

Communicating Climate Extremes Impacts to Mobilize Action: Does Framing Matter?

How Communication Format Impacts Perceptions of Heatwave Severity

INTRODUCTION

There are many ways to communicate facts about climate change that are scientifically and statistically identical but may have different psychological impacts. The most common ways of communicating heat waves, a climate change event, are:

- **Frequency** = “This type of heatwave will now occur **once every 10 years.**”
- **Likelihood** = “This type of heatwave will become **10 times more likely.**”
- **Temperature** = “This type of heatwave will become **1.6 °C warmer.**”

Although these two statements, ‘the heatwave was made 150 times more likely’ and ‘the heatwave was made 1.2 °C warmer’ are equivalent, we hypothesize that they do not carry the same psychological weight.

If this is true, the way climate change information is presented, particularly relating to extremes, may influence the way people engage with climate science information and their willingness to take adaptive or mitigative behaviours.

OBJECTIVE

Identify the most effective climate communication format using reported concern as an indicator of climate action.

HYPOTHESES

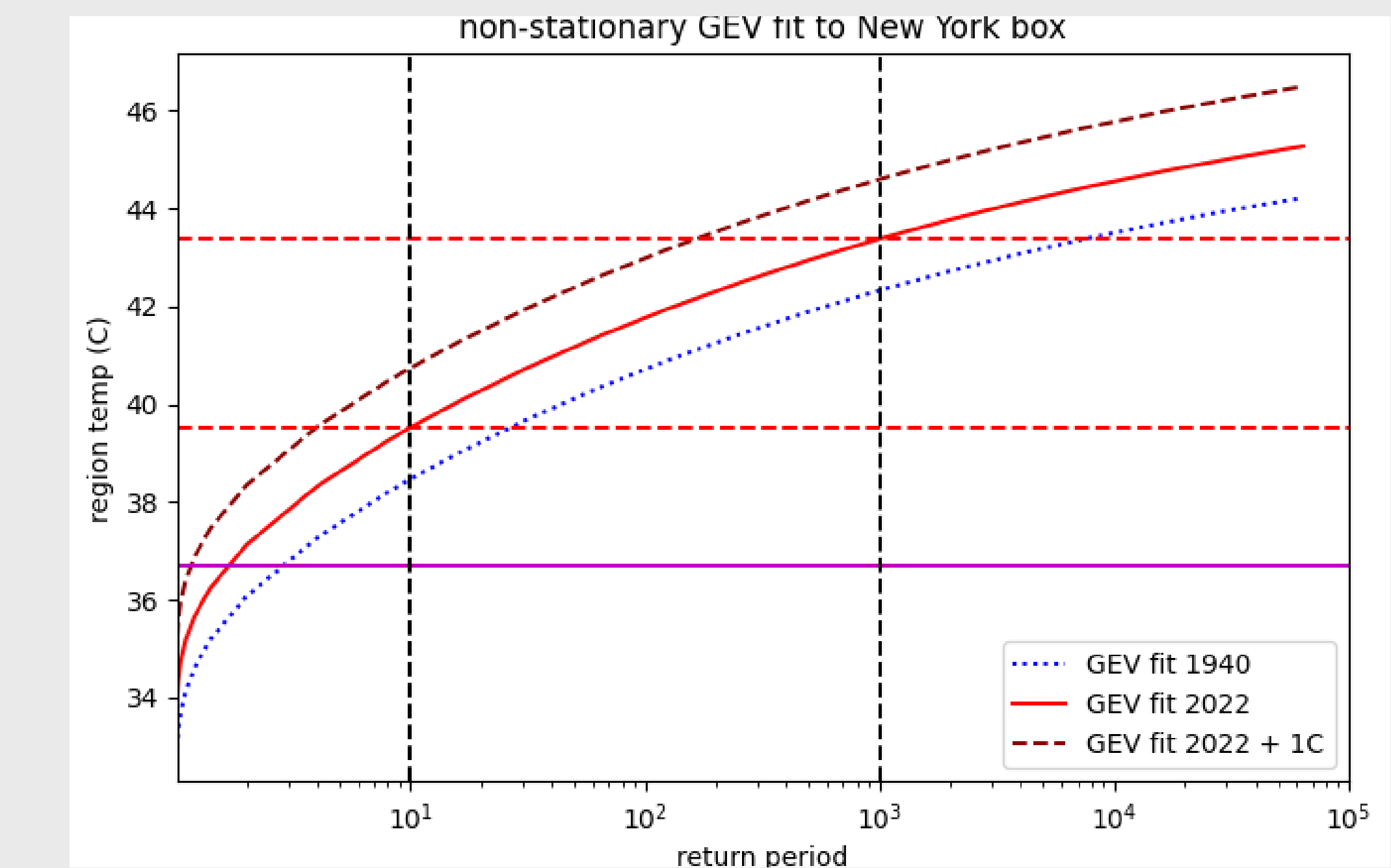
H1: Perception of severity by participants will differ across temperature, frequency and likelihood formats.

H2: Severity estimates from participants will differ between moderate and severe heatwaves.

METHODOLOGY

- Mixed 2 x 3 survey design
- Response formats:
 - Temperature = °F hotter
 - Frequency = x times in x years
 - Likelihood = x times more likely
- 882 participants
 - 442 participants in moderate condition
 - 443 participants in severe condition

CLIMATE DATA ANALYSIS



A 2022 moderate heat wave in the selected location had a temperature of 103°F (39.5°C) and would occur once every 10 years. Mean baseline temperature from survey estimates = 102°F (vs 103°F).

A severe heat wave would have had a temperature of 110°F (43.4°C) and would occur once every 1,000 years. Mean baseline temperature from survey estimates = 105°F (vs 110°F).

