The objectives of this study are to:

- Create a digitized dataset of reported bushfires in Jamaica
- Determine the applicability of remotely sensed data for investigating bushfires in the absence of a native dataset

Methods

The datasets created and identified to investigate wildfires and the potential for using remotely sensed data in Jamaica for the 2010-2015 period are shown below. The data used does not distinguish between naturally occurring and human-caused fires.

- Meteorological Service of Jamaica provided daily rainfall and temperature data for the island.
- JAMAICA Fire Brigade (JFB) bush/wildfire data was digitized for the period under investigation.
- LANCE Fire Information for Resource Management System (FIRMS) MODIS C6 version 6.1 was downloaded from the NASA Archives to complement the JFB fire data. This contains Aqua and Terra Spectroradiometer readings with a 1 km resolution (Giglio, Schroeder, & Justice, 2016).

Results

- A bimodal pattern of rainfall that is typical of Jamaica's climatology of Jamaica for the investigation period of 2010-2015, shows a bimodal pattern of rainfall that is typical of Jamaica with its corresponding early year dry season (Climate Studies Group, Mona (CSGM), 2017).

- Climatology of Jamaica 2010-2015 shows a bimodal pattern of rainfall that is typical of Jamaica with its corresponding early year dry season (Climate Studies Group, Mona (CSGM), 2017). A. Results and Discussion

- JFB and FIRMS dataset have a strong positive linear relationship with each other. With the Pearson Correlation analysis which assumes that the variables are linearly related, the satellite data explained 85% of the Jamaica’s wildfire annual variation. However, using the non-parametric spearman rank correlation the satellite data explained 87% of the annual variation.
- The risks of bushfires increase greatly with the severity of drought. Remotely sensed data are a good proxy for determining likely incidence of break-out. The FIRM data will allow extended spatial and temporal analyses to be undertaken.

Conclusion

- The analysis suggests that 79% of local fire variability can be explained by the FIRM data.