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# JRC TECHNICAL REPORT

## Weekly analysis of wildfires in the Amazon region: November 9 - November 15, 2020

2020



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#### Contact information

Name: Global Wildfire Information System  
Address: <https://gwis.jrc.ec.europa.eu>  
Email: [jrc-effis@ec.europa.eu](mailto:jrc-effis@ec.europa.eu)  
Tel.: +39 0332 786138

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<sup>1</sup> European Commission, Joint Research Centre (JRC), Ispra, Italy

<sup>2</sup> Instituto Nacional de Pesquisas Espaciais (INPE), San Jose dos Campos, Brazil

<sup>3</sup> ARCADIA SIT, Milan, Italy

<sup>4</sup> Engineering Ingegneria Informatica S.p.A. Rome, Italy



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## Scope of this report and executive summary

This report describes the trends of wildfires in the Amazon in 2020 through the comparison with the fire activity in the region in previous fire seasons. It must be noted that 2019 was a critical year in terms of fire activity in many of the countries in the region. Seasonality and trends on fire activity in the countries can be found at the [JRC Technical Report on the Amazon](#). The current report has been produced by the European Commission's Joint Research Centre (JRC) within its activities on the development of a Global Wildfire Information System (GWIS)<sup>1</sup>. Most of the Amazon region is in Brazil, specifically in the Brazilian Legal Amazon (BLA)<sup>2</sup>, and in other neighbor countries. Paraguay has been included in this report due to the high fire activity observed this year, although it is not part of the Amazon region. Figure 1 shows the geographical extent of the countries analyzed in this report.

- In the Brazil Legal Amazon (BLA), within Brazil, **a total of 31.54 Mha burnt since January 1 until November 15, 2020. This value is about 56% higher than that of 2019.** Although the number of fires and burnt areas in the BLA have generally decreased in the previous weeks, **a slight increase was recorded in the number of fires last week. Last week 2132 fires occurred, which is a higher value than those in 2019 and 2018 for the same week.**
- **44.49 Mha ha burnt in Brazil since January 1 until November 15, 2020**, with a total of around 1 million hectares burnt in the last week. **The value of the last week was above the value of the same week in 2019. So far, the total burnt area in Brazil is about 46% higher than that of 2019. 4,374 fires occurred last week.** The average fire size is similar to 2019 that was a critical year.
- In Bolivia, the last week had similar burnt area and higher number of fires than the same week in 2019, **increasing the burnt area trend of the year 2020 (8.44 Mha), with the values above of those of 2019.** The average fire size remains similar to previous years, although lower than the peaks of the fire size reached during July of 2019.
- **In Colombia, the total burnt area in the country (3.28 Mha) remains approximately 23.35% above the values of 2019, due to the intensive fire activity from January to April 2020.**
- **Paraguay, with 6.13 Mha burnt since January 1 until November 15, 2020, has reached values nearly two times the values in 2018 and 2019.** The average fire size has decreased during the last 3 weeks reaching the values of the same weeks of 2018 and 2019.
- A total of 2.66 Mha burnt in **Peru** since January 1 until November 15, 2020. **This value is more than the double of 2019, mainly because of the increase of the fire activity during July and August.** The number of fires mapped in GWIS is nearly double of that in 2019.
- Venezuela recorded 6.91 Mha burnt in the current year. **The value of the total burnt area in Venezuela is approximately 15.66% higher than that in 2019 due to the intensive fire activity in the country between January and April. The trend in the last week is comparable to those of 2018 and 2019.**
- This week, fire danger conditions will remain extreme in eastern Brazil and low to moderate in southwestern Brazil, Bolivia and Paraguay.



Figure 1. Areas analyzed in this report: Brazil Legal Amazon, Brazil, Bolivia, Colombia, Paraguay, Peru and Venezuela

<sup>1</sup> <https://gwis.jrc.ec.europa.eu>

<sup>2</sup> The Brazilian Legal Amazon is a geopolitical region in Brazil, established in the article 2 of the complementary law 124, of 2007, that includes 772 municipalities over 9 states. It comprises approximately five million square kilometres, which correspond to 59% of the Brazilian territory ([IBGE, 2019](#))

# 1 Wildfires in the Brazilian Legal Amazon Region

Figure 2 shows the trends on the extent of burnt areas and the number of fires since January 1, 2020 produced by the Near-Real Time (NRT) fire analysis in GWIS. The last row shows the evolution of active hot spots (thermal anomalies) detected by the satellite sensor VIIRS. A total of 31.54 Mha burnt in the BLA since January 1 until November 15, 2020, with 515,760 ha burnt in total the last week, higher than 2019 for the same week. Until November 15th, the total burnt area in 2020 in BLA is about 56% higher than that of 2019.

The number of fires recorded in GWIS in the last week was 2.132, higher than the value in 2019 and 2018 in that week. The total number of fires in 2020 is above the figures in 2018 and 2019. On average, fires that occurred in the BLA in the last 3 weeks, were of a similar size in 2020 compared to 2019 and 2018. The number of thermal anomalies until November 15, 2020 (966,051) shows a typical trend in the region as compared to the trends in 2018 and 2019. A number of 12,940 thermal anomalies was registered last week.

