



European  
Commission

# JRC TECHNICAL REPORT

## Weekly analysis of wildfires in the Amazon region: September 07 - September 13, 2020

2020

The screenshot displays the GWIS (Global Wildfire Information System) interface. At the top, it features the European Commission logo and the text 'GWIS Global Wildfire Information System'. Below this, a navigation breadcrumb reads 'European Commission > JRC EU Science Hub > DRM > GWIS > Applications > Current Situation Viewer'. The main content area is a map of the Amazon region, showing active fire hotspots (red dots) and burnt areas (red outlines). The map includes labels for various countries and cities, such as Colombia, Ecuador, Peru, Bolivia, Brazil, and Paraguay. On the left side, there are several control panels: 'Map Options' with checkboxes for 'Country Boundaries Layer' and 'Human Settlement Layer'; 'Forecasts' with sections for 'FIRE DANGER FORECAST' (Source: ECMWF, Index: Fire Weather Index) and 'LIGHTNING FORECAST' (Date: 14 Sep 2020); and 'Rapid Damage Assessment' with a date range selector (From: 07 Sep 2020, To: 13 Sep 2020) and checkboxes for 'ACTIVE FIRES' (MODIS, VIIRS), 'BURNT AREAS' (MODIS, VIIRS NRT), and 'FIRE EMISSIONS' (Black Carbon, Methane). A 'Joint Research Centre' logo is visible in the bottom right corner of the map area. The page number 'JRC121841' is located in the bottom right corner of the screenshot.

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Cover image: Burnt areas mapped in GWIS the week of September 7 -13, 2020. White boxes show areas of fires larger than 10000 ha.



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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.

- The Brazil Legal Amazon, within Brazil, shows a similar trend of burnt of that in 2019, with approximately 3,215,516 ha burned in the last week, a value that is nearly the double of the value in 2019 for that week; **4,639 fires were recorded in the week, which is the highest weekly value since the beginning of the year and higher than the value of the same week of 2019. About 18,35 Mha burnt so far in 2020, a value that is about 20% higher than that in 2019.**
- The 2020 wildfire season in Brazil is similar to that of 2019. More than 4,2 Mha burned last week in Brazil, where **7,011 new fires occurred, which are the highest values since the beginning of the year. Overall, 24.3 Mha of burnt areas were mapped in GWIS until September 13, 2020, which is a value about 12% higher than that in 2019.**
- A total of 3,293,043 ha burnt in Bolivia since January 1 until September 13, 2020, with 332,716 ha burnt last week increasing from the last week but lower than the peak of the week 24-31 August. **The total burnt area in 2020 is notably below (-58%) the values of 2019 and similar to 2018.** The number of burnt areas last week was lower to the value of the same week in 2018 and 2019.
- **In Colombia, the current fire season has been more severe than the last two years, 2018 and 2019,** with larger burnt areas and a higher number of fires from January to April. The fire activity last week was similar to that of previous years. **Nearly 3 Mha burnt in the country until September 13, 2020, which is a value about 18% higher than that of 2019.**
- **Paraguay, with 3.87 Mha burnt** until September 13, 2020, shows higher fire activity than in 2018 and 2019, and an increase of burnt areas between March and June, currently **reaching values nearly 2 times those of the past years. The fire activity last week was below the values in 2018 and 2019 for the same week.**
- **Peru** recorded this week 840 fires, responsible for 190,141 ha burned, doubling the values from the last week. It **shows an above average fire activity in 2020, as compared to the previous two years, with about 1,760,277 ha burnt until September 13, 2020, which is approximately double than the values in 2019.** The number of fires mapped in GWIS is nearly double of that in 2019.
- **Venezuela, with about 6,75 Mha burnt** in the country until now, is above the values of the previous two years. **However, the fire activity in the last weeks is comparable to those in 2018 and 2019.**
- This week, fire danger conditions are expected to continue to be very high to extreme in central Brazil and the south of the BLA. Moderate or high fire danger is expected in southeastern Bolivia and northern 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 18,347,585 ha burnt in the BLA since January 1 until September 13, 2020, with 3,215,516 ha burnt in total the last week, the second highest record since the beginning of the year. The total burnt area in the BLA, at about 18.3 Mha, is currently about 20% higher than that the same period of 2019.

The number of fires recorded in GWIS in the last week was 4,639, which is the highest value since the beginning of the year, higher than the value in 2019 and 2018 in that week. The total number of fires in 2020 is about 35% above the figure in 2019. On average, fires that occurred in the BLA in the last 4 weeks, were smaller in 2020 as compared to 2019. The number of thermal anomalies until September 13, 2020 (594,595) shows a typical trend in the region as compared to the trends in 2018 and 2019. A number of 132,650 thermal anomalies was registered last week, the highest value since the beginning of the year.

