The Sahel is the fastest growing source of instability throughout the African continent. In 2012, Islamists controlled the entirety of northern Mali. The following year, France launched a military operation to re-capture all territory and protect the Malian government from collapse. The United States also designated Operation Juniper Shield to build partner counterterrorism capacity in North and West Africa in recent years. Jihadist groups have become a burgeoning threat, despite international pressure since 2012. Jihadist-related activity continues to be a burgeoning threat, despite international counterterrorism pressure since 2012. Jihadist groups exploit gaps in fragile security and governance institutions, which provide new safe-havens for these nefarious actors to thrive.

**Spatial Questions**

- How has jihadist activity changed between 2012-2019?
- Where is jihadist activity the most concentrated?
- How much of the population is exposed in these areas?
- Where are civilians most vulnerable in these areas?

**Methods**

Conflict data cleaned by year (January 2012 - March 2019), actor (al-Qa’ida or ISIS-affiliated groups), and country (G5 Sahel member states) powered this analysis. Getis-Ord Gi* produced hotspots with 90 percent confidence or above, which enabled for change detection between each year using the Raster Calculator. Next, a space-time cube and emerging hotspot analysis identified constant, new, and sporadic hotspots during the entire study period. Zonal Statistics as Table then reclassified points then allowed for a reclassification using the Weighted Overlay tool. The Conditional tool highlighted the most vulnerable populations, which revealed areas with composite scores between 6 and 10.

**Results and Conclusions**

Spatial statistics reveal the spread of jihadist-related conflict into northern and eastern Burkina Faso, and western Niger. This suggests external factors drove jihadist activity southward throughout Mali and into new safe-havens. The Emerging Hot Spot Analysis indicates consecutive activity in central Mali, new hotspots in the tri-border area and sporadic hotspots in the Lake Chad Basin due to a resurgent Boko Haram in Nigeria. The vulnerability analysis, enabled by current constant hotspots, suggests various administrative regions where new populations are most exposed to jihadist-related activity. This can better inform U.S., French, and regional stakeholders on where to focus additional counterterrorism programs. Moreover, answers to each spatial question point to a trend of additional counterterrorism programs. Moreover, answers to each spatial question point to a trend of greater instability in the years to come, one reinforced by the conflict growth estimates through 2021.

**Limitations**

Population rasters are UN-adjusted estimates for Burkina Faso (2014), Mali (2020), and Niger (2015). These estimates likely do not reflect internal displacement or migration due to increased conflict in recent years. Moreover, the reliance of crowdsourced data to enable the vulnerability analysis assumes the risk of potential omissions or errors in precise locations of sites by reporting parties.

**Additional Information**

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Projection: Africa Albers Equal Area Conic
Course: GIS0102: Advanced Geospatial Modeling
Header Photo: G5 Sahel

The views expressed are the cartographer’s own and do not represent the policy or position of the U.S. Government.