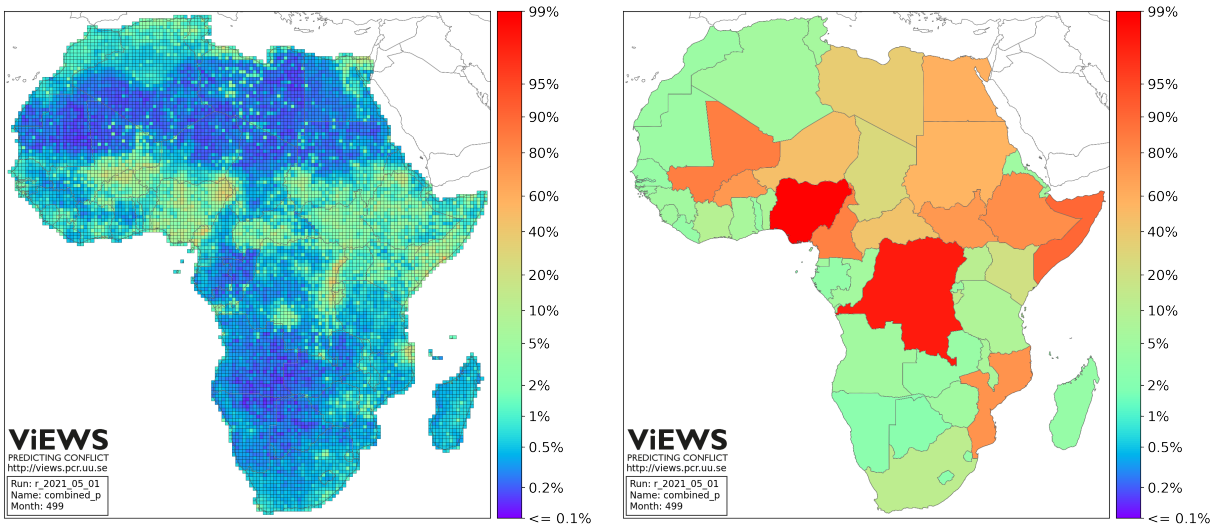
The Risk Monitor: July 2021

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

Forecasts as of 1 May 2021, based on data up until and including March 2021*

By: The ViEWS Team



(a) Forecasts, sub-national level

(b) Forecasts, country level

Figure 1. Combined forecasts for fatal political violence in July 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 July 2021, 25 or more fatalities from at least one type of violence that ViEWS predicts (see list and definitions on page 9) is almost certain in DRC and Nigeria, and highly likely in Somalia, Mali, Cameroon, South Sudan, Burkina Faso, Ethiopia, and Mozambique ($> 70\%$ risk; Figure 1b).

More specifically, the sub-national forecasts of at least one fatality per 0.5x0.5 degree location and month highlight Borno and Katsina states in Nigeria, the Far North and Anglophone Cameroon, the Ituri and Kivu provinces of DRC, the extended border areas between Mali, Burkina Faso and Niger, the Tigray region of Ethiopia, Mogadishu and Kismayo in Somalia, as well as the Cabo Delgado province of Mozambique as particular 'hot-spots' for political violence over the near future (Figure 1a). Diffuse risks furthermore form a belt across the Sahel region, its southern neighbours, and the Horn of Africa.

