Rain and Raids: Relationships between Rainfall Variation and Livestock Raiding in Northern Kenya

Teferi Abate Adem (teferi.abate@yale.edu)
Carol R. Ember, Ian Skoggard (HRAF at Yale)
Eric C. Jones (Univ. of North Carolina, Greensboro)

Presented at the 110th Annual Meetings of the American Anthropological Association in the organized session "Rethinking Pastoral Violence in Africa", Montreal, QC, Canada, November 16-20, 2011

Rainfall Variability and Livestock-Related Violence: Any Link?

- Explore possible answers by contrasting data on rainfall variability and livestock raids in Turkana district, Kenya.
- Compare results with previous work in Marsabit district.
- Our focus is on livestock raids on and by the Turkana in the years 1998-2009.

Existing Arguments

- Two major, but contrasting, arguments:
  - Scarcity-causes- violence, suggesting raids have become more lethal lately because of frequent droughts (e.g., OCHA 2008; Smith 2009).
  - "Livestock raiding is more violent in wet seasons, when pasture and water are abundant..." (Witsenburg and Adano 2009).

The Evidence from Marsabit

- Summarizing, Witsenburg and Adano (2009) reported that:
  - wet years and months were more violent than drought years
    - People in drought years were more inclined to cooperate in sharing wells and pastures than fight.
    - Conflicts were triggered by failure of local institutions for cooperation and sharing (not by scarcity as such).

