Studying the Effect of Natural Disasters on Economic Activity:
A first Approach using Night-Time Luminosity Data

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June 30, 2017

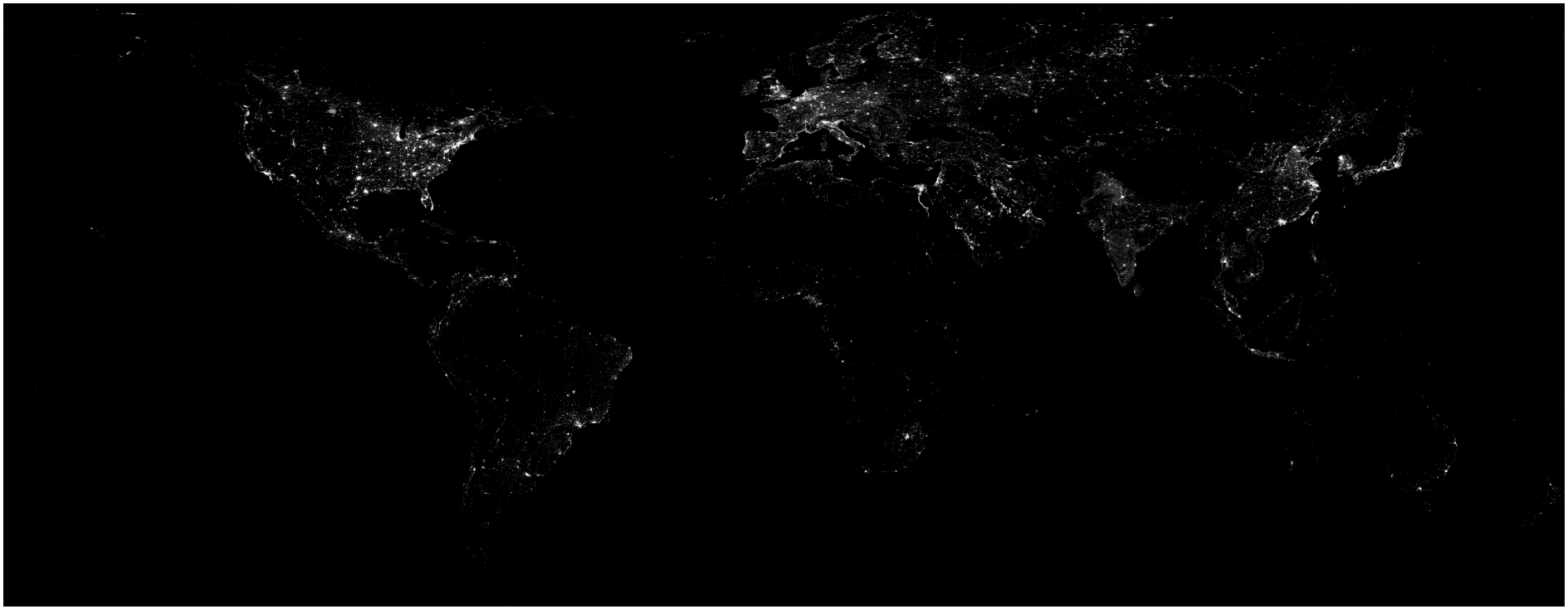


Figure: Absolute change in luminosity in Tocopilla

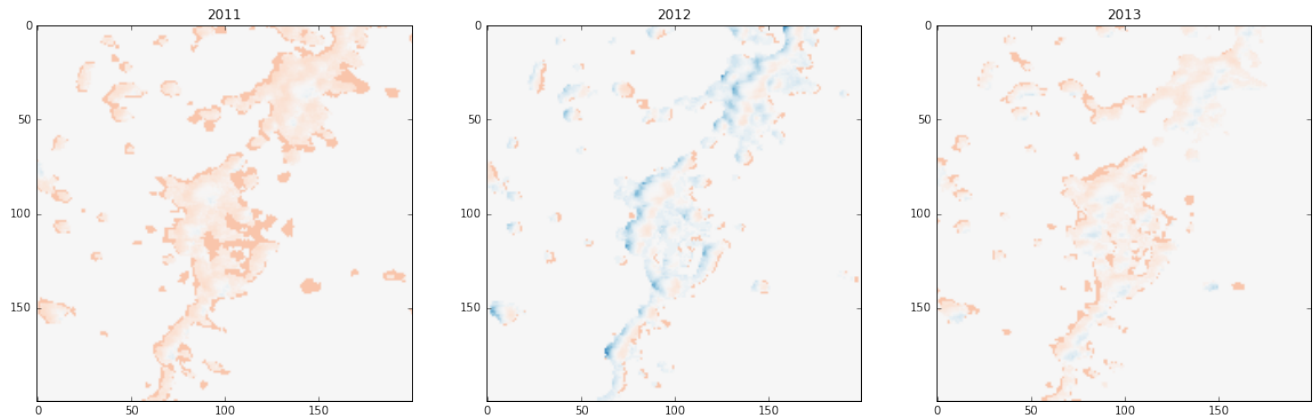
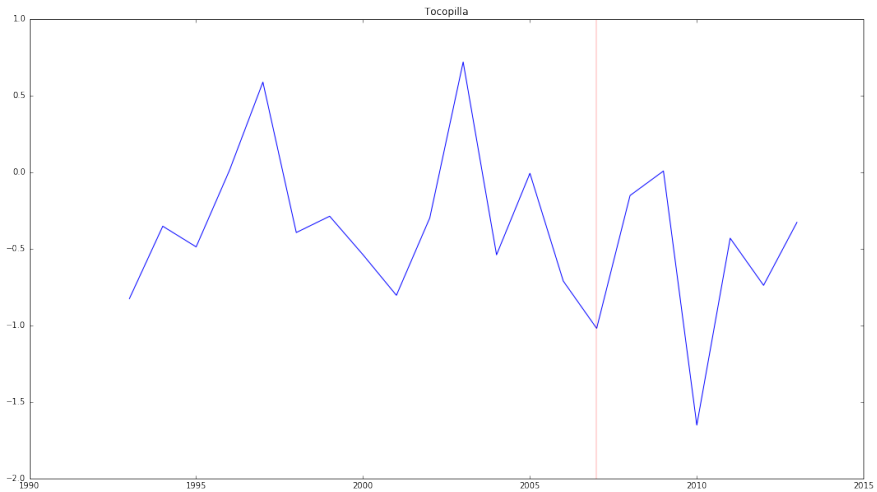


