Anonymous Referee #3

This paper reports and discusses distributions of distances between MODIS Satellite
active fire detection locations to roads, rivers and forest edges in NW Amazonia. Differences
in the distribution patterns by political boundaries and geographical locations are
reported. The information presented is topical, important and relevant. I have major
concerns in the data/analysis and results sections. Listed below are my comments.
Major

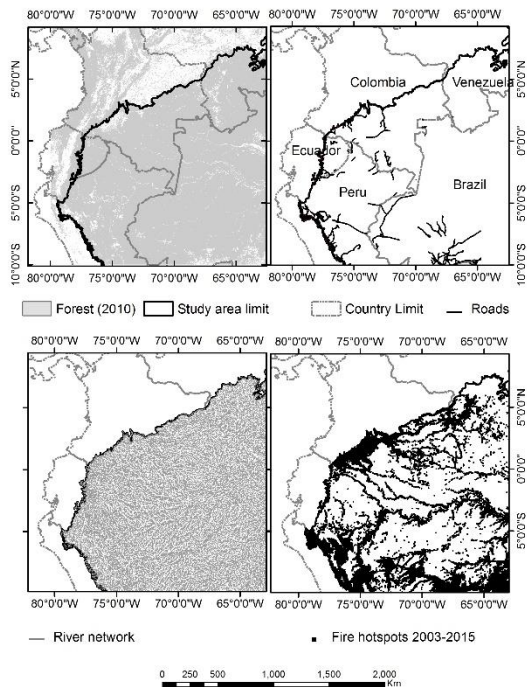
Data sources and analyses section is missing details. For eg . Was the distances
computed from pixel edge or center/centroid? This has consequences as the native
MODIS Active fire pixel has varying sizes depending on the scan angle (Wolfe et al.
1998; Kumar et al. 2011) and have varying confidence levels (Giglio 1999; Freebornet al. 2011). Can
distances less than half a nominal 1km pixel dimensions like 300m
and 500m as quoted for river networks be meaningfully interpreted ? A separate figure
that shows river network and fire locations will be helpful.

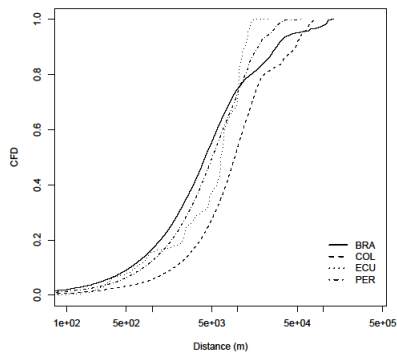
Thank you for the comment. We will clarify how distances are computed. For the fire the
coordinate of the active fire is the center o a pixel of 1 km and thus the distance is from
this point. In the case of forest pixels, distances are calculated from the pixel edge. We
will specify this information in the methods. Regarding the meaningful distances, this is a
scale issue impossible to solve with the available datasets. It is true that 300 m are within
the 500 m distance of the center of the fire pixel to the edge, but it illustrates quite well
the strong link of fires and rivers. We will however change the 300 m and refer to the
500m distance for consistency. I am attaching an example of a fire nearby taken from a
boat this week.