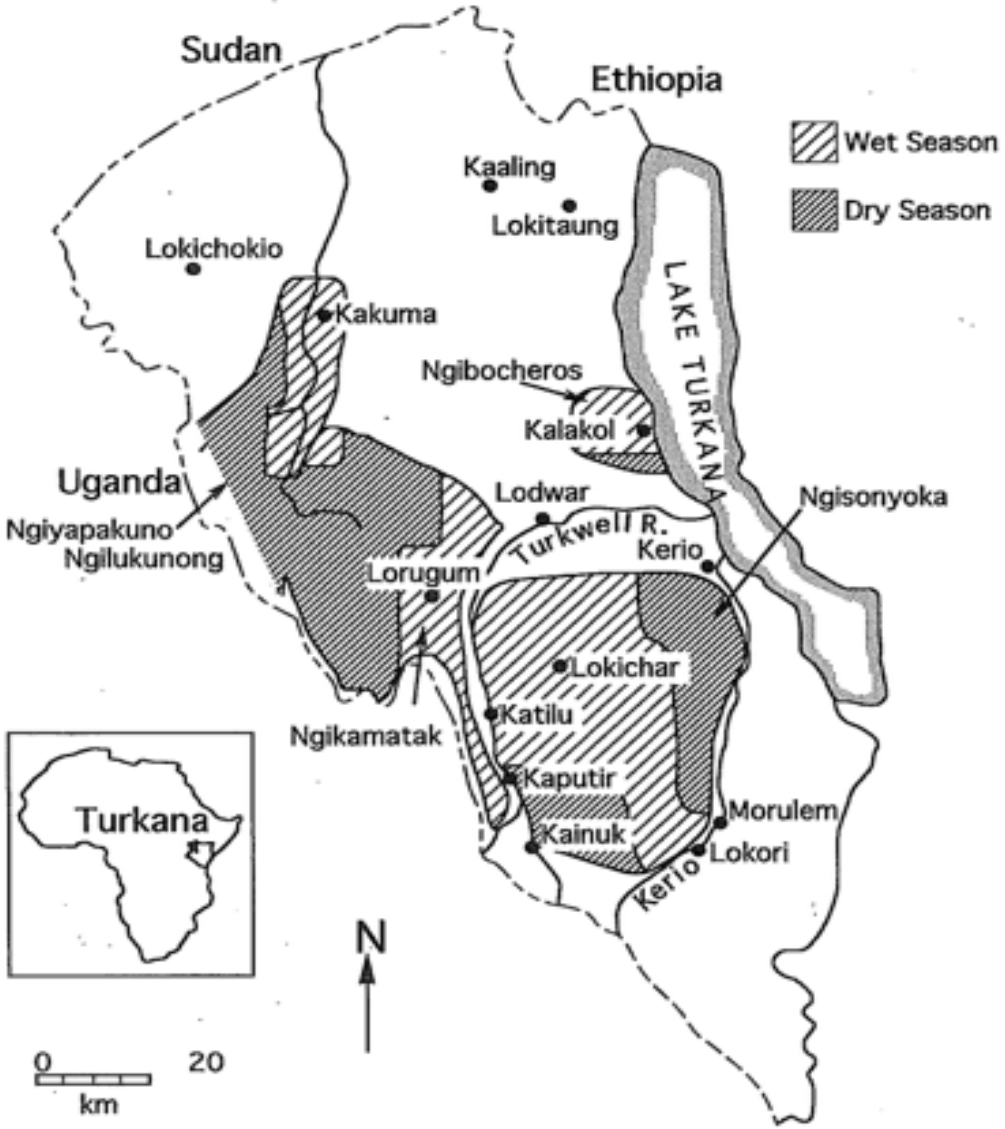
Explaining the Marsabit Findings

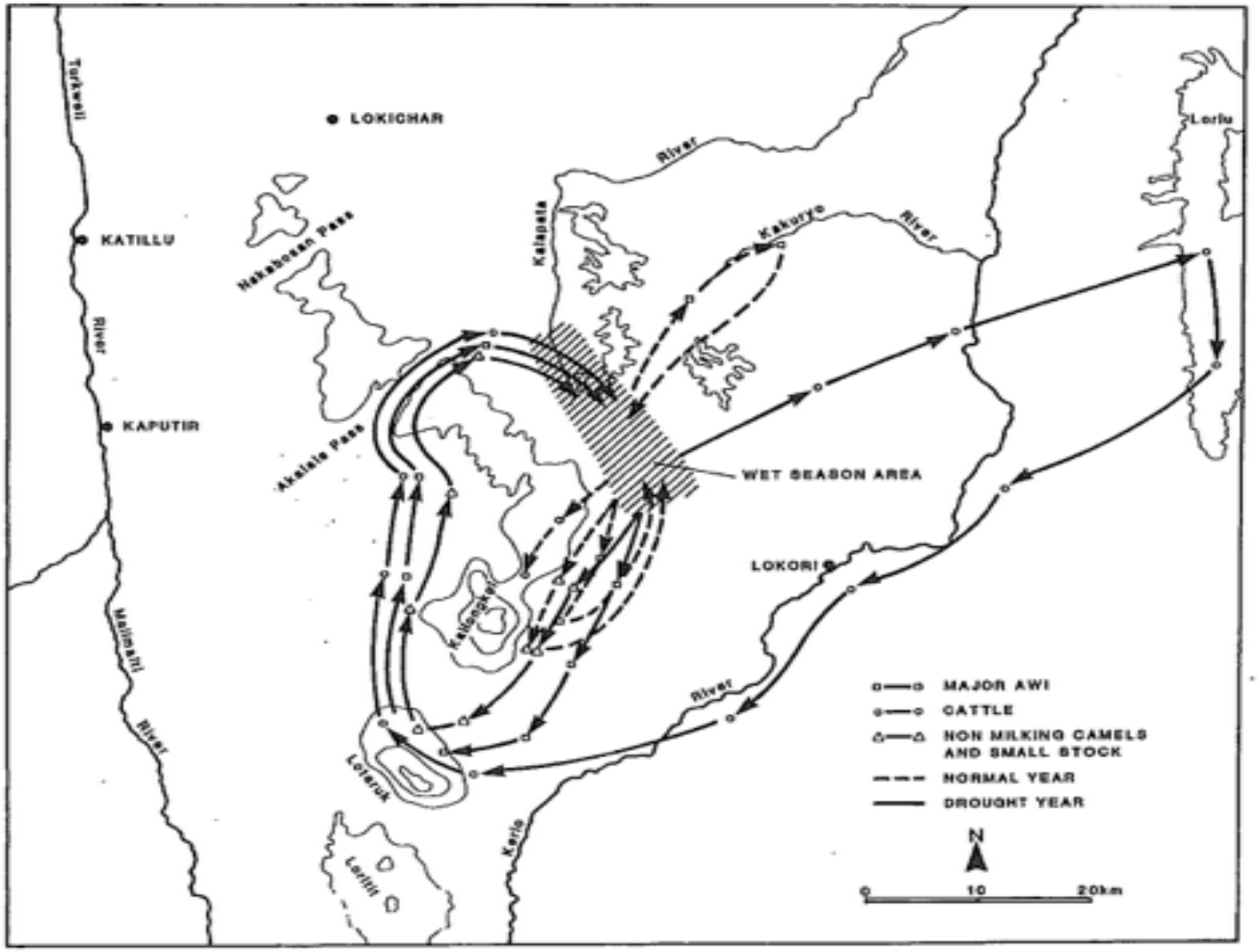
- Witsenburg and Adano (2009) explain the logic for this as follows:
  - livestock during the wet season are stronger, fatter and fit for long treks.
  - wet season has higher availability of:
    - vegetation and surface water for animals
    - thicker vegetation for hiding attackers
    - more young men to engage in raiding