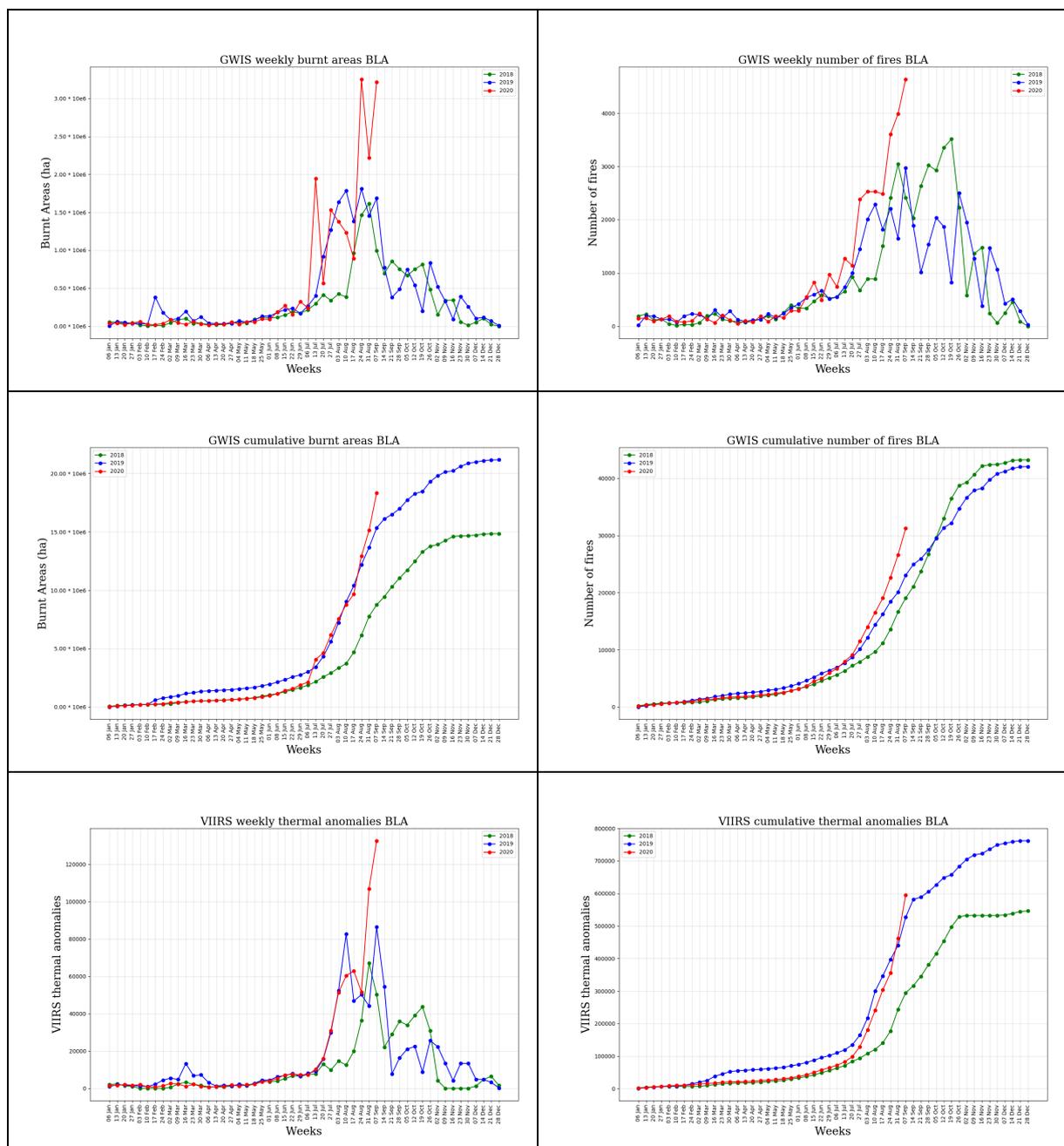


Figure 2. Trend of burnt areas and number of fires as compared to data in the last two years.

## 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 24,3 Mha ha burnt in Brazil since January 1 until September 13, 2020, with a total 4,286,598 Mha burnt in the last week, the highest value since the beginning of the year. The total burnt area in Brazil, at approximately 19.1 Mha, is about 12% higher than that of 2019. The value of the week was about 65% higher than the value of the same week in 2019 and 2.7 times higher than that in 2018.

The number of fires recorded in GWIS in the last week was 7011, which is the highest value since the beginning of the year, and 52% higher than the value in 2019 in that week. The number of fires in 2020 up to September 6 is about 37% higher than that of 2019, with similar average fire size. The number of thermal anomalies until September 13, 2020 (790,707) shows a typical trend in the region but higher values as compared to the trends in 2018 and 2019. 164,586 thermal anomalies were registered last week, the highest value since the beginning of the year.