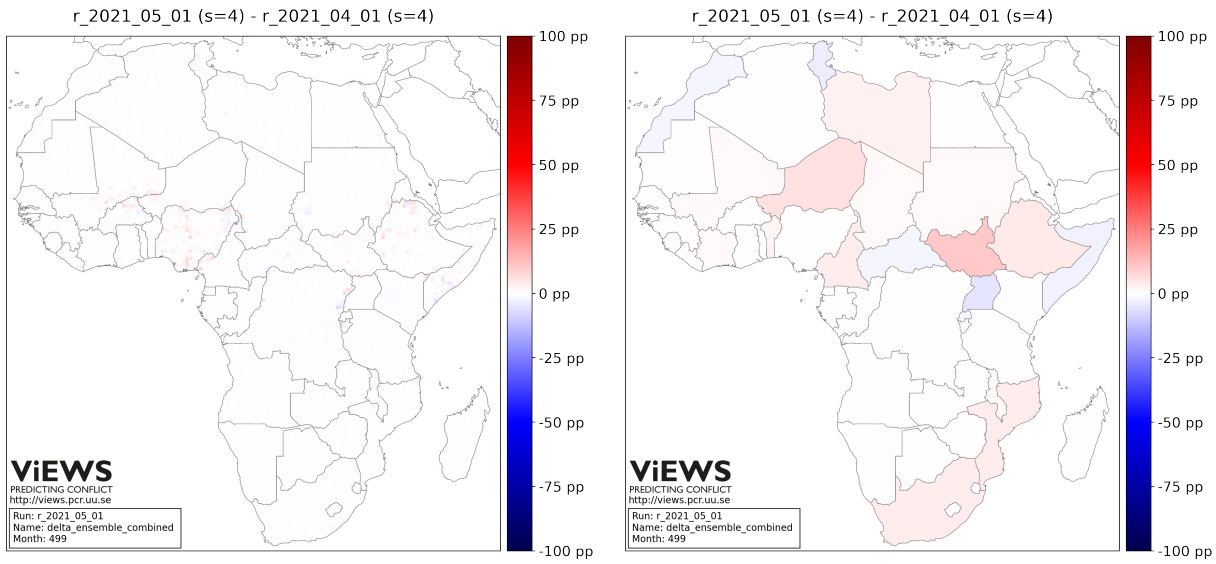
Changes to the sub-national forecasts as compared to last month are predominantly confined to the regions above (Figure 2a). Of particular note are the risk elevations in Ethiopia and Nigeria, further discussed in the sec-

*The full suite of data sources and descriptions of the ViEWS methodology can be found at `http://views.pcr.uu.se`, further detailed in Hegre et al. (2019) and Hegre et al. (2021). The full list of models are carefully detailed in the corresponding online appendices to the 2020 update article on ViEWS in *Journal of Peace Research*, available at `http://files.webb.uu.se/uploader/1576/AppendixB.pdf` and `http://files.webb.uu.se/uploader/1576/AppendixC.pdf`. Brief definitions, notations and other useful information can in turn be found on page 9 of this report.

Table I. Short-term watchlists[a]

Top 5 high-risk locations in July 2021		Most notable risk elevations since last month	
Nationally	*Locally*	*Nationally*	*Locally*
Nigeria	Borno state (NGA)	South Sudan	Tigray, Benishangul-Gumuz (ETH)∗
DRC	The Ituri and Kivu provinces (COD)	Niger∗	North West, South East (NGA)∗
Somalia	Anglophone Cameroon	Ethiopia	Anglophone region, Far North (CMR)∗
Mali	Cabo Delgado (MOZ)	Mozambique∗	Mopti, Gao (MLI)∗
Cameroon∗	Mopti (MLI)/Sahel (BFA)	South Africa∗	Sahel region (BFA)

[a]Based on Figure 1–2. New entries this month are marked by an asterisk (∗).



(a) Changes, local 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).

tions below.

At the country level, the combined risks of 25 or more fatalities from at least one of the three types of violence that ViEWS predicts are heightened for a number of countries, most notably for South Sudan, Niger, Ethiopia, Cameroon, South Africa and Mozambique. Reducing risks are nevertheless detected in Morocco, Tunisia, CAR, Uganda, and Somalia (Figure 2b).

