Mapping Blue Helmets

Introducing the Geocoded Peacekeeping Operations (Geo-PKO) dataset

Deniz Cil, Department of Government and Politics, University of Maryland

Hanne Fjelde, Department of Peace and Conflict Research, Uppsala University and PRIO

Lisa Hultman, Department of Peace and Conflict Research, Uppsala University

Desirée Nilsson, Department of Peace and Conflict Research, Uppsala University

In this article, we introduce the Geocoded Peacekeeping Operations (Geo-PKO) Dataset, which presents new data on sub-national peacekeeping deployment for all UN missions to Africa, 1994–2014. The Geo-PKO dataset is the most comprehensive dataset of its kind and enables scholars to address new questions about peacekeeping operations and their effects by exploring variations in peacekeeping at the sub-national level. The dataset offers information on several key features of peacekeeping deployment at the local level, such as data on the size of deployments and how these vary over time, as well as information on the location of mission headquarters, the type of peacekeepers deployed, and which troop-contributing countries deploy to each location. This manuscript describes the data collection process and illustrates some of the many utilities of this dataset for the scholarly community. For example, we show that peacekeeping troops are able to reduce battle-related related violence in areas with high road density, suggesting that peacekeepers' ability to project their power is stronger when they can increase their reach and more easily patrol larger territories. Hence, our data can fruitfully be combined with information such as socioeconomic, geographical or demographic characteristics, to further explore how peacekeeping operations can contribute to peace and security in the areas where they operate. By providing fine-grained data on the location of peacekeepers across time and space, the Geo-PKO dataset should help facilitate important inquires that can push the research agenda on peacekeeping forward.

Keywords: peacekeeping, sub-national data, civil conflict

Corresponding author: dcil@umd.edu

Introduction

Over the past two decades, the United Nations has demonstrated greater commitment to enhancing security in a larger number of countries and increasingly complex situations through the deployment of peacekeepers. In the wake of this growing engagement, a vibrant research agenda has developed to probe the efficiency of UN peacekeeping in terms of bringing armed conflict to a halt (e.g. Doyle & Sambanis, 2006; Walter, 2002; Hultman, Kathman & Shannon, 2014; Ruggeri, Dorussen & Gizelis, 2017), protecting civilians (e.g. Hultman, Kathman & Shannon, 2013; Kathman & Wood, 2014), contributing to a stable post-conflict environment within and across state borders (e.g. Beardsley, 2011; Fortna, 2008; Gilligan & Sergenti, 2008; Beardsley & Gleditsch, 2015), as well as to explore patterns of deployment and other mission characteristics (Gilligan & Stedman, 2003; Bove & Elia, 2011; Mullenbach, 2005). A challenge for this research has been the strong reliance on peacekeeping data at the country or mission level, whereas the phenomena of interest often varies substantially within countries. Researchers have highlighted the importance of even more fine-grained distinctions, such as the military or cultural composition of troops (e.g. Kathman & Wood, 2014; Bove & Ruggeri, 2016), which increases the demand for data that better captures the sub-national patterns of peacekeeping deployment and their characteristics.

Spurred by this gap, several recent studies have highlighted the importance of sub-national analysis of peacekeeping to be able to better identify and evaluate the proposed mechanisms for how peacekeeping works (Fjelde, Hultman & Nilsson, 2019; Ruggeri, Dorussen & Gizelis, 2017; 2018; Costalli, 2014, Powers et al., 2015; Dorussen & Ruggeri, 2017). Sub-national data on the location and characteristics of peacekeeping deployment allow researchers,

for example, to probe the importance of *local* presence for violence prevention, and whether peacekeepers may also deter violence in surrounding areas or displace violence to these locations. By addressing these questions with data with higher spatial and temporal resolution, more closely mapping the actors and processes of interest, researchers may speak more directly and confidently about how to improve the design, composition and conduct of peacekeeping missions. Hitherto, sub-national data have only been available for a limited number of countries, and over a shorter time-period.

In this article, we introduce the Geocoded Peacekeeping Operations (Geo-PKO) Dataset, covering sub-national deployments of *all* United Nations peacekeeping missions to Africa from 1994 to 2014. In total, it covers 27 missions in 15 countries. This dataset is the most comprehensive both with regard to time coverage and content that is currently available to researchers. It includes missions with various mandates, including monitoring, peacebuilding and peacekeeping, which are deployed to conflict and post-conflict countries. Each deployment is recorded at the most disaggregated geographical unit possible, meaning the longitude and latitude coordinates of the city/village. This allows users to aggregate the information to various levels of analysis such as grid cells or administrative units, deemed most suitable to their research design. In addition, the dataset includes information on sector- and main headquarters as well as the types of units deployed to each location, i.e. troops, civilian police, and military observers. Finally, for each location where peacekeeping troops are present, the dataset includes information on the total number of troops, the troop-contributing countries, and number of troops per troop-contributing country.