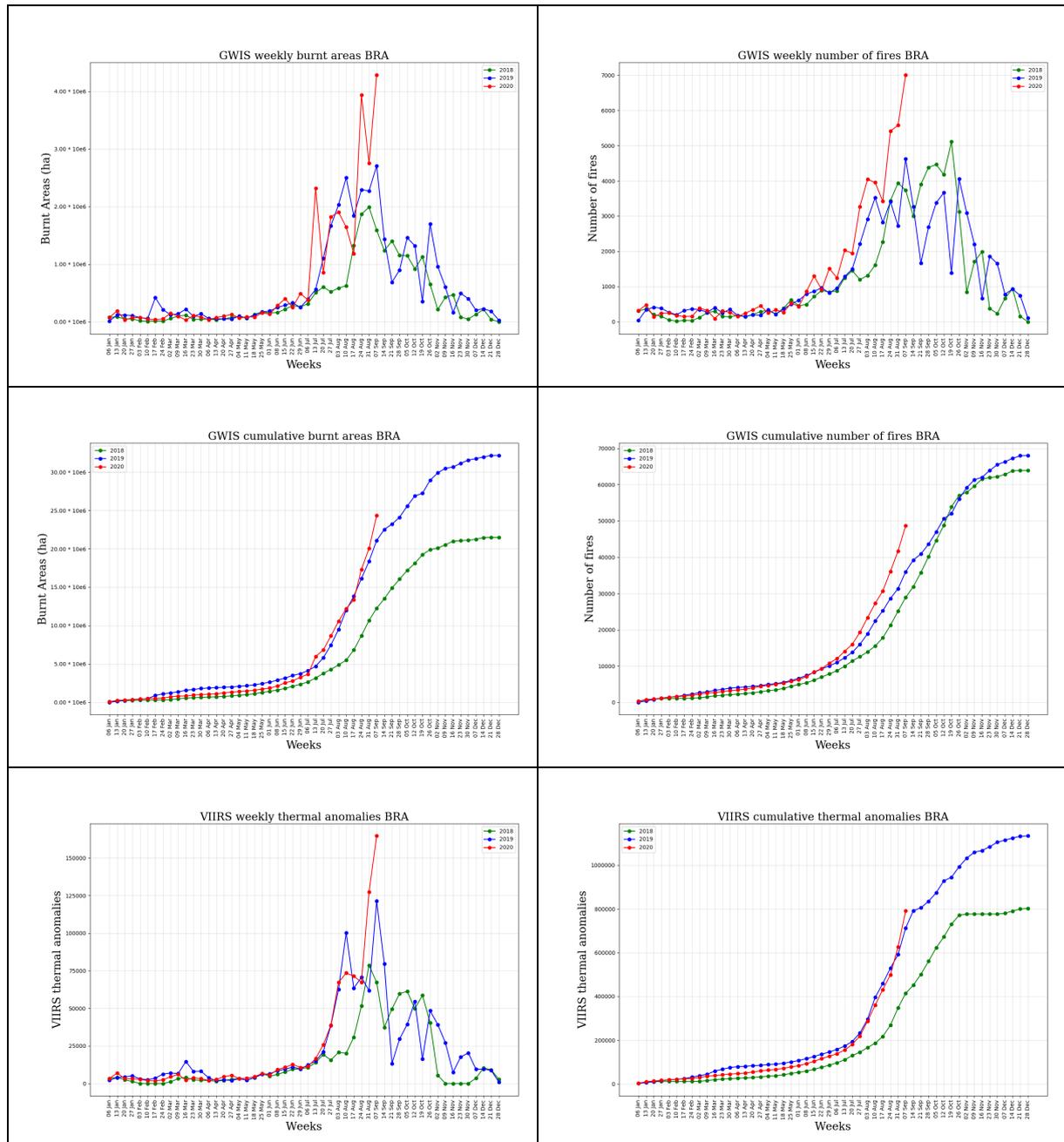


Figure 3. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last two years.

### 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 3,293,043 ha burnt in Bolivia since January 1 until September 13, 2020, with 332,716 ha burnt in the last week. The total burnt area in 2020 is currently about 58 % below the value of 2019, very similar to 2018, while the burnt area last week presented values lower than 2018 and 2019 for the same week.

The number of fires recorded in GWIS in the last week was 977, lower than the number of fires in the same week in 2018 but higher than 2019. The total number of fires are higher than 2018 and 2019. The number of thermal anomalies until September 13, 2020 (101,243) shows a typical trend in the region; however, the value is about 50% of that reached in 2019. 15,401 thermal anomalies were detected by VIIRS in the last week, a value that is still below those of 2018 and 2019.

