Introducing ACLED: An Armed Conflict Location and Event Dataset: Special Data Feature

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Introducing ACLED: An Armed Conflict Location and Event Dataset

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Abstract

This article presents ACLED, an Armed Conflict Location and Event Dataset. ACLED codes the actions of rebels, governments, and militias within unstable states, specifying the exact location and date of battle events, transfers of military control, headquarter establishment, civilian violence, and rioting. In the current version, the dataset covers 50 unstable countries from 1997 through 2010. ACLED's disaggregation of civil war and transnational violent events allow for research on local level factors and the dynamics of civil and communal conflict. Findings from subnational conflict research challenges conclusions from larger national-level studies. In a brief descriptive analysis, the authors find that, on average, conflict covers 15% of a state's territory, but almost half of a state can be directly affected by internal wars.

Keywords

armed conflict, event data, geographical disaggregation, war

Introduction

The need for disaggregated event data on civil war has become increasingly apparent as recent theoretical and empirical inquiries address local and regional characteristics of war-torn countries. While studies of civil war using statistical methods have recently experienced a surge of interest in academia (Doyle & Sambanis, 2000; Elbadawi & Sambanis, 2002; Fearon & Laitin, 2003; Hegre et al., 2001), the next generation of conflict studies focuses on disaggregated data and analysis to test and clarify the mechanisms and contexts which produce domestic instability and internal war. Recent work in this field has confirmed that local-level data present alternate and contextually rich conclusions on the variation of internal war patterns. Some authors have suggested that micro dataset construction be prioritized in order to facilitate studies of civil war patterns and dynamics (Restrepo, Spagat & Vargas, 2006).

ACLED – Armed Conflict Location and Event Data – is a conflict dataset that collects reported information on internal political conflict disaggregated by date, location, and actor. Specifically, ACLED collects and codes violent political activity within 50 unstable states, including dyadic interactions between rebels and governments, among rebel factions or militias, and violence perpetrated against civilians. In addition, it covers reported monadic activity of rebels, militias, and protesting groups. All data are collected by country to present a

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Table I. Sample state analysis*

		Area of state		Proportion of total violence**		Proportion of area in conflict***			
						Battles		Attacks	
Country	Total events	Total km2	Admin zones	Battles (%)	Attacks (%)	Total (%)	Over 5% (%)	Total (%)	Over 5% (%)
Burundi	1,266	26,936	115	36	33	43	3	53	2
Central African Republic	812	620,149	51	44	46	63	12	55	15
Chad	687	1,129,963	14	54	39	92	60	85	23
DR Congo	4,044	2,328,308	151	56	30	36	3	43	4
Ethiopia	1,254	1,131,022	567	76	20	35	4	16	4
Ivory Coast	1008	321,630	186	48	38	37	5	22	2
Mali	111	125,025	272	66	14	43	40	19	19
Niger	215	1,183,625	131	46	25	51	33	34	15
Nigeria	1,676	908,017	775	40	42	15	1	15	1
Somalia	2,869	632,755	76	46	53	51	5	61	5
Sudan	3,278	2,504,623	85	39	54	72	6	87	13
Uganda	6,130	240,423	614	55	37	32	2	29	1
Average	1,938			51	36	48	15	43	9

*This is a sample of data from high-risk states available from ACLED . A complete analysis of event and area proportions is available on www.acleddata.com.
** Violence refers to battles and attacks on civilians. Non-violent ACLED events, riots and protests not included. *** The proportion of a state with violent activity calculated by active administrative zones. Size and number of administrative zones vary by state.

realistic assessment of political violence within states. Each entry to the dataset is atomic, in that actors participate in a single type of event on a specific day in an exact location. ACLED is therefore constructed to facilitate local and scale-dependent research on war patterns and processes. The extent and format of ACLED renders these data applicable to descriptive, exploratory and econometric analysis.

This article serves three purposes: first, we briefly review how the theoretical arguments in multiple civil war studies are at odds with available empirical data and methods, and state a case for an event-based dataset. In a brief survey of recent conflict studies, we review how research is enhanced by disaggregated conflict data. Second, we introduce ACLED and address the variety of uses for spatially and temporally sensitive data. Finally, we describe ACLED's coding procedures and compare it to other conflict datasets. As an example of ACLED data analysis, we also present brief collections of descriptive statistics based on collected conflict information for African states.

Motivation for a new dataset

Disaggregated conflict research addresses currently understudied aspects of internal wars including the spatial and temporal trends of violence, the practices of multiple actors, and variation in types of violence. Micro-level data are required for such studies as their structure specifies the exact geographic and temporal dimensions and their content is the constituent actions of multiple actors. Recent micro-level studies conclude that analyses at the national scale or even based on conflict zones often misconstrue the correlates and patterns of internal conflict (Kalyvas, 2008; Raleigh & Hegre, 2009). Also, typical definitions underlying available conflict data ignore the contextual information in internal conflict, thereby possibly distorting causal explanations. In short, we argue that the use of disaggregated data will lead to new empirical findings, help our understanding of internal conflict dynamics, and may force us to revise some of the assumptions underlying conflict research.

Questioning assumptions and conclusions

Explanations for conflict onset and diffusion appear to be contingent upon the scale at which the research is undertaken. To date, most quantitative studies of civil war use the country-year as the unit of observation, where the dependent variable is the onset or occurrence of civil war in a country during that year and the independent variables and controls are national-level measurements of, for example, GDP, political institutionalization, or ethnicity. Yet, the scale at which generalizable theory depends (local or regional) is often at odds with the scale at which the dependent and independent variables are tested (national). This presents a critical theoretical and empirical dilemma for conflict research.

