

# FEW EVENTS, MANY LIVES – AN EXPLORATORY DATA ANALYSIS OF GLOBAL DISASTER IMPACTS

DSCD 611 Programming for Data Scientists  
Group C4



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# Research Questions

- How has disaster frequency changed over time?**
- Which disaster types occur most frequently?**
- Which disaster types cause the greatest deaths?**
- Which disaster types affect the largest populations?**
- How does impact vary by region?**
- Are impacts concentrated in few events?**
- How have impacts changed over time?**



# Data Overview

## Source

Emergency Events Database (EM-DAT)  
Centre for Research on Epidemiology  
of Disasters

## Coverage

Years: 2000 to 2025

Records: 16,657 disaster events

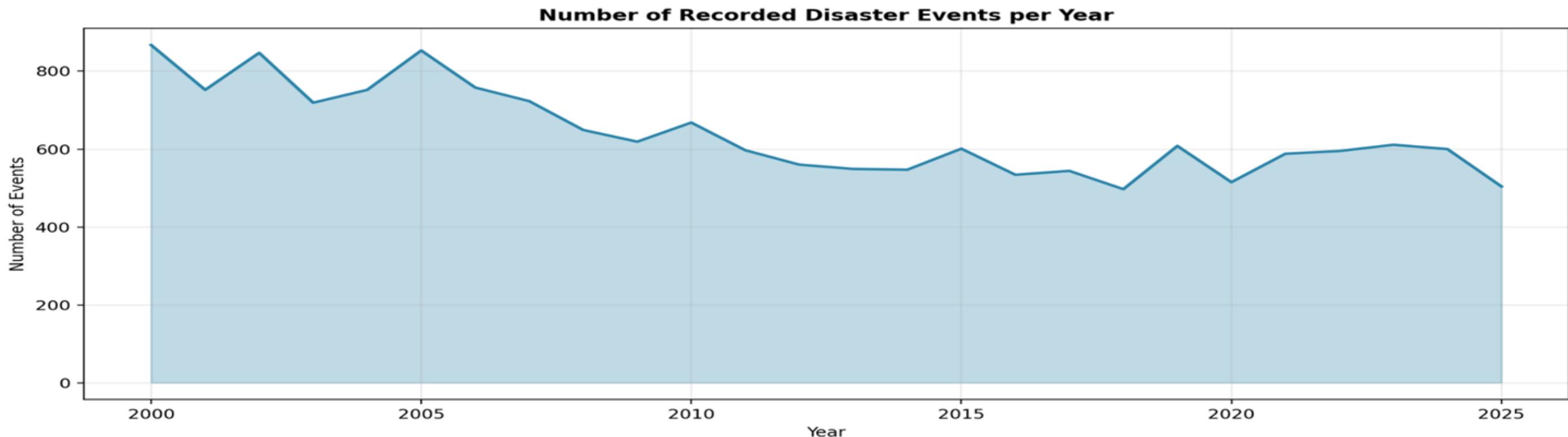
## Key Variables

- **Time:** start year, month, day
- **Classification:** disaster type and subtype
- **Geography:** country, region, subregion
- **Impact:** deaths, affected populations, injuries



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# Disaster Frequency Trends



## □ Number of Recorded Disaster Events per Year

- Recorded events peaked in early 2000s
- Modest decline observed in recent years
- Changes reflect reporting practices, not necessarily reduced risk

