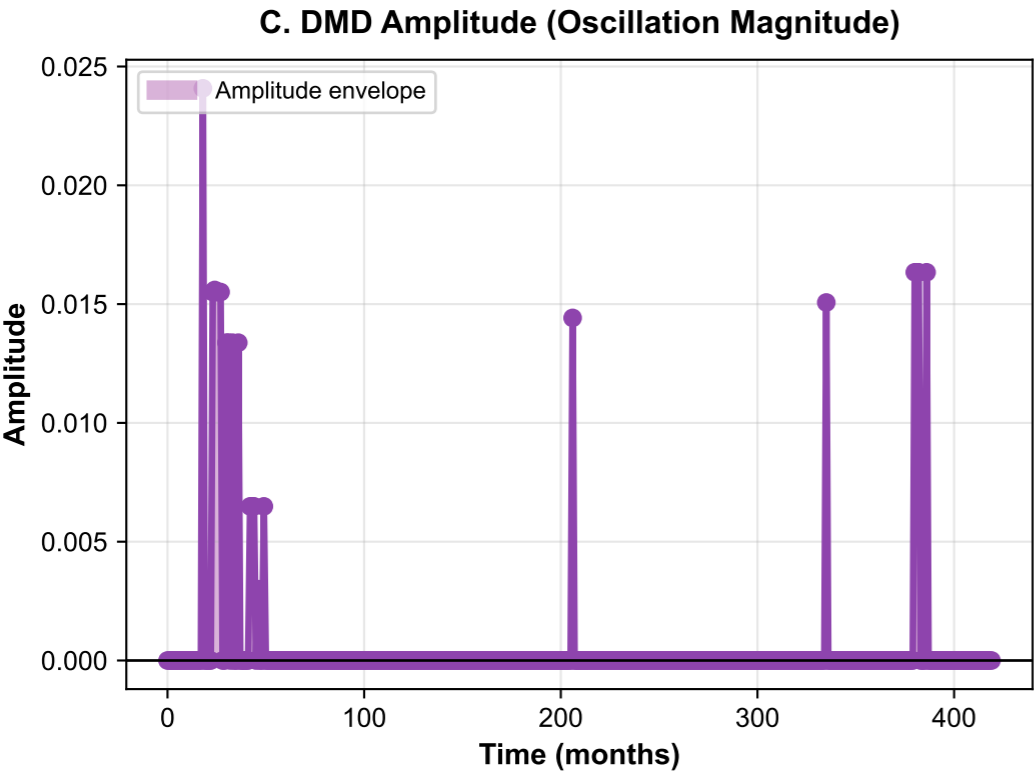
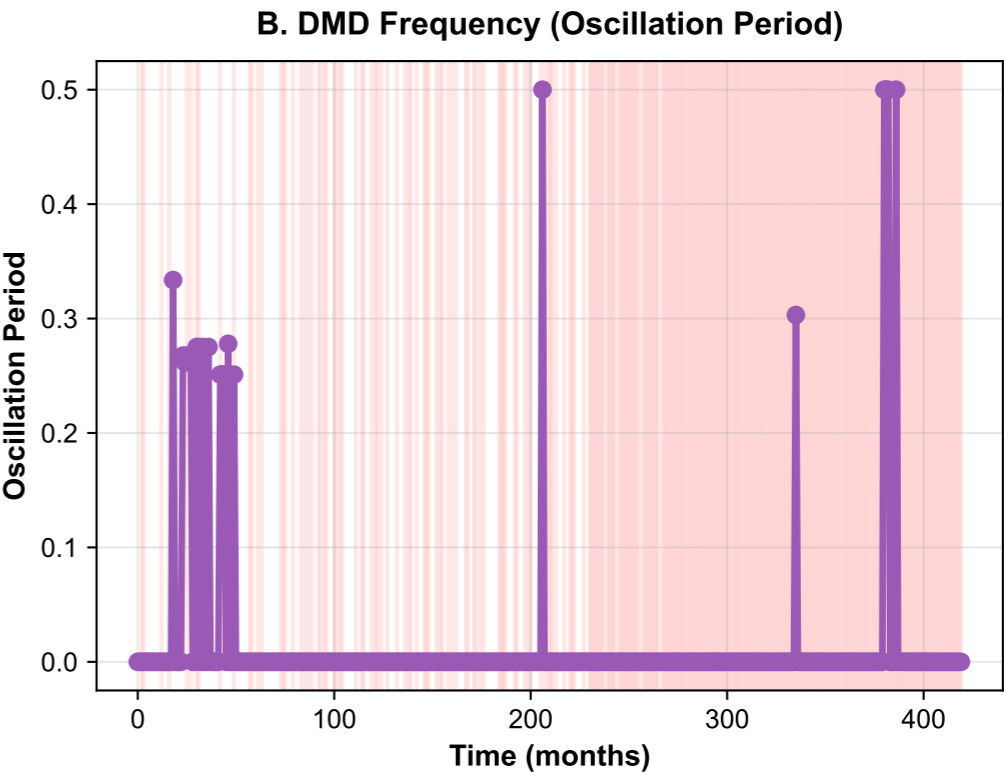
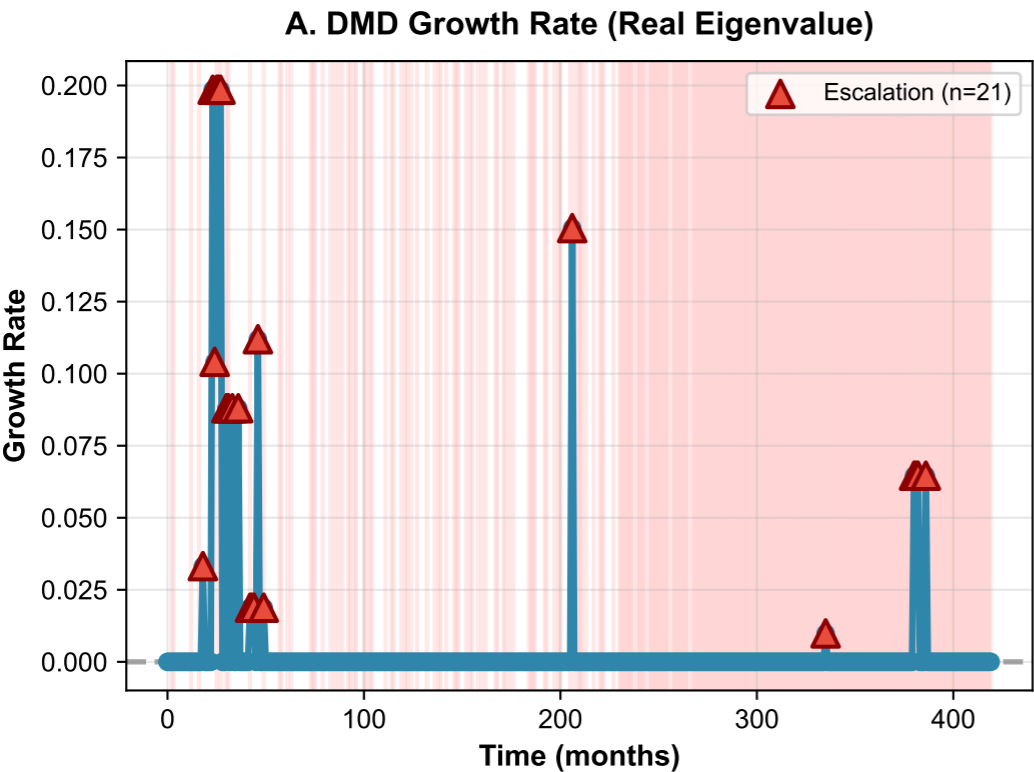


