The MID5 Dataset, 2011-2014:

Procedures, Coding Rules, and Description

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Abstract: This article introduces the latest iteration of the most widely used dataset on interstate conflicts, the Militarized Interstate Dispute (MID) 5 dataset. We begin by outlining the data collection process used in the MID5 project. Next, we discuss some of the most challenging cases that we coded and some updates to the coding manual that resulted. Finally, we provide descriptive statistics for the new years of the MID data.

[1] We are grateful to Liza Buschinski, Matt Lane, Scott Piazza, Connor Somgynari, and Zhanna Tereshchenko for research assistance. We also thank Andrew Dudash and Jeffrey Knapp for their assistance with news databases. This project was funded by the National Science Foundation, grant number 1528409. All of the datasets described in this paper are available at the Correlates of War website (https://correlatesofwar.org/Datasets.htm).

Understanding the sources of interstate conflict has long been at the heart of the international relations literature. While recent decades have seen a decline in large-scale interstate conflict, it is not clear if this is an aberration or a permanent trend (Braumoeller 2019; Fazal and Poast 2019). Even if less common, interstate war continues to have an unmatched potential for destruction. Understanding the sources of interstate conflict and how small disputes can escalate to large wars therefore remains a fundamentally important task for international relations scholars. Having access to datasets that record international conflict in a systematic way across time and space is crucial to the scientific study of these questions.

The most widely used dataset of interstate conflict is the Militarized Interstate Dispute (MID) dataset. This dataset has had four previous iterations: MID1, covering the years 1816-1976 (Gochman and Maoz 1984); MID2, adding the years 1977-1992 and some new variables (Jones, Bremer, and Singer 1996); MID3, covering the years 1993-2001 and introducing new data on the incidents that comprise MIDs (Ghosn, Palmer, and Bremer 2004); and MID4, augmenting the data to include the years 2002-2010 and pioneering a new method of processing news articles (Palmer et al. 2015). This article introduces the MID5 dataset, which adds the years 2011-2014.

This article will discuss the coding process for the MID5 project, focusing on the differences between it and MID4 and the issues that arose during the construction of the dataset. It will then discuss some difficult cases encountered and updates made to the coding manual as a result. The article will conclude by describing the four new years of MID data and comparing it to prior years.

The MID5 Data Collection Process

The MID data collection process has evolved over time. MID1 and MID2 researchers reviewed print sources, primarily monographs. MID3 researchers used Lexis-Nexis to retrieve news reports, but manually reviewed all search results. Because this manual review became increasingly cumbersome and represented a bottleneck in the process of constructing the data, MID4 introduced automated documentation classification to reduce the number of documents that needed to be read by human coders.

In the MID5 project, we sought to introduce further automation by crowd sourcing the human coding tasks. We gave news reports about international events to MTurk workers and asked them to answer a series of questions that could be converted into MID codings. As described by D'Orazio et al. (2016), we found that the accuracy of crowd-sourced coding ranged from 68 to 76 percent. The crowdsourcing processes were scalable and yielded promising results relative to automated methods of collecting conflict data, but we ultimately found that this level of accuracy was not sufficiently high to replace or supplement our previous method of data classification.[2] Therefore, the MID5 data were ultimately coded using the same method as in the MID4 project. That is, trained coders, graduate students in political science, coded the data, with significant discussions taking place about difficult or odd cases.

Our coding method can be summarized as follows: First, we searched for news articles related to international conflict in Lexis-Nexis (now Nexis Uni) and Factiva.[3] We searched many

[2] To provide one example, the MID definition of "threats" states that they are "contingent and usually take the form of an ultimatum; the intention is to take a certain [specified] action against another state if the other state acts, fails to act, or does not refrain from acting in a specified manner" (Jones, Bremer and Singer, 1996, 170). Statements warning of such things as "dire consequences" or "fire and fury" do not constitute threats for MID coding purposes. Even with online training, we found that crowdsourced workers significantly over-coded MID threats.

