



European
Commission

JRC TECHNICAL REPORT

Weekly analysis of wildfires in the Amazon region and South America:

October 18 - October 24, 2021

2021



GWIS

Global Wildfire Information System



European Commission > JRC EU Science Hub > DRM > GWIS > Applications > Current Situation Viewer

Map Options

- Country Boundaries Layer
- Human Settlement Layer
- Protected Areas Layer
- CCI Landcover

Forecasts

FIRE DANGER FORECAST

Source: ECMWF (8 km res.)

Index: Fire Weather Index (FWI)

LIGHTNING FORECAST

Date: 25 Oct 2021

Rapid Damage Assessment

Select a date-range

Last 1 Day | Last 7 Days | Last 30 Days

Fire Season

From: 18 Oct 2021 To: 25 Oct 2021

ACTIVE FIRES

MODIS VIIRS

BURNT AREAS

MODIS (Last update: 2021-05-31)

MODIS & VIIRS NRT

FIRE EMISSIONS

Black Carbon Methane

Carbon Dioxide Carbon Monoxide

Sulfur Dioxide Nitrogen Oxides

Organic Carbon Particulate Matter

Non-Methane Hydro-Carbon

Total Carbon in Aerosols

FUELS

Analysis Tools

GWIS Estimates per Country

500 km
500 mi

Joint
Research
Centre

JRC126929

GWIS | Ver. 2.6.7

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Contact information

Name: Global Wildfire Information System

Address: <https://gwis.jrc.ec.europa.eu>

Email: jrc-effis@ec.europa.eu

Tel.: +39 0332 786138

EU Science Hub

<https://ec.europa.eu/jrc>

JRC126929

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¹ European Commission, Joint Research Centre (JRC), Ispra, Italy

³ ARCADIA SIT, Milan, Italy

⁴ 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 2021 through the comparison with the fire activity in the region in previous fire seasons. It must be noted that 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 11.24 Million ha (Mha) burnt from January 1 until October 24, 2021. This value is below those of the last six years in the same period. **Last week, 528 fires occurred**, which is below the values of the previous 6 years for the same week.
- **In Brazil, 18.65 Mha burnt from January 1 until October 24, 2021**, with a total of 186,079 ha burnt in the last week. The total burnt area in Brazil is below the values of the previous 6 years in the same period, with the exception of 2018, and number of fires is below that of 2020 (788 fires occurred last week).
- **In Bolivia**, the total burnt area in 2021 (5.94 Mha) is lower than that recorded for 2019, which was a critical year in the country. The total burnt area is also below to the values reached in 2020 up to the same week. 1076 fires were recorded last week. Critical fires are still taking place close to Santa Ana de Yacuma in the central part of the country.
- **In Colombia**, the total burnt area in the country (2.82 Mha) is above the values of 2018 and 2019, but approximately 12% below the values of 2020. The total number of fires since January 2021 is 9,740 the highest value since 2015 for the same period.
- **In Paraguay**, 3.07 Mha burnt since January 1 until October 24, 2021. The area burnt and the number of fires in the last week are one of the lowest values in the last 6 years for the same week. The total burnt area in 2021 is above those in 2018 and 2019 but below the values of the severe season of 2020.
- **In Peru**, for the period January 1 until October 24, 2021, the total burnt area (2.09 Mha) and total number of fires (7,879). The current fire season is just below the trend of the worst fire season of the last 6 years (2020) in the country.
- **In Venezuela**, 4.16 Mha burnt in the current year until October 24. The value of the total burnt area in Venezuela is lower than that in 2019 and 2020.
- **In Chile**, 444,967 ha burnt in the current year until October 24, 2021. This value is 51% higher than that in 2020. The number of fires until now (1,726), is the highest value since 2015.
- **In Argentina**, a total of 3.94 Mha burnt since January 1 until October 24, 2021, which is less than half of what burned in 2020. A total of 13,200 fires were mapped this year.
- **In Ecuador**, a total of 492 fires burnt 110,394 ha since January 1 until October 24. These values are similar to the values of the last six years, while the peak of the fire season is just starting.
- **In Uruguay**, a total of 48,209 ha burnt since January 1 until October 24 with 417 ha burnt last week. The total area is larger than the area burnt in 2018 and 2019 but lower than in 2020.
- **In French Guiana** a total of 1644 ha burnt since January 1 until October 24, 2021. This value is similar to previous years. 3 fires were recorded last week.
- **In Guyana**, a total of 61,694 ha burnt from January 1 until October 24, 2021, the lowest value from the last six years. 12 fires were mapped last week.
- **In Suriname**, 25 fires burnt a total of 5,182 ha since January 1 until October 24, 2021, the lowest for the last six years for the same period. No fire was recorded last week.
- This week, it is expected that fire danger conditions will continue to be very high to extreme in eastern part of Brazil, eastern Bolivia, northern Chile and Paraguay, and across Argentina

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 11.24 Mha burnt in the BLA since January 1 until October 24, 2021, with 0.12 Mha burnt in total during the last week, which is a low value for the same week for the last 6 years. The number of fires recorded in GWIS last week was 528, and the total number of fires up to October 24 is below the average value of the last 5 years. The number of thermal anomalies until October 24, 2021 (605,780) shows a typical trend in the region as compared to the trends in 2019 and 2020. 11,649 thermal anomalies were registered last week.

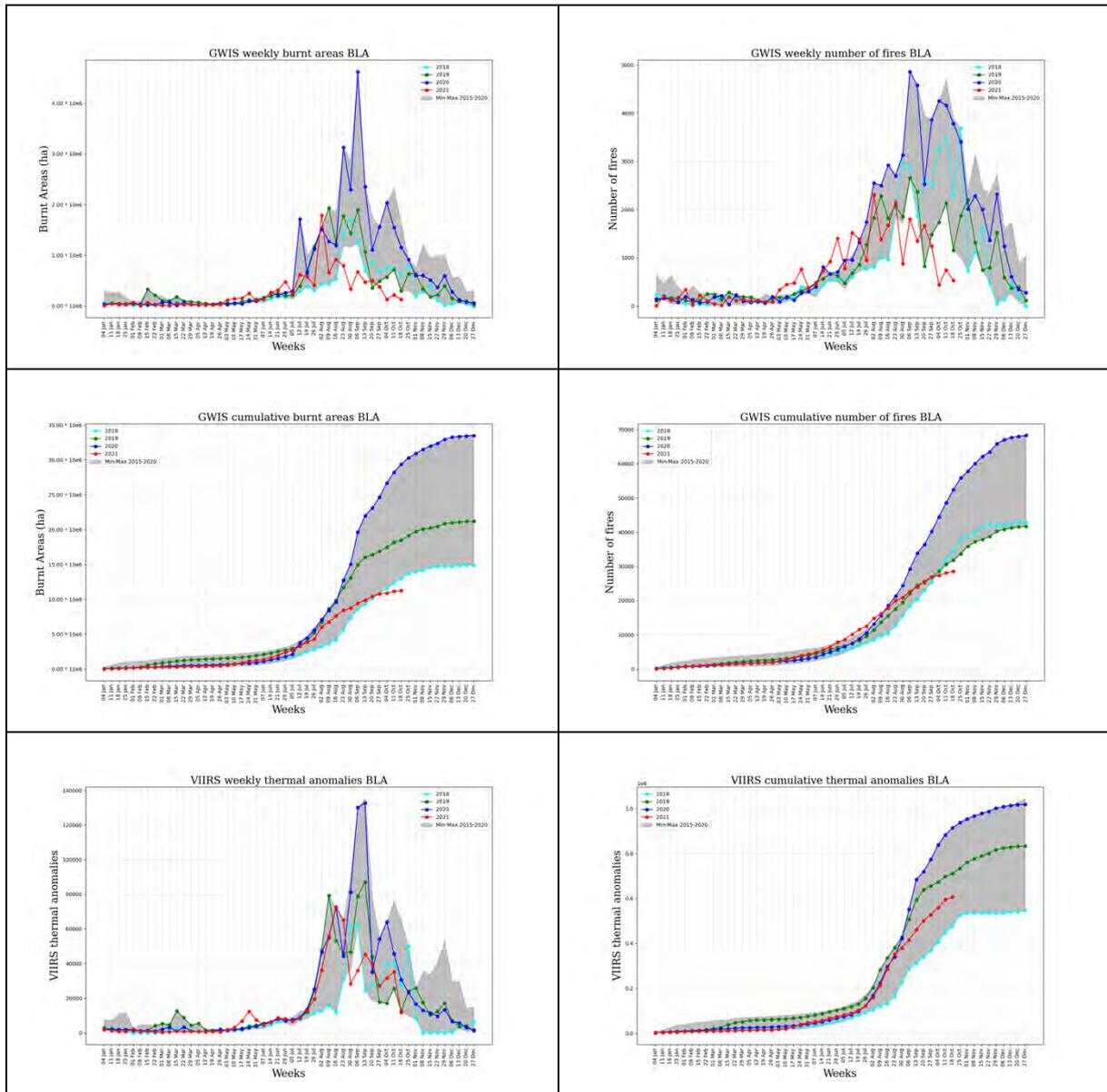


Figure 2 Trend of burnt areas and number of fires as compared to data in the last 6 years.