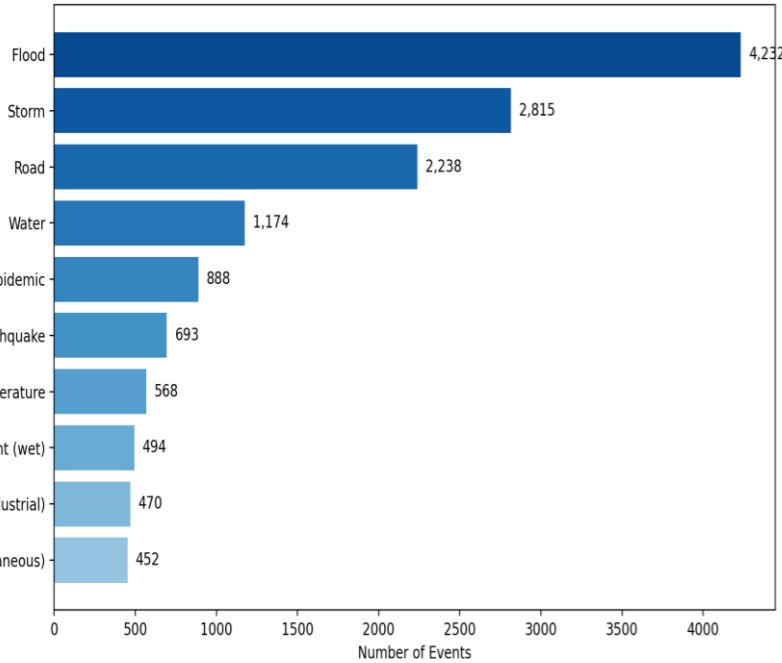


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# Frequency vs Severity

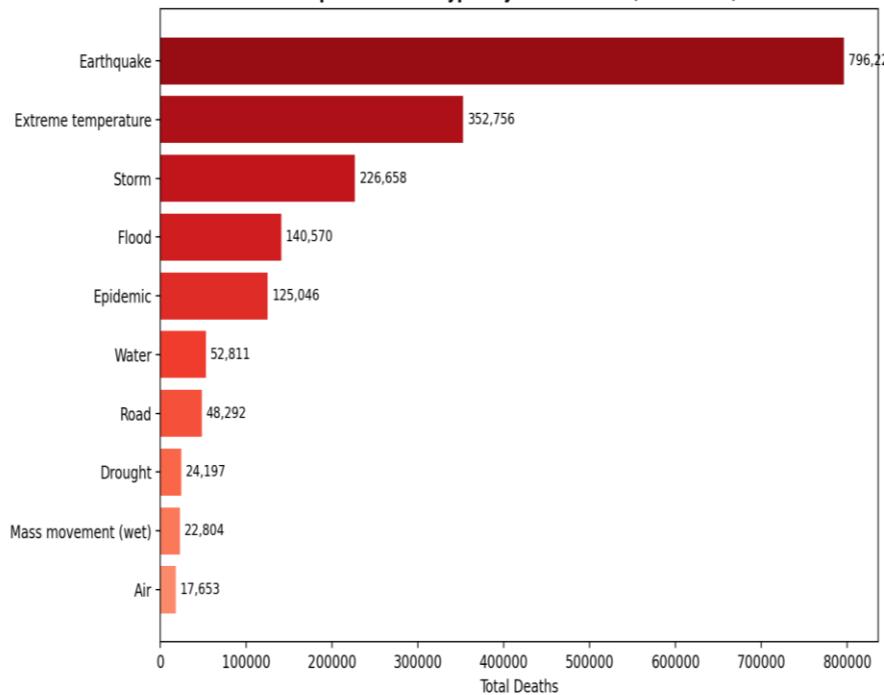
## Most Frequent

Top 10 Disaster Types by Frequency (2000-2025)