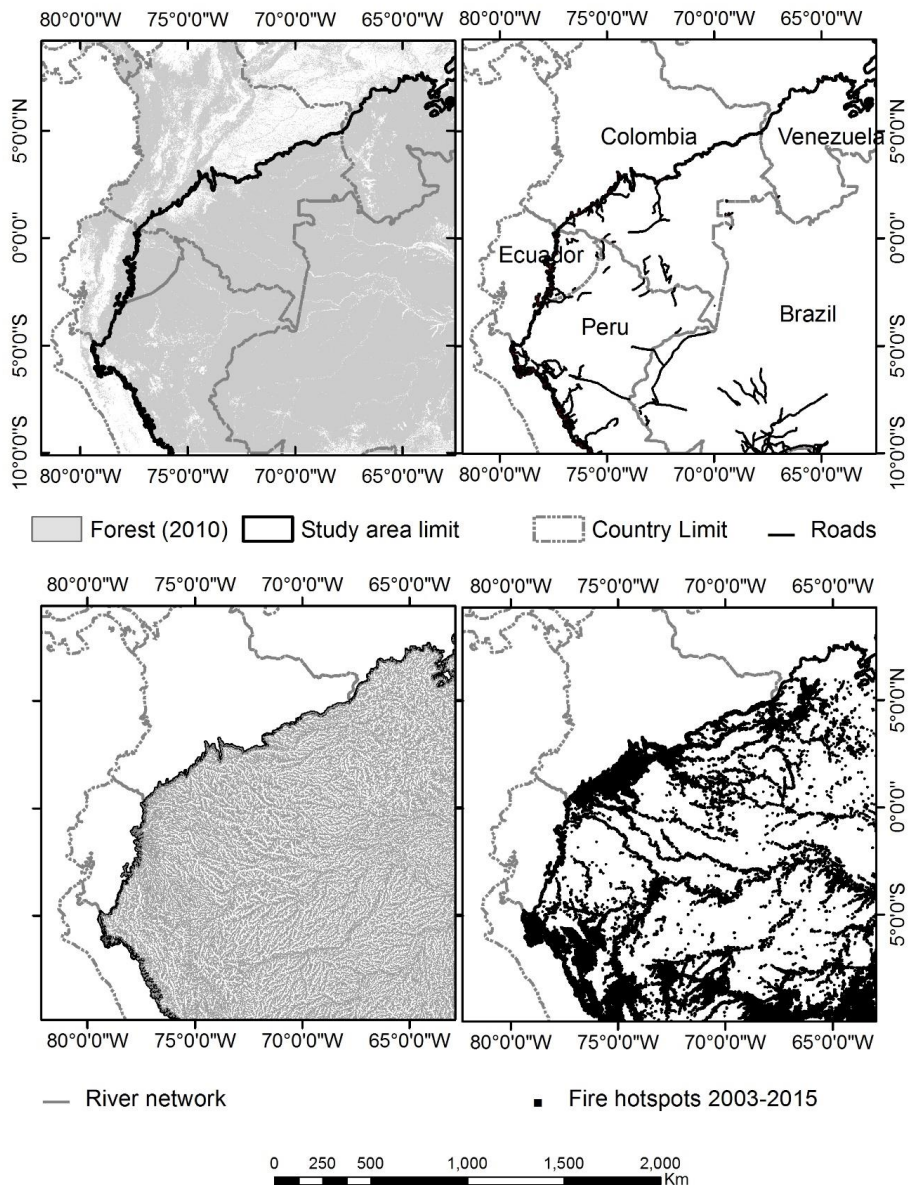
We will modify Figure 1 as suggested to show the distribution of roads and rivers.

