

## **ONLINE APPENDIX FOR LOST IN SPACE**

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### APPENDIX A. TABLE A.1

Owing to space constraints, several of the displays from the manuscript were relocated to this online appendix.

**Table A.1.** Sample Articles with Type 2 (Incorrect) and Type 1 (Correct) Location Mentions

Article 1 <sup>1</sup>	The Syrian Observatory for Human Rights monitor said that 15 civilians, among them 11 children, were killed ... in the south of Aleppo. ... Meanwhile, a ceasefire has been agreed in the town of Daraya, allowing 700 rebel gunmen safe passage to the northern province of Idlib and allowing 4,000 women and children to escape to shelters outside the town.
Article 2 <sup>2</sup>	1. ... The government denounces a named refugee camp near Goma that was attacked by M23 soldiers. ... 6. Prime Minister Ponyo addressing an opening session of a seminar on agricultural sector in Kinshasa today. ...
Legend: Red = Type 2 (event-irrelevant and event-occurring) Location Blue = Type 1 (event-relevant and event-occurring) Location	

**Table A.2.** Sample Articles with Type 3 (Incorrect) and Type 1 (Correct) Location Mentions

Article 1 <sup>3</sup>	The mutineer general, Bosco Ntaganda and his men who have been on the run for several days now, exchanged “heavy” gunfire with the army in the night of 7 May and is heading toward the Virunga National Park [a park in <b>Orientale</b> province]. <sup>4</sup> ... “After four hours of exchange of heavy gunfire at Kibumba,” a locality at the border of the Nyiaragongo and Ruthshuru territories, in the volatile province of <b>North Kivu</b> , “we were supported by shots from heavy weapons,” stated the captain.
Article 2 <sup>5</sup>	Elsewhere in Syria, 51 rebel factions operating in the southern province of Daraa announced a campaign to wrest control of areas of Daraa city [capital of <b>Daraa</b> governorate] from the government. ... SANA reported that an attack by terrorists had been thwarted, with fighter jets pounding rebel targets in surrounding villages. If successful, it would grant the rebels a rear supply base to mount operations on <b>Damascus</b> . ...

Legend: **Red** = Type 3 (event-relevant and **non**-event-occurring) Location

**Blue** = Type 1 (event-relevant and event-occurring) Location

**Table A.3.** Sample Articles with Type 4 (Incorrect) and Type 1 (Correct) Location Mentions

Article 1 <sup>6</sup>	<p>Beijing, Nov 19, 2011 (AFP) - More than 7,000 workers went on strike at a southern Chinese factory. ... Dozens of workers were injured on Thursday as police tried to break the strikers' blockade of the main road in the factory town near Dongguan in Guangdong province. ...</p>
Article 2 <sup>7</sup>	<p>The clashes, which started at Luozi and to Seke Banza [towns in Bas-Congo Province].<sup>8</sup> ... Speaking to reporters in Kinshasa, the parliamentarian said that the clashes had left at least 100 people dead and many more nursing serious injuries since last Friday.</p>
Article 3 <sup>9</sup>	<p>The protesters gathered outside the office of Southern Weekly in Guangzhou, capital of southern Guangdong province, on Monday calling for media freedom, a taboo subject in the country, holding banners and chanting slogans. ... A foreign ministry spokesperson in Beijing is reported to have said: "There is no so-called news censorship in China."</p>

Legend: Red = Type 4 (event-irrelevant and non-event-occurring) Location

Blue = Type 1 (event-relevant and event-occurring) Location

**Table A.4.** An Example of Raw and Preprocessed Texts

Raw Text <sup>10</sup>	Preprocessed Text
BEIJING, Dec 4 (AFP) – More than 500 people protested outside government offices after a man died under suspicious circumstances while in police custody, a human rights group and relatives said Thursday. It is one of two such cases – in northern Shandong province and southeastern Fujian province ... earlier this year the beating death of a man in a police detention hall in southern Guangdong sparked widespread criticism. ...	NUMERAL ACTOR ACTION-VERB outsid ACTOR man ACTION-VERB suspici cir- cumst ACTOR custodi ACTOR relat said DAY. NUMERAL case DIRECTIONAL shan- dong ADMIN DIRECTIONAL fujian ADMIN 11...earlier DATE ACTION-VERB ACTION- VERB man ACTOR detent hall DIREC- TIONAL LOCATION spark widespread crit- icism. ...