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 18.65 Mha burnt in Brazil since January 1 until October 24, 2021, below the burnt area of 2019 and 2020 up to the same date, with a total 186,079 ha burnt in the last week. The number of fires recorded in GWIS in the last week was 788; the total of number of fires up to October 24 is close to the values in 2019 for the same period. The number of thermal anomalies until October 24, 2021 (1.10 M) shows a typical trend in the region. 22,936 thermal anomalies were registered last week.

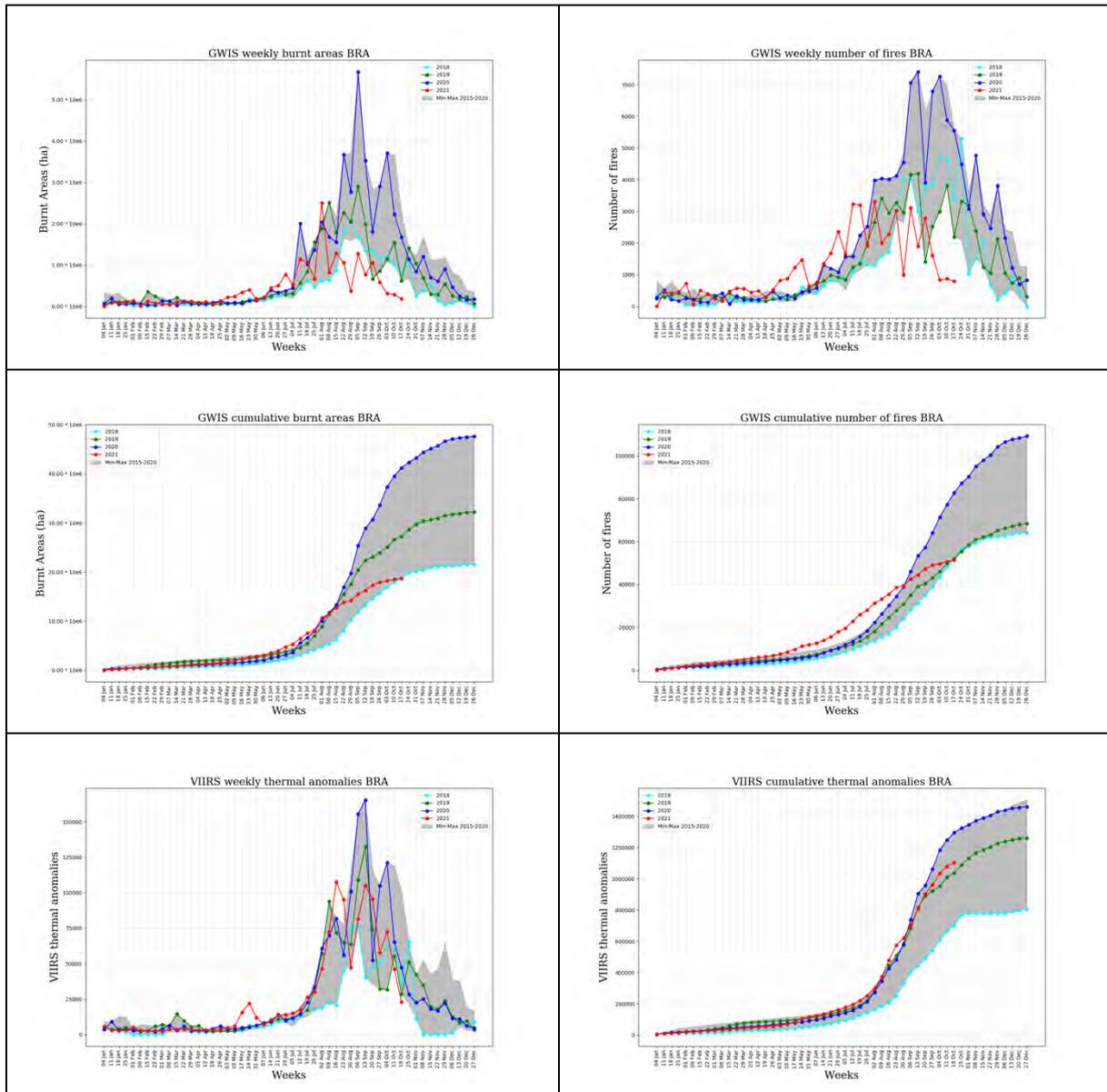


Figure 3. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 5.94 Mha burnt in Bolivia since January 1 until October 24, 2021, with 374,327 ha burnt in the last week. The cumulative values of burnt areas are higher than 2018 but lower than 2019 and 2020. The number of fires recorded in GWIS in the last week was 1076. The trend of number of fires in 2021 is lower than in the year 2020 for the same period. The number of thermal anomalies until October 24, 2021 (261,594) is the second highest value since 2015 for the same period. 19,200 thermal anomalies were detected by VIIRS in the last week. Critical fires are still active in the central part of the country.

