European Commission

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Weekly & monthly analysis of wildfires in the Amazon region and South America: November 29 - December 05, 2021

2021

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Contents

Scope of this report and executive summary

This report describes the trends of wildfires in the Amazon in 2021 through the comparison with the fire activity in the region in previous fire seasons. It must be noted than 2019 and 2020 were critical years 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 "country profile application" in GWIS. 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)[1] and the EU Project on support to wildfire management in LAC. Most of the Amazon region is in Brazil, specifically in the Brazilian Legal Amazon (BLA)[2], and in other neighbor countries. Figure 1 shows the geographical extent of the countries analyzed in this report.

- In the **Brazil Legal Amazon (BLA)**, **within Brazil, a total of 14.51 Million ha (Mha) burnt since January 1 until December 05, 2021. This value is the lowest of the last 6 years**. Last week, 19 fires occurred, following the decreasing trend from previous weeks.
- **In Brazil, 23.74 Mha** burnt since January 1 until December 05, 2021, with a total of 18,589 ha burnt in the last week. **The values of burnt area and number of fires in Brazil for the last week are lowest values of the last 6 years for the same period.** 92 fires occurred last week, while the area burnt was the lowest value of the last 6 years for the same week. The average size of the fires is smaller than in all the previous 6 years.
- **In Bolivia**, the total burnt area (8.08 Mha) and number of fires (15,722 fires) decreased from the previous week. The total burned area this year is lower than the values of 2020 and 2019.
- **In Colombia**, the total burnt area in the country (2.85 Mha) is above the values of 2018 and 2019 but approximately 10% below the values of 2020. The total number of fires since January 2021 is 10,106, which is the second highest value since 2015 for the same period (below that of 2020).
- **In Paraguay**, 3.56 Mha burnt since January 1 until December 05, 2021. This figure is above that in 2018 and 2019 but 26 % below the values of 2020.
- **In Peru,** since January 1 until December 05, 2021, the total burnt area is 2.82 Mha and total number of fires is 10,745. These are the second highest values recorded since 2015 (below 2020).
- **In Venezuela,** 3.84 Mha burnt in the current year until December 05. The value of the total burnt area in Venezuela is lower than that in 2019 and 2020.
- **In Chile,** 452,269 ha burnt in the current year until December 05, 2021. This value is 51% higher than that of 2020. This year, the number of fires (1869) is the highest since 2015.
- **In Argentina**, a total of 5.07 Mha burnt since January 1 until December 05, 2021, which is less than half of what was burned in 2020 in the same period. A total of 16,767 fires were mapped in this period.
- **In Ecuador**, a total of 1,139 fires burnt 329,431 ha since January 1 until December 05, 2021. The number of fires and the burnt area last week had an increase with respect to the previous week. However, these values are about the same values in 2018 and below those 2020.
- **In Uruguay**, a total of 50,810 ha burnt since January 1 until December 05, 2021. This value is higher than those of 2018 and 2019 but lower than the figure of 2020. 5 fires were recorded last week.
- **In French Guiana** a total of 6,508 ha burnt since January 1 until December 05, 2021. This value is the lowest in the last 6 years. 1 fire was recorded last week, decreasing from the last week.
- **In Guyana,** a total of 69,119 ha burnt since January 1 until December 05, 2021, the lowest value in the last 6 years. 28 fires were mapped last week.
- **In Suriname**, 42 fires burnt a total of 12,810 ha since January 1 until December 05,2021, the lowest value in the last 6 years 11 fires were mapped last week.
- This week, it is expected that fire danger conditions will be very high to extreme in southern Argentina and northern Chile. Paraguay, northern Argentina and southeastern Brazil will have moderate to high fire danger.

[1] https://gwis.jrc.ec.europa.eu

[2] 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)

Figure 1. Areas analyzed in this report: Brazil Legal Amazon, Brazil, Bolivia, Colombia, Paraguay, Peru, Venezuela, Chile, Argentina, Ecuador, Uruguay, French Guiana, Guyana and Suriname

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, 2021, 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 14.51 Mha burnt in the BLA from January 1 until December 05, 2021, with 3,893 ha burnt in total during the last week, which is lowest value of the last six years for the same week. The number of fires recorded in GWIS in the last week was 19, decreasing from the previous week. The number of thermal anomalies until December 05, 2021 (647,279) shows a typical trend in the region as compared to the trends in 2018 and 2020, but the values remain below. 4,692 thermal anomalies were registered last week.

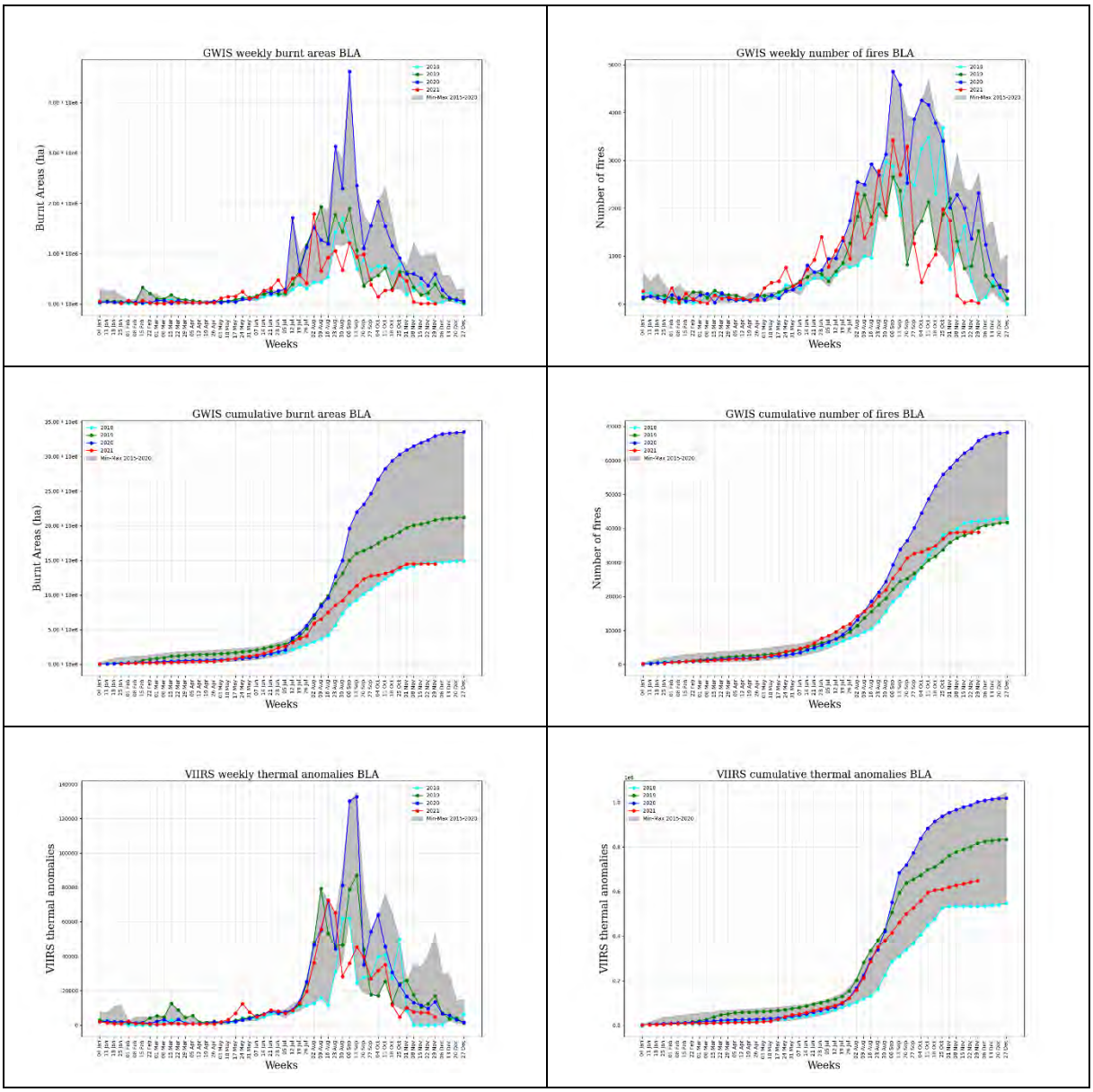


Figure 2. Trend of burnt areas and number of fires as compared to data in the last 6 years.

2 Wildfires in Brazil

Figure 3 shows the trends on the extent of burnt areas and the number of fires since January 1, 2021, 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 23,78 Mha ha burnt in Brazil since January 1 until December 05, 2021, with a total 18,589 ha burnt in the last week. The total burnt area in the country remains the second lowest of the previous six years. The number of fires recorded in GWIS in the last week was 92, decreasing from the last week. The number of thermal anomalies until December 05, 2021 (1,179,752) shows a typical trend in the region. 9,707 thermal anomalies were registered last week.

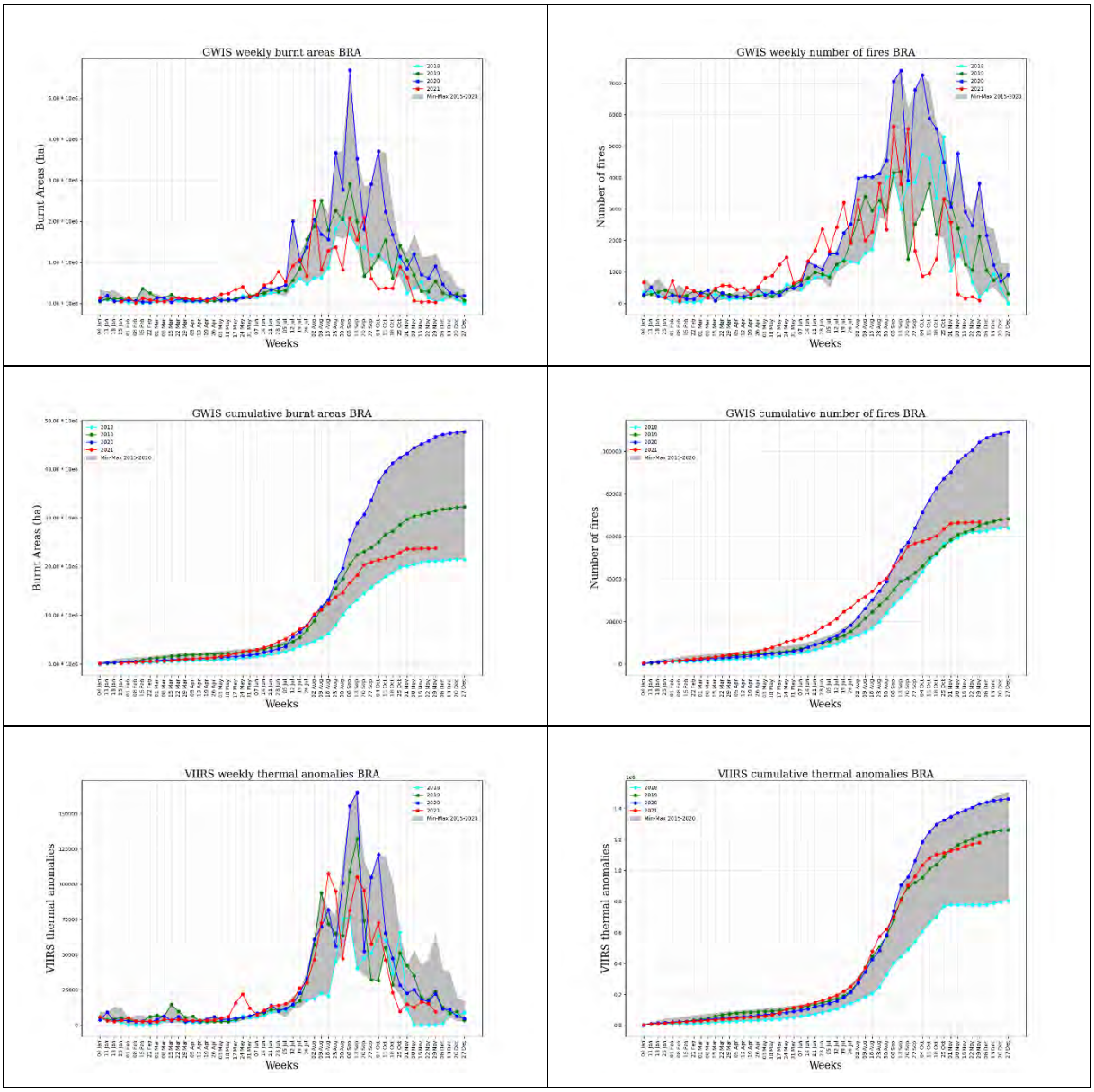


Figure 3. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

3 Wildfires in Bolivia

Figure 4 shows the trends on the extent of burnt areas and the number of fires since January 1, 2021, 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 8,08 Mha ha burnt in Bolivia since January 1 until December 05, 2021, with 12,595 ha burnt in the last week, decreasing from the last week. The number of fires recorded in GWIS in the last week was 43, the lowest value in the same week from the last 6 years. The number of thermal anomalies until December 05, 2021 (278,260) is the third lowest value since 2015 for the same period. 1,033 thermal anomalies were detected by VIIRS in the last week.

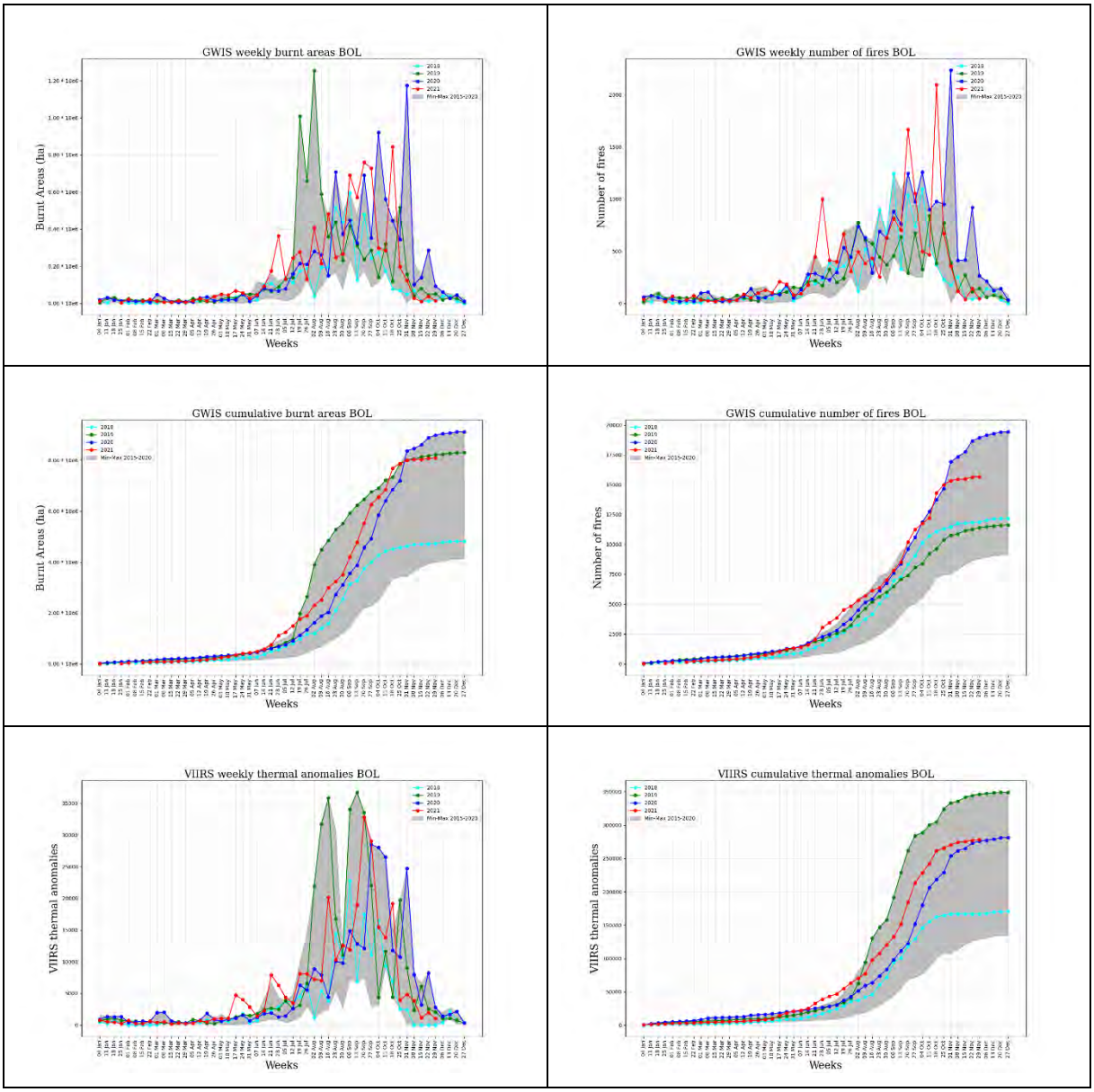


Figure 4. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

4 Wildfires in Colombia

Figure 5 shows the trends on the extent of burnt areas and the number of fires since January 1, 2021, 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 2,85 Mha burnt in Colombia since January 1 until December 05, 2021. Approximately 27,664 ha burnt in the country the last week. The number of fires recorded in GWIS in the last week was 112 and the total number of fires since January 1 is the second highest value since 2015 for the same period. The number of thermal anomalies until December 05, 2021 (75,880) follows a typical trend in the region with similar values of 2018 but way below of 2019 and 2020. 831 thermal anomalies recorded by VIIRS last week.

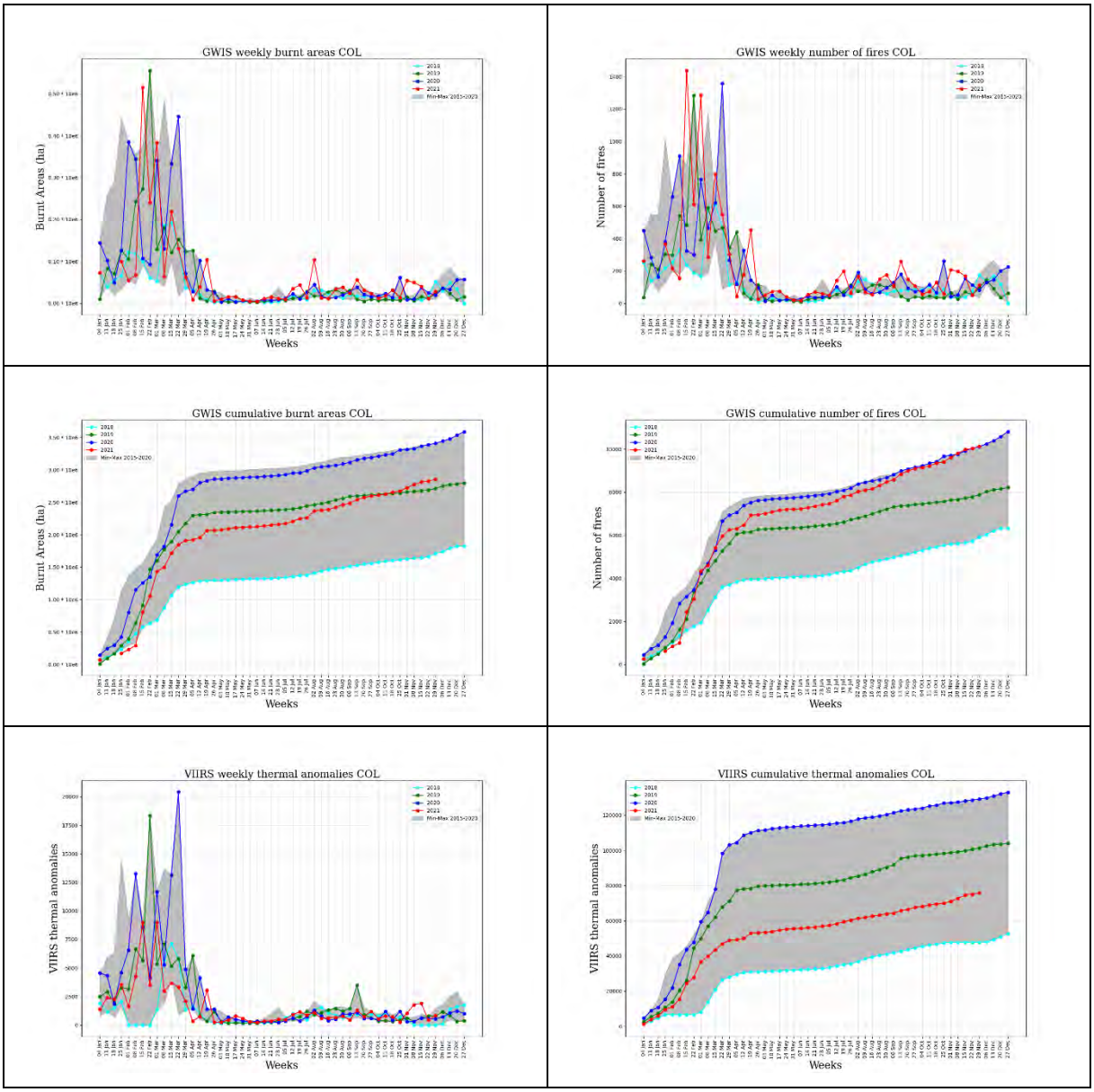


Figure 5. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

5 Wildfires in Paraguay

Figure 6 shows the trends on the extent of burnt areas and the number of fires since January 1, 2021, 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 3.56 Mha burnt in Paraguay since January 1 until December 05, 2021. Approximately 41,626 ha burnt in the country the last week, decreasing from the previous week. The number of fires recorded in GWIS in the last week was 155. The number of thermal anomalies until December 05, 2021 (128,570) follows a typical trend in the region. 3,042 thermal anomalies detected by VIIRS last week.

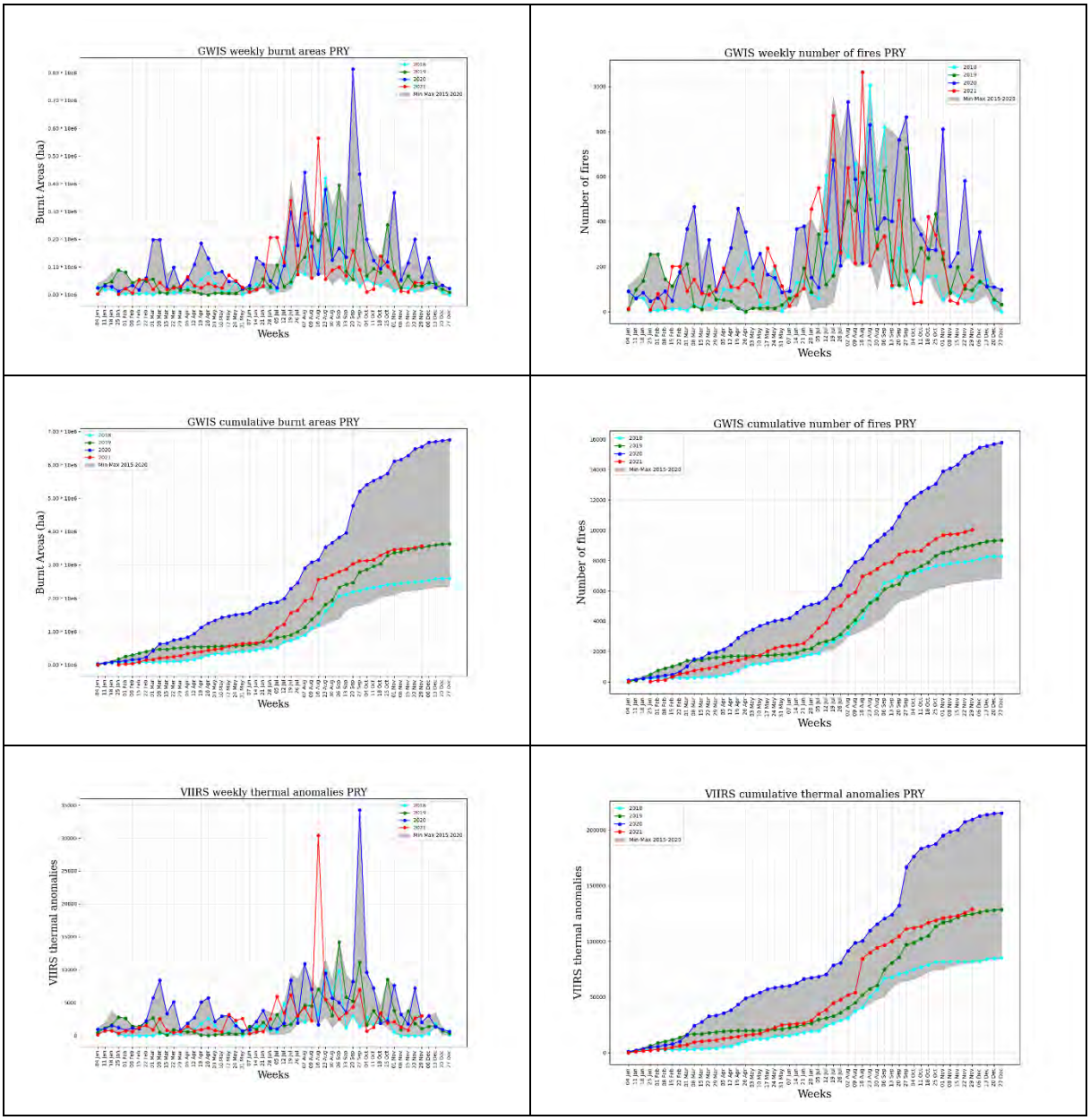


Figure 6. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

6 Wildfires in Peru

Figure 7 shows the trends on the extent of burnt areas and the number of fires since January 1, 2021, 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 2.82 Mha burnt in Peru since January 1 until December 05, 2021, the highest value since 2015 for the same period. Approximately 6,289 ha burnt in the last week, decreasing from the previous week. The number of fires recorded in GWIS in the last week was 40. The number of thermal anomalies until December 05, 2021 (58,668) shows a typical trend in the region. 257 thermal anomalies registered last week, decreasing after the last week.

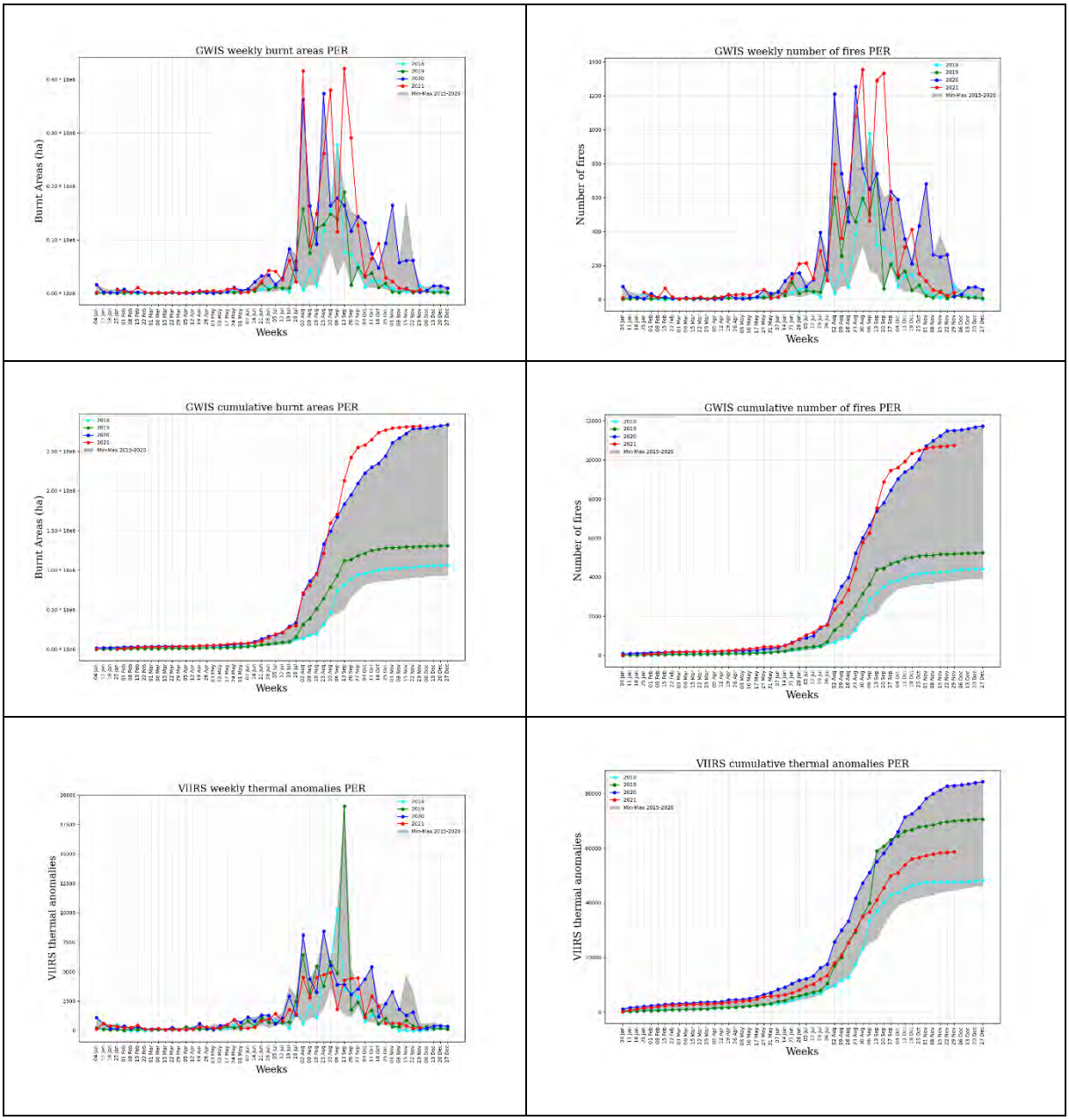


Figure 7. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

7 Wildfires in Venezuela

Figure 8 shows the trends on the extent of burnt areas and the number of fires since January 1, 2021, 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 3.84 Mha burnt in Venezuela since January 1 until December 05, 2021, with 33,949 ha burnt in the last week. The number of fires recorded in GWIS in the last week was 142. The number of thermal anomalies until December 05, 2021 (148,015) shows a typical trend in the region. 2,600 thermal anomalies were recorded by VIIRS during the last week.