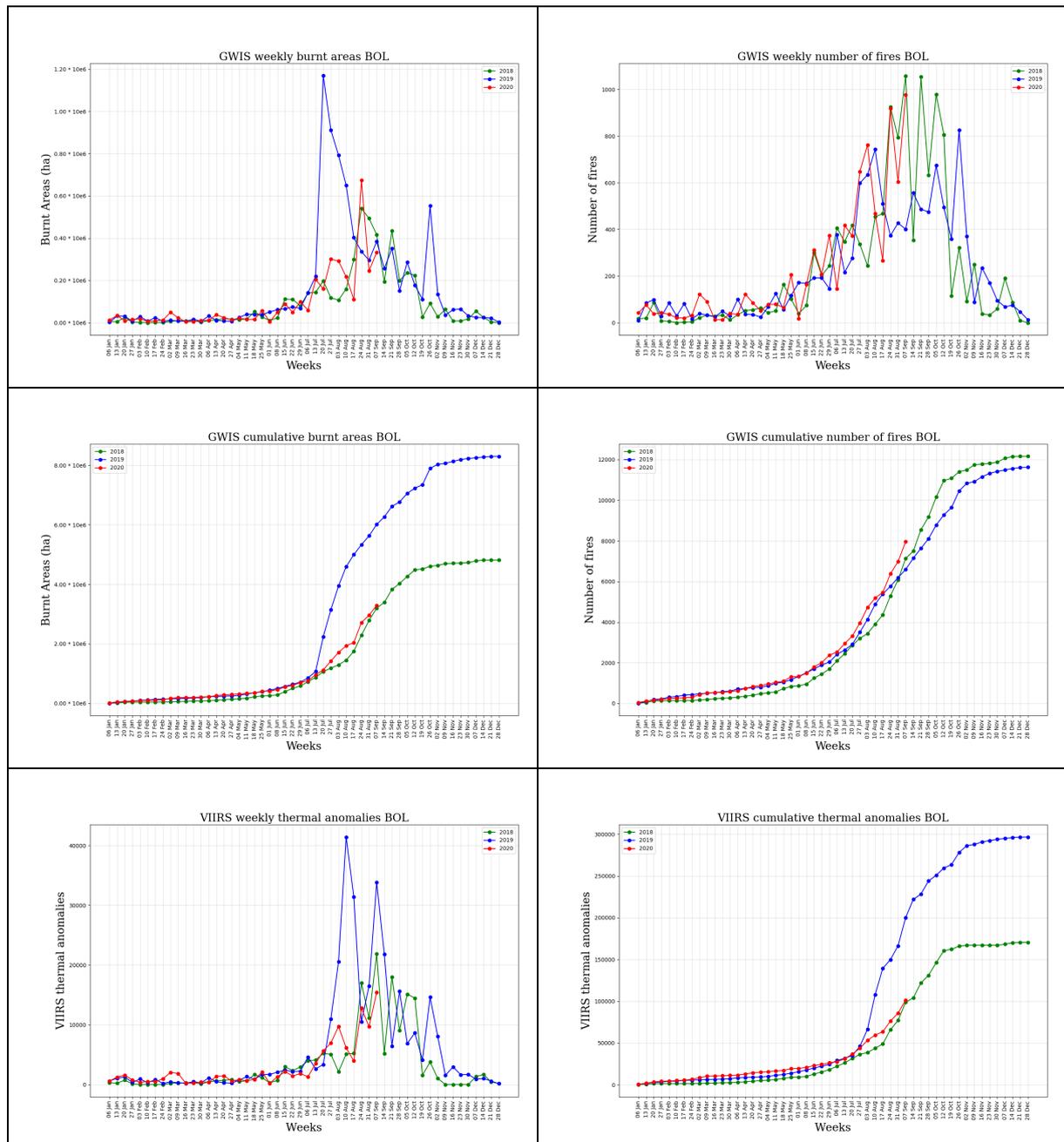


Figure 4. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last two years.

## 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 3,080,699 ha burnt in Colombia since January 1 until September 13, 2020, with 27,492 ha burnt in the last week. Although the fire activity last week is similar to those of previous years, the total burnt area in the country remains approximately 18 % 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 137, which shows a stable trend in the last weeks, but higher as compared to 2018 and 2019. The number of fires is approximately 20 % higher than that of last year. The number of thermal anomalies until September 13, 2020 (109,550) 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. 1037 thermal anomalies were detected by VIIRS during the last week, which is similar to the values in the same week in 2019 and slightly above the values in the same week in 2018.