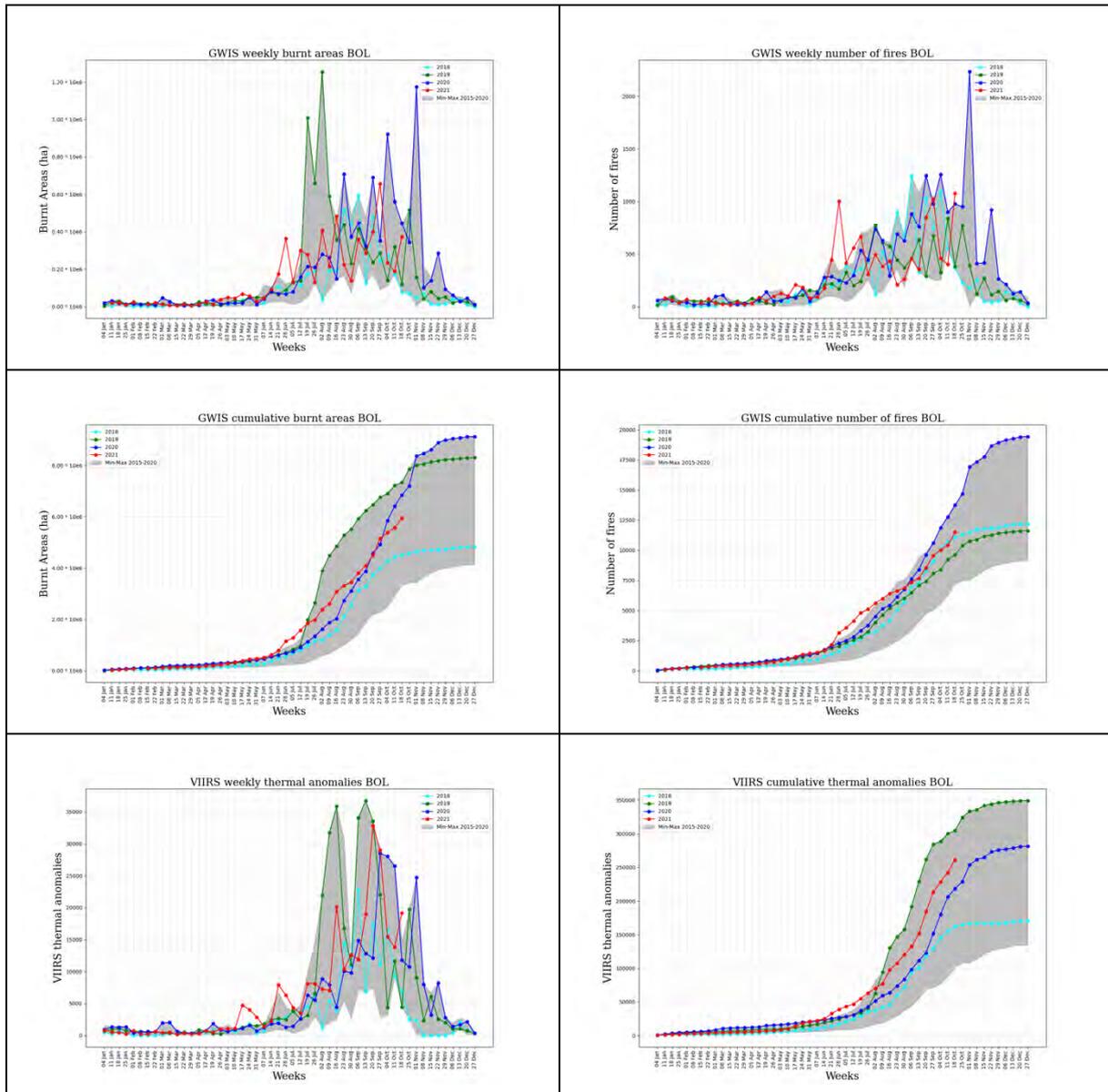


Figure 4. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 2.82 Mha burnt in Colombia since January 1 until October 24, 2021. Approximately 20,185 ha burnt in the country the last week. The number of fires recorded in GWIS in the last week was 88. The number of thermal anomalies until October 24, 2021 (69,658) follows a typical trend in the region with values below of 2019 and 2020. 707 thermal anomalies detected by VIIRS last week.

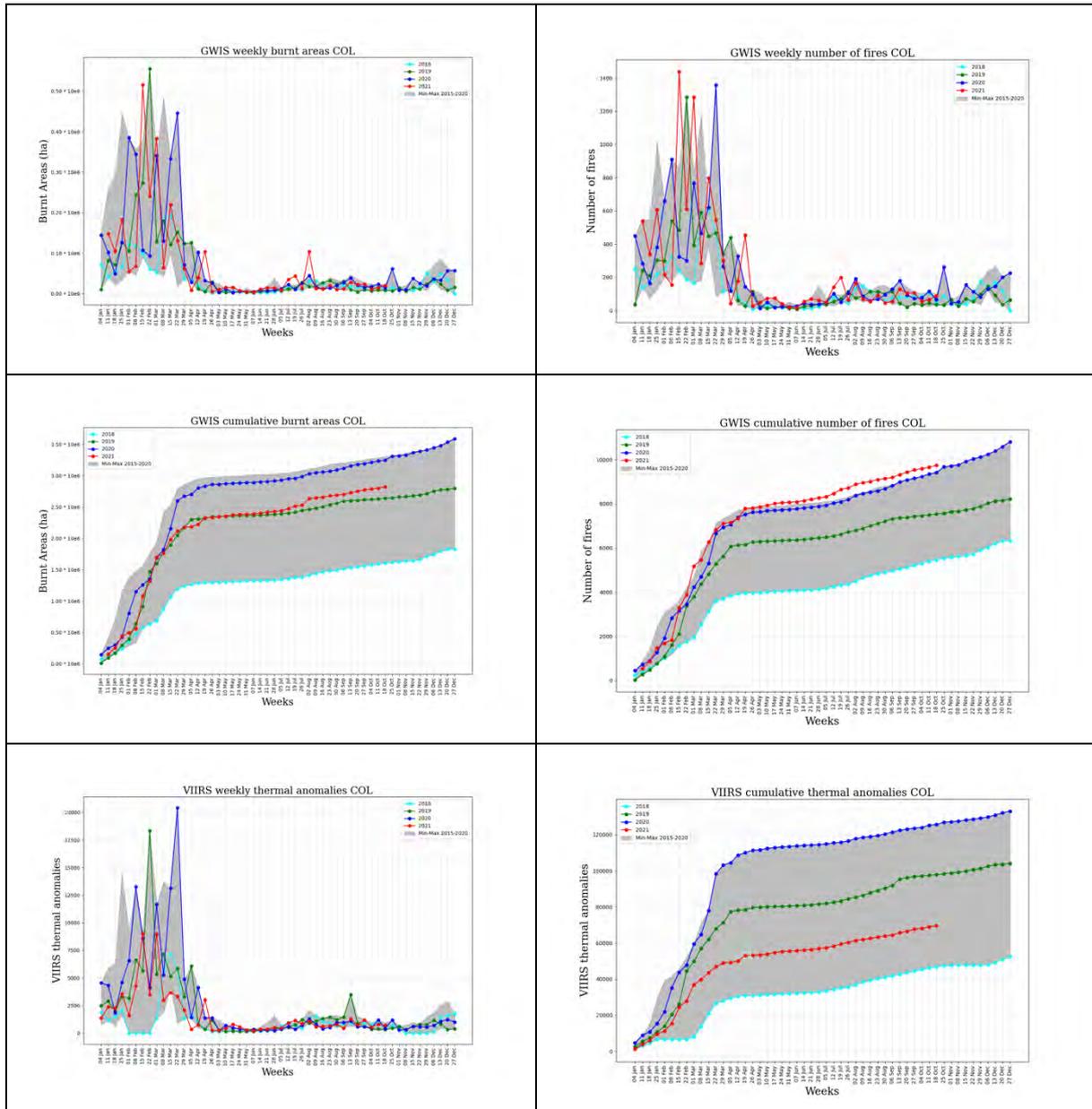


Figure 5. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 3.07 Mha burnt in Paraguay since January 1 until October 24, 2021. Approximately, 60,797 ha burnt in the country the last week, being the second lowest value for this week in the last 6 years. The number of fires recorded in GWIS in the last week was 229, also the second lowest value of the last 6 years for the same week. The number of thermal anomalies until October 24, 2021 (116,782) follows a typical trend in the region. 3407 thermal anomalies detected by VIIRS last week.