**Table A.5.** Sample Article for Demonstrating the Proposed Method

Raw Test <sup>12</sup>	Preprocessed Text
<p>About 500 angry textile workers blocked a railway line in northeastern China on Monday demanding unpaid wages and unemployment pay from the government, said railway employees who saw the protest. There were four to five hundred of them blocking the railway. They stood on the railway, but were later dispersed," said a man who worked at a railway station in Jiamusi [town in Heilongjiang][the northeastern province of Heilongjiang]. "The train to Beijing was therefore delayed five to six minutes in leaving," he said. The protest was similar to one in December when more than 2,000 workers from the same bankrupt textile plant blocked a rail line and cut traffic on an airport highway, accusing company officials of embezzling their social security payments. An employee at Jiamusi [town in Heilongjiang]'s main train station said city and railway police went to persuade them to leave and protesters dispersed after about 20 minutes, he said. The plight of disgruntled workers laid off from bloated state-owned firms, like those in Jiamusi [town in Heilongjiang], is getting top billing at the annual two-week session of the National People's Congress, or parliament, meeting in Beijing due to end on March 18.</p>	<p>N angri textil ACTOR ACTION-VERB railway line in DIRECTIONAL ACTOR on DAY demand unpaid wage and unemplo ACTOR pay from gover ACTOR NONTOPIC railway ACTOR saw ACTION-VERB. N to N of ACTION-VERB railway. stood on railway later dispers NONTOPIC man work at railway station in sub-heilongjiang in DIRECTIONAL ADMIN of heilongjiang. train to beijing therefor delay N to N minut in leav NONTOPIC. AVERB similar to N in MONZ N ACTAR from ACTAR upt textil plant ACTION-VERB rail line and cut traffic on airport highway NONTOPIC ACTOR of embezzl social secur pa ACTOR s. ACTOR at sub-heilongjiang main train station NONTOPIC ADMINN and railway ACTOR went to persuad to leav and ACTOR dispers N minut NONTOPIC. plight of disgruntl ACTOR laid from bloat state own firm like in sub-heilongjiang get top bill at annual N week session of nation peopl ACTOR par ACTOR meet in beijing due to end on MONTH N. ...</p>
<p>Legend: Red = Location coded in ICEWS, Beijing Blue = Correct location, Heilongjiang</p>	

## MAPS OF PERFORMANCE

In addition to the accuracy rates, we also plotted the geographic patterns visually. The panels in Figure A.1 compare the results to the ground truths, which are plotted on the left. Our prediction results are shown in the middle panels, and the current ICEWS or Phoenix locations are shown on the right. The sizes of the bubbles represent the relative shares of events and the colors represent the frequencies of events.

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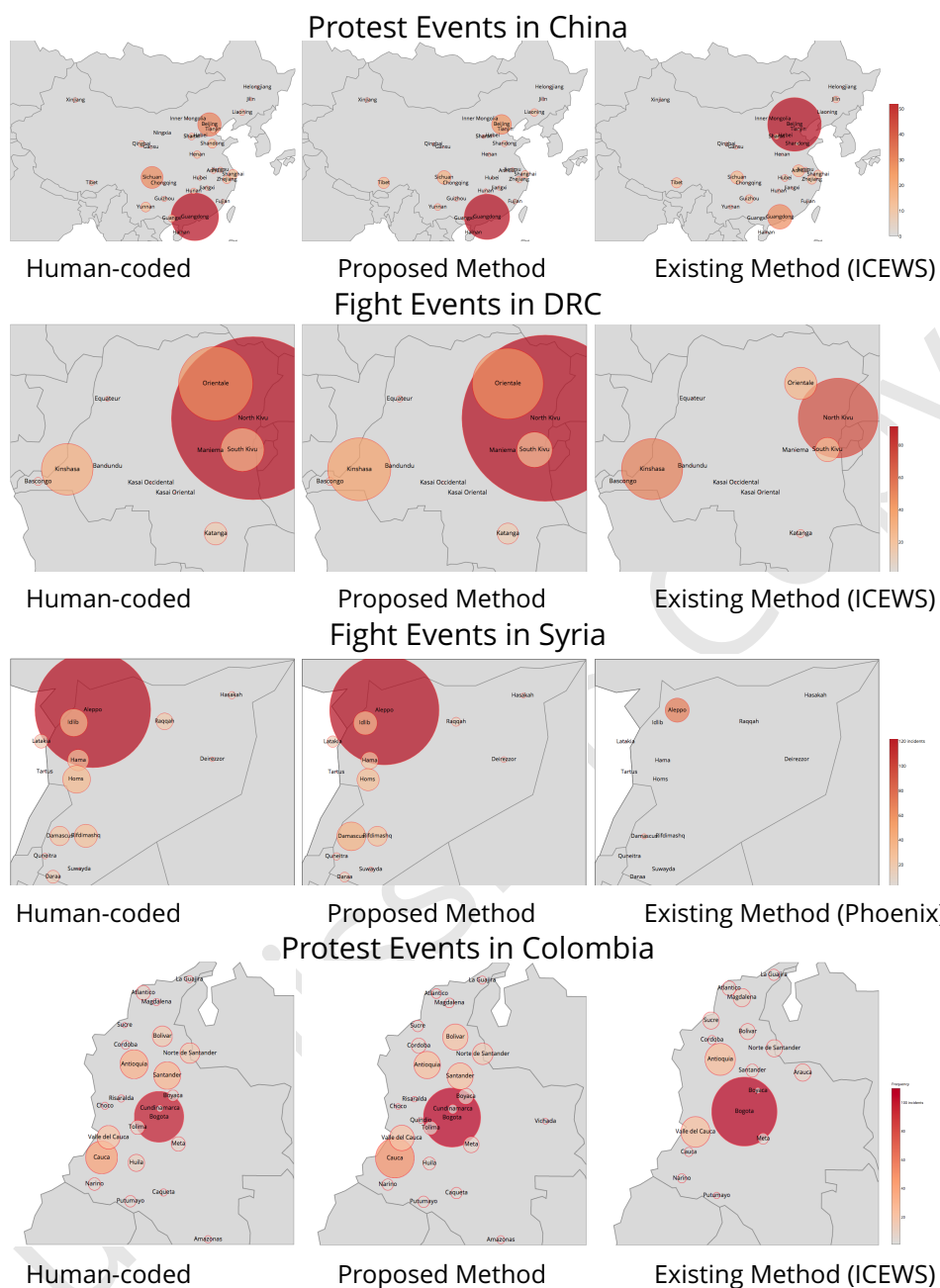
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**Figure A.1.** Comparison of Geographic Patterns of Event Frequencies by Human-coded, Proposed, and Existing Methods