Using national-level explanatory variables assumes that the government, as a conflict actor, is equally present and capable across all territory within the state and that generalized national variables properly account for internal socio-economic and structural dynamics throughout the state. But many internal armed conflicts actually affect only a small portion of the country's territory, at least in the initial stage (see Table I). Hence, the conclusions from a country-year analysis speak to civil war variability *across* states, but say little about the function of

important variables *within* states. Despite this fact, studies of onset frequently rely on intra-state socio-economic variation to explain the onset and diffusion of war.

Scale is especially problematic in studies that examine geographical and location-specific variables as contributing factors to conflict risk. To correct for possible ecological inference, a number of studies have relied on conflict zone data. Such research has advanced country-level findings: Buhaug & Gates (2002: 431) show that conflicts tend to be longer when they are in a state's periphery. Raleigh & Urdal (2007) find local land degradation to be unrelated to increases in civil war risk. Buhaug & Lujala (2005) observe that diamonds within a conflict zone increase the duration of the conflict. Buhaug (2006) finds that separatist conflicts demonstrate spatial relationships that diverge from revolutionary violence.

Yet, even zone data conclusions are at odds with the studies based on disaggregated conflict data, possibly because of the spatial and temporal simplifications made in determining a civil war zone (see Buhaug & Gates, 2002). For example, multiple studies find that urban and densely populated places experience far more conflict than peripheral, rural areas (Raleigh & Hegre, 2009; O'Loughlin & Witmer, 2010). An ACLED-based study concludes that precious resources do not increase the likelihood of experiencing a conflict event in Central Africa and Liberia, where resources were presumed to influence conflict dynamics (Hegre, Østby & Raleigh, 2009; Raleigh, 2010b). In contrast to Fearon & Laitin (2003) and Hegre & Sambanis (2006), rough terrain is not found to be a significant *local* factor in the civil wars of many underdeveloped states (Rustad et al., 2008; Raleigh, 2010b). If variables are not significant at the level at which the war is fought, conclusions of regional or national studies must be questioned.

Bias and differences in conflict definitions

Contemporary research on civil wars has typically focused on causes of war, with war differently defined in various datasets (Hegre & Sambanis, 2006). Disaggregated research involves a fundamental break with the definitional constraints of these datasets and the biases they introduce.

The UCDP/PRIO Armed Conflict dataset (as well as the associated data on conflict zones) records an annual binary indication of war within countries where at least 25 people are killed in combat. Further, civil wars are constrained to interactions between rebel and government groups – categories that are both too strictly defined and not sufficiently context dependent (Gleditsch et al., 2002; Harbom & Wallensteen, 2009). Such data require a researcher to disregard a multitude of relevant conflict actors (Kalyvas, 2003).

A priori definitions of what constitutes a conflict are frequently based on meta-narratives that dictate which actors can legitimately be included and neglect several types of violence that occur within an internal war. By ignoring some violent events from analysis or consideration, researchers may misrepresent the nature of internal conflict. It is evident that participants in post-Cold War conflicts do not follow pre-ordained patterns of activity. For example, in two complex conflicts (DRC and Somalia), our data since 2003 record more activity of rebel organizations fighting each other or killing civilians than engaging with government troops. Further, it is possible that group-level features and interactions, including size, political clout, location, and community support, may determine whether a group participates in civil war (Lyall, 2006). In reference to conflict in the Sahel belt, Raleigh (2010a) finds that small politically irrelevant groups typically engage in communal conflict, while larger ethno-regional groups participate in civil wars. Smaller groups may participate in violence as part of the collective whole of internal war, as evidenced by the rise of alliance or proxy fighters in Sudan and government-supported militias in DRC. Our understanding of civil strife suffers from reducing the focus on violence to direct clashes between the government and rebel troops. This is partly ameliorated by the collection of new datasets on other forms of violence (Sundberg, 2008). But a disaggregated dataset can accommodate the various forms of violence into one coherent entity.

Additional definitional constraints in available civil war data do not allow for the evident variation in violence. Micro conflict analysis has reoriented research to focus on violent and nonviolent expressions of conflict and agency in wars. Kalyvas (2007) finds that frontline battles are a function of internal political controls and the changing nature of local power differentials in war-affected communities. In analyzing local-level Indian election violence, Wilkinson (2006) demonstrates that government elites manipulate contentious politics, determining the onset, strength, and duration of violence depending on real or perceived election outcomes. Similarly, incidents of violence against civilians in war are related to local conditions rebels confront in conflict areas (Moore, 2000; Weinstein, 2007; Kalyvas, 2007). Using ACLED data for the Angolan civil war, Ziemke (2008) finds that violence against civilians increased in the context of territorial loss, and that such violence changed substantially after peace agreements. Furthermore, owing to government controls, resource abundant areas were actually some of the safest.