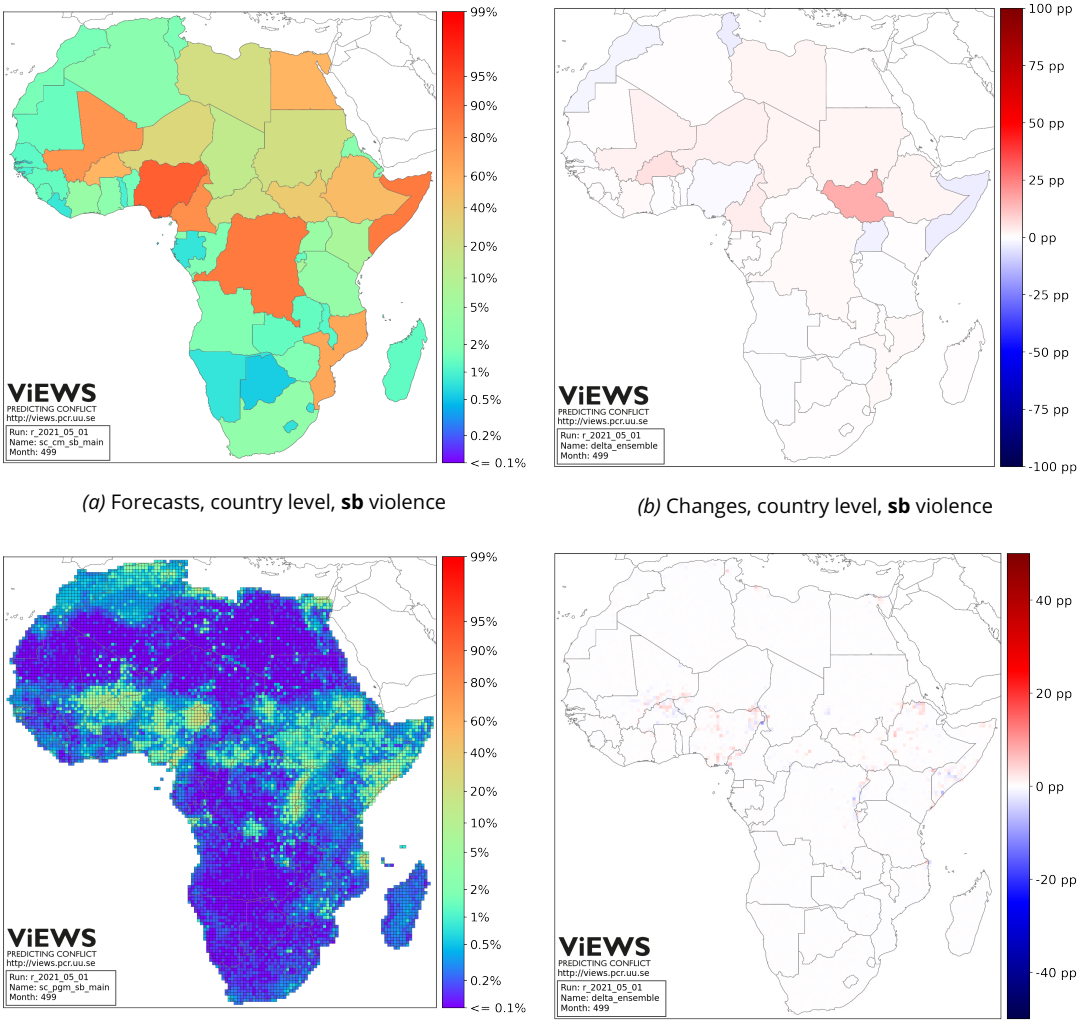
STATE-BASED CONFLICT (SB)

The ViEWS system continues to generate 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, risks of 25 or more fatalities per month by July 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.)

Mapping the difference between the short-term forecasts generated in May 2021 and those produced in April 2021, Figure 3b in turn alerts to changes in the risk projections at the country level as compared to last month (Figure 3d showing the same for the sub-national level). Red colors in the figures point to heightened risks, whereas blue colors indicate that risks are reducing. The severity of each risk alteration (by percentage points, *pp*) is illustrated by the color saturation; white indicating no change.[1]

With the exception of Mauritania, the change map in Figure 3b shows that the risk of 25 or more fatalities per country and month have increased throughout the Sahel region since last month, as well as in neighbouring Libya and Cameroon. Each of these countries observed fatal violence categorized as state-based violence in March 2021, the last month of conflict data informing the May production of the ViEWS forecasts.[2] The locations of these incidences are marked with black triangles superimposed on red grid cells in the conflict history map in Figure 4a.

Showing the changes to the geographic forecasts of at least one fatality per approximately 55x55km location