In this article, we first discuss why a new geocoded dataset on peacekeeping missions is

needed to advance academic research on peacekeeping. Then, we provide more information about the data, coding procedures and sources. Next, we illustrate in several different ways how this dataset can become a useful resource for the academic community. We conclude with a discussion of potential avenues of research that can be pursued with the new dataset.

Peacekeeping research and the case for a new dataset

Over the past decade, research on peacekeeping has grown exponentially. Up until recently, the dominant approach in the quantitative literature has been to focus on peacekeeping deployment and its mandate at the country or mission level (Doyle & Sambanis, 2006; Fortna, 2008; Gilligan & Sergenti, 2008; Melander, 2009; Beardsley, 2011; Beardsley & Gleditsch, 2015). With new developments in data (notably Kathman, 2013), research has focused on other more fine-grained distinctions, such as the number and types of personnel (Hultman, Kathman & Shannon, 2013; 2014; 2016; Kathman & Wood, 2014) as well as the cultural diversity of the mission (Bove & Ruggeri, 2016). The move towards more disaggregated data is also seen in studies of the supply side of peacekeeping missions, focusing on patterns of personnel contributions to UN and non-UN missions (Gaibulloev, Sandler & Shimizu, 2009, Bove & Elia, 2011; Gaibulloev et al., 2015; Uzonyi, 2015; Ward & Dorussen, 2016), duration of peacekeeping missions (Wright & Greig, 2012), and variation in the scope and flexibility of mission mandates and institutional oversight (Allen & Yuen, 2014).

While these studies have made important contributions to our knowledge on peacekeeping's effects, highlighting variation across missions and over time, they still render a considerable gap between the data at hand and the level at which the proposed processes – e.g. related to conflict dynamics or civilian protection – unfold. More specifically, both peacekeeping

presence and the security challenges that peacekeepers face vary considerably within countries. Even the variables of interest, such as troop composition, may exhibit great variation across the country. To bridge this gap, recent research has moved to a more spatially disaggregated design. Recent studies drawing on sub-national deployment data highlight the importance of these within-mission variations, looking at whether peacekeepers are deployed where they are most needed, or more responsive to convenience factors (Costalli, 2014; Ruggeri, Dorussen & Gizelis, 2018). Studies also analyze the effect of peacekeepers in reducing conflict at the local level (Costalli, 2014; Ruggeri, Dorussen & Gizelis, 2017; Fjelde, Hultman & Nilsson, 2019). While this research has been pioneering in its empirical approach to studying peacekeeping, the data collections it draws on are still limited in temporal and empirical scope.

We see three main areas for improvement relative to existing sub-national peacekeeping data. First, there is a need to include more empirical cases. Costalli (2014) only examines the peacekeeping mission in Bosnia; Ruggeri, Dorussen & Gizelis (2017; 2018) analyze data on major UN missions in eight countries in Africa for the period 1989–2006; whereas Fjelde, Hultman & Nilsson (2019) focus only on UN missions with a protection mandate. For generalizability, it is essential to include a larger sample of UN missions so as to enable analysis of sub-national deployment patterns and their impact on a number of outcomes across different types of cases (e.g. large and small missions, conflict and post-conflict deployments). Second, there is a need to extend the time-span. There have been significant changes in the nature of peacekeeping deployments in recent years, so a longer time frame should enable more robust generalization of findings. With a larger sample, it is also possible to test the interaction between mission-level variables, where longer and more comprehensive time-series data are already

available, and sub-national level factors. This is an important aspect since the political decision-making at the mission-level still influences the dynamics within missions. Third, there is a need for more nuanced information regarding the characteristics and features of sub-national deployment. For example, if cultural diversity among the troop contributing countries (TCCs) have a positive effect at the mission level (Bove & Ruggeri, 2016), sub-national data on individual TCCs can inform us whether they should work together locally, or whether diversity is only desirable at the aggregate level. Similarly, several studies point to important distinctions between types of personnel (e.g. Hultman, Kathman & Shannon, 2013). Data on personnel composition at specific sub-national locations can provide us with more empirical leverage in understanding the mechanisms through which peacekeeping works. Our dataset speaks directly to these needs.

Presenting the dataset

In this section, we introduce our new dataset that records locations of peacekeeping deployment at the sub-national level, alongside additional information on peacekeeping unit characteristics at each location.

Data format, sources and coding procedures

The Geo-PKO dataset covers all UN peacekeeping missions in Africa, 1994-2014 (see Table I). In addition, our dataset includes a few special political and peacebuilding missions (BINUB, UNOISIL, UNIPSIL). In this version of the Geo-PKO data, we have chosen to cover all missions within one region for a longer time period, over a global sample for a shorter time span.[1] We focus on Africa, which is the region that has hosted most peacekeeping missions in this time

period. This is also a region for which geo-coded data on other aspects of peacekeeping operations are available, for example the Peacemakers at Risk (PAR) dataset on violence involving peacekeepers (Lindberg Bromley, 2018). Our data are based on information from UN deployment maps. The dataset is organized around deployment locations that change over time. It begins in 1994, as this is when the UN started to make maps available on a more regular basis and ends in 2014 – thereby providing sub-national data for all missions in this region covering a period of more than 20 years. Our dataset contains several different identifiers to facilitate merging with other data sources, including spatial coordinates, PRIO-GRID ID:s, administrative unit ID:s, and country codes.