New directions

In short, micro-level datasets allow researchers to rigorously test sub-national hypotheses and to generate new causal arguments that cannot be studied with country-year or static conflict-zone data. These include the influence of external patrons (Gleditsch, 2007); elite mobilization, internal environmental fluctuations, and the influx of small arms (Killicoat, 2006); local population support levels (Weidmann, Hegre & Raleigh, 2006); insurgent politics and recruitment (Reno, 1999; Gates, 2002; Weinstein 2007); territorial advancement and the establishment of conflict hotspots (Kalyvas, 2007; Buhaug & Rød, 2006; Raleigh & Hegre, 2009); characteristics of locations in which battles are fought (Hegre, Østby &

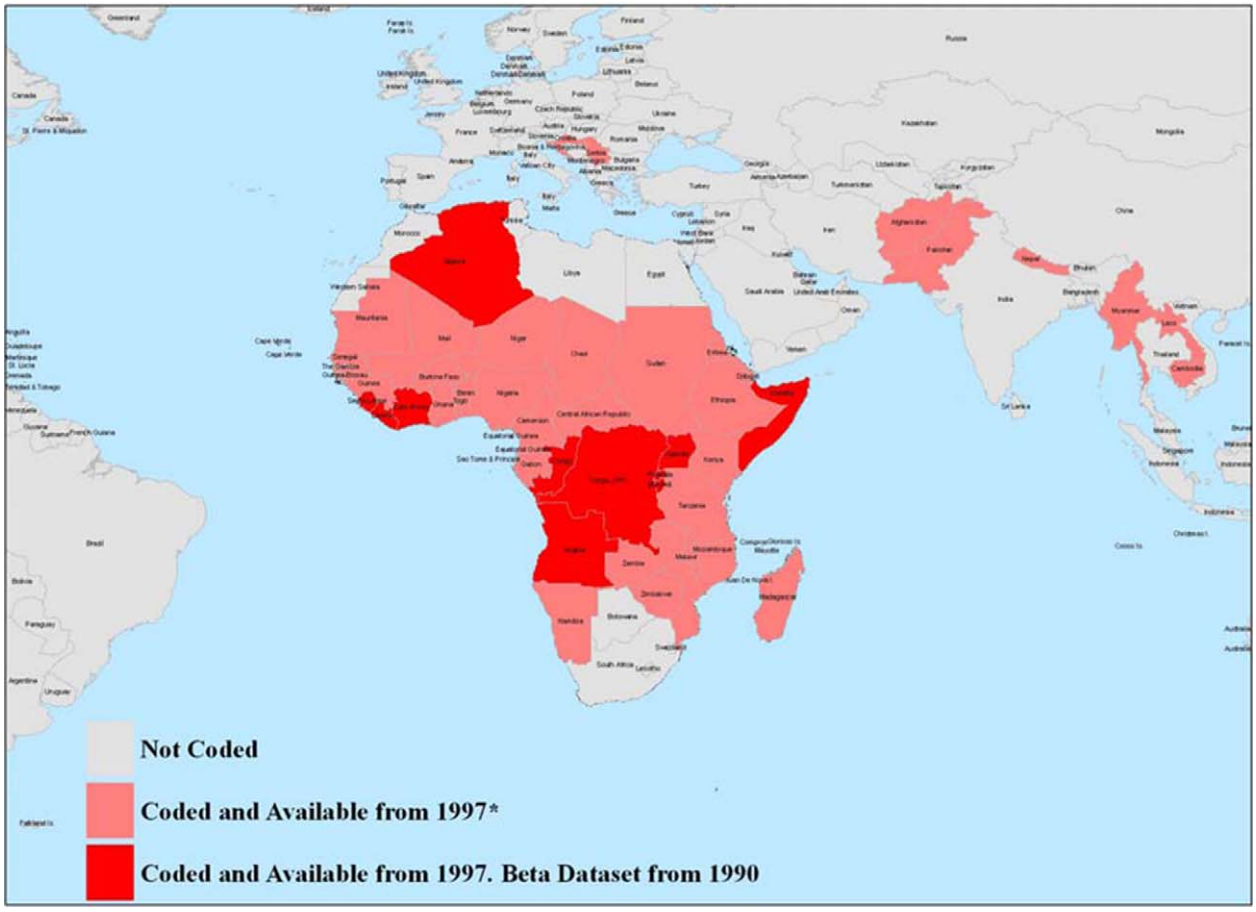

Figure 1. Armed Conflict Location and Event Dataset (ACLED)

Data for all states available on www.acleddata.com. Data for Pakistan, Afghanistan, Myanmar, Cambodia, and Laos complete to 2005 and available upon request. Data from Haiti 2000–10 available on website.

Raleigh, 2009); an investigation of frontlines and rebel-held territory (Kalyvas, 2007); the role of ethnic and national identities in civil war participation (Hegre, Østby & Raleigh, 2009; Kalyvas, 2007; O'Loughlin & Witmer, 2010); and duration and stalemates (Walter, 2004).

ACLED

ACLED is designed for quantitative disaggregated research on local factors influencing conflict onset and diffusion, rebel territorial strategies, one-sided violence, the escalation of civil war intensity, and civil war cycles. It is appropriate for descriptive and exploratory research, as it contains time-varying assessments of the location and expansion of political violence, civilian violence, and communal conflict. These data are formatted for standard econometric and advanced spatial statistical methods, Geographic Information Systems (GIS), and dynamic conflict mapping technologies. The georeferenced data can be integrated with other location-specific data on resources and terrain, geographical distribution of ethnic groups, regional development rates, household information collected by various health agencies, and the like. The ACLED dataset currently covers 50 countries from 1997–2010. Beta data for selected states are available from 1960 to the present (see Figure 1).

Actors

ACLED collects information on the reported activities of conflict actors. Conflict actors include governments, rebel groups, militaries, and organized political groups who are involved in interactions over issues of political authority (i.e. territorial control, government control, access to resources, etc.).