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

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

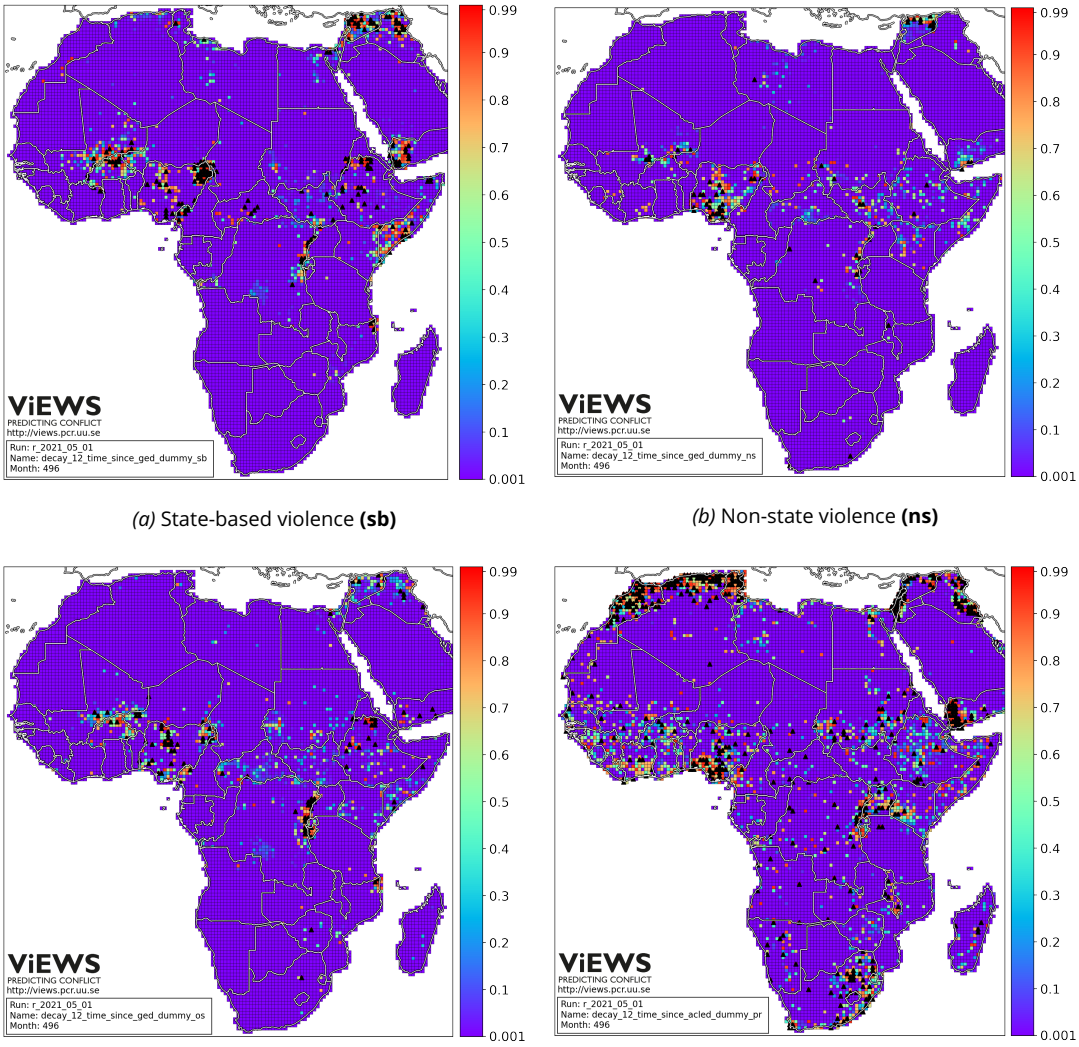
(c) Forecasts, sub-national level, **sb** violence

(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 July 2021, and changes to the respective forecasts since last month by percentage points (right-hand column).

and month,[3] Figure 3d further concentrates the risk elevations in the countries above to the specific locations that experienced fatal violence in March 2021, offering some optimism to the somewhat sombre outlook for the near future.[4] More specifically, the ViEWS system alerts to rising tensions in Mopti, Gao and Sahel in Mali and Burkina Faso, where Islamist violence continues to prevail. For the same reason, it also highlights Borno state in Nigeria with particular emphasis on the borders to Niger, Chad, and Cameroon. Other areas at heightened risks include Tigray and Oromia in Ethiopia, including the border to neighbouring Sudan and Eritrea. The Tigray escalation follows continued violence in the aftermath of the conflict that erupted between the former TPLF and the government of Ethiopia this past fall, albeit confirmed fatality counts (from other sources that the remnants of TPLF) were significantly lower in March 2021 than in previous months. The Oromian escalations, in turn, are a result of continued clashes between the OLA and the Ethiopian government.