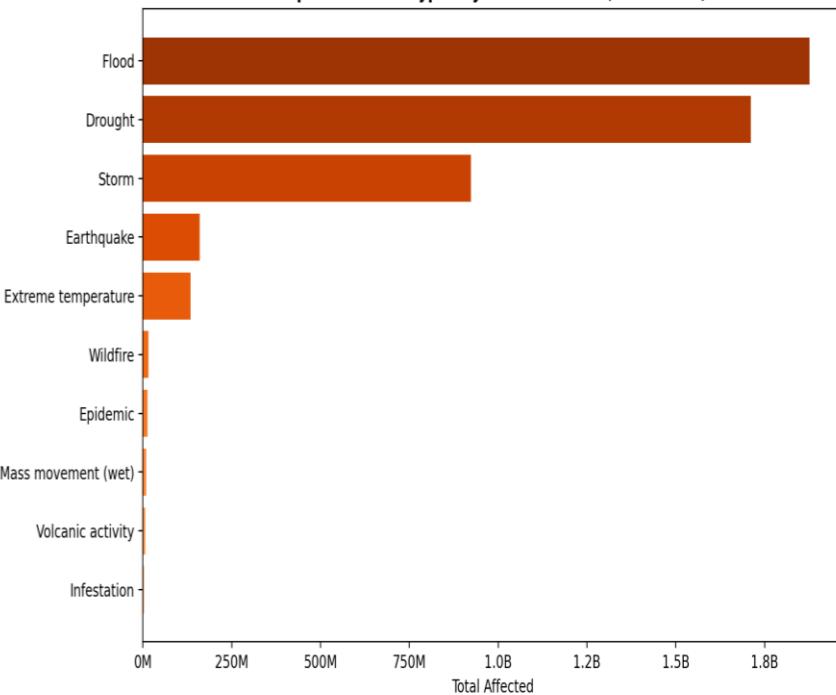
## Most Deadly

Top 10 Disaster Types by Total Deaths (2000-2025)