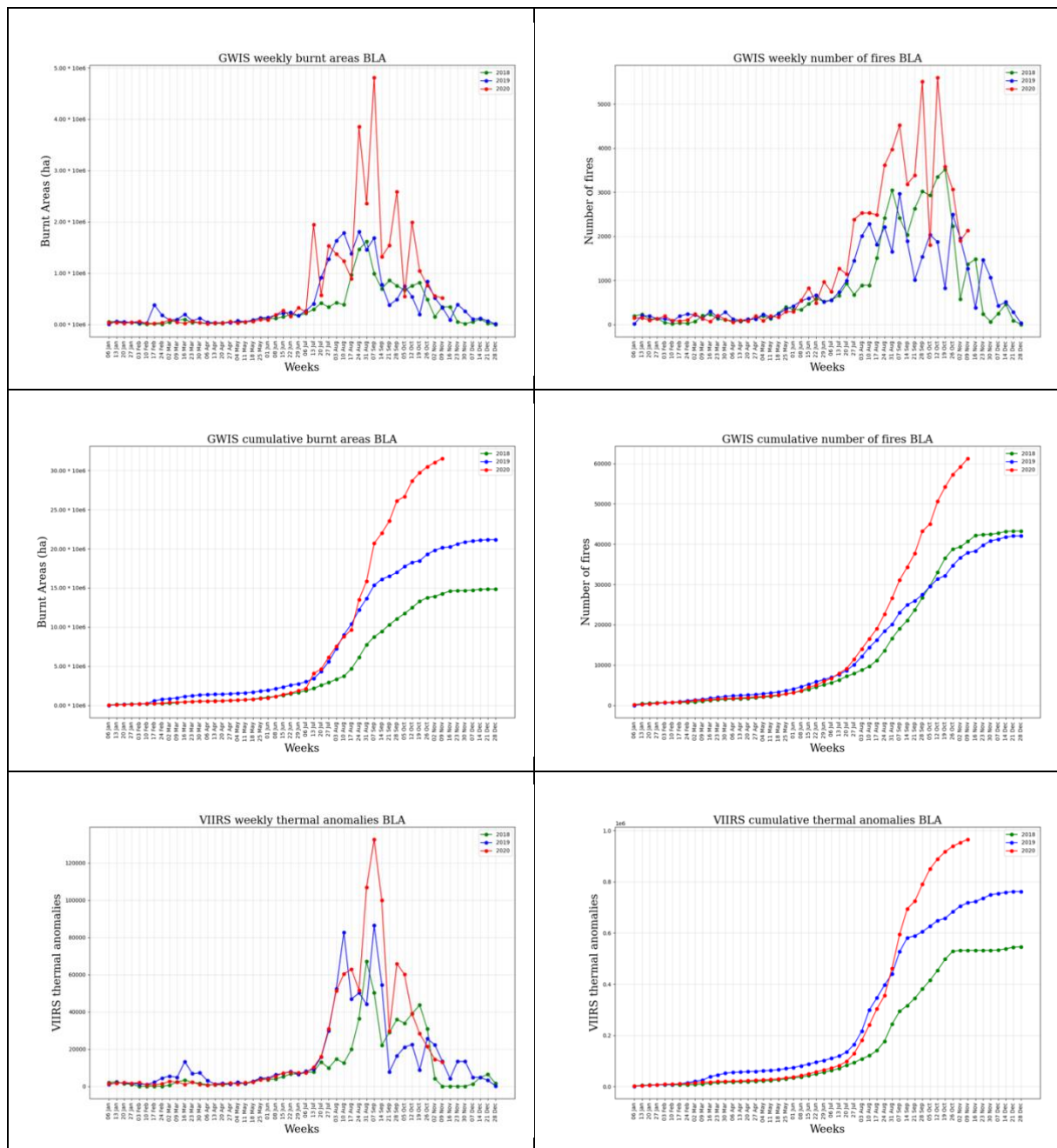


Figure 2. Trend of burnt areas and number of fires as compared to data in the last two years.

## 2 Wildfires in Brazil

Figure 3 shows the trends on the extent of burnt areas and the number of fires since January 1, 2020 produced by the Near-Real Time (NRT) fire analysis in GWIS. The last row shows the evolution of active hot spots (thermal anomalies) detected by the satellite sensor VIIRS. A total of 44.49 Mha ha burnt in Brazil since January 1 until November 15, 2020, with a total 1,04 Mha burnt in the last week. The value of the week was higher than of the values for the same week in 2019. Until November 15th, the total burnt area in Brazil is about 45.9% higher than that of 2019.

The number of fires recorded in GWIS in the last week was 4374, lower than the value in 2019 but similar with the values of 2018 in that week. The number of fires in 2020 up to November 15 is higher than that of 2019, although the average fire size is similar to 2019 that was a critical year. The number of thermal anomalies until November 15, 2020 (1,367,548) shows a typical trend in the region but with lower values as compared to the trends in 2019 but higher than 2018. 23,905 thermal anomalies were registered last week.

