

ViEWS monthly forecasts, September 2020*

Summary of forecasts

Wednesday 30th September, 2020

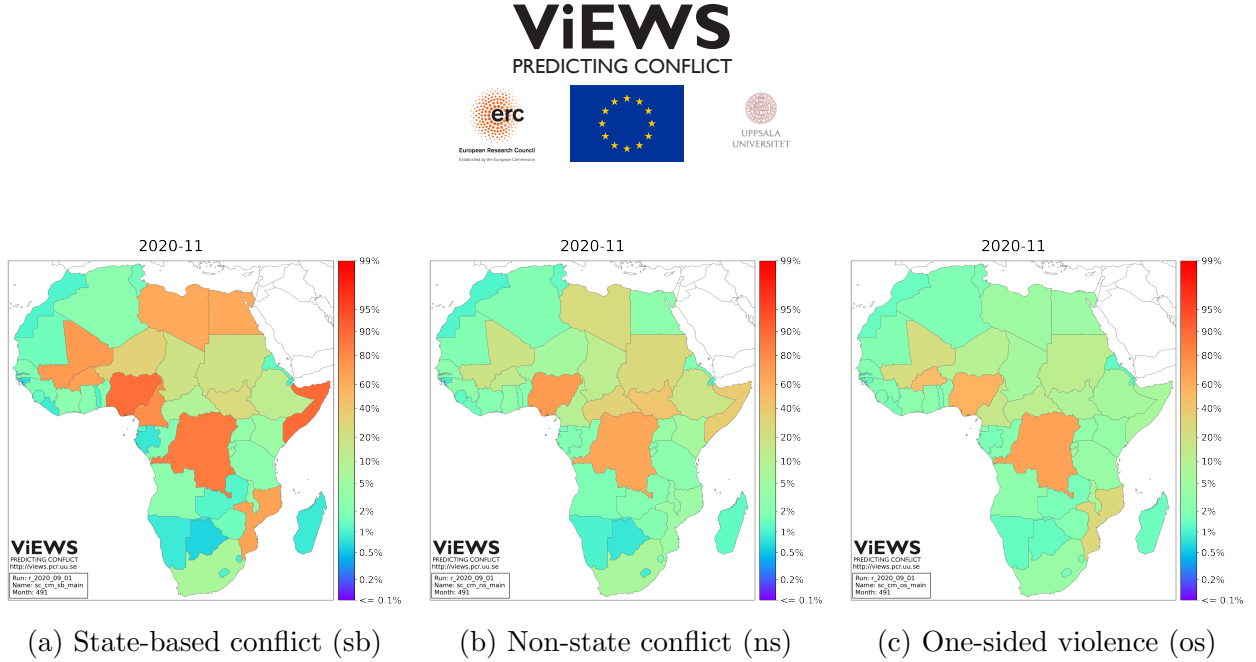


Figure 1: Ensemble forecasts for November 2020.

This report presents ViEWS forecasts at $s = 4$ for November 2020 as of 1 September 2020, which are based on data that are updated up to and including July 2020. The underlying conflict data were produced by the UCDP (<http://ucdp.uu.se>). The ViEWS compilation of these data and data from other sources are available at <https://www.pcr.uu.se/research/views/data/downloads/>.

In the following, we highlight developments in the most recent months. For a discussion of what underlies the forecasts in terms of slowly changing risk factors as well as methodological

*This report was prepared by Håvard Hegre, Mihai Croicu, Frederick Hoyles, Remco Jansen, and Angelica Lindqvist-McGowan. The research was funded by the European Research Council, project H2020-ERC-2015-AdG 694640 (ViEWS). The simulations were performed on resources provided by the Swedish National Infrastructure for Computing (SNIC) at Uppsala Multidisciplinary Center for Advanced Computational Science (UPPMAX).

issues, see the ViEWS introductory article.¹

Figure 1 shows our country-level forecasts (*cm*) for November 2020, Figure 5 the corresponding forecasts at detailed geographic locations (PRIO-GRID level, or *pgm*)², and Figure 7 shows the most recent observed conflict events. Similar reports for previous months are available at <http://views.pcr.uu.se>, along with other information on the ViEWS project.