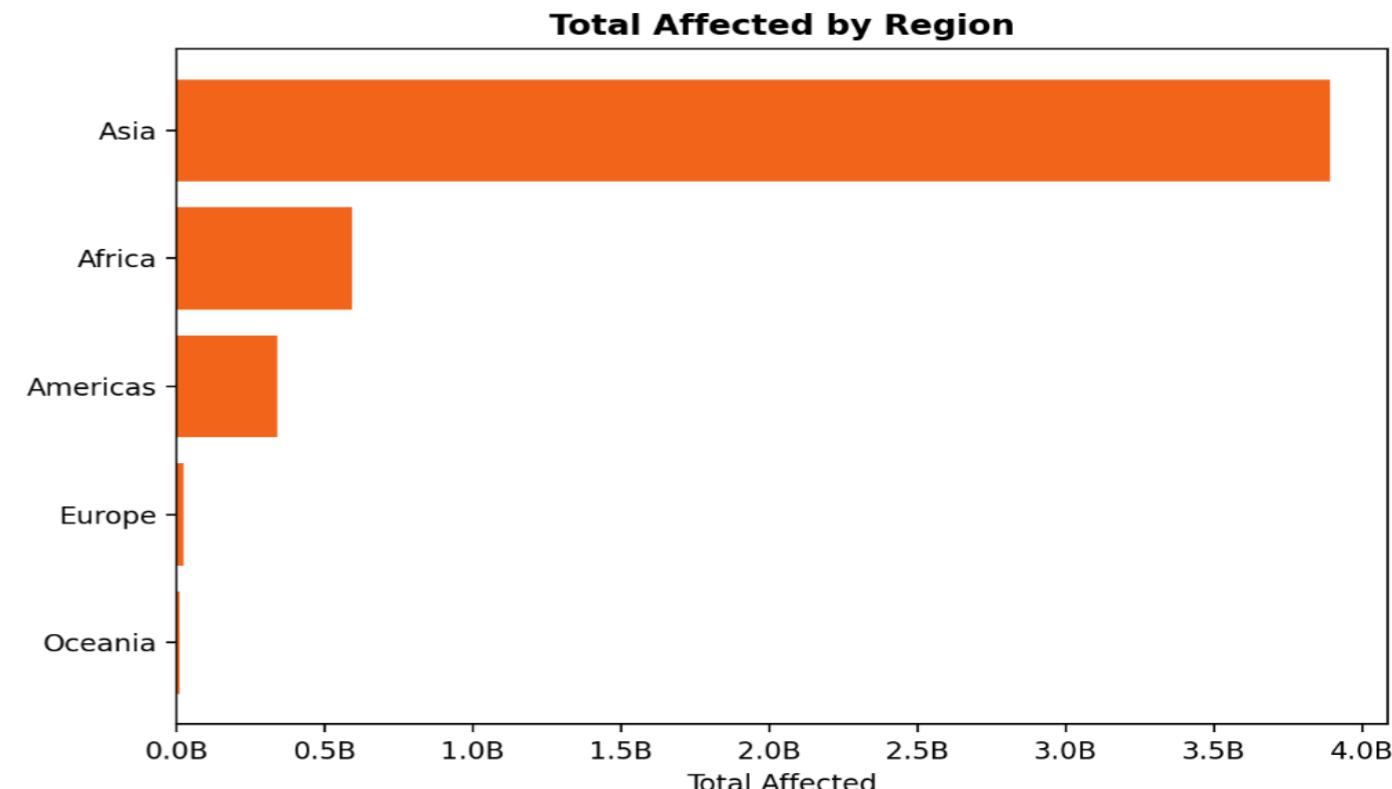
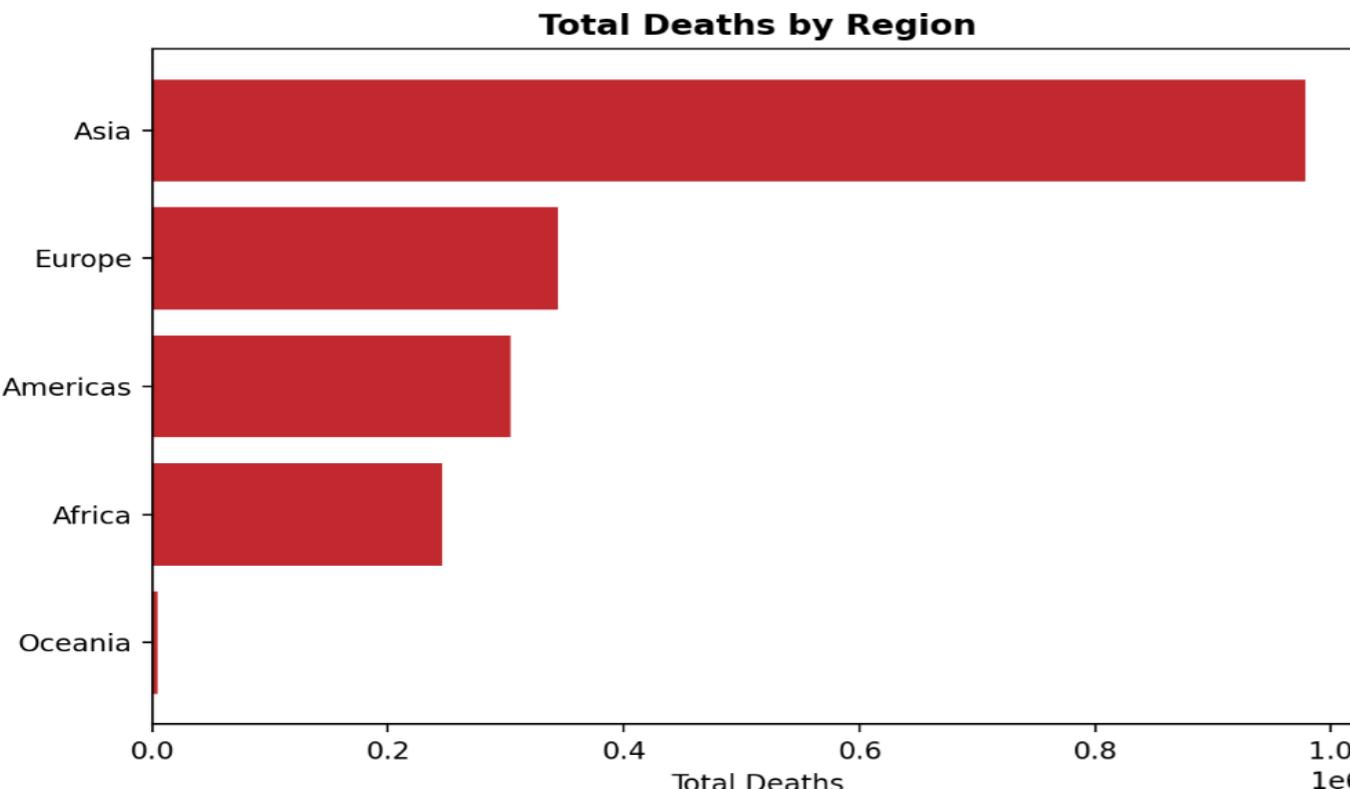
## Largest Affected