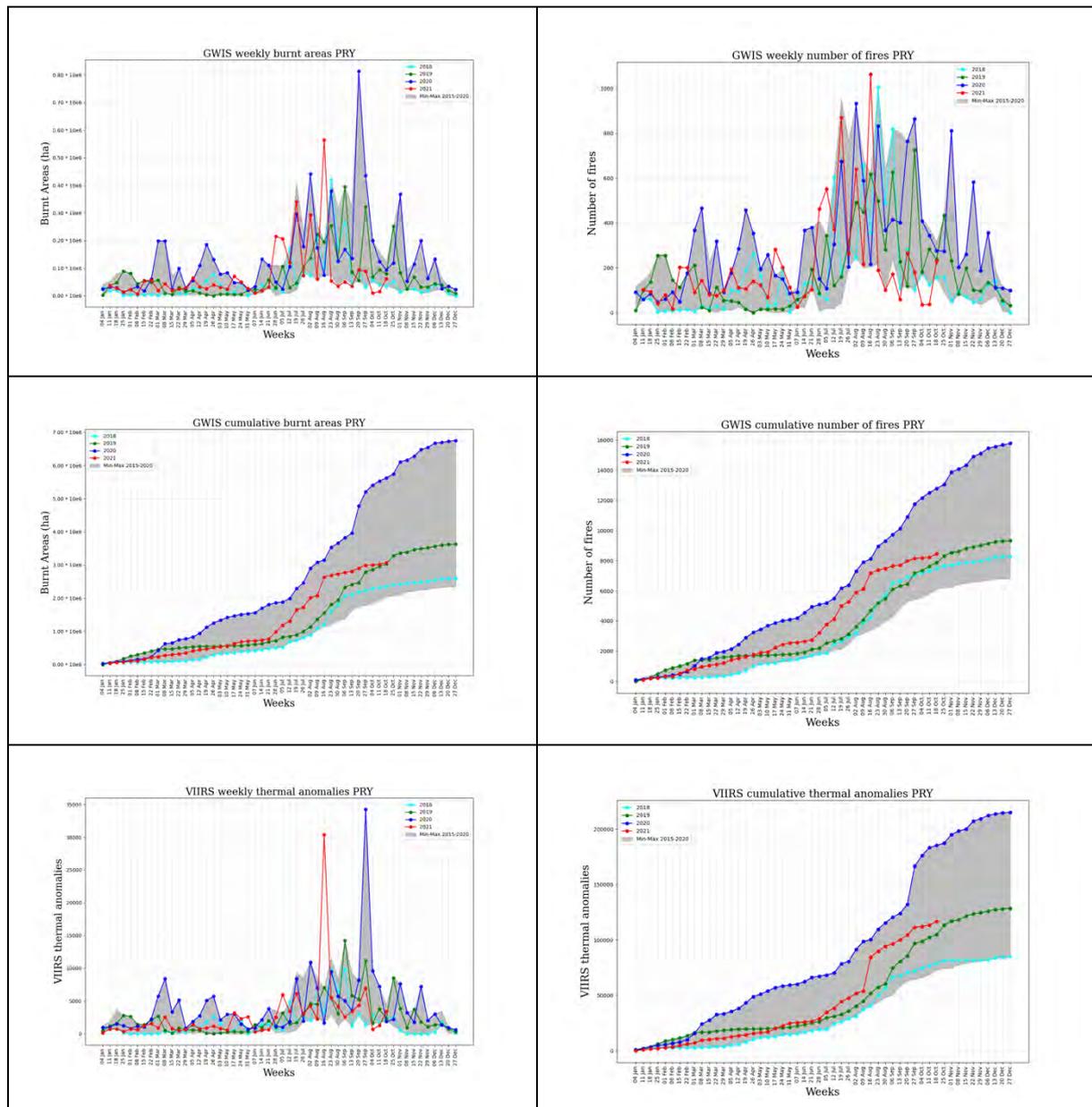


Figure 6. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 2.09 Mha burnt in Peru since January 1 until October 24, 2021, the second highest value since 2015 for the same period, lower than 2020. Approximately, 45,670 ha burnt in the last week, the second lowest value of the last 6 years for the same week. The number of thermal anomalies until October 24, 2021 (55,983) shows a typical trend in the region. 2,053 thermal anomalies registered last week, increasing after the last week.

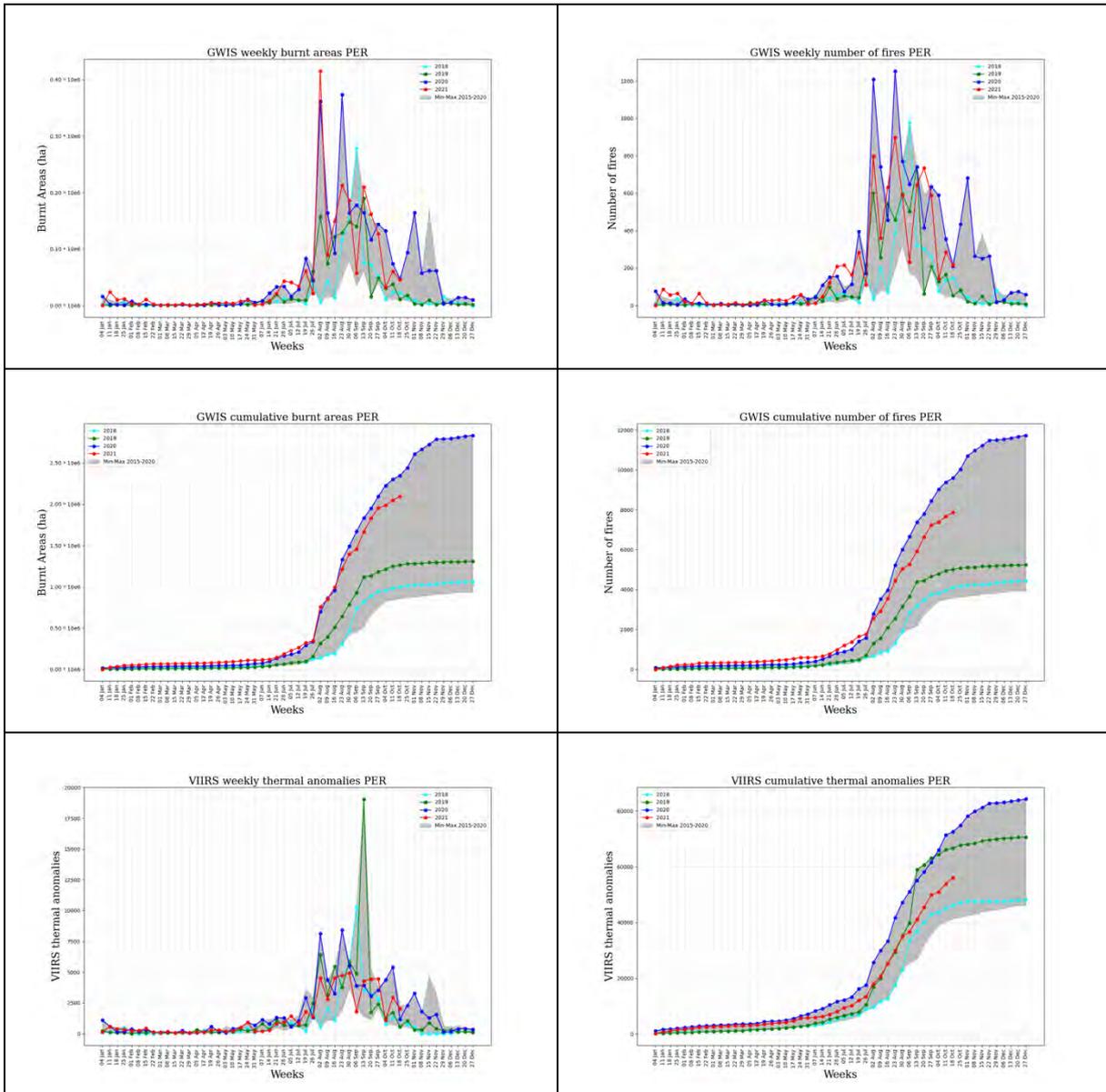


Figure 7. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 4.16 Mha burnt in Venezuela since January 1 until October 24, 2021, with 23,989 ha burnt in the last week. These values are below the values of 2019 and 2020. The number of fires recorded in GWIS in the last week was 110. The number of thermal anomalies until October 24, 2021 (135,712) shows a typical trend in the region. 1947 thermal anomalies were recorded by VIIRS during the last week.