[3] We used the following search string in Lexis-Nexis: hlead(air base OR air strike OR airbase OR aircraft OR airstrike OR alert OR antiaircraft OR armed OR armo! OR arms OR army OR artillery OR attack OR batteries OR battery OR battle OR battleship OR block! OR bomb OR border OR buildup OR carrier OR casualties OR casualty

of the same news sources used in the MID4 project, but eliminated some sources that overlapped substantially in coverage with other sources and did not help us identify many incidents in MID4. Our final list of sources for MID5 includes Agence France Presse, the Associated Press, the British Broadcasting Corporation, Interfax, the *Jerusalem Post*, the *London Times*, the *Montreal Gazette*, the *New York Times*, and Xinhua. Second, we classified the MID5 documents into "potentially relevant" and "irrelevant" bins using supervised learning and the Support Vector Machine (SVM) algorithm, which is effective in this setting for a broad classification (D'Orazio et al., 2014).[4] To train the SVM classifier, we used labeled documents from the MID4 project.[5] Third, human coders reviewed each of the potentially relevant articles and used them to code militarized interstate incidents (MIIs). Fourth, the MIIs were aggregated into larger militarized interstate disputes (MIDs) using the process established in the MID3 project.

One challenge that arose in the coding process was that access to news articles became more restricted over the duration of the project. While it was initially possible to download large

OR cease OR ceasefire OR cease-fire OR clash! OR combat OR conflict OR crisis OR cruiser OR damage OR declare war OR defence OR defense OR defensive measures OR defian! OR deploy! OR destroy OR detained OR dispatch! OR display of force OR dispute! OR embargo OR erupt! OR fight! OR fire OR fired OR forc! OR fortification OR hit OR hostile OR incursion! OR infantry OR interstate OR invasion OR jet OR kill! OR launch! OR liberate OR line of control OR maneuver OR milit! OR missile! OR mobiliz! OR mortar OR naval OR nuclear OR occup! OR offensive OR operation OR patrol! OR peace declaration OR pullback OR radar OR raid! OR recon! OR reinforcement OR reprisal OR retali! OR rocket OR security OR seiz! OR shell! OR shoot OR shot down OR show of force OR shrapnel OR skirmish OR soldier! OR squadron OR stronghold OR subside! OR target OR tension! OR territ! OR threat! OR trade fire OR troop OR truce OR ultimatum OR USS OR vessel OR violat! OR violence OR vows to OR war OR warn! OR warplane OR warship OR weapon! OR weapons OR withdraw!) AND NOT (sports OR business OR lifestyle OR tax cuts OR entertainment ORWall Street OR budget OR baseball OR food OR weather OR health OR natural disasters). We used an equivalent search string with different syntax when using Factiva.

[4] The text processing details are similar to that of MID4 (Palmer et al. 2015, 225-226). We used normalized term frequency to represent the text as data and filtered any document without at least two geopolitical entities.

[5] More specifically, we used 28,611 documents from the MID4 effort, 8,537 of which were positive. We built the training set using MID4 documents instead of labeling a new sample from the MID5 set because MIIs are rare, and the random sample we would have needed to label would have been extremely large. By using the MID4 set, we were also able to ensure all types of MIIs, and all types of language used to describe MIIs, were present in the training documents.

numbers of articles at a time from the standard Lexis-Nexis (now Nexis Uni) database that most universities subscribe to, Lexis-Nexis eventually began to restrict the number of downloads from its standard database, encouraging bulk users to subscribe to its more expensive application programming interface (API) service instead. Factiva imposed similar download limitations. Due to these restrictions, we believe that large-scale data collection projects may become impossible in the future without access to bulk download services, which is an unfortunate limitation for researchers with limited financial resources. An additional issue that we found with the news databases was that identical queries of the database made at different times would yield different sets of news documents, raising concerns about replicability (see Karstens, Soules, and Dietrich 2020).

Challenging Cases and Coding Manual Updates

In creating the MID5 dataset, we encountered some challenging issues and cases, some of which resulted in modifications or updates to the coding manual. In this section, we discuss coding manual changes related to drone strikes, border fortifications, and apologies. We also discuss challenges in coding NATO's 2011 bombing of Libya and conflict between Sudan and South Sudan.

Drone Strikes

Drone strikes by the United States, which began during the years covered by the MID4 project, became increasingly prominent in years covered by MID5. These drone strikes raised two important coding questions. First, the MID Incident Coding Manual states, "Militarized actions are excluded from the incident category when they are provided for by treaty with, or occur at

the invitation or concurrence of, the targeted state."[6] That is, drone strikes that were undertaken with the consent of the targeted state should not be coded in the MID data. We determined that in the period we coded, American drone strikes in Yemen and Somalia occurred at the invitation of those governments. In the case of Pakistan, information in Wikileaks indicated that Pakistan secretly approved of many of the US drone strikes against its territory (Lister 2010). Nonetheless, we based our coding on the public statements of the Pakistani government. Reliance on the public positions of targeted states is consistent with previous coding decisions, where leaked diplomatic cables are not available and public statements form the basis of the historical record. Since Pakistan publicly condemned the strikes, we did not consider them to occur with permission.

