

When Climate Scientists Speak, Do Policymakers Respond?

A Computational Study of Canadian Climate Discourse (1978-2024)

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Introduction

Scientific knowledge enters policy debates through processes of « *translation, mediation, and political interpretation* »

HAAS 2004; PETERS 2007

Discourse coalitions are networks of actors whose collective media presence shapes how climate change is understood. They function as « *interpretive communities that promote specific ways of understanding climate issues* »

HAJER 1995; LACHAPPELLE & PATERSON 2013

Framing determines « *how phenomena are understood, what solutions seem appropriate, and who appears qualified to speak* »

ENTMAN 1993; DRUCKMAN 2001

EMPIRICAL GAP

We know that political actors shape the narrative. But when and how do they respond to scientists? Systematic evidence remains elusive.

OBSERVATION

The actors who define climate change in the media have changed. The question is whether this represents a response to science, or a capture of the issue.

RESEARCH QUESTION

Do policymakers respond to scientists when climate change enters public debate?

A transformation in 35 years

Toronto Star

SUMMER 1988

Summer of '88 could be hint of the future. Scientists fear warming trend will

Globe and Mail

SUMMER 2023

*Poilievre seizes the moment on Atlantic Canada carbon-tax fears. (...) The
Conservative leader said...*

Same type of events, but different dominant actors and frames.

PART I

The CCF Database

Canadian Climate Framing

The CCF database: Canadian Climate Framing



Paper



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SQP2825

266K

Articles

1978 – 2024

20

Newspapers

EN + FR

9.2M

Annotated sentences

BERT / CamemBERT

65

Categories

hierarchical

Articles per year (1978–2024)

1978 1990 2000 2010 2024

The largest ML-annotated climate discourse corpus in Canada

Macro F1 : 0.866 – Lemor, Pillod, Taylor (2025)



ONTO STAR

THE GLOBE AND MAIL

NATIONAL POST

CALGARY HERALD

EDMONTON JOURNAL

WEEKEND

MONTREAL GAZETTE

LA PRESSE

LEDEVOIR

Winnipeg Free Press

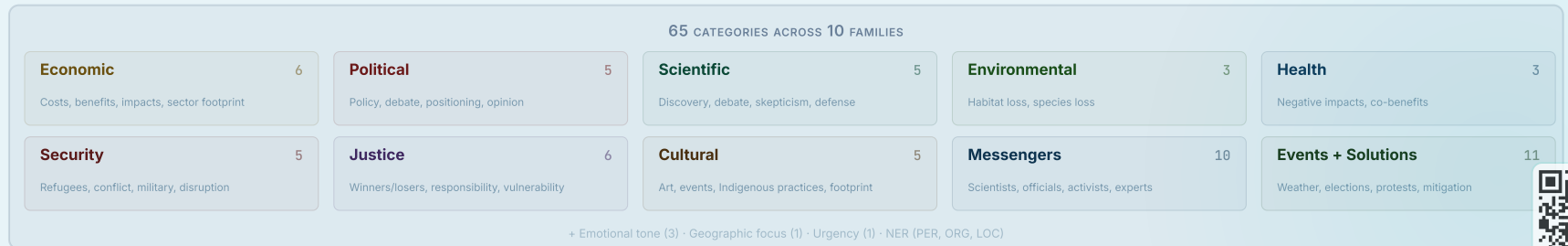
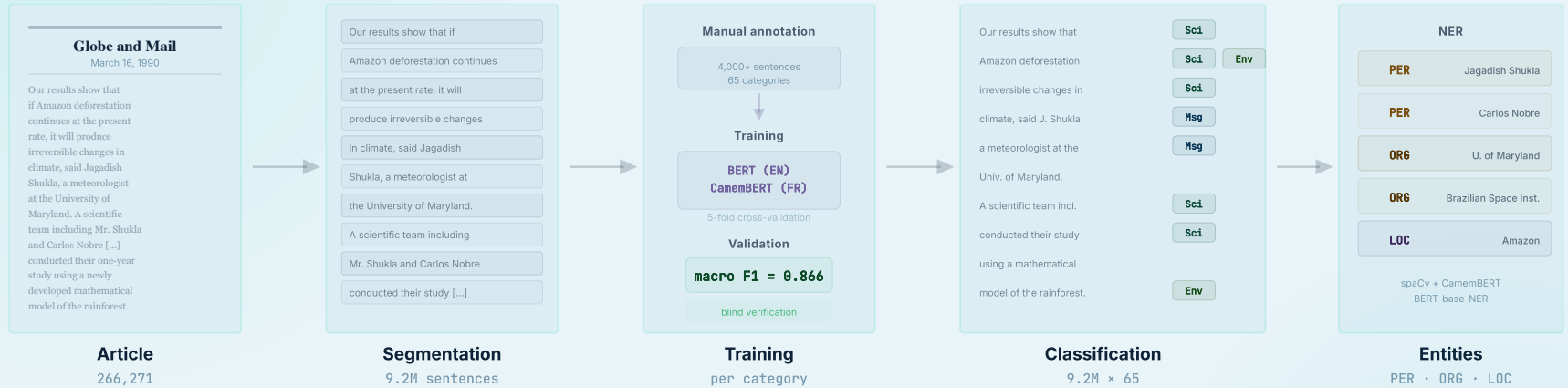
toronto SUN