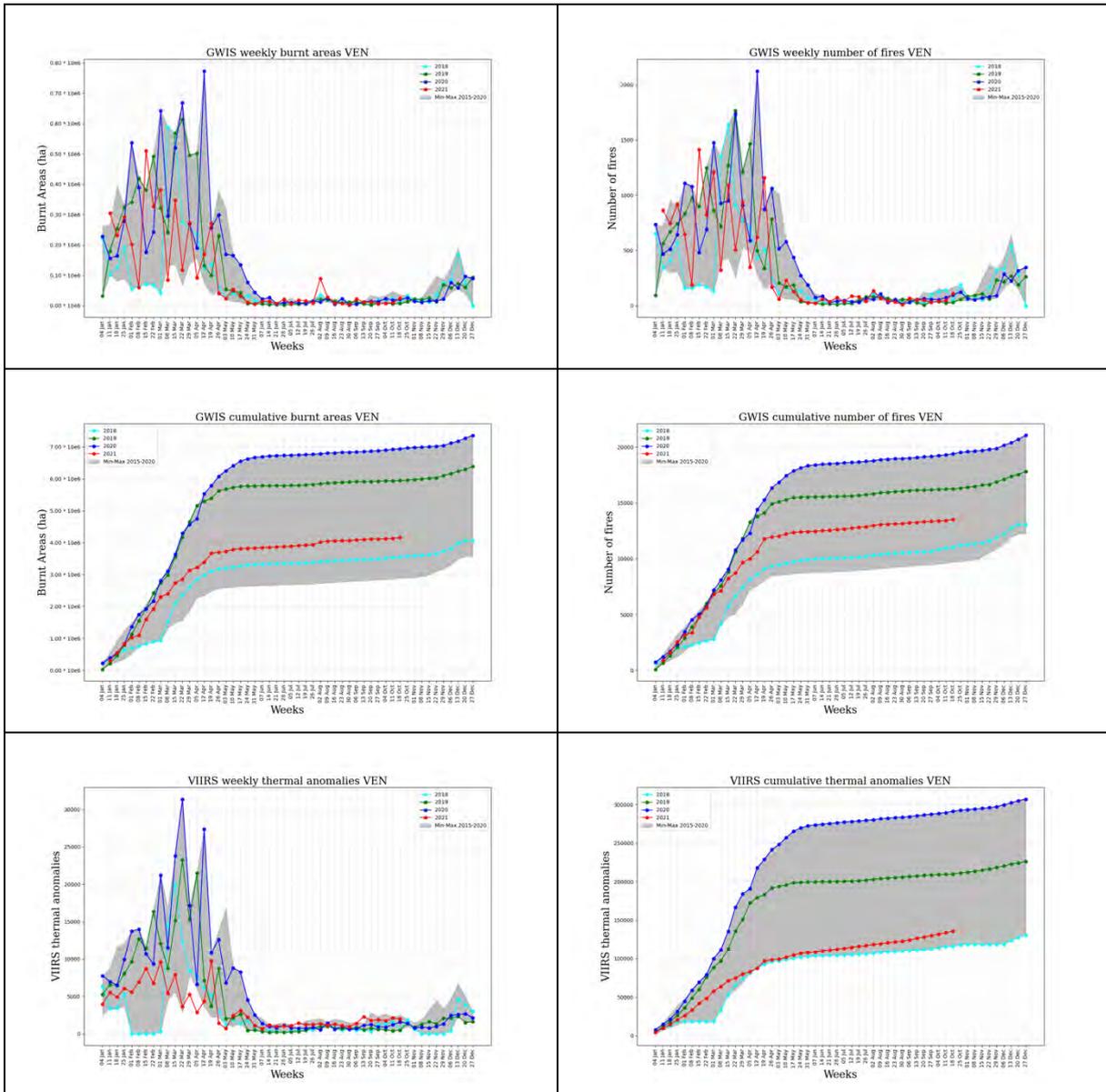


Figure 8. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 444,967 ha burnt in Chile since January 1 until October 24, 2021, with 3,629 ha burnt in the last week. The number of fires recorded in GWIS in the last week was 22, while the total number of fires remains above the numbers of the last 6 years. The number of thermal anomalies until October 24, 2021 (13,713) shows a typical trend in the region as compared to the trends during previous years. 205 thermal anomalies were detected by VIIRS during the last week, which is similar to the values in the same week during previous years.

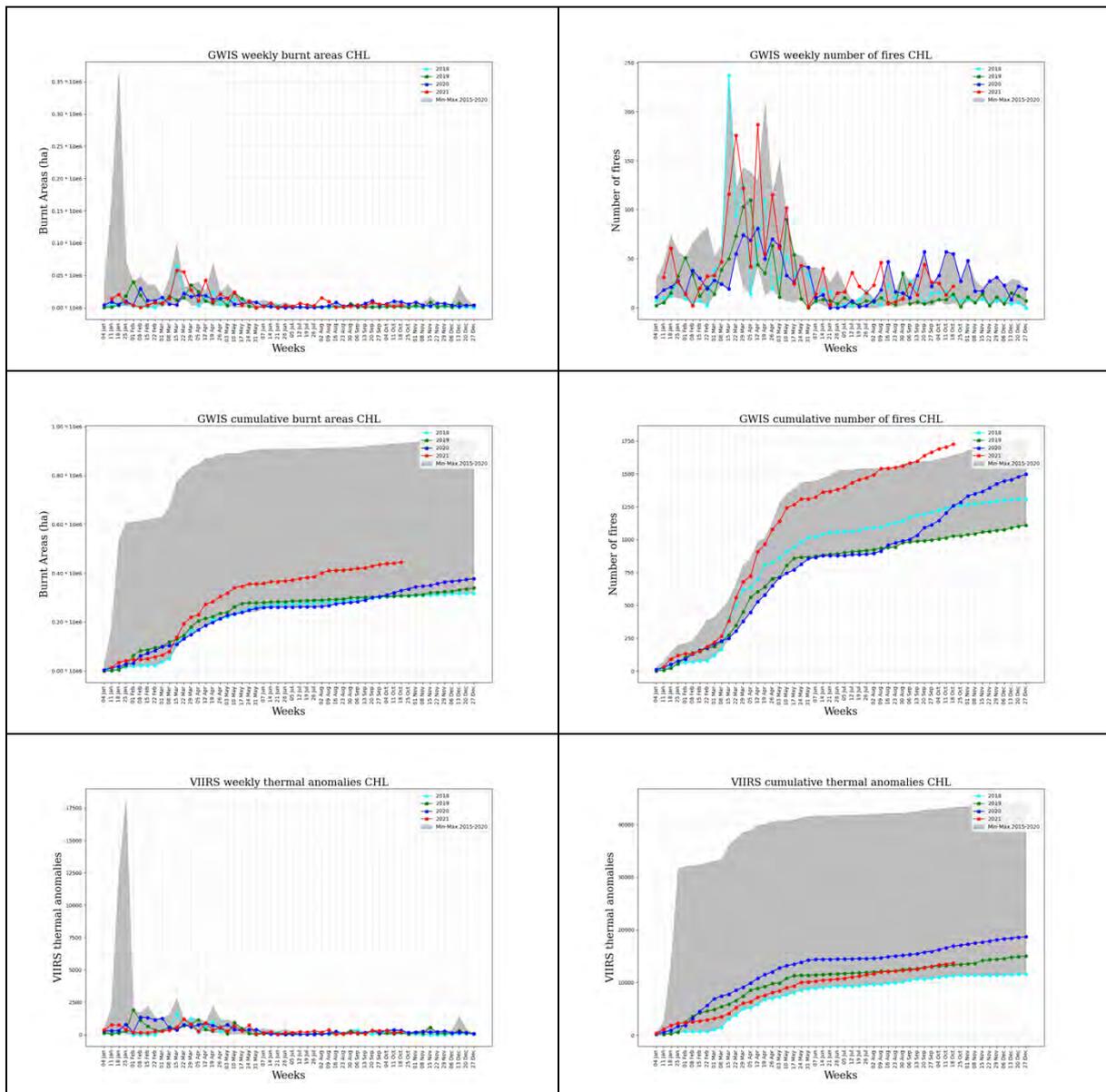


Figure 9. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 3.94 Mha burnt in Argentina since January 1 until October 24, 2021, with 134,333 ha burnt in the last week. These values are one of the highest in the last 6 years for the same week. The number of fires recorded in GWIS in the last week was 487. The number of thermal anomalies until October 24, 2021 (137,732) shows a typical trend in the region. 5,952 thermal anomalies were recorded by VIIRS during the last week.