Another question raised by drone strikes is whether they are covert actions. According to the MID Incident Coding Manual, "A militarized incident is an overt action taken by the official military forces or government representatives of a state." For drone strikes in Pakistan prior to January 30, 2012, we continued to follow the policy of the MID4 project, which considered US military (particularly Air Force) drone strikes to be public actions taken openly on behalf of the US government, while drone strikes carried out by the CIA were considered covert.[7] However, we began to treat CIA drone strikes in Pakistan as overt beginning on January 30, 2012. On that date, President Obama publicly acknowledged the CIA drone program for the first time in what the *New York Times* (Landler 2012) called an "unusually candid discussion of the Central Intelligence Agency's covert program." Confirmation of the CIA drone program received global

[6] We added the words "or concurrence of" during the MID5 project for greater clarity. Sometimes lack of protests indicates a government's tacit concurrence with militarized actions.

[7] In practice, it was always difficult to distinguish between military and CIA drones based on media reports, so some CIA drone strikes are probably coded in the data even before January 30, 2012.

news coverage. The India-based *Pioneer* (2012) noted that although the drone program "may have been public knowledge" already, "US President Barack Obama went on the record for the first time about an otherwise covert CIA programme that officials would never discuss." This interview also marked a broader shift in US policy. Following the January 30 interview, other US officials also began publicly discussing the CIA drone program (for example, see Brennan 2012). Because of this shift, we treated CIA drone strikes in Pakistan after January 30, 2012 as no longer covert. We have clarified this in the MID Incident Coding Manual by adding the sentence, "Strikes by unmanned drones are attacks when the initiator is identifiable and there is clear evidence, such as public acknowledgement, that the use of unmanned drones against the territory, armed forces, or population of the target was non-covert at the time of the strike, provided the action meets all other requirements to be coded as a militarized incident."

Border Fortifications

During the MID5 project, we also observed a large number of border fortifications that appeared to be intended *not* to deter or prepare for an attack by the military forces of another state, but rather to secure the border against non-state actors in another state. If these border fortifications were purely directed at a non-state actor, then they did not meet the criteria for being coded as interstate incidents. On occasion, however, these fortifications seemed simultaneously to serve an interstate signaling function, putting pressure on another state to better control the non-state actors in its territory. For example, we determined that Kenya's fortification of its border with Somalia in 2011 was intended as a signal to Somalia as well as a defense against al-Shabab. To clarify how we dealt with such cases, we updated the definition of a border fortification in the MID Incident Coding Manual to read as follows:

> "Border fortification – an explicit attempt to publicly demonstrate control over a border area through the construction or non-routine reinforcement of military outposts in or near the border area. A border fortification must be directed at a state actor. A border fortification directed immediately or nominally against non-state actor(s) is coded only if it is intended to pressure a state actor to change its policy. In these cases, the action is coded if the context clearly indicates that: 1) the target state can plausibly exert control over the border area relevant to the non-state actor; and 2) the non-state actor does not pose an imminent threat to the initiating state."

This clarification is consistent with our method for coding border fortifications in MID 4.

Apologies

An MII must be an overt, non-accidental, government-sanctioned action. In practice, the MID project has relied on government apologies to identify actions that were accidental or not government sanctioned; such actions have not been coded.[8] In the MID5 project, we made an update to the coding manual to make this policy explicit. The MID Incident Coding Manual now notes:

> "The presence of a prompt government apology or disavowal is an indication that an action was accidental or not authorized, thus failing to meet the definition of an MII. The

[8] Note that there may be cases where State 1 has undertaken a militarized act, to which State 2 responded. State 1's subsequent apology or disavowal will result in State 2's responses being the first codable action, placing State 2 on Side A, what is often taken to mean the "initiating" side. This is one example of what leads the MID Project to urge caution in relying on the "Side A" coding to designate the state that is responsible for the beginning of military hostilities or, colloquially, the state that "started it." As Palmer et al. (2015, 239) put it, "it is erroneous to ascribe properties to Side A outside its identification as the state that took the first codable militarized action in a dispute."

apology must be prompt and explicit in its referent. Subsequent codable actions taken in response to the regretted or disavowed action, however, should be included."

