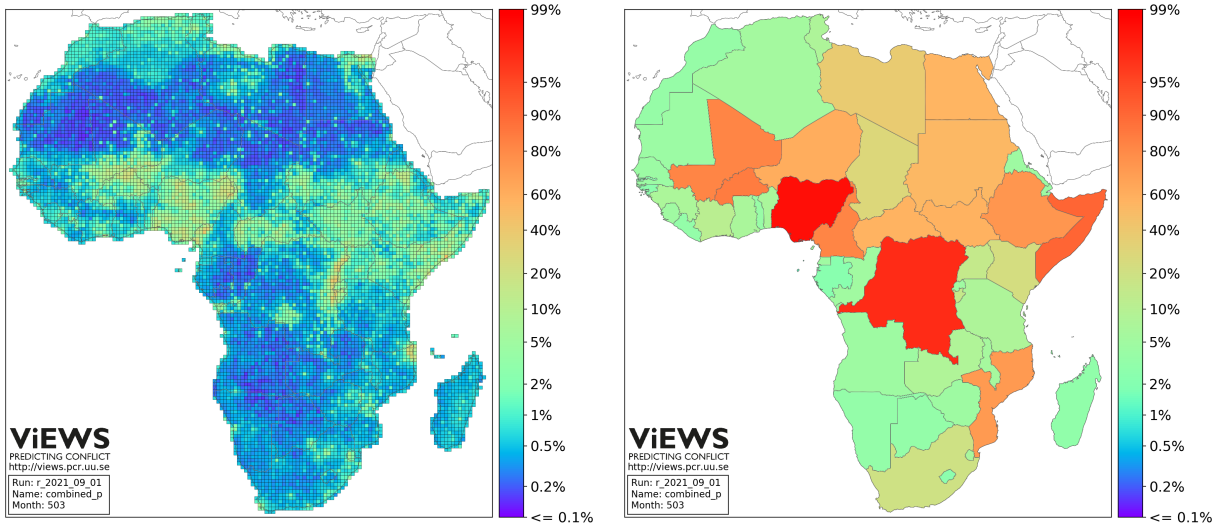
The Risk Monitor: September 2021

Africa-wide forecasts from the Violence Early Warning System (ViEWS)

Forecasts for November 2021, based on data up to and including July 2021.*

By: The ViEWS Team



(a) Forecasts, sub-national level

(b) Forecasts, country level

Figure 1. Combined forecasts for fatal political violence in November 2021. Predicted risk (0-100%) that at least one fatality occurs per sub-national location (left), or at least 25 fatalities per country (right)—from either state-based, non-state, or one-sided violence.

EXECUTIVE SUMMARY

ViEWS generates high-risk alerts for countries with a recent history of fatal political violence. By November 2021, 25 or more fatalities per month from at least one of the three types of violence that ViEWS predicts (see page 8) are almost certain in DRC and Nigeria, and highly likely in Somalia, Mali, Cameroon, and Burkina Faso ($> 75\%$ risk; Figure 1b). More specifically, the forecasting system detects particular risks of fatal political violence over the near future in Borno, Katsina, Kaduna, Zamfara, and the southern states in Nigeria; the Far North and Anglophone region of Cameroon; the Ituri and Kivu provinces of DRC; and in the tripartite border region between Mali, Burkina Faso and Niger. Other high-risk locations include the Tigray region and scattered locations across Oromia in Ethiopia; Mogadishu and other select locations in both southern and central Somalia and in the Central African Republic; the coast of the Sinai peninsula in Egypt; Tripoli and Sirte in Libya; the Saloum mountain in Tunisia; and the Cabo Delgado province of Mozambique. This is illustrated by Figure 1a, displaying forecasts for at least one fatality per appoximately 55x55km location and month. Diffuse risks furthermore form a belt across the Sahel region, its southern neighbours, and the Horn of Africa.