[1] Current version excludes missions deployed in the context of interstate wars/conflicts, i.e., UNOMUR, UNASOG, and UNMEE. Next iteration of the Geo-PKO dataset will expand the geographical and temporal coverage to include all UN missions, regardless of conflict context, through 2018.

Table I. List of missions covered by Geo-PKO

Abbreviation	*Full mission name*	*Main location*
BINUB	United Nations Integrated Office in Burundi	Burundi
MINUCI	United Nations Operation in Côte d'Ivoire	Côte d'Ivoire
MINURCA	United Nations Mission in the Central African Republic	Central African Republic
MINURCAT	United Nations Mission in the Central African Republic and Chad	Central African Republic and Chad
MINURSO	United Nations Mission for the Referendum in Western Sahara	Western Sahara
MINUSCA	United Nations Multidimensional Integrated Stabilization Mission in the Central African Republic	Central African Republic
MINUSMA	United Nations Multidimensional Integrated Stabilization Mission in Mali	Mali
MONUA	United Nations Observer Mission in Angola	Angola
MONUC	United Nations Organization Mission in the Democratic Republic of the Congo	Democratic Republic of the Congo
MONUSCO	United Nations Organization Stabilization Mission in the Democratic Republic of Congo	Democratic Republic of the Congo
ONUB	United Nations Operation in Burundi	Burundi
ONUMOZ	United Nations Operation in Mozambique	Mozambique
UNAMID	African Union/United Nations Hybrid Operation in Darfur	Sudan
UNAMIR	United Nations Assistance Mission for Rwanda	Rwanda
UNAMSIL	United Nations Mission in Sierra Leone	Sierra Leone
UNAVEM II	United Nations Angola Verification Mission II	Angola
UNAVEM III	United Nations Angola Verification Mission III	Angola
UNIOSIL	United Nations Integrated Office in Sierra Leone	Sierra Leone
UNIPSIL	United Nations Integrated Peacebuilding Office in Sierra Leone	Sierra Leone
UNISFA	United Nations Interim Security Force for Abyei	Sudan
UNMIL	United Nations Mission in Liberia	Liberia
UNMIS	United Nations Mission in the Sudan	Sudan
UNMISS	United Nations Mission in the Republic of South Sudan	South Sudan
UNOCI	United Nations Operation in Côte d'Ivoire	Côte d'Ivoire
UNOMIL	United Nations Observer Mission in Liberia	Liberia
UNOMSIL	United Nations Observer Mission in Sierra Leone	Sierra Leone
UNOSOM II	United Nations Operation in Somalia II	Somalia

The data collection process relies on two main sources. First, we rely on the mission progress reports by the Secretary General of the UN to the Security Council or the General Assembly.[2] These reports include updates on the mission activities on a monthly or quarterly basis and contain mission deployment maps providing updates on the sub-national deployments. The frequency of reports issued is usually determined by the Security Council at the time of the mission's establishment. In some cases, the Secretary General prepares additional reports depending on the request by the Security Council and/or new developments on the ground. Second, the UN Dag Hammarskjöld Library Cartographic Section has a collection of peacekeeping mission deployment maps. We have requested and been granted access to maps that are available in digital format that were not included in the mission progress reports.

These deployment maps constitute the primary basis for our coding. Each map includes key information on the peacekeeping units and their location, and the name of each city/town. Every new map released as a part of the progress report and/or included in UN Library's digital collection for missions deployed in Africa region between 1994 and 2014 is included in our dataset. This amounts to 417 maps covering 125 mission-years and 9446 unique mission-locations.

The frequency of mission progress reports, and the deployment updates may differ from mission to mission. We record the release date of the map in month-year format. The mean number of maps per mission-year is three. 17% of mission-years have one deployment map, 15% have two, 22% three, and 46% have four or more maps (maximum of eight) in a given year. Mission-years with fewer maps (1-2) generally correspond to the first or

[2] Available from the UN Department of Peacekeeping Operations website: https://peacekeeping.un.org and http://www.un.org/en/sc/documents/sgreports.

last year of the mission when the number of peacekeepers deployed tends to be at its lowest. They also correspond to years when a mission starts or ends towards the end or beginning of a given year, respectively. Additionally, some missions, e.g. BINUB, UNIPSIL, UNIOSIL, have more focused mandates of assisting host governments in capacity building, and consolidating reforms in the post-conflict transition. These missions are located in the capital of the host country and do not relocate or extend deployments, which is the main reason behind fewer deployment updates in a given year.

We assigned spatial coordinates for each location, using the National Geospatial Intelligence Agency, cross-checked with Google Earth, Uppsala Conflict Data Program Geo-referenced Event Dataset (UCDP-GED), and the original map source. Since the deployment maps provide information on the exact location of a peacekeeping base, the geo-precision for each entry is high.[3] We compared our deployment locations to those identified by Ruggeri, Dorussen & Gizelis (2017) for the mission-years covered by both datasets. They identify 290 unique locations with troop deployment and we identify 288. However, since our data also includes information on headquarters and other forms of deployment, we identify a total of 437 unique locations.