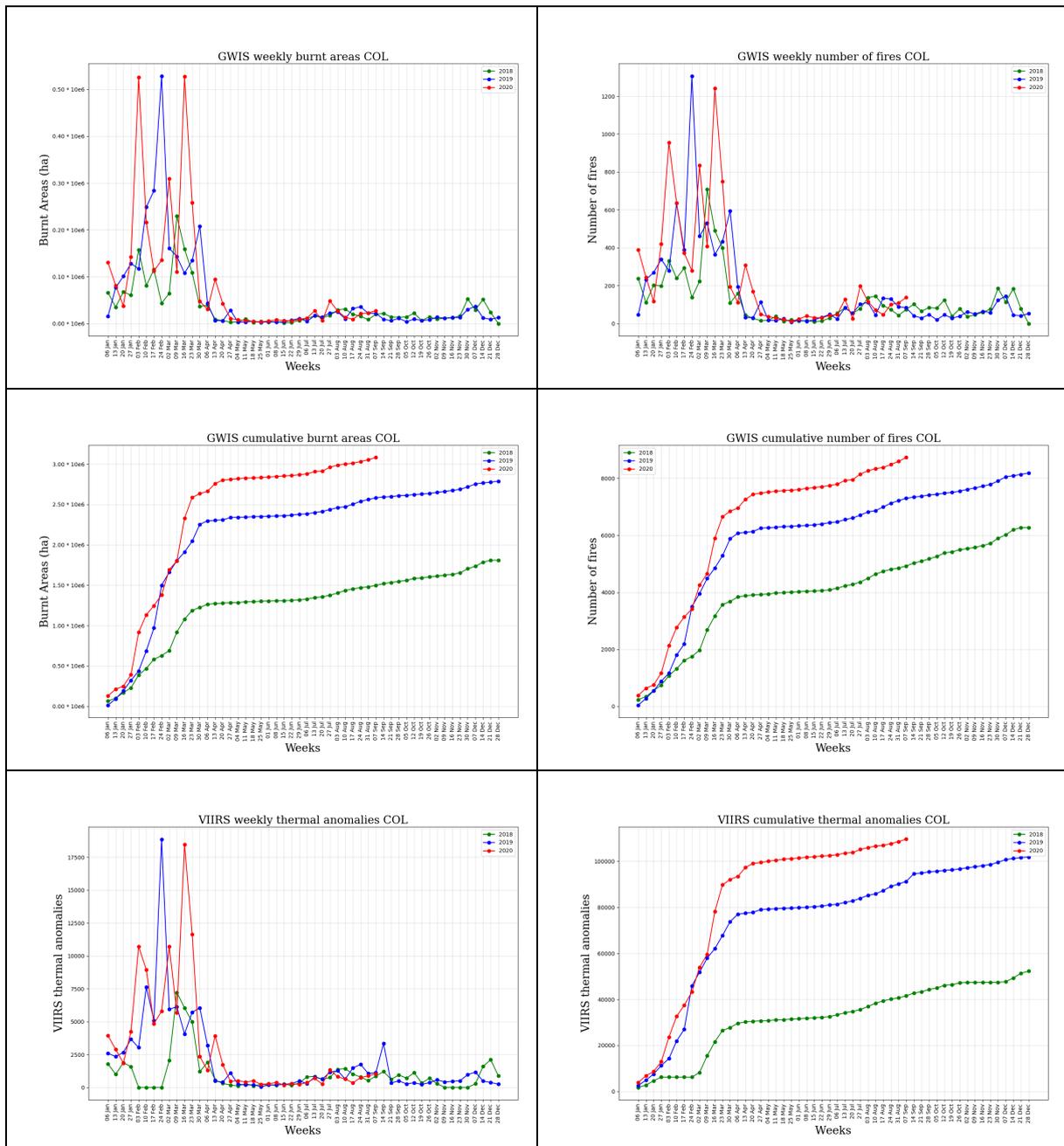


Figure 5. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last two years.

## 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 3,870,472 ha burnt in Paraguay since January 1 until September 13, 2020, which is nearly the double of the values in 2018 and 2019. Approximately 163,160 ha burnt in the country the last week, which showed higher fire activity comparing with the previous week.

The number of fires recorded in GWIS in the last week was 482, which is lower than the value in 2018 but higher than 2019. The number of thermal anomalies until September 13, 2020 (118,883) shows a typical trend in the region, but with much higher values, nearly double values, as compared to the trends in 2018 and 2019, with 5,875 thermal anomalies detected by VIIRS last week.