The moderate heat wave is expected to have a temperature of 105°F (40.6°C) in a 1°C hotter climate. The severe heat wave is expected to have a temperature of 112°F (44.4°C) in a 1°C hotter climate.

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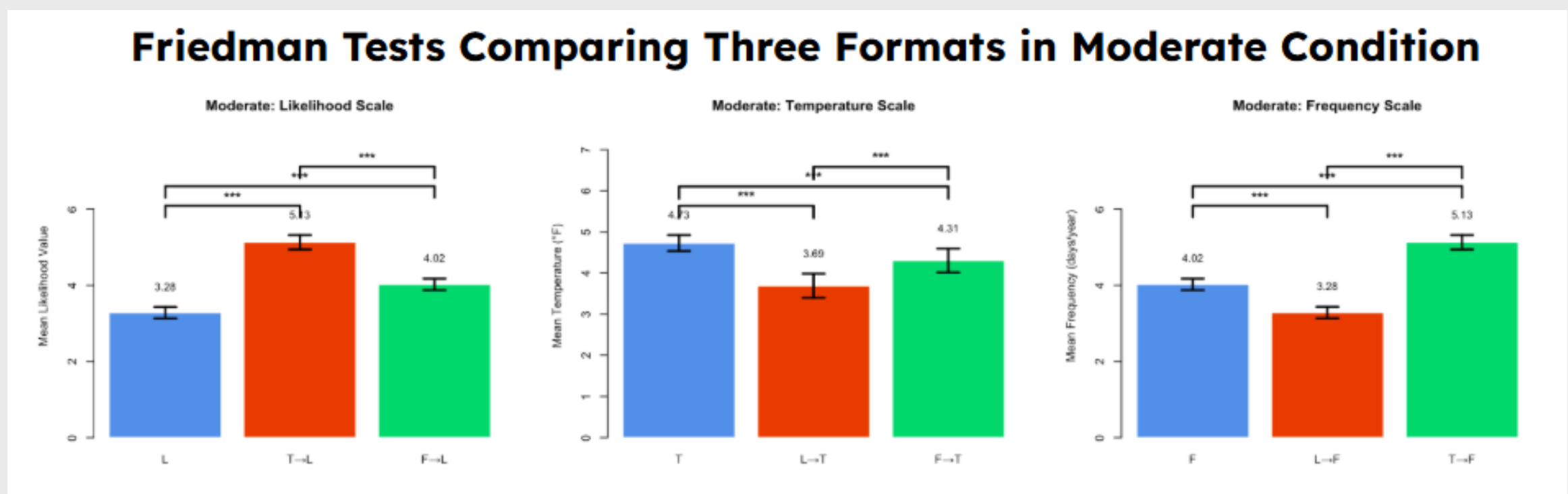
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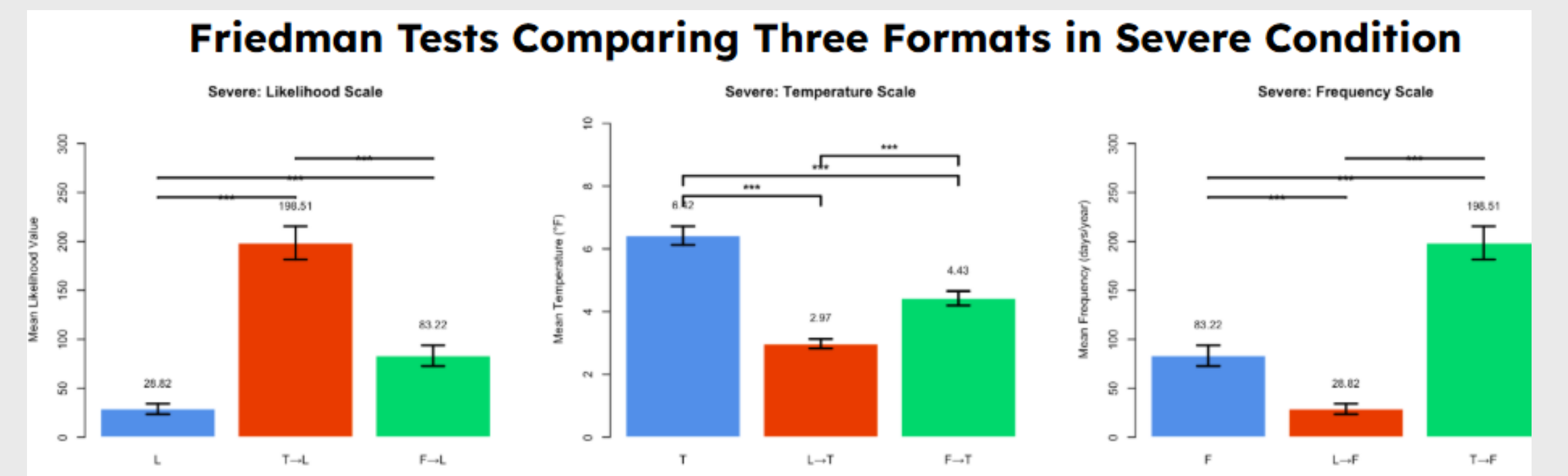
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RESULTS - HYPOTHESIS 1



RESULTS - HYPOTHESIS 2



CONCLUSIONS

In the moderate heat wave condition, the temperature format (T) had the highest mean value while the likelihood format (L) had the lowest mean value. Likelihood format (L) also had the lowest threshold of concern in the severe heat wave condition, with starker differences. **This means the likelihood format had the lowest threshold concern, making it the most effective framing for inducing climate action.**