Key dimensions of peacekeeping

The dataset includes information on several key dimensions of peacekeeping presence at the sub-national level. First, it records data on *Type of Headquarters* by using a categorical variable to indicate whether or not a given location serves as a mission, sector, or troop-contributing country

[3] Our geocoding procedures correspond with those of UCDP-GED (Sundberg & Melander, 2013).

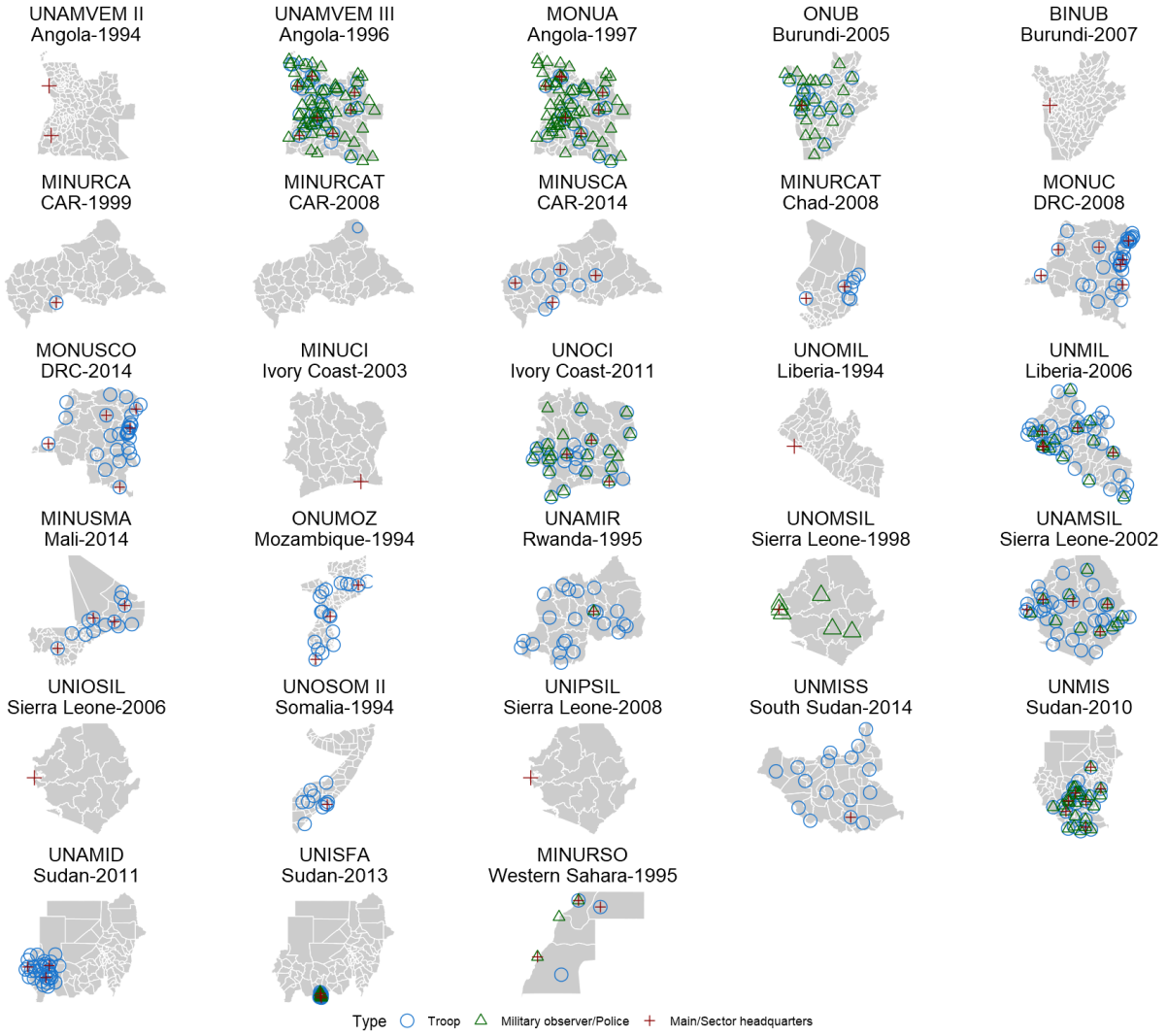
(TCC) headquarter. Second, it records the *Type of Peacekeeping Units* deployed in each location. Unit types include troops, formed police units, civilian police units, and military observer units. There may be more than one type of unit in any given location. Thus, a series of binary variables record whether or not the given type of unit is present or not in a given location. Third, for each location where troops are deployed, we record the total *Number of Troops.* The total number of troops is estimated by multiplying the type of troop units, i.e., battalion, company, and platoon,[4] with their standard unit size. The calculation is based on NATO and UN standard military unit numbers: 650 troops per battalion, 150 troops per company and 35 troops per platoon. Fourth, for each location we also provide detailed data on the troop-contributing countries (TCC), which includes *Number of TCCs,* as well as the *Number of troops per TCC,* in a given location.