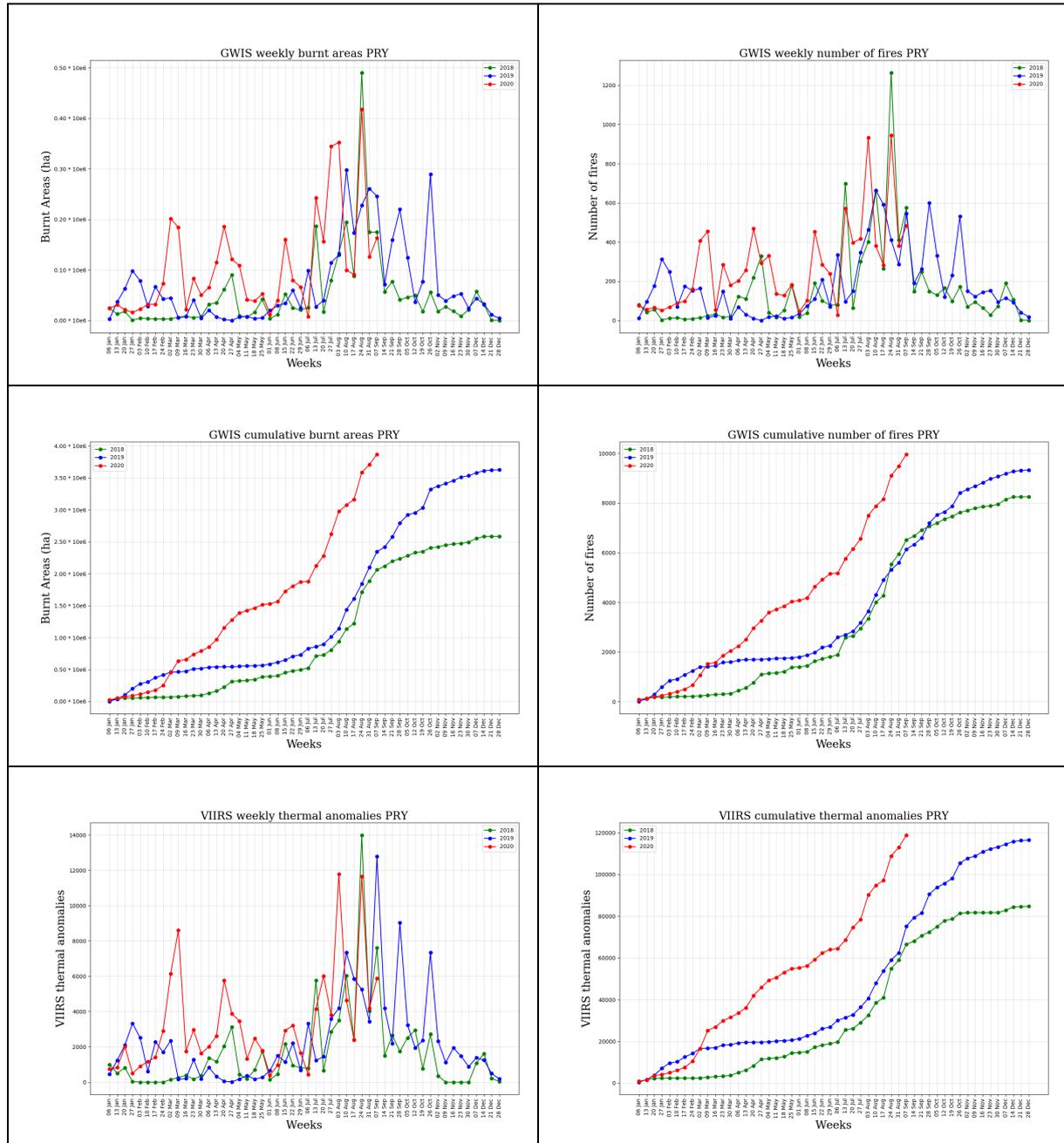


Figure 6. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last two years.

## 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 1,760,277 ha burnt in Peru since January 1 until September 13, 2020. This value is approximately the double than that of 2019. Approximately 190,141 ha burnt in the last week, increasing from the last week, a value that is higher than those of 2019 but lower than 2018 for the same week.

The number of fires recorded in GWIS in the last week was 840, doubling the values of the last week and higher than that of 2019 but lower than 2018 for the same week. The total number of fires since the beginning of the year, above 5,000, is about double of that of 2019. The number of thermal anomalies until September 13, 2020 (52,669) shows a typical trend in the region, with values higher than in 2018 and 2019. 5,131 thermal anomalies registered last week, more than the double recorded last week.