1 Launch of a new version of the forecasting system

An update to the forecasting system was launched in the beginning of September 2020. It includes a new infrastructure for training, evaluating, and weighing models, a change to the dependent variable at the country-month level, and a number of new forecasting models for each level of analysis. The purpose of the changes is to improve the overall performance of the forecasting system by means of an optimization of the combination of constituent models into forecasting ensembles, a more effective classification of high- versus low-risk cases, and an ability to develop models that specialize in either the immediate or more distant future.

The new infrastructure entails a change to the way we handle data for model evaluation and averaging. Up until September 2020, we have used the same set-up for both forecasting and evaluation of the system. In the new infrastructure, the procedures for the latter have been revised to allow a model that is specified to predict a given step ahead (1-36 calendar months ahead) to be evaluated against all 36 months in both the calibration and testing periods. This provides us with more data for testing and calibration, for example allowing us to capture that some models should be given greater weight when forecasting the immediate future, whereas others are more important for long-term predictions, ultimately yielding more precise results. The new set-up is further detailed in a forthcoming article in *Journal of Peace Research*, the online appendices of which are available at (<https://pcr.uu.se/research/views/publications>). See Appendix A for details on the new set-up.

The change to the dependent variable concerns a threshold increase from predictions of at least one battle-related death (BRD) in a given country and month, to predictions of at least 25 BRDs. In the 2016-18 period, the UCDP recorded violence exceeding the 25 BRD threshold in about 11% of the country-months in Africa, a rate at about half the frequency of country-months with the previous 1 BRD threshold. The higher threshold thus yields more relevant warnings, alerting the international community to more severe cases – and graver changes to the conflict dynamics thereof.

¹<https://journals.sagepub.com/doi/10.1177/0022343319823860>.

²PRIO-GRID is a grid structure that divides the terrestrial world into squares of approximately 55 by 55 kilometers. See <http://grid.prio.org/>.

The new models, in turn, predominantly aim to improve the system’s ability to predict conflict onset by expanding and amending models that are based on structural, slow-changing factors that capture latent risks of conflict, and models that capture early signals of increasing tensions for short-term forecasts. We have also included a number of broad models that include all features from the constituent models of each ensemble. More information on the models are found in Online Appendix B and C to the forthcoming article in JPR, available on the ViEWS website.

Retrospective runs of the new forecasting system have been conducted for July and August 2020, in order to allow for more intuitive comparisons of the most recent forecasts. The July report is however produced using the old set-up, whereas the August reports makes use of the new one.

2 Country-month forecasts for November 2020

The plots in Figure 1 show the ViEWS country-level forecasts for the immediate future – what will happen in November 2020 according to our forecasts? We show the probability of at least 25 or more fatalities in each country in November 2020, based on data up to and including July 2020. Countries with a red color have been assigned a forecast probability close to 1, whereas purple countries have been assigned a probability of less than 0.01. When the forecasts indicate that no event is as likely as at least one event, countries are drawn with a light orange color.