Illustrating the utility of the dataset

In the following section, we illustrate the novelty and richness of our dataset in more detail. We start with a snap-shot of all missions included in our dataset at the height of their deployment. As shown in Figure 1 there is great variation across missions in terms of the size of the deployment, and perhaps more importantly, significant differences in the spatial dispersion of the troops at the sub-national level. This variation points to the usefulness of studying peacekeeping deployment and its effects at the sub-national level, as the level of geographical concentration of the troop deployment could entail very heterogeneous processes in how peacekeepers interact with belligerents and civilians within a single territory.

[4] See the Geo-PKO codebook in the appendix for further information.

Figure 1. United Nations peacekeeping missions in Africa 1994-2014



We move on to provide a more in-depth illustration of the data for MONUC in the Democratic Republic of Congo (DRC) over the 12 years of the operation, as a way of showing the granularity and richness in the Geo-PKO data.

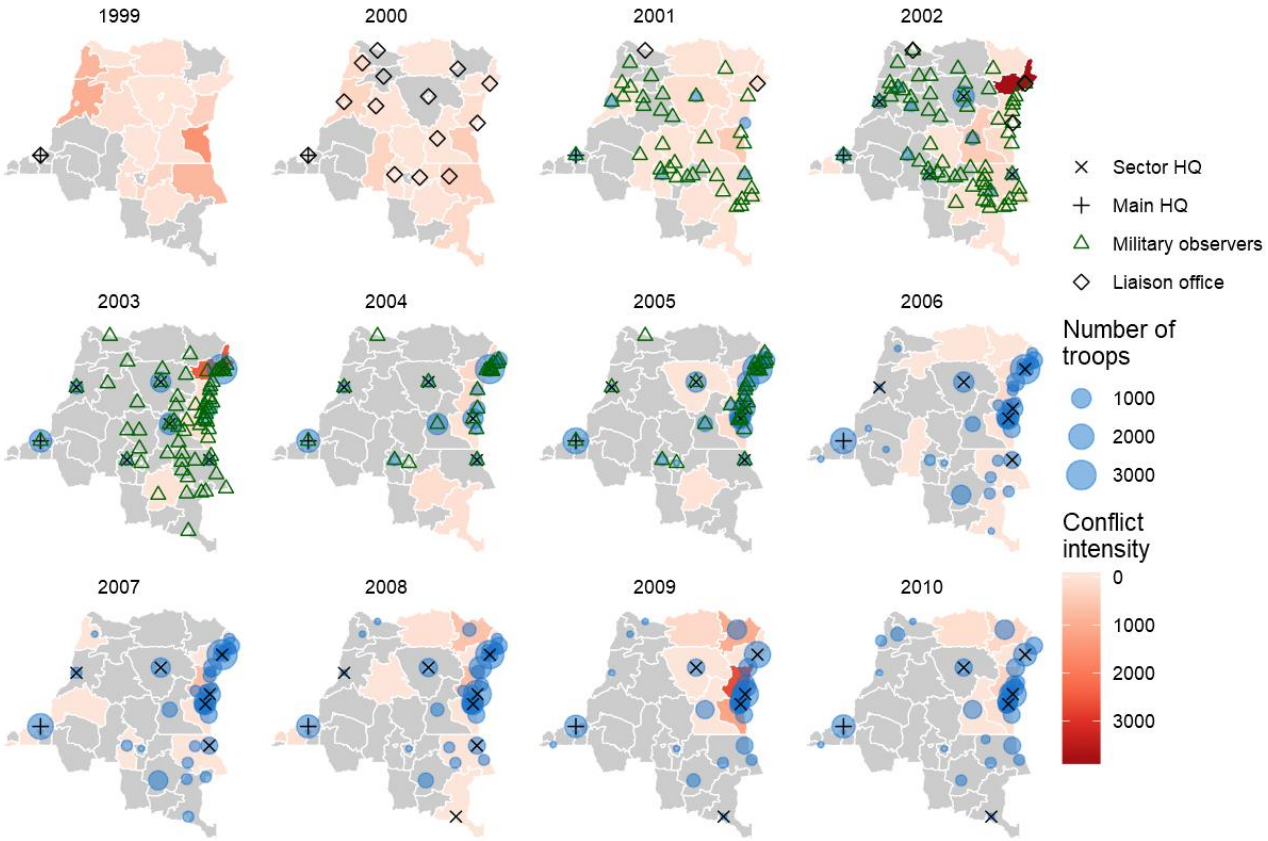
Peacekeepers across locations and over time: The case of MONUC (DRC)

Immediately after the July 1999 Lusaka agreement, the UN Security Council (UNSC) authorized the deployment of UN military liaison personnel, along with the civilian, humanitarian and administrative staff, to monitor the ceasefire, facilitate coordination among signatories and provide technical assistance for the disengagement of forces.[5] This formed the basis for the United Nations Organization Mission in the Democratic Republic of the Congo (MONUC).[6] In the following years, MONUC's size and mandate changed as the implementation of the Lusaka Agreement proved to be challenging, and in 2010 the mission was replaced by United Nations Organization Stabilization Mission in the Democratic Republic of the Congo (MONUSCO). Figure 2 shows the evolution of MONUC over time. Each map is plotted using the latest map available for the given year. This figure also includes information on the intensity of conflict using data from UCDP GED v.18.1, which records each violent event that results in at least one death (Croicu & Sundberg, 2016). The best estimate of battle-related deaths in state-based violence and civilian deaths in one-side violence is aggregated to the level of the second-order administrative unit and year.