Less pronounced yet nevertheless heightened risks are also seen from Figure 3d on the southern-most border between Mali and Burkina Faso, on the border between Burkina Faso and Côte d'Ivoire (both a result of JNIM activity), and at scattered locations across South Sudan (Figure 3d). The latter concerned deadly clashes in the southern regions between the government and the National Salvation Front (NAS), an attack by gunmen on an army base in Warrap state, and an attack by an armed youth group on a boat carrying South Sudanese soldiers (former SPLA-IO members) in the Upper Nile.[5] We also see local risk elevations from continued separatist violence in the Anglophone region of Cameroon, a number of incidences related to the ongoing conflict between the government and the CDC rebels in Central African Repub-



(a) State-based violence **(sb)** *(b)* Non-state violence **(ns)**

(c) One-sided violence **(os)** *(d)* Protests **(pr)**

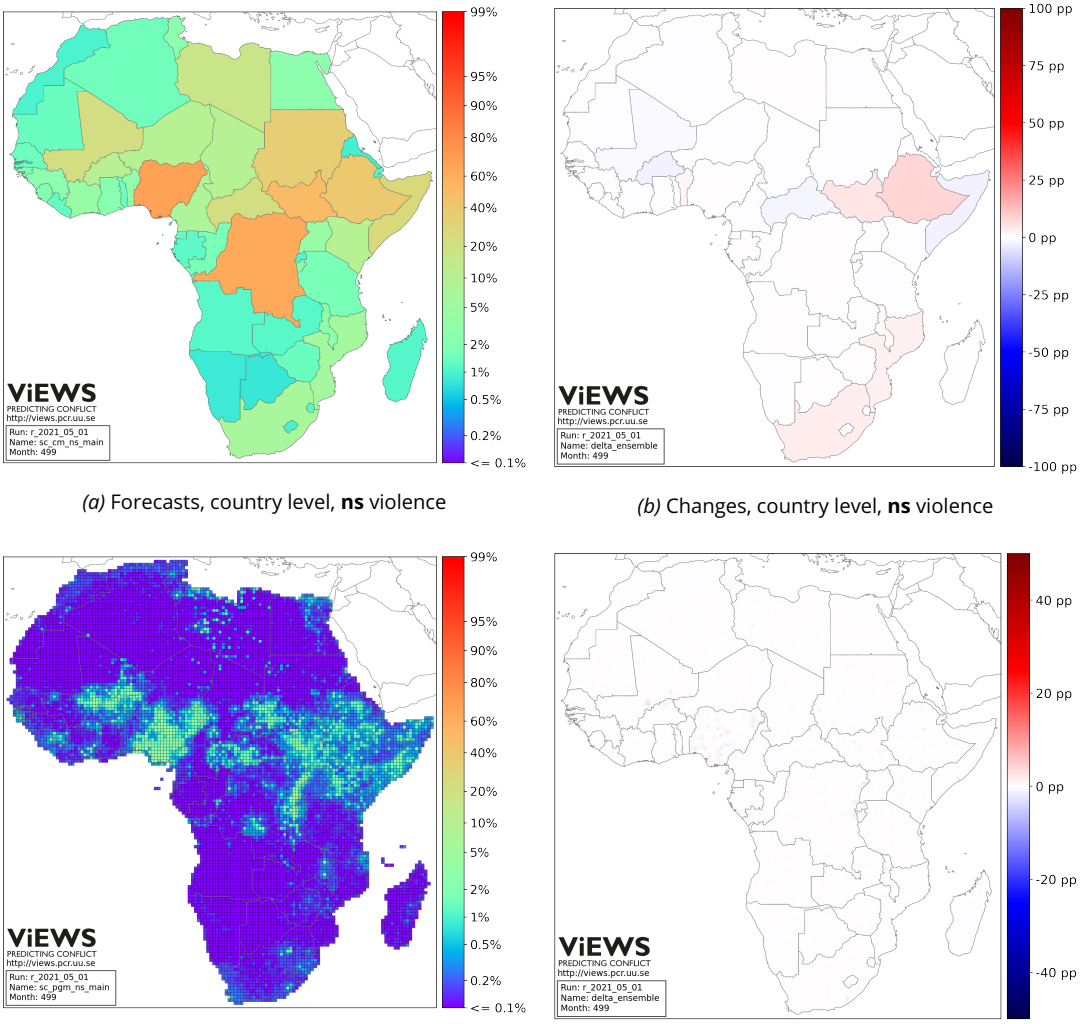
Figure 4. Illustrations of the recent history of fatal political violence as well as protests (violent and non-violent), as recorded by the UCDP (`http://ucdp.uu.se`) and ACLED (`http://acleddata.com`), respectively. Red cells observed qualifying incidents in March 2021 (distinguished by a black marker)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

lic, continued violence in the Ituri and Kivu provinces of DRC and Cabo Delgado in Mozambique, the recent incidences in Tunisia, the explosion of a landmine in Tripoli believed to have been left behind by forces loyal to Haftar last summer, continued Islamist violence in Egypt's North Sinai governorate, and an Islamist militant attack on a prison in the Somalian port city of Bosaso, all in March 2021.