The clarification that the apology must be prompt was inspired by the July 2012 US apology for "the losses suffered by the Pakistani military" (Klapper and Santana 2012), which resulted from a US helicopter attack that killed 24 Pakistani troops on November 25, 2011. The apology was intended to resolve a diplomatic impasse and encourage Pakistan to open its border with Afghanistan to NATO trucks. The over seven-month delay in making the apology cannot be taken to indicate that the attack was an accident or unauthorized. The helicopter attack remains part of MID 4598.

Bombing of Libya

NATO's bombing of Libya (MID 4685) was the single most challenging case that we coded. This MID begins with a US, British, and French threat toward Libya on March 18, 2011 and ends with the fall of Tripoli to rebel forces on August 23, 2011. Although NATO military operations continued in Libya past that date, the MID Dispute Coding Manual says, "In cases of militarized interstate disputes within the context of a civil war, the side that controls the pre-war capital is said to be in control of the government. When effective control of the capital, and hence the central government, is lost by one side and gained by another faction, a change in government is said to have occurred." Thus, on August 23, 2011, the anti-Qaddafi rebels became the government of Libya. Since all NATO activities were occurring with their permission, these activities no longer constituted a MID.

The NATO-Libya MID consisted of many small events, but we divide the MID into four prolonged incidents: NATO's bombing (incident 4685004), NATO's no-fly zone enforcement

(incident 4685002), NATO's reconnaissance and show of presence flights (incident 4685007), and NATO's naval blockade (incident 4685003). There was also a brief naval battle and two threats, for a total of seven incidents. One challenge that we faced in coding the NATO-Libya MID was determining which countries participated on which days, since most news reports only referred to "NATO." Relying on Google and Lexis-Nexis searches as well as a report from RAND (Mueller 2015), we believe we have identified all participant countries. We had to make inferences about participant start and end dates in some cases, so they are approximate.

The biggest challenge was coding fatalities in this dispute. One problem was that fatality estimates were generally wide-ranging.[9] A second problem was that while the MID Project (and the Correlates of War Project more broadly) counts only military fatalities, the estimates we found typically did not distinguish between civilian and military deaths. A third problem is that estimates did not distinguish between deaths of Qaddafi's forces caused by NATO and deaths caused by Libyan rebels, and we judged that coordination between the Libyan rebels and NATO was too loose prior to the fall of Tripoli to count fatalities from rebel attacks as being caused by NATO. In summary, although several thousand people are estimated to have died in the struggle to topple Qaddafi (Black 2013), we need to exclude civilian fatalities, fatalities among rebel troops, fatalities caused by rebels, and all fatalities occurring after August 23, 2011 from the MID fatality count. After these exclusions, we conclude that fatalities were probably fewer than 1,000, and therefore we do not code this dispute as a war. However, we are unable to estimate the level of fatalities in a way that is precise within even a few hundred, so we code the fatality variable as missing.

[9] Sources consulted include Black (2013), Mueller (2015), and Nordland (2011).