[5] United Nations Security Council, Resolution 1258, 6 August 1999.

[6] United Nations Security Council, Resolution 1279, 30 November 1999.

Figure 2: MONUC deployment patterns from 1999 until 2010



The maps in Figure 2 display significant variation in the type of peacekeepers deployed, the location of sector headquarters and liaison offices, as well as the number of troops in each location. In its November 1999 resolution, the UNSC authorized the deployment of 500 military observers primarily to facilitate future UN deployments[7] and later in February 2000 the deployment of MONUC was expanded to include more than 5,000 military personnel.[8] As

[7] United Nations Security Council, Resolution 1279, 30 November 1999.

[8] United Nations Security Council, Resolution 1291, 24 February 2000.

Figure 2 shows, however, it took another year before the military observers and troops were deployed. By the end of 2001, the military observers were deployed in almost all districts, with the exception of southern and south-western districts, as well as Bas-Uele in the north. Troop deployment, however, was limited to six cities, namely Goma, Kalemie, Kananga, Kisangani, Mbandaka and Kinshasa.

The following years the troop locations steadily increased, peaking in December 2006 at 38 locations across the country, but then fluctuated during the last years of the mission, dropping as low as 23 deployment locations in April 2009. Similarly, the presence of the military observers continued to increase across the country reaching its peak in March 2004. However, later in 2004 and 2005, they moved to the east of the country after the mandate was revised. In October 2004, the UNSC requested rapid deployment of military capabilities to Ituri, North and South Kivus and increased the number of personnel by almost 6,000. This revision came as response to the deteriorating security situation in the east and increased attacks against civilians, as well as peacekeepers.[9]

The data showcased in Figure 2 point to large variation in the various features of peacekeeping, evolving both over time and across different regions in DRC. Our data also show that while there is some overlap in terms of conflict intensity and the deployment of peacekeepers, there are important differences in terms of which locations see a higher number of troops deployed – a relationship that can be probed in a more rigorous, statistical framework using the Geo-PKO dataset.

[9] United Nations Security Council, Resolution 1565, 1 October 2004.

Exploring sub-national peacekeeping effectiveness

To illustrate the usefulness of spatially disaggregated data on peacekeeping deployments, we revisit evidence from a conflict-level study showing that the number of peacekeepers is associated with fewer battle-related deaths (Hultman, Kathman & Shannon, 2014). First, we are interested in whether the same pattern is observable at the sub-national level. Second, we want to explore whether local conditions that facilitate peacekeepers opportunity to access and patrol an area also condition the effect of peacekeeping. Focusing on Africa, we take the monthly observation for each province (i.e. first order administrative unit) as our unit of analysis.

Our dependent variable is the number of battle-related deaths, as coded by the UCDP GED (Croicu & Sundberg, 2016). The main independent variable is the number of troops in the province-month. As a moderating variable, we create a dummy variable marking provinces with a low density of paved roads, compared to those with a high density. The data comes from gROADSv1 (CIESIN/ITOS, 2013). Our expectation is that when road density is high, peacekeepers ability to project their power is stronger. Access to roads increases the reach of peacekeeping activities by enabling them to more easily patrol larger territories. It will also enable a quicker reaction once violence escalates. As a result, peacekeepers operating in this context should be better able to prevent and reduce violence. We include a number of standard control variables to account for: a) log of province area size; b) development (nightlight emissions); c) rough terrain (log of area covered by mountains; d) log of population; e) conflict duration; and f) recent conflict dynamics (sum of battle-deaths t-3 to t-1). Given the overdispersion in the data, we use a negative binomial regression model. Results are presented in Table II.

Table II. The local effect of peacekeeping deployment on battle violence

	(1)	(2)	(3)
UN troops$_{t-1}$	0.268	-0.377	-0.304
	(0.168)	(0.121)**	(0.093)**
Low road density	-0.893	-0.961	-0.822
	(0.419)*	(0.422)*	(0.283)**
UN troops*low road density		0.840	0.613
		(0.196)**	(0.150)**
Province area size (log)	0.381	0.381	0.091
	(0.091)**	(0.091)**	(0.085)
Nightlights	1.679	1.610	-1.932
	(1.534)	(1.536)	(1.541)
Mountains (log)	0.184	0.186	0.032
	(0.044)**	(0.044)**	(0.046)
Population (log)	0.158	0.160	0.259
	(0.127)	(0.127)	(0.112)*
Conflict duration	-0.001	-0.001	-0.001
	(0.002)	(0.002)	(0.002)
Conflict moving average	0.126	0.126	0.069
	(0.019)**	(0.019)**	(0.012)**
Constant	-9.762	-9.718	-4.038
	(2.128)**	(2.118)**	(1.777)*
Lnalpha	3.939	3.936	3.547
	(0.112)**	(0.112)**	(0.104)**
N	55,781	55,781	35,408

Negative binomial regression models. Dependent variable is the number of battle deaths.
† $p<0.1$; * $p<0.05$; ** $p<0.01$. Standard errors in parentheses clustered on province.