Governments are defined as internationally recognized regimes ostensibly in control of the territory within a state. In ACLED, for example, government actors are defined as a series of regimes such as Congo/Zaire 1965–97 (Mobutu Sese Seko), Democratic Republic of Congo, DRC, 1997–2001 (Kabila, L) and DRC 2001–10 (Kabila, J) as opposed to simply Congo/Zaire (1962–present). However, not all successive governments are actors. Only those governments that have a substantially different leadership profile from the previous government are designated as separate actors (e.g.

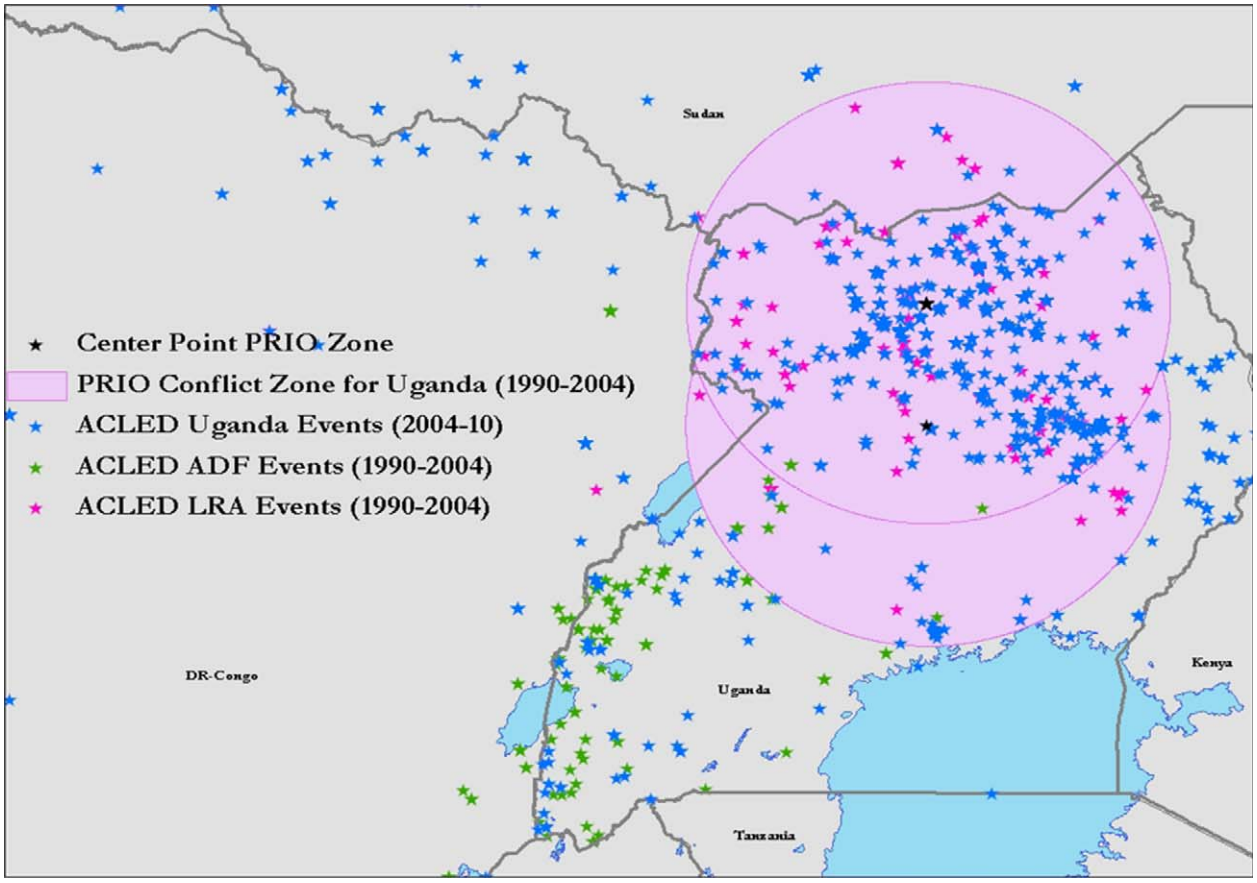

Figure 2. Comparison of PRIO and ACLED georeferenced data

ACLED from 2004–10 includes civil war battles, communal violence, violence against civilians and rioting. ACLED data from 1990–2004 on LRA and ADF activities is limited to civil war battles.

Ugandan government 1965–71, Ugandan government 1971–79, Ugandan government 1979–81, etc.), as the strength of different governments can change significantly, and ACLED means to capture the differences in government action concerning violence.

Rebel groups are identified as political organizations designed to counter an established governing regime within a state through engaging in violent acts. Rebel groups have a stated political agenda, are acknowledged outside of immediate members, and use violence as the primary means to pursue political goals. Rebel groups often have predecessors and successors, because their goals are splintering and diverging.

Militias are more difficult to assess as they can be created for a specific purpose or during a specific time period (e.g. Janjaweed) and can be associated with an ethnic group, but not entirely represent it (e.g. the Kikuyu-based Mungiki gang in Kenya or a Pokot Militia). Alternatively, militias can be long-term policing units, such as those common across Somali clans. ACLED coders distinguish between active ethnic militias when recording actors involved in communal violence (ethnically based militias fighting each other) or violence against state authorities that is outside of a civil war context (e.g. Karamonjong violence in Uganda). Each ethnic militia is designated as such, while militias created for brief periods or as the armed wing of political organizations are clearly defined to reflect this (e.g. ZANU-PF militia in Zimbabwe).

