NOAA Storm Events in Literature

Concerns with Storm Events Database

Hazard Bias

- There can be inaccurate recording of the frequency of certain hazards types within the database
- This is influenced by the goal or audience of the database
  - For example, the US is esepcially concerned with monetary losses from floods so it may be more likely for flood events to be reported (Gall, Borden, and Cutter 2009)

    *script to pull up number of floods compared to other events in noaa
- This also arises from the difficulty of sorting storm events that include multiple types of hazards
  - Definitional differences (Gall, Borden, and Cutter 2009)
  - one episode can correlates to mulitple events (Konisky, Hughes, and Kaylor 2016)

    *script for how noaa deals with this? or examples of this?
- limited information on event severity or distinction between events (Luh et al. 2015)

Temporal Bias

- There can be changes in the number of storm events and loss estimates reported over time (Gall, Borden, and Cutter 2009)
  - Advancements in monitoring and detecting
  - Better loss accounting
  - New process for loss estimation developed by NWS in 2007
  - Switch between categorical estimates to whole dollar figure estimates
    - pull up loss data for events pre and post 1995

Threshold Bias

- Events of larger maginutude and/or damage to human health are better documented (Gall, Borden, and Cutter 2009)
- Events of smaller magnitude are less reported becasue less people are affected (Gall, Borden, and Cutter 2009)
  - may even be excluded due to threshold criteria (Gall, Borden, and Cutter 2009)

Accounting Bias

- Discrepencies in type of loss information collected (Gall, Borden, and Cutter 2009)
  - Direct monetary losses from damage to infrastructure, buildings, crops, etc. are easier to quanitfy than indirect losses like lost revenue, business closures, societal losses, environmental damage (Gall, Borden, and Cutter 2009)

        * how does noaa report different types of losses?
- Can count economic losses at community, state, regional, global level (Gall, Borden, and Cutter 2009)
    - what level does noaa report this at?
- How can nonmonetary losses be quanitifed?

Geographic Bias

- Reporting affected by geographic location (Luh et al. 2015)
    - There can be changes at country or state level over time that lead to excluding or double counting events or loss data (Gall, Borden, and Cutter 2009)
    - NWS changed its reporting strategy from loss estimates by climate region to loss estimates in specific counties where event occurred (relevant for data in 1995 during switch) (Gall, Borden, and Cutter 2009)
        * script for checking event location pre and post 1995
- Supply of information is greater in areas closer to weather event (Konisky, Hughes, and Kaylor 2016)
- Smallest unit of aggregation to use all parts of database are Weather Forecasting Offices and there are about 122 nationwide (Konisky, Hughes, and Kaylor 2016)
    - zone and fips script

Systemic Bias

- Differences in initial data collection and compilation create difficulties in comparing databases
    - Source and how losses are computed
    - Actual dollar losses vs inflation adjusted losses
    - Whole dollars vs loss categories

References

Gall, Melanie, Kevin A Borden, and Susan L Cutter. 2009. "When Do Losses Count? Six Fallacies of Natural Hazards Loss Data." *Bulletin of the American Meteorological Society* 90 (6). American Meteorological Society: 799–810.

Konisky, David M, Llewelyn Hughes, and Charles H Kaylor. 2016. "Extreme Weather Events and Climate Change Concern." *Climatic Change* 134 (4). Springer: 533–47.

Luh, Jeanne, Elizabeth C Christenson, Aizhan Toregozhina, David A Holcomb, Tucker Witsil, Laura R Hamrick, Edema Ojomo, and Jamie Bartram. 2015. "Vulnerability Assessment for Loss of Access to Drinking Water Due to Extreme Weather Events." *Climatic Change* 133 (4). Springer: 665–79.