Model 1 shows the average impact of peacekeeping troops, Model 2 adds the interaction with road density, and Model 3 reduces the sample to only provinces that experience battles. Our findings show that larger peacekeeping deployments at the subnational level do not reduce the number of battle-deaths. However, when we add the interaction term between troops and road density, we find that troops indeed are able to reduce battle-related violence in areas with high road density, suggesting that the impact of peacekeepers is conditional on access to paved roads. This is quite notable, since the negative coefficient of road density in Model 1 shows that violence

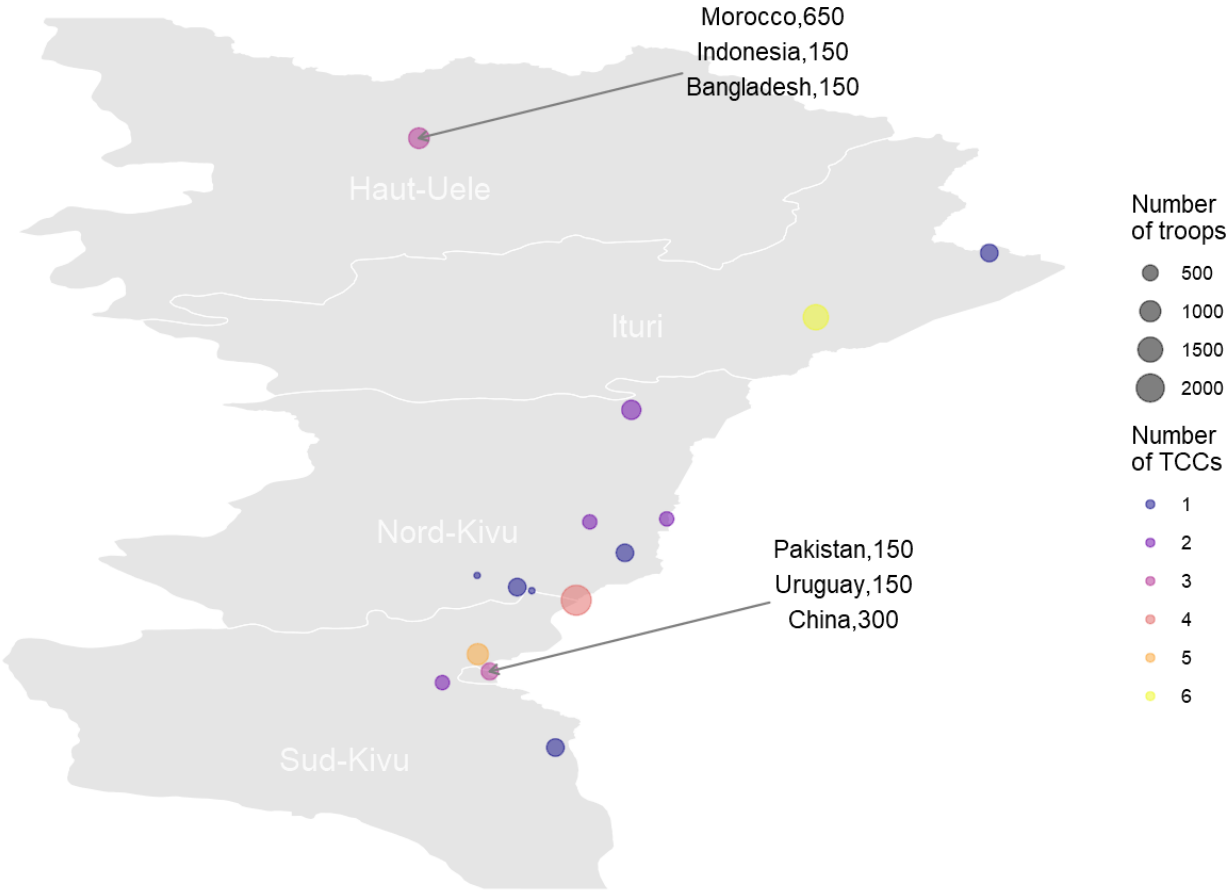
is likely to be higher in areas with high road density, possibly because it marks locations with more economic activity. This means that the local conditions in the areas where peacekeepers operate is an important factor that may explain variation in peacekeeping outcomes within missions. When the local effects are aggregated to the country level, we may miss information about such important factors that distinguish areas where peacekeepers are effective versus areas where they are not. Our analysis does not necessarily imply a causal relationship. However, it indicates that it may be important for future research to consider the varying causal impact of peacekeeping at the local level. Our data provide the opportunity to do so.