About the Turkana

- Nilotic-speaking pastoral people, in northwestern Kenya.
- Vulnerable to risks of losing livestock to droughts, epizootic, and violent raids.
- Risk minimizing strategies include herd diversification and moving frequently.
- Mobility decisions/land use practices greatly influenced by rainfall pattern, herd composition and security concerns (in the form of raids on livestock by enemies).

Wet and Dry Season Ranges for Turkana Sections (McCabe 2004, p. 207)





Southern Turkana herding routes during normal (dashed line) and droughts (solid line) years—McCabe 2004, p. 225).

Methods: Data Collection

- Source database: Lexis/Nexis Academic http://www.lexisnexis.com/*hottopics/lnacademic/?*
- Category sources: Newsletters, Aggregate News Sources, News Transcripts, Newswires, Major Newspapers
- Time period: 1998-2009
- Search: All news reports involving “Tur*ana”
- Results: Initial search typically yielded about 500 reports per year.

Methods: Data Processing

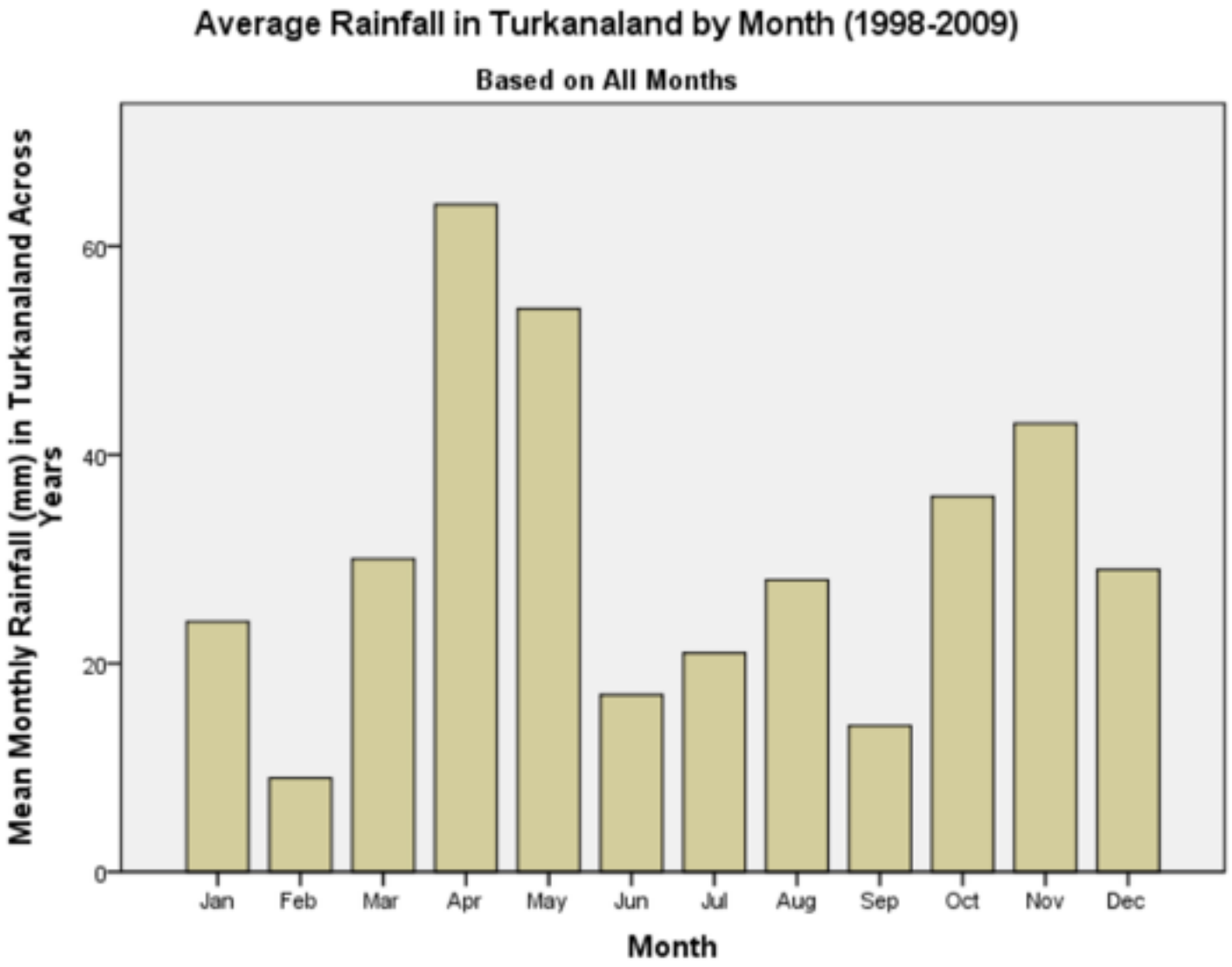
- Narrow reports to raids if all of the following were satisfied:
  - Socially-organized violence of some kind involving Turkana, either as attackers or attacked
  - Incident occurred in Turkana district or in border localities
  - Incident involved actual or attempted raid of livestock
- Data collected: Date and place of incident, names of parties, number deaths and wounded, number livestock stolen, property destroyed, people displaced, weapons used, and atrocities.