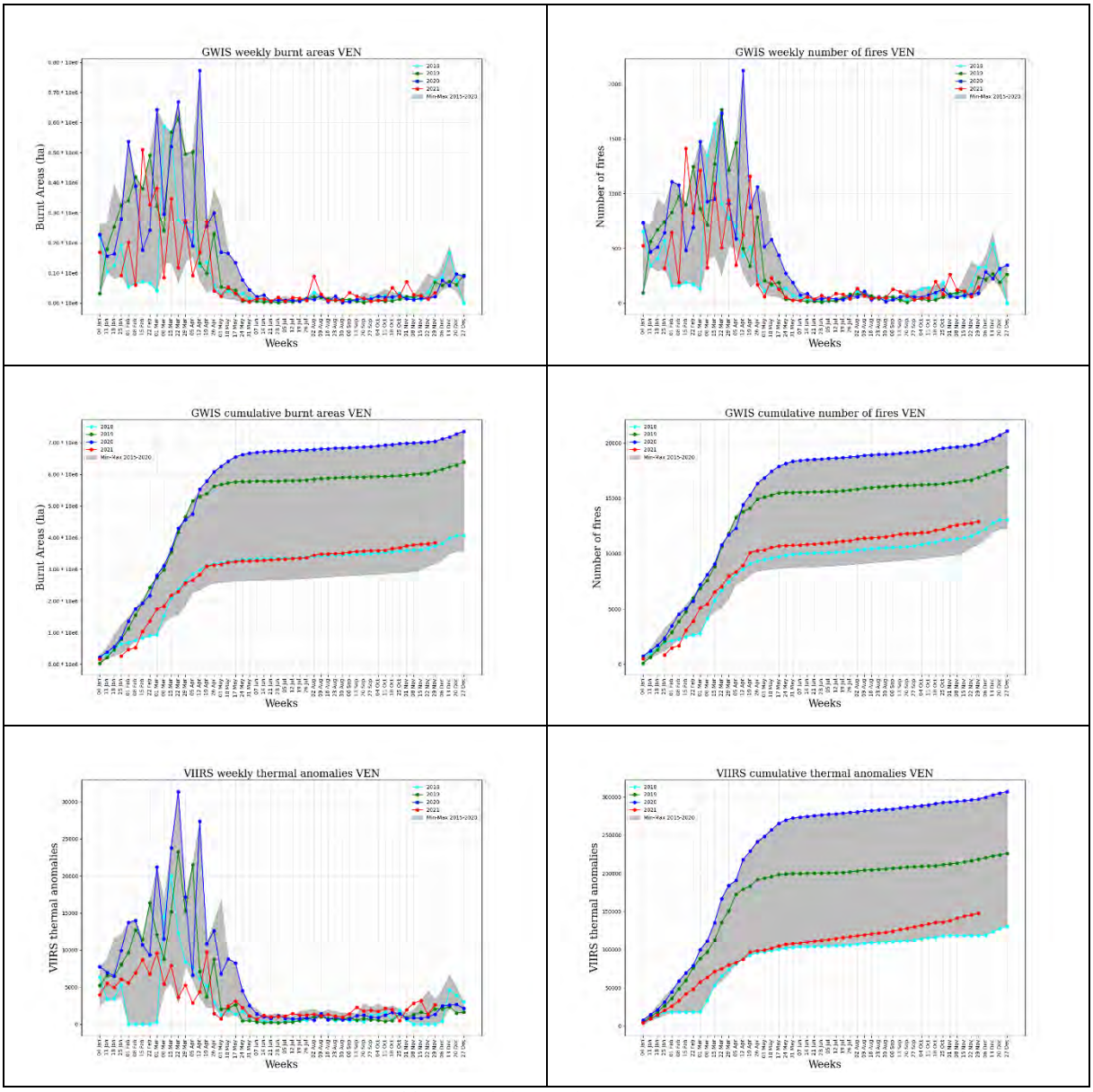


Figure 8. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

8 Wildfires in Chile

Figure 9 shows the trends on the extent of burnt areas and the number of fires since January 1, 2021, 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 452,269 burnt in Chile since January 1 until December 05, 2021, with 3,898 ha burnt in the last week. The number of fires recorded in GWIS in the last week was 16. The number of thermal anomalies until December 05, 2021 (14,761) shows a typical trend in the region as compared to the trends during previous years. 173 thermal anomalies were detected by VIIRS during the last week, which is similar to the values in the same week during previous years.

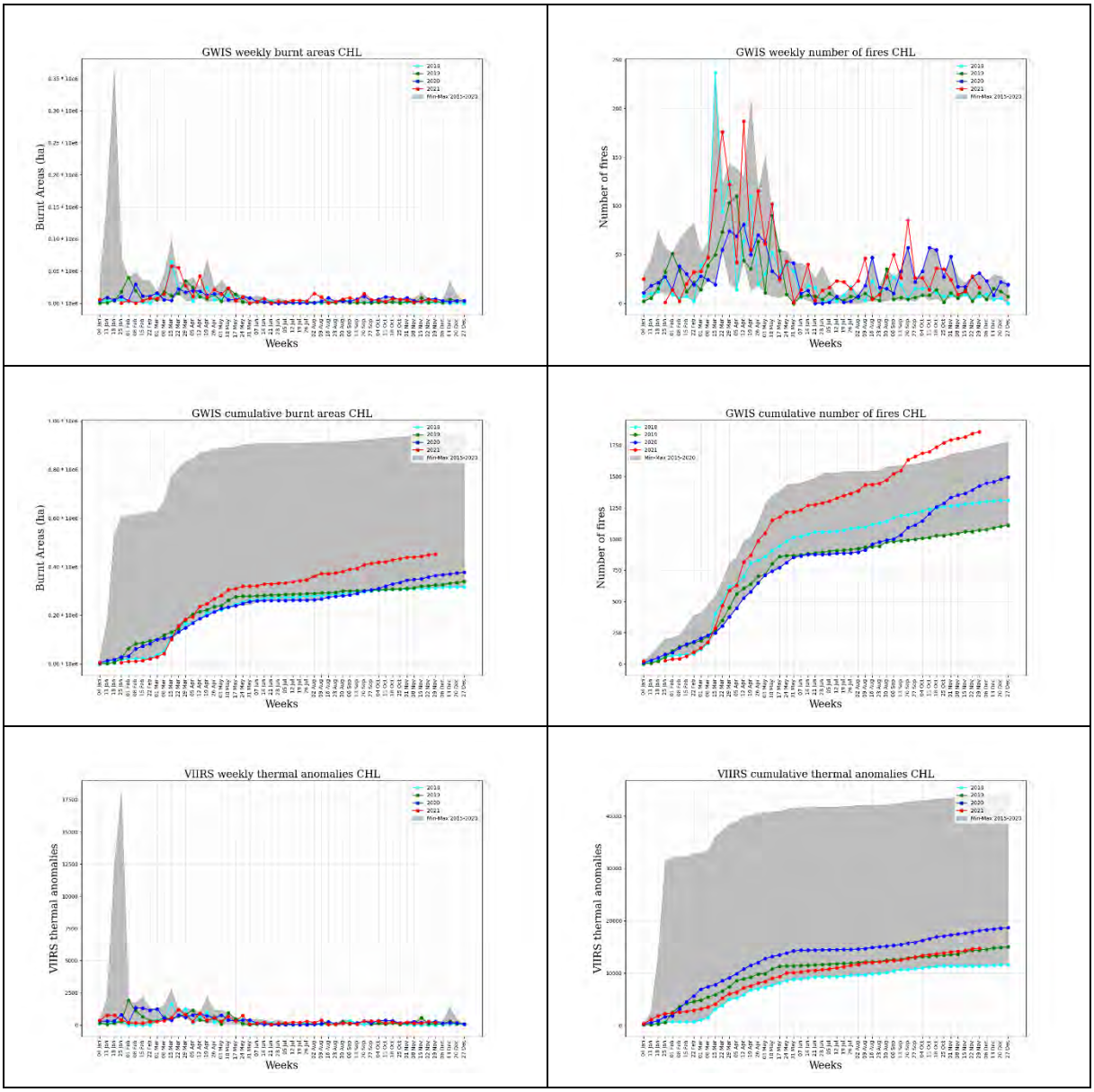


Figure 9. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

9 Wildfires in Argentina

Figure 10 shows the trends on the extent of burnt areas and the number of fires since January 1, 2021, 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 5.07 Mha burnt in Argentina since January 1 until December 05, 2021, with 24,063 ha burnt in the last week. These values are the lowest since 2015 for the same week. The number of fires recorded in GWIS in the last week was 97, one of the lowest values since 2015 for the same period. The number of thermal anomalies until December 05, 2021 (150,647) shows a typical trend in the region. 1,463 thermal anomalies were recorded by VIIRS during the last week, a value that is like those recorded in that week for 2020.

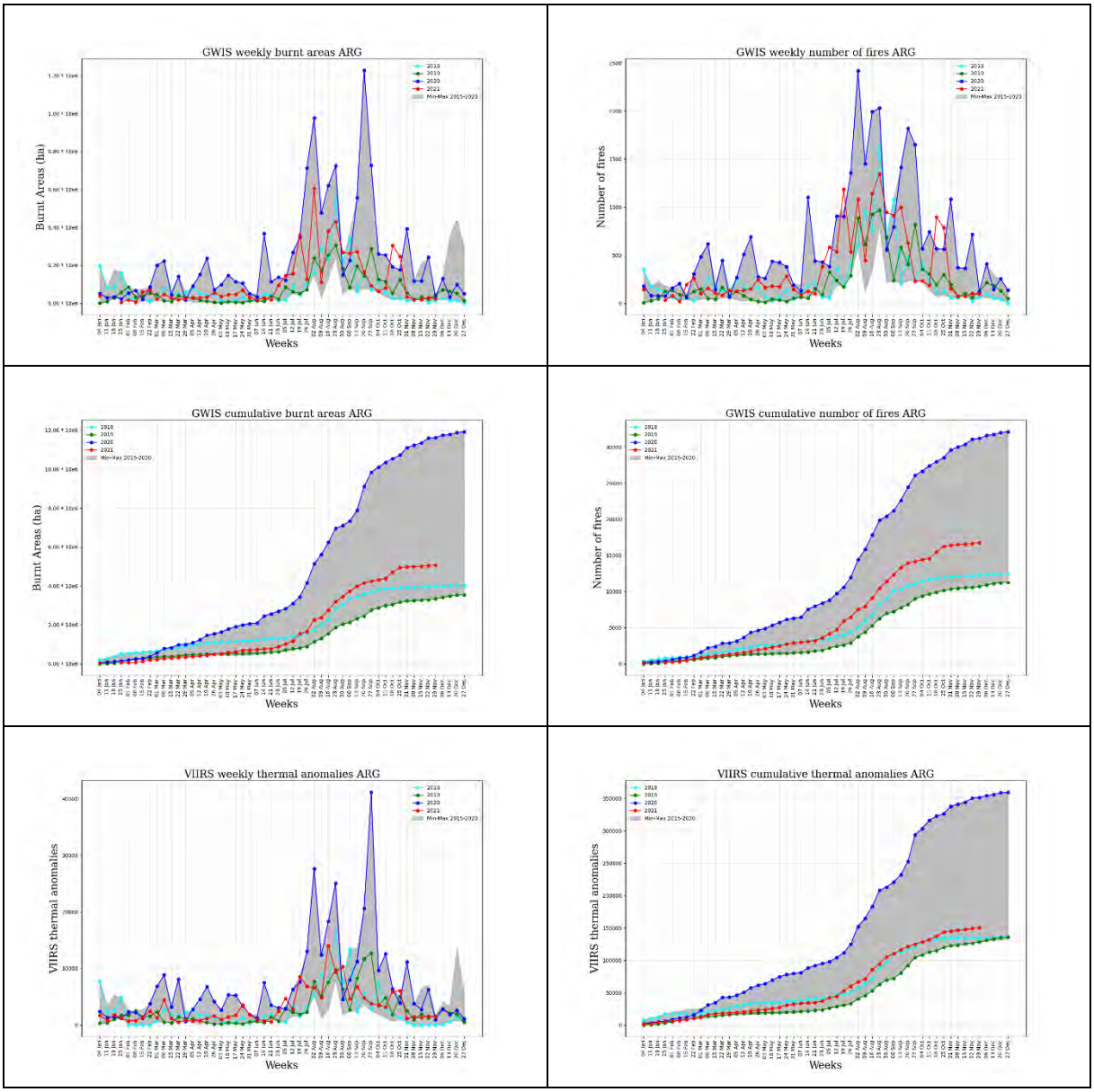


Figure 10. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

10 Wildfires in Ecuador

Figure 11 shows the trends on the extent of burnt areas and the number of fires since January 1, 2021, 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 329,431 ha burnt in Ecuador since January 1 until December 05, 2021, lower values than 2020 for the same period, with 43,923 ha burnt in the last week. The number of fires recorded in GWIS in the last week was 167. The number of thermal anomalies until December 05, 2021 (7,818) shows a typical trend in the region. 1,021 thermal anomalies were detected by VIIRS in the last week.

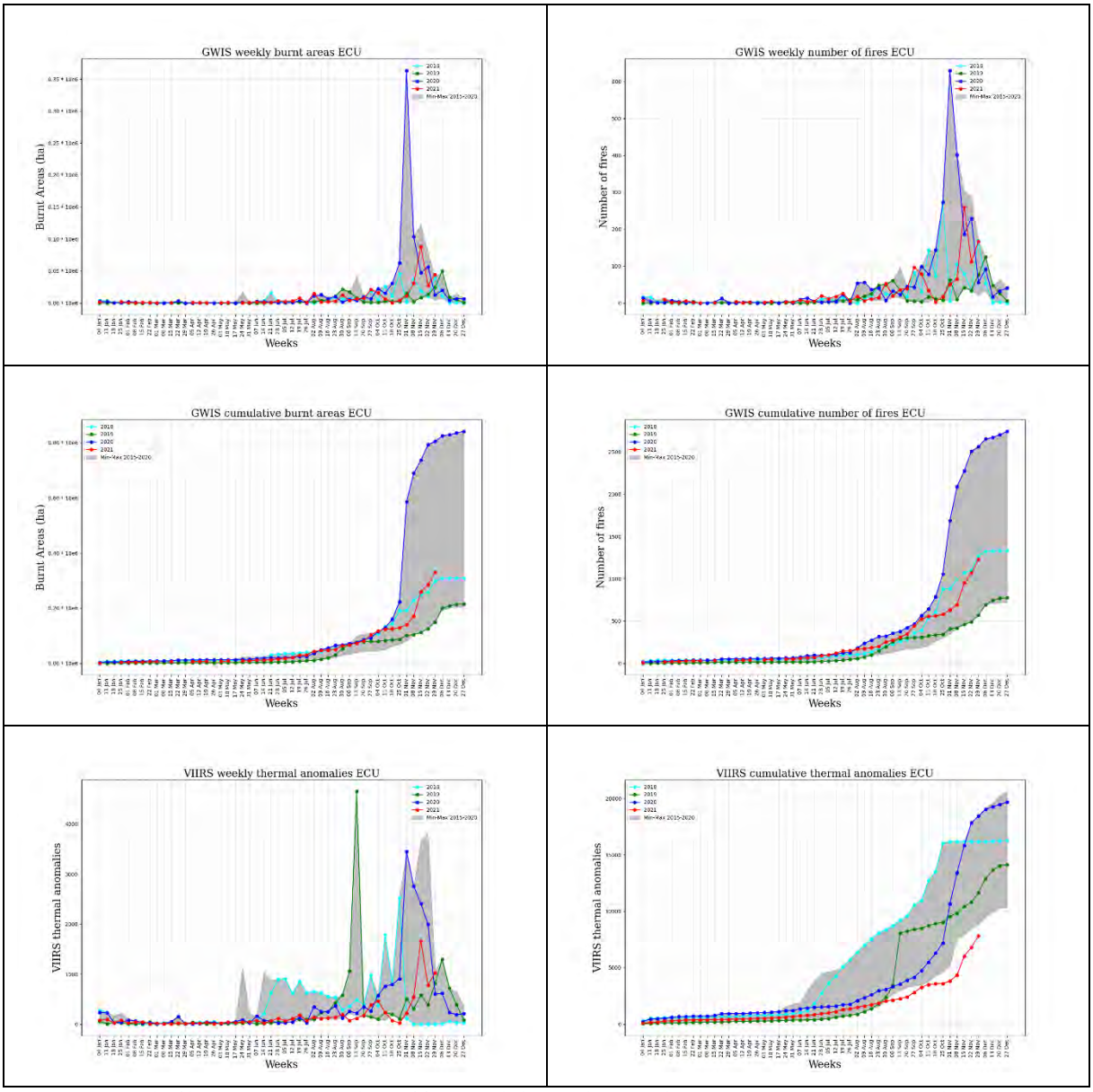


Figure 11. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

11 Wildfires in Uruguay

Figure 12 shows the trends on the extent of burnt areas and the number of fires since January 1, 2021, 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 50,810 ha burnt in Uruguay since January 1 until December 05, 2021. 5 fires were recorded last week. The number of thermal anomalies until December 05, 2021 (2,007) shows a typical trend in the region.

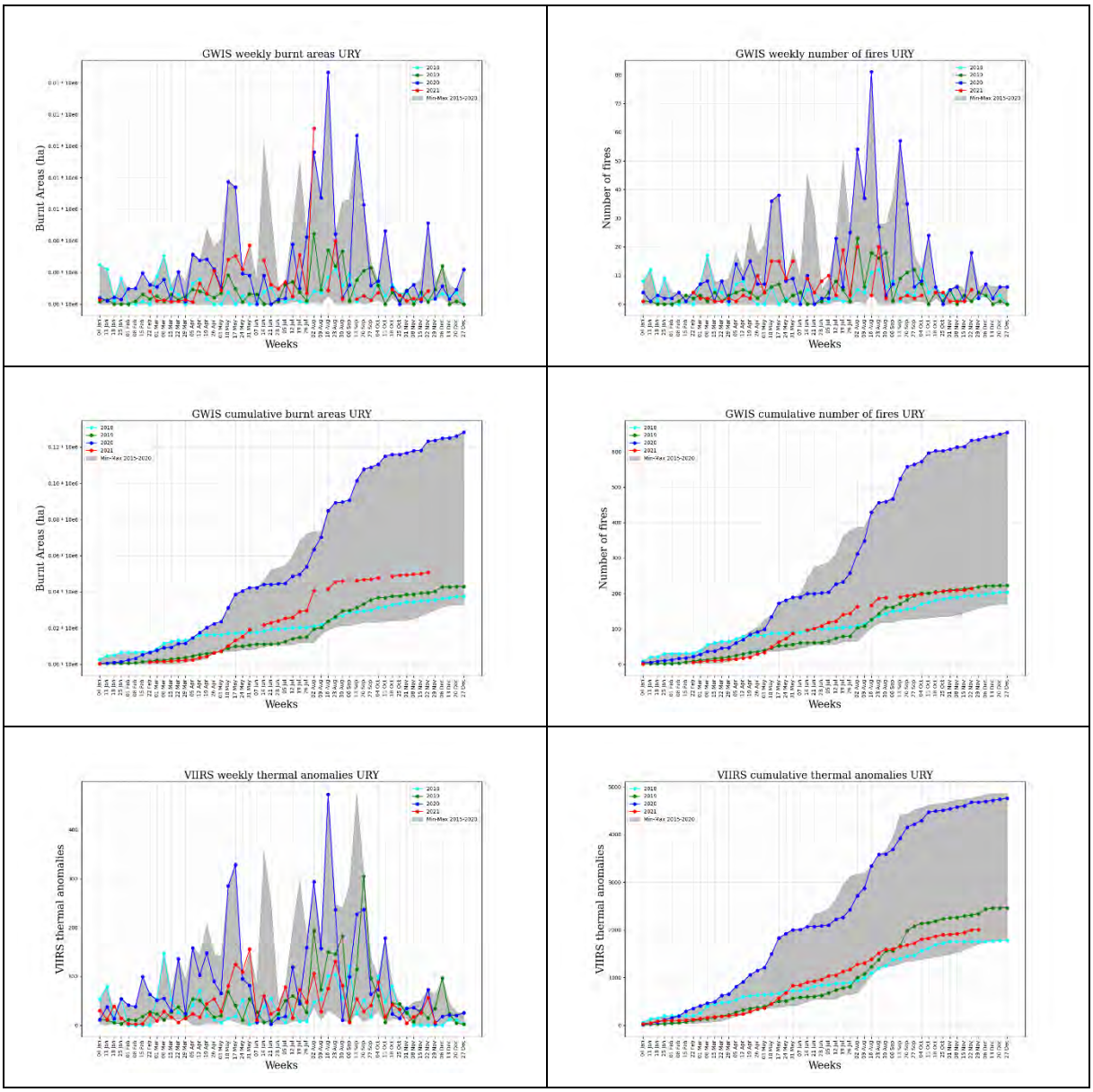


Figure 12. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

12 Wildfires in French Guiana

Figure 13 shows the trends on the extent of burnt areas and the number of fires since January 1, 2021, 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 6,508 ha burnt since January 1 until December 05, 2021, with 1 fire recorded last week. The number of thermal anomalies until December 05, 2021 (363) shows a typical trend in the region as compared to the trends during previous years. 2 thermal anomalies were detected by VIIRS during the last week, which is similar to the values in the same week during previous years.

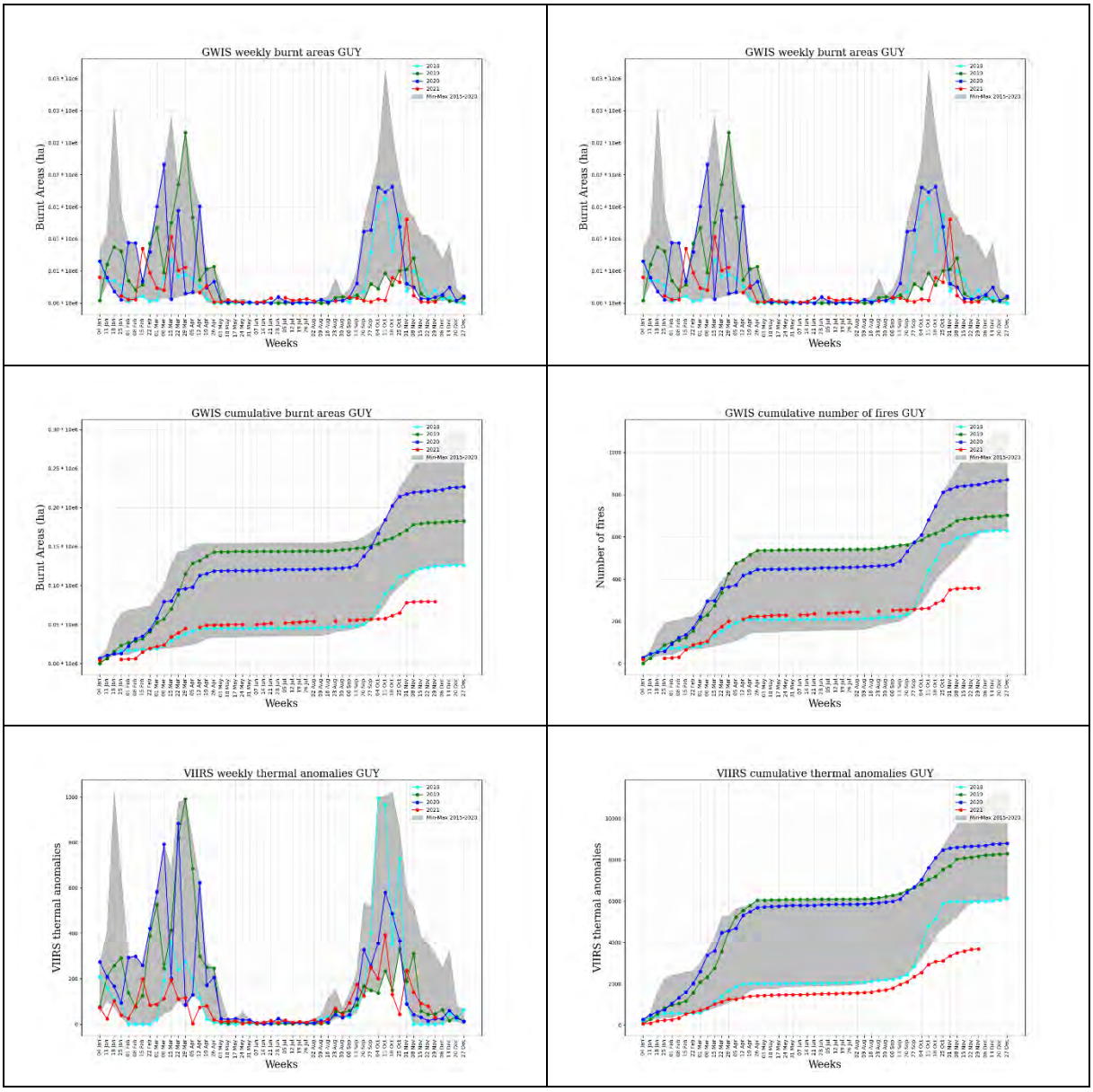


Figure 13. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

13 Wildfires in Guyana

Figure 14 shows the trends on the extent of burnt areas and the number of fires since January 1, 2021, 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 69,119 ha burnt in Guyana since January 1 until December 05, 2021, with 28 fires recorded last week. The number of thermal anomalies until December 05, 2021 (3.351) shows a typical trend in the region as compared to the trends during previous years. 236 thermal anomalies were detected by VIIRS during the last week, which is similar to the values in the same week during previous years.