Figure: Absolute change in luminosity in Maule



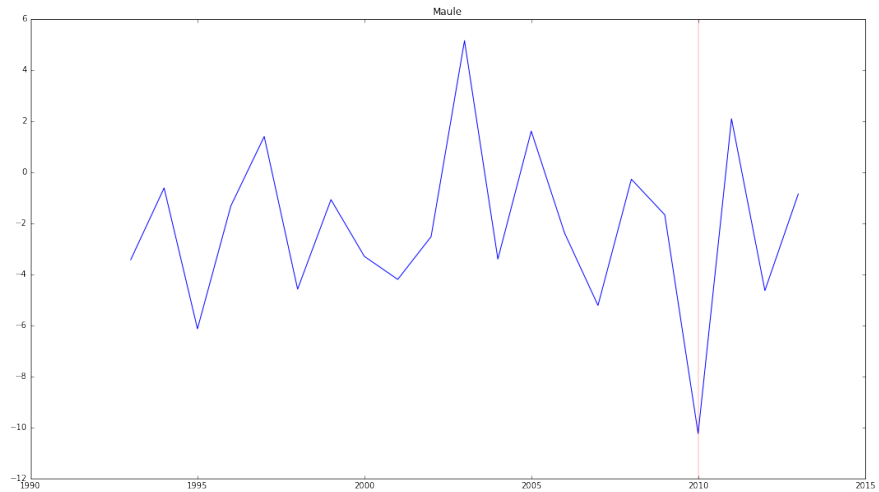


Figure: Tocopilla and Maule Luminosity Sum Time Series

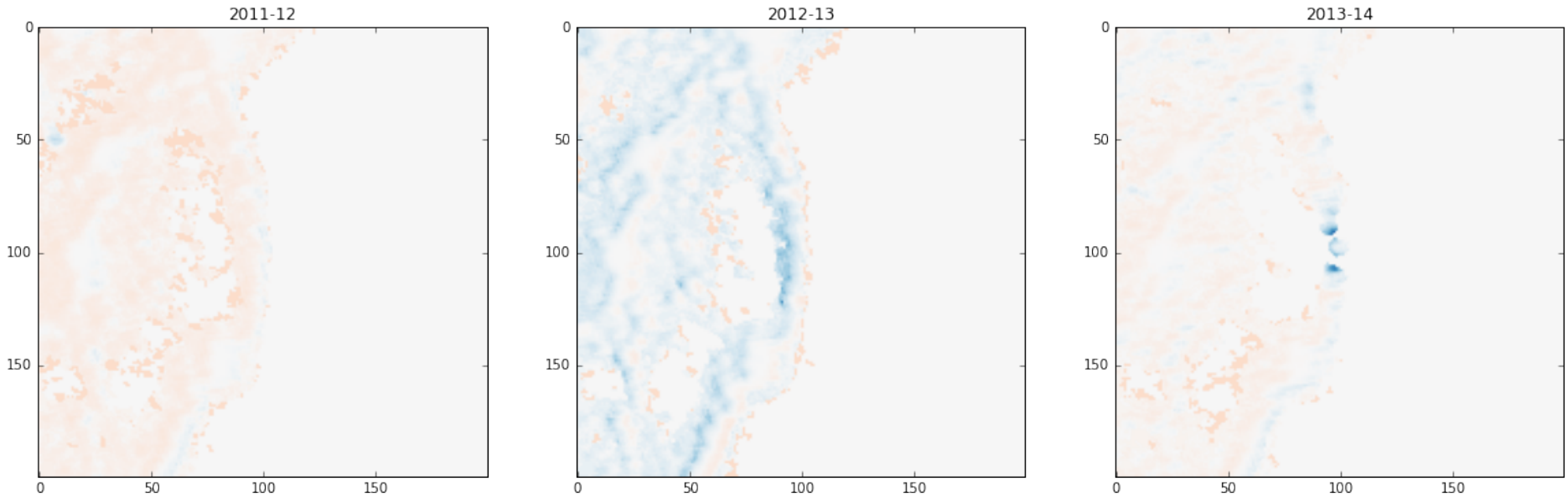


Figure: Fukushima Luminosity Delta around Tsunami Occurance