LA PRESSE +

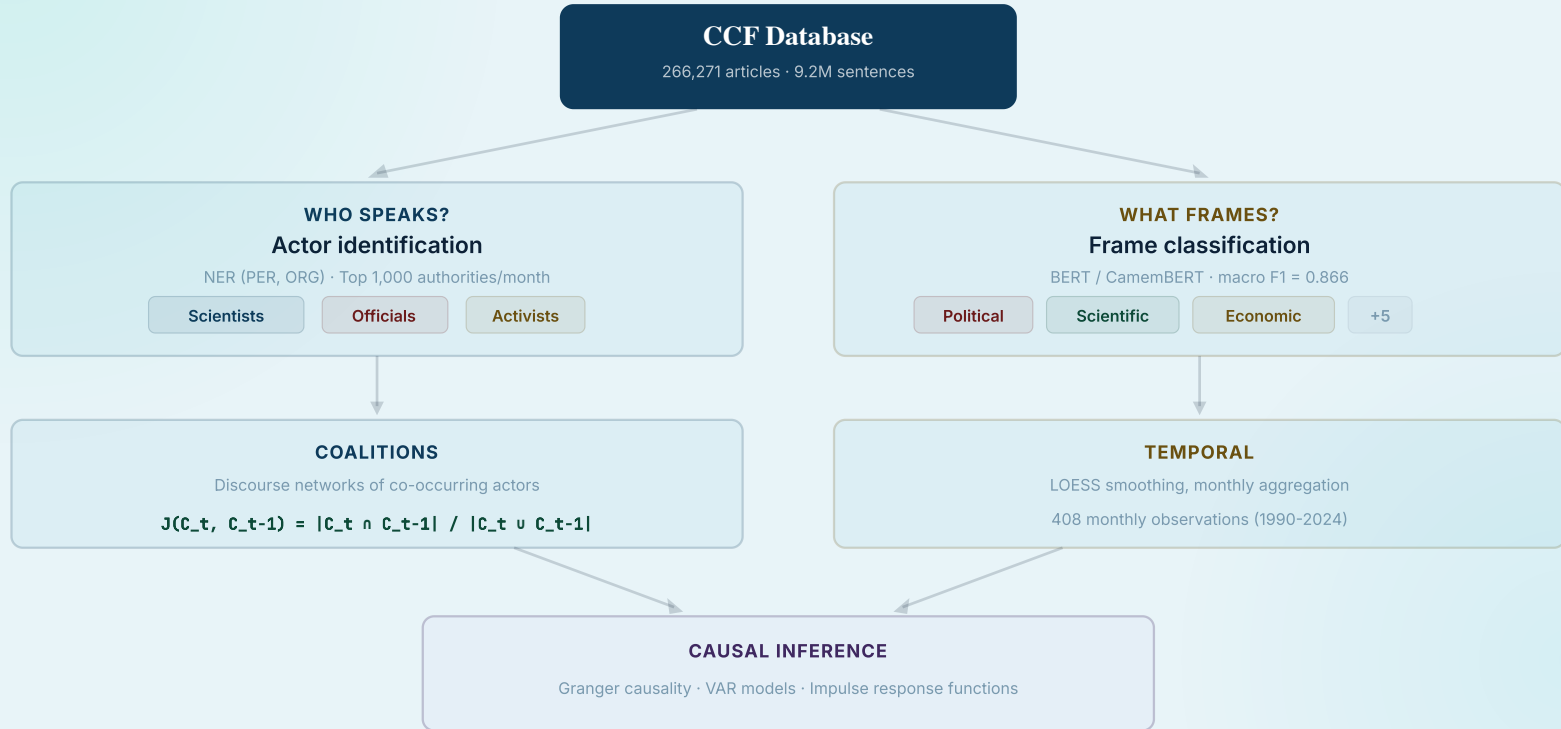
ChronicleHerald

TIMES

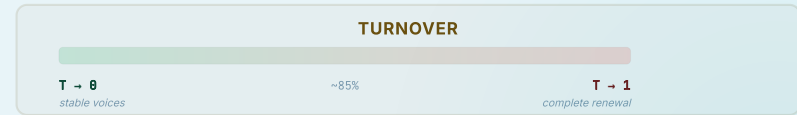
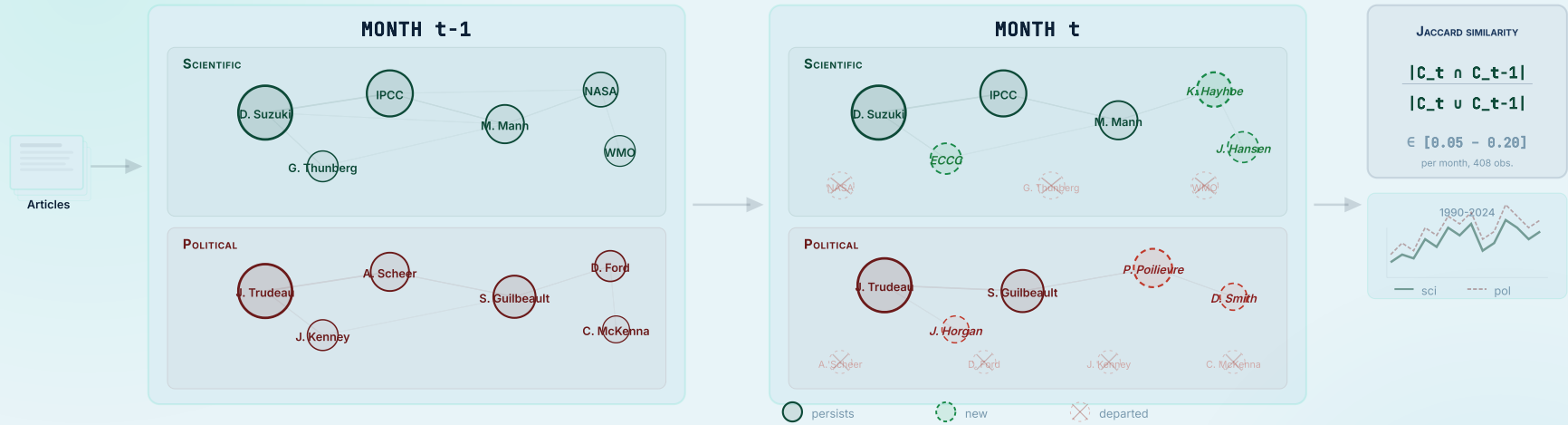
From articles to structured data



Analytical framework



How coalitions are extracted



High J + Low T = stable coalition
Same actors control the narrative

Low J + High T = unstable coalition
New voices enter, windows of opportunity

Granger causality: do coalition changes precede frame shifts?