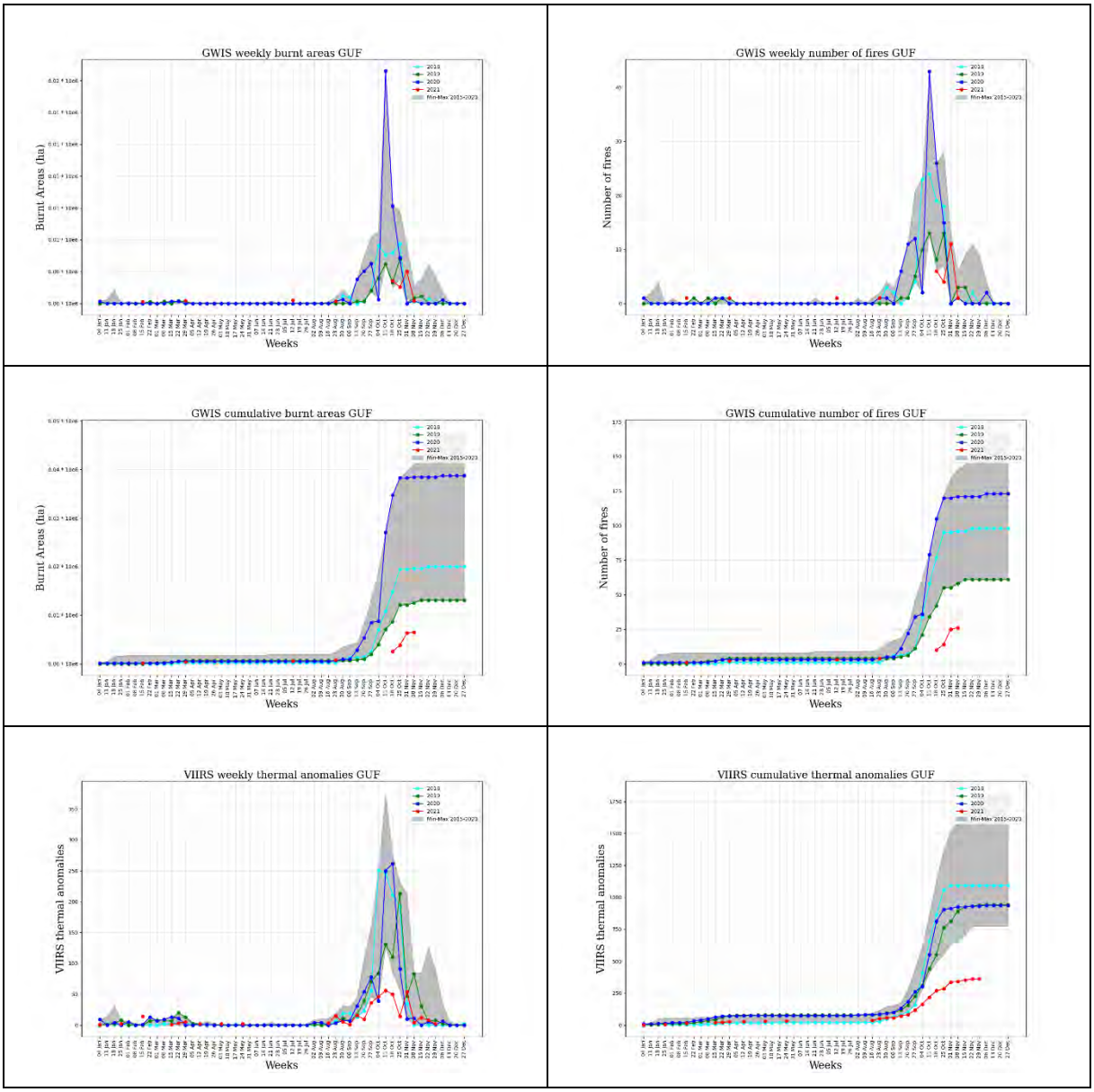


Figure 14. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

14 Wildfires in Suriname

Figure 15 shows the trends on the extent of burnt areas and the number of fires since January 1, 2021, 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 12,810 ha burnt in Suriname since January 1 until December 05, 2021. 11 fires were recorded last week. The total number of fires since the beginning of the year is 54. The number of thermal anomalies until December 05, 2021 (852) shows a typical trend in the region. 5thermal anomalies registered last week, decreasing after the last week.

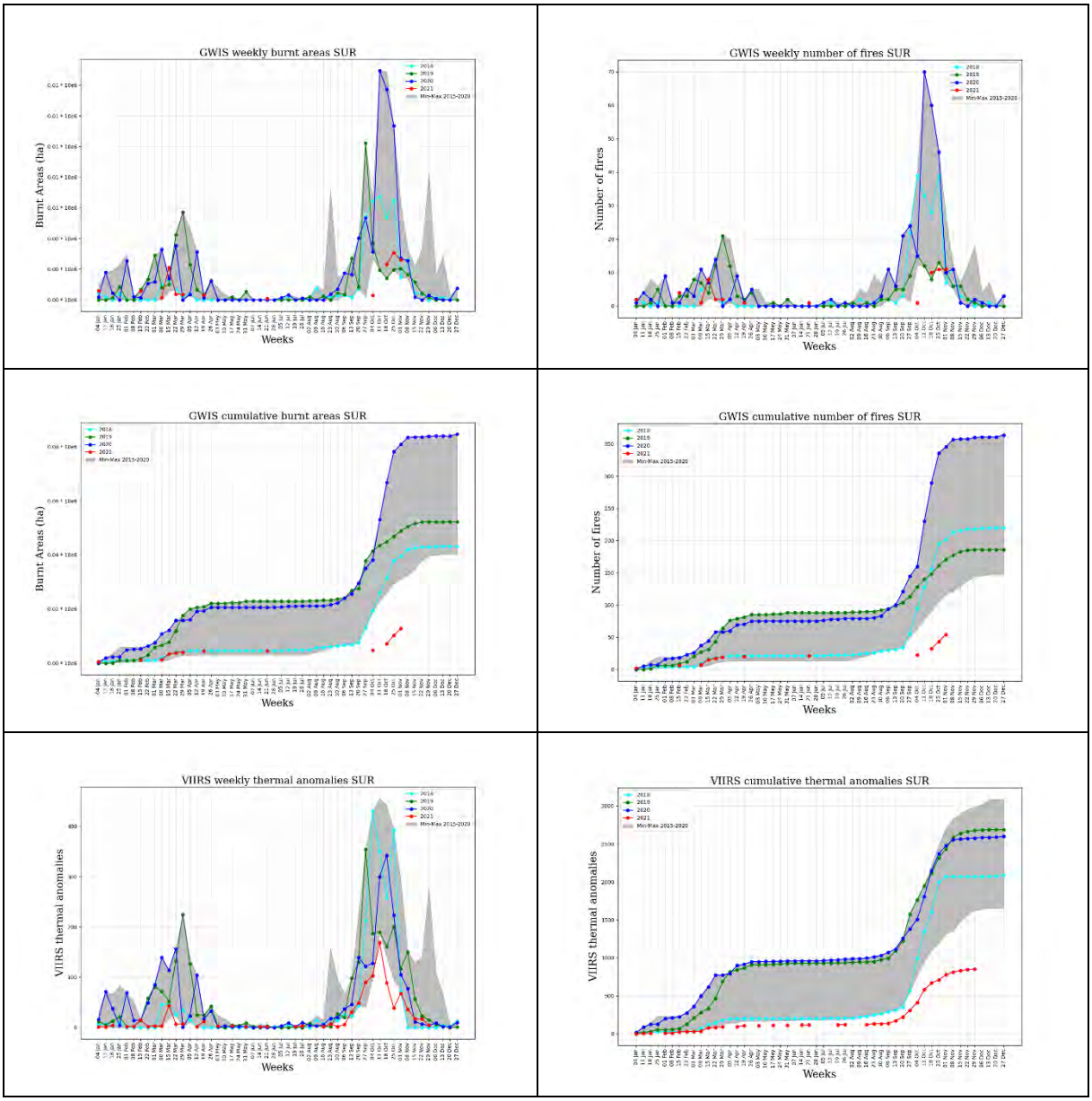


Figure 15. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

15 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 16 provides the average fire danger for the week of December 6 to December 12, 2021. This information is based on the daily fire danger forecast that is provided online in GWIS[3]. According to this forecast, it is expected that fire danger conditions will be very high to extreme in southern Argentina and northern Chile. Paraguay, northern Argentina and southeastern Brazil will have moderate to high fire danger.

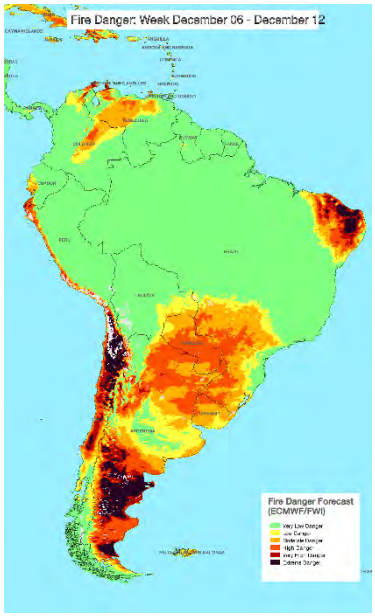


Figure 16. Average Fire danger forecast. Week, December 06 - December 12, 2021.

The weekly fire weather forecast of temperature and precipitation anomalies for this week is presented in Figure 17. Above average temperatures are forecasted for areas of southwestern Brazil, Paraguay and northern/southern Argentina. Below average temperatures are forecasted in northern and central Brazil and central Argentina. The models estimate an above average precipitation rates for next week mainly in northern Brazil, and Argentina. Below average precipitation is foreseen mainly in southeastern Brazil and Paraguay.

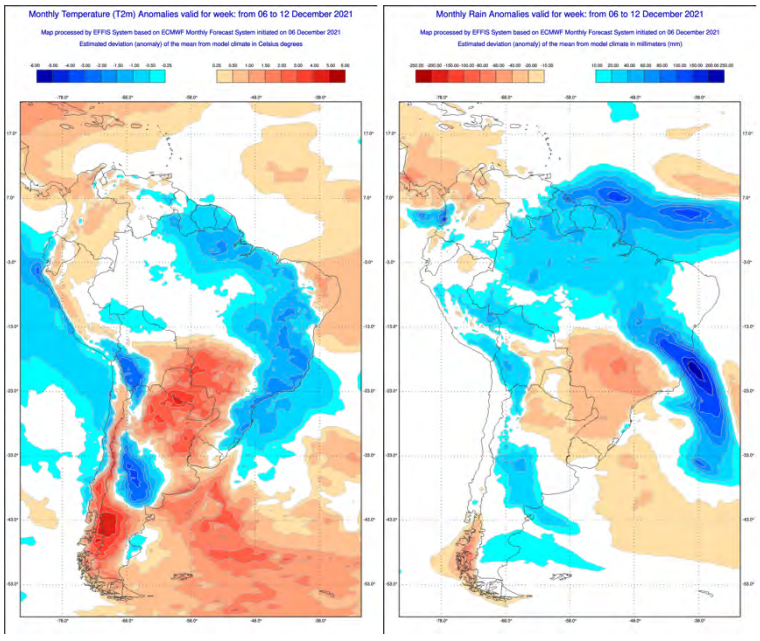


Figure 17. Fire weather anomalies of the current week, December 6 - December 12, 2021.

[3] https://gwis.jrc.ec.europa.eu/static/gwis_current_situation/public/index.html

16 Monthly analysis

16.1 Brazilian Legal Amazon (BLA)

Figure 18 shows the spatial distribution of burnt areas for 2021 mapped by the Near-Real Time (NRT) process in GWIS in the Brazilian Legal Amazon region, within Brazil.

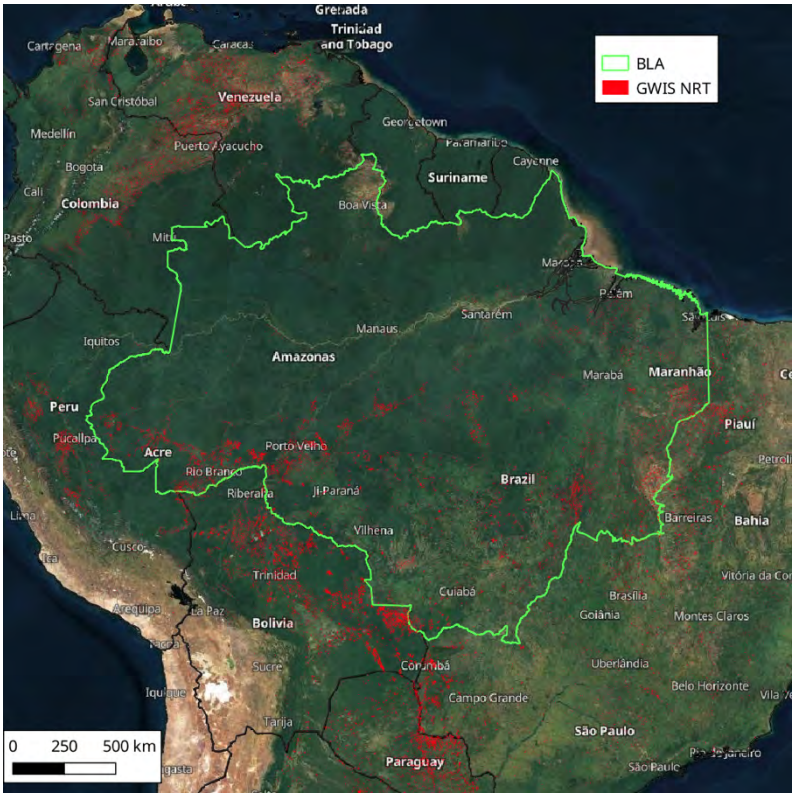
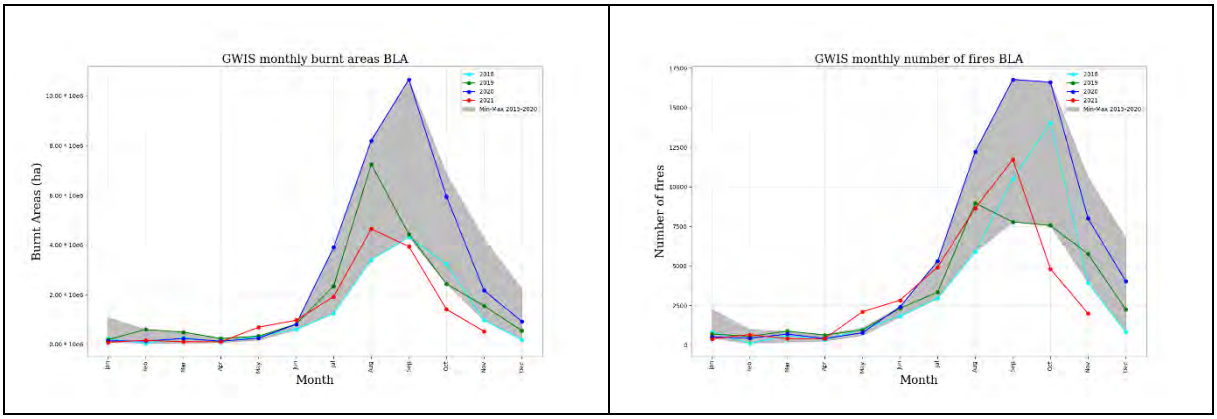


Figure 18.GWIS burnt areas for 2021 in Brazilian Legal Amazon (BLA). Burnt areas until 1 December.

The 2021 fire season in the BLA was following similar trends of the last year until September as shown in Figure 19. However, this year the burnt area up to November is lower than the last six years. The current season is behaving quite like the average of the previous 6 years.



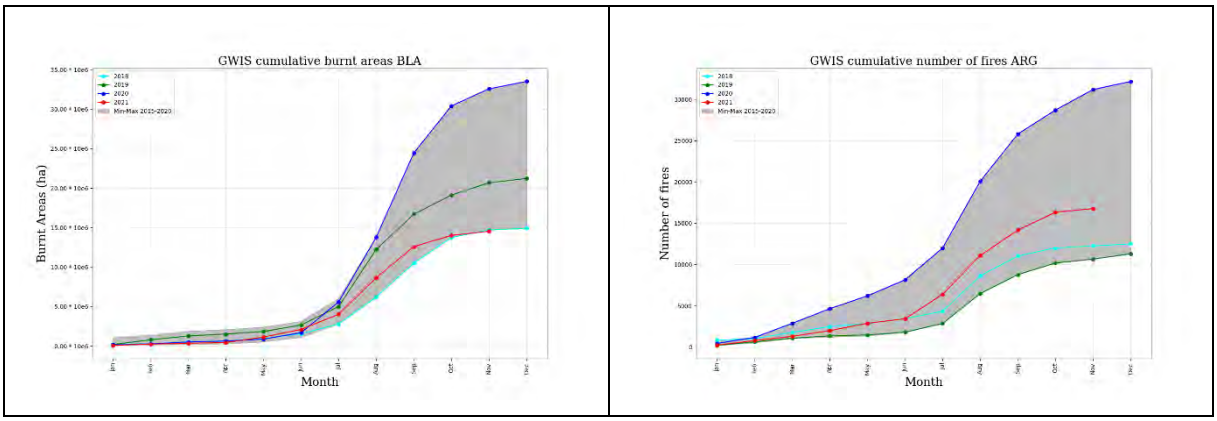


Figure 19.Trend of burnt areas and number of fires as compared to data in the last six years.

There is a considerable increase in the percentage of forest landcover burnt since August compared to previous months as shown in Figure 20.

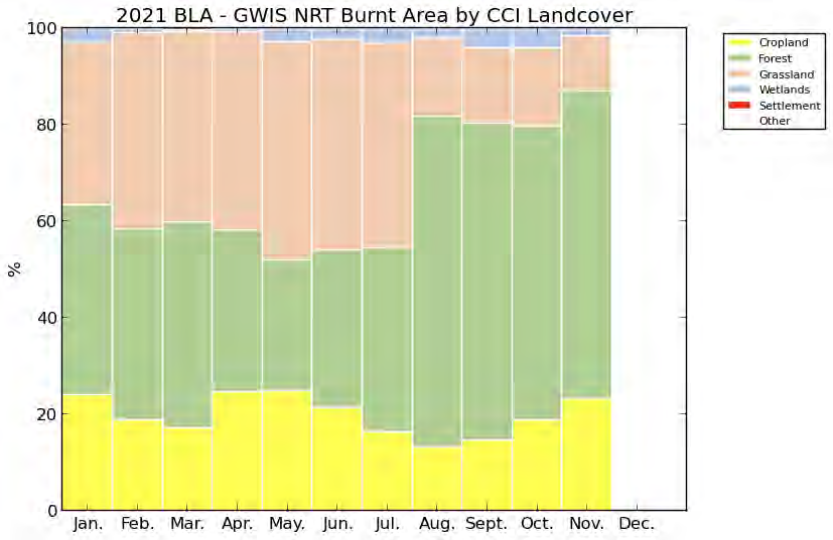


Figure 20. Monthly percentage of burnt land cover for the year 2021.

Figure 21 shows the monthly percentage of burnt area in protected areas for the year 2021.

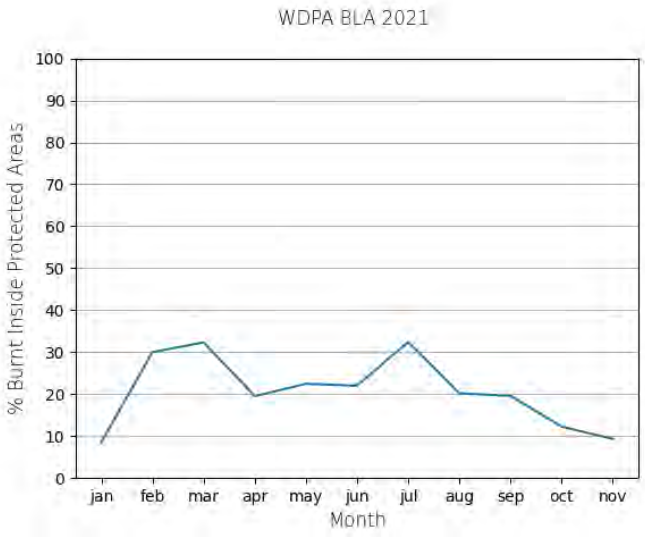


Figure 21.Monthly percentage of burnt area within protected areas for the year 2020

In terms of the number of active fire spots retrieved directly by the VIIRS sensor, 2021 presents a number of active fire spots up to November 2021 as one of the lowest for the last six years as shown in Figure 22. This type of data is often reported in the media.

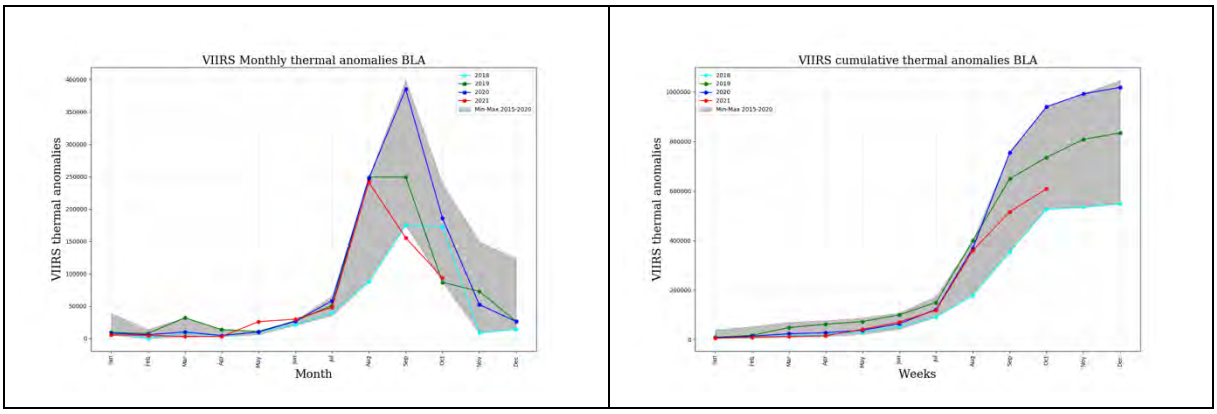


Figure 22.Trend of VIIRS thermal anomalies compared to data in the last six years.

Figure 23 shows the 2021 monthly biomass burning CO_2 emissions from the Global Fire Assimilation System (GFAS).

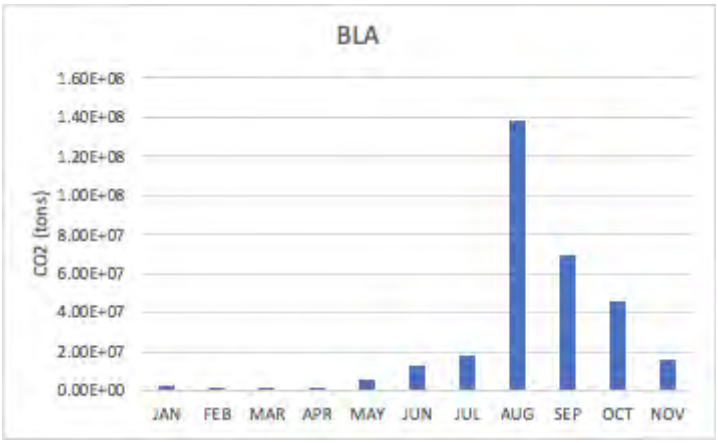


Figure 23. Trend of CO_2 emissions from biomass burning

16.2 Brazil

The spatial extent of the burnt areas mapped by the Near-Real Time (NRT) process in GWIS is presented in Figure 24. Although most of the burnt areas occurred in the center of the country (Cerrado Biome), the fire activity and resulting burnt areas are widespread from north to south, including the humid Amazon Forest.

Figure 24.GWIS burnt areas for 2021 in Brazil. Burnt areas until 1 December.

The 2021 fire season in Brazil is showing similar behavior to the average of the last 6 years. However, the number of fires depicts a small shift to the left, some of the fires started earlier than they used to do. Also, the average fire size this year is below the average for all the months except for May, June and August, being close to the minimum of the last 6 years. That fact could point out to controlled fires that might have taken place one month in advance compared to previous years. Since September, the burnt areas and the number of fires decreased considerably, having one of the lowest numbers of the last six years .

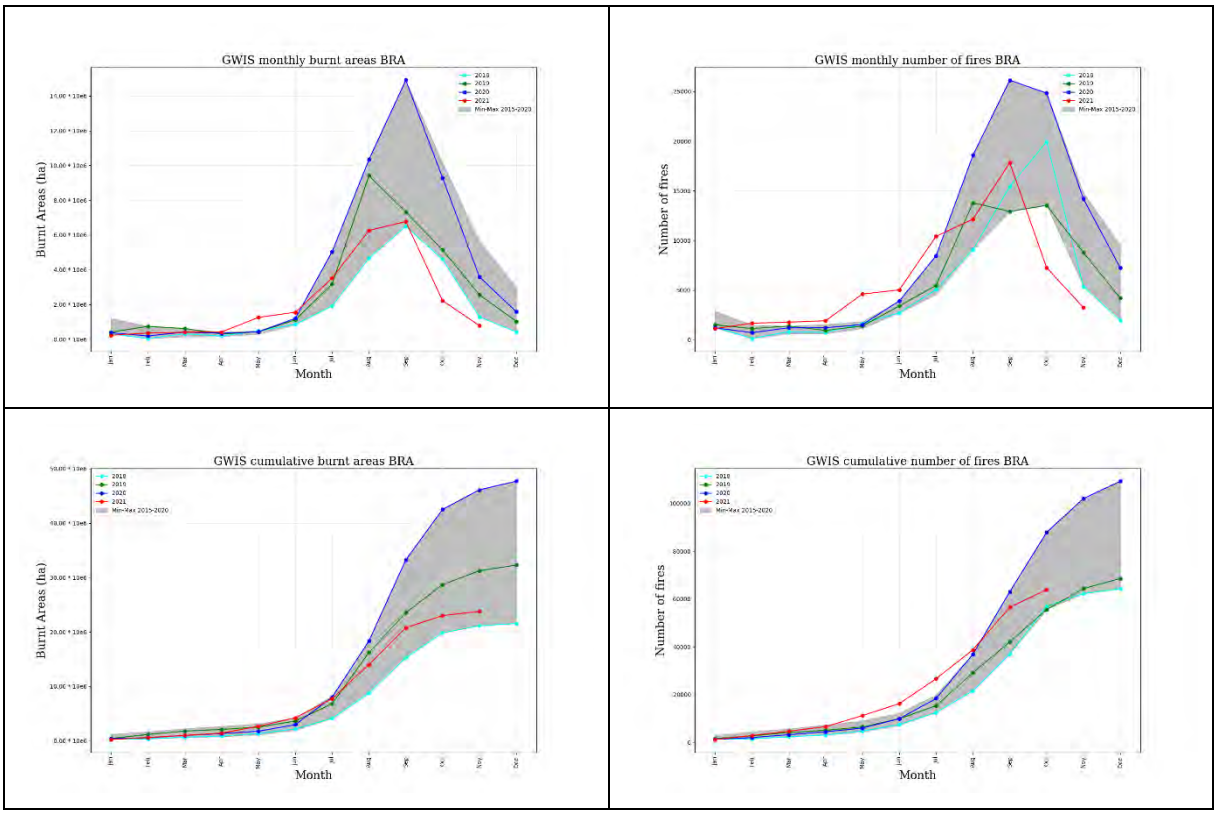


Figure 25. Trend of burnt areas and number of fires as compared to data in the last six years.

Figure 26 shows an increase of the percentage of forest land cover burnt since August, but not so remarkable as in BLA.

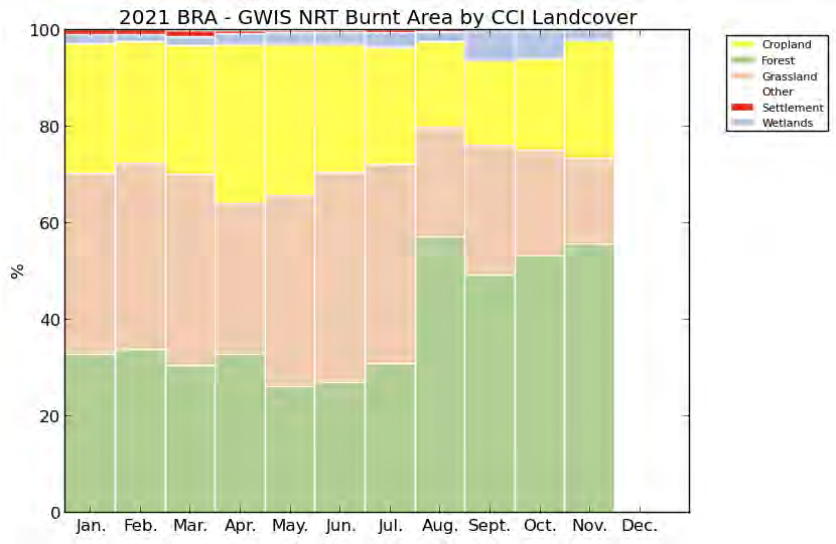


Figure 26.Monthly percentage of burnt land cover for the year 2021.

Figure 27 shows the monthly percentage of burnt area in protected areas for the year 2021.

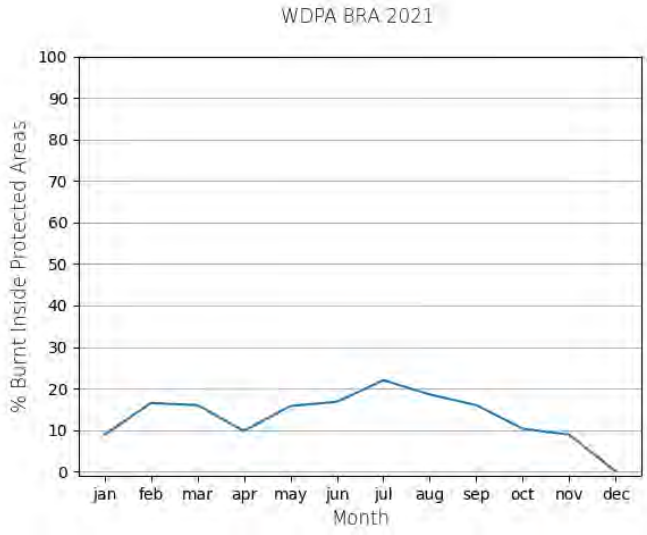


Figure 27.Monthly percentage of burnt area within protected areas for the year 2021

In terms of active fire spots detected by VIIRS, 2021 presents a number of active fire spots in the period between January and August above the values of 2020 but in September lower than 2019 and 2020 as shown in Figure 28. This type of data is those often reported in the media, which point out to a higher number of fires this year as compared to past years.