Additional features of the dataset

In addition to information about the number and location of peacekeeping deployments, our dataset also includes novel data on troop contributing countries at the sub-national level. Figure 3 shows a sample of MONUC deployment locations as of April 2010 in the north-eastern provinces of DRC.[10] The number of TCCs in each location may be related to the number of troops deployed, as higher numbers of troops are likely to correlate with a higher number of TCCs. A closer look at our data suggests, however, that this may not always be the case. Furthermore, even if the number of TCCs is the same in a location, the countries may be from very different regions of the world.

[10] For ease of visual interpretation, three overlapping bases were removed.

Figure 3. Troop contributing countries (TCCs) to MONUC as of April 2010



As seen in Figure 3, there are several locations with only one TCC (displayed in dark blue), but where troop size varies considerably. At the same time, the location with the largest number of TCCs, six, (displayed in yellow) does not have the largest troop presence. The location that does has four TCCs (displayed in pink). By way of illustration, we display the names of the troop contributing countries in two locations: Dungu and Bukavu. While both have three TCCs, in Dungu the largest contributor, Morocco, constitutes 68% of the troops, whereas in Bukavu, the largest contributor China constitutes 50% of the troops. Other records in our data show an even more skewed allocation of troops in locations with more than one TCC. Are units from different

countries better able to adapt to local conditions and solve problems more effectively as they benefit from the diversity in the unit, or are they hindered by the multiplicity of approaches to problem solving and different background in military training? Geo-PKO allows researcher to probe whether any of these factors have an impact on the performance of peacekeepers on the ground.

Conclusion

Within the civil war literature there has been a surge in research that study civil war processes in a more disaggregated fashion. The move away from national-level studies to sub-national analyses was spurred by the collection of geo-referenced conflict events data. The collection of peacekeeping data at the local level has spurred a new research agenda on the sub-national dynamics of peacekeeping (e.g. Costalli, 2014; Ruggeri, Dorussen & Gizelis, 2017; 2018). Available data sets are, however, limited in terms of geographical and temporal scope. The Geo-PKO dataset is the most comprehensive of its kind, both in terms of content and coverage. The Geo-PKO data can be used to more closely capture the causal mechanisms outlined in existing theories on peacekeeping and to address important questions concerning force composition, size of deployments, and the extent to which peacekeepers are able to deploy to the areas most affected by civil war or dictated by convenience. As we have shown, it also enables researchers to explore how local conditions influence the effectiveness of peacekeepers in their areas of operation.

While there is a growing research field employing sub-national data on peacekeeping deployment, many central questions remain concerning the characteristics of these deployments at the local level and their effectiveness in mitigating various forms of organized

violence. Geo-PKO can be combined with other events data on civil wars, thereby opening up for new promising research avenues. For example, by combing Geo-PKO with the PAR dataset (Lindberg Bromley, 2018) on attacks against peacekeepers it should be possible, for the first time, to explore if certain types of peacekeeping units are at greater risk of attacks than others. Similarly, researchers can combine Geo-PKO with spatially disaggregated data on socio-economic, geographical or demographic characteristics, such as PRIO-GRID (Tollefsen, Strand & Buhaug, 2012), to examine the interactions between such factors and peacekeeping deployment and effectiveness. A stronger research agenda related to sub-national peacekeeping dynamics can offer policymakers better guidance on how peacekeeping operations can contribute to peace and security in the areas where they operate.

While Geo-PKO offers a comprehensive coverage of missions in Africa, future data collections efforts should complement this by focusing on other regions. Moreover, as our dataset is primarily focused on the deployment of military units, additional data collections efforts could hopefully add insights on the civilian side of peacekeeping operations.

Replication data

The dataset, codebook, and do-files for the empirical analysis in this article can be found at http://www.prio.org/jpr/datasets.

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DENIZ CIL, b. 1985, PhD in Government and Politics (University of Maryland, 2016); Postdoctoral Scholar at the Center for International Development and Conflict Management (CIDCM). Main research interests: civil war, conflict resolution, agreement implementation, and peacekeeping.

HANNE FJELDE, b. 1978, PhD in Peace and Conflict Research (Uppsala University, 2009); Research Fellow at The Royal Swedish Academy of Letters, History and Antiquities and Associate

Professor, Uppsala University and Senior Researcher, Peace Research Institute Oslo (PRIO). Main research interests: civil war dynamics, electoral violence, democratization, and regime stability.

LISA HULTMAN, b. 1978, PhD in Peace and Conflict Research (Uppsala University, 2008); Associate Professor, Department of Peace and Conflict Research, Uppsala University. Main research interests: civil war, peacekeeping, and protection of civilians.

DESIRÉE NILSSON, b. 1974, PhD in Peace and Conflict Research (Uppsala University, 2006); Associate Professor, Department of Peace and Conflict Research, Uppsala University. Main research interests: civil war, multiparty conflicts, and conflict resolution.