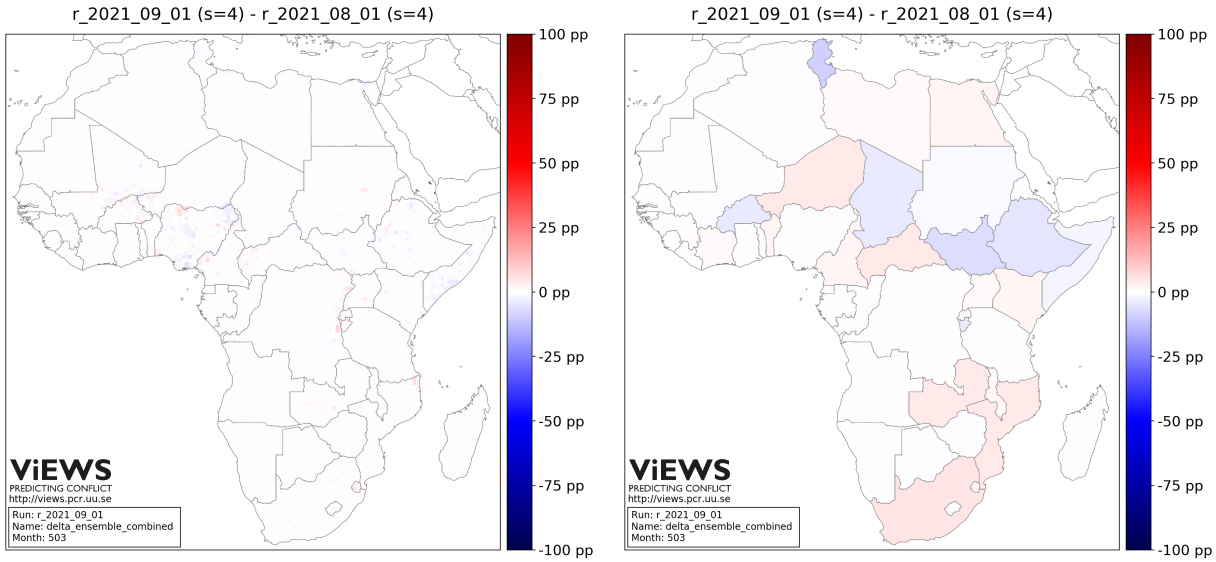
Sub-national changes to the forecasts as compared

*The forecasts were computed on resources provided by the Swedish National Infrastructure for Computing (SNIC) at Uppsala Multidisciplinary Center for Advanced Computational Science (UPPMAX). Descriptions of the ViEWS methodology, including the data informing the forecasts, can be found in Hegre et al. (2019) and Hegre et al. (2021). For a brief overview of key models and definitions, please see page 8 of this report.

Table I. Short-term watchlists[a]

Top 5 high-risk locations in November 2021		**Most notable changes since last month**	
Nationally	*Locally*	*Nationally*	*Locally*
Nigeria	North-East (Nigeria)	Tunisia ↓	Eastern regions (Nigeria) ↓
Somalia	Mogadishu (Somalia)	South Sudan ↓	North-West (Nigeria) ↑
DRC	Ituri and Kivu provinces (DR Congo)	Ethiopia ↓	South Kivu (DR Congo) ↑
Cameroon	Anglophone Cameroon	South Africa ↑	Anglophone Cameroon ↑
Burkina Faso	Cabo Delgado (Mozambique)	Mozambique ↑	Southern/Central Somalia ↓

[a]Based on Figure 1–2, in no particular order.



(a) Changes, sub-national level

(b) Changes, country level

Figure 2. Changes to the combined forecasts since last month by percentage points (pp). Sub-national level (left) and country level (right).

to last month are predominantly confined to the regions above (Figure 2a). Of particular note are the reduced risks in Somalia as well as in Nigeria's North-East, South-South, and South-East. Alerts of heightened tensions are in turn generated for Nigeria's North-West, the Anglophone region of Cameroon, the Kivu provinces of DRC, and Cabo Delgado in Mozambique.