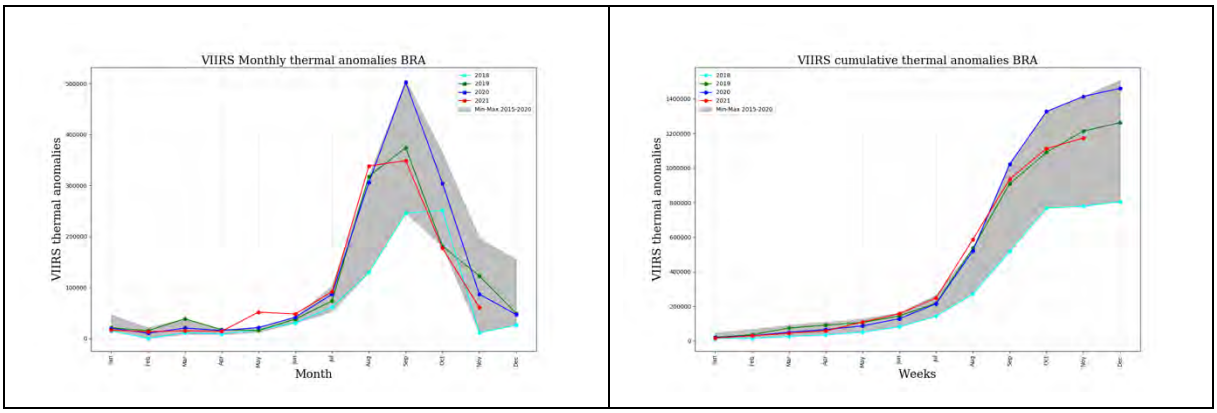


Figure 28.Trend of VIIRS thermal anomalies compared to data in the last six years

Figure 29 shows the 2021 monthly biomass burning CO_2 emissions from the Global Fire Assimilation System (GFAS).

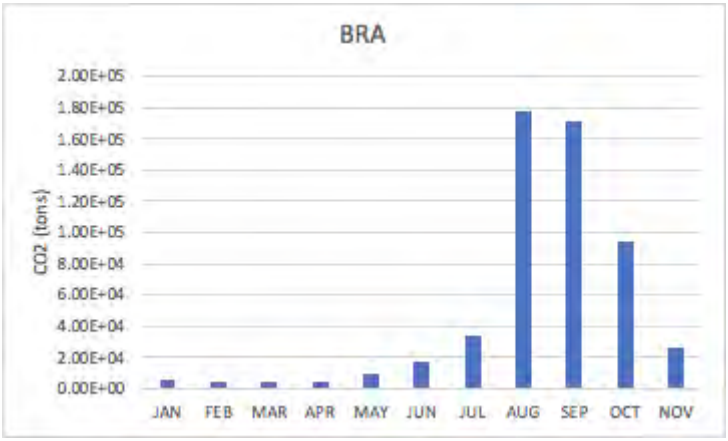


Figure 29.Trend of CO_2 emissions from biomass burning

16.3 Bolivia

The spatial distribution of burnt areas in Bolivia in 2021 mapped by the Near-Real Time (NRT) process in GWIS is shown in Figure 30. In Bolivia the 2021 fire season is following a different trend to the past five years with a moderated burnt area but a greater number of fires than the average. Bolivia has 8.08 Mha of burnt area and 15,722 fires up to the end of November.

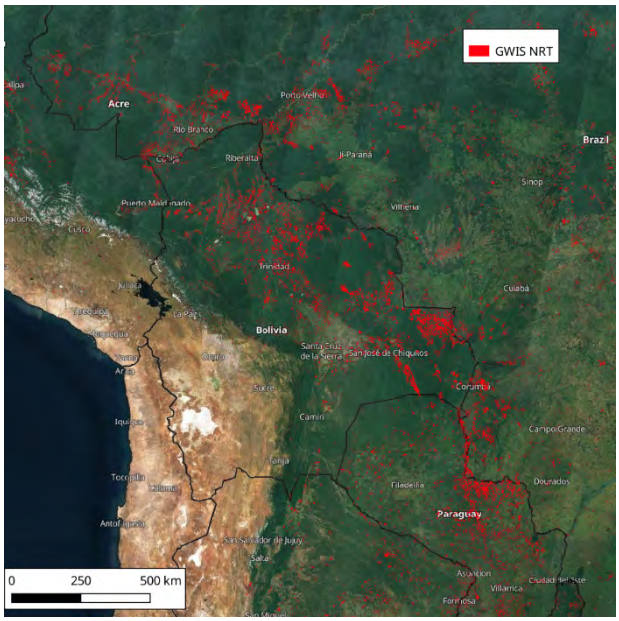


Figure 30.GWIS burnt areas for 2021 in Bolivia. Burnt areas until 1 December.

Considering 2019 a completely anomalous year because of the huge fire in Santa Cruz, this year is burning a considerable surface compared to the last 3 years. Besides, the number of fires stabilized entering inside the maximum and minimum area of the previous years. Since September the number of fires decreased, and the season is now following a typical behavior.

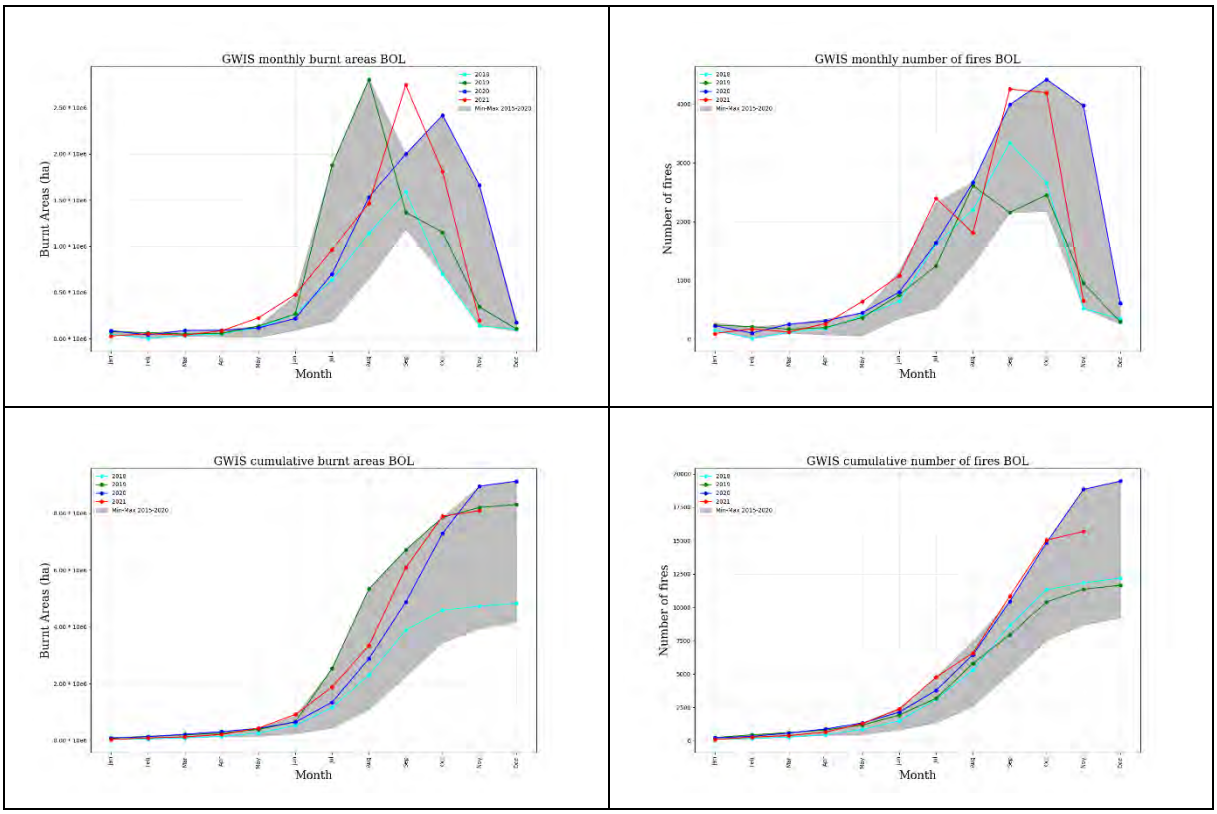


Figure 31.Trend of burnt areas and number of fires as compared to data in the last six years.

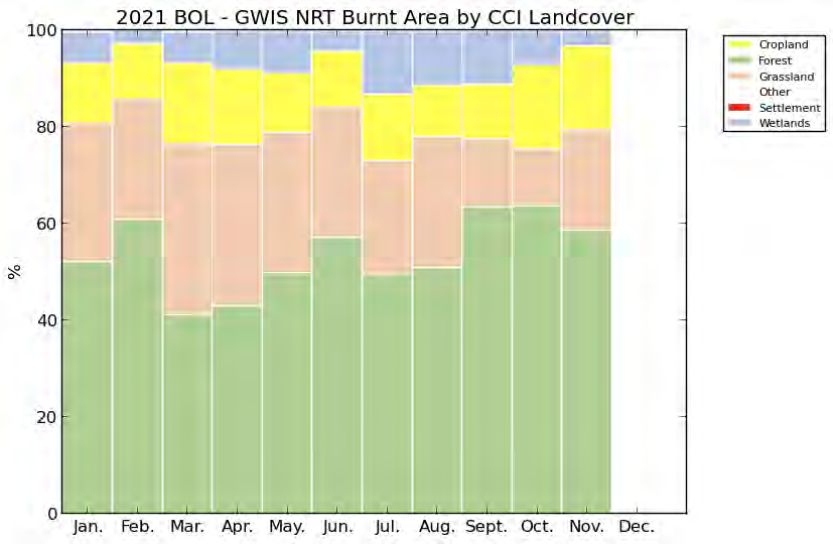


Figure 32.Monthly percentage of burnt land cover for the year 2021.

Figure 33 shows the monthly percentage of burnt area in protected areas for the year 2021.

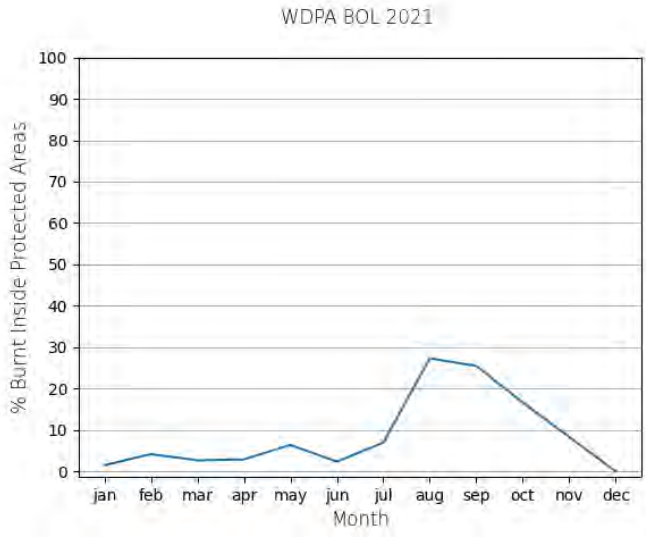


Figure 33.Monthly percentage of burnt area within protected areas for the year 2021

In terms of active fire spots detected by VIIRS, 2021 presents a number of active fire spots above the last six years between May and June but below 2019 in the period between July and November as shown in Figure 34. This type of information is often reported in the media.

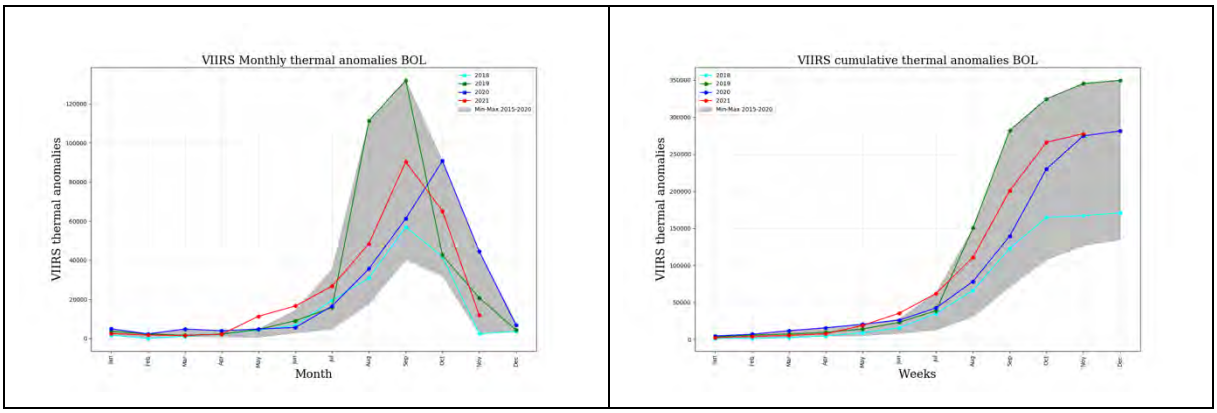


Figure 34.Trend of VIIRS thermal anomalies compared to data in the last six years.

Figure 35 shows the 2021 monthly biomass burning CO_2 emissions from the Global Fire Assimilation System (GFAS).

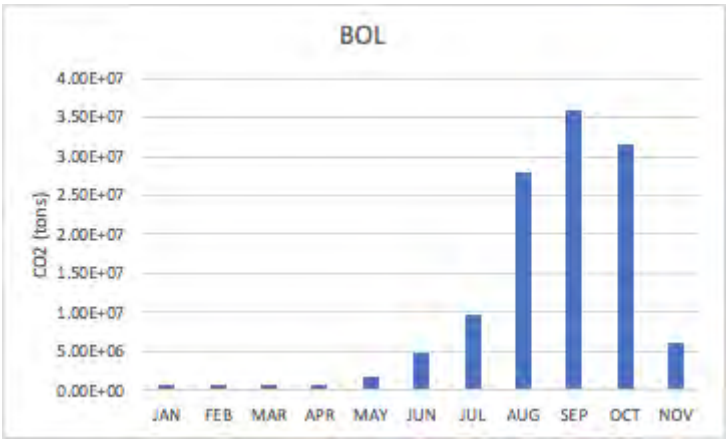


Figure 35.Trend of CO_2 emissions from biomass burning

16.4 Colombia

The spatial distribution of burnt areas in Colombia in 2021 mapped by the Near-Real Time (NRT) process in GWIS is shown in Figure 36.

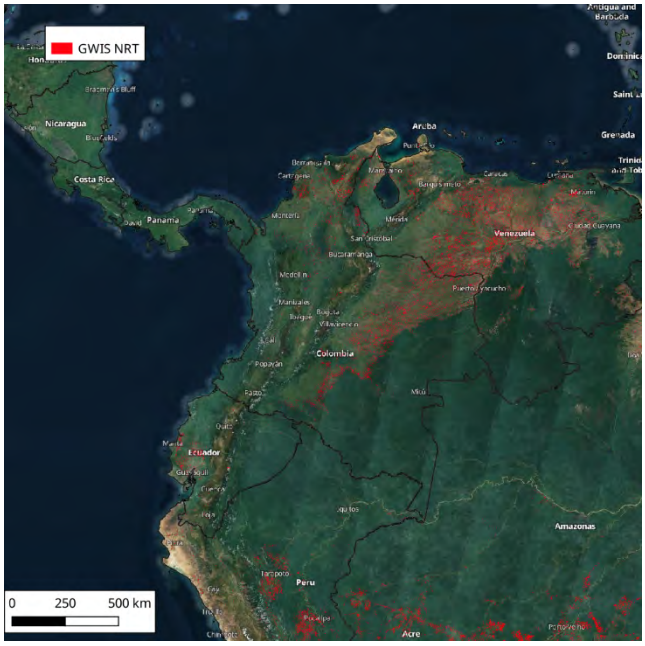


Figure 36.GWIS burnt areas for 2021 in Colombia. Burnt areas until 1 December.

The current fire season has been less severe than last year in terms of burnt areas but with a higher number of fires. About 2.85 Mha of burnt areas have been mapped in the country until the end of November. Figure 30 shows how the number of fires is considerably high, however lower than 2020 . The fires are mainly located on the center and south-west of the country, a region designated as “Llanos”, a complex savanna ecosystem which undergoes periodic, human-induced and natural biomass burning during the dry season, usually between November and April.

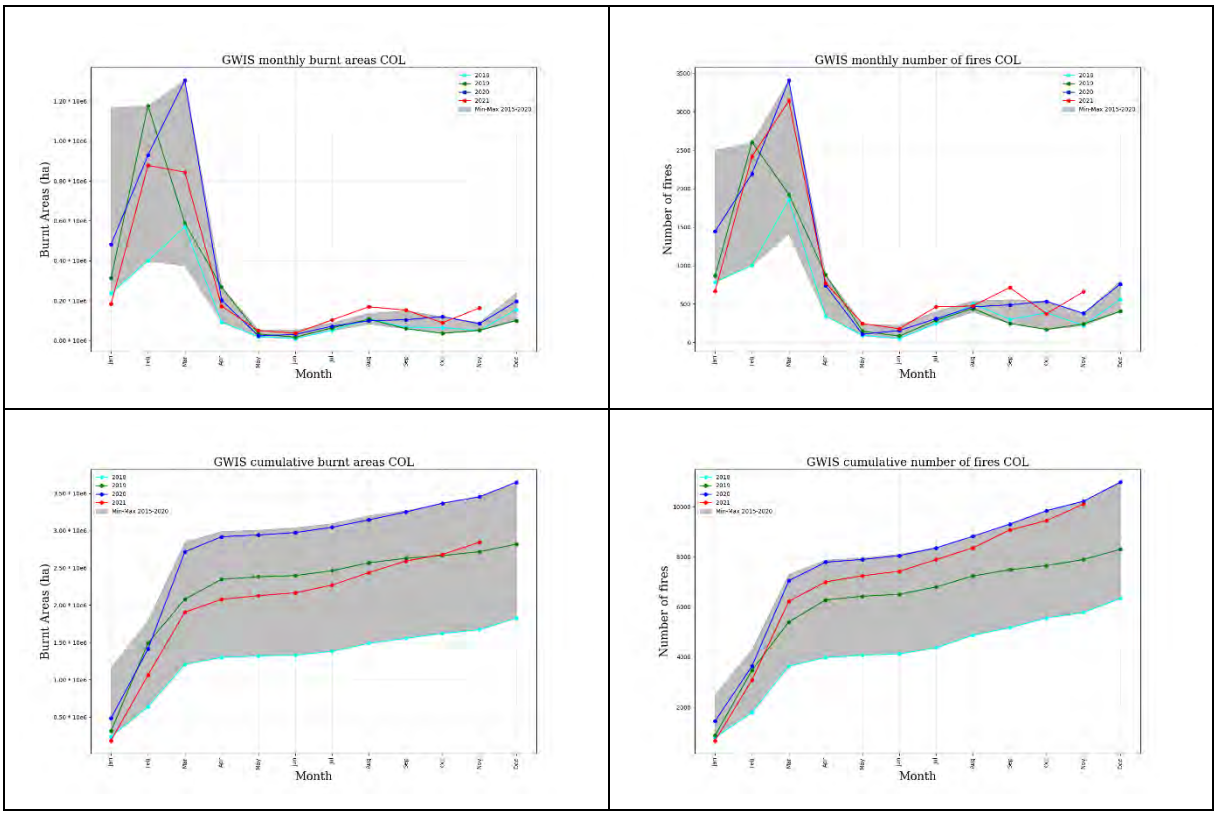


Figure 37.Trend of burnt areas and number of fires as compared to data in the last six years.

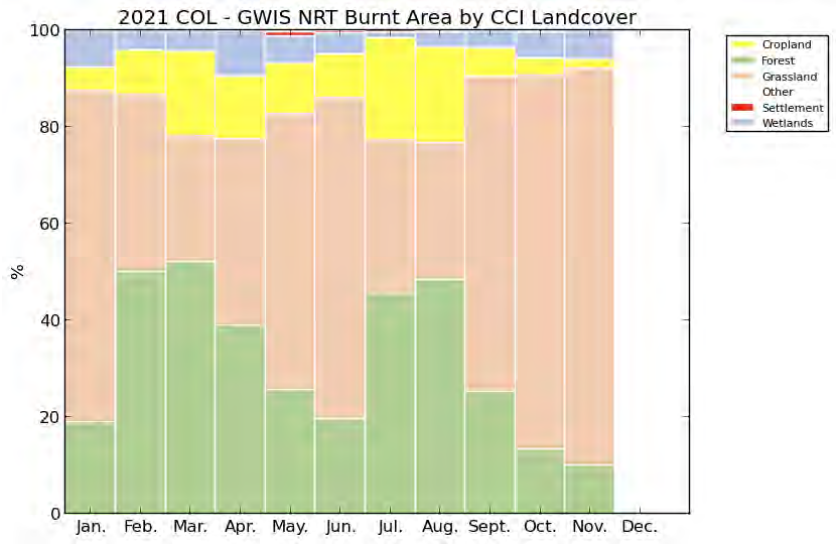


Figure 38.Monthly percentage of burnt land cover for the year 2021.

Figure 39 shows the monthly percentage of burnt area in protected areas for the year 2021.

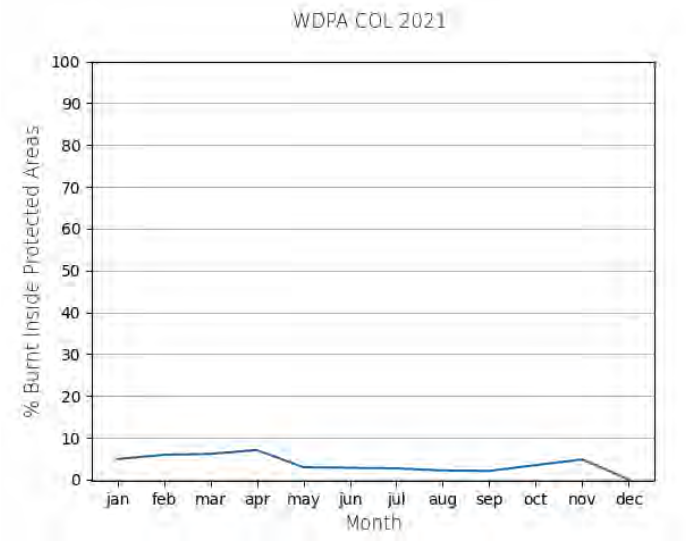


Figure 39.Monthly percentage of burnt area within protected areas for the year 2021

In terms of active fire spots detected by VIIRS, 2021 presents a number of active fire spots in the period between January and September lower than the previous two years as shown in Figure 40. This type of information is often reported in the media.

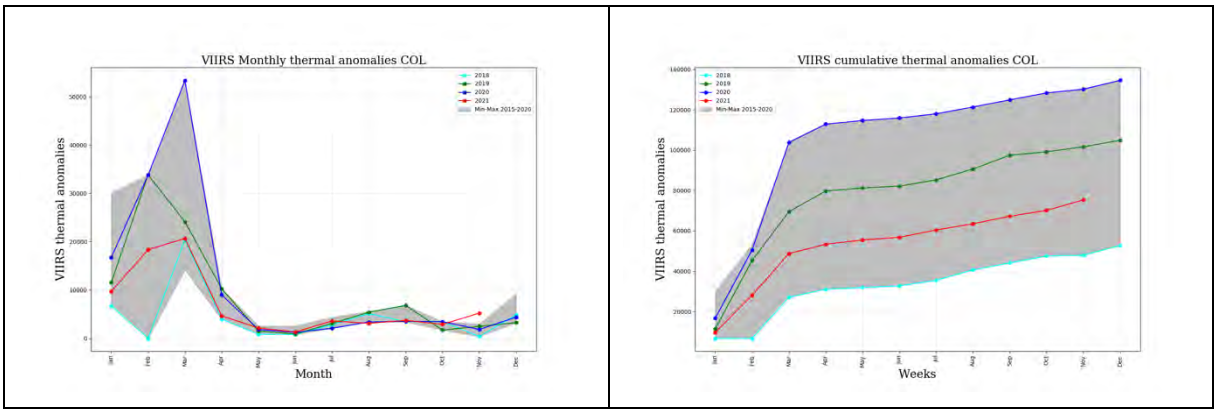


Figure 40. Trend of VIIRS thermal anomalies compared to data in the last six years.

Figure 41 shows the 2021 monthly biomass burning CO_2 emissions from the Global Fire Assimilation System (GFAS).

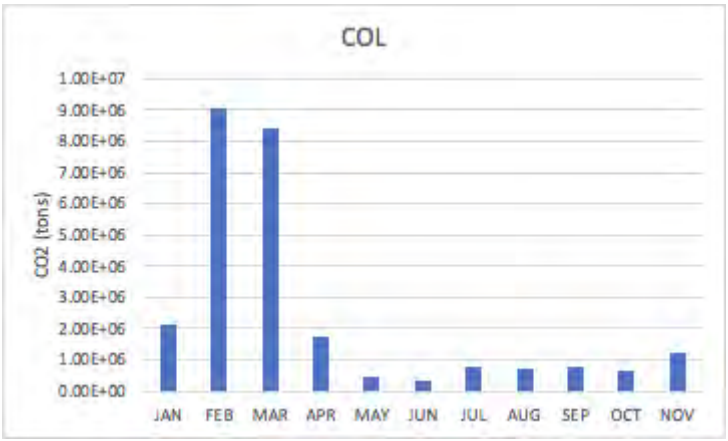


Figure 41.Trend of CO_2 emissions from biomass burning

16.5 Paraguay

In 2021, the spatial extent of the burnt areas in the country mapped by the Near-Real Time (NRT) process in GWIS is presented in Figure 42.

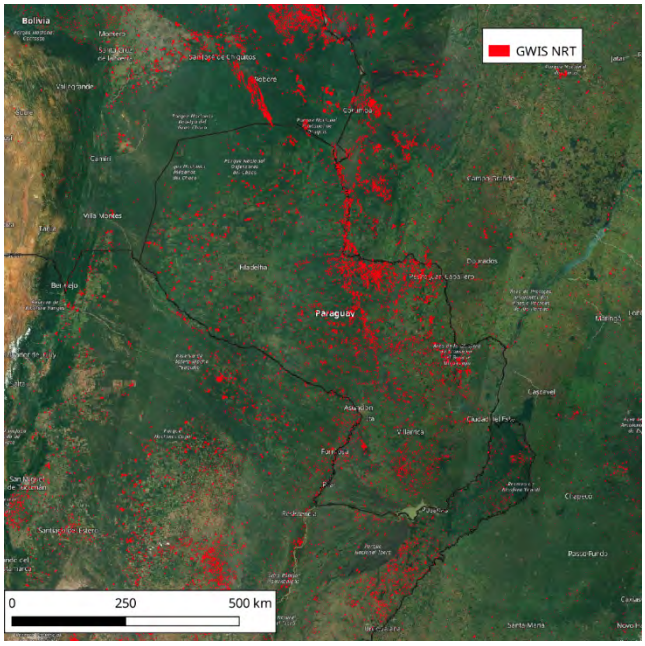


Figure 42.GWIS burnt areas for 2021 in Paraguay. Burnt areas until 1 November.

The 2021 fire season in Paraguay is showing a typical behavior compared to the previous 6 years, but with lower values than in 2020 (Figure 43). In July, the number of fires and burnt areas increased, reaching maximum values. Since August, the burnt area and number of fires have been decreasing. The average fire size reached the maximum value of the last 6 years in August. In September the fire activity decreased below the values of the previous 6 years in terms of burnt area and number of fires.