While the developments above offers a somewhat subdued outlook for the near future, a number of positive changes should be noted. Despite the clashes recorded in Morocco this past February, the country was free from fatal state-based, non-state, and one-sided violence the following month, resulting in a declining country-level risk of 25 or more fatalities per month (blue shade in Figure 3b). Uganda, which suffered the loss of six young children in February to youthful play that set off a bomb left behind by rebels active in the Adjumani district decades ago, also remained free from fatal political violence in March. Nigeria and Somalia both suffered a multitude of fatal conflict events in March, but the total number of fatalities and/or number of conflict events recorded in the two countries were lower than those recorded the previous month, rendering the ViEWS system to signal an overall de-escalation also there.[6]

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-



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

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

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

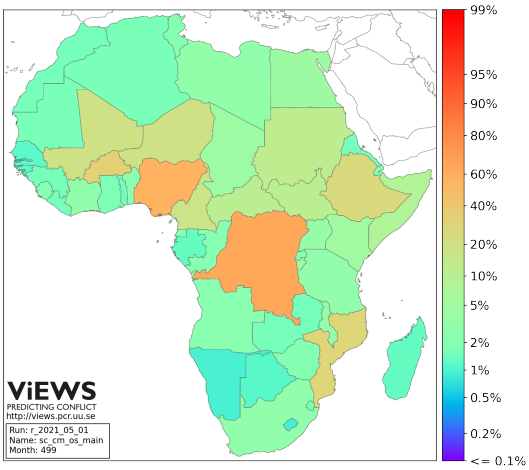
(d) Changes, sub-national level, **ns** violence

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 July 2021, and changes to the respective forecasts since last month by percentage points (right-hand column).

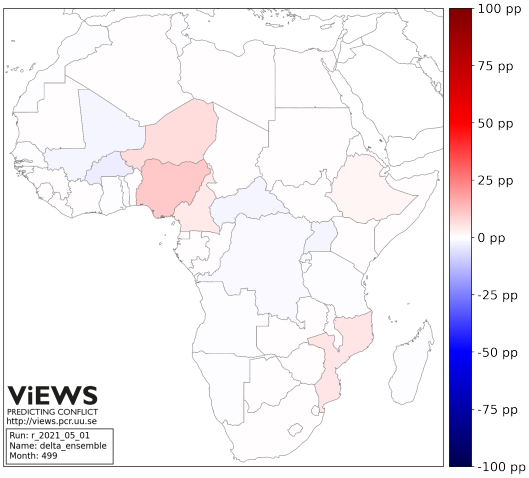
state groups (non-state conflict) are relatively low for the strong majority of the African countries, most often less than 10 or even 5%. DRC, Nigeria, and—as of May—South Sudan are the only countries to exceed a monthly risk of 50% over the next few months.

At the sub-national level, geographic locations at risk of 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-western Chad, northern-most and Anglophone Cameroon, Nigeria, and the extended border areas between Mali, Burkina Faso and Niger (Figure 5c). A more intense risk cluster is also found in the Ituri and Kivu provinces in DRC, coupled with scattered at-risk locations across Libya, broader areas at higher risk over the Nile delta, southern Côte d'Ivoire and Guinea, West Kasai in DRC, and the largest cities in South Africa.

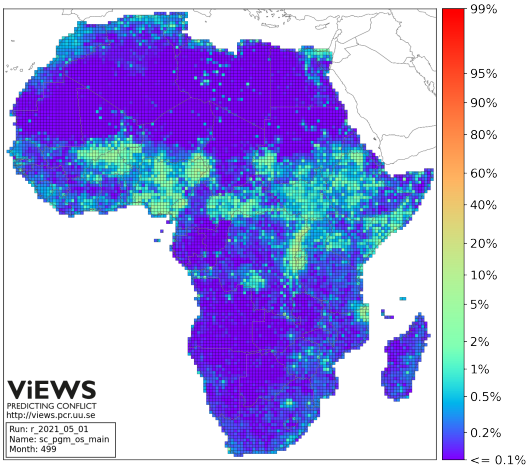
Changes to the sub-national forecasts as compared to last month are very few and moderate, seen from the predominantly white or very faint color saturation in Figure 5d. Scattered locations at both heightened and reduced risk are found across the Ituri and Kivu provinces of DRC and over the whole of Nigeria. A cluster of grid cells at elevated risk is seen in Mali's Mopti region and on the border to Niger in Gao, while de-escalations are detected in Burkina Faso's Sahel region. Individual grid cells at heightened risk furthermore stand out in South Africa's Western and Eastern Cape Province (a spate of shootings), in Ethiopia's Amhara and SNNP region (fatal clashes in Ataye and a shooting during a communal reconciliation event in Amaro Woreda), in Libya's Ubari (reportedly a military operation against Al-Qaeda), in Sudan's Darfur (tribal clashes), in DRC's Equateur (a violent student protest in Mbandaka resulting in one casualty at the