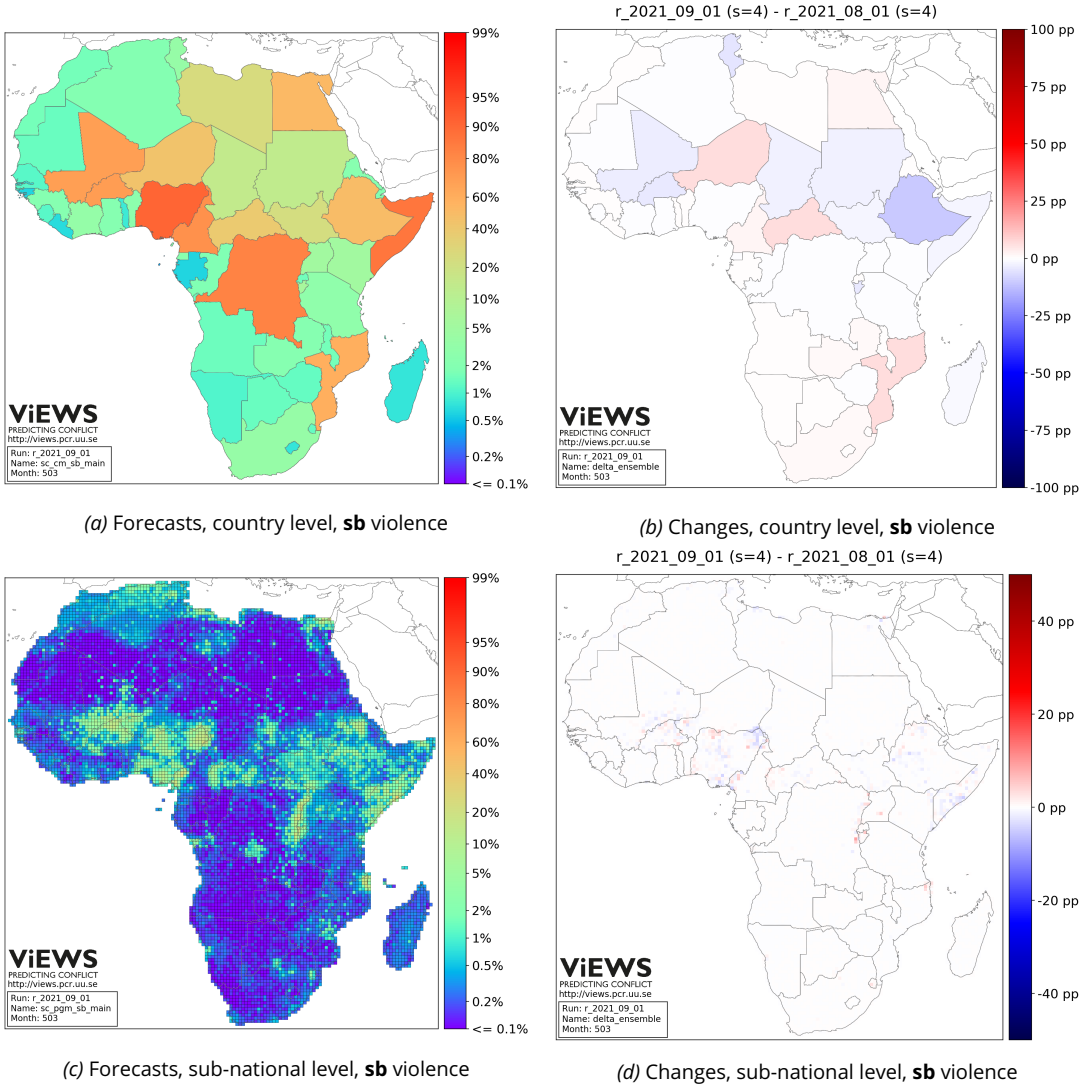
At the country level, the combined risk of 25 or more fatalities per month from either one of the three types of violence has increased for a number of countries, most notably for South Africa, Mozambique, Zambia, CAR, and Niger, while reducing for Tunisia, Burkina Faso, Chad, South Sudan, Ethiopia, and Somalia, further discussed in the sections below (Figure 2b).

Over the following pages, the forecasts are presented separately for each category of violence.

STATE-BASED CONFLICT (SB)

The ViEWS system generates alerts for conflict involving a government of a state in countries with a recent history of fatal political violence and/or mass protests. In Nigeria, DRC, Somalia, Cameroon, Mali, Mozambique, Burkina Faso, Egypt, and Ethiopia, the risk of 25 or more fatalities per month by November 2021 remain high and above 50%, as seen from the red and bright orange fill colors in Figure 3a (red colors indicating a near-certain risk, light orange a risk equal to a coin toss, and purple $< 0.1\%$ risk.)

More specifically, the system suggests that the risk of fatal violence is particularly pronounced for Nigeria – for Borno state in the North-East; Katsina, Kaduna, and Zamfara in the North-West; the cities of Lagos and Abuja; as well as for a portion of the South-East and South-South. High-risk locations are also found in the Far North and Anglophone region of Cameroon; the Ituri and Kivu provinces of DRC; the tripartite border region between Mali, Burkina Faso and Niger; the Tigray region in Ethiopia along with a number of locations across Oromia; Mogadishu and other select locations in southern and central Somalia; the north-eastern coast of Egypt, the north-western coast of Libya; as well as for the central and western regions of Central African Republic (CAR). This is illustrated by Figure 3c, which maps the risk of at least one



(a) Forecasts, country level, **sb** violence

(b) Changes, country level, **sb** violence

(c) Forecasts, sub-national level, **sb** violence

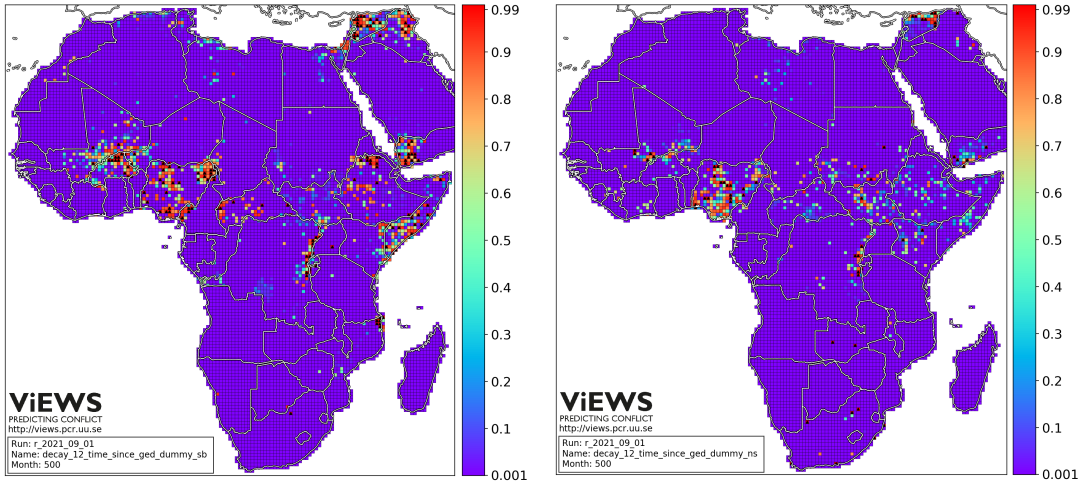
(d) Changes, sub-national level, **sb** violence