Modelling Earthquake Impact Linearly Decaying with Distance

Disco vs. Luminosity

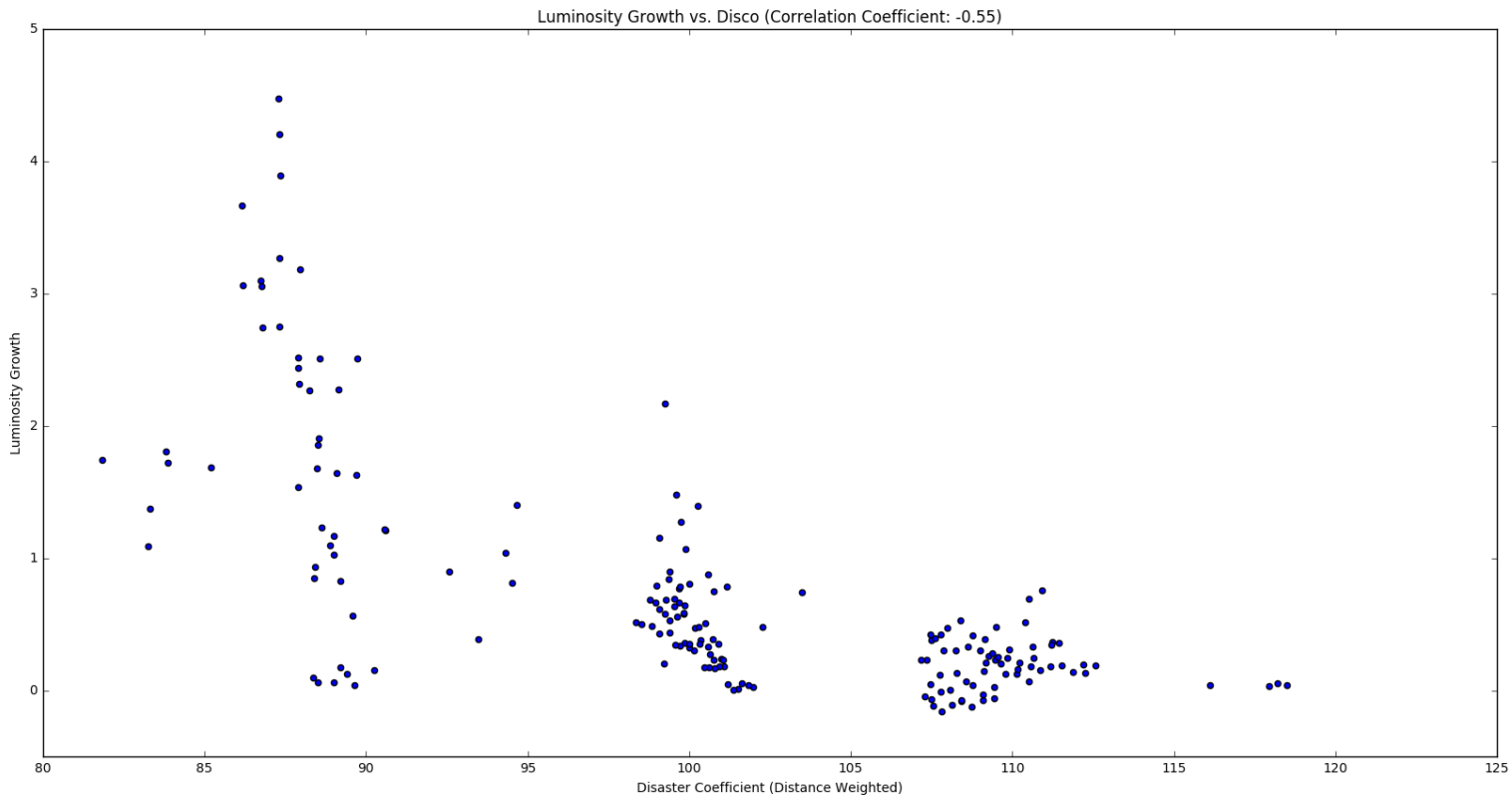


Figure: Luminosity Growth 1992-2013 plotted against a linearly decaying disaster coefficient for 150x150 image sections.