Some caveats about our data sources and scope of analysis

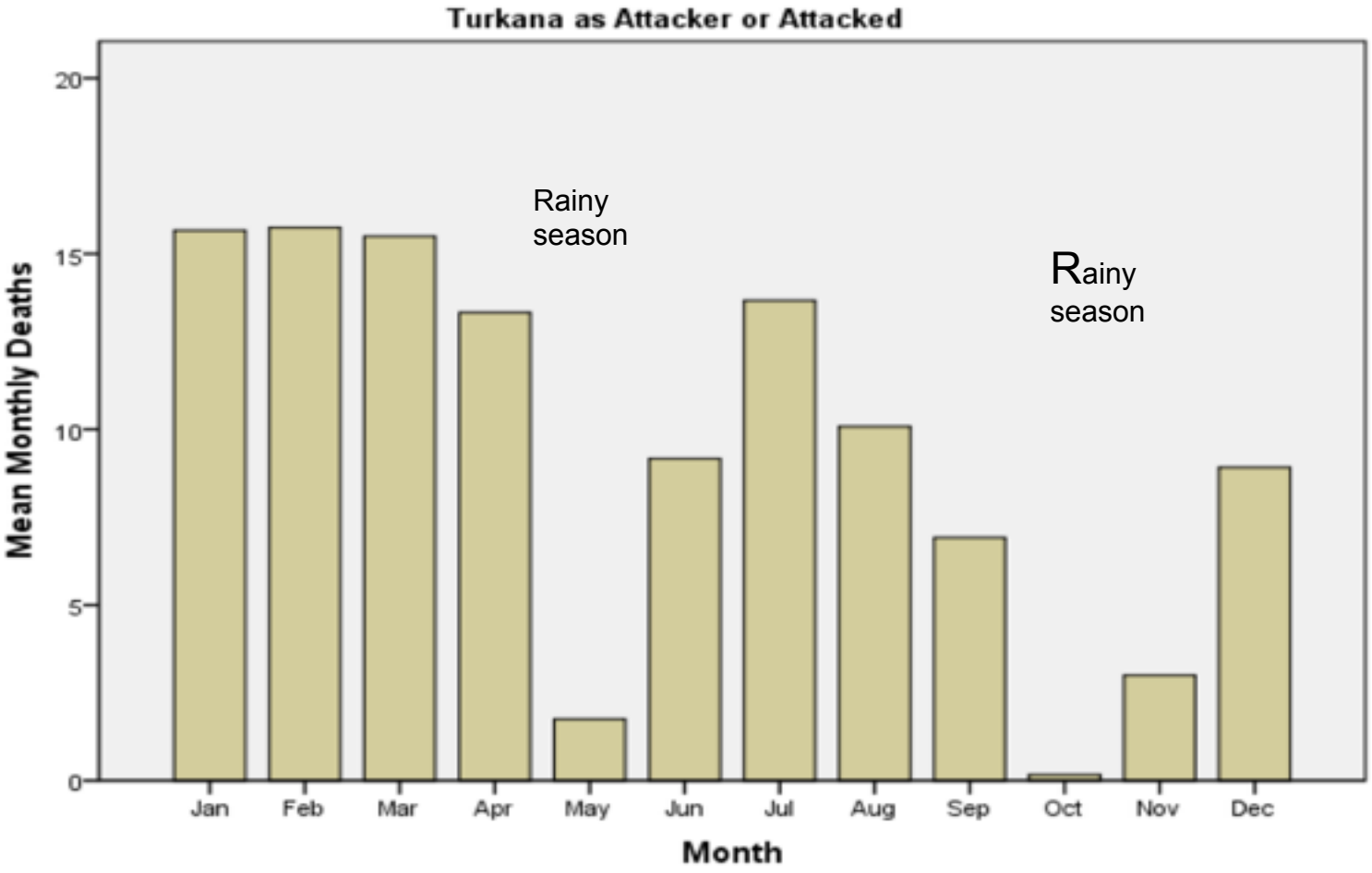
- Media bias
  - coverage notoriously limited to raids “large enough to be shocking” (McCabe 2004:90).
- Conceptual Issues
  - Different episodes can have “multiple causes, courses and consequences” (Bollig 2008).
  - No single cause, but a combination of political, social, and ecological factors, as well as events at particular times and in particular places" (McCabe 2004:91).

Analysis of Monthly Rainfall

- Do more intense livestock raids occur in wetter months?
- Using rainfall data obtained from NASA, our short answer is no.
- Our findings suggest a very different pattern from Marsabit.


Average Rainfall in Turkanaland by Month (1998-2009)
Based on All Months
Mean Monthly Rainfall (mm) in Turkanaland Across Years
0
20
40
60
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month