Figure 3. Forecasts for the risk of at least 25 fatalities (country level, top left) and 1 fatality (sub-national level, bottom left) from state-based (**sb**) violence in November 2021, and changes to the respective forecasts since last month by percentage points (right-hand column).

fatality per approximately 55x55km (0.5x0.5 decimal degree location, or PRIO-GRID cell), [1] and month across the African continent.

Figure 3b and 3d show how the respective forecasts have changed since last month.[2] Red colors point to heightened risks, whereas blue colors indicate that risks have reduced. The severity of each risk alteration (by percentage points, *pp*) is illustrated by the color saturation; white indicating no change. The figures show that the conflict risks at the country level have remained largely the same as last month, or even reduced – exemplified by Ethiopia, in which the number of deaths from state-based violence dropped significantly between June and July, manifesting as a blue fill color in Figure 3b. The system however alerts to three cases at heightened risk over the near future: Niger, Central African Republic (CAR), and Mozambique – all of which observed fatal organised violence involving a government of a state in July 2021.[3] The Uppsala Conflict Data Program (UCDP, `https://ucdp.uu.se`), the main source of conflict data informing the ViEWS forecasts, recorded more than 60 fatalities in the Nigerien Tillabéri region this July, and nearly 140 in the volatile Cabo Delgado region of Mozambique (both from continued militant Islamist operations). Over 30 deaths were in turn recorded across CAR following renewed clashes between CPC rebels and government or government-affiliated forces. The location of these events are marked with black triangles superimposed on red grid cells in the conflict history map of Figure 4a.

The events above not only served as key drivers for the heightened conflict risks at the country level, but also for the changes to the geographic forecasts – the system alerts to heightened tensions in each of these locations over the coming months (see Figure 3d). Other countries