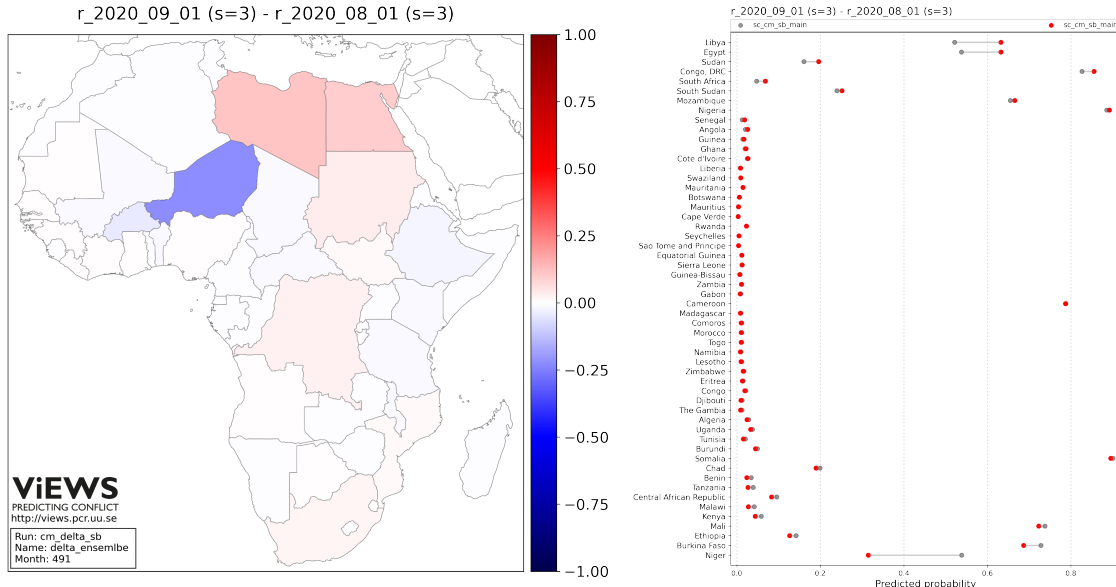


Figure 2: Change in predicted state-based conflict (sb) at $s = 4$

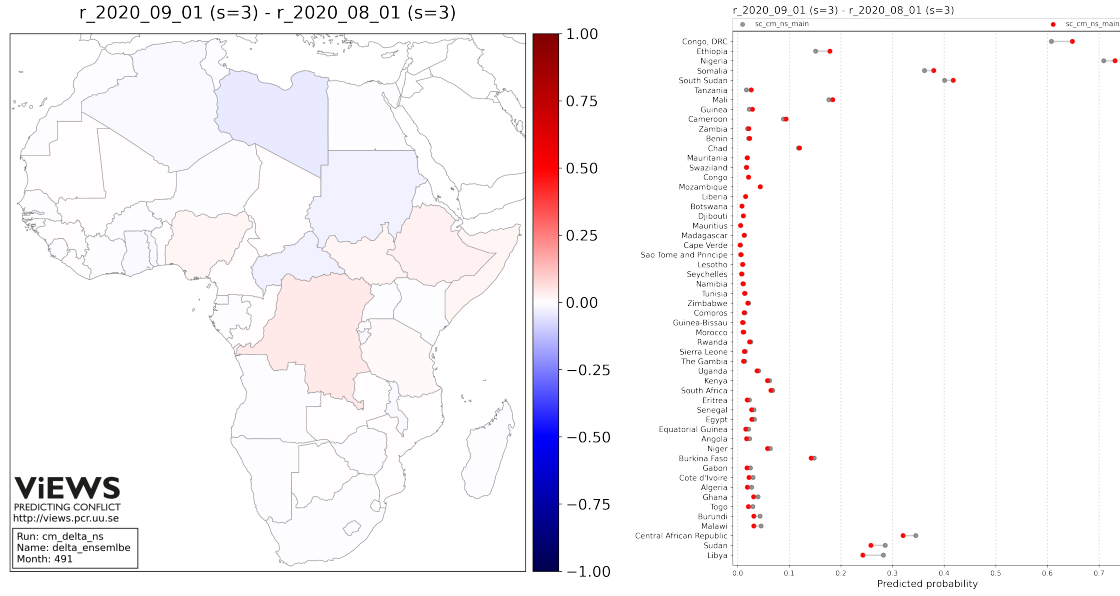


Figure 3: Change in predicted non-state conflict (ns) at $s = 4$

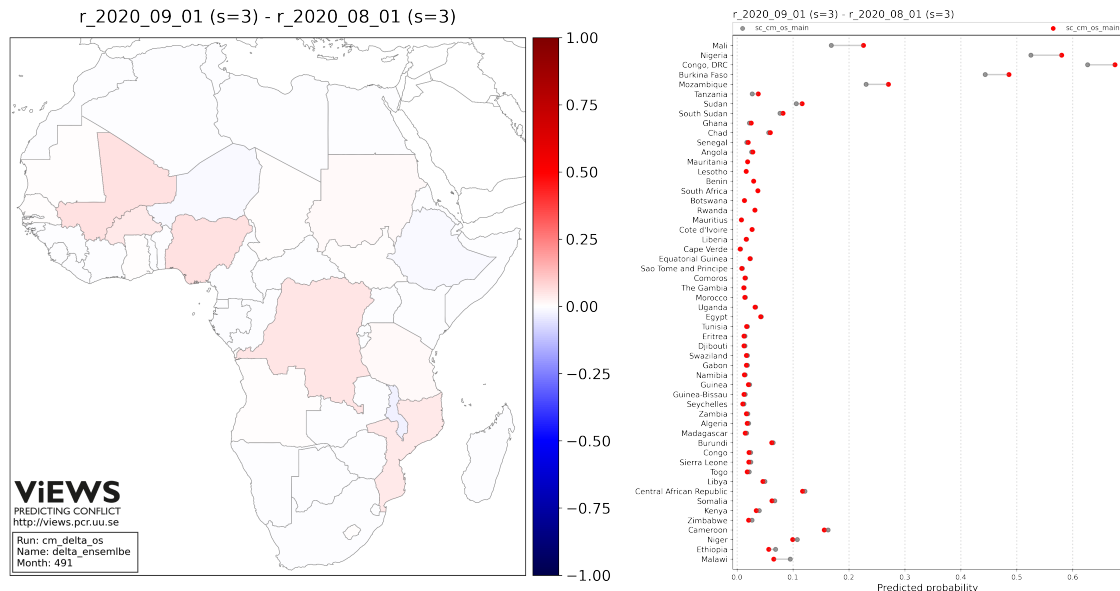


Figure 4: Change in predicted one-sided violence (os) at $s = 4$

Our forecasts for November 2020 are mostly similar to last month's forecasts. Both the September 2020 and August 2020 runs of the system make use of the forecasting set-up presented above. Changes to the forecasts this month are thus only affected by the values of input variables.

2.1 State-based conflict (sb)

We continue to forecast a high probability of state-based conflict in countries that have a recent history of conflict or protest events. In Mali, Burkina Faso, DR Congo, Cameroon, Libya, Egypt, Nigeria, Somalia and Mozambique, the risks of state-based violence in November 2020 are high and above 0.5, even with the higher threshold of at least 25 BRDs. In Somalia, Nigeria and DRC, conflict is nearly guaranteed as the predicted probabilities exceed 0.8 at $s = 4$, closely followed by Cameroon at just shy of 0.8. The risk profiles are nevertheless significantly more optimistic for the large majority on the continent, for which the probability of at least 25 BRDs in November 2020 remains at less than 0.1.

Also changes to the risk profiles remain moderate to none this month, as seen from Figure 2. Only three notable cases are observed: increases in Libya and Egypt, and a significant decline of more than 0.2 in Niger. In Libya, the risk increase follows continued clashes between the Government and Forces of the House of Representatives in the Tripoli and Surt districts, killing 6 in July and more than 70 people in June – in Tripoli district alone. In Egypt, the increase is underpinned by continued IS activity in North Sinai governorate and the consequent military operations executed to quell them. The decrease in Niger, in turn, is a result of the extended time since the last conflict incidences – only one fatality was reported in July 2020 (Diffa town), following a full month without reported fatalities.

