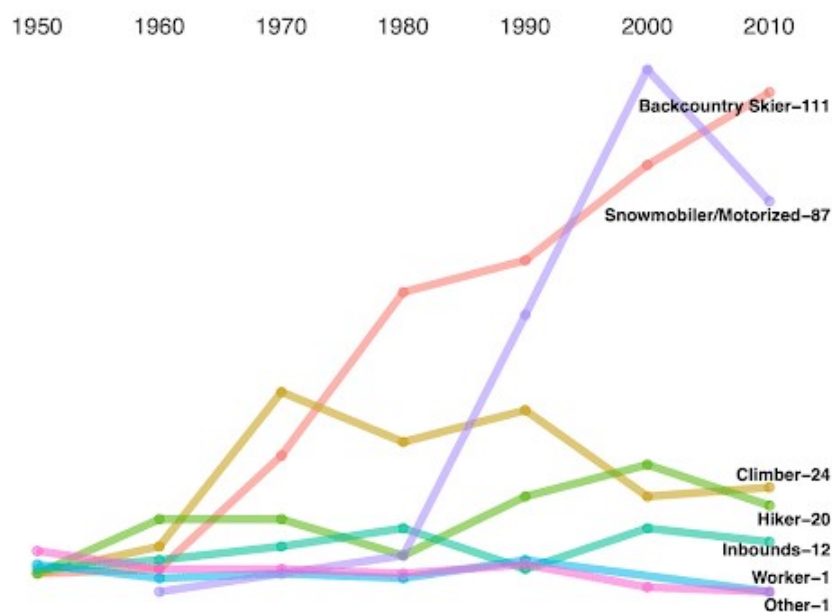


Each winter season, avalanches pose a serious threat to those who adventure in mountainous regions. An avalanche is defined as a mass of snow sliding, flowing, or tumbling down an inclined surface, typically destroying everything in its path. This post showcases the history of various activities that contribute to the total avalanche deaths that occur in the United States every year.

## Data – CAIC

The Colorado Avalanche Information Center (CAIC) collected data on avalanches from 1951 to 2020. The dataset includes a date, setting, state, primary activity, and number of deaths for each avalanche event that resulted in at least one death. When it comes to date, year and avalanche year are included. Avalanche years go with winter seasons, where avalanches later in the year are considered to be in the next avalanche year. For example, an avalanche that occurred on 12-22-2018 would be in avalanche year 2019. Avalanche year was chosen for this exploration. There are 24 unique primary activities in the dataset. I grouped similar primary activities into categories to prevent over plotting.



## Observations

- Backcountry skiers and snowmobilers/motorized make up the majority of deaths across decades
- Avalanches do occur inbounds at ski resorts
- There was a huge spike from 1980 to 2000 for snowmobiling/motorized. This may be related to advancements in technology

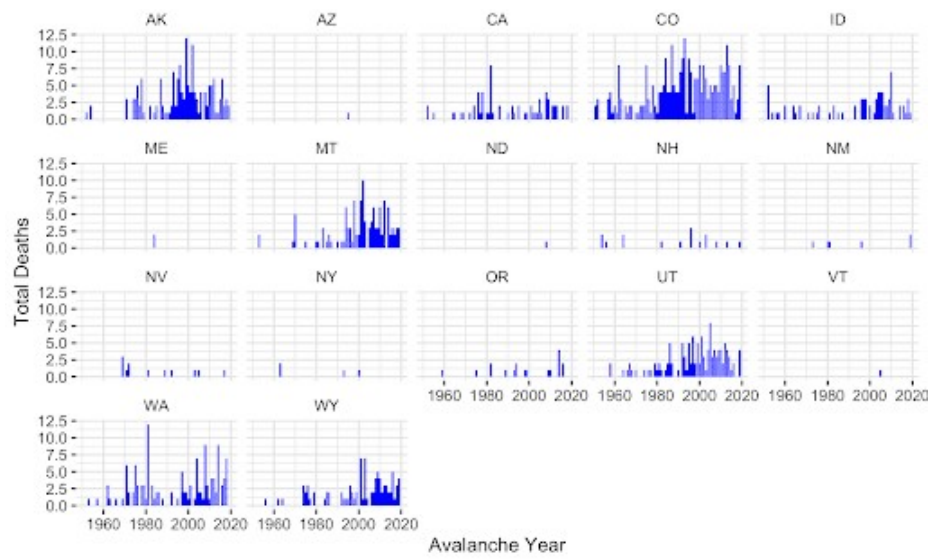
The following code shows how the winter activities were grouped:

```
avalanche <- avalanche %>%
  mutate(activity_group = case_when(
    primary_activity %in% c("Backcountry Tourer", "Hybrid Tourer", "Hybrid
Rider", "Sidecountry Rider") ~ "Backcountry Skier",
    primary_activity %in% c("Hiker", "Hunter", "Snowplayer", "Human-powered
Guide Client", "Resident") ~ "Hiker",
    primary_activity %in% c("Snowmobiler", "Snow Biker", "Motorized",
"Mechanized Guide", "Machanized Guiding Client") ~ "Snowmobiler/Motorized",
    primary_activity %in% "Climber" ~ "Climber",
    primary_activity %in% c("Inbounds Rider", "Ski Patroller") ~ "Inbounds",
    primary_activity %in% c("Rescuer", "Ranger", "Others at Work", "Highway
Personnel") ~ "Worker",
    TRUE ~ "Other"
```

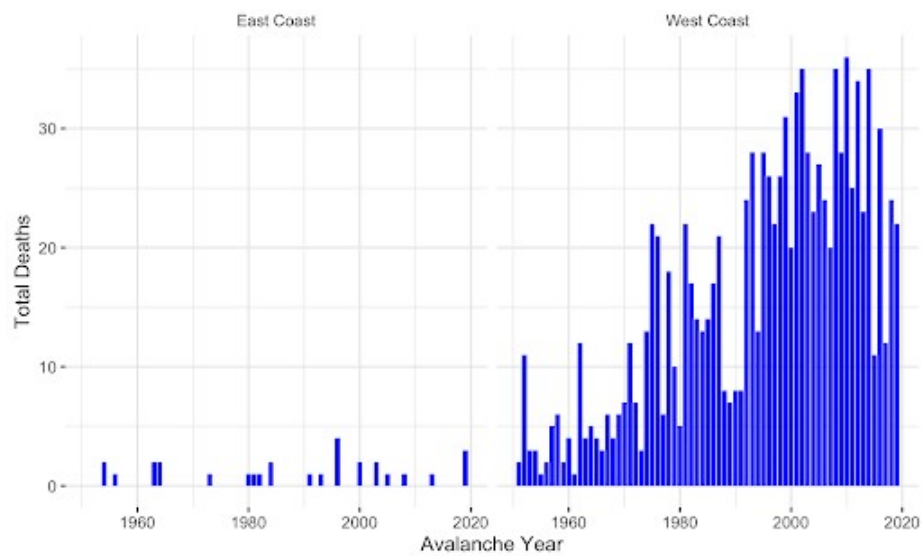
))

Additional geographical visualizations are provided below.

By states:



Comparing East Coast to West Coast:



There are many possibilities with this dataset and we are excited to explore it further. Stay tuned for more interesting finds. For more information on this dataset, check out: [avalanche.state.co.us/accidents/statistics-and-reporting/](https://avalanche.state.co.us/accidents/statistics-and-reporting/)

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