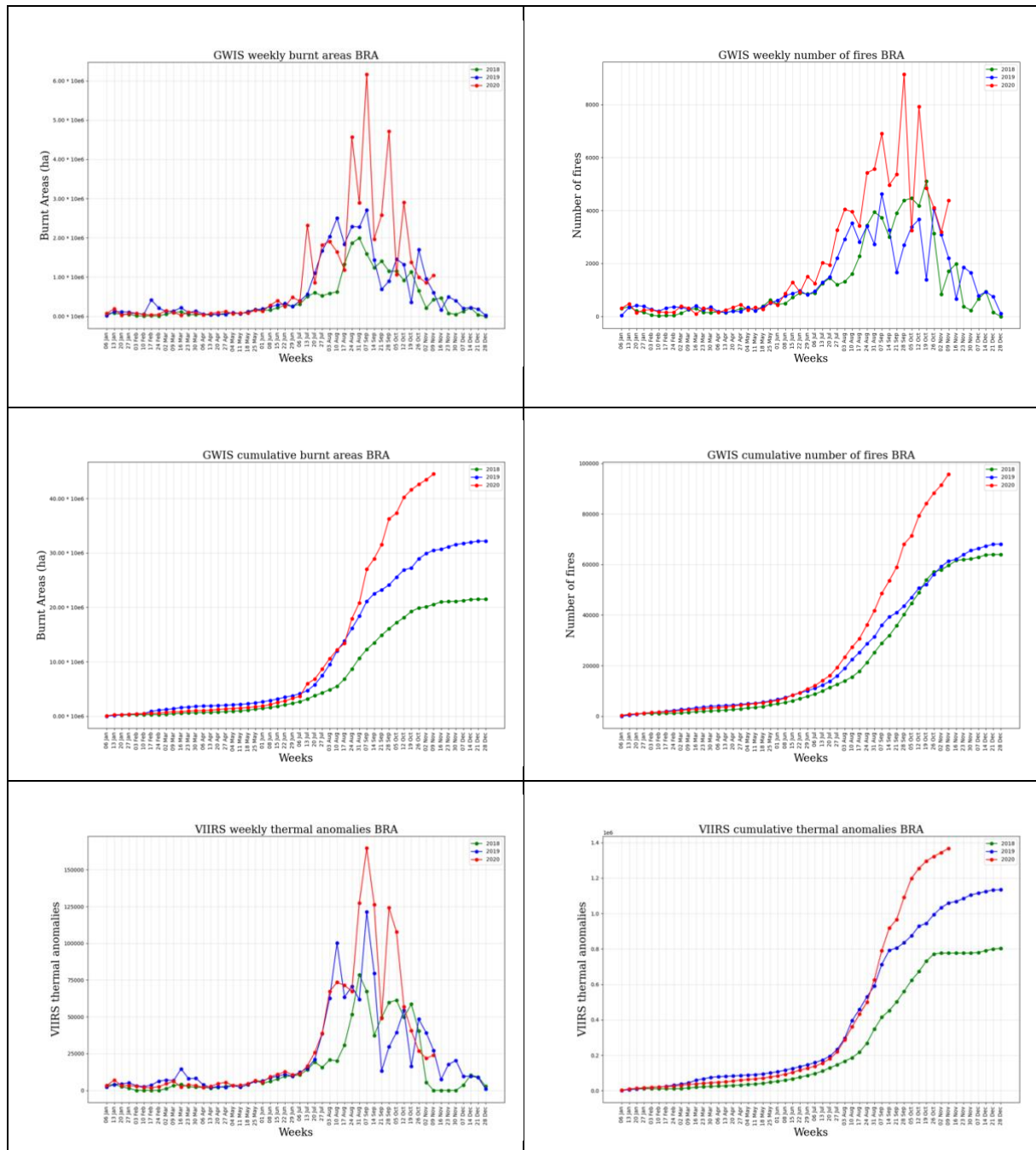


Figure 3. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last two years.



### 3 Wildfires in Bolivia

Figure 4 shows the trends on the extent of burnt areas and the number of fires since January 1, 2020 produced by the Near-Real Time (NRT) fire analysis in GWIS. The last row shows the evolution of active hot spots (thermal anomalies) detected by the satellite sensor VIIRS. A total of 8.44 Mha ha burnt in Bolivia since January 1 until November 15, 2020, with 51,454 ha burnt in the last week. The last week had similar burnt area and number of fires than the same week in 2019. However, the average fire size remains similar to previous years and much lower from the peaks of the average fire size reached during July and August of 2019.

The number of fires recorded in GWIS in the last week was 220, similar with the number of fires in the same week in 2018 and 2019. The number of thermal anomalies until November 15, 2020 (261,796) shows a typical trend in the region. 2,864 thermal anomalies were detected by VIIRS in the last week.