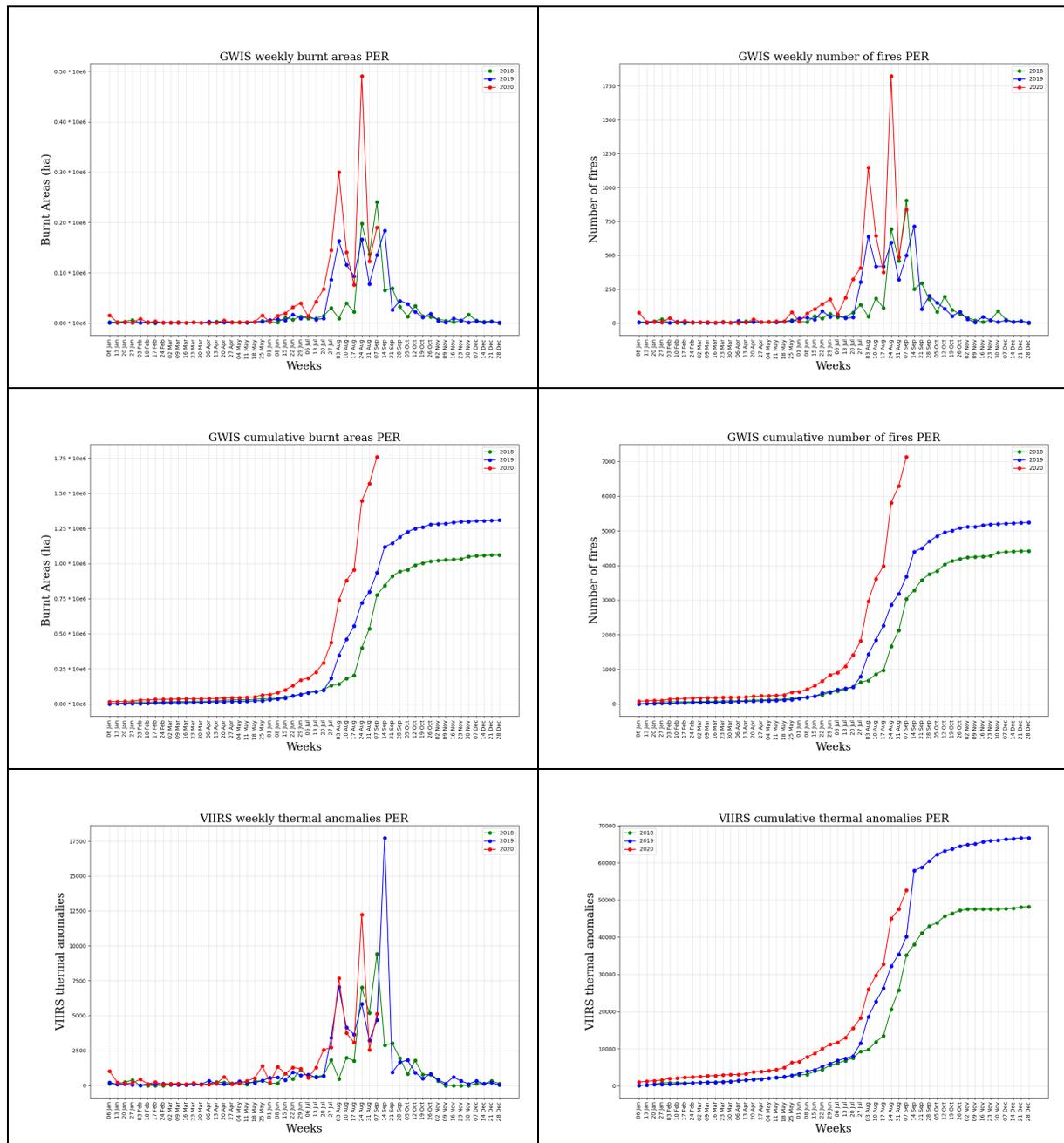


Figure 7. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last two years.

## 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 6,758,829 ha burnt in Venezuela since January 1 until September 13, 2020, with 4,969 ha burnt in the last week. The value of the total burnt area in the country is approximately 15 % 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 25, which shows a stable trend comparable to those of the previous two years, although the total number of fires remains approximately 15% higher than in 2019. The number of thermal anomalies until September 13, 2020 (265,739) shows a typical trend in the region as compared to the trends in 2018 and 2019, but with approximately 15% higher value than the previous years. 544 thermal anomalies were recorded by VIIRS during the last week, a value that is like those recorded in that week the previous two years.

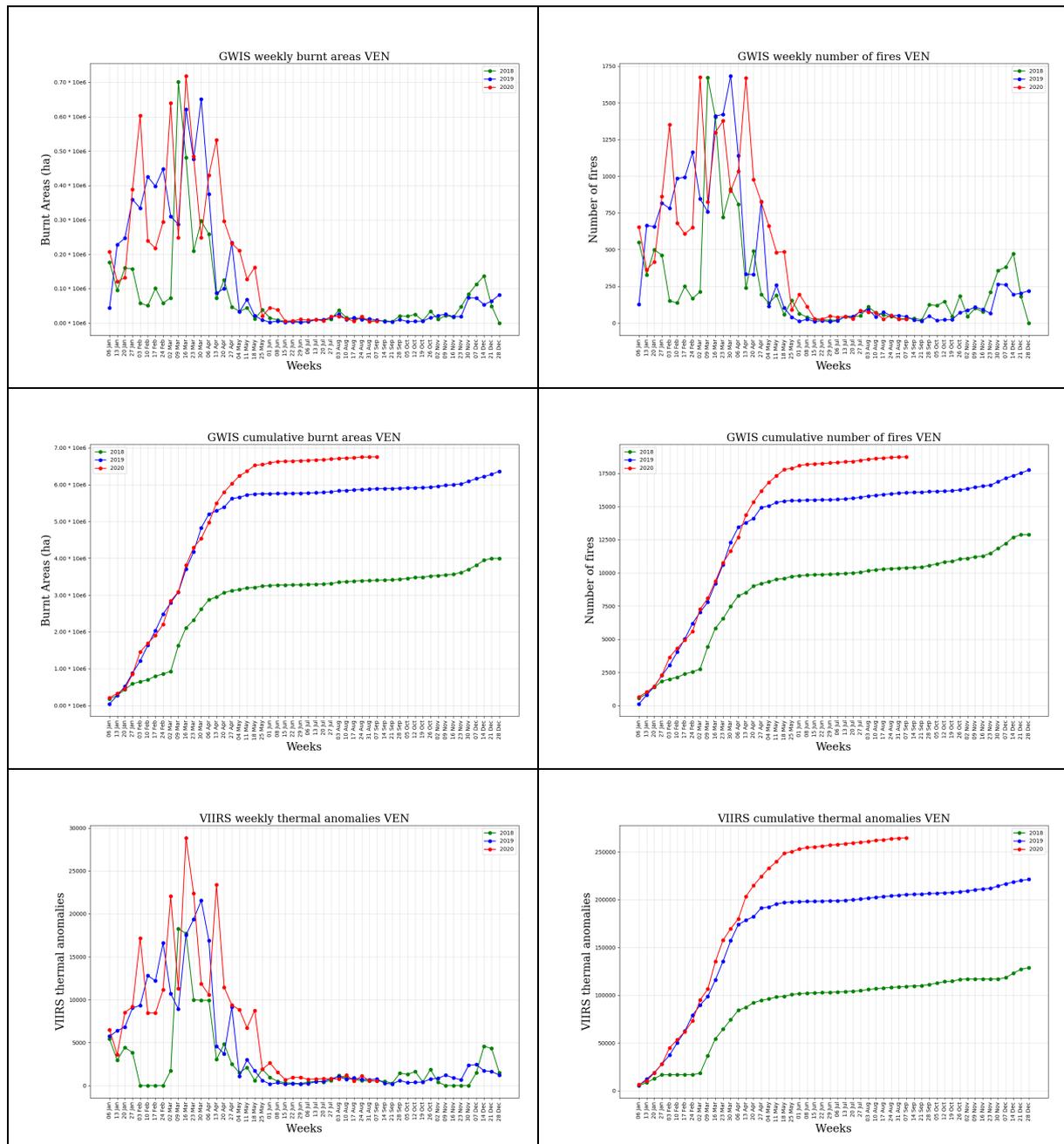


Figure 8. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last two years.