2.2 Non-state conflict (ns)

The forecast maps for non-state conflict (**ns**) follow mostly the same patterns as **sb**, albeit the risks are generally lower. For non-state violence, only two countries exceed a 0.5 probability for 25 or more fatalities in November 2020. This is DRC and Nigeria, illustrating the communal conflict dynamics of the two countries. DRC and Nigeria are also subject to the greatest risk elevations since last month (see Figure 3). In Nigeria, the increases follow continued ADF ambushes, as well as both CMC and M23 attacks on FARDC, in the North Kivu province. In Nigeria, is it a result of continued clashes between the Nigerian government, IS, and Boko Haram in Borno state, and military strikes against bandits in Katsina and Zamfara states.

Libya is a particularly interesting case when comparing forecasts for different types of violence due to the polarising results. For state-based violence, Libya is subject to the greatest risk elevation at $s = 4$ following continued clashes between between the Government of Libya and Forces of the House of Representatives in the Tripoli and Surt districts. For non-state violence the reverse is true, as Libya becomes subject to the greatest risk decline. Significant incidents of non-state violence have indeed not been reported in the country since

the communal violence in the Mourzouq district over one year ago. Earlier incidents have also been dispersed across the regions of the former Fezzan province, as opposed to the local confinement of recent state-based violence. These trends are illustrated in Figure 7a and 7b.