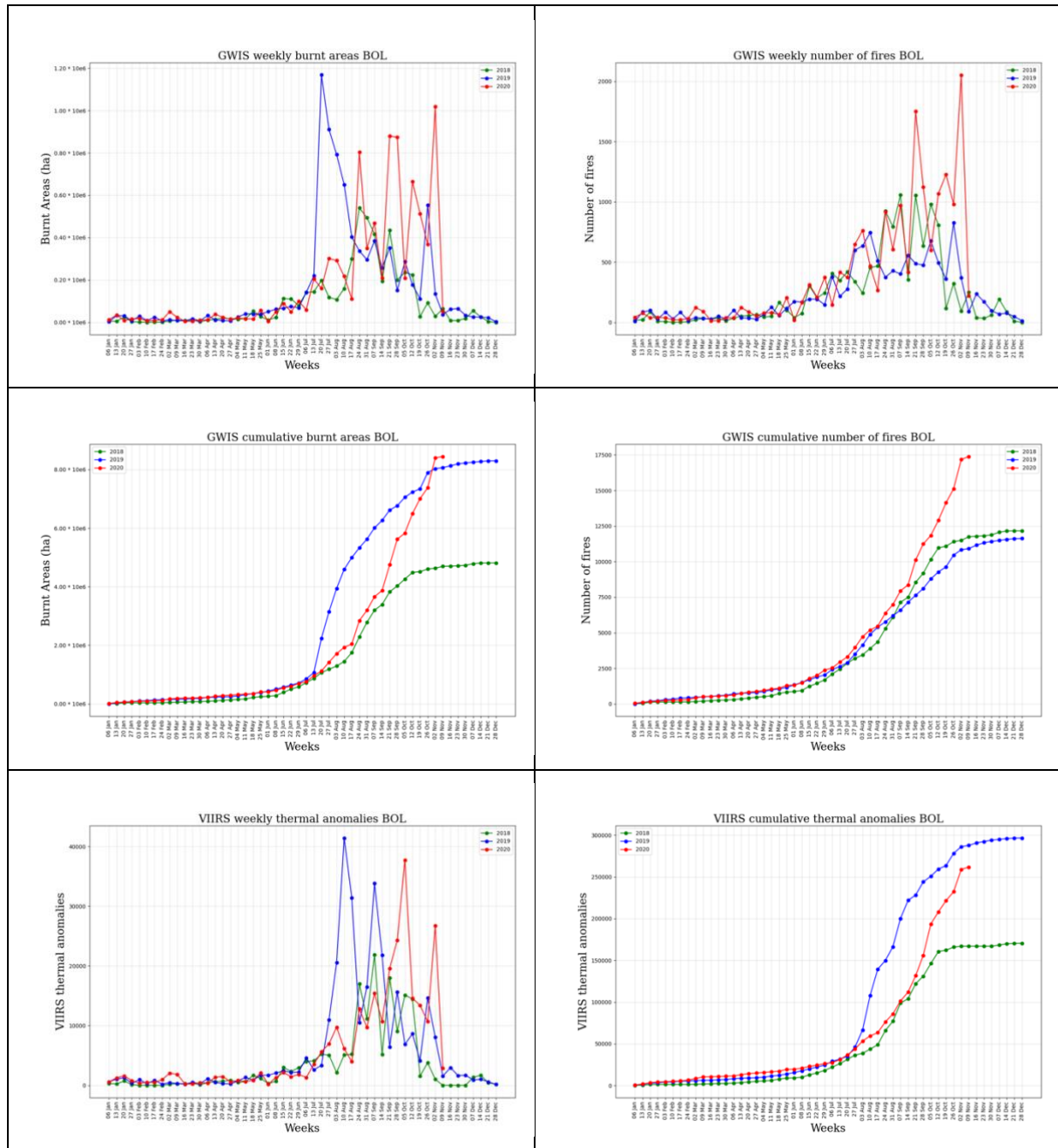


Figure 4. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last two years.



## 4 Wildfires in Colombia

Figure 5 shows the trends on the extent of burnt areas and the number of fires since January 1, 2020 produced by the Near-Real Time (NRT) fire analysis in GWIS. The last row shows the evolution of active hot spots (thermal anomalies) detected by the satellite sensor VIIRS. A total of 3.28 Mha burnt in Colombia since January 1 until November 15, 2020, with 10,589 ha burnt in the last week. The fire activity of last week is similar to those of previous years, the total burnt area in the country is approximately 23.35 % above the values of 2019, due to the intensive fire activity from January to April 2020.

The number of fires recorded in GWIS in the last week was 54, which shows a stable trend in the last weeks, as compared to 2018 and 2019, but decreasing from the last week. The number of fires is approximately 26.25% higher than that of last year. The number of thermal anomalies until November 15, 2020 (115,471) shows a typical trend in the region as compared to the trends in 2018 and 2019, with values approximately 20% higher than those in 2019. 385 thermal anomalies were detected by VIIRS during the last week, which is similar to the values in the same week in 2019 and 2018.