Sudan and South Sudan

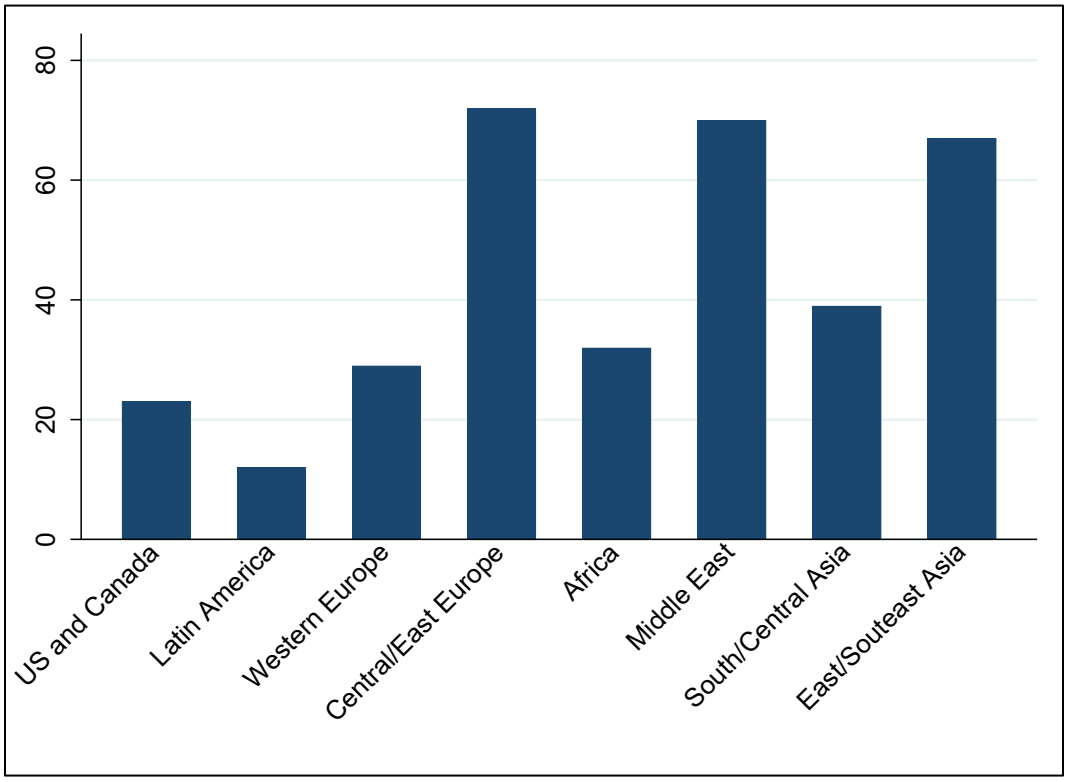
Sudan and South Sudan repeatedly engaged in military clashes between 2011 and 2014. Most of these clashes occurred within six months of each other and were grouped into MID 4656. Fatality levels were consistently unclear. There are two principal reasons for this. First, Sudan and South Sudan provide widely divergent fatality numbers. For example, in an April 2012 battle in which Sudan reestablished control of the border town Heglig, Sudan claimed to have killed 1,000 South Sudanese soldiers, while South Sudan claimed zero fatalities (*Sudan Tribune* 2012). Second, both the Sudanese and South Sudanese armed forces fought in conjunction with numerous non-state actors, such as the Justice and Equality Movement (JEM) and the Sudan People's Liberation Movement-North (SPLM-N) on the side of the South Sudanese government and the paramilitary Popular Defense Forces (PDF) on the side of the government of Sudan (Gramizzi and Tubiana 2013). Given that we are interested in coding only the fatalities of official military forces, the inclusion of numerous non-state actors makes determining any fatality count perilous. We again code the fatality variable as missing. However, we judge that Sudan's high fatality estimates are likely exaggerations and that this dispute falls short of the threshold for an interstate war.

The MID5 Dispute and Incident Data

The MID5 dataset includes 121 new MIDs that began between January 1, 2011 and December 31, 2014. Combined with another 9 MIDs that continued into this period from earlier, there are 130 "active" MIDs between 2011 and 2014. Figure 1 shows a breakdown of MID participants by geographic region. The countries that most frequently participated in MIDs between 2011 and 2014 were in Central and Eastern Europe. This finding is largely driven by Russia playing a

more assertive role on the world stage. In addition to intervening in Syria, Russia engaged in many shows of force targeting the US and US allies. The next most frequent MID participants were countries in the Middle East and East/Southeast Asia. The relative frequency of MID participation by African countries declined in 2011-2014 compared to the previous decade.

Figure 1: Breakdown of MID Participants by Region for MIDs Starting or Ongoing 2011-2014



MID participation also tended to be concentrated in several rivalrous dyads. Table 1 shows the most disputatious dyads in 2011-2014, measured both in terms of total MIDs initiated or ongoing in 2011-2014 and in terms of the number of days in 2011-2014 spent involved in a MID. Both measurement methods produce lists of countries that are known to have poor relations. However, the measure of days spent in dispute is probably a more valid measure of the level of enmity between countries. Several pairs of countries only engaged in a single dispute in

