

Extreme Weather Reporting and Climate Change Attribution: A Textual Analysis of Two Newspapers

Anjali Yadav ^{1*}, Asmaa Abdelkhalek ², Jacob Habinek ³

¹ *Department of Humanities and Social Sciences, India Institute of Technology Kanpur*

² *Department of Political Science, Cairo University*

³ *Institute for Analytical Sociology, Linköping University*

*anjaliy20@iitk.ac.in

Abstract

Computational text analysis methods have been used to access, process and analyze a large corpus of digitized text data to study the trends in discourses and narratives over time. In this study, we employ corpus-based narrative analysis to understand the patterns of media reporting for different categories of extreme weather events (EWE).

Media reporting is an important site of science communication between experts and laypersons. It facilitates sharing information and ideas, shaping public opinion and building people's perceptions on the most pressing issue of the day such as climate change, its causes and consequences.

This study aims to investigate the various narrative discourses about two EWEs, hurricanes and droughts, by analyzing the trends in their occurrence and see if they match with the frequency of media reporting of these events. Next, it investigates how (if) these EWEs are reported differently in newspaper articles.

We employed computational text analysis methods to identify patterns, themes and linguistic features of all the relevant newspaper articles featuring 'hurricane' and 'drought' from 1997 to 2022. Using The Guardian's API, we accessed the relevant news articles and built a body text of each article to create a corpus of 10903 articles for 'hurricane' and 13901 for 'drought'. We ran topic modeling to find categories and patterns in the text. Further, we created five categories of narrative framings and their indicators and used them to perform keyword analysis to match and count their co-occurrences.

Comparative analysis of the two corpora shows a temporal increase in media reporting of EWEs over the last 25 years. Among the two EWEs, droughts are more likely to be attributed to climate change in the news reports. However, for narrative framings related to the economic consequences of EWEs, hurricanes exhibit a greater correlation than drought. Next, we aim to analyze another print media, The New York Times, employing the same procedures for broader generalization and higher validity of these findings. The findings of this study hold important implications for science communication and public policies in informing people, building communities' climate resilience and formulating climate solutions.

Keywords: Computational text analysis, Media reporting, Climate change, Topic modeling, Environmental discourse