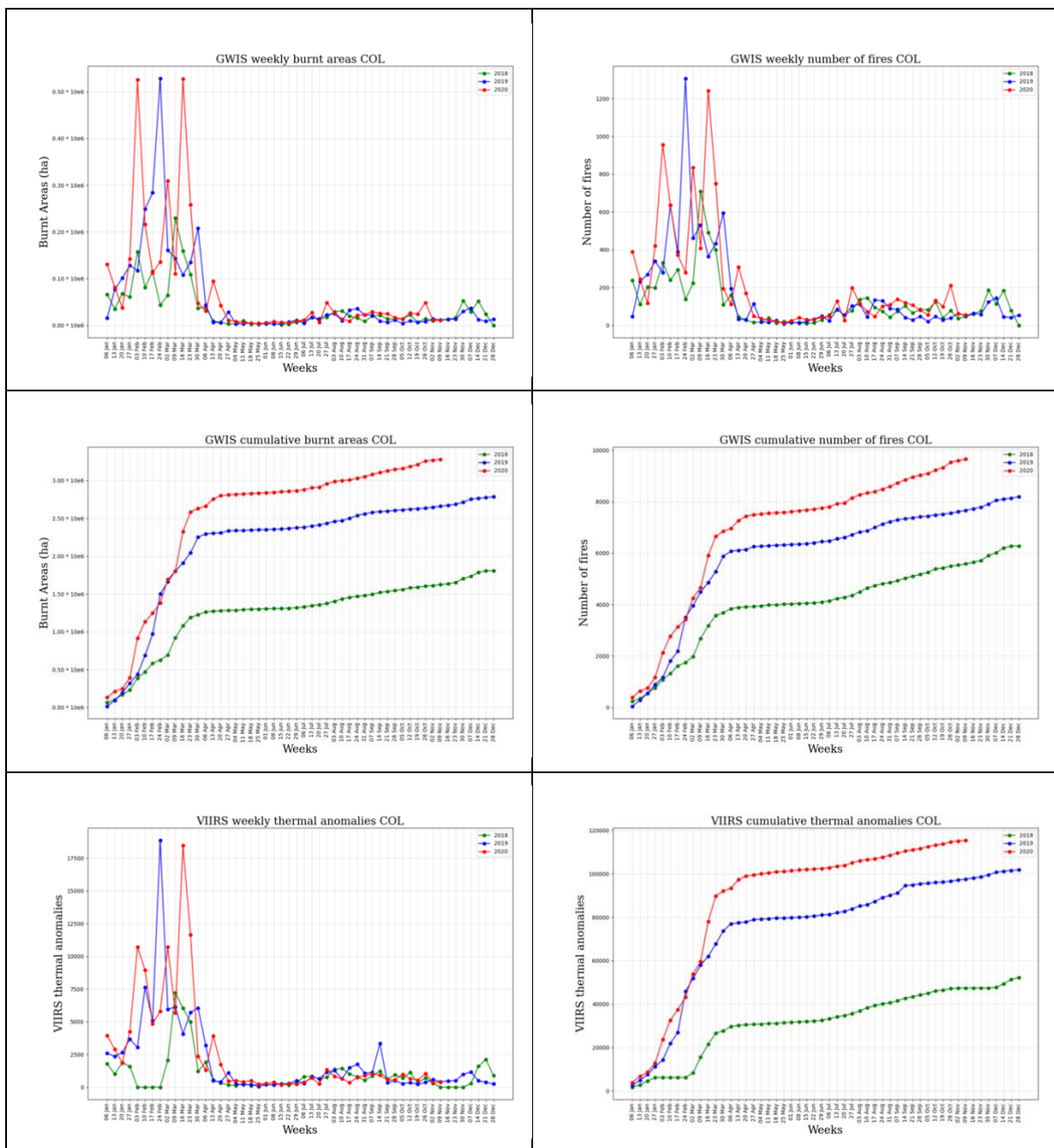


Figure 5. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last two years.

## 5 Wildfires in Paraguay

Figure 6 shows the trends on the extent of burnt areas and the number of fires since January 1, 2020 produced by the Near-Real Time (NRT) fire analysis in GWIS. The last row shows the evolution of active hot spots (thermal anomalies) detected by the satellite sensor VIIRS. A total of 6.13 Mha burnt in Paraguay since January 1 until November 15, 2020, which is nearly two times the values in 2018 and 2019. Approximately 36,356 ha burnt in the country the last week, similar with the value of the same week of 2019.

The number of fires recorded in GWIS in the last week was 151, which is higher than the value in 2019 and 2018. The average fire size has decreased during the last 3 weeks and is similar of the same weeks of 2018 and smaller than 2019. The number of thermal anomalies until November 15, 2020 (194,773) follows a typical trend in the region, but with higher values, nearly the double as compared to 2018 and 2019. 1,487 thermal anomalies detected by VIIRS last week.