## 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 September 14 to September 20, 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 continue to be extreme in a great part of Brazil, especially on central, northeastern and southeastern Brazil. This also includes the south and eastern part of BLA, which concentrate the highest amount of fires. Moderate or high fire danger is expected in southeastern Bolivia and northern Paraguay, where the values are expected to be lower comparing with the previous week.

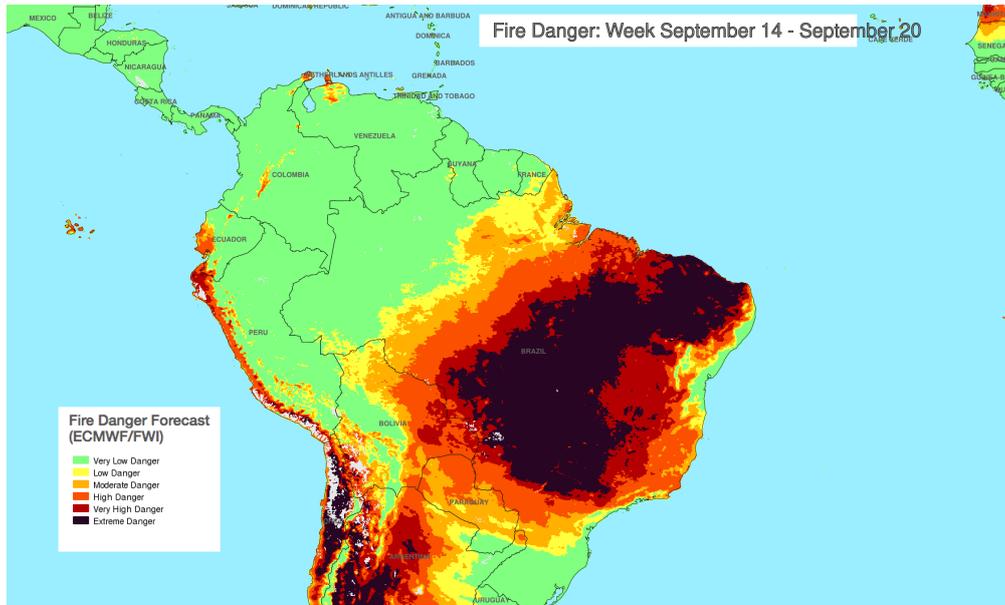


Figure 9. Average Fire danger forecast. Week, September 14-September 20, 2020.

The weekly fire weather forecast of temperature and precipitation anomalies for this week is presented in Figure 10. Moderate to high values on temperature are forecasted for south/southeastern Brazil, and eastern Bolivia. Moderate above average values also are expected on the BLA. Additionally, below average temperatures are foreseen in the north of BLA (Amapá state), southwestern Bolivia and western Paraguay. The models estimate a below average precipitation rates for this week mainly in southern Brazil and southern BLA. Above average precipitation is expected mainly in northwestern Brazil, eastern Peru and western Bolivia.

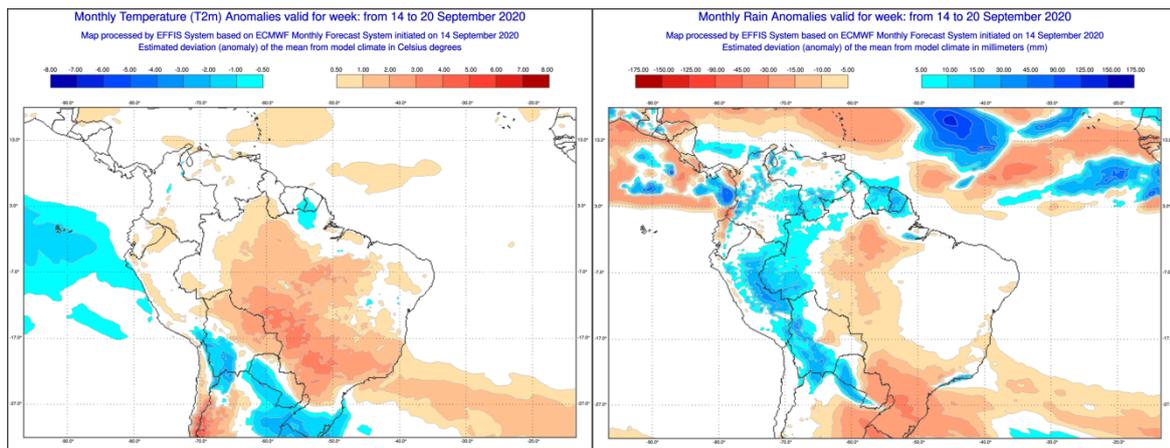


Figure 10. Fire weather anomalies of the current week, September 14-September 20, 2020.

<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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