Modelling Earthquake Impact based on Institutional Reports

Earthquake Lag Coefficients

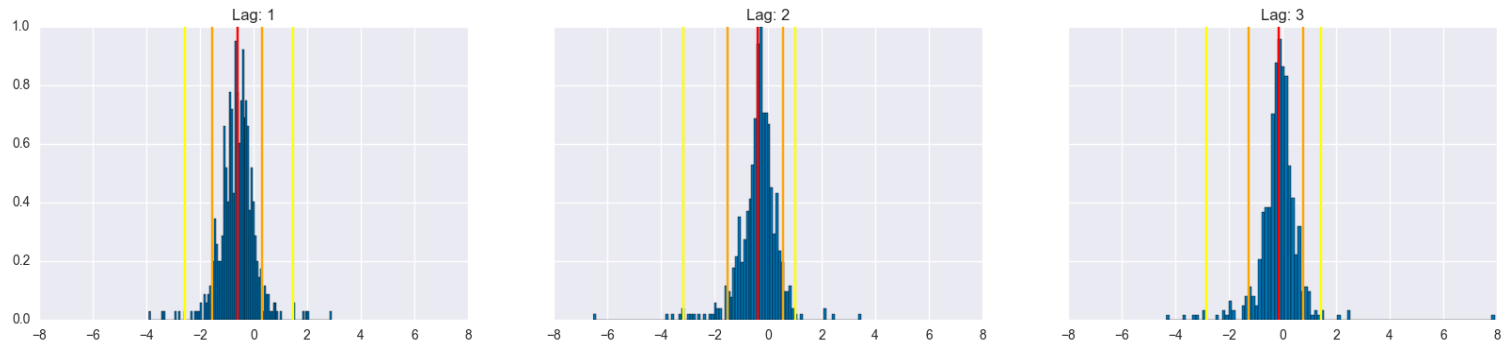


Figure: Distribution of Lag Coefficients for Earthquakes in Vector Autoregression Models per City with 95th and 99th Percentiles