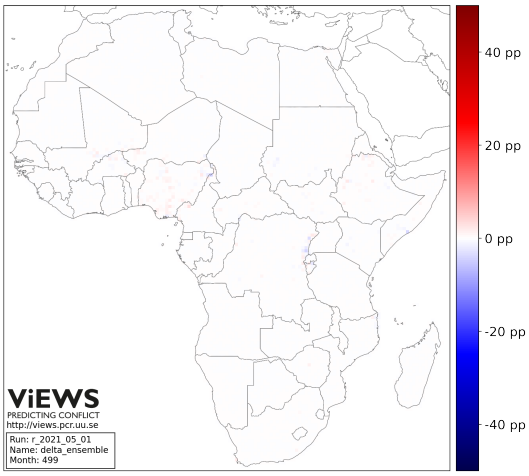
(a) Forecasts, country level, **os** violence



(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 July 2021, and changes to the respective forecasts since last month by percentage points (right-hand column).

hands of police), and in Malawi's Northern region (the killing of a church cleric), in all of which fatal violence was recorded in March 2021 (see Figure 5d and the conflict history map in Figure 4b).

Changes to the country-level forecasts for non-state violence are more pronounced, and this month also rather multifaceted. Most notable is the risk elevation for Ethiopia, brought about by the composite effects of the conflict incidences above and input from a number of other models drawing on different types and sources of conflict data. For South Sudan, the heightened risk stems from a combination of recent violence in the country itself, from violence in neighbouring countries, from ACLED protest data, and from REIGN data related to coups and droughts. For South Africa, in turn, the risk elevation follows recent conflict and protest history (recorded by UCDP and ACLED, see Figures 4b and 4d), and for Mozambique it draws upon recent data from the International Crisis Group's Crisis Watch, and ACLED data on recent violence.[7]

ONE-SIDED VIOLENCE (OS)

With a handful exceptions, the risk 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 Mozambique, Ethiopia, Mali, Niger, Cameroon, South Sudan, Sudan, and CAR nevertheless stand out in the conflict forecasts for July 2021.

At the sub-national level—assessing the risk of at least one fatality per 0.5x0.5 degree 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, particularly high-risk locations include Borno state (which continues to grapple with Boko Haram and IS-affiliated groups), Katsina, Kaduna, and Zamfara states (with a history of banditry), and the southern regions. Other 'hot-spots' include Cabo Delgado in Mozambique, central and western CAR, Darfur in Sudan, and the broader risk cluster spanning central Mali, northern/north-eastern Burkina Faso, and south-western Niger (which are also very prone to state-based violence as Islamist militants operate in the area). Last, a more diffuse cluster is found over the Horn of Africa.

Changes to the risk projections can be observed for a number of countries and sub-national locations, most prominently on the former level of analysis. Compared to last month's projections, the predicted risk of 25 or more fatalities per country and month come July 2021 has decreased in Mali, Burkina Faso, CAR, DRC, and Uganda (blue colors in Figure 6d), increasing in Nigeria, Niger, Cameroon, Mozambique, and Ethiopia (red colors in the figure).

Also at the sub-national level can we find heightened risks for the countries above, more specifically in localities that observed one-sided violence over the course of March 2021 (see the conflict history map in Figure 4c in relation to the change map in Figure 6d). Most pronounced at this level are the risk elevations in Nigeria and Ethiopia—the former informed by numerous deaths at the hands of bandits, other armed gangs and gunmen, cultists, ISWAP, and the Nigerian police, and the latter brought about by continued violence at the hands of both Ethiopian and Eritrean solders as well as Regional Amharic militias in Tigray, an attack by Gumuz gunmen on a public transport bus in Benishangul-Gumuz, and by continued attacks against ethnic Amhara in Oromia.