(a) State-based violence **(sb)**

(b) Non-state violence **(ns)**

(c) One-sided violence **(os)**

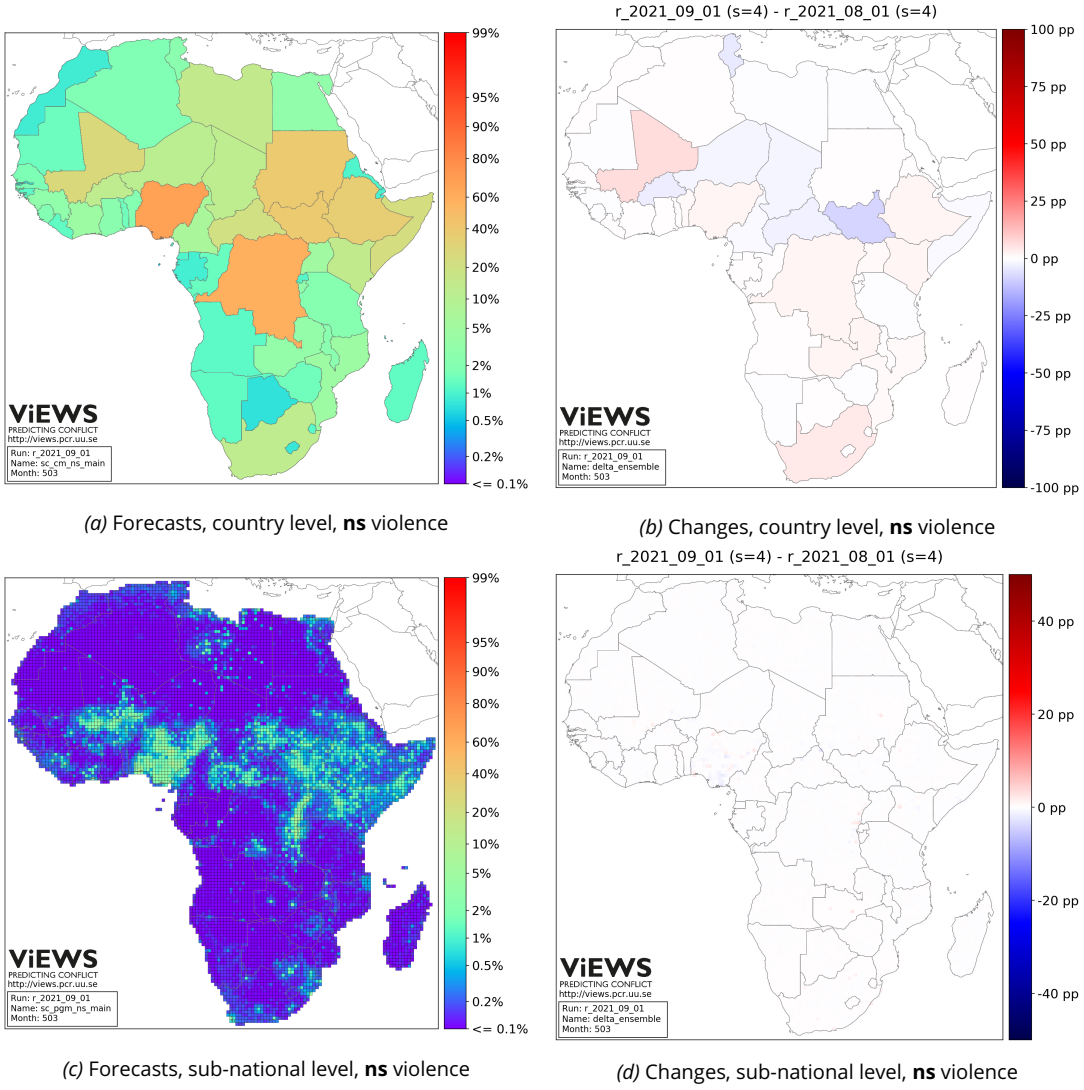
(d) Protests **(pr)**

Figure 4. Illustrations of the recent history of fatal political violence as well as protests (violent and non-violent), as recorded by the UCDP (`http://ucdp.uu.se`) and ACLED (`http://acleddata.com`), respectively. Red cells observed qualifying incidents in July 2021 (distinguished by a black marker) or June 2021. Purple cells have not experienced such incidents for many years.

that observe heigtened tensions at geographic locations include Mali, Burkina Faso, Cameroon, and Somalia (all of which observed fatal violence related to miliant Islamist group operations this July), Uganda (the attempted assination of a General, and security operations to find the perpetrators), Burundi (the killing of a CNDD-FDD party member), the Ituri and Kivu provinces of DRC (clashes between government forces and various armed groups, and attacks by unindentified armed men), and Nigeria. In the latter, increased risks are found along the border to Niger in the North-West, and along the south-western border to Benin (both due to banditry, raids by cattle thiefs, and attacks by gunmen). Furthermore, an IPOB attack on a police station gave rise to a local risk elevation in the South-East, and attacks by militant Islamist groups and country-terrorism operations by the government led to heightened risks at select locations in Borno state. Albeit remaining a conflict hot-spot, risks are however mostly reducing in Borno, as the number of deaths per month has seen a sharp decline in the region after a period of escalating violence.

NON-STATE CONFLICT (NS)

Seen from the mostly blue, green, or light orange shades in Figure 5a, the short-term risks of 25 or more fatalities per month from conflict between two or more armed non-state groups (non-state conflict) are relatively low for the strong majority of the African countries, most often less than 10 or even 5%. The system nevertheless alerts to high risks of conflict in both DRC and Nigeria, and somewhat



(a) Forecasts, country level, **ns** violence

(b) Changes, country level, **ns** violence

(c) Forecasts, sub-national level, **ns** violence

(d) Changes, sub-national level, **ns** violence

Figure 5. Forecasts for the risk (0-100%) of at least 25 fatalities (country level, top left) and 1 fatality (sub-national level, bottom left) from non-state (**ns**) violence in November 2021, and changes to the respective forecasts since last month by percentage points (right-hand column).

