Introduction
Since 2014, Combined Joint Task Force—Operation Inherent Resolve’s mission has been to militarily defeat the Islamic State of Iraq and Syria (ISIS) by, with, and through regional partners to increase regional stability. In January 2017, President Donald Trump authorized an accelerated global campaign strategy known as the Defeat ISIS Strategic Plan (DISP). Despite having lost all territory in Iraq and 99 percent of its former territory in Syria, ISIS has transformed from a governing entity into a clandestine organization which may regenerate absent the critical stabilization of liberated areas.

This project visualizes how ISIS’ strategies and tactics adapted to international pressure since the implementation of the DISP (2017 vs. 2018). The spatial questions it seeks to answer are fourfold:

1) Where have the most lethal ISIS attacks occurred in Iraq and Syria since January 2017?
2) Where are coalition offensives most concentrated in the final phase of military operations in eastern Syria?
3) How has ISIS’ targeting selection strategy changed?
4) How has the density of fatal ISIS attacks changed in Iraq and Syria since January 2017?

Methods
The kernel density tool applied a 40,000 km$^2$ radius to calculate the densities of ISIS’ fatal attacks and Coalition activities by year. The raster calculator tool then produced a composite to identify the change in each. Graduated symbols created a composite map of all fatal ISIS attacks. Lastly, sorting the conflict data by interaction provided an analysis of which categories of actors were targeted in each year. A percentage change calculation then illuminated how ISIS’ targeting strategy shifted during the reporting period.

Results
Changes in fatal ISIS attacks were considered to be not significant within 1 standard deviation (SD); slight between 1-2 SDs; and significant over 2 SDs. The most significant decreases in fatal attacks follow ISIS’ territorial defeats in Mosul, Iraq, and Raqqa, Syria. ISIS’ attack density increased along the Tigris River, despite former Iraqi Prime Minister Haider al-Abadi declaring victory over the group in 2017. Kirkuk district holds the most significant increase of fatal ISIS attacks, where clandestine cells continue assassination campaigns against mukhtars (village elders) and guerrilla tactics against government targets.

Limitations
The omission of specific dates from certain data entries precluded the possibility of conducting a month-by-month analysis, which would have otherwise discerned trends at a more granular level. Furthermore, the data set includes only instances where fatalities are ≥ 1. Expanding the scope of the project to include non-fatal ISIS incidents may highlight greater zones of influence throughout the CJTF-OIR area of responsibility.

Additional Information
Cartographer: Nicholas A. Glavin
Date: 17 December 2018
Map Data Sources: ACLED, GADM
Projection: IGRS UTM Zone 37N
Course: DHP P207 GIS for International Applications
Header: DoD photo by SSG Jacob Connor, 5th SFG(A)