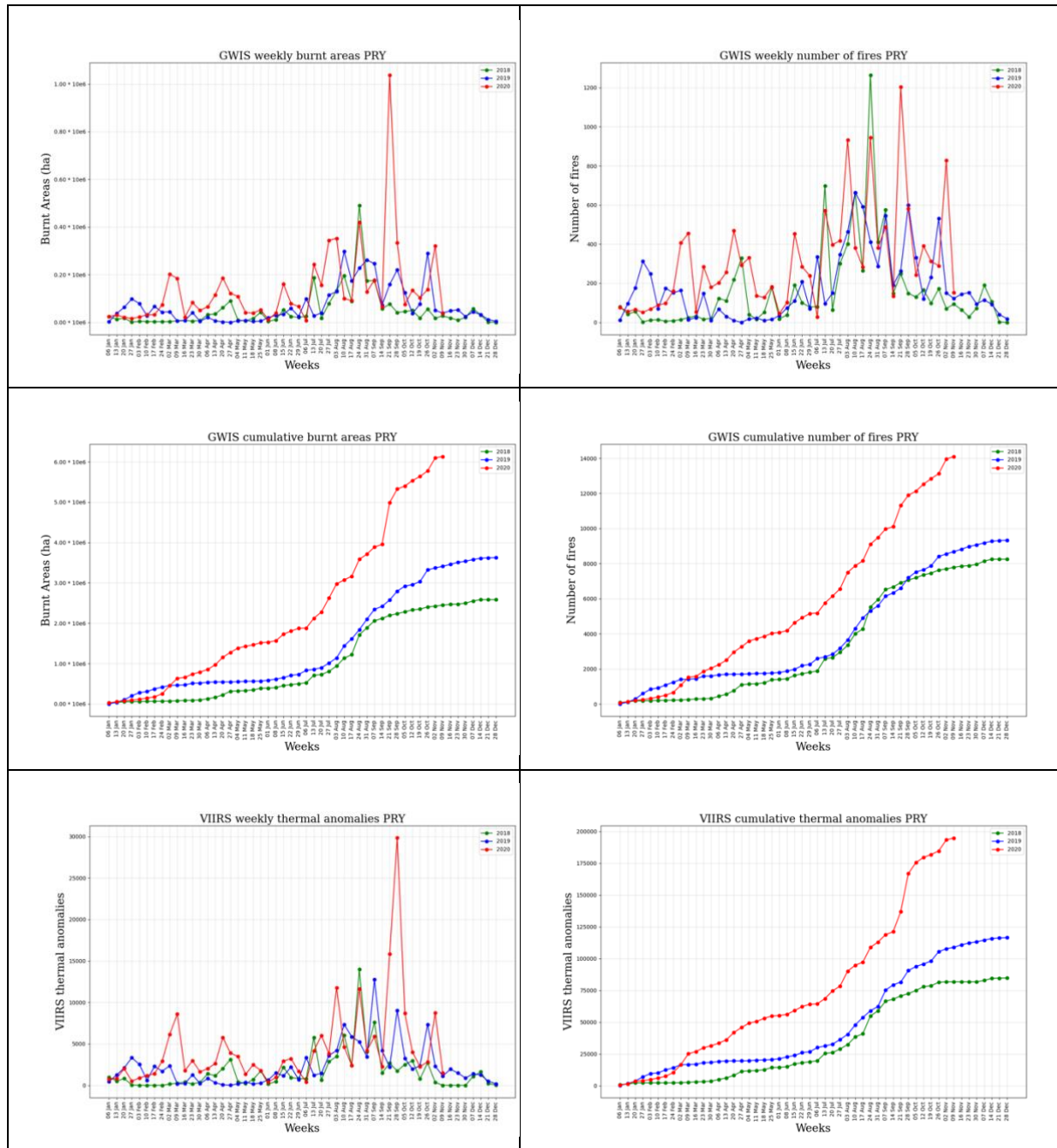


Figure 6. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last two years.

## 6 Wildfires in Peru

Figure 7 shows the trends on the extent of burnt areas and the number of fires since January 1, 2020 produced by the Near-Real Time (NRT) fire analysis in GWIS. The last row shows the evolution of active hot spots (thermal anomalies) detected by the satellite sensor VIIRS. A total of 2.66 Mha burnt in Peru since January 1 until November 15, 2020. This value is almost the double than that of 2019. Approximately 31,072 ha burnt in the last week, higher values than ones of 2018 and 2019 for the same week.

The number of fires recorded in GWIS in the last week was 142, decreased from the last week but still with higher values than ones of 2018 and 2019 for the same week. The total number of fires since the beginning of the year, above 10,000, is about double of that of 2019. Compared with previous years, the fire season in 2020 is taking more weeks to end than in 2018 and 2019. The number of thermal anomalies until August 30, 2020 (79,485) shows a typical trend in the region, with values higher than in 2018 and 2019. 1,504 thermal anomalies registered last week, decreasing after the last week.