Rioters and protestors are involved in spontaneous acts of aggression against a government. Rioters are violent and are involved in clashes with military or police forces (or other armed groups). In contrast, protesters engage in nonviolent civic action. In accordance with ACLED coding rules, civilians are unarmed victims of violence by conflict actor (government, rebels, militias, or rioters can attack civilians). Civilians are identified as belonging to a country or a specific group.

Events

The fundamental unit of observation in ACLED is an individual *event* that occurred at a given location. ACLED currently codes for nine types of events, both violent and nonviolent, that occur within the context of civil wars and/or periods of political instability. Events take place between designated actors – a rebel group, a rebel group faction, a militia, or a government – and are coded for a specific point location (including coordinates) and on a specific day. Steps are taken to ensure that the most precise location and date are coded.

Figure 2 shows the dramatic difference between violent-event data and conflict-zone data. Clear deviations from the conflict-zone data appear with fine resolution data, which is most immediately apparent for Allied Democratic Forces (ADF) events that occurred in the southwestern part of the country between 1990 and 2004.

Most events coded in ACLED are battles, defined as 'a violent interaction between two politically organized armed groups at a particular time and location'. Battles occur mainly between government militaries/militias and rebel groups/factions within a civil war, but also include rebel-on-rebel violence and military-on-military violence. There is no casualty minimum necessary for inclusion. Battle events are coded in one of three ways depending on the result of the armed clash:

(1) Territorial control does not change.
(2) Rebels win control of location.
(3) Governments regain control of territory.

Other dyadic violent events include:

(4) One-sided violence by either a rebel or government on unarmed civilians. One-sided violence is defined as deliberate violent acts perpetrated by an organized political group, typically either a rebel or government force, on an unarmed non-combatant. These acts are of a political nature, and result in the harming or death of civilians.
(5) Rioting.

The remaining events are nonviolent and monadic. These include:

(6) Rebels establishing headquarters or bases at a location.
(7) Nonviolent rebel presence including recruitment rallies, speeches, looting, destruction of property, and other activities that do not result in the deaths of civilians.
(8) Changes in territorial control without violence.
(9) Protests.

Sources

ACLED data are based on a number of secondary information sources – primarily press accounts from local and regional news sources, Integrated Regional Information Network (IRIN), Relief Web, *Factiva*, and humanitarian agencies.[1] As ACLED data deal with discrete events with fine resolution, one credible source noting a battle is sufficient to include an event.[2] The sources of each event are reported in the dataset, and each coder collects extensive information for events. Fatalities are not factored into event inclusion criteria for several reasons: (1) there is evidence to suggest such information is at best biased and at worst incorrect in the vast majority of event reports (see Bocquier & Maupeu, 2005); (2) any fatalities are in part endogenous to the activities in war; (3) intensity assessments based on fatalities do not consider how overwhelming strength on the part of one party may result in no fatalities. The information collected for ACLED supplies the hard data of who, what, where and when; independent media monitoring has found that such information is overwhelmingly accurate (Earl et al., 2004), and the same procedure is the basis for other conflict event data collection efforts (see Restrepo, Spagat & Vargas, 2006; Lyall, 2008).

Yet, media-based event monitoring has limitations, and conflict coverage involves possible systematic bias in reports and in reporting. Data triangulation and verification is an additional issue with singular event data. In conflict zones, coverage of small events and those including minor actors may not be reported with any great frequency. For example, urban bias may be a prominent issue in media-based monitoring (Kalyvas, 2007). Although information on recent events is quite time-specific, information from previous decades can frequently include generalizations along temporal and spatial dimensions. Data is supplemented with local accounts when available and data has been discussed with regional experts prior to publication.

Differences and similarities to other georeferenced events data

Many of the events ACLED covers occur within conflicts recognized by other datasets (UCDP/PRIO, SIPRI, Correlates of War). But ACLED differs from national, zonal, and micro-level conflict datasets in that it may include events outside conflict durations recorded in other compilations, and in terms of what information is collected, how information is presented and which sources are used. Basing the dataset on events allows the territorial extent to vary over time for the full roster of actors. ACLED also differs from other micro datasets in its extensive coverage, actors, event types, sources, and (when available) fatality information. Nevertheless, ACLED is compatible with other datasets as events can be aggregated and joined by year, region, location, actor, government, or event type. For example, the frequency of conflict events for Chad during the years 2000–09 can be aggregated annually and joined to country-year data for Chad. Below we detail the specific deviations from other conflict datasets (see Table II).

National: The UCDP/PRIO data note that a civil war incompatibility must 'concern government and/or territory where the use of armed force between two parties, of which at least one is the government of a state' (Gleditsch et al., 2002: 4). In ACLED, battles are coded independently of fixed government/rebel dyad combinations. Each warring party is recorded as an independent actor as the changing roles dictate

[1] The archives at the Department of Peace and Conflict Research, Uppsala University were extremely useful in compiling the beta ACLED set for Central Africa (http://www.pcr.uu.se/gpdatabase/search.php).

[2] This rule may be too inclusive in some cases, but a stricter source coverage criterion would err on the exclusive side. As is the case with large-N survey data, inferences drawn from the data are less sensitive to individual observations than is the case for aggregated conflict datasets.