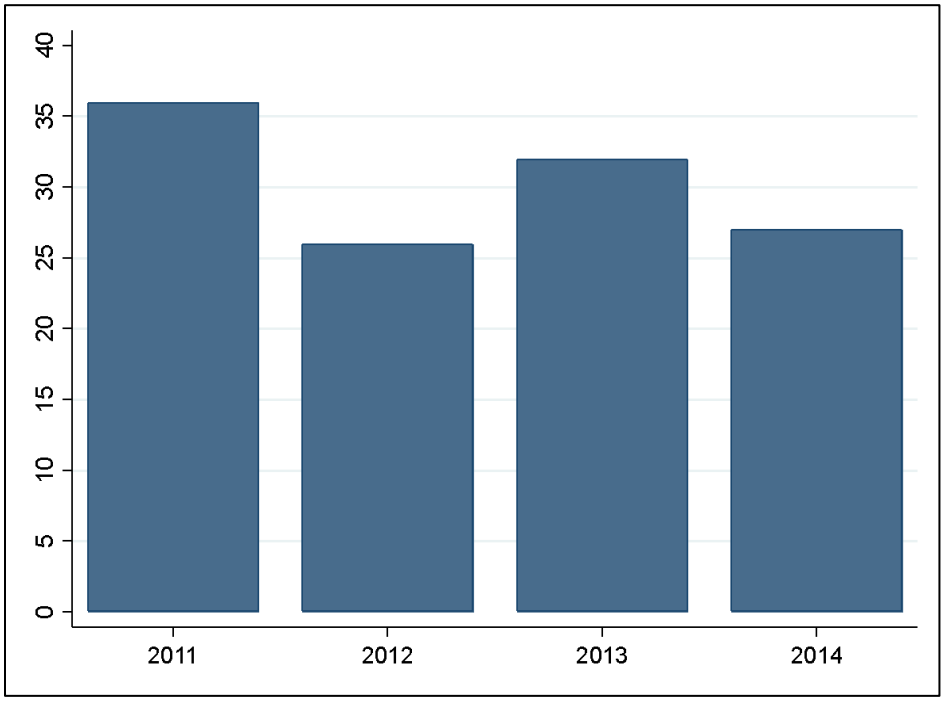
2011-2014, but the dispute lasted for approximately the entire four years, indicating a high level of military activity against each other. Many of these disputes also began before 2011, although Table 1 only counts dispute days since January 1, 2011. The most surprising disputatious dyad might be the UK and Spain, which repeatedly engaged in shows of force over Gibraltar. The number of days that Russia and Denmark spent in dispute might also be surprising. This reflects Russia's increased propensity to conduct shows of force directed at NATO states, with Denmark being a frequent target.

Table 1: Most Disputatious Dyads in 2011-2014

Dyads with the most individual disputes		**Dyads with the most dispute days**	
	Total disputes		Days in dispute
USA-Pakistan	4	North-South Korea	1,173
USA-China	4	Russia-Denmark	1,202
USA-Russia	4	Syria-Lebanon	1,203
Greece-Turkey	4	Israel-Syria	1,319
China-Vietnam	4	Afghanistan-Pakistan	1,432
UK-Spain	4	USA-Pakistan	1,456
Rwanda-DRC	4	Israel-Lebanon	1,460
North-South Korea	5	China-Japan	1,460
Japan-South Korea	5	Armenia-Azerbaijan	1,461
Afghanistan-Iran	5	India-Pakistan	1,461

Figure 2 shows the frequency of MID initiations in each of the new years added to the dataset. A similar number of MIDs began in each year. The year with the most MID initiations was 2011, with 36 MIDs beginning. The years 2012 and 2014 are nearly tied for the fewest MID initiations, with 26 and 27 respectively. Overall, the average rate of MID initiations per year is 30.25. This is a slightly higher MID initiation rate than in the previous decade, when an average of 28.4 MIDs were initiated per year.

Figure 2: MID Initiation Frequency by Year



The average duration of disputes initiated between 2011 and 2014 was 135 days. This is slightly shorter than the average duration of MIDs in the prior decade, which was 163 days. This finding is consistent with a general downward trend in MID duration that has been observed in previous iterations of the MID project. Thirty five percent of MIDs initiated between 2011 and 2014 lasted only a single day. The longest MID initiated between 2011 and 2014 was a border dispute between Afghanistan and Pakistan that lasted 1,432 days (MID 4636). Including MIDs that continued into this time period from prior years, the longest MID ongoing in 2011-2014 was MID 4414, a dispute between Armenia and Azerbaijan over Nagorno-Karabakh that had been ongoing for 4,528 days as of the end of 2014.