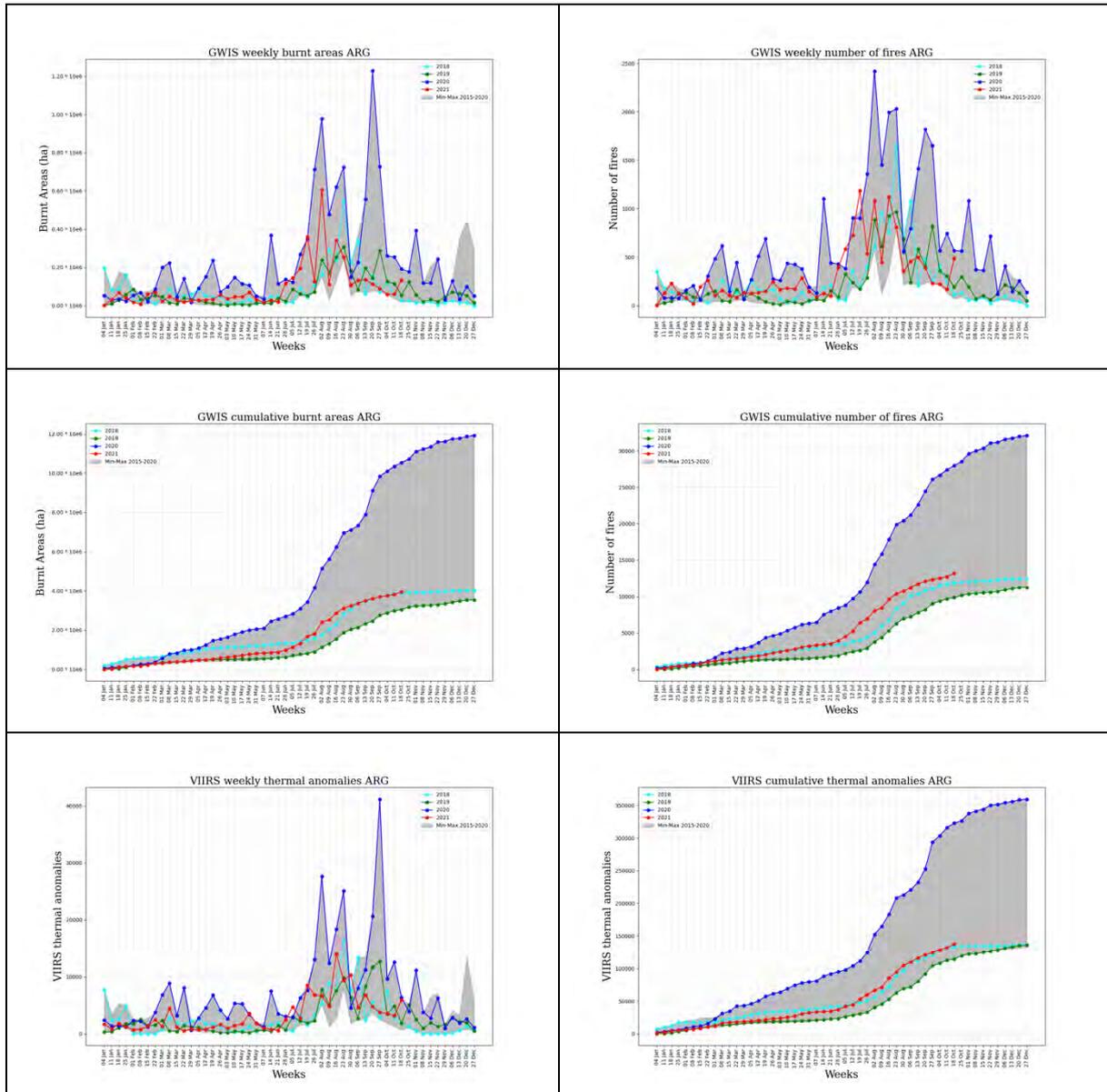


Figure 10. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 110,394 ha burnt in Ecuador since January 1 until October 24, 2021, with 556 ha burnt in the last week. The number of fires recorded in GWIS in the last week was 3. The trends of the areas burnt and the number of fires in the country are similar to those of the previous 6 years. The number of thermal anomalies until October 24, 2021 (3,573) shows a typical trend in the region. 70 thermal anomalies were detected by VIIRS in the last week.

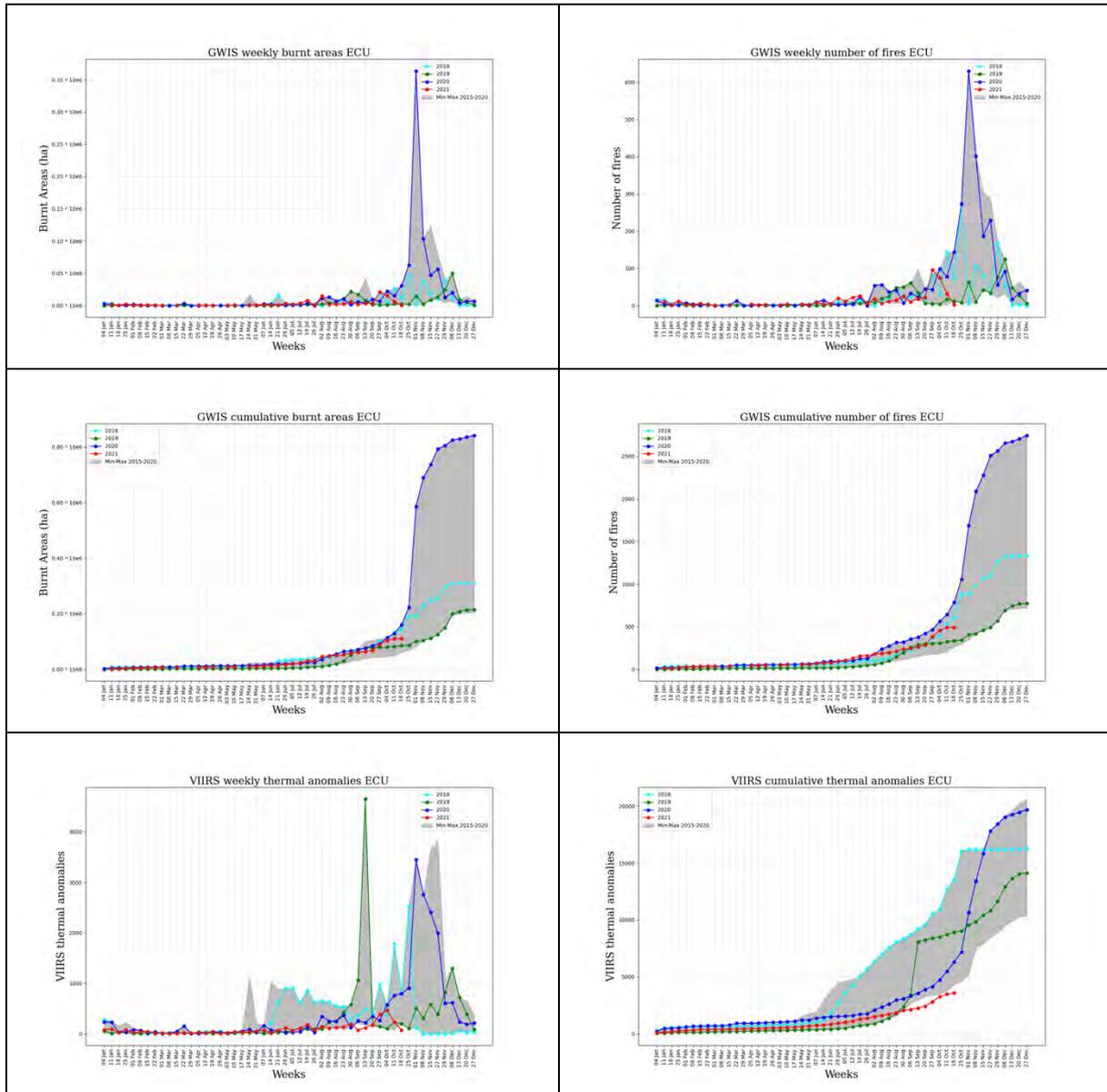


Figure 11. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 48,209 ha burnt in Uruguay since January 1 until October 24, 2021, with 417 ha burnt last week, which is a low value compared with the same weekly value in the previous year. 2 fires were recorded last week. The number of thermal anomalies until October 24, 2021 (1,867) shows a typical trend in the region.