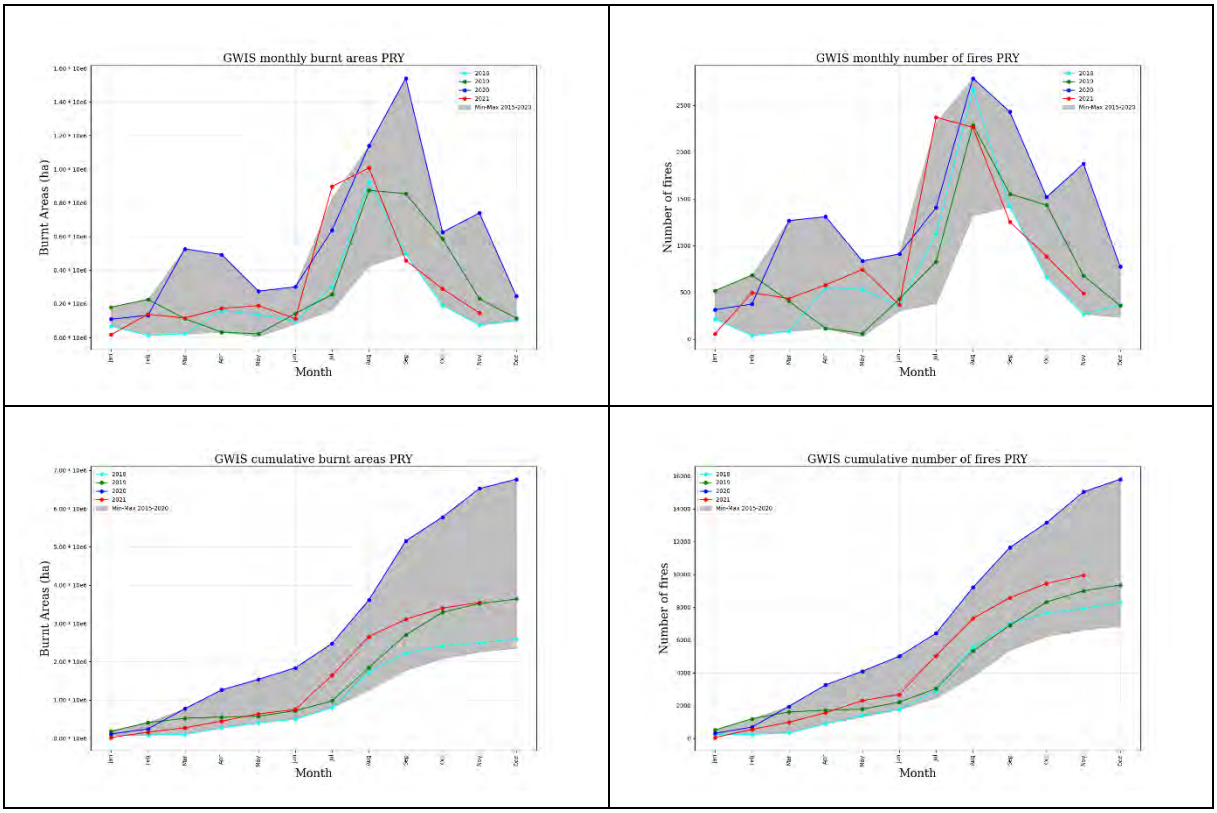


Figure 43.Trend of burnt areas and number of fires as compared to data in the last six years.

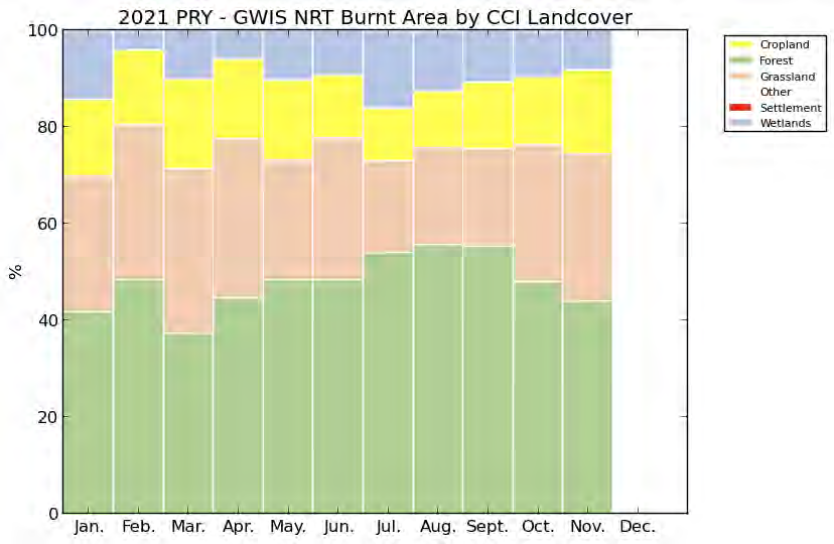


Figure 44.Monthly percentage of burnt land cover for the year 2021.

Figure 45 shows the monthly percentage of burnt area in protected areas for the year 2021.

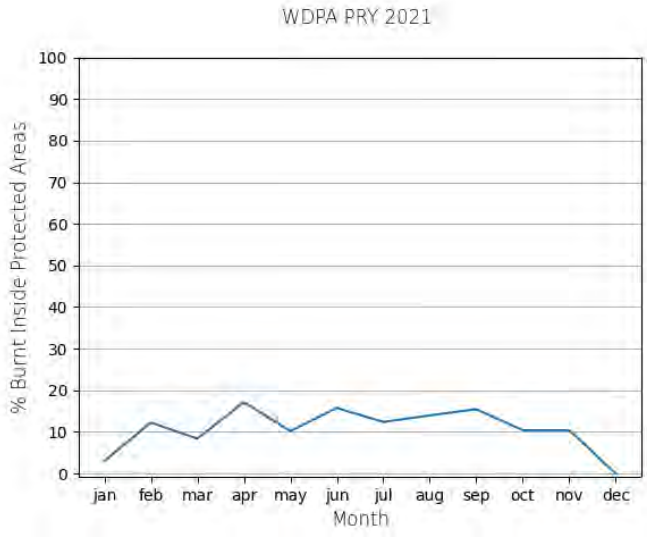


Figure 45.Monthly percentage of burnt area within protected areas for the year 2021

In terms of active fire spots detected by VIIRS, 2021 presents the same typical trend of the burned area and number of fires shown in Figure 46, with the highest number of active fire spots detected in August in the last 6 years and decreasing from there. This type of information is often reported in the media.

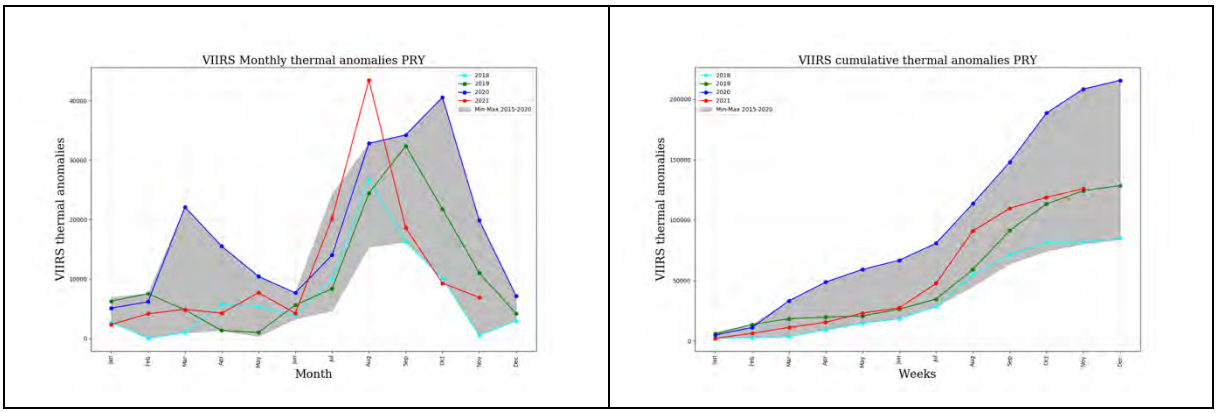


Figure 46.Trend of VIIRS thermal anomalies compared to data in the last six years.

Figure 47 shows the 2021 monthly biomass burning CO_2 emissions from the Global Fire Assimilation System (GFAS).

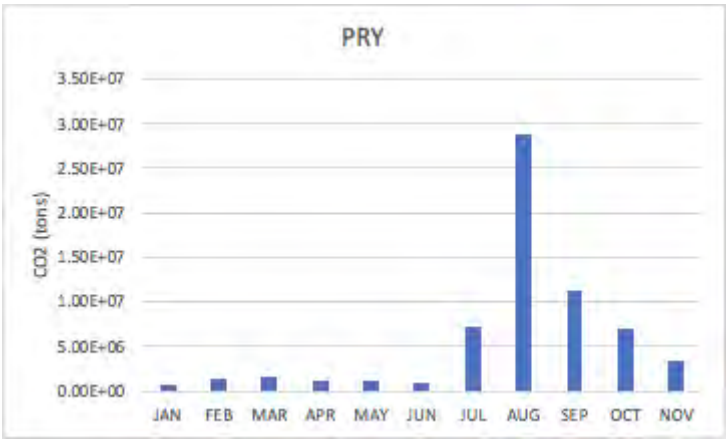


Figure 47.Trend of CO_2 emissions from biomass burning

16.6 Peru

The spatial extent of the burnt areas in the country in 2021 mapped by the Near-Real Time (NRT) process in GWIS is presented in Figure 48.

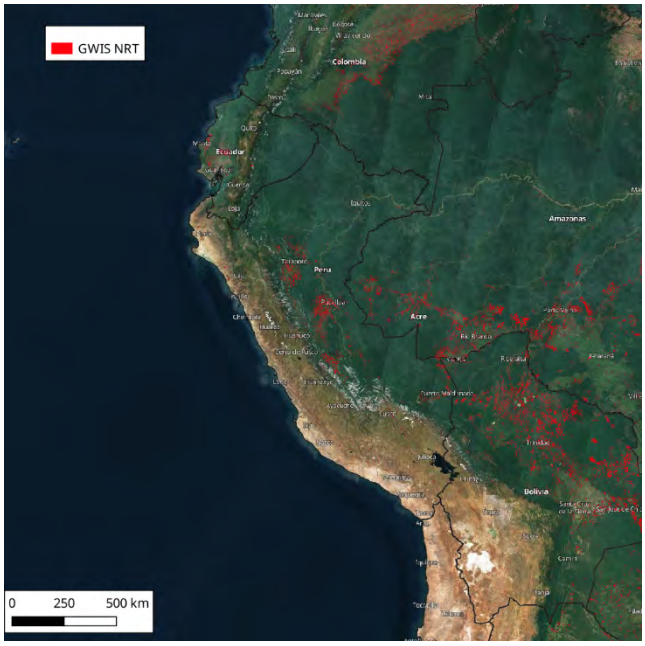


Figure 48.GWIS burnt areas for 2021 in Peru. Burnt areas until 1 November.

Peru in 2021 present higher values of burnt area comparing with the last 6 years. It is worth to mention that the burnt area data for Peru are subject to higher uncertainty than in other countries due to the mapping of small fires in large areas for long time periods.

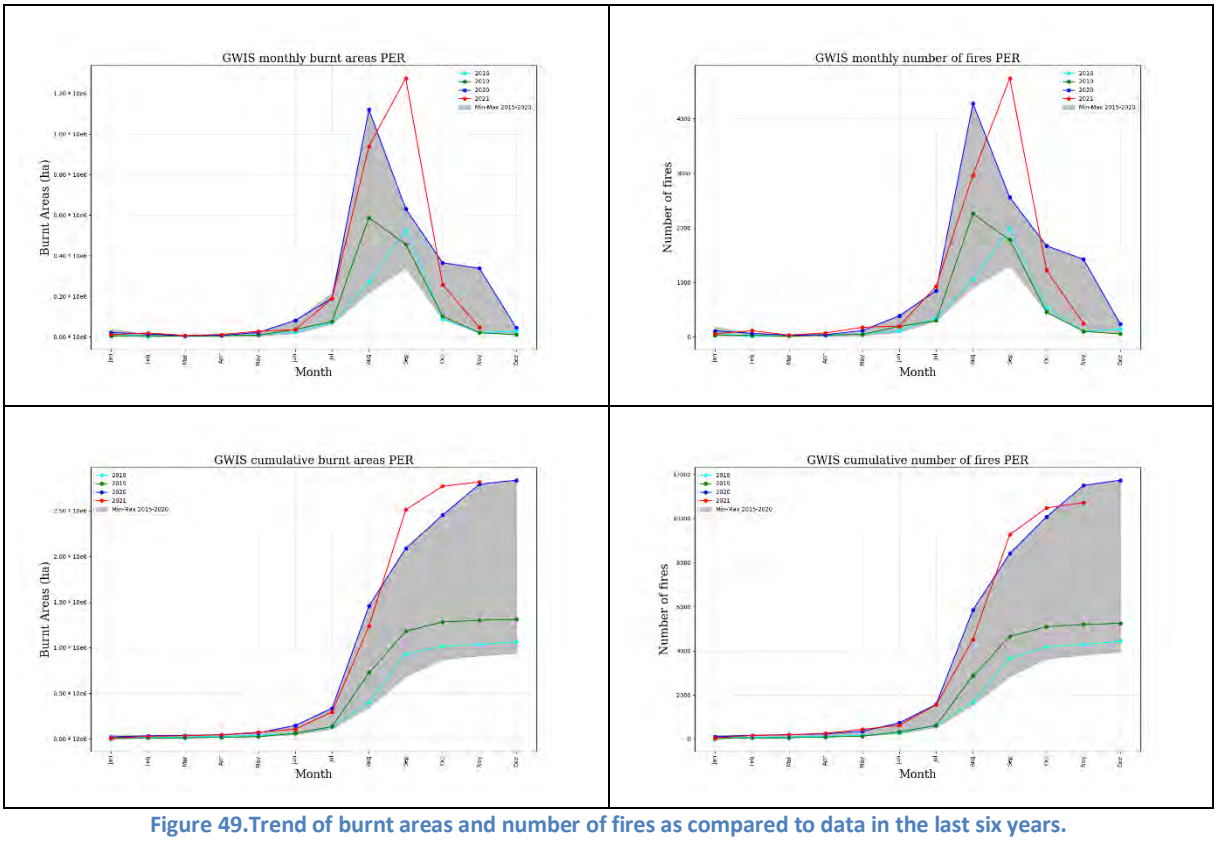


Figure 49.Trend of burnt areas and number of fires as compared to data in the last six years.

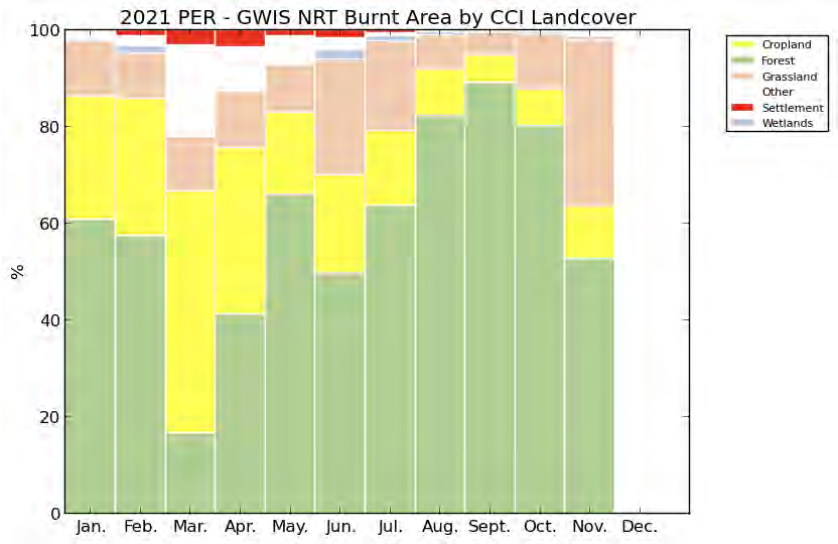


Figure 50.Monthly percentage of burnt land cover for the year 2021.

Figure 51 shows the monthly percentage of burnt area in protected areas for the year 2021.

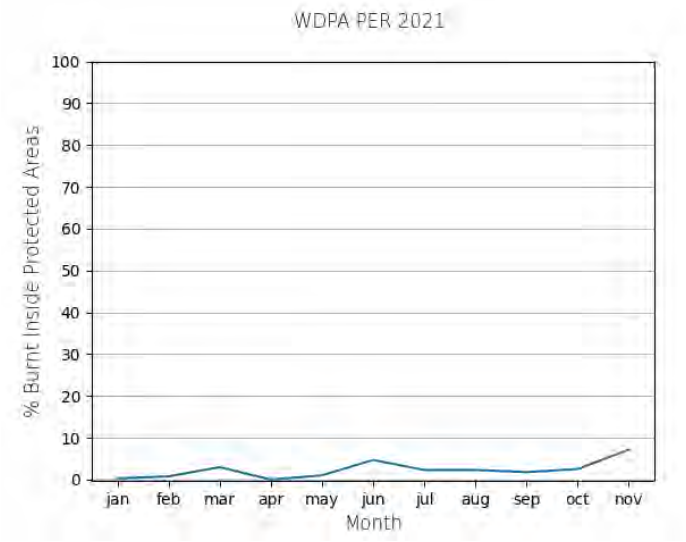


Figure 51.Monthly percentage of burnt area within protected areas for the year 2021

In terms of active fire spots detected by VIIRS, 2021 presents the same increasing trend seen in the number of fires shown in Figure 52, with a number of active fire spots in the eleven months of the year below the values of 2019 and 2020. This type of information is often reported in the media.

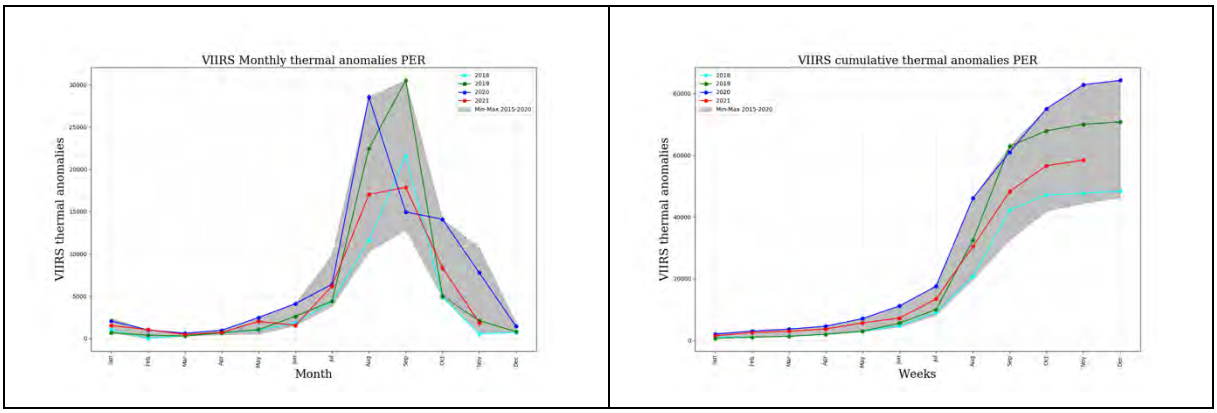


Figure 52.Trend of VIIRS thermal anomalies compared to data in the last six years.

Figure 53 shows the 2021 monthly biomass burning CO_2 emissions from the Global Fire Assimilation System (GFAS).

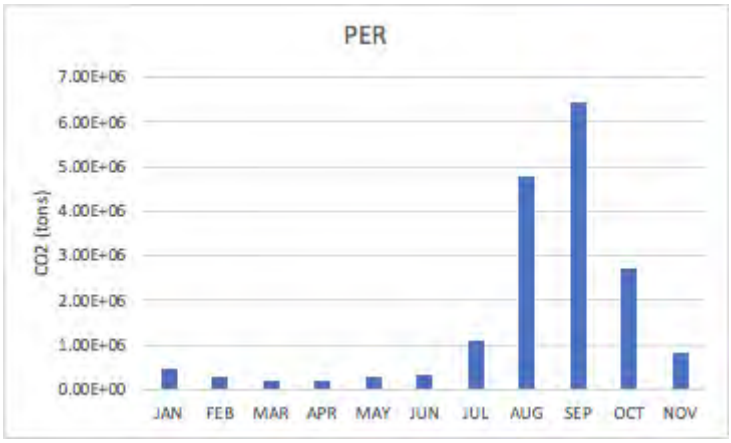


Figure 53.Trend of CO_2 emissions from biomass burning

16.7 Venezuela

In 2021, wildfires in Venezuela spread over the central and northern areas of the country, with very large fires on the west of the country, such as those on the west side of Maracaibo Lake. (Figure 54). This region is part of the designated "Llanos", a complex savanna ecosystem sharing the border with Colombia, where it undergoes periodic, human-induced and natural biomass burning during the dry season, usually between November and April.

Figure 54.GWIS burnt areas for 2021 in Venezuela. Burnt areas until 1 November.

The current fire season for 2021 is below the last two years in all terms, see Figure 55. The total burnt area is above 2018, and considerably lower than that of the 2019 and 2020 fire season.

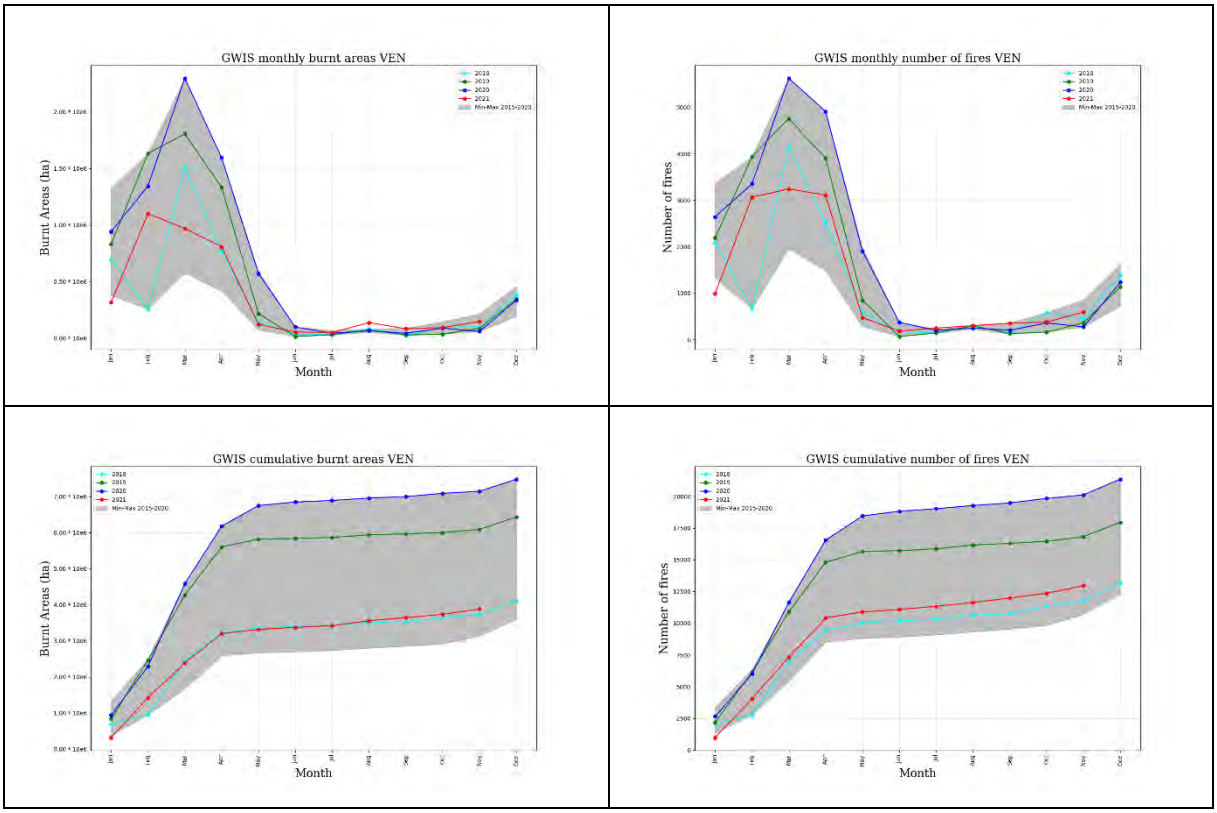


Figure 55. Trend of burnt areas and number of fires as compared to data in the last six years.

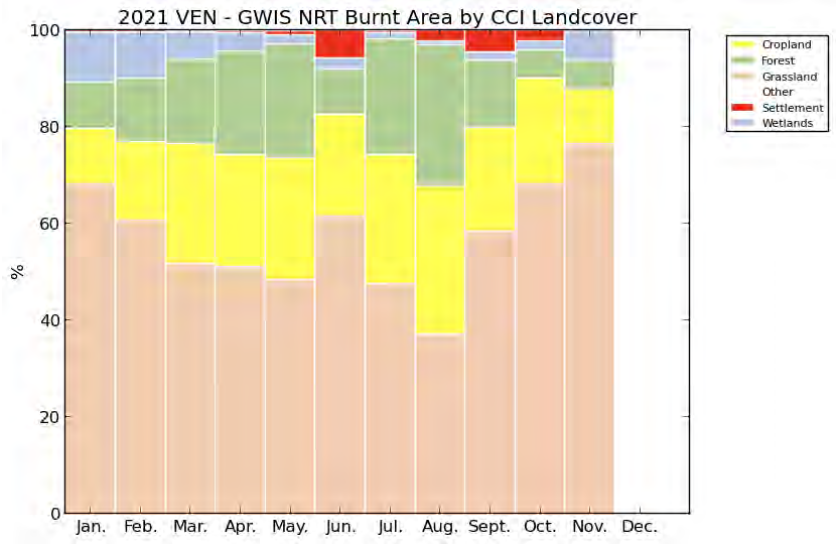


Figure 56. Monthly percentage of burnt land cover for the year 2021.

Figure 57 shows the monthly percentage of burnt area in protected areas for the year 2021.

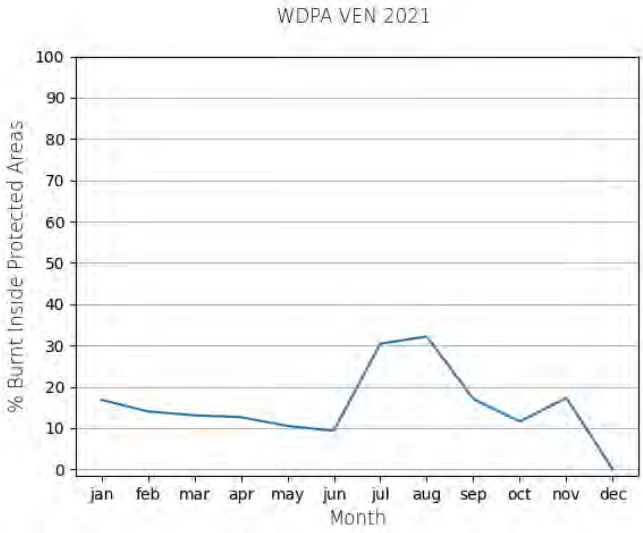


Figure 57.Monthly percentage of burnt area within protected areas for the year 2021

In terms of active fire spots detected by VIIRS, 2021 presents the same trend of the burned area and number of fires shown in Figure 41, with a number of active fire spots in the eleven months of the year below of those recorded in 2019 and 2020 as shown in Figure 58. This type of information is often reported in the media.

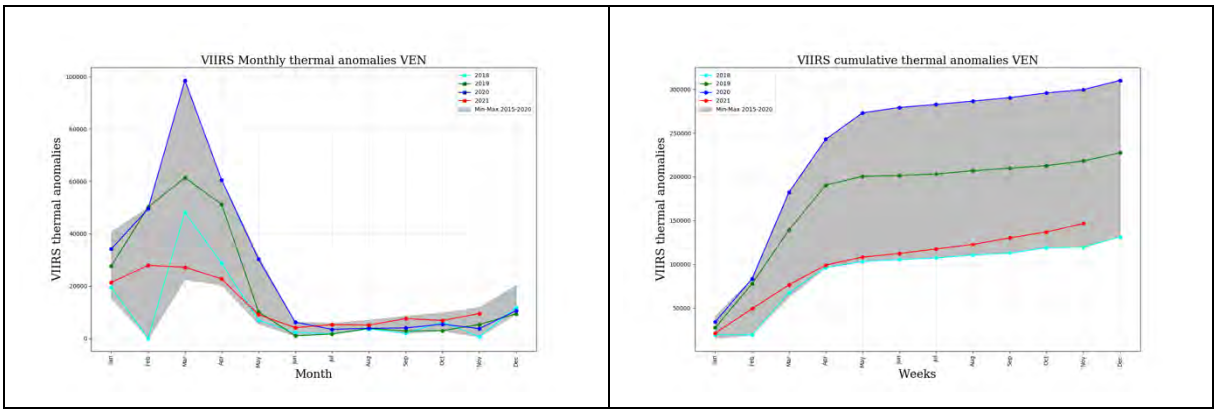


Figure 58.Trend of VIIRS thermal anomalies compared to data in the last six years.