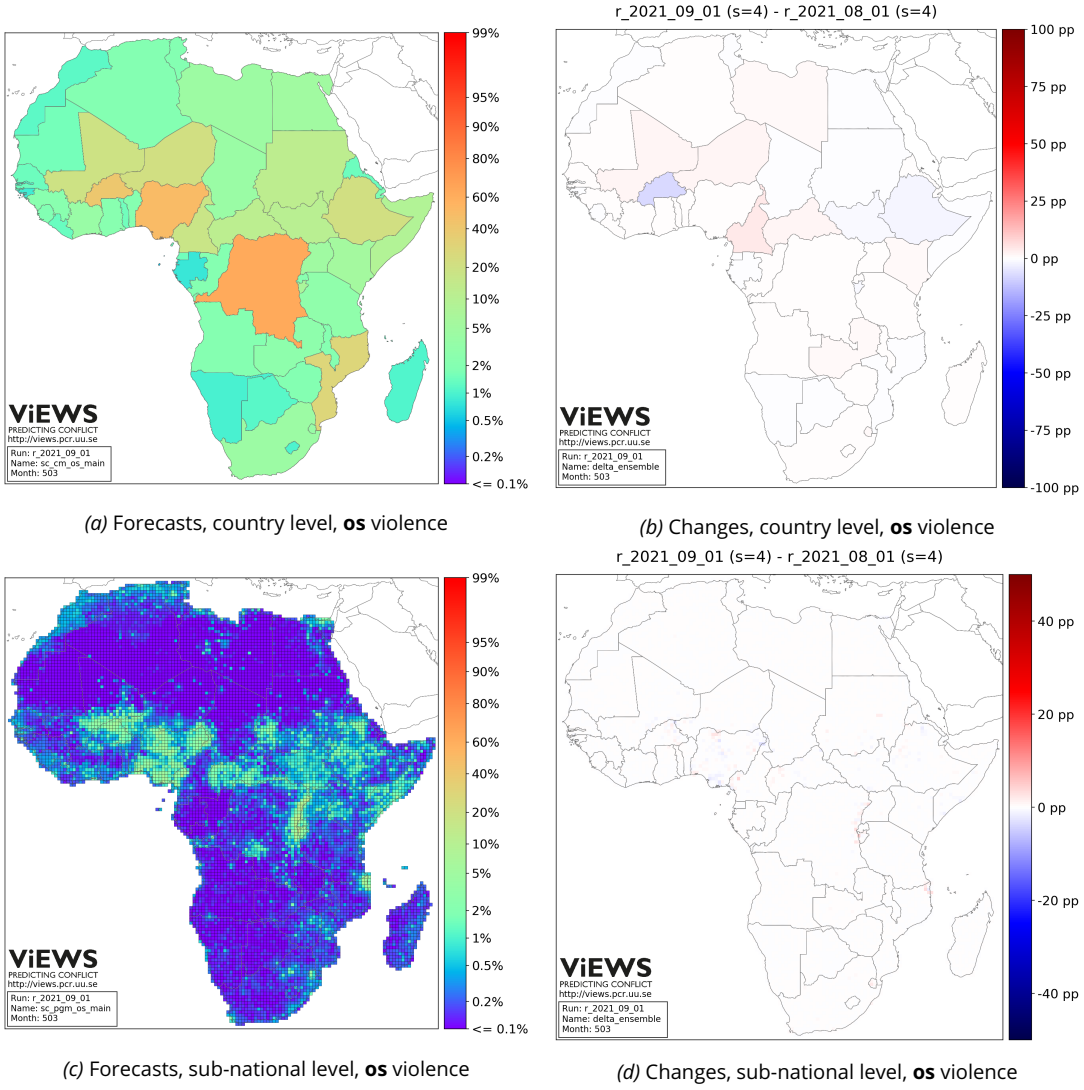
lesser but pronounced risks in the Horn of Africa (with the exception of Eritrea and Djibouti), Sudan, South Sudan, and Mali.

The sub-national forecasts are closely correlated with the country-level predictions. Geographic locations at risk at least one fatality per month over the near future form a belt spanning the Horn of Africa, the southern parts of Sudan, South Sudan, CAR, south-eastern and south-western Chad, northern-most and Anglophone Cameroon, the whole of Nigeria, and the tripartite border area between Mali, Burkina Faso and Niger (Figure 5c). A more intense risk cluster is also found in the Ituri and Kivu provinces of DRC, coupled with scattered at-risk locations across Libya, lands along the Nile delta, southern Côte d'Ivoire and Guinea, West Kasai in DRC, and the largest cities in South Africa.

Changes to the country-level forecasts as compared to last month are mostly moderate and informed by minor fluctuations in the number of montly fatalities. In addition to a notably reduced conflict risk in South Sudan (due to a drop in fatalities between June and July), the most accentuated changes are the alerts of escalating non-state violence in Mali and South Africa.

In Mali, the alert follows a series of fatal attacks by Katiba Macina after a month free from non-state violence. Four separate events were recorded by the UCDP this July: two attacks on Dozos in Segou and Mopti, and two clashes with Dan na Ambassagou in Mopti, resulting in a total of 25 fatalities.

The South African case is yet more somber. Following the July arrest of former President Jacob Zuma for contempt of court, nine days of violent unrest erupted in



(a) Forecasts, country level, **os** violence

(b) Changes, country level, **os** violence

(c) Forecasts, sub-national level, **os** violence

(d) Changes, sub-national level, **os** violence

Figure 6. Forecasts for the risk (0-100%) of at least 25 fatalities (country level, top left) and 1 fatality (sub-national level, bottom left) from one-sided (**os**) violence in November 2021, and changes to the respective forecasts since last month by percentage points (right-hand column).