Top 10 Disaster Types by Total Affected (2000-2025)



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# Regional Impact Distribution



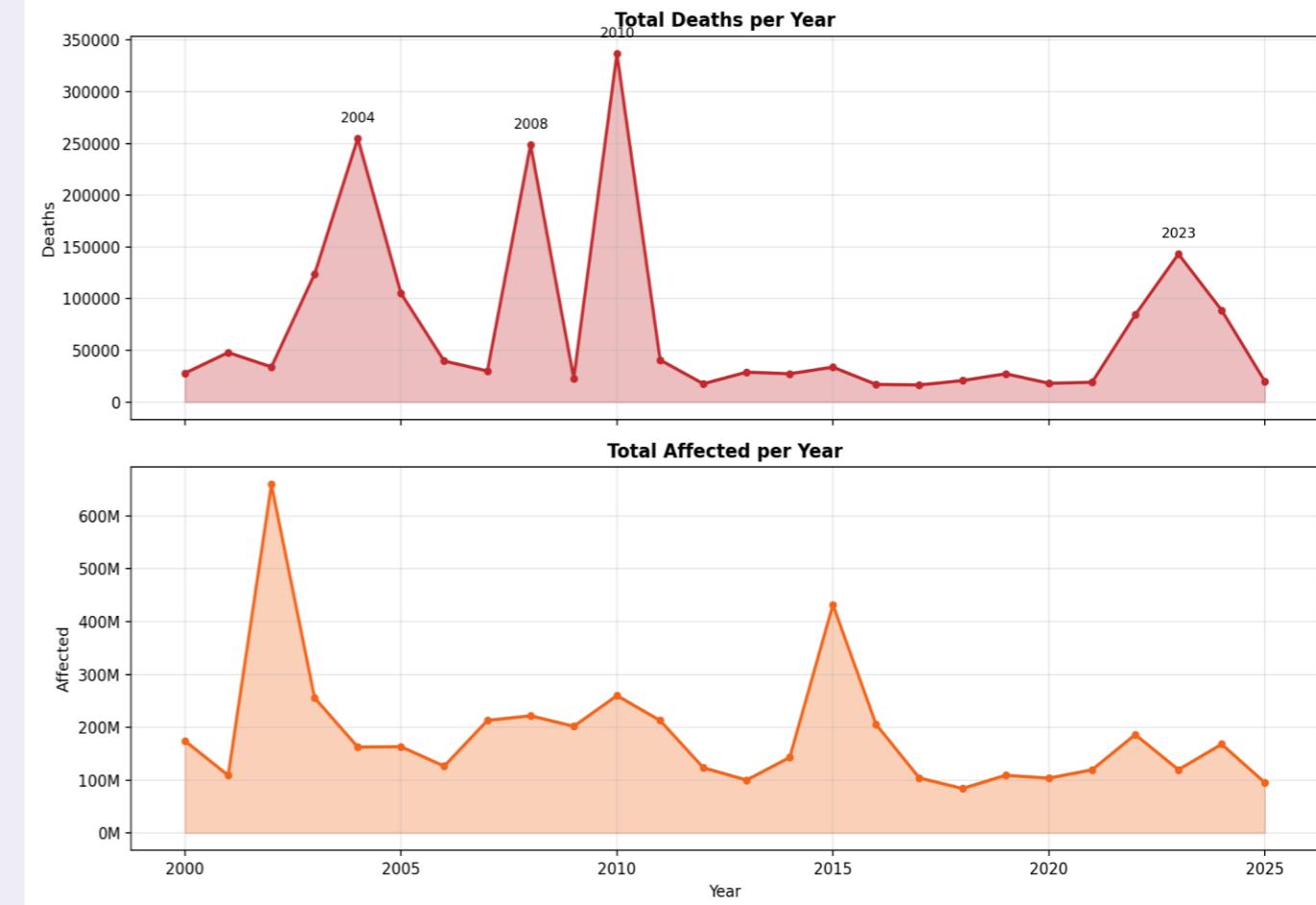
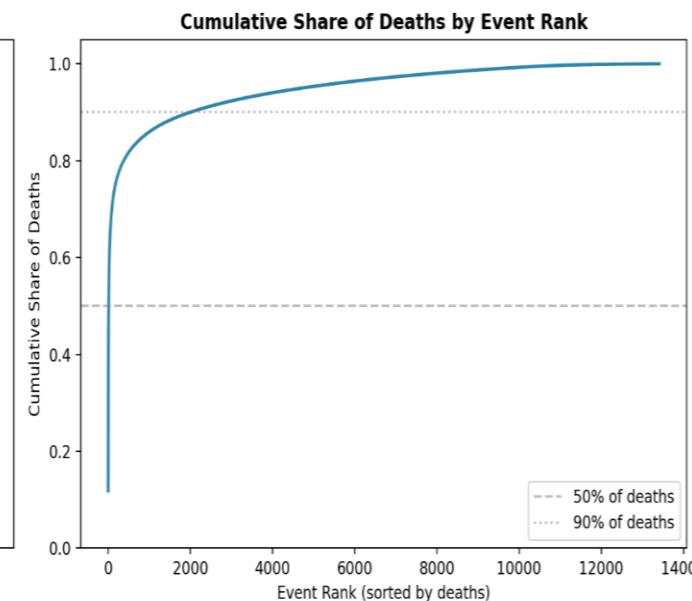
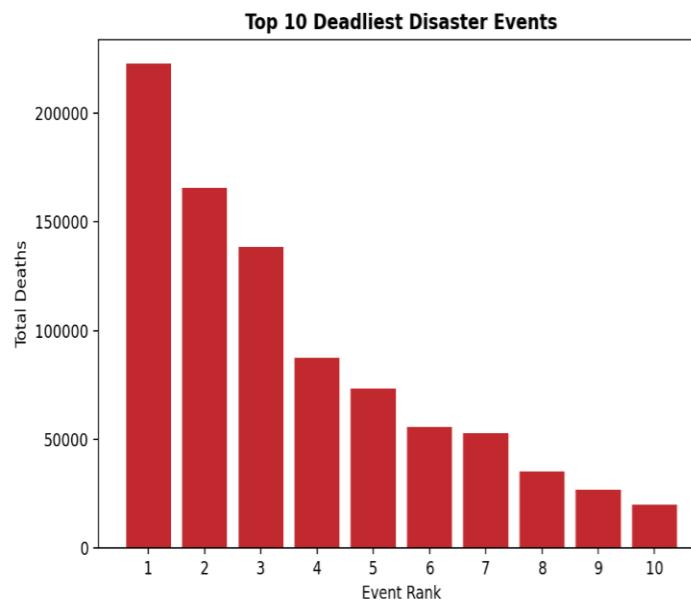
## □ Total Disaster Impact by Region

- Asia: highest burden in total deaths and affected populations
- Substantial regional inequality observed
- Infrastructure and preparedness capacity drive differences



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# Impact Concentration



**50%**  
of all disaster deaths from  
**10 DEADLIEST EVENTS**

## Key Findings

- Strong concentration of impacts in rare catastrophic events
- Average statistics obscure disproportionate influence of extreme disasters
- No clear long-term decline in total impacts
- Annual totals driven by rare but severe events



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# Conclusions

- ❑ Most frequent disasters are not always the most harmful
- ❑ Impacts heavily concentrated in small number of extreme events
- ❑ Regional inequality: Asia bears disproportionate burden
- ❑ Focus on high-impact, low-frequency disasters more effective than planning for average outcomes
- ❑ Targeted investments in preparedness and early warning systems needed in high-risk regions



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