DMD Temporal Modes: Real Crisis Examples with Convergence Analysis



DMD TEMPORAL MODES: REAL DATA

Example: Sudan
Eastern Pastoral (420 periods)

THREE DMD FEATURES

A. Growth Rate: 21 escalation periods

B. Frequency: Oscillation period (seasonal)

C. Amplitude: Pattern magnitude

CONVERGENCE

83.1% success (Baum-Welch algorithm)
16.9% failure (discarded)

RARE EVENTS FOCUS

11,836.0/63,140 crises (18.7%)
High humanitarian impact

FEATURE IMPORTANCE

Growth rate: Rank 28 (2.1%)
Complements HMM regime transitions

Dynamic Mode Decomposition (DMD) extracts temporal modes from multivariate news coverage time series. Real data: Sudan Eastern Pastoral, n=420 periods. Three DMD features shown: Panel A (Growth Rate - real eigenvalue, n=21 escalation periods), Panel B (Frequency - oscillation period), Panel C (Amplitude - oscillation magnitude). DMD convergence rate: 83.1% (Baum-Welch algorithm, 12-month rolling windows). Rare events focus: 18.7% of observations are crises with high humanitarian impact. DMD growth rate ranks 28 (2.1% importance), complementing HMM regime transitions. Crisis periods shown as red shading. Escalation (growth>0) marked with red triangles.