2.3 One-sided violence (os)

Our forecasts for one-sided violence follow the same general trends that have been observed for the other forms of violence, after the threshold shift to 25 BRDs. Less than a handful of countries are estimated to be at high risk of crossing this threshold in November 2020. For the strong majority of countries, the probability is in fact lower than 0.1.

For one-sided violence, the high-risk countries are DRC (> 0.6) and Nigeria (> 0.5), followed by Burkina Faso (> 0.4). With the addition of Mali, this is also where the greatest risk elevations are found at $s = 4$ (see Figure 4).

3 PRIO-GRID-month forecasts for November 2020

Figure 5 shows the probability of at least one fatality in November 2020 in each fine-grained sub-national geographical location (‘PRIO-GRID cell’) and for each of the three outcomes. The forecasts are based on data up to and including July 2020. The color mapping is the same as for the country-month forecasts.

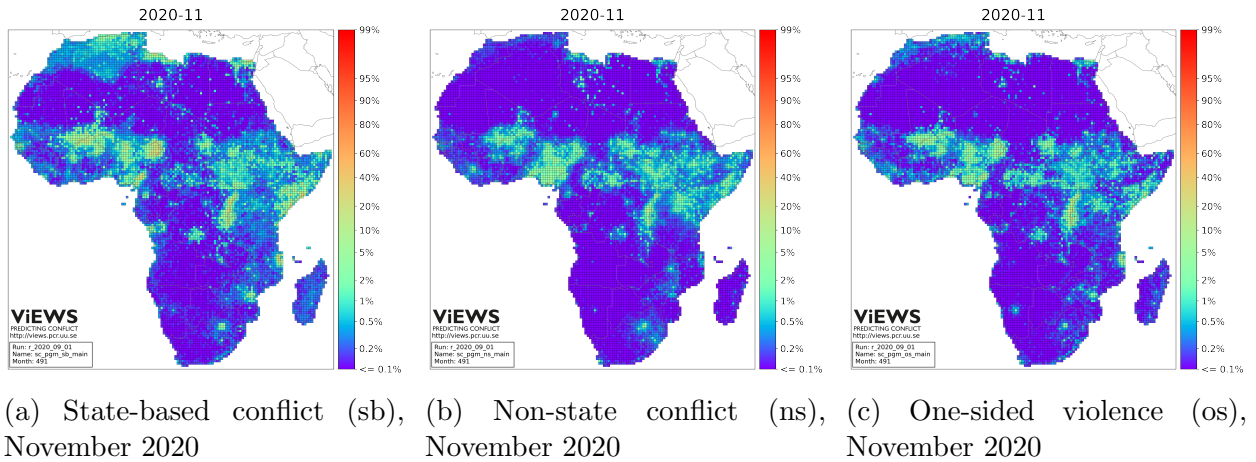


Figure 5: Ensemble forecasts for November 2020

3.1 State-based conflict (sb)

The densest risk clusters at the *pgm* level and $s = 4$ for state-based conflict continue to be found in north-eastern Nigeria, the Anglophone region of Cameroon, the Ituri and Kivu