PART II

Three regimes of climate discourse

How framing shifted over 46 years

Evolution of thematic frames (1978-2024)

Average proportion of sentences per frame per year, 266K articles from 20 newspapers

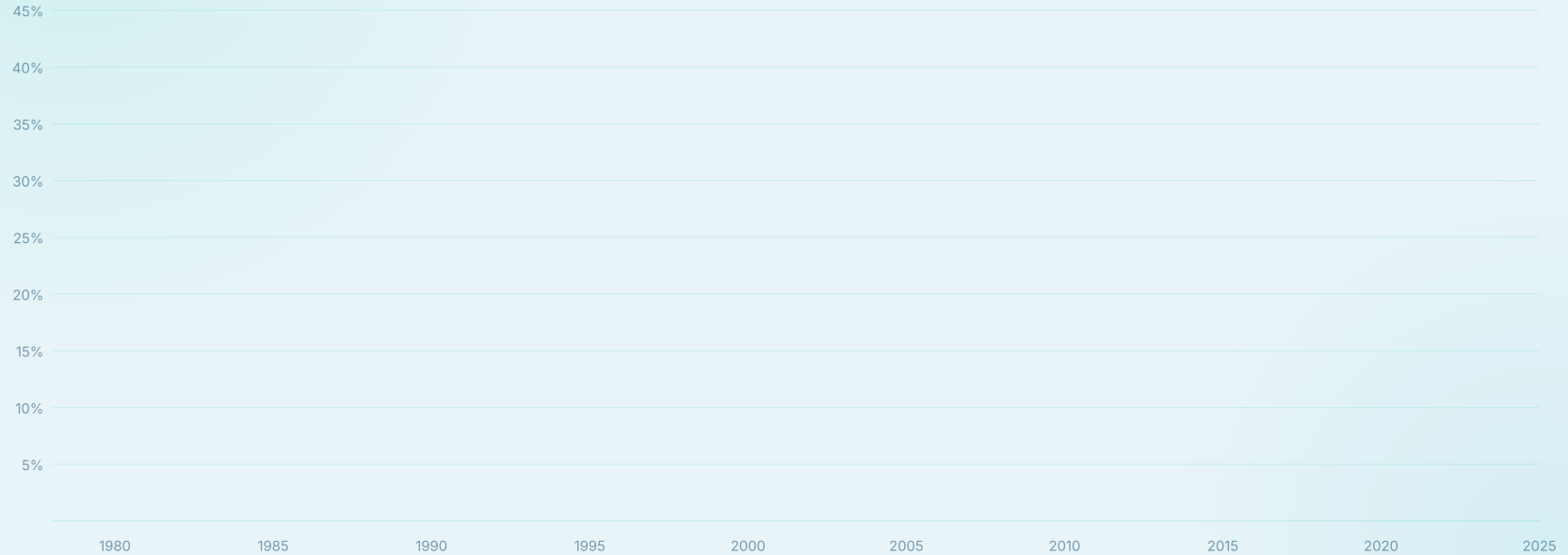


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Scientists vs. policymakers over time

Actor presence (dashed) and thematic frames (solid), LOESS 10%



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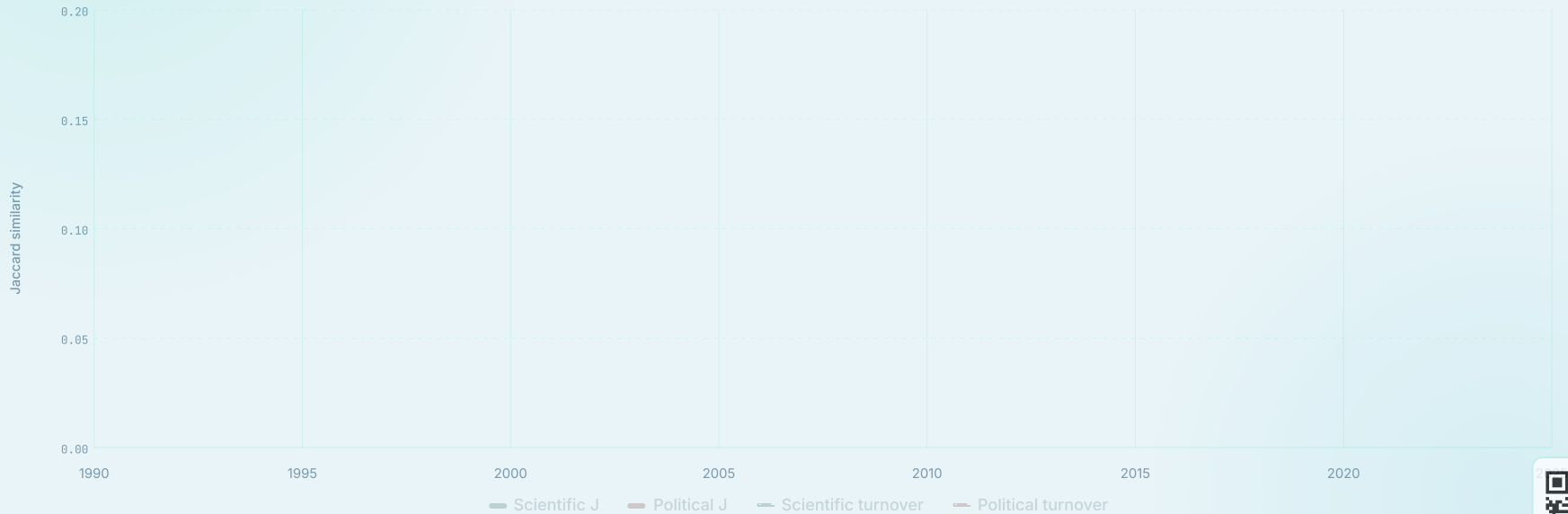
PART III