Table II. Civil conflict data collection and compatibility

Dataset	*Source*	*Conflict type*	*Violence threshold*	*Time series*	*Coverage*	*Georeferenced*	*Availability*
ACLED: Armed Conflict Location and Event Dataset	Raleigh et al. (2010)	Events in internal armed conflict	0	1997–2010	50 countries	Yes (Lat/Long)	Public
KEDS: Kansas Event Data System	Schrodt et al. (1994)	International political event data	0	Various years	Select countries	No	Public
CAMEO: Conflict and Mediation Event Observations	Gerner et al. (2002)	Interaction events	0	Various years	Select countries	No	Public
International Cooperation and Regional Events Data	Pevehouse & Goldstein (1997)	Interaction events	0	1987–99	Select countries	No	Public
IISS: International Institute of Security Studies	IISS (2009)	Internal armed conflict	0	From 1963	Global	No	No
UCDP/PRIO: Civil war	Harbom & Wallensteen (2009)	Civil wars	At least 25 deaths per year	1946–2008	Global	No	Public
Conflict zone	Buhaug & Gates (2002)	Civil wars	At least 25 deaths per year	1946–2004	Global	Yes (Zone)	Public
Non-state conflict	Sundberg (2008)	Civil wars/Communal violence	At least 25 deaths per year	2002–07	Global	No	Public
One-sided violence	Kreutz (2006)	Violence against civilians	At least 25 deaths per year	1989–2007	Global	No	Public
COW: Correlates of War Intra-systemic	Sarkees (2000)	Civil/ Intercommunal	At least 1,000 during war	1816–1997	Global	No	Public
Correlates of insurgency	Lyall & Wilson (2009)	Insurgencies	At least 1,000 during war	1800–2005	Global	No	Public
Micro-level set sample							
CERAC	Restrepo et al. (2006)	Internal violence	0	1988–2002	Colombia	Yes	Public
Chechen insurgency	Lyall (2006)	Internal violence	0	2000–05	Chechnya	Yes	Public
Algerian insurgency	Hagelstein (2008)	Internal violence	0	1992–2002	Algeria	Yes	Public
Greek civil war	Kalyvas (2007)	Internal violence	0	1943–49	Greece	Yes	On request

(i.e. a rebel group can become a governing regime and vice versa). Rebel-on-rebel battles are coded in the same way and presented simultaneously with government–rebel interactions. Further, actors can participate in activities across state borders, as many rebel or militia groups do.

Nonviolent events are included in event data to provide a broad perspective on the actions of an actor within a conflict. Headquarter establishment, protesting, and rebel presence/recruitment are all defined as nonviolent activity. The user can restrict the data to the types and territorial extent of the events she deems necessary for her analysis.

The start date of an ACLED conflict may differ from other complementary datasets as the first coding of rebel activity is based on the initial action taken by an acknowledged conflict actor against another combatant or civilian. The same rule applies for end dates – when reports no longer attribute events to a rebel group, the group's last event date becomes the de facto end date. These dating rules are integral to the study of the dynamics of conflict intensity and escalation.

Zonal: The specificity of ACLED is an improvement over other georeferenced data. Previous versions of the UCDP/PRIO dataset coded the geographic centre and the estimated radius of the conflict zone for conflict from 1960–2004 (Buhaug & Gates, 2002). The allocation of one single center location and one single radius (or a polygon) to an extensive conflict necessitates some difficult choices as the conflict location is characterized with only two parameters. The center and radius are approximations from a few reports. Even the soundest judgment cannot exclude the costs of having to make a compromise between including outliers at the expense of the precision of the distribution of the majority of events. Another limitation is the constraint that the center and radius (or polygon) are coded only once for each conflict, regardless of its duration. However, dynamics of conflict develop so quickly that annual data cannot adequately record what is happening.

The data coding rules are such that interrelated conflicts can be observed simultaneously and included in neighbouring conflicts. For example, the activity of the SPLA can be considered alongside LRA activity in overlapping years to determine their interactions with each other. In other cases, the conflicts in Rwanda and the DRC, or the rebel groups in Sierra Leone and Liberia, can be coded as part of each other's larger wars. These rules allow for improved depictions of conflicts as we know them to have occurred on the ground.

Micro/Event: ACLED represents the most comprehensive georeferenced conflict event data currently available for public use. Other event data collections including the Kansas Event Data System (KEDS), Conflict and Mediation Event Observations (CAMEO), the State Failure Task Force (SFTF) data, and individual country sets such as the data for Columbia from Centro de Recursos para el Análisis de Conflictos (CERAC). All collect information on the micro level. Private military and government sources of event data (e.g. RAND Corporation's Iraq data) are typically directed towards a single study area and are not designed with the expectation of academic work or further crisis monitoring.

ACLED's open reasoning and flexibility provides for a more comprehensive understanding of internal war. Because ACLED is disaggregated by local-level events, it has at least four advantages: (1) data can be aggregated to any desired level for analysis; (2) the types of conflict events (e.g. battles or civilian violence) can be analyzed separately or in tandem; (3) the actors within a conflict can be grouped or analyzed separately; and (4) the dynamics of national or regional war clusters can be addressed together.

Owing to the extent of ACLED coverage, it can be used for pattern analysis across states, but is not designed to replace in-country field research conducted in order to devise a unique micro dataset on one state.

In short, ACLED has addressed many concerns about existing conflict data, but is subject to others (i.e. regarding sources and extent of coverage). Different research questions call for different optimal levels of analysis, be it district, province, 10×10 km or 1×1 km grid squares. Therefore the most useful dataset records the events that constitute a conflict at the finest level possible, both spatially and temporally, leaving decisions regarding the appropriate unit of aggregation to the analyst. If the focus is on conflict more as a condition than a process, or the resolution of the available data for explanatory variables is fairly coarse, a high level of aggregation will be natural. If the focus is swiftly evolving dynamics or on the importance of very precisely measured geographical data (such as mineral deposits), a finer level of aggregation is necessary.

