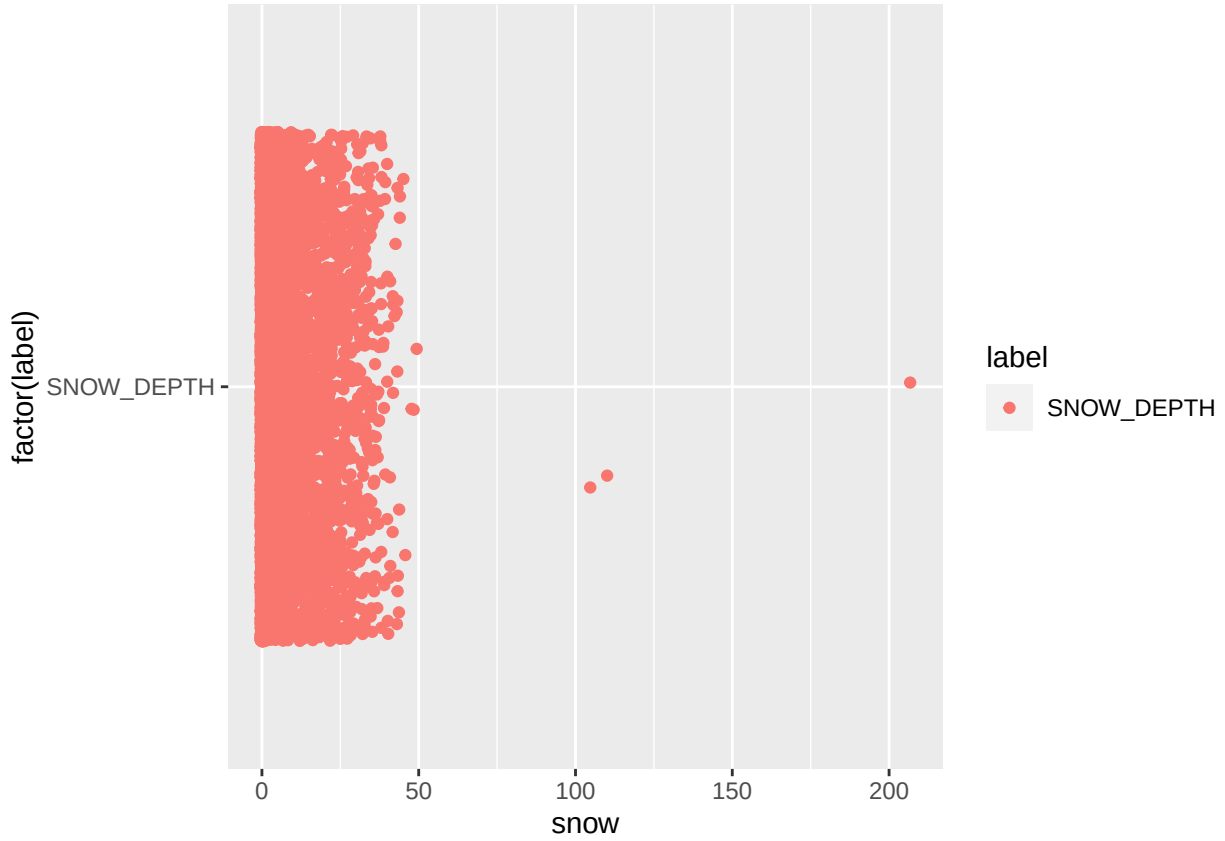


Diagram Rozptylenia

```
df <- all_data %>%
  dplyr::select('SNOW_DEPTH') %>%
  tidyr::gather(key='label', value = 'snow')

ggplot(data = df, aes( snow,factor(label), colour=label)) +
  geom_jitter()
```