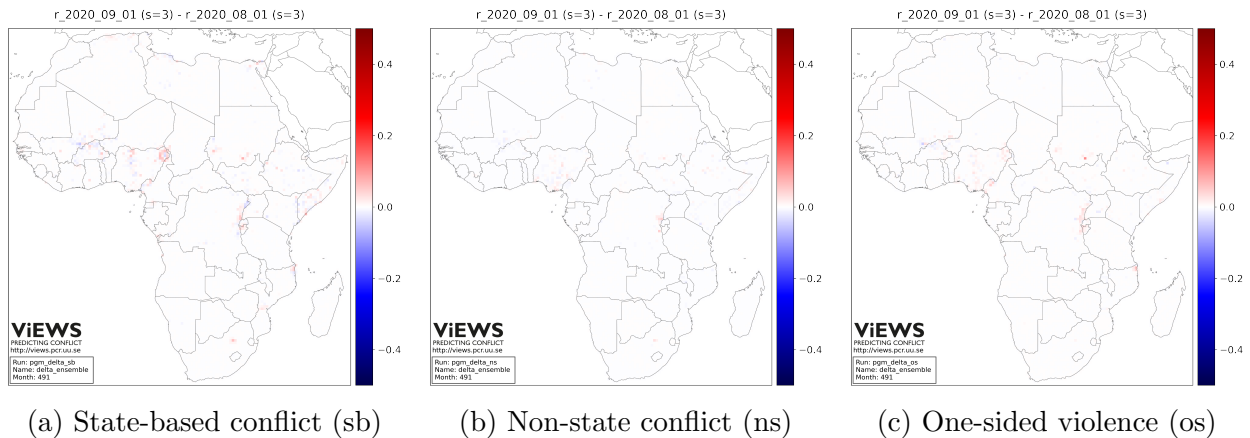


Figure 6: Change in *pgm* predictions at $s = 4$ compared to last month

provinces of DRC, southern Somalia, the Nile delta and Sinai in Egypt, around Tripoli in Libya, the Cabo Delgado province of Mozambique, and in the extended border areas between central Mali, northern Burkina Faso, and south-western Niger. Broader clusters at lower risk also continue to span the Horn of Africa, the protest prone regions of Morocco, Algeria, and Tunisia, as well as West Africa.

Compared to our August forecasts at $s = 4$ (see figure 6a), the most pronounced changes in the risk assessment at the PRIO-GRID level also mostly align with the high-risk clusters. The highest risk elevations are found in north-eastern Nigeria, where the government continues to battle the Islamic State and Boko Haram. Also Katsina and Zamfara states display a notable risk elevation, following continued military strikes against scores of bandits in the two regions, killing 96 in Katsina and 103 in Zamfara only in the month of July.

The most prominent risk decline, in turn, is found in central Mali, where the intensity of violence between Government of Mali and IS on the one hand, and the Government and JNIM on the other, appears to slowly fade. The region suffered one major clash involving each party (resulting in at least 25 fatalities on a single day) in the month of March 2020. In April, May, and June, one such event involving JNIM occurred (none involving IS). In July, however, the region was spared from such violence. Only three separate July events have been recorded by the UCDP, the most detrimental of which resulted in only nine fatalities – a significant decrease for the conflict-prone region.

3.2 Non-state conflict (ns) and one-sided violence (os)

For non-state violence, changes since last month are moderate at most, seen from the opacity of the colored grid cells in Figure 6b. The August forecasts thus mostly remain intact. We continue to identify risk clusters across Nigeria and the Ituri and Kivu provinces of DRC,

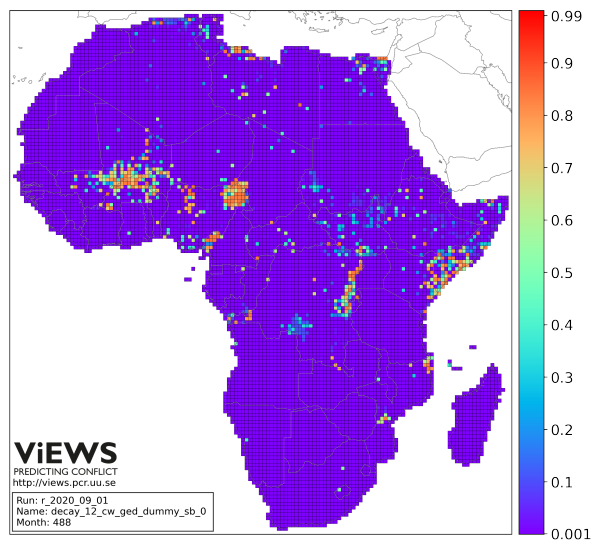
exceeding a 0.5 probability in several locations. The broader risk clusters also remain over the Horn of Africa and the extended border areas over central Mali, northern Burkina Faso, and south-western Niger. Last, our long-term conflict history models continue to produce mild alerts for distinguished locations across central Libya, despite the time since the last recorded incidents.