Data exploration and crisis mapping

In a preliminary analysis of the current data, it is clear that the proportion of a state covered by conflict differs substantially across states, as does the main 'type' of conflict. Table I shows the percentage of selected countries affected by conflict after 2003. The size of the regions in which a rebel group has any activity was tallied as a proportion of the country. The percentage is still an estimate as it is based on smallest available administrative regions, the sizes of which differ tremendously across states (level three was chosen for the analysis presented here). A second percentage notes whether conflict is significantly more active in specific territories.

An analysis of conflict events occurring in Somalia during the beginning of 2009 demonstrates the flexibility of ACLED to represent both the spatial and temporal elements of violence at a very fine resolution.[3] It is apparent that the spatial extent of conflict during March was much wider than in January or February, expanding into northern regions of the country. Standard ellipse measurements represent just one of many

[3] Maps for the analyses for recent violence in Somalia and DRC can be found on the ACLED website (www.acleddata.com).

point-pattern analysis techniques that identify civil war dynamics below the scale of the nation-state.

ACLED data can be the basis for a number of graphic representations of conflict, including whether a conflict is heaviest in an area with a particular resource deposit, what type of terrain a rebel group operates in, and how effective a state's military is in responding to rebel activity. Further, information available for local and regional health and demographics, election results, resource deposits, local income, and refugee flows can be analyzed in conjunction with conflict events.

Conclusions

This article introduces a dataset that disaggregates civil war data by location and over time. The data are intended to supplement recent quantitative studies that risk making erroneous conclusions about local-level processes and events as the researchers only have access to national-level data. The initial exploration of the data presented in this paper indicates how civil war analysis using country-level measures may lead to biased results. The average percentage of area covered by civil war from the data sample is approximately 48%, but the average amount of territory with repeated fighting is considerably smaller at 15%. Further, most conflicts initially start out as very local phenomena.

Local-level measures can be used to answer and clarify a number of questions raised by the reviewed literature regarding territory, resources, population, ethnic geography, state capacity, election results, and income inequality. Additionally, structural factors such as improved terrain data, road access, and the locations of military garrisons and police stations may reveal intriguing patterns relating to the distribution of state capacity. ACLED data can be analyzed using geostatistical techniques available in GIS software or typical statistical packages.

Furthermore, ACLED can anticipate the escalation of conflicts and groups within states in near real time. Using specific local indicators, researchers can recognize the signs of crisis development and determine likely conflict trajectories. In this respect, disaggregated georeferenced data can be used to inform next-generation research efforts that focus on issues important to policy and NGO communities (Moore, 2006; Mack, 2002).

As ACLED continues to update and backdate, information is made available for public use. Data from 1997 to 2010 are accessible for public download. Additional information on rebel groups, dynamic conflict maps, and beta data for 11 countries are available on the ACLED website.[4]

Replication data

All data are available on www.acleddata.com/data. Replication data for this article are on www.prio.no/jpr/datasets.

[4] www.acleddata.com.

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References

Bocquier, Phillippe & Hervé Maupeu (2005) Analysing low intensity conflict in Africa using press reports. *European Journal of Population* 21(2–3): 321–345.

Buhaug, Halvard (2006) Relative capability and rebel objective in civil war. *Journal of Peace Research* 43(6): 691–708.

Buhaug, Halvard & Scott Gates (2002) The geography of civil war. *Journal of Peace Research* 39(4): 417–433.

Buhaug, Halvard & Päivi Lujala (2005) Accounting for scale: Measuring geography in quantitative studies of civil war. *Political Geography* 24(4): 399–418.

Buhaug, Halvard & Jan Ketil Rød (2006) Local determinants of African civil wars, 1970–2001. *Political Geography* 25(3): 315 -335.

Doyle, Michael & Nicholas Sambanis (2000) International peacebuilding: A theoretical and quantitative analysis. *American Political Science Review* 94(4): 779–801.

Earl, Jennifer; Andrew Martin, John D McCarthy & Sarah A Soule (2004) The use of newspaper data in the study of collective action. *Annual Review of Sociology* 30: 65–80.

Elbadawi, Ibrahim A & Nicholas Sambanis (2002) How much war will we see? Explaining the prevalence of civil war. *Journal of Conflict Resolution* 46(3): 307–334.

Fearon, James & David Laitin (2003) Ethnicity, insurgency and civil war. *American Political Science Review* 97(1): 75–90.

Gates, Scott (2002) Recruitment and allegiance: The microfoundations of rebellion. *Journal of Conflict Resolution* 46(1): 111–130.

Gerner, Deborah; Philip Schrodt, Ömür Yilmaz and Rajaa Abu-Jabr (2002) The creation of CAMEO (Conflict and Mediation Event Observations): An event data framework for a post-Cold War world. Paper presented at the 98th Annual Meeting of the American Political Science Association, 29 August–1 September (www.apsanet.org).

Gleditsch, Kristian Skrede (2007) Transnational dimensions of civil war. *Journal of Peace Research* 44(2): 293–309.

Gleditsch, Nils Petter; Peter Wallensteen, Mikael Eriksson, Margareta Sollenberg & Håvard Strand (2002) Armed conflict 1946–2001: A new dataset. *Journal of Peace Research* 39(5): 615–637.

Hagelstein, Roman (2008) Explaining the violence pattern of the Algerian civil war. HiCN working paper 43 (http://www.hicn.org/papers/wp43.pdf).

Harbom, Lotta & Peter Wallensteen (2009) Armed conflict, 1946–2008. *Journal of Peace Research* 46(4): 577–587.