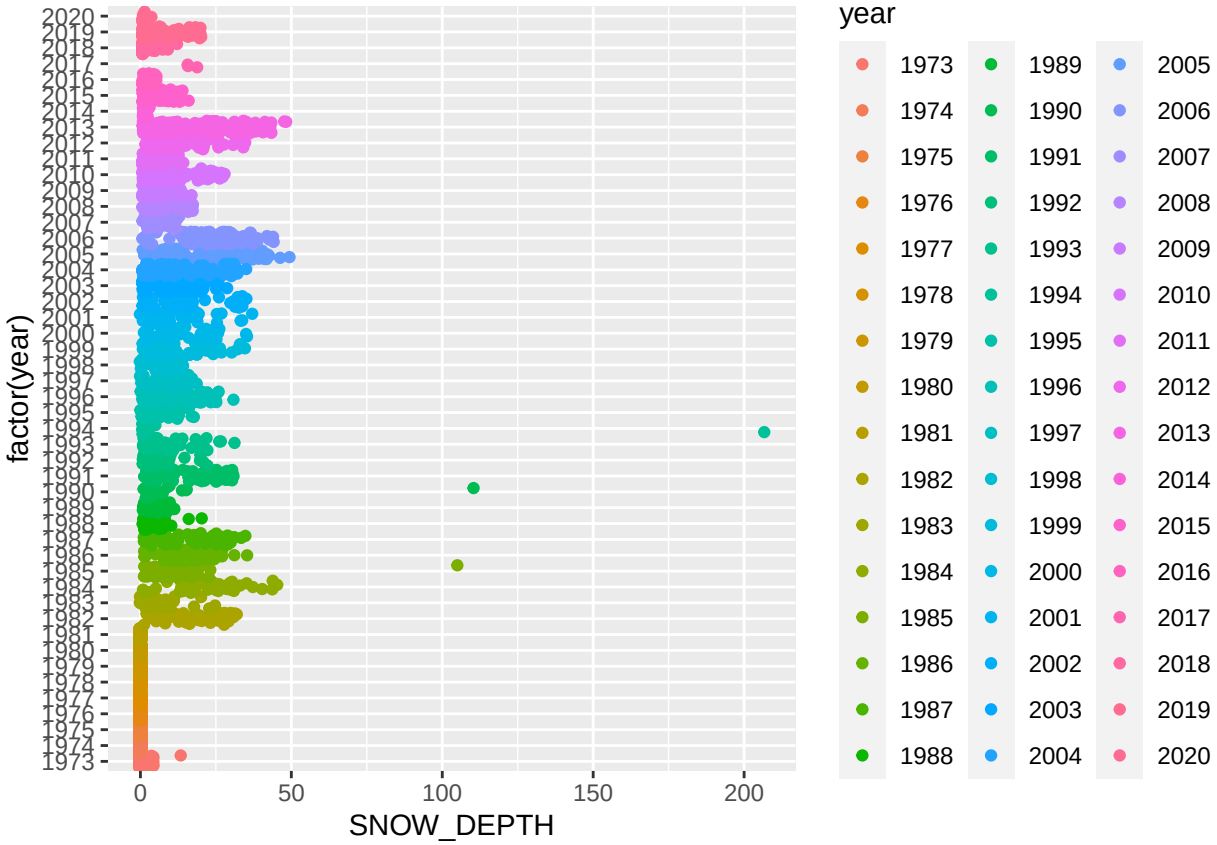
```
## Warning: Removed 408068 rows containing missing values (geom_point).
```




```
df <- all_data %>%
  dplyr::mutate(
    year = ymd_hms(DATE) %>%
      lubridate::year() %>%
      map_chr(~ as.character(.x))
  ) %>%
  dplyr::select(all_of(c('year', 'SNOW_DEPTH')))

ggplot(data = df, aes( SNOW_DEPTH,factor(year), colour=year)) +
  geom_jitter()
```

```
## Warning: Removed 408068 rows containing missing values (geom_point).
```


factor(year)
SNOW_DEPTH
0
50
100
150
200
year
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
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