Modelling Earthquake Impact based on Institutional Reports

Earthquake Lag Coefficients

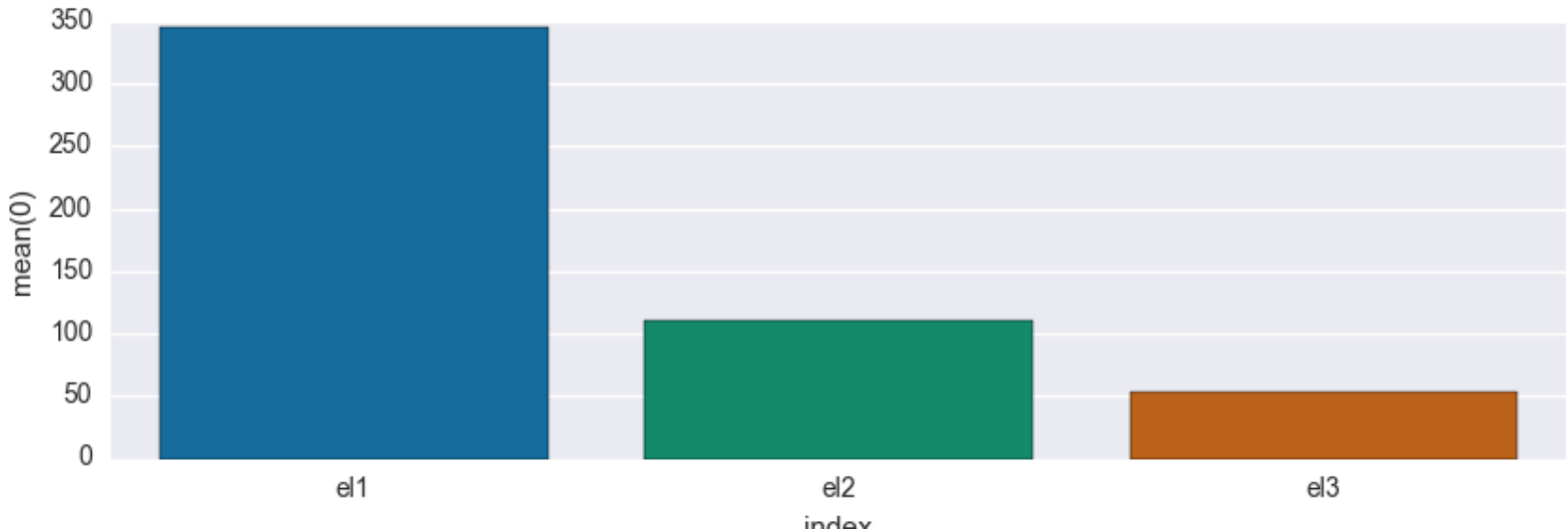


Figure: Count of the most impactful earthquake lag coefficient across all cities

Panel Model

Region Series