Hegre, Håvard; Tanja Ellingsen, Scott Gates & Nils Petter Gleditsch (2001) Toward a democratic civil peace? Democracy, political change, and civil war, 1816–1992. *American Political Science Review* 95(1): 33–48.

Hegre, Håvard & Nicholas Sambanis (2006) Sensitivity analysis of empirical results on civil war onset. *Journal of Conflict Resolution* 50(4): 508–535.

Hegre, Håvard; Gudrun Østby & Clionadh Raleigh (2009) Economic deprivation and civil war events: A disaggregated study of Liberia. *Journal of Conflict Resolution* 53(4): 598–623.

Kalyvas, Stathis N (2003) Action and identity in civil wars. *Perspectives on Politics* 1(3): 475–494.

Kalyvas, Stathis N (2007) *The Logic of Violence in Civil War*. New York: Cambridge University Press.

Kalyvas, Stathis N (2008) Promises and pitfalls of an emerging research program: The microdynamics of civil war. In: Stathis N Kalyvas, Ian Shapiro & Tarek Masoud (eds) *Order, Conflict, Violence*. Cambridge University Press, 1–14.

Killicoat, Philip (2006) *Weaponomics: The Economics of Small Arms*. Working Paper (257). Oxford: Centre for the Study of African Economies.

Kreutz, Joakim. (2006) The nexus of democracy, conflict and the targeting of civilians, 1989–2005. In: Lotta Harbom (ed.) *States in Armed Conflict 2005*. Uppsala: Department of Peace and Conflict Research, 173–191.

Lyall, Jason (2006) Pocket protests: Rhetorical coercion and the micropolitics of collective action in semiauthoritarian regimes. *World Politics* 58(3): 378–412.

Lyall, Jason (2008) Does indiscriminate violence incite insurgent attacks? Evidence from Chechnya. *Journal of Conflict Resolution* 53(3): 331–362.

Lyall, Jason & Isaiah Wilson (2009) Rage against the machines: Explaining outcomes in counterinsurgency wars. *International Organization* 63(1): 67–106.

Mack, Andrew (2002) Civil war: Academic research and the policy community. *Journal of Peace Research* 39(5): 515–525.

Moore, Will (2000) The repression of dissent: A substitution model of government coercion. *Journal of Conflict Resolution* 44(1): 127–147.

Moore, Will (2006) A problem with peace science: The dark side of COW. Paper presented at the 48th Annual Convention of the International Studies Association, Chicago, IL, 28 February–3 March.

O'Loughlin, John & Frank Witmer (2010) The localized geographies of violence in the North Caucasus of Russia, 1999–2007. *Annals of Association of American Geographers* 100, in press.

Pevehouse, Jon & Joshua Goldstein (1997) International cooperation and regional conflict in the post-Cold War world: Events data for 12 regional conflicts 1987–1999. Manuscript, University of Wisconsin (http://web.ku.edu/~keds/data.dir/pevehouse.html).

Raleigh, Clionadh (2010a) Political marginalization, climate change and conflict in African Sahel states. *International Studies Review* 12(1): 69–86.

Raleigh, Clionadh (2010b) Seeing the forest for the trees: The effects of physical geography on conflict risk. *International Interactions* 36(4), in press.

Raleigh, Clionadh & Håvard Hegre (2009) Population size, concentration and civil war. *Political Geography* 28(2): 224–238.

Raleigh, Clionadh & Henrik Urdal (2007) Climate change, environmental degradation and armed conflict. *Political Geography* 26(6): 674–694.

Reno, William (1999) *Warlord Politics in African States.* Boulder, CO: Lynne Rienner.

Restrepo, Jorge; Michael Spagat & Juan F Vargas (2006) The severity of the Colombian conflict: Cross-country datasets versus new micro-data. *Journal of Peace Research* 43(1): 99–115.

Rustad, Siri Aas; Jan Ketil Rød, Wenche Larsen & Nils Petter Gleditsch (2008) Foliage and fighting: Forest resources and the onset, duration, and location of civil war. *Political Geography* 27(7): 761–782.

Sarkees, Meredith (2000) The Correlates of War data on war: An update to 1997. *Conflict Management and Peace Studies* 18(1): 123–144.

Schrodt, Philip A; Shannon G Davis & Judith L Weddle (1994) Political science: KEDS – a program for the machine coding of event data. *Social Science Computer Review* 12(3): 561–588.

Sundberg, Ralph (2008) Collective violence 2002–2007: Global and regional trends. In: Lotta Harbom & Ralph Sundberg (eds) *States in Armed Conflict 2007*. Uppsala: Department of Peace and Conflict Research, Uppsala University, 165–190.

Walter, Barbara (2004) Does conflict beget conflict? Explaining recurrent civil war. *Journal of Peace Research* 41(3): 371–388.

Weidmann, Nils B; Håvard Hegre & Clionadh Raleigh (2006) Modelling spatial and temporal patterns of civil war. Manuscript, Peace Research Institute Oslo, PRIO (http://www.icr.ethz.ch/publications/weidmann2006modeling.pdf).

Weinstein, Jeremy (2007) *Inside Rebellion: The Politics of Insurgent Violence*. Cambridge: Cambridge University Press.

Wilkinson, Steven (2006) *Votes and Violence*. Cambridge: Cambridge University Press.

Ziemke, Jennifer (2008) *From Battles to Massacres*. Manuscript, University of Wisconsin (http://www.yale.edu/macmillan/ocvprogram/conf_papers/Ziemke.pdf).

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