Figure 59 shows the 2021 monthly biomass burning CO_2 emissions from the Global Fire Assimilation System (GFAS).

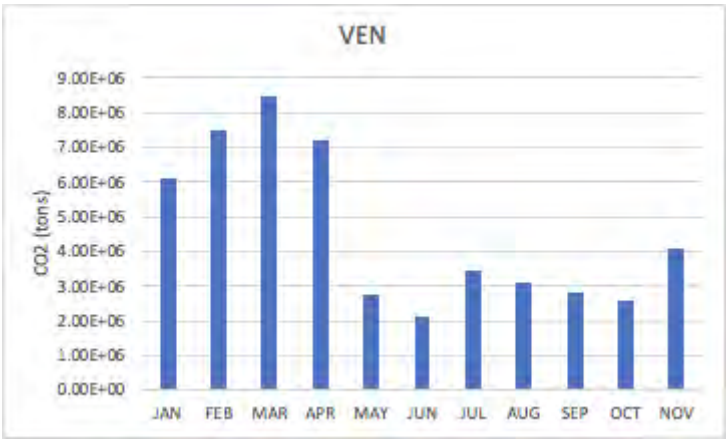


Figure 59.Trend of CO_2 emissions from biomass burning

16.8 Chile

In 2021, wildfires in Chile spread mainly in the central and southern part of the country (Figure 60).

Figure 60. GWIS burnt areas for 2021 in Chile. Burnt areas until 1 November.

The current fire season for 2021 is above the last two years in all terms, see Figure 61. The current year can be considered as quite severe since 2017 was a complete anomaly. During 2021, the accumulated number of fires reached the maximum of the last 6 years despite the total burnt area is far below the maximum.

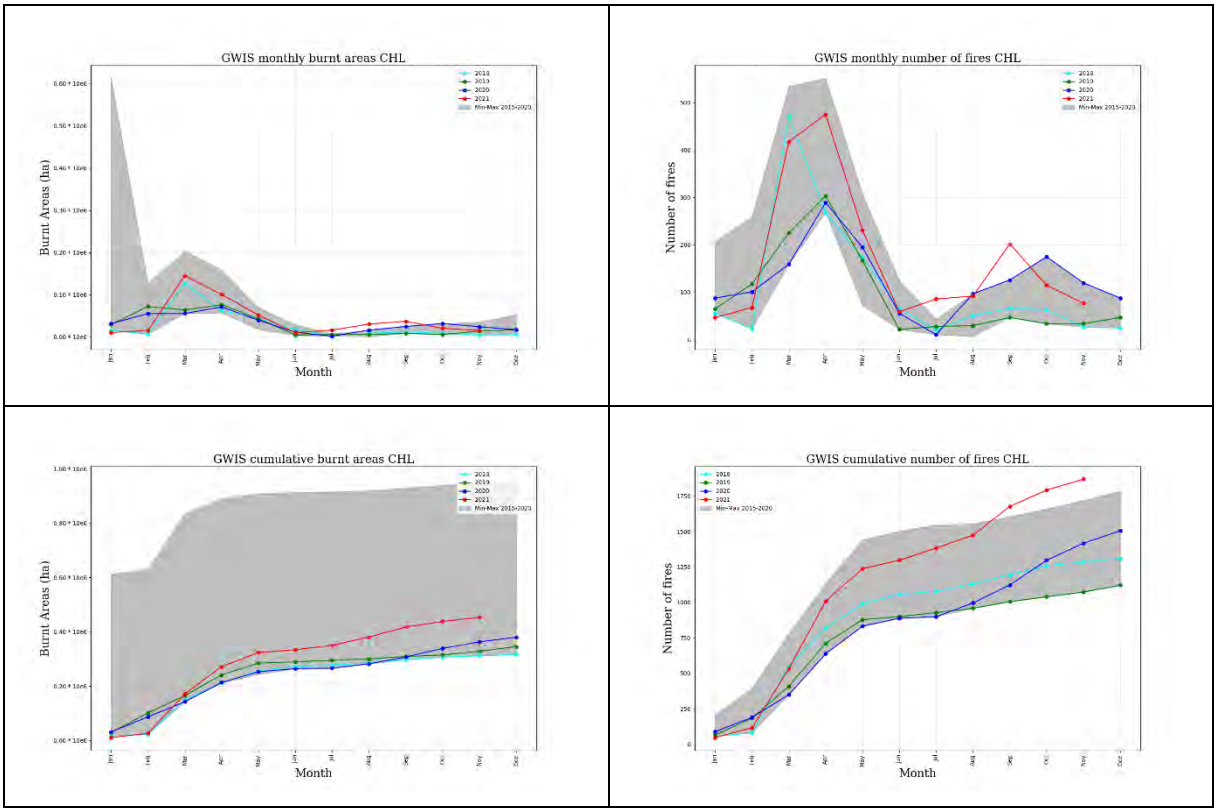


Figure 61. Trend of burnt areas and number of fires as compared to data in the last six years.

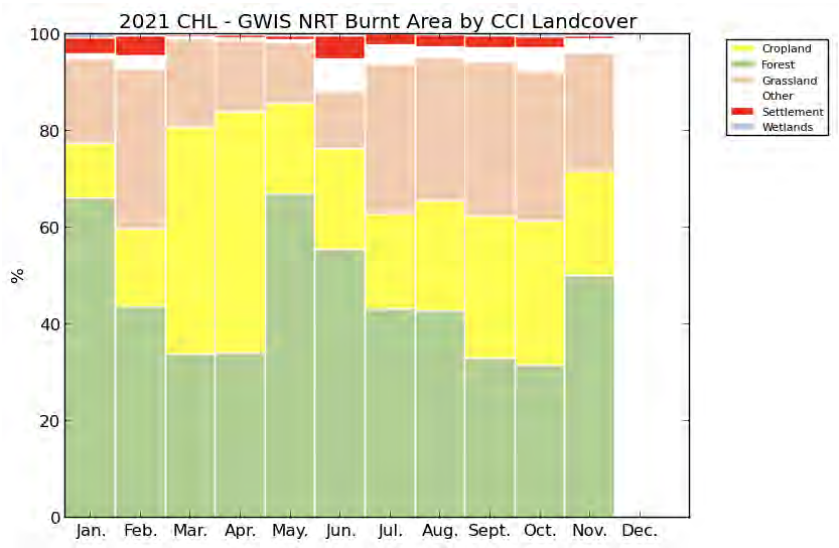


Figure 62.Monthly percentage of burnt land cover for the year 2021.

Figure 63 shows the monthly percentage of burnt area in protected areas for the year 2021.

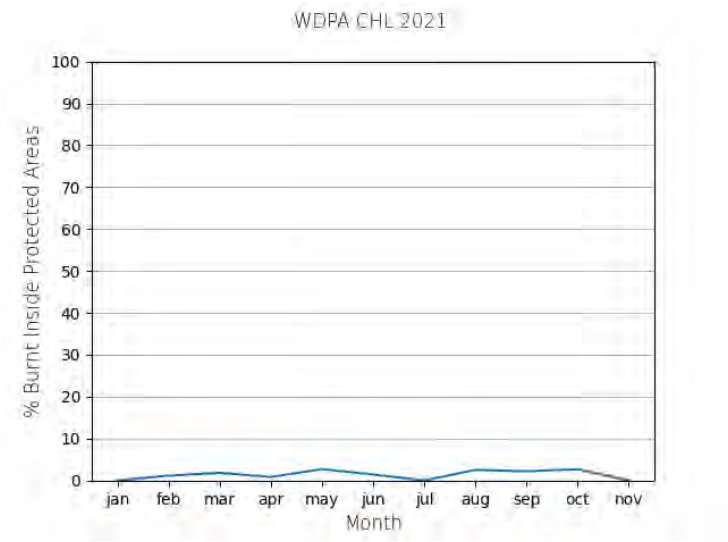


Figure 63.Monthly percentage of burnt area within protected areas for the year 2021

In terms of active fire spots detected by VIIRS, 2021 presents lower values than 2019 and 2020 for the eleven months as shown in Figure 64. This type of information is often reported in the media.

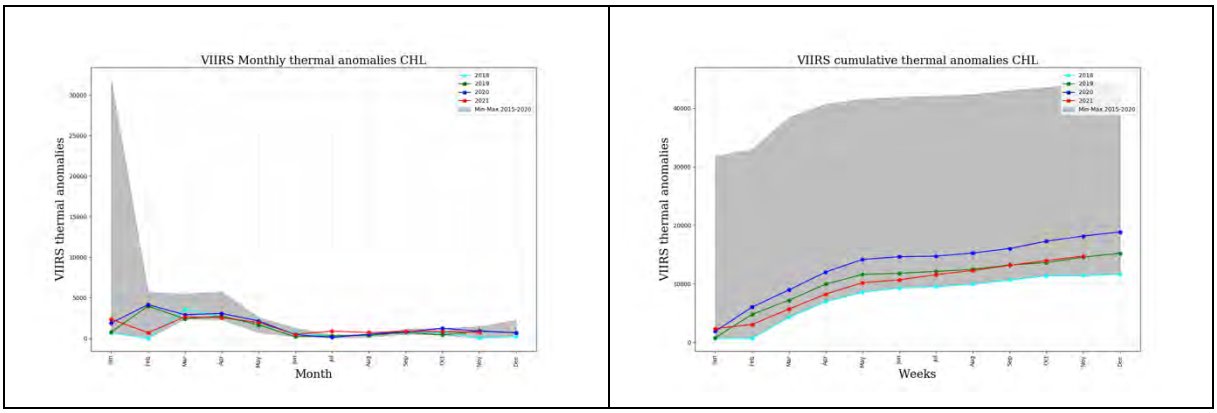


Figure 64.Trend of VIIRS thermal anomalies as compared to data in the last six years.

Figure 65 shows the 2021 monthly biomass burning CO_2 emissions from the Global Fire Assimilation System (GFAS).

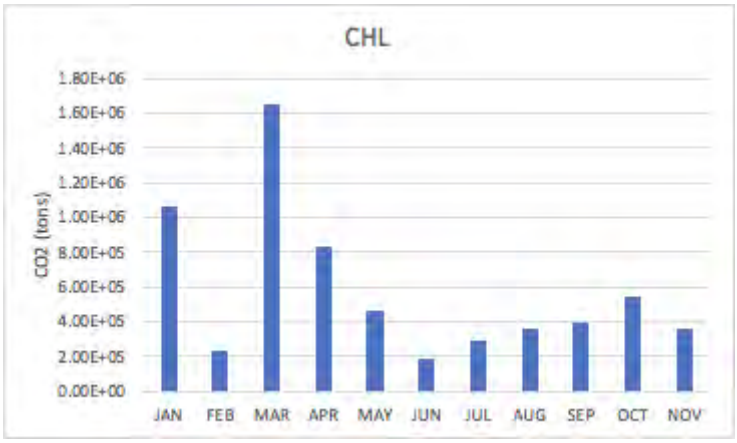


Figure 65.Trend of CO_2 emissions from biomass burning

16.9 Argentina

In 2021, the spatial extent of the burnt areas in the country mapped by the Near-Real Time (NRT) process in GWIS is presented in Figure 66.

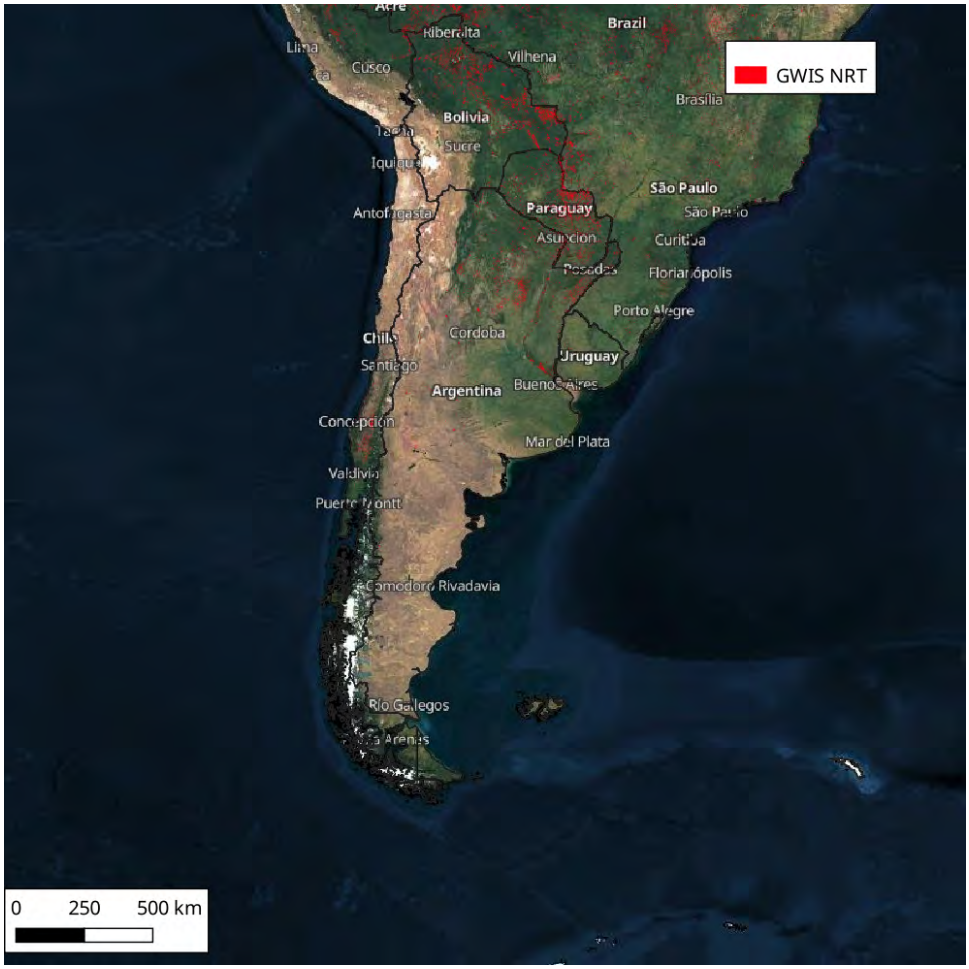
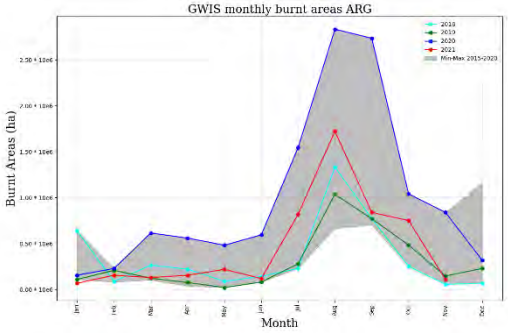
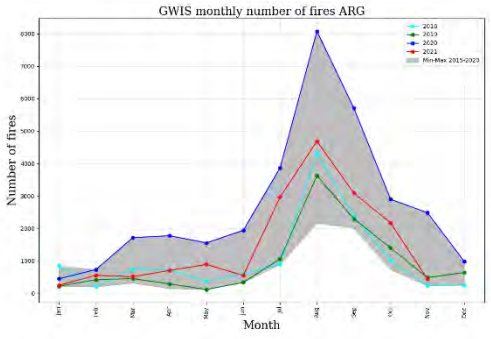


Figure 66.GWIS burnt areas for 2021 in Argentina. Burnt areas until 1 November.

The current fire season for 2021 is below than 2020 in all terms, see Figure 67. The current fire season is following the usual fire season for Argentina.





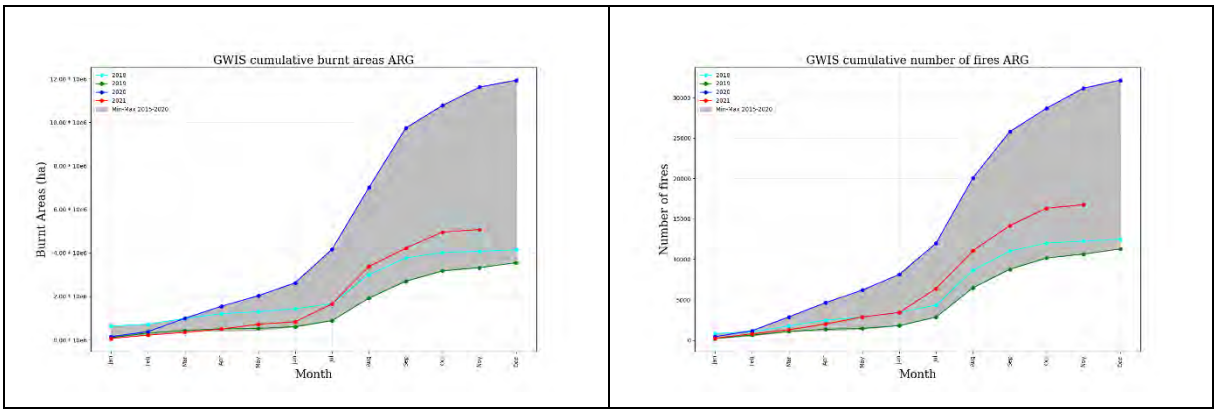


Figure 67.Trend of burnt areas and number of fires as compared to data in the last six years.

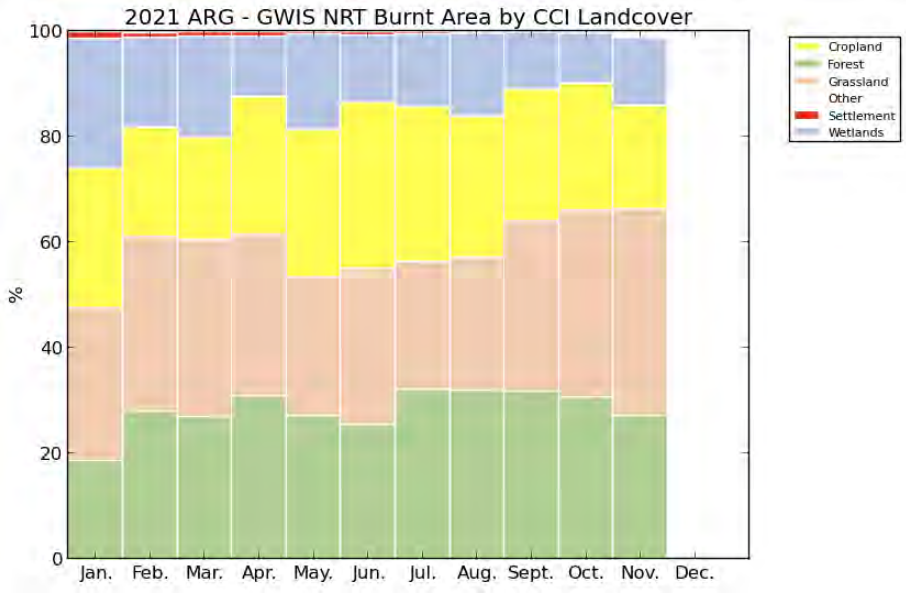


Figure 68.Monthly percentage of burnt land cover for the year 2021.

Figure 69 shows the monthly percentage of burnt area in protected areas for the year 2021.

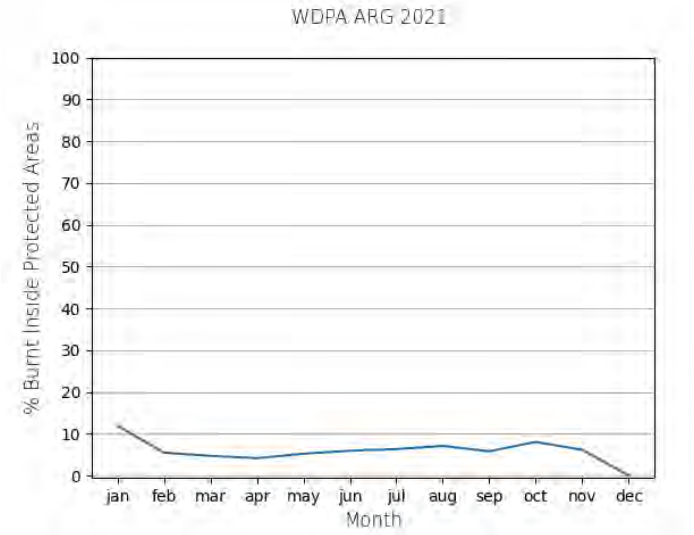


Figure 69.Monthly percentage of burnt area within protected areas for the year 2021

In terms of active fire spots detected by VIIRS, 2021 presents the same trend of the burned area and number of fires shown in Figure 41, with a number of active fire spots in the eleven months of the year below of those recorded in 2020 as shown in Figure 70. This type of information is often reported in the media.

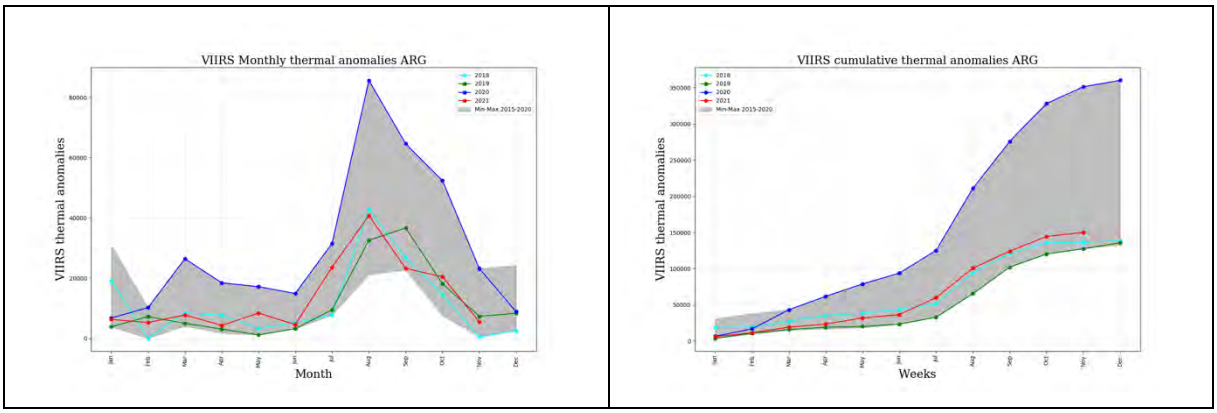


Figure 70.Trend of VIIRS thermal anomalies as compared to data in the last six years.

Figure 71 shows the 2021 monthly biomass burning CO_2 emissions from the Global Fire Assimilation System (GFAS).

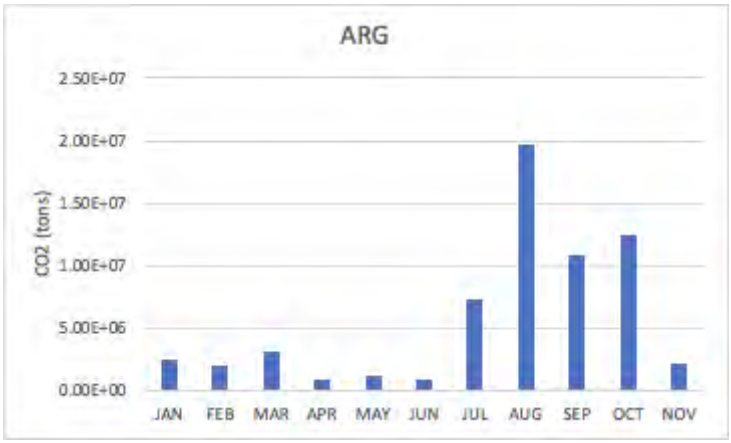


Figure 71. Trend of CO_2 emissions from biomass burning

16.10 Ecuador

In 2021, the spatial extent of the burnt areas in the country mapped by the Near-Real Time (NRT) process in GWIS is presented in Figure 72.

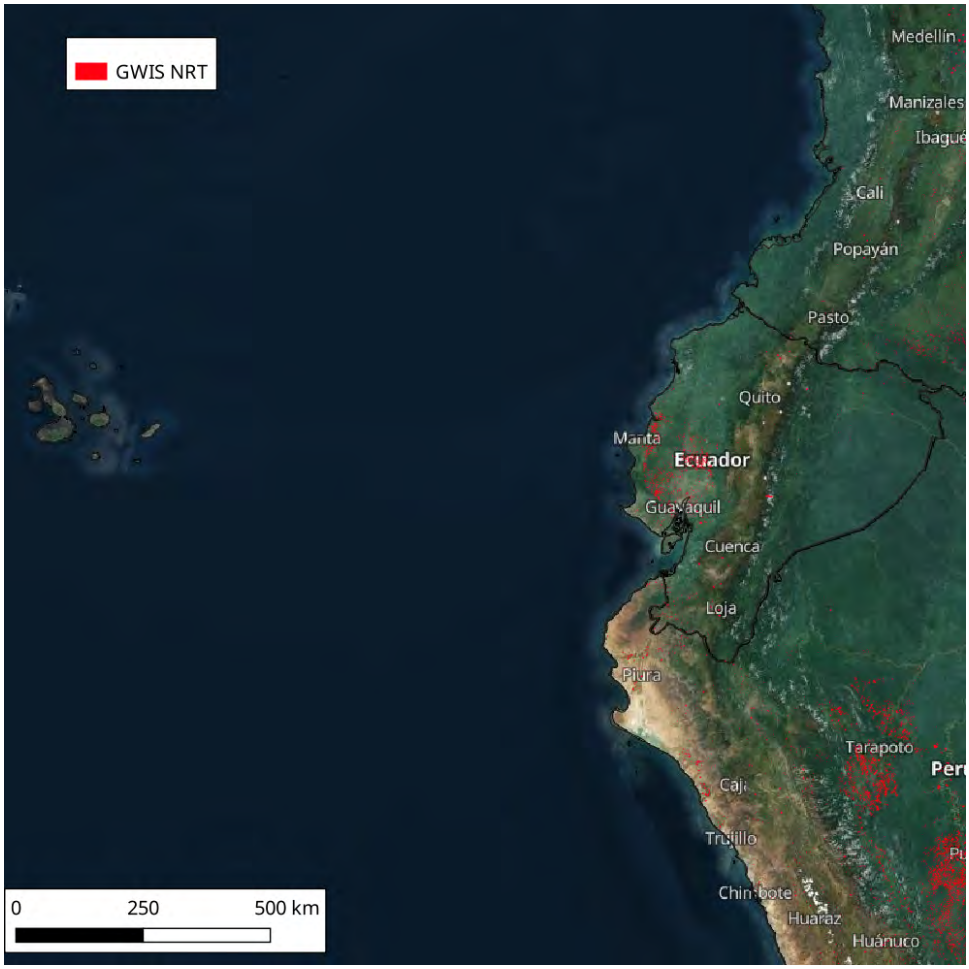
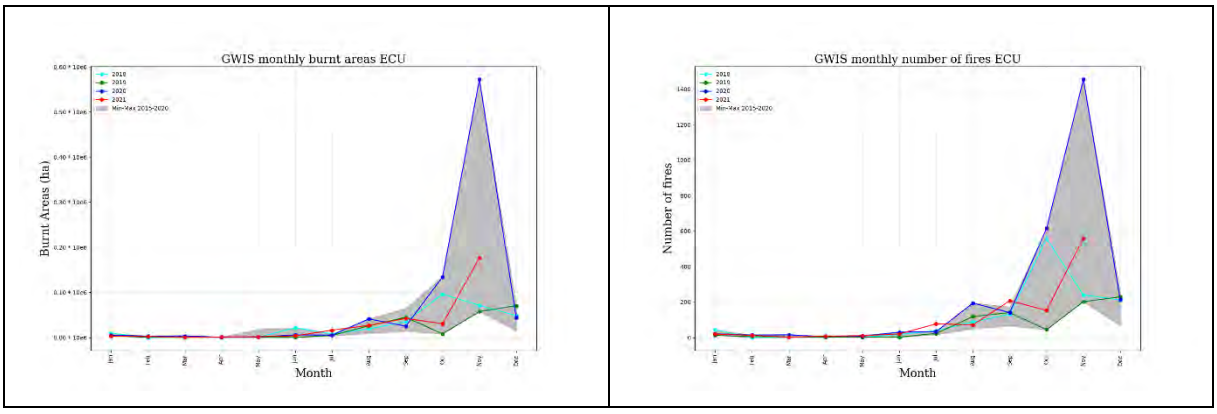


Figure 72.GWIS burnt areas for 2021 in Ecuador. Burnt areas until 1 November.

The current fire season for 2021 is slightly above 2018 and 2019 in all terms, see Figure 73. It is worth mentioning that the fire season is still at the beginning.