Coalitions and causality

Stability, instability, and Granger tests

Coalition dynamics (1990-2024)

Jaccard similarity (solid) and turnover rate (dashed), 6-month rolling average



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Political instability as opportunity

Comparing frame usage between stable and unstable coalition periods



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Diverging effects of political stability

Political coalition stability vs. frame usage, 424 monthly observations

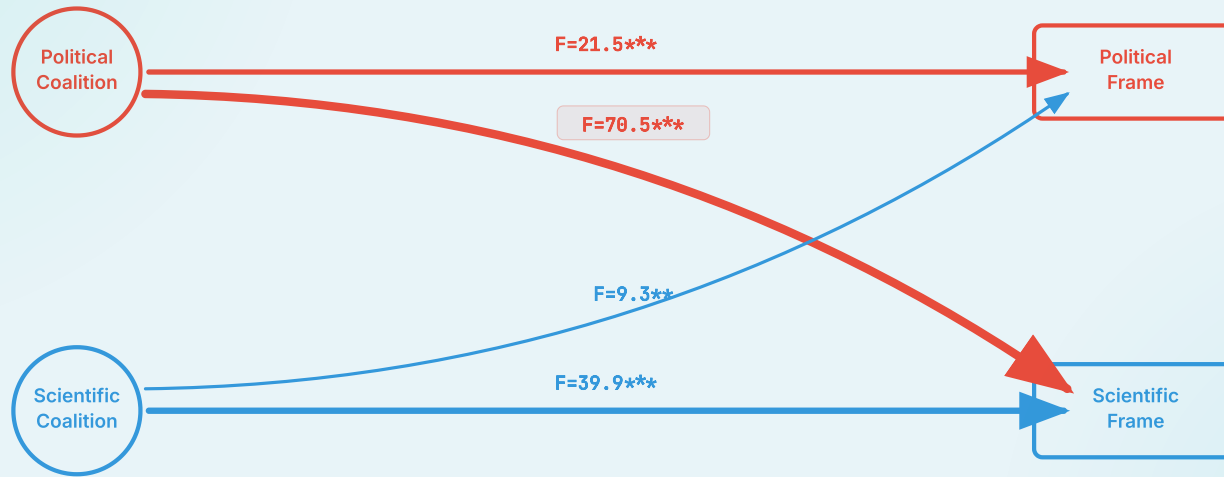


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Asymmetric causal relationships

Granger causality tests, 1-month lag, 420 monthly observations



Political coalitions powerfully shape both political AND scientific frames



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Main conclusions

1

Policymakers do respond

But they control when and how scientific knowledge enters public debate. They shape the narrative rather than merely respond to it.

2

Political stability stifles scientists

Stable coalitions suppress scientific discourse by 40%. Instability creates windows where scientific framing increases by 151%.

3

A failure?

The takeover of media discourse by politicians at the expense of scientists reflects a politicization of the issue. Is this a failure for scientists?

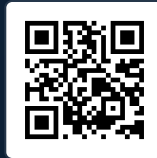
Coalition stability determines scientific influence on discourse

Thank you!

Questions and discussion

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