As noted above, the building blocks of MIDs are militarized interstate incidents (MIIs). Incidents are defined by being similar actions in similar locations within a three-day time period. Table 2 analyzes how many incidents comprised each newly added MID and compares this to MIDs from earlier years. About 42 percent of MIDs that began between 2011 and 2014 consisted of a single incident, which is a smaller percentage than in prior years. About 11 percent of MIDs initiated 2011-2014 consisted of more than 12 incidents. The percentage of MIDs with more than 10 incidents is nearly twice as large in the MID5 timeframe as in the MID4 timeframe, despite the fact that some MIDs initiated in the MID5 timeframe are truncated at the end of 2014. The MID5 disputes that contain the most incidents involve spillover from the Syrian civil war into Lebanon (MID 4689), border skirmishes between Afghanistan and Pakistan (MID 4636), and interventions by United States, the United Kingdom, Russia, Turkey, Iraq, Saudi Arabia, and Israel in the Syrian civil war (MID 4691). There were also some disputes in which military activity was so frequent that we could not identify three-day gaps, and we coded single incidents that lasted months or years. These include the NATO intervention in Libya (MID 4685; discussed above), conflict between Armenia and Azerbaijan (MID 4414), and US drone strikes in Pakistan during most of 2011 (MID 4575; continued from MID4).

Table 2: Breakdown of MIDs by Number of Incidents (in Percentages)

Number of Incidents	MIDs Beginning 1993-2001 (MID3)	MIDs Beginning 2002-2010 (MID4)	MIDs Beginning 2011-2014 (MID5)
1	47.39	50.59	42.15
2	12.85	19.61	17.36
3	9.64	10.59	12.40
4	5.22	5.49	4.13
5	5.22	1.96	0
6	2.41	2.35	2.48
7	0.8	0.78	4.96
8	2.41	0.78	2.48
9	1.2	0.39	2.48
10	0.8	0.78	1.65
11	0	0.78	0
12	1.2	0	0
>12	10.81	5.85	10.66

Note: The numbers show the percentage of MIDs in each timeframe that have the designated number of incidents. Incident-level data is not available prior to 1993. The percentages for earlier years do not exactly match those reported by Palmer et al. (2015) because of additional incidents added to ongoing MIDs and other updates to the dataset (see Palmer et al. 2020).

Table 3 analyzes how hostility levels have changed over time, at both the dispute level and the incident level. Two trends in hostility levels that were observed in previous iterations of the MID project continued in 2011-2014. First, we see a continuation in the decline of interstate war, as no MID initiated since 2002 has escalated to war.[10] Second, we continue to observe a decline in the frequency of threats. As noted above, the MID project only codes very explicit threats, and international norms may have evolved toward issuing more implicit threats.

[10] The conflict between Armenia and Azerbaijan which is ongoing in 2020 during the writing of this article appears likely to reach the threshold of interstate war.

Table 3: Breakdown of MID and MIIs by Maximum Hostility Level (in Percentages_

Dispute (MID) Level				
	1816-1992	**1993-2001**	**2002-2010**	**2011-2014**
Threat of force	3.49	2.12	1.96	0.83
Display of force	22.45	39.93	39.61	33.06
Use of force	68.37	56.18	58.43	66.12
War	5.68	1.77	0	0
Incident (MII) Level				
		1993-2001	**2002-2010**	**2011-2014**
Threat of force		8.33	1.88	1.36
Display of force		52.17	46.12	50.34
Use of force		39.16	51.92	48.30
War		0.34	0.08	0

Note: The apparent discrepancy in the number of 2002-2010 wars between the dispute-level and incident-level is because the Iraq WMD dispute that eventually became the Iraq War started in 1997, but did not have any war incidents until 2003.

Conclusion

Overall, the new MID data covering the years 2011-2014 show a continuation of previously observed trends, including a trend toward less violent interstate conflict. However, the data also show that there are many pairs of countries that continue to have highly contentious relations, with low-level but frequent military activity directed toward each other. Many of these contentious relationships continue to have the potential to escalate to more serious conflict. While the MID data do not explicitly code external involvement in civil wars, a qualitative analysis of the 2011-2014 data show that this was also a major driver of interstate conflict. In the case of the United States, for example, intervention in civil conflict is the reason for its MIDs with Libya, Syria, and Pakistan.

We have provided a number of modifications in the coding rules, which reflect changes in technology – drone usage – as well as a need to discriminate between motives in the use of an increasing common use of force, border fortifications. We expect technological developments to continue to require modifications or clarifications in the coding rules. Such growth demonstrates the organic nature of the MID dataset and illustrates its adaptability to observed behavior.

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