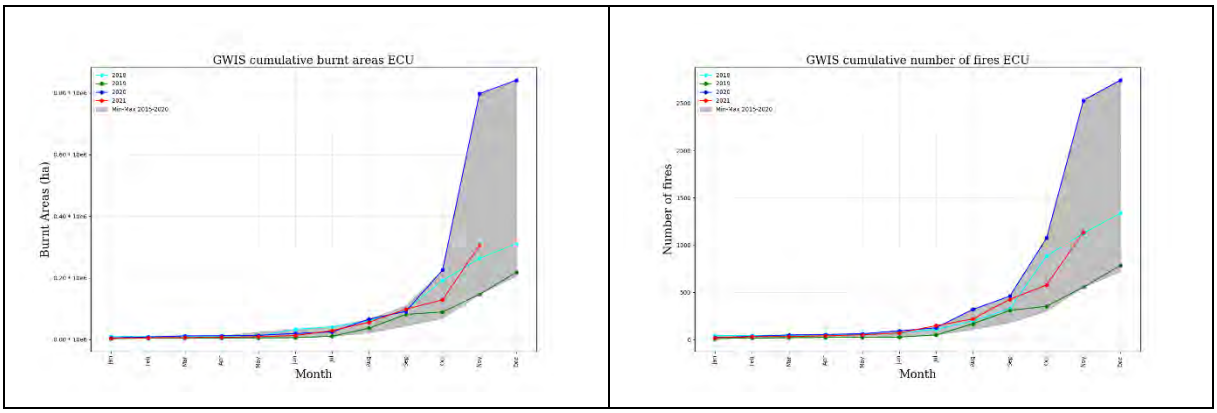


Figure 73.Trend of burnt areas and number of fires as compared to data in the last six years.

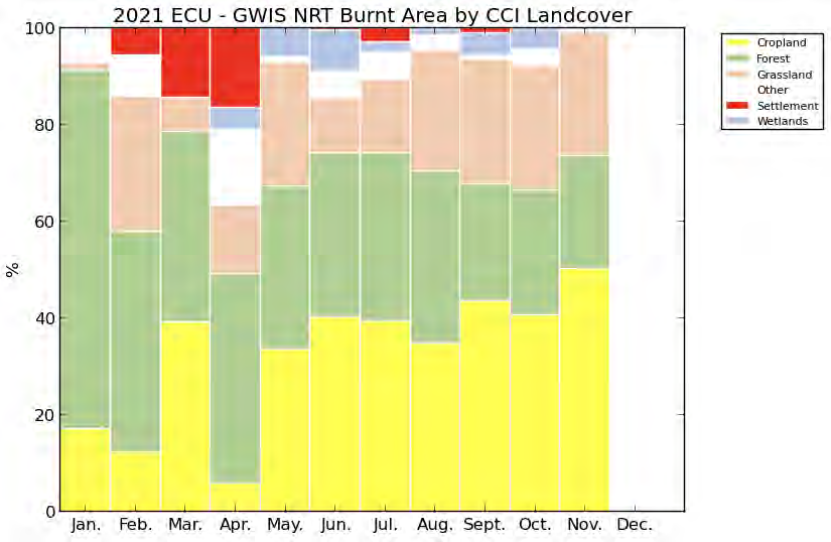


Figure 74.Monthly percentage of burnt land cover for the year 2021.

Figure 75 shows the monthly percentage of burnt area in protected areas for the year 2021.

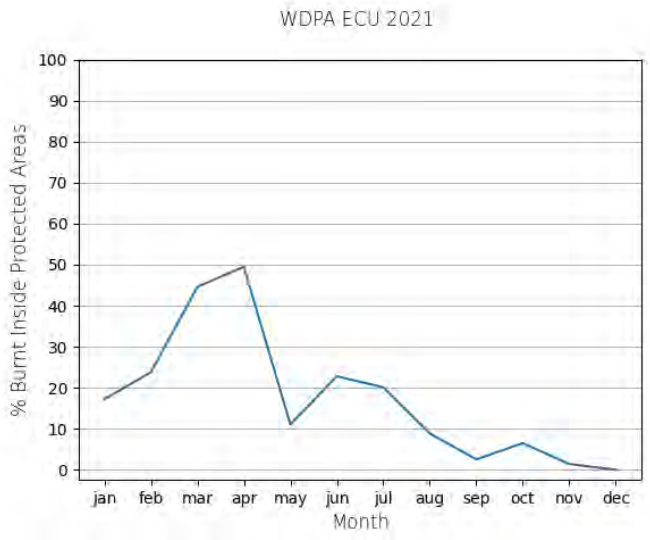


Figure 75.Monthly percentage of burnt area within protected areas for the year 2021

In terms of active fire spots detected by VIIRS, 2021 presents for the eleven months of the year values below of those recorded in the last six years 2020 as shown in Figure 76. This type of information is often reported in the media.

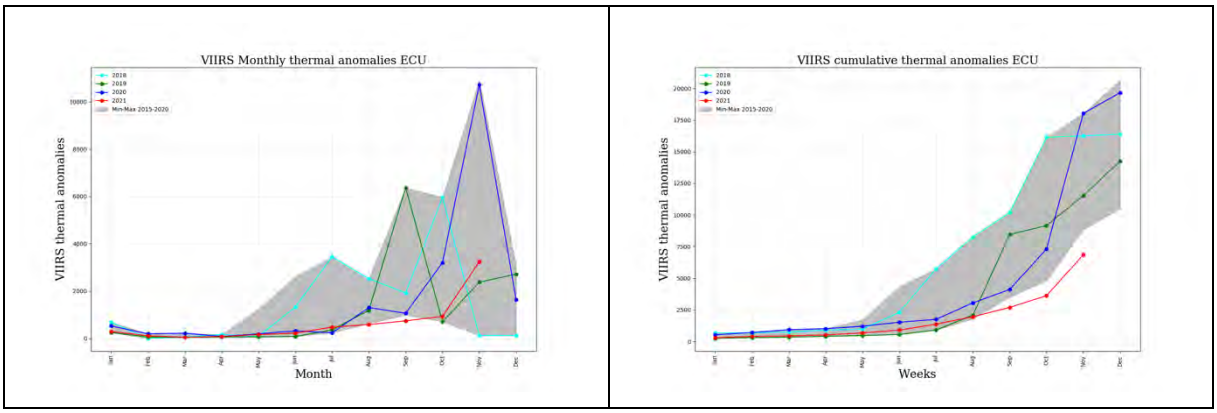


Figure 76.Trend of VIIRS thermal anomalies as compared to data in the last six years.

Figure 77 shows the 2021 monthly biomass burning CO_2 emissions from the Global Fire Assimilation System (GFAS).

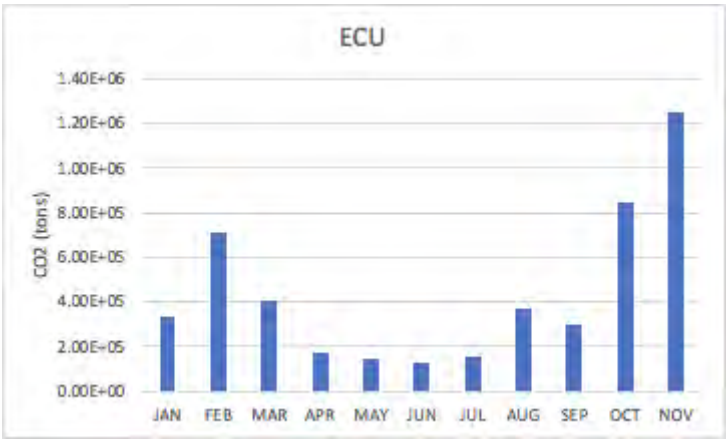


Figure 77.Trend of CO_2 emissions from biomass burning

16.11 Uruguay

In 2021, the spatial extent of the burnt areas in the country mapped by the Near-Real Time (NRT) process in GWIS is presented in Figure 78.

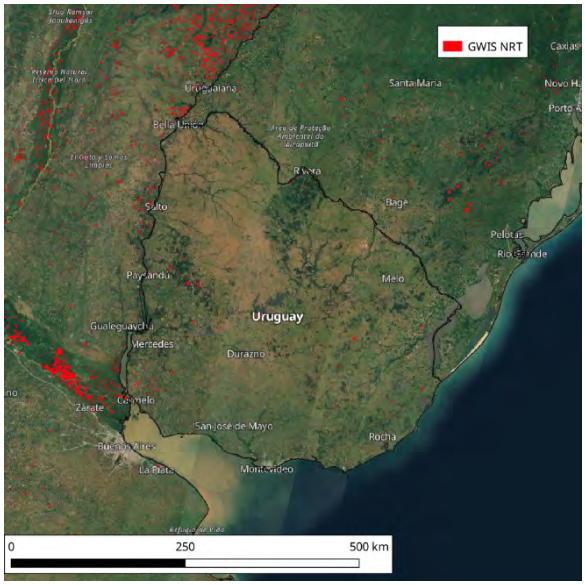


Figure 78.GWIS burnt areas for 2021 in Uruguay. Burnt areas until 1 November.

The current fire season for 2021 is below than 2020, see Figure 79. The total burnt area is above 2019, and considerably lower than of 2020 fire season. By November, almost 51 thousand ha of burnt areas have been mapped by GWIS in the region.

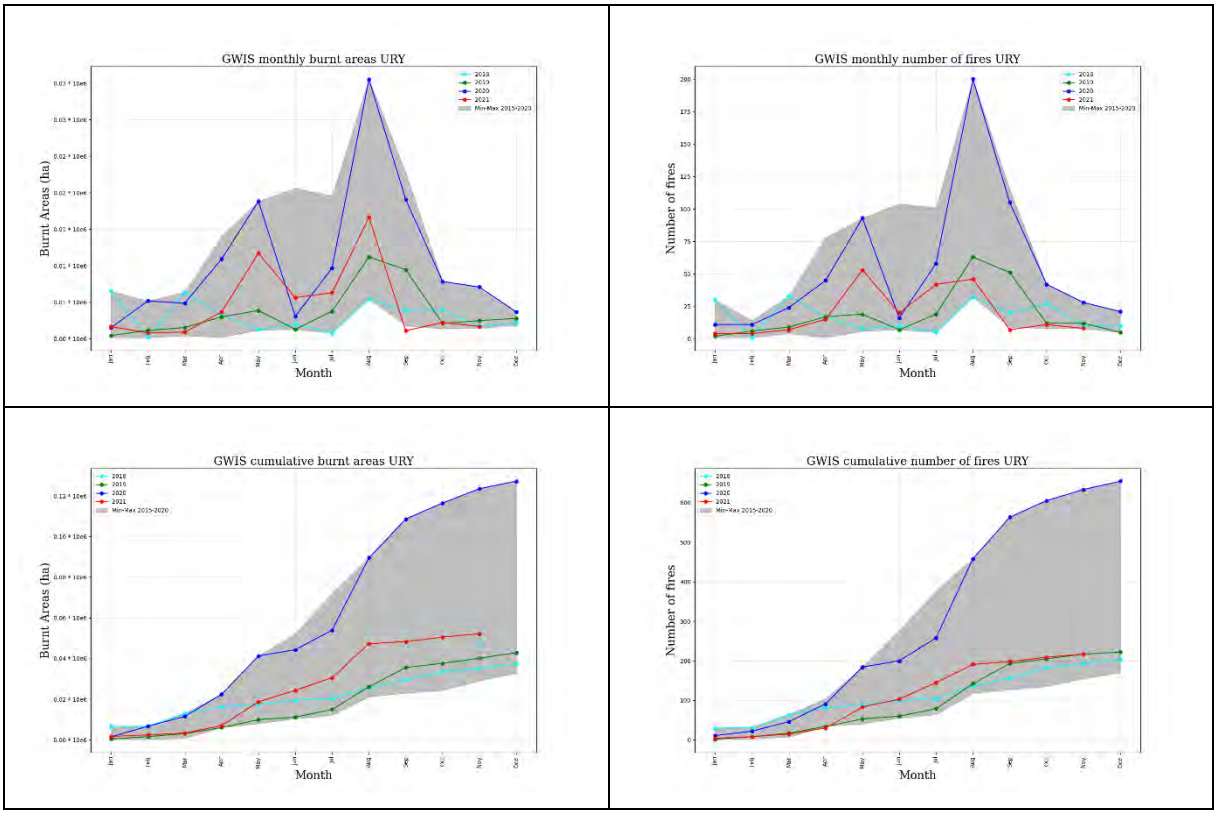


Figure 79.Trend of burnt areas and number of fires compared to data in the last six years.

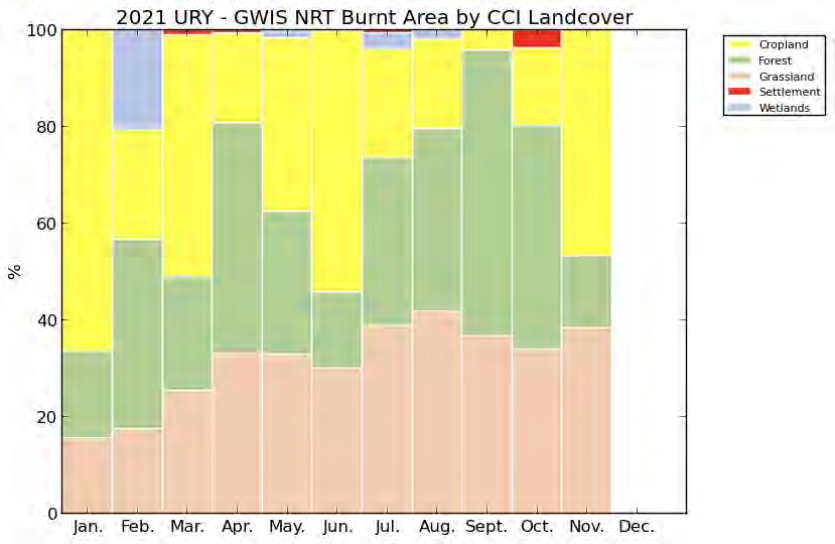


Figure 80.Monthly percentage of burnt land cover for the year 2021.

Figure 81 shows the monthly percentage of burnt area in protected areas for the year 2021.

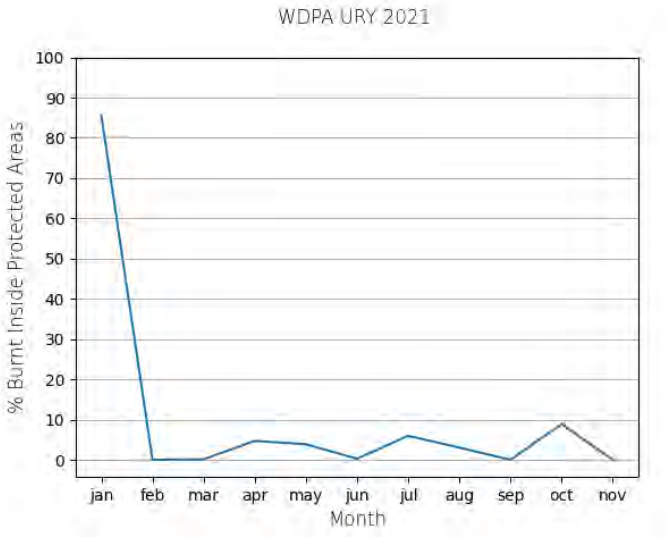


Figure 81.Monthly percentage of burnt area within protected areas for the year 2021

In terms of active fire spots detected by VIIRS, 2021 presents the same trend of the burned area and number of fires shown in Figure 56, with a number of active fire spots in the eleven months of the year below of those recorded in 2019 and 2020 as shown in Figure 82. This type of data is often reported in the media.

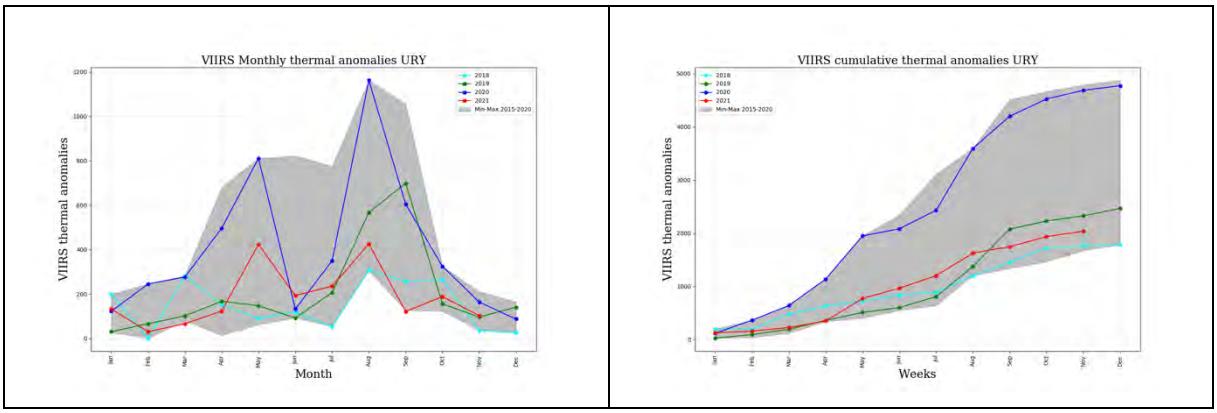


Figure 82. Trend of VIIRS thermal anomalies as compared to data in the last six years.

Figure 83 shows the 2021 monthly biomass burning CO_2 emissions from the Global Fire Assimilation System (GFAS).

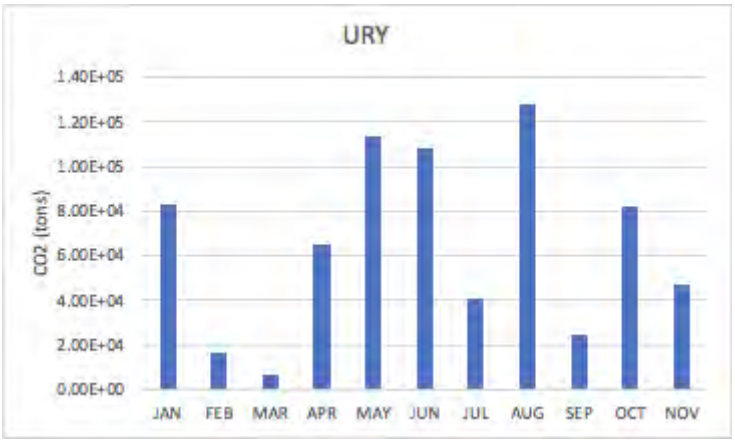


Figure 83.Trend of CO_2 emissions from biomass burning

16.12 French Guiana

In 2021, the spatial extent of the burnt areas in the country mapped by the Near-Real Time (NRT) process in GWIS is presented in Figure 84.

Figure 84.GWIS burnt areas for 2021 in French Guiana. Burnt areas until 1 November.

The current fire season for 2021 is similar to the previous years, see Figure 85. Until November, a total of around 6,508 ha of burnt areas have been mapped by GWIS in the region. The fire activity is almost none up to September when the fire season should start increasing the burnt area and number of fires in October and November.

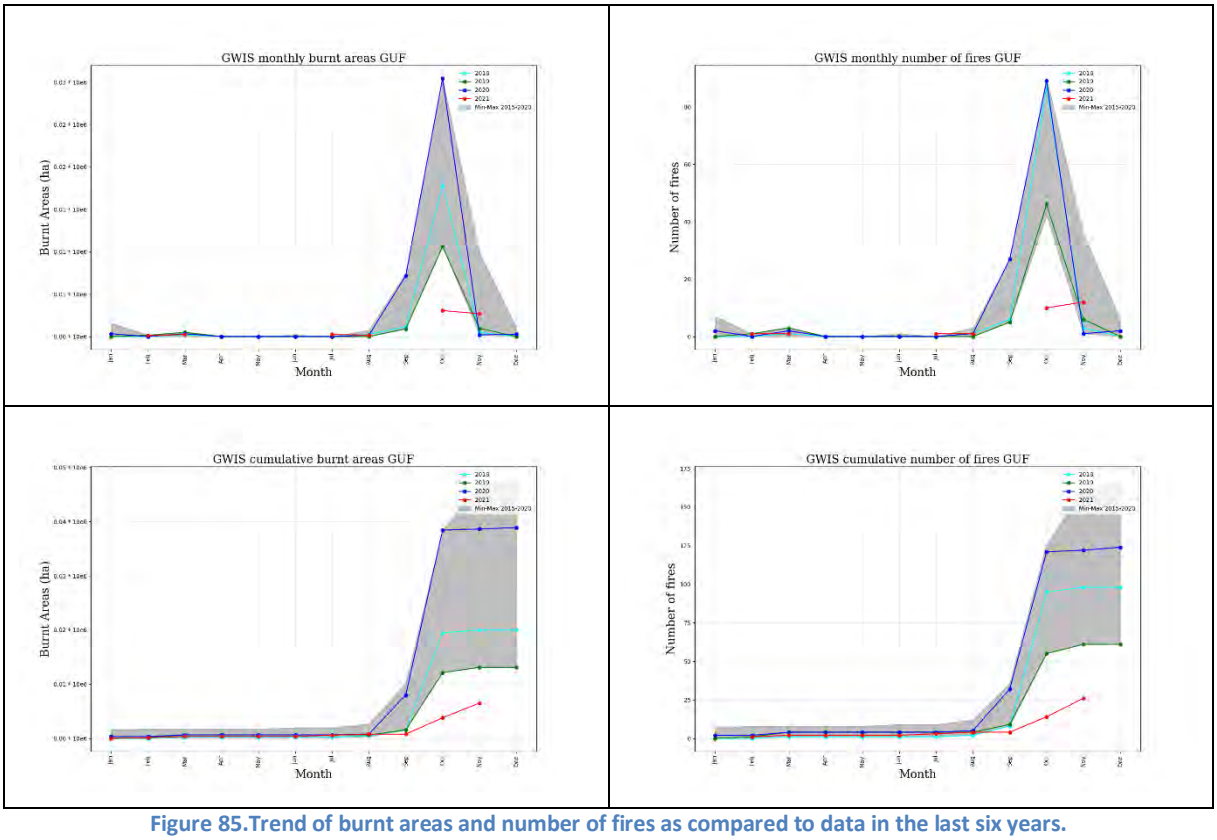


Figure 85.Trend of burnt areas and number of fires as compared to data in the last six years.

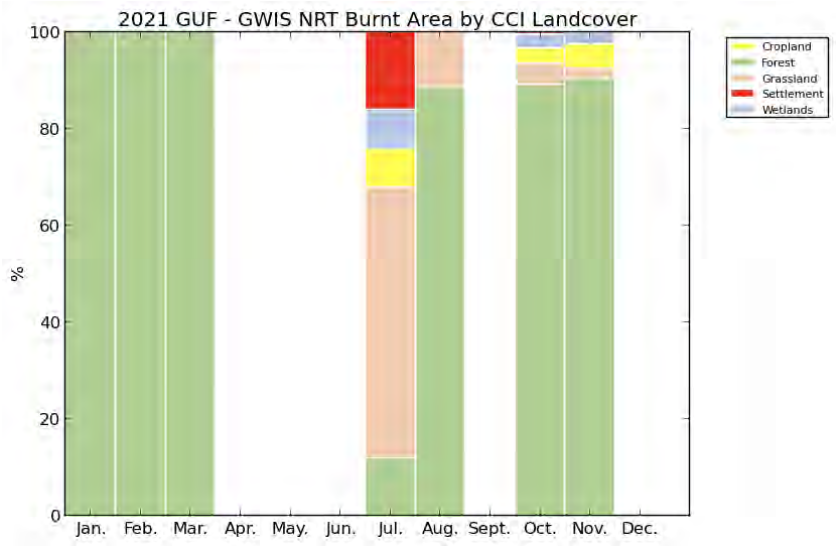


Figure 86.Monthly percentage of burnt land cover for the year 2021.

Figure 87 shows the monthly percentage of burnt area in protected areas for the year 2021.

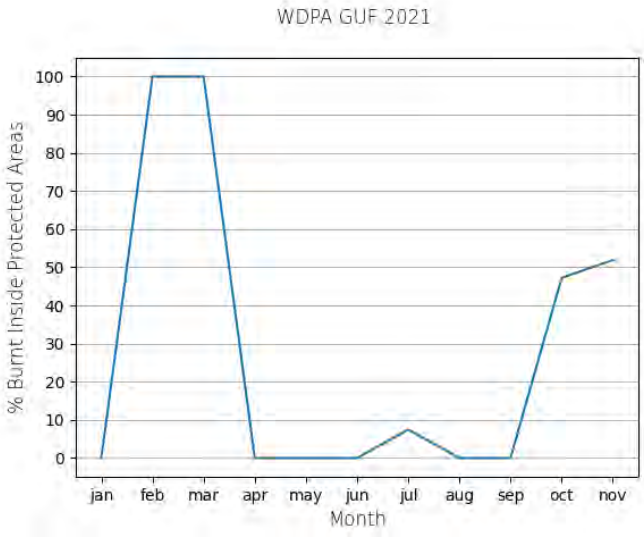


Figure 87.Monthly percentage of burnt area within protected areas for the year 2021

In terms of active fire spots detected by VIIRS, 2021 presents the same trend of the burned area and number of fires shown in Figure 88, with a number of active fire spots in the first eleven months of the year as the lowest in the last six years as shown in Figure 87. This type of data is often reported in the media.

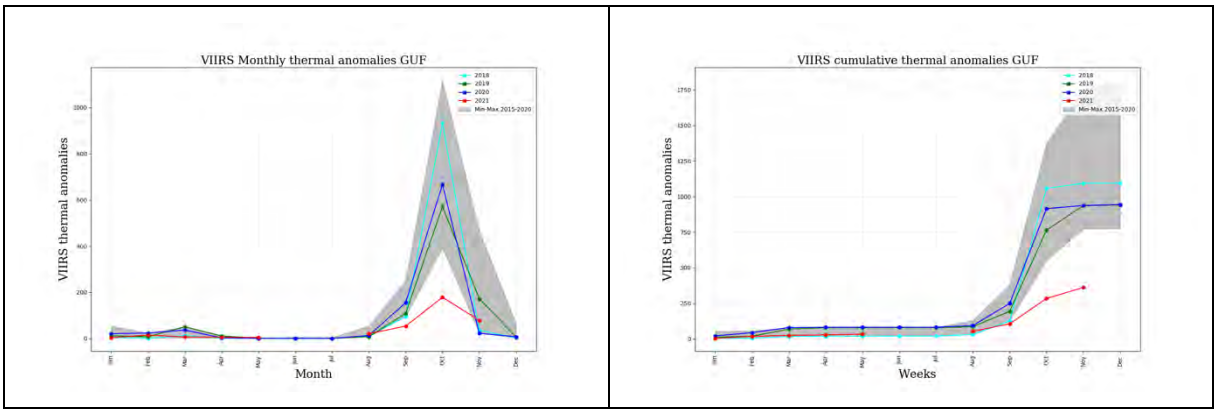


Figure 88.Trend of VIIRS thermal anomalies as compared to data in the last six years.

Figure 89 shows the 2021 monthly biomass burning CO_2 emissions from the Global Fire Assimilation System (GFAS).

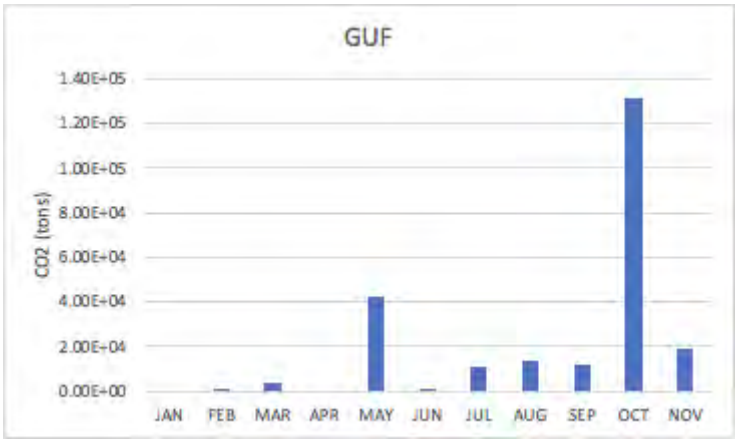


Figure 89.Trend of CO_2 emissions from biomass burning

16.13 Guyana

In 2021, the spatial extent of the burnt areas in the country mapped by the Near-Real Time (NRT) process in GWIS is presented in Figure 90.