KwaZulu-Natal and Gauteng, resulting in at least 40 000 businesses looted, burnt, or vandalised (according to BBC Harding (2021)). UCDP records currently lists nearly 100 fatalities from the unrest – sources unbound by the UCDP criteria reporting hundreds more. The events that unfolded have been described as some of the worst violence that the country has seen since the end of Apartheid.[4]

At the sub-national level, overall changes to the forecasts remain relatively few and moderate, much like the country-level counterparts. This can be seen from the mostly white or faint color saturation in Figure 5d. In addition to effects from the events above, the most notable change since last month is a reducing risk of conflict in Nigeria's South-South and South-East, as the level of violence declined over the month of July. Other locations in the country however observe somewhat heightened risks this month following renewed banditry, cultist violence, attacks by gunmen, inter-communal violence, and continued Boko Haram operations. Scattered locations at somewhat higher risk of non-state conflict are also found in the Ituri and Kivu provinces of DRC (clashes between non-state armed groups), Sudan (tribal violence in West Kordofan and Kologi, and inter-communal clashes in a refugee camp in Khartoum), Kenya (banditry in Kerio Valley and inter-communal violence in Marsabit ahead of the 2022 governorship poll), and Zambia (pre-election violence in the Kusaka and Western provinces).

ONE-SIDED VIOLENCE (OS)

With a handful exceptions, the risks of 25 or more fatalities per month are relatively low (less than 5–10%) also

with regards to one-sided violence – violence exerted by an armed actor against unarmed civilians – for the majority of African countries. Most pronounced are the risk profiles for DRC, Nigeria, and Burkina Faso (bright orange colors in Figure 6a). Also Mali, Niger, Cameroon, CAR, Sudan, South Sudan, Ethiopia, Somalia, and Mozambique nevertheless stand out in the conflict forecasts for November 2021.

At the sub-national level – assessing the risk of at least one fatality per approximately 55x55km location – results are more refined (Figure 6c). We find the Ituri and Kivu provinces of DRC to be particular hot-spots for one-sided violence, persistently plagued by police brutality, Islamist militants, and various armed groups. A less severe risk cluster is also found over DRC's Kasai/Kasai-Central. In Nigeria, in turn, particular high-risk locations include Borno state (grappling with Boko Haram and IS-affiliated groups), Katsina, Kaduna, and Zamfara states (with a history of banditry), and the southern states. Other 'hot-spots' include northernmost Cameroon, Cabo Delgado in Mozambique, and the broader tripartite risk cluster spanning central Mali, northern/north-eastern Burkina Faso, and south-western Niger (all of which are prone also to state-based violence due militant Islamist operations in the area); Anglophone Cameroon; central and western CAR; and Darfur in Sudan. Last, a more diffuse risk cluster is found over the Horn of Africa.

Changes to the sub-national forecasts as compared to last month are mostly confined to the high-risk areas above (Figure 6d). Most notable are the local risk elevations in the Cabo Delgado province of Mozambique (militant Islamist violence), the Ituri and Kivu provinces of DRC (attacks by ADF and several other armed groups), the Anglophone region of Cameroon (the Ambazonia insurgency), and in north-western Nigeria along the border to Niger (banditry). Reducing risks, in turn, are detected in Nigeria's South-South and South-East, as well as on the border to Cameroon in the North-East.

At the country level, changes are mostly moderate (Figure 6b). Most pronounced is the reduced risk in Burkina Faso, which suffered one of the country's deadliest assaults from armed assailants (180 fatalities) in many years this June, but observed 'only' 9 deaths from one-sided violence the following month.

NOTES

1. The systematic grid structure formed is known as the PRIO-GRID. It is the most spatially granulated level that the ViEWS system currently produces forecasts for. See page 8 for the full definition.

2. Changes to the risk assessments as compared to last month are indicative of effects from new input data, most commonly by publicly available conflict and protest data from the Uppsala Conflict Data Program (UCDP, `http://ucdp.uu.se`) (Pettersson, Högbladh, and Öberg, 2019; Sundberg and Melander, 2013; Hegre et al., 2020) and the Armed Conflict Location and Event Dataset (ACLED, `http://acleddata.com`) (Raleigh et al., 2010).

3. Unless otherwise stated, all fatality counts and details on conflict events noted in this report are derived from the latest relase of the Uppsala Conflict Data Program (UCDP, `https://ucdp.uu.se`) Candidate Events Dataset (Pettersson, Högbladh, and Öberg, 2019; Sundberg and Melander, 2013; Hegre et al., 2020), here the August 2021 release covering the month of July 2021. Any fatality counts listed correspond to the 'best estimate' records.