NOTES

1. 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).

2. All fatality counts and details on conflict events in this report are, unless otherwise stated, derived from the UCDP Candidate Event Dataset (Pettersson, Högbladh, and Öberg, 2019; Sundberg and Melander, 2013; Hegre et al., 2020).

3. 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 9 for the full definition.

4. The sub-national forecasts are derived from a suite of forecasting models that are optimised to generate predictions at this more geographically refined level. While thus different from those applied for the country level forecasts, also the sub-national level models are predominantly informed by recent violence. For more on this, please see page 9.

5. While the effects of the South Sudanese conflict events were moderate at the sub-national level, their composite impact on the country-level risk assessment was significant, leading to the greatest country-level risk elevation in this category on the continent since last month (see Figure 3b).

6. Also Tunisia is shown in a faint blue color in Figure 3b, although this is somewhat misleading. The UCDP applies a continuous coding process of conflict events—records are regularly updated and added to as new information becomes available and confirmed. By the time that the May production of the ViEWS forecasts was made, only two of the now five reported March fatalities in the militarised Mount Selloum area of Kasserine near the Algerian border had been listed in the UCDP database, rendering the system to somewhat misleadingly signal a de-escalation of violence, when the conflict levels had actually remained at about the same level as in the previous month.

7. These details are drawn from the constituent models forecasts, the forecasts generated by each of the

thematic models informing the final ViEWS forecasts. More on these models can be found on page 9.

REFERENCES

Hegre, Håvard, Marie Allansson, Matthias Basedau, Mike Colaresi, Mihai Croicu, Hanne Fjelde, Frederick Hoyles, Lisa Hultman, Stina Högbladh, Remco Jansen, Naima Mouhleb, Sayeed Auwn Muhammad, Desirée Nilsson, Håvard Mokleiv Nygård, Gudlaug Olafsdottir, Kristina Petrova, David Randahl, Espen Geelmuyden Rød, Gerald Schneider, Nina von Uexkull, and Jonas Vestby (2019). "ViEWS: A political Violence Early Warning System". In: *Journal of Peace Research* 56.2, pp. 155–174. doi: 10.1177/0022343319823860. url: https://doi.org/10.1177/0022343319823860.

Hegre, Håvard, Curtis Bell, Michael Colaresi, Mihai Croicu, Frederick Hoyles, Remco Jansen, Angelica Lindqvist-McGowan, David Randahl, Espen Geelmuyden Rød, Maxine Ria Leis, and Paola Vesco (2021). "ViEWS$_{2020}$: Revising and evaluating the ViEWS political Violence Early-Warning System". In: *Journal of Peace Research* In press.

Hegre, Håvard, Mihai Croicu, Kristine Eck, and Stina Högbladh (2020). "Introducing the UCDP Candidate Events Dataset". In: *Research & Politics* 7.3 (3), p. 2053168020935257. doi: 10.1177/2053168020935257. url: https://doi.org/10.1177/2053168020935257.

Pettersson, Therése, Stina Högbladh, and Magnus Öberg (2019). "Organized violence, 1989–2018 and peace agreements". In: *Journal of Peace Research* 56.4, pp. 589–603. doi: 10.1177/0022343319856046. url: https://doi.org/10.1177/0022343319856046.

Raleigh, Clionadh, Håvard Hegre, Joakim Karlsen, and Andrew Linke (2010). "Introducing ACLED: An Armed Conflict Location and Event Dataset". In: *Journal of Peace Research* 47.5, pp. 651–660. doi: 10.1177/0022343310378914. url: https://doi.org/10.1177/0022343310378914.

Sundberg, Ralph and Erik Melander (2013). "Introducing the UCDP Georeferenced Event Dataset". In: *Journal of Peace Research* 50.4, pp. 523–532. doi: 10.1177/0022343313484347.

Tollefsen, Andreas Forø (2012). *PRIO-GRID Codebook*. Typescript, PRIO. url: http://file.prio.no/ReplicationData/PRIO-GRID/PRIO-GRID_codebook_v1_01.pdf.

Weidmann, Nils B, Doreen Kuse, and Kristian Skrede Gleditsch (2010). "The geography of the international system: The CShapes dataset". In: *International Interactions* 36.1, pp. 86–106.

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. While models informing the national level forecasts, for instance, bring valuable structural and historical factors to the table, 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 forthcoming article in *Journal of Peace Research*, 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 March 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 (`www.uu.se`).

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/`