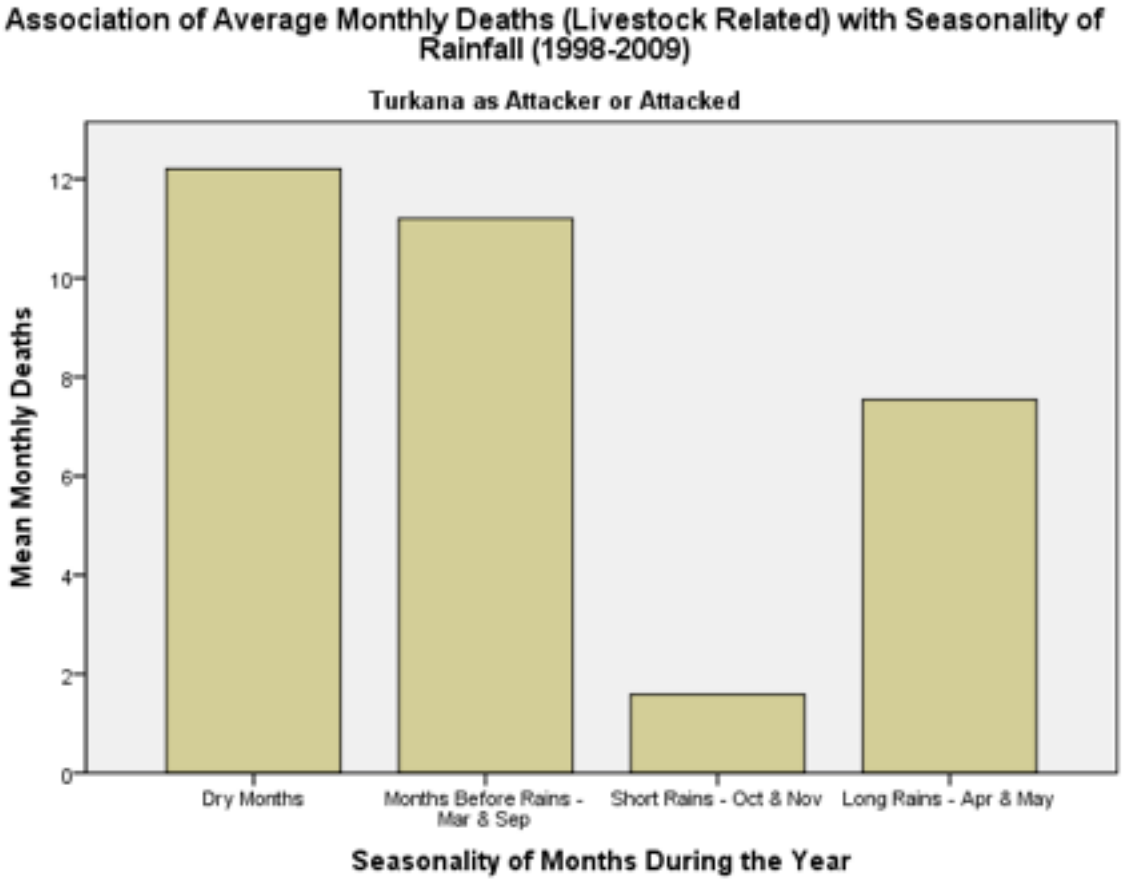
Average Monthly Deaths in Turkanaland due to Livestock Raids (1998-2009)



Peak in deaths not in rainy seasons

Accounting for March (Transitional month)

- March in most cases falls in between the driest season and the long rains (it's part dry and part wet).
- Some restocking takes place just before the heaviest rains (Witsenburg and Adano, 2009).
- This correlation appears especially true to **raids on Turkana** as opposed to **raids by Turkana**


Association of Average Monthly Deaths (Livestock Related) with Seasonality of Rainfall (1998-2009)
Turkana as Attacker or Attacked
Mean Monthly Deaths
0
2
4
6
8
10
12
Dry Months
Months Before Rains - Mar & Sep
Short Rains - Oct & Nov
Long Rains - Apr & May
Seasonality of Months During the Year

Are these trends statistically significant?

- Computed average monthly rainfall across the 12 years and correlated it with the average number of livestock-related deaths for that month
- Result shows a moderately strong correlation ($r = -.58$), and significant ($n=12$; $p < .047$, two tails).
- the *less* rain per month, the *higher* the deaths in livestock-related violence.

Conclusion

- What does this finding say about links between monthly rainfall variation and dynamics of livestock raids?
- The direction of the relationship is *opposite* to the direction found by Witsenburg and Adano: the *less* rain per month, the *higher* the deaths in livestock-related violence.

Acknowledgements

This research was supported by the Office of Naval Research ONR under MURI grant no. N00014-08-1-0921 to George Mason University with a subaward to the Human Relations Area Files (PI: Claudio Cioffi-Revilla; co-PIs: Carol R. Ember, Sean Luke, and Kenneth De Jong). The opinions, findings, and results are those of the investigators and do not reflect the views of the sponsors.

Current HRAF Team: Carol R. Ember (co-PI), Teferi Abate Adem, Ian Skoggard, and Eric C. Jones.

We specifically thank:

- Sophie Skoggard, for her work collecting and summarizing violent episodes from Lexus/Nexus
- Kate Cummings for entering the data into a database
- Brittany Burke for helping to locate places of conflict from Google Earth
- Atesmachew Hailegiorgis and Chenna-Reddy Cotla for extracting rainfall data from NASA which is archived and distributed by the Goddard Earth Sciences Data and Information Services Center
- A.J. Faas for summarizing statistics across all the data points, and identifying the grids for Turkana.