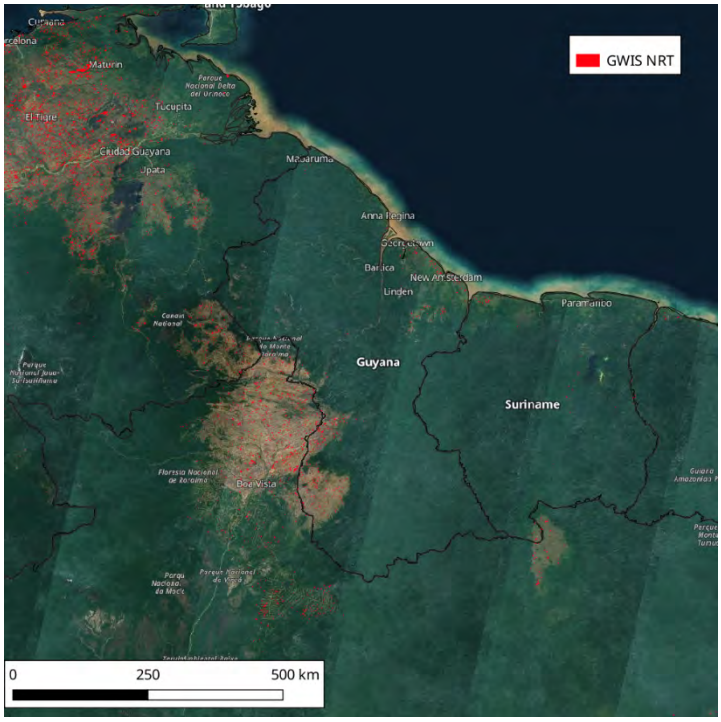


Figure 90.GWIS burnt areas for 2021 in Guyana. Burnt areas until 1 November.

The current fire season for 2021 is the lowest of the last six years in all terms, see Figure 91. By November, almost 70 thousand ha of burnt areas have been mapped by GWIS in the region, being the current month of November a month below the previous years.

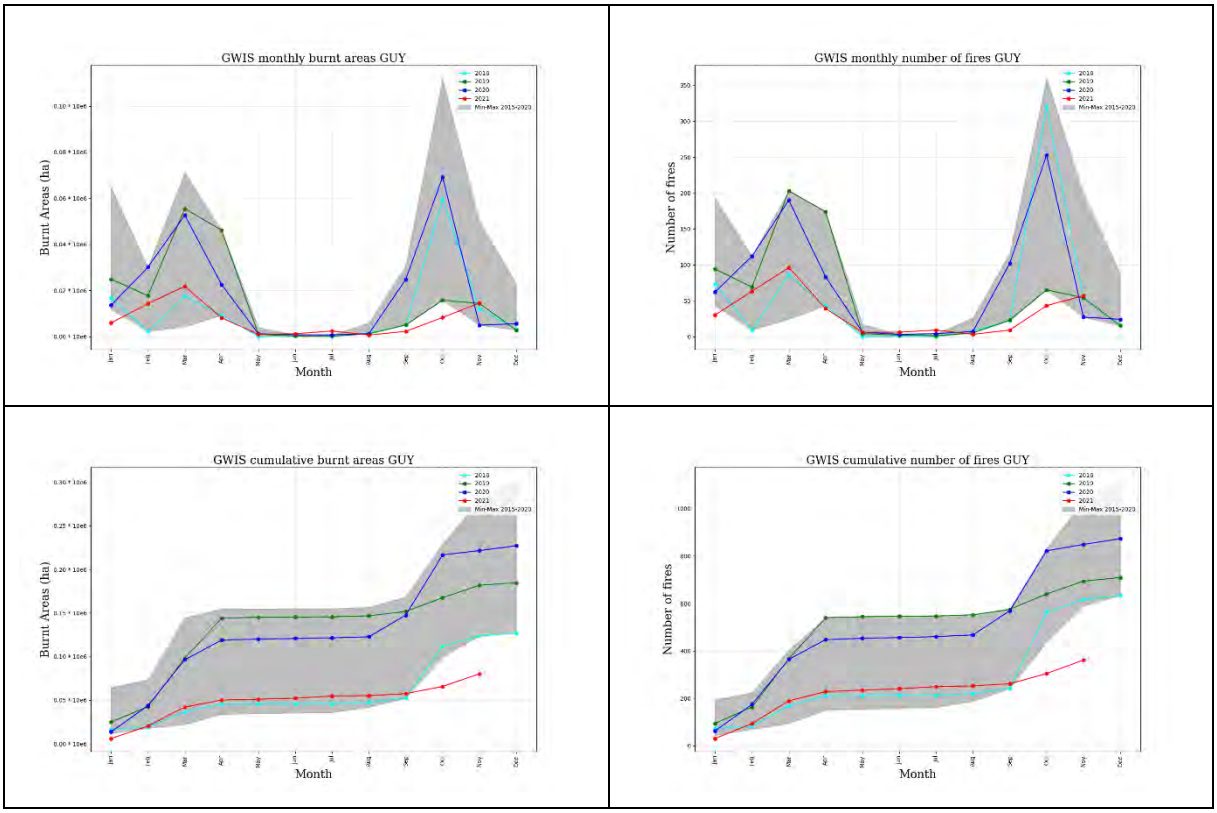


Figure 91.Trend of burnt areas and number of fires as compared to data in the last six years.

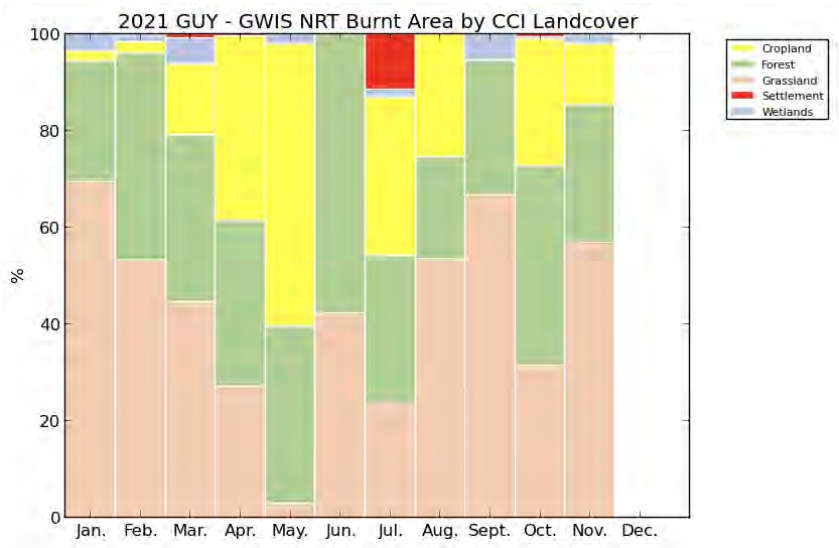


Figure 92.Monthly percentage of burnt land cover for the year 2021.

Figure 93 shows the monthly percentage of burnt area in protected areas for the year 2021.

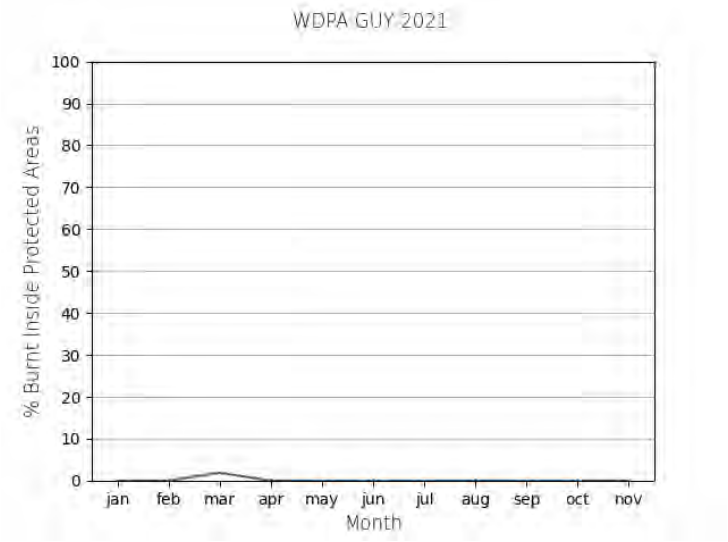


Figure 93.Monthly percentage of burnt area within protected areas for the year 2021

In terms of active fire spots detected by VIIRS, 2021 presents the lowest number in the last six years as shown in Figure 94. This type of data is often reported in the media.

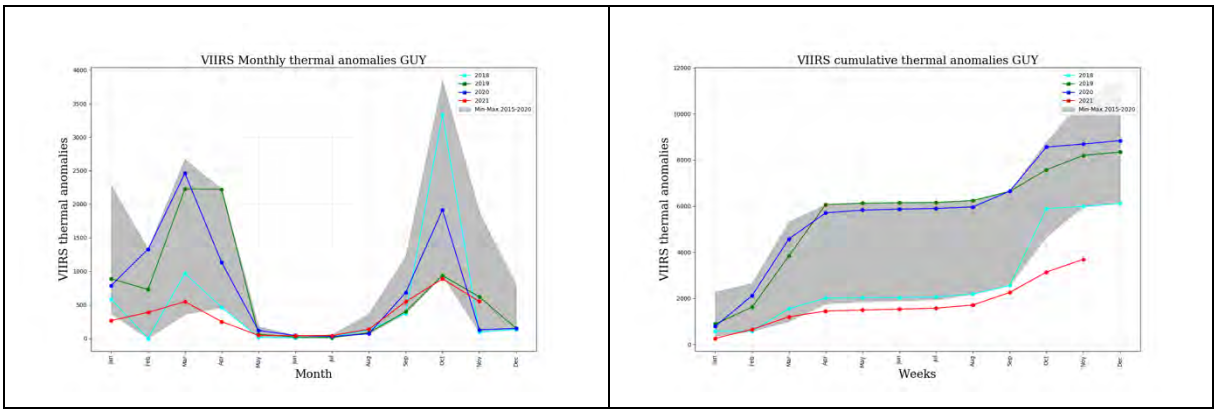


Figure 94.Trend of VIIRS thermal anomalies as compared to data in the last six years.

Figure 95 shows the 2021 monthly biomass burning CO_2 emissions from the Global Fire Assimilation System (GFAS).

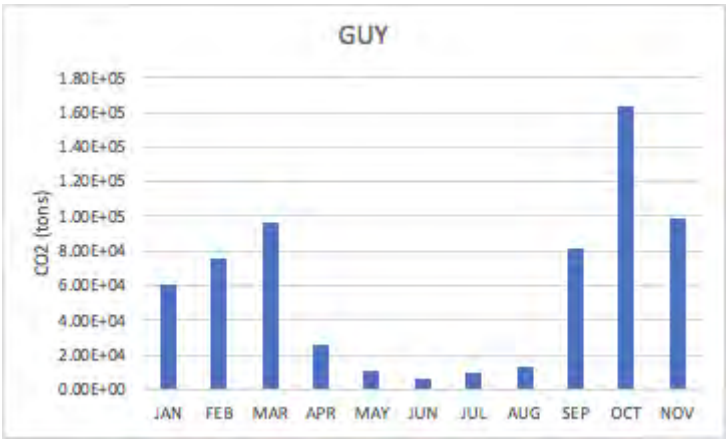


Figure 95.Trend of CO_2 emissions from biomass burning

16.14 Suriname

In 2021, the spatial extent of the burnt areas in the country mapped by the Near-Real Time (NRT) process in GWIS is presented in Figure 96.

Figure 96.GWIS burnt areas for 2021 in Suriname. Burnt areas until 1 November.

The current fire season for 2021 has the lowest values of the last six years in all terms, see Figure 97. Until November, 12,810 ha of burnt areas have been mapped by GWIS in the region.

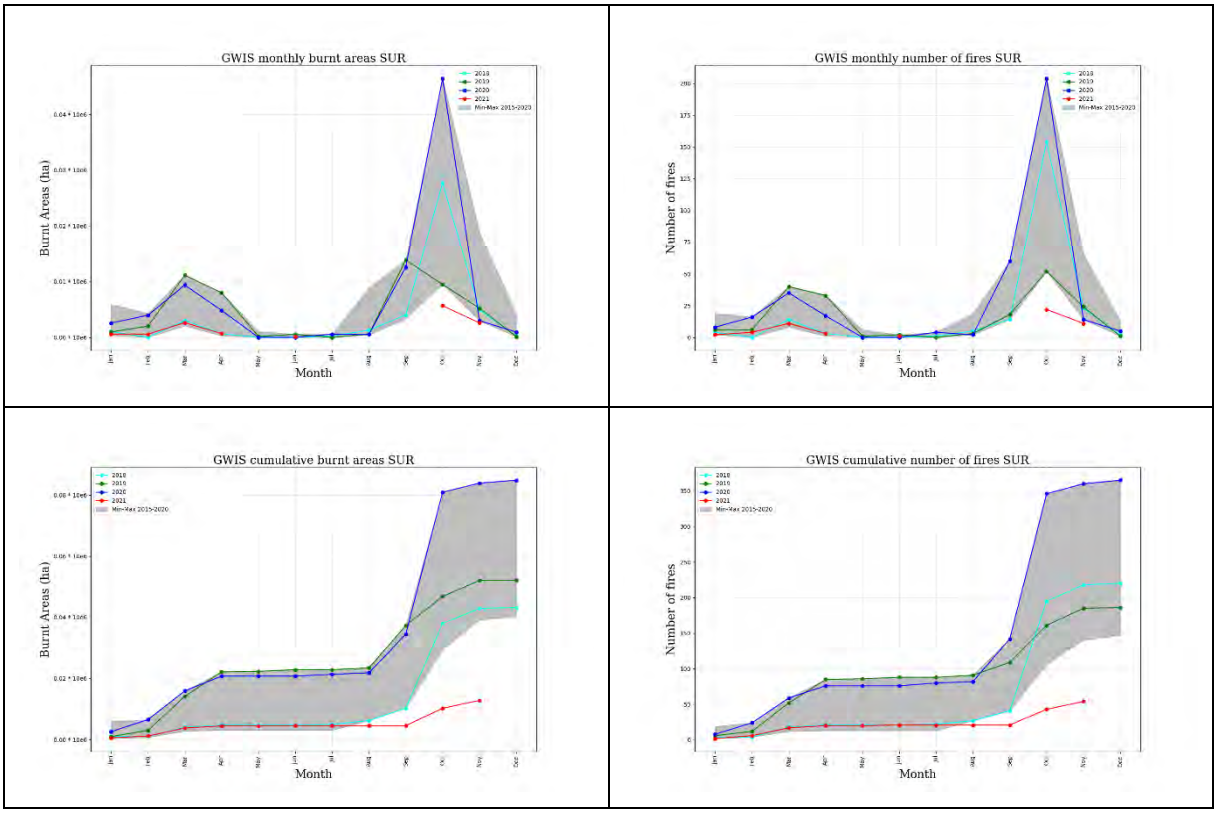


Figure 97. Trend of burnt areas and number of fires as compared to data in the last six years.

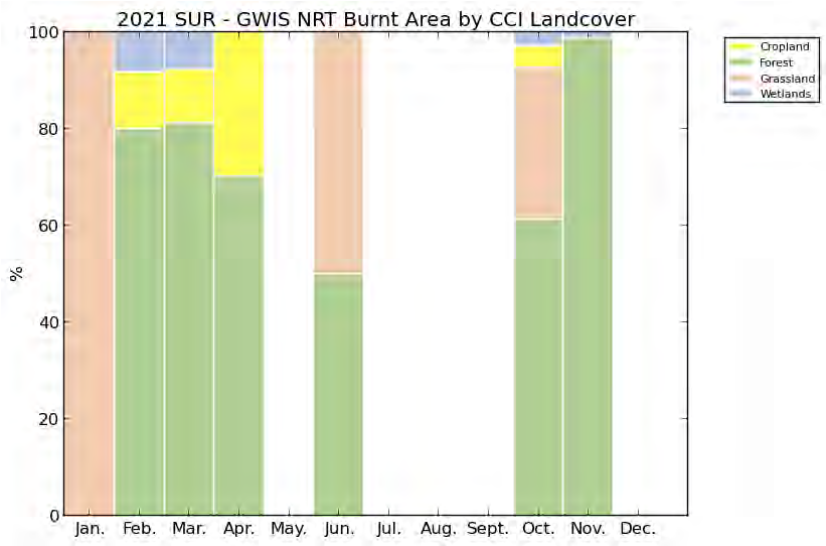


Figure 98. Monthly percentage of burnt land cover for the year 2021.

Figure 99 shows the monthly percentage of burnt area in protected areas for the year 2021.

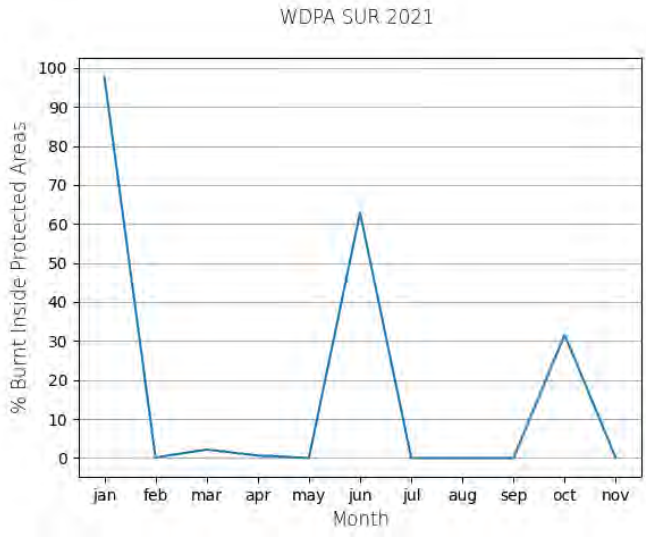


Figure 99.Monthly percentage of burnt area within protected areas for the year 2021

In terms of active fire spots detected by VIIRS, 2021 presents the same trend of the burned area and number of fires shown in Figure 68, with a number of active fire spots in the first eleven months of the year below of those recorded in the last six years as shown in Figure 100. This type of data is often reported in the media.

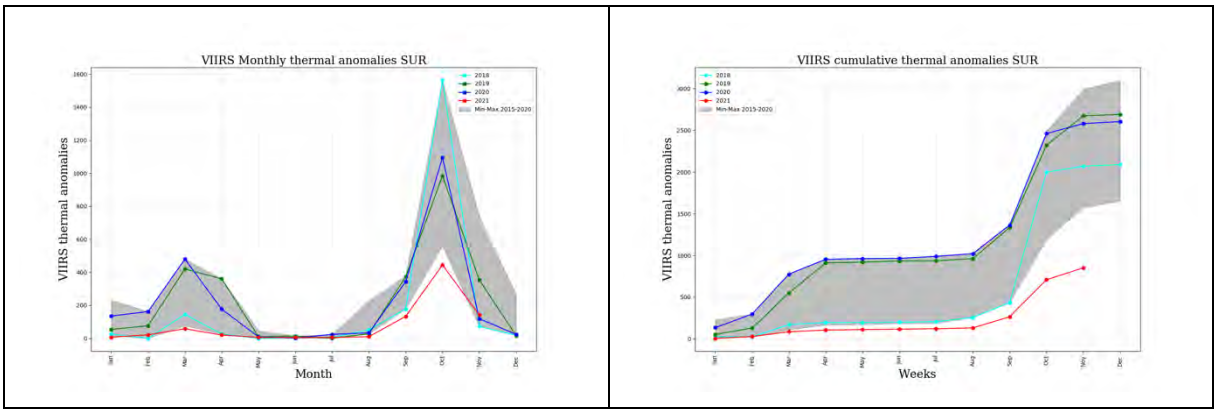


Figure 100.Trend of VIIRS thermal anomalies as compared to data in the last six years.

Figure 101 shows the 2021 monthly biomass burning CO_2 emissions from the Global Fire Assimilation System (GFAS).

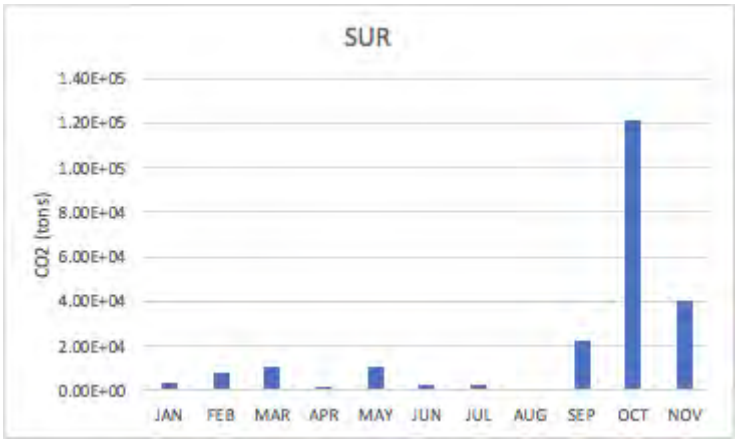


Figure 101. Trend of CO_2 emissions from biomass burning

16.15 Fire danger and fire weather forecast in the Amazon region

The seasonal fire weather forecast (monthly) of temperature and precipitation anomalies for December is presented in Figure 102. **A strong average temperature anomaly is forecasted for Argentina and Paraguay.** The forecast estimates a decrease on precipitation rates for this month in eastern Paraguay,southeastern Brazil and northern Argentina and increase on precipitation on the northern/southeastern Brazil, BLA and Bolivia

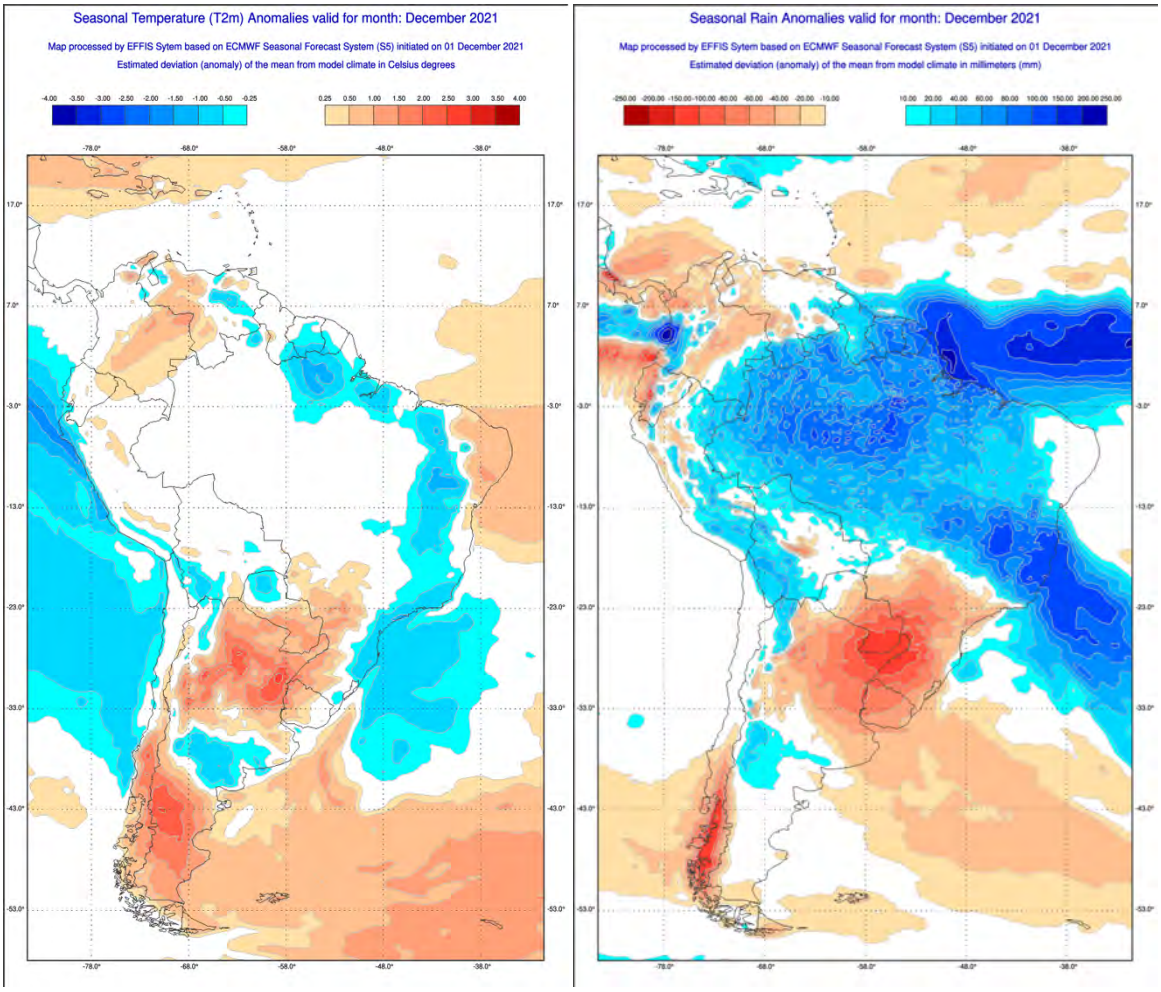


Figure 102. Fire weather anomalies of the current month, December, 2021.

At the current date, its foreseen for January 2022 a continuation of above average temperatures anomalies for mainly Argentina, and a decrease mainly in eastern Brazil. The forecast for the precipitation rates anomalies in December will be pretty similar with November for the region (Figure 103).

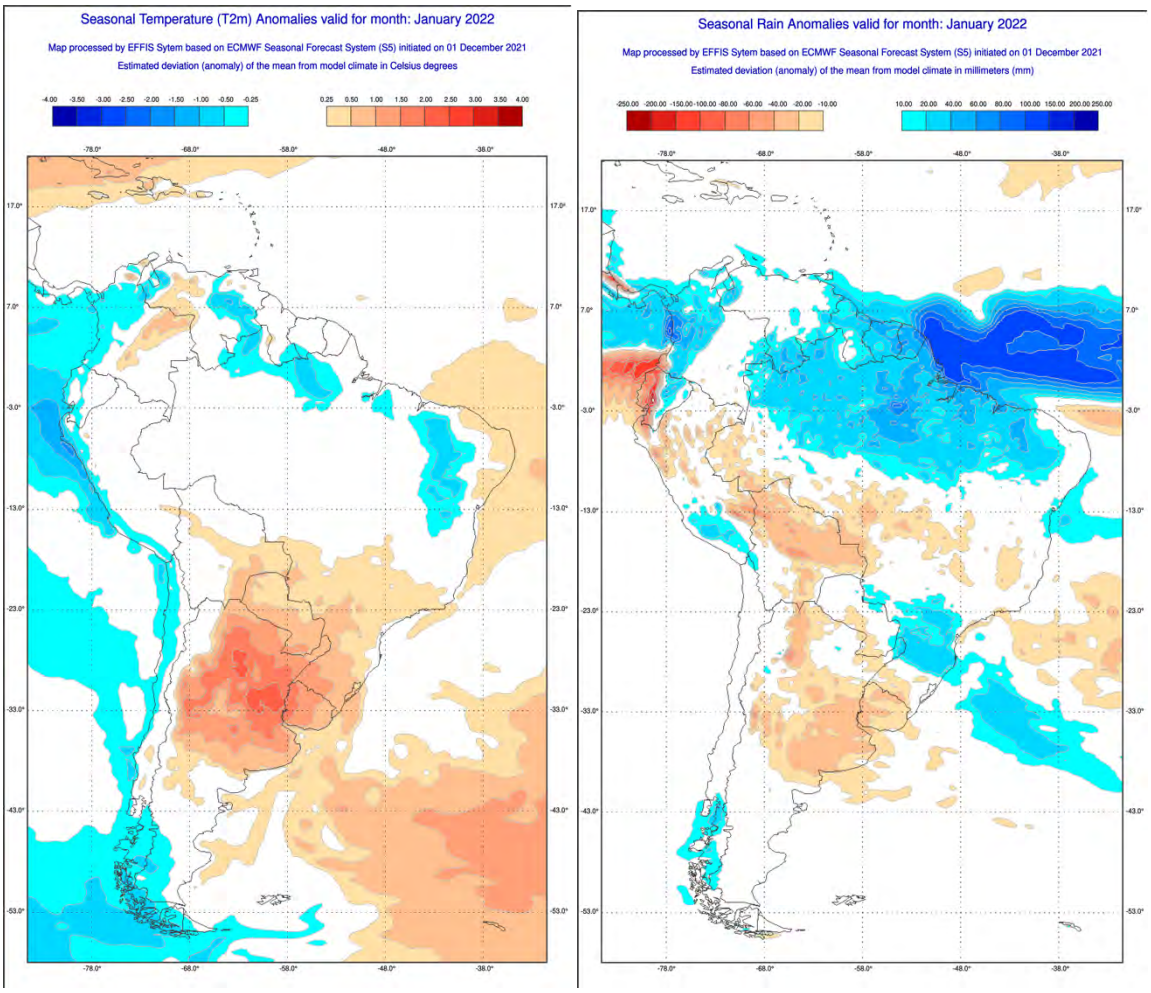


Figure 103.Fire weather anomalies of January, 2022.

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