4. See e.g. Economist (2021) and Fricker (2021) for further details about the unrest.

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DATA SOURCES

Conflict and protest data

Uppsala Conflict Data Program (UCDP)
http://ucdp.uu.se

Armed Conflict Location and Event Data (ACLED)
https://acleddata.com

Other input data

Varieties of Democracy (V-Dem)
https://v-dem.net

World Bank World Development Indicators (WDI)
https://datacatalog.worldbank.org/dataset/world-development-indicators

International Crisis Group's Crisis Watch (ICGCW)
https://www.crisisgroup.org/crisiswatch

PRIO-GRID dataset
https://grid.prio.org/#/

REIGN Rulers, Elections, and Irregular Governance dataset (REIGN), https://oefdatascience.github.io/REIGN.github.io/

SPEI Global Drought Monitor (SPEI)
https://spei.csic.es/index.html

Shared Socioeconomic Pathways dataset (SSP)
https://tntcat.iiasa.ac.at/SspDb/dsd?Action=htmlpage&page=welcome

Ethnic Power Relations dataset (EPR)
https://icr.ethz.ch/data/epr/

DEFINITIONS AND MODELING SET-UP

Types of violence

The ViEWS forecasts take the form of monthly probabilistic assessments of the risk and likely severity of three forms of organized political violence occurring in a given month, as defined by the Uppsala Conflict Data Program (UCDP):

- **State-based (sb) violence**: the use of armed violence over either government or territory between armed actors, in which at least one is a government of a state;
- **Non-state (ns) violence**: the use of armed force between two organized armed groups, neither of which is a government of a state, and;

- **One-sided (os) violence**: the deliberate use of armed force by the government of a state, or by a formally organized group, against civilians.

Levels of analysis

The results are presented at two levels of analysis using the calendar month as the temporal unit of analysis:

- The country-month (*cm*) level, which follows the country outline determined by CShapes (Weidmann, Kuse, and Gleditsch, 2010), and;
- The PRIO-GRID-month (*pgm*) level, which is outlined by fine-grained geographical locations known as PRIO-GRID-cells, a global quadratic grid structure with cells measuring 0.5 x 0.5 degrees in longitude and latitude, spanning approximately 55 km^2 along the equator (Tollefsen, 2012, `https://grid.prio.org/#/`).

Model descriptions

The forecasting system consists of a suite of forecasting models, each of which has been trained to capture the effects of a particular theme of conflict-inducing factors.

At the national level, the system gives particular weight to structural, slow-moving features and patterns that often characterize countries over a longer period of time, such as the stability of political institutions, democracy indices, and socio-economic factors. It also relies heavily on a number of conflict and protest history models that capture not only the long-term trends in each country and region, but also the most recent developments in each country. Changes to the ViEWS projections are nevertheless most often informed by the latter, more specifically by data updates from the Uppsala Conflict Data Program (UCDP, `http://ucdp.uu.se`) and the Armed Conflict Location and Event Dataset (ACLED, `http://acleddata.com`).

While the national level forecasts do inform the the local forecasts—and vice versa—the forecasting models employed at the two levels of analysis differ from each other. Models informing the national level forecasts bring, for instance, valuable structural and historical factors to the table, whereas models tailored to the sub-national level excel in accentuating effects from local compound risks. This includes—but is not limited to—heightened risks related to local demography, terrain, proximity to natural resources, local precipitation levels, droughts, and conflict history in neighbouring areas. The two sets of forecasts should therefore be seen as separate assessments, which nevertheless are best interpreted in conjunction with each other.

The full suite of forecasting models are described in detail in Appendix B and C to our Special Data Feature in *Journal of Peace Research* (Hegre et al., 2021), available at `https://pcr.uu.se/research/views/publications/`.

Steps s ahead

In some figures, you may see a reference to a particular step s. This refers to the internal ViEWS notation for what number of months ahead (1-36) a given forecast is produced. In any given run of the forecasting system, $s = 1$ refers to the first calendar month following the last month of available data. In this report, the last month of available data was July 2021). Forecasts for $s = 1$ would thus effectively have referred to forecasts for last month, $s = 2$ to the 'nowcast' for the month of writing, $s = 3$ to the forecasts for the following calendar month, and so forth.

FUNDING

The research presented in this report was funded by the European Research Council, project H2020-ERC-2015-AdG 694640 (ViEWS), and Uppsala University.

European Research Council
Established by the European Commission

COLLABORATIONS

ViEWS has an active interaction with other projects, including CLIMSEC, CAVE and CROP at PRIO (`https://prio.org/`), the MISTRA Geopolitics project, and most importantly the Uppsala Conflict Data Program (`https://ucdp.uu.se/`) at Uppsala University.

CODEBASE & PUBLICATIONS

ViEWS' codebase is available at:
`https://github.com/UppsalaConflictDataProgram/OpenViEWS2`

The full list of publications are accessible at:
`https://pcr.uu.se/research/views/publications/`