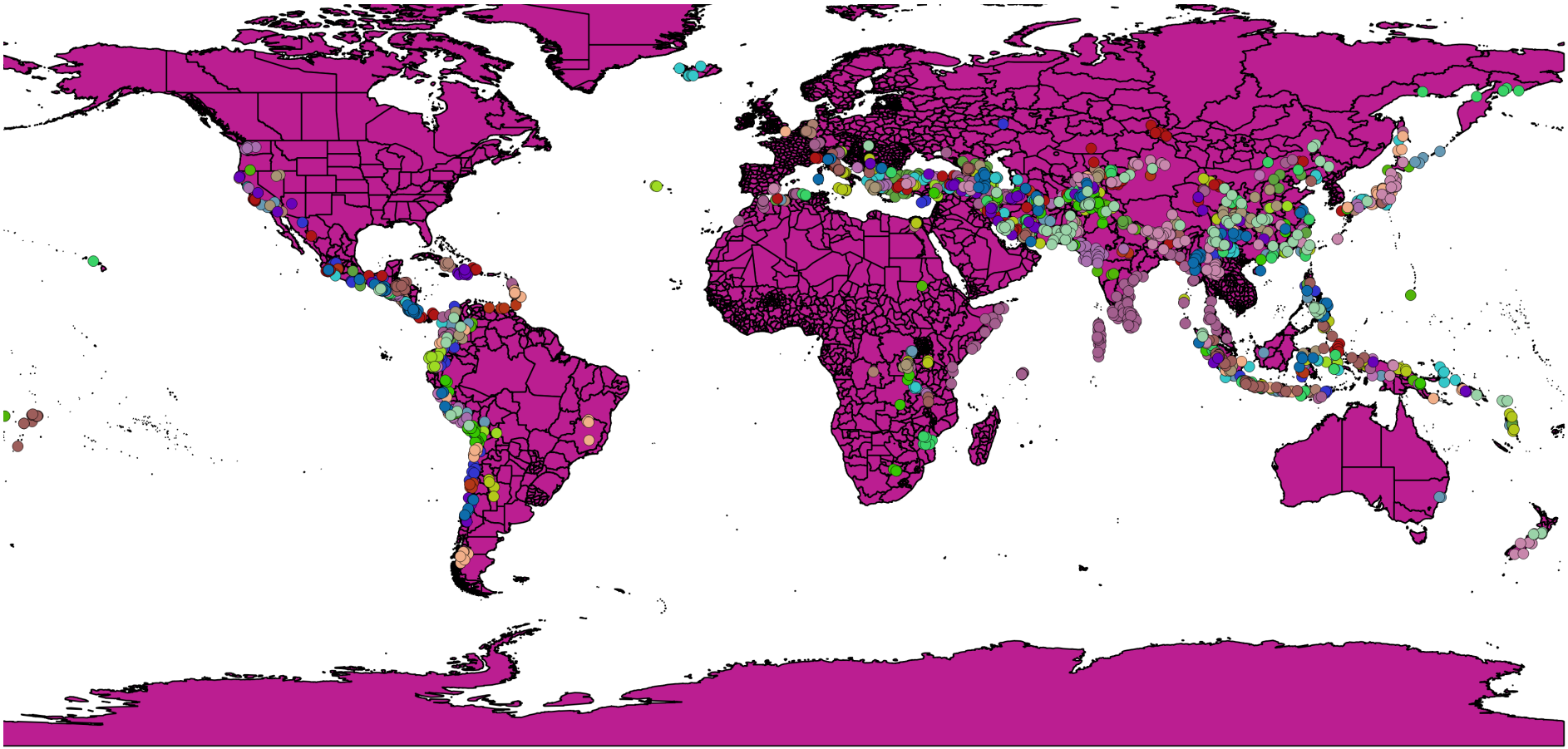


Figure: Administrative regions and earthquakes

Panel Model

Section Series

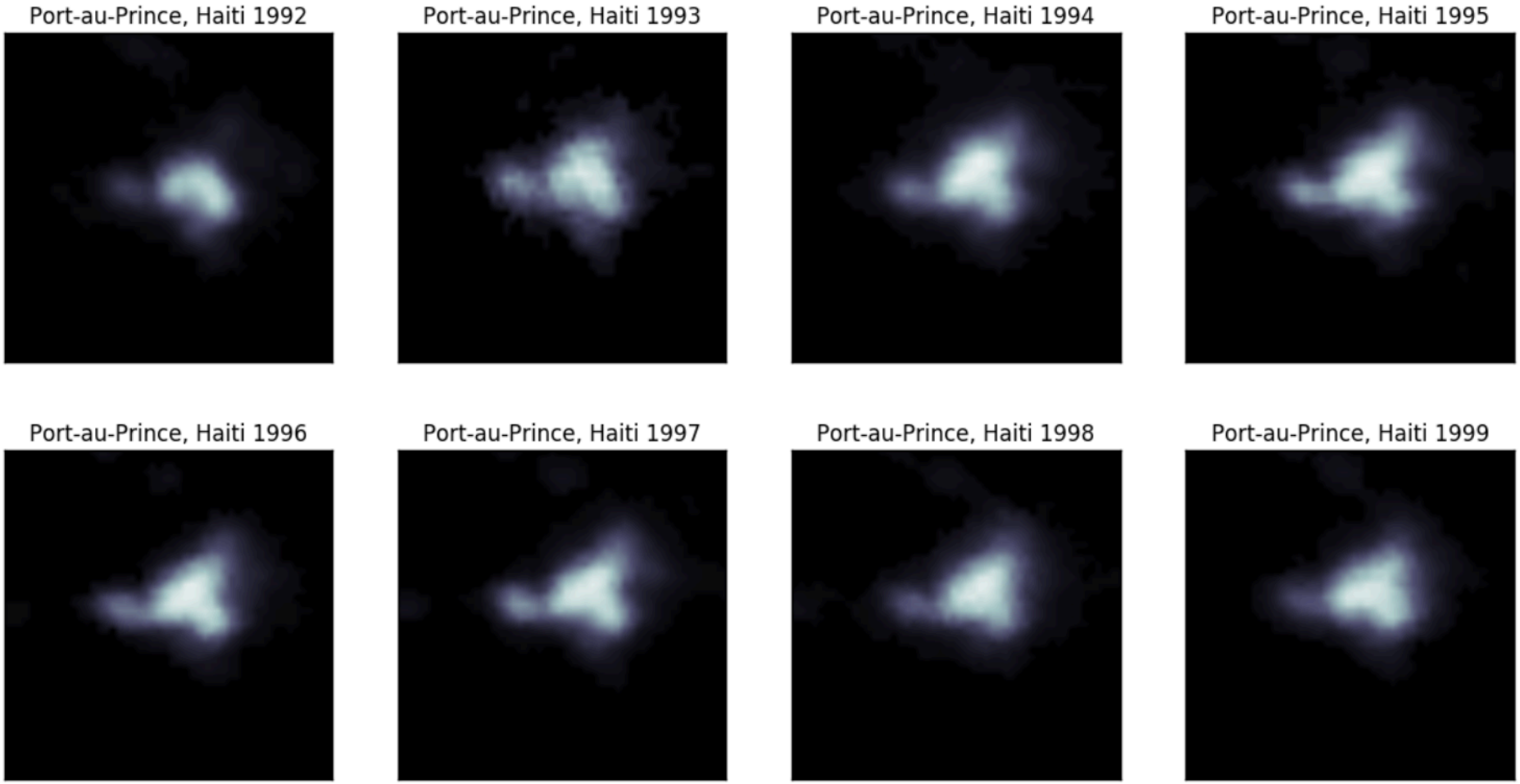


Figure: 50x50 pixel atellite image cutout of Port-au-Prince, Haiti

Dynamic Panel Model with Fixed Effects

Formula

$$y_{i,t} - y_{i,t-1} = \alpha_i + \beta_t + \gamma(y_{i,t-1} - y_{i,t-2}) + \delta EQ_{i,t} + \eta EQ_{i,t-1} + \epsilon_{i,t}$$

City-level Dynamic Panel Regression

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