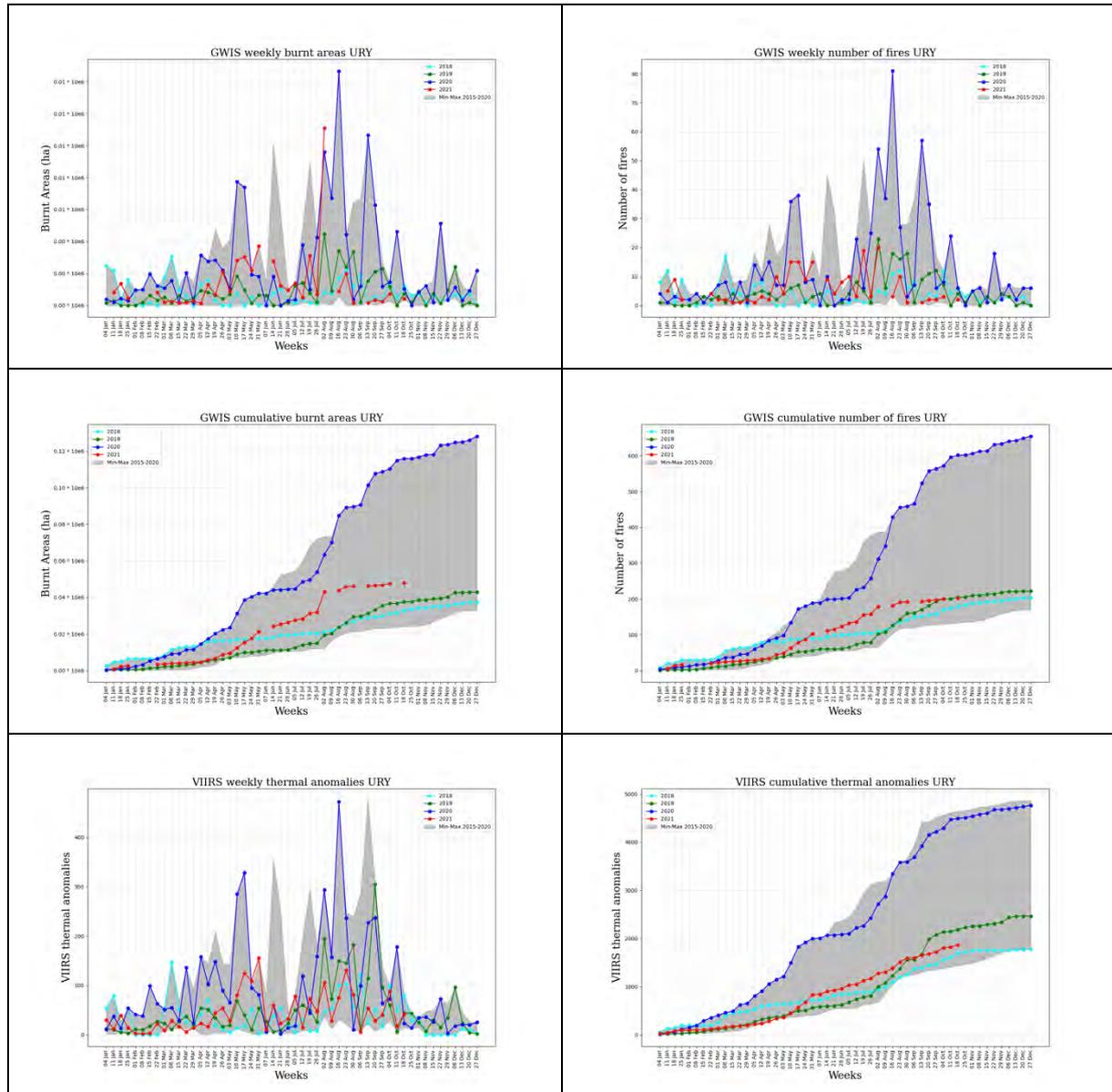


Figure 12. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 1644 ha burnt since January 1 until October 24, 2021, in French Guiana, 3 fires were recorded last week. The number of thermal anomalies until October 24, 2021 (269) shows a typical trend in the region as compared to the trends during previous years. 50 thermal anomalies were detected by VIIRS during the last week, which is similar to the values in the same week during previous years.

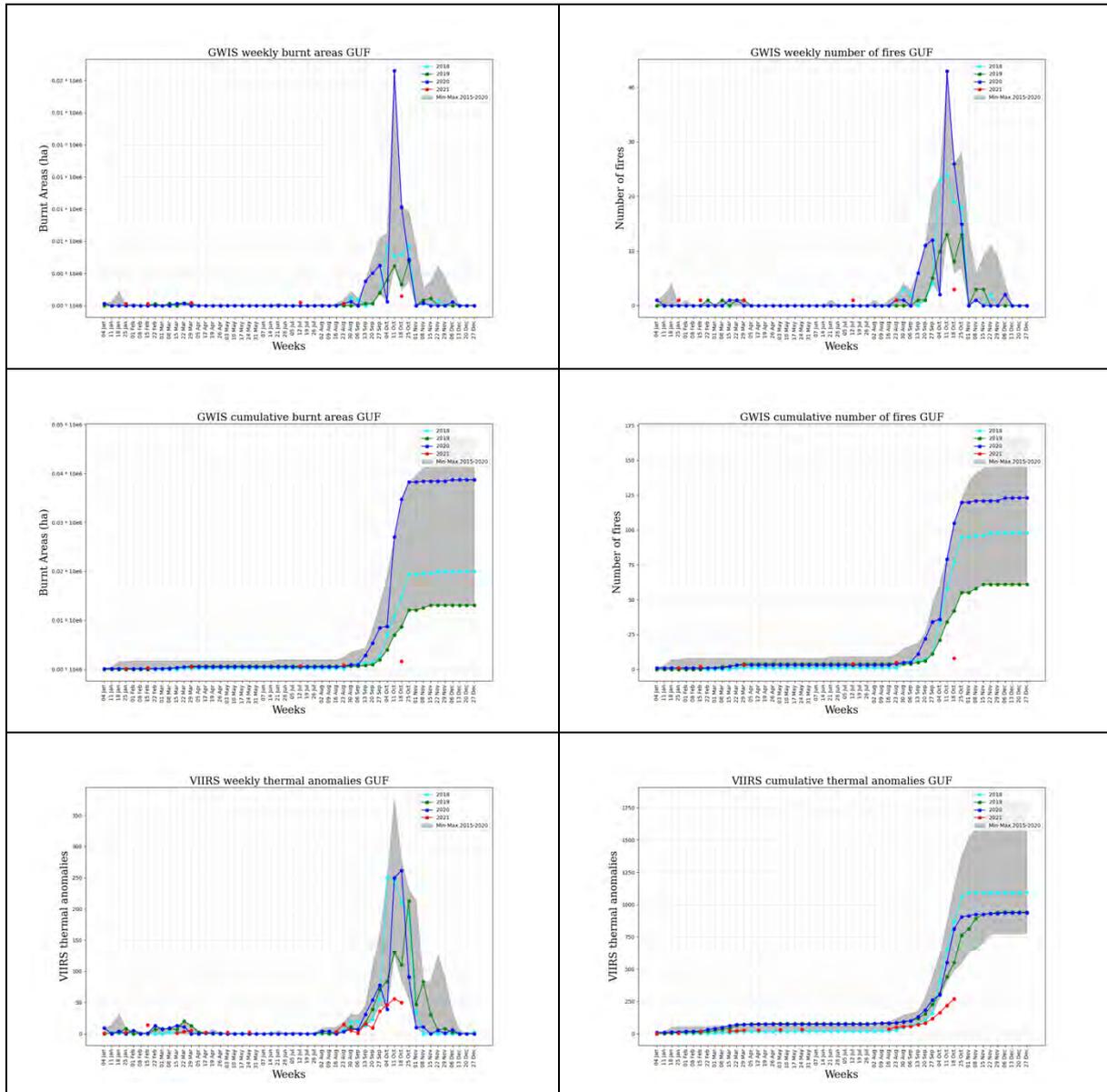


Figure 13. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 61,694 ha burnt in Guyana since January 1 until October 24, 2021, with 2084 ha burned last week with 12 fires recorded last week. The total number of thermal anomalies until October 24, 2021 (3,072) are the lowest of the last 6 years. 131 thermal anomalies were detected by VIIRS during the last week, which is similar to the values in the same week during previous years.

