

Wave-Wall Theory of Geopolitics Explorer v3.0.1

Formal Methodological Note

Purpose

The Wave-Wall Theory of Geopolitics Explorer is an academic heuristic and hypothesis-generation tool. It is designed to help researchers compare how a central issue moves through a selected election cycle, institutional boundary, or comparative political moment. It is not a forecasting engine, partisan scoring system, or causal identification model.

Ontological Commitments

The model begins from four primitives. The wave is mobilizing issue energy. The wall is the institutional, cultural, legal, party-system, media, or social boundary against which that energy moves. Froth is an emergent boundary layer of claims, slogans, charged terms, and fringe or semi-detached ideas that may cross the boundary and persist beyond the initiating conflict. Social memory is the residue of that process across later cycles.

The primary state variable is issue energy, not party identity. Parties, institutions, media systems, social movements, legal regimes, and platform infrastructures are treated as boundary conditions and transmission environments.

Source Processing

The tool accepts pasted text, URL-extracted text, or text-readable PDF input. Pasted text remains the preferred scholarly workflow because it gives the researcher control over the primary source and makes the run more reproducible. URL and PDF extraction are best-effort utilities. Scanned PDFs require OCR outside this v3.0.1 package.

Issue Identification

The deterministic issue detector uses an editable taxonomy in data/issues.json. Keyword and phrase matches are weighted with diminishing returns, then scaled by source length. The top issue becomes the central issue unless optional AI-assisted extraction is enabled and a configured adapter returns a supported issue identifier. Any successful AI-assisted result is explicitly labeled in the interface and report.

Core Equations

$$\text{IssueEnergy} = 0.28 + \text{TopIssueScore} \times 0.68 + \text{SourceLengthAdjustment}$$

$$\text{WaveAmplitude} = \text{IssueEnergy} \times (0.74 + \text{CycleTension} \times 0.36) + \text{EmotiveSignal} \times 0.12$$

$$\text{WallResistance} = \text{InstitutionalSignal} \times 0.50 + \text{CycleTension} \times 0.22 + \text{WallRoughness} \times 0.18 + \text{IssueDiversity} \times 0.10$$

$$\text{FrothDensity} = \text{IssueEnergy} \times 0.30 + \text{EmotiveSignal} \times 0.28 + \text{RareSignal} \times 0.25 + \text{WallRoughness} \times 0.17$$

$$\text{Permeability} = \text{IssuePortability} \times 0.42 + \text{UserPermeability} \times 0.34 + (1 - \text{WallResistance}) \times 0.14 + \text{FrothDensity} \times 0.10$$

$$\text{MemoryRetention} = \text{CycleMemoryBaseline} \times 0.35 + \text{IssueMemoryHalfLife} \times 0.30 + \text{FrothDensity} \times 0.20 + \text{UserMemoryWeight} \times 0.15$$

$$\text{ConfidenceScore} = \text{SourceConfidence} \times 0.42 + \text{ArchiveClarity} \times 0.34 + (1 - \text{Speculation}) \times 0.24$$

Outcome Modes

The model reports five descriptive outcome potentials: absorption, reflection, reframing, fragmentation, and institutionalization. These are interpretive modes, not predictions. A high value means that the current parameter vector makes that mode useful for hypothesis generation.

Interactive Inspection

Every major visual element in v3 is inspectable. Metrics, wave forms, wall boundary, froth points, memory strata, issue rows, outcome cards, model rows, and hypothesis cards open an equation/data panel. The panel records the equation or rule, current value, model inputs, interpretation, source evidence when available, evidence needed, and counter-evidence.

Hypothesis Cards

Hypothesis cards transform model outputs into testable research prompts. Each card states a possible pattern, lists the model basis, identifies evidence needed, and names counter-evidence that would weaken the hypothesis. This structure is intended to prevent the model from being mistaken for a prediction or ideological claim.

Sensitivity Analysis

The sensitivity mode perturbs elasticity, permeability, roughness, source confidence, and memory retention by +/-0.15. Changes in dominant outcome mode or major metric movement should be documented before using a run in scholarly writing.

Reporting and Reproducibility

The PDF report includes selectable sections, run metadata, model equations, hypotheses, sensitivity results, source provenance, limitations, and methodological appendix notes. JSON export preserves the exact cycle, parameters, metrics, outcomes, and evidence snippets.

Scope Conditions

The model is descriptive, heuristic, and exploratory. It does not estimate treatment effects, identify causality, predict elections, rank political actors, or validate source truth claims. Future-cycle outputs are scenario spaces with widening uncertainty bands. Disagreement with model outputs should be treated as useful data for ontology revision, taxonomy refinement, and methodological critique.