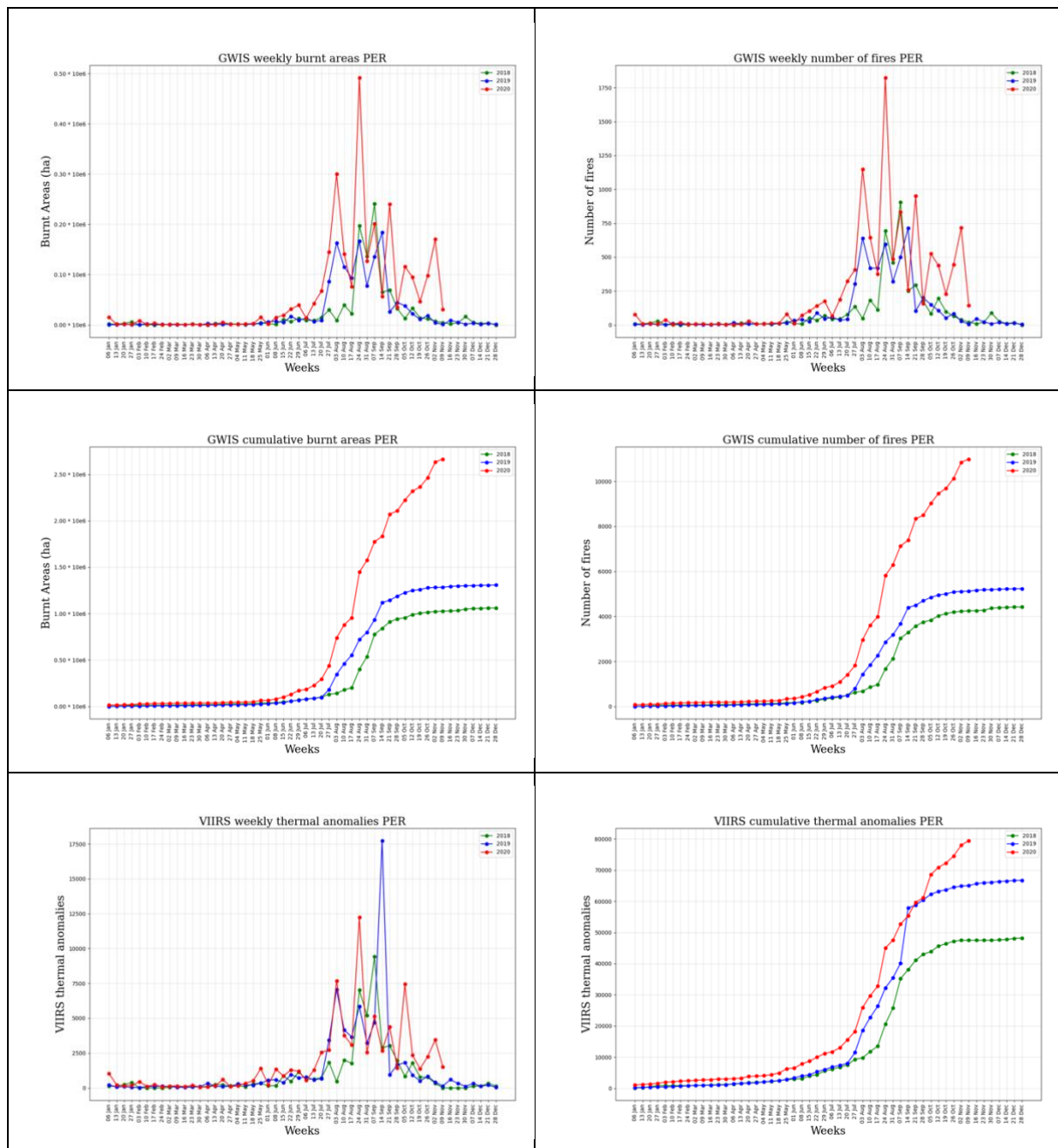


Figure 7. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last two years.

## 7 Wildfires in Venezuela

Figure 8 shows the trends on the extent of burnt areas and the number of fires since January 1, 2020 produced by the Near-Real Time (NRT) fire analysis in GWIS. The last row shows the evolution of active hot spots (thermal anomalies) detected by the satellite sensor VIIRS. A total of 6.91 Mha burnt in Venezuela since January 1 until November 15, 2020, with 8,427 ha burnt in the last week. The value of the total burnt area in the country is approximately 15.66 % higher than that in 2019 due to the intensive fire activity in the country between January and April. The trend in the last week is comparable to that of 2018 and 2019.

The number of fires recorded in GWIS in the last week was 39, which shows a stable trend comparable to those of the previous two years, although the total number of fires remains approximately 18 % higher than in 2019. The number of thermal anomalies until November 15, 2020 (274,596) shows a typical trend in the region as compared to the trends in 2018 and 2019, but with approximately 30% higher value than the previous years. 655 thermal anomalies were recorded by VIIRS during the last week, a value that is like those recorded in that week the previous two years.

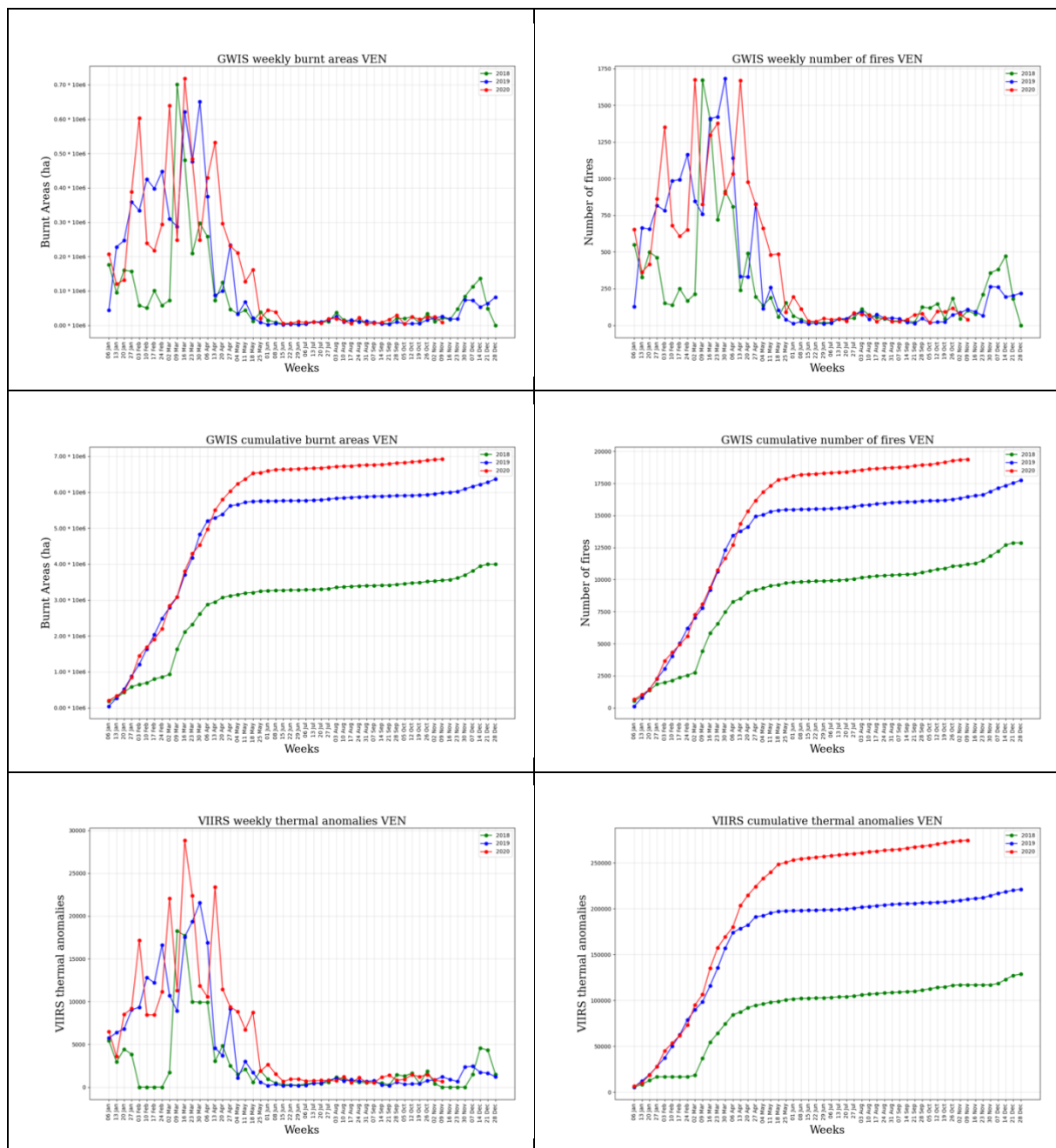


Figure 8. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last two years.