Also the forecasts for one-sided violence display moderate changes since last month, with the exception of a single grid cell in Sudan. The cell, which covers Kadugli town, signals a significant risk elevation since last month. For several months in a row, Nuba people in the town have reportedly been executed by members of the Rapid Support Forces (RSF). 12 people were killed in May, four in June, and another four in July, albeit two of the latter reports lacked explicit references to RSF.

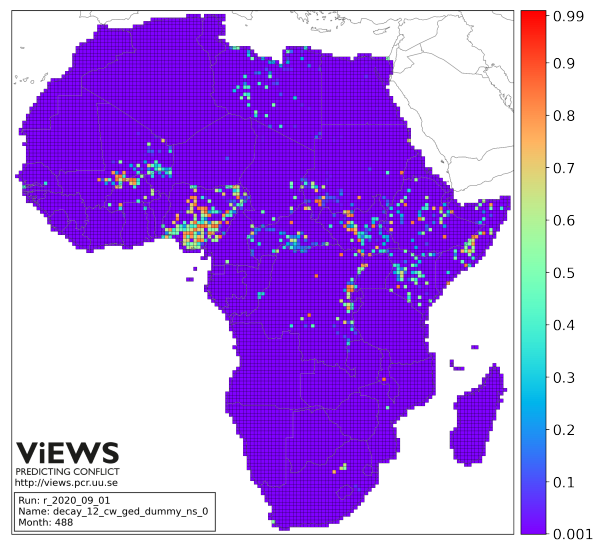
4 History of UCDP organized violence

Figure 7 presents the the recent history of violence in each PRIO-GRID cell. Red cells experienced violence in July 2020, and purple ones have not seen armed conflict in many years.

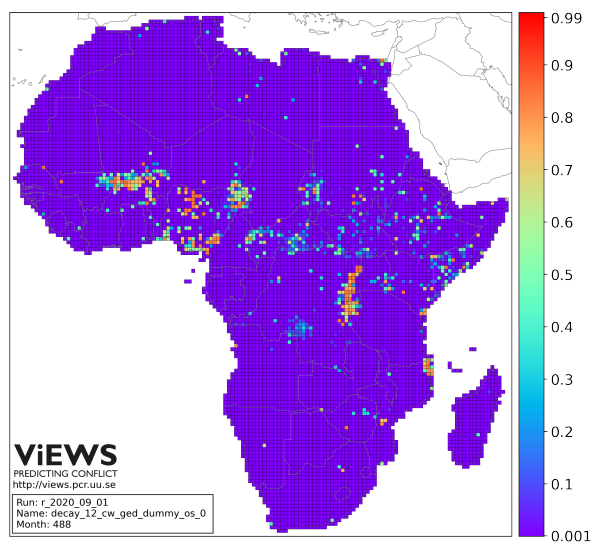
Figures 7a, 7b, 7c show state-based, non-state, and one-sided violence respectively from the UCDP. Figure 7d shows data on protests from ACLED (<https://www.acleddata.com>).



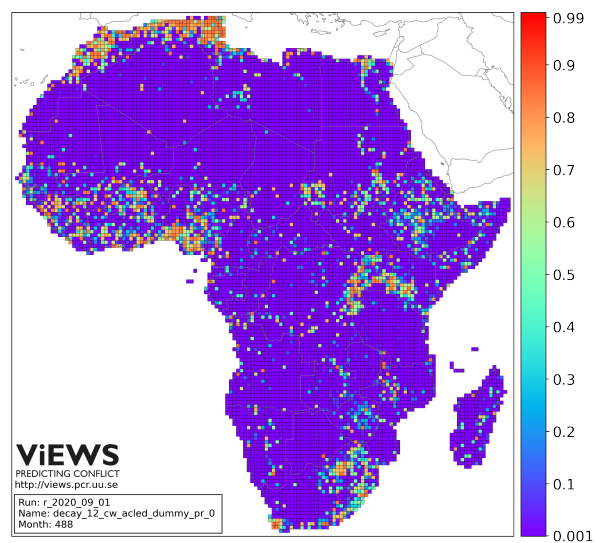
(a) State-based conflict (sb)



(b) Non-state conflict (ns)



(c) One-sided violence (os)



(d) Protests (pr)

Figure 7: Decay function maps of observed conflict up until July 2020