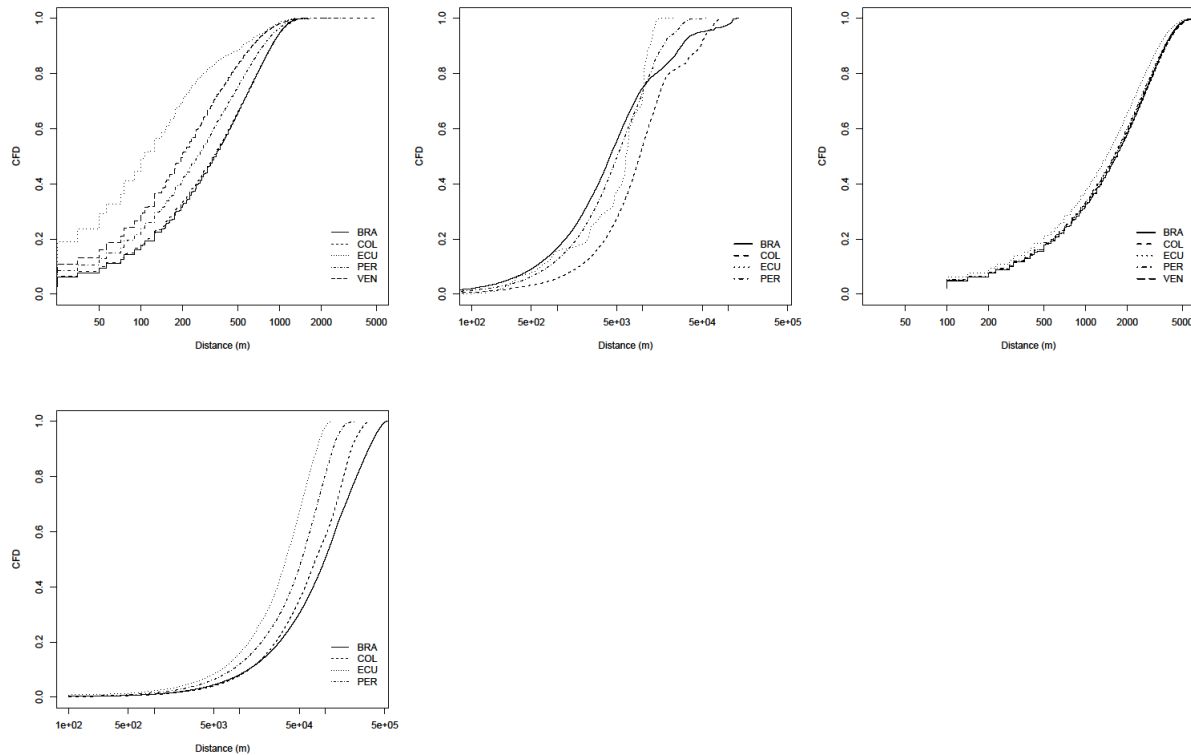
Forest (2010) ☐ Study area limit ┊ Country Limit — Roads

— River network ▪ Fire hotspots 2003-2015

0 250 500 1,000 1,500 2,000
Km

Data section (line 105-106) states that road data was not available for Venezuela, however Figure 4 B seems to show CDF curves for roads in Venezuela.

Thank you very much for your help. In the document we had calculated the distances of fires in Venezuela to roads in other neighboring countries. We will modify the figure and remove this country

Result shown in Figure 4 C is very hard to reconcile with. It's hard to believe that all 5 countries have the exact same spatial distribution of rivers (Line 169-170). An illustrative figure will help.

As you can see in the new Figure 1, the river network is dense and expands everywhere. Although the analysis indicates that in all countries the river network is similar, the analysis and the test indicates differences. It is a problem of using big amounts of data that can not be solved otherwise.

Minor
Abstract could include findings mentioned in line 195,218.
Thank you for the comment, we will correct this.

All figures need better resolutions. Need same scale for figures that are compared eg
Figure 4 A-C and B-D.
They will be changed to

Line 20 this a 15 or 12 ? year study. Data used spans from 2003-2015 as mentioned
in data sources and analyses.
Thank you for the comment, we will correct this.

Line 64 – 65 Barber et al. 2104 and Cochrane & Barber 2009 are only Amazonian
studies need more citations to include the whole of tropics if this is true.
We will specify the Amazonian focus.

Figure 1 is not clear. A separate study region showing political boundaries, rivers and
roads only, and one separately with hotspots overlaid will be easier to comprehend.
We agree that it is a lot of information, other reviewer suggested to even add roads and
rivers, which is a design challenge. We will incorporate a new Figure 1 to clarify and
show the different layers.

Figure 3 is in duplicate on P16 and 17.
Thank you for the comment, we will correct this.

Line 101 incorrect terminology for detection confidence (0-100 split into low-confidence,
nominal confidence and high confidence (https://earthdata.nasa.gov/c5-mcd14dl)).
Thank you for the comment, we will correct this.

Line 104 "CIESIN (Center for International Earth Science Information Network, Columbia University) "?

Thank you for the comment, we will correct this.

Line 126 and associated paragraph possible typo CDF instead of CFD? Figures seems to carry this typo as well.

Thank you for the comment, we will correct this.

More discussion on the rationale for formulation of questions and inclusion of a question wise answer in conclusion will be helpful.

Thank you very much, we are not sure what the reviewers refers to with the inclusion of a question wise answer, however we will expand the rationale for formulation of questions. Text to be added:

Because of the high variability of both environmental conditions and human dimensions, there is an imperative need to untangle the regional dynamics across the different countries