## 8 Fire danger and fire weather forecast in the Amazon region

This section provides information on the fire danger forecast in the Amazon region for the current week. High levels of fire danger facilitate fire ignitions and the propagation of ongoing fires. Figure 9 provides the average fire danger for the week of November 16 to November 22, 2020. This information is based on the daily fire danger forecast that is provided online in GWIS<sup>3</sup>. According to this forecast, it is expected that fire danger conditions will remain extreme in eastern Brazil and low to moderate in southwestern Brazil, Bolivia and Paraguay.

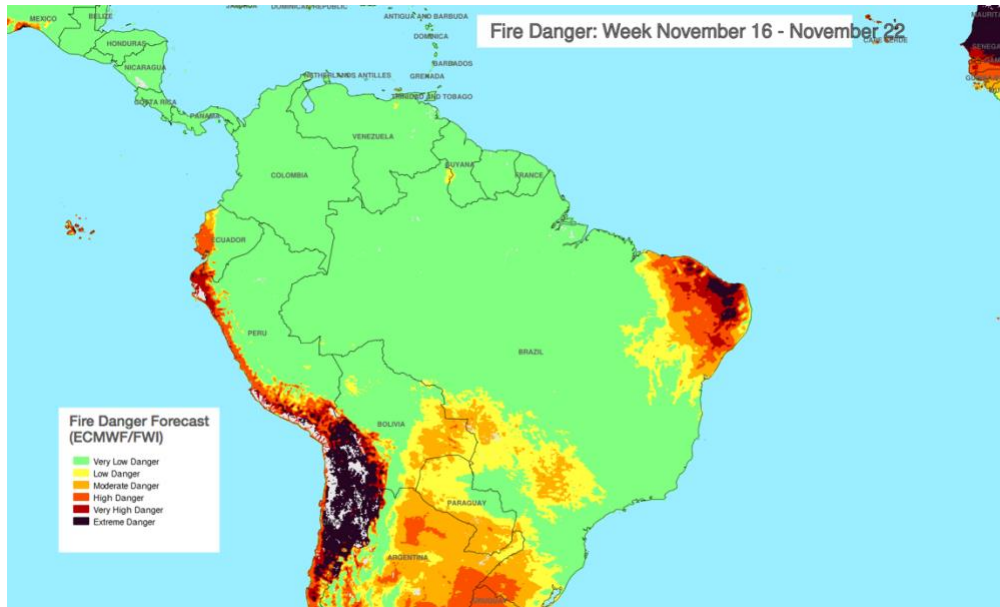


Figure 9. Average Fire danger forecast. Week, November 16-November 22, 2020.

The weekly fire weather forecast of temperature and precipitation anomalies for this week is presented in Figure 10. Above average temperatures are forecasted for southwestern Brazil, northern Bolivia and Peru. Below averages temperatures values are forecasted for central and northeastern Brazil. The models estimate an above average precipitation rates for this week mainly in central and northeastern Brazil.

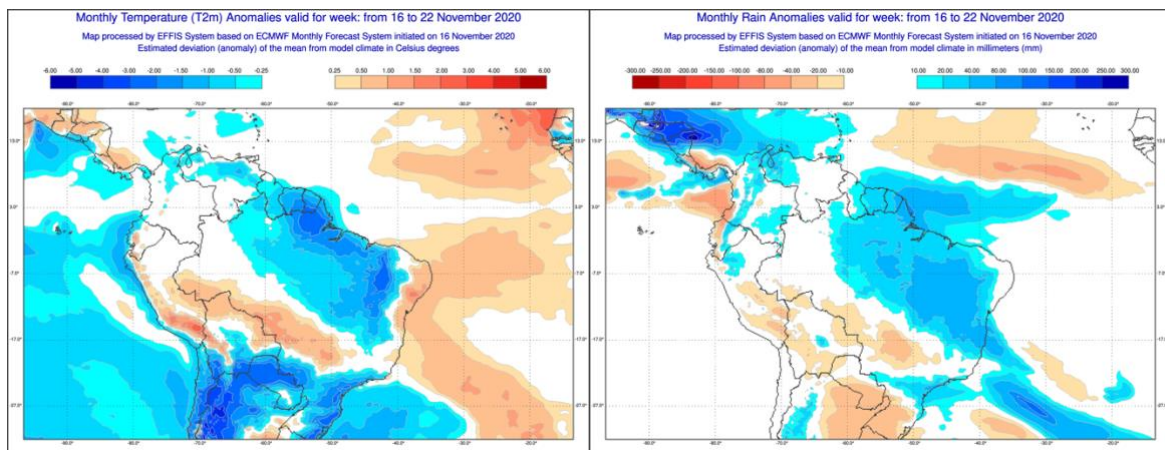


Figure 10. Fire weather anomalies of the current week, November 16-November 22, 2020.

<sup>3</sup> [https://gwis.jrc.ec.europa.eu/static/gwis\\_current\\_situation/public/index.html](https://gwis.jrc.ec.europa.eu/static/gwis_current_situation/public/index.html)

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