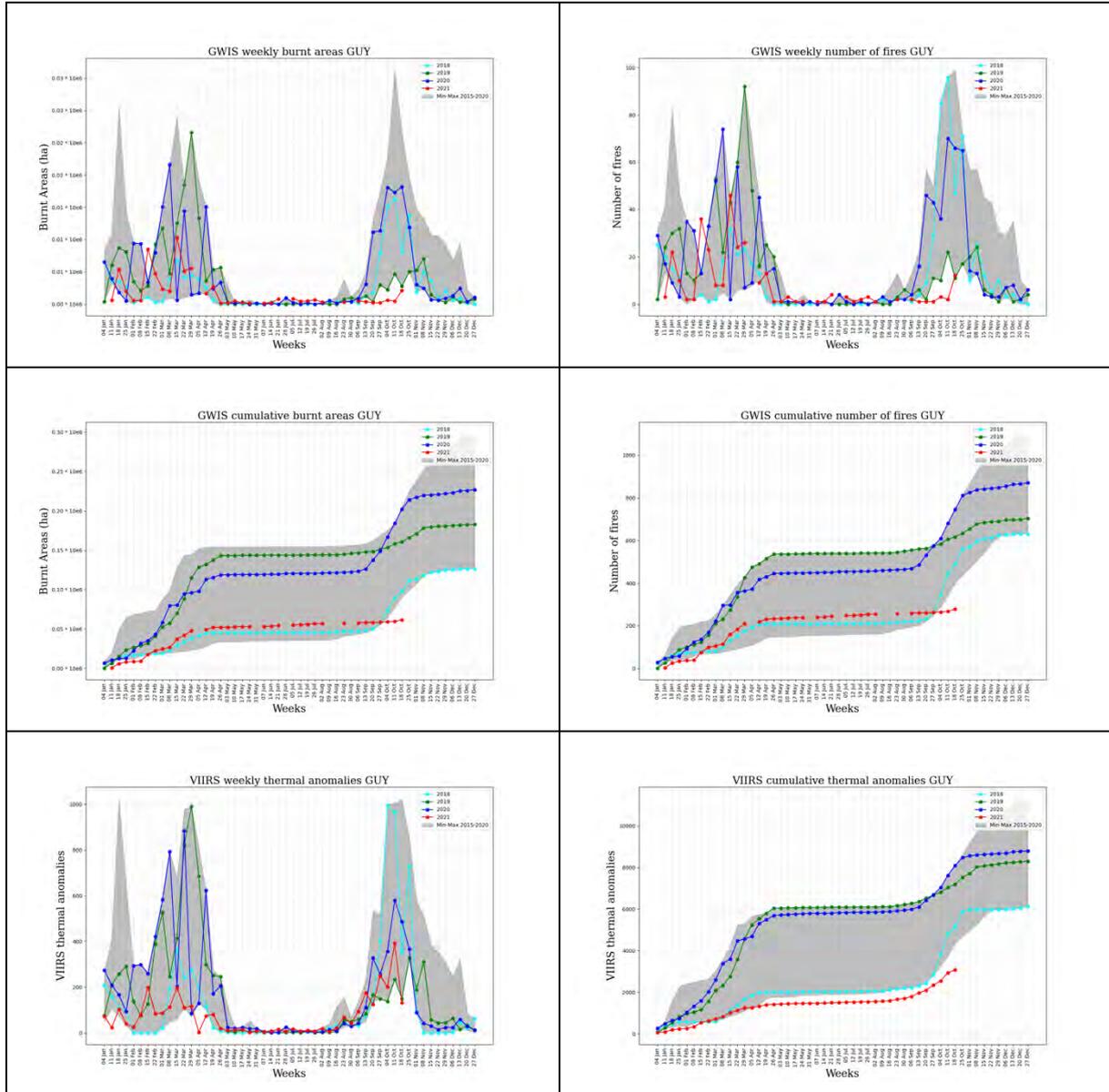


Figure 14. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 5,182 ha burnt in Suriname since January 1 until October 24, 2021. 5 fires were recorded last week. The total number of fires since the beginning of the year is 25. The number of thermal anomalies until October 24, 2021 (669) shows a typical trend in the region. 89 thermal anomalies were registered last week.

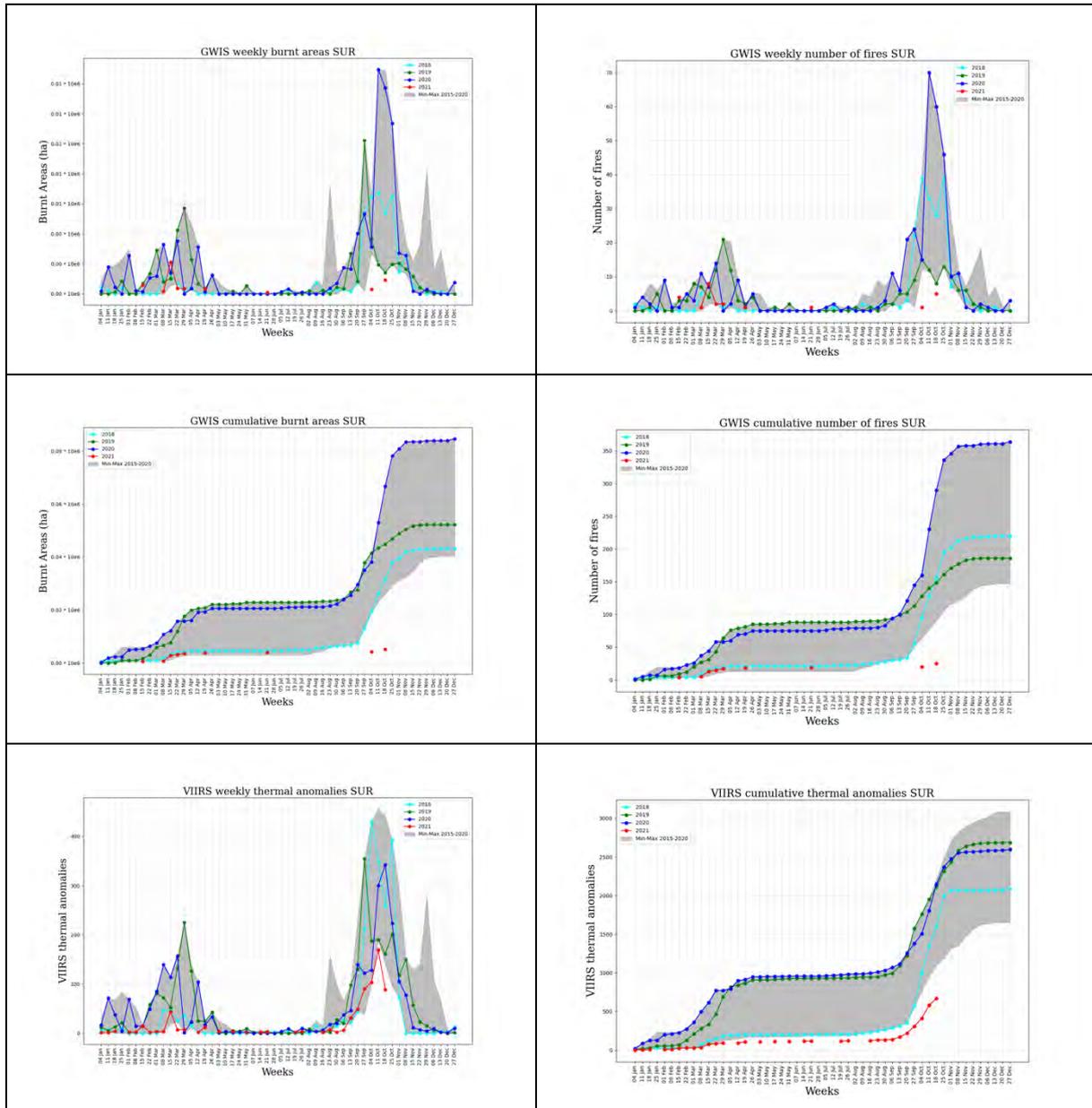


Figure 15. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 October 25 to October 32, 2021. This information is based on the daily fire danger forecast that is provided online in GWIS³. According to the forecast, it is expected that fire danger conditions will continue to be very high to extreme in eastern part of Brazil, eastern Bolivia, northern Chile and Paraguay, and across Argentina.

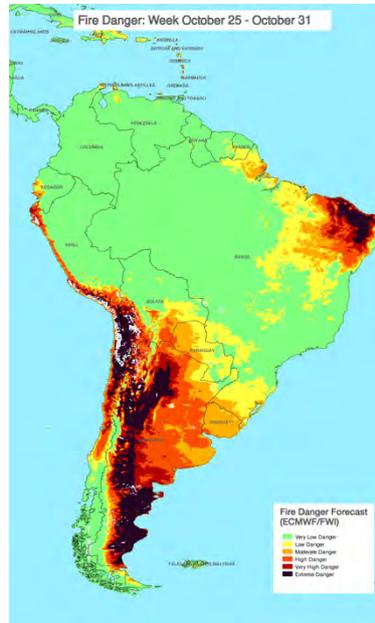


Figure 16. Average Fire danger forecast of the current week, October 25- October 32, 2021.

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

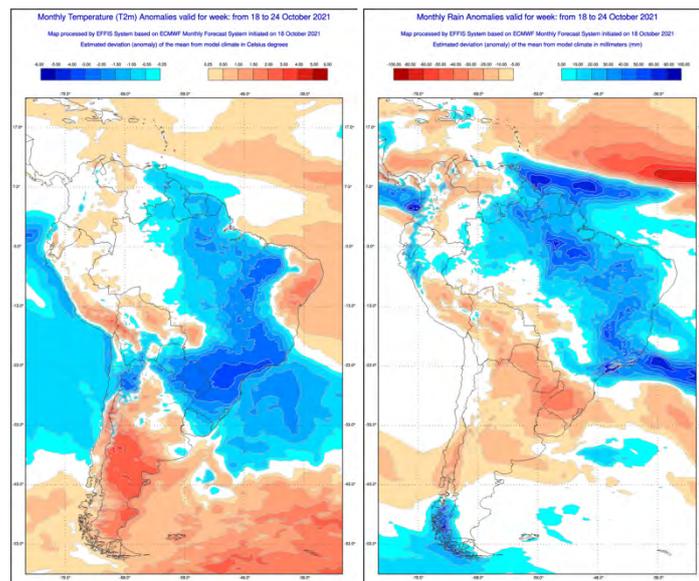


Figure 17. Temperature and rain anomalies of the current week, October 18- October 24, 2021.

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

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