



European
Commission

JRC TECHNICAL REPORT

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

October 11 - October 17, 2021



GWIS

Global Wildfire Information System



2021

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

The screenshot displays the GWIS Current Situation Viewer interface. The main map shows South America with various data layers overlaid. The sidebar on the left contains several sections:

- Map Options:** Includes checkboxes for Country Boundaries Layer, Human Settlement Layer, Protected Areas Layer, and CCI Landcover.
- Forecasts:** Includes sections for FIRE DANGER FORECAST (Source: ECMWF (8 km res.), Index: Fire Weather Index (FWI)) and LIGHTNING FORECAST (Date: 19 Oct 2021).
- Rapid Damage Assessment:** Includes a date range selector (From: 11 Oct 2021 To: 17 Oct 2021) and buttons for Last 1 Day, Last 7 Days, Last 30 Days, and Fire Season.
- ACTIVE FIRES:** Includes checkboxes for MODIS and VIIRS.
- BURNT AREAS:** Includes checkboxes for MODIS (Last update: 2021-05-31) and MODIS & VIIRS NRT.
- FIRE EMISSIONS:** Includes checkboxes for Black Carbon, Carbon Dioxide, Sulfur Dioxide, Organic Carbon, Non-Methane Hydro-Carbon, Total Carbon in Aerosols, Methane, Carbon Monoxide, Nitrogen Oxides, and Particulate Matter.
- FUELS:** Includes a checkbox for FUELS.

The bottom of the interface features the Joint Research Centre logo.

JRC126808

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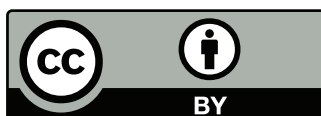
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Scope of this report and executive summary

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 11.12 Million ha (Mha) burnt from January 1 until October 17, 2021. This value is below those of the last six years in the same period. **Last week, 749 fires occurred**, which is below the values of the previous 6 years for the same week.
- **In Brazil, 18.49 Mha burnt from January 1 until October 17, 2021**, with a total of 230,229 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 (839 fires occurred last week).
- **In Bolivia**, the total burnt area in 2021 (5.53 Mha) is lower than that recorded for 2019, which was a critical year in the country. The total burnt area and number of fires are now also below to the values reached in 2020 up to the same week. 404 fires were recorded last week. Critical fires are still taking place in the southeast near San Ignacio de Velasco, where similar critical fires occurred in 2019, but also close to Santa Ana de Yacuma in the central part of the country.
- **In Colombia**, the total burnt area in the country (2.80 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 9,669 the highest value since 2015 for the same period.
- **In Paraguay**, 3.02 Mha burnt since January 1 until October 17, 2021. The area burnt and the number of fires in the last week are below the 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 17, 2021, the total burnt area (2.05 Mha) and total number of fires (7,678). 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**, 4.15 Mha burnt in the current year until October 17. The value of the total burnt area in Venezuela is lower than that in 2019 and 2020.
- **In Chile**, 451,952 ha burnt in the current year until October 17, 2021. This value is 51% higher than that in 2020. The number of fires until now (1,721), is the highest value since 2015.
- **In Argentina**, a total of 3.83 Mha burnt since January 1 until October 17, 2021, which is less than half of what burned in 2020. A total of 12,817 fires were mapped this year.
- **In Ecuador**, a total of 491 fires burnt 110,475 ha since January 1 until October 17. 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 17 with 278 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 893 ha burnt since January 1 until October 17, 2021. This value is similar to previous years. No fire was recorded last week.
- **In Guyana**, a total of 61,694 ha burnt from January 1 until October 17, 2021, the lowest value from the last six years. No fires were mapped last week.
- **In Suriname**, 21 fires burnt a total of 4,558 ha since January 1 until October 17, 2021, a value similar to that of 2018 and lower than 2019 and 2020. 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 11.12 Mha burnt in the BLA since January 1 until October 17, 2021, with 0.19 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 749, and the total number of fires up to October 17 is below the average value of the last 5 years. The number of thermal anomalies until October 17, 2021 (594,131) shows a typical trend in the region as compared to the trends in 2019 and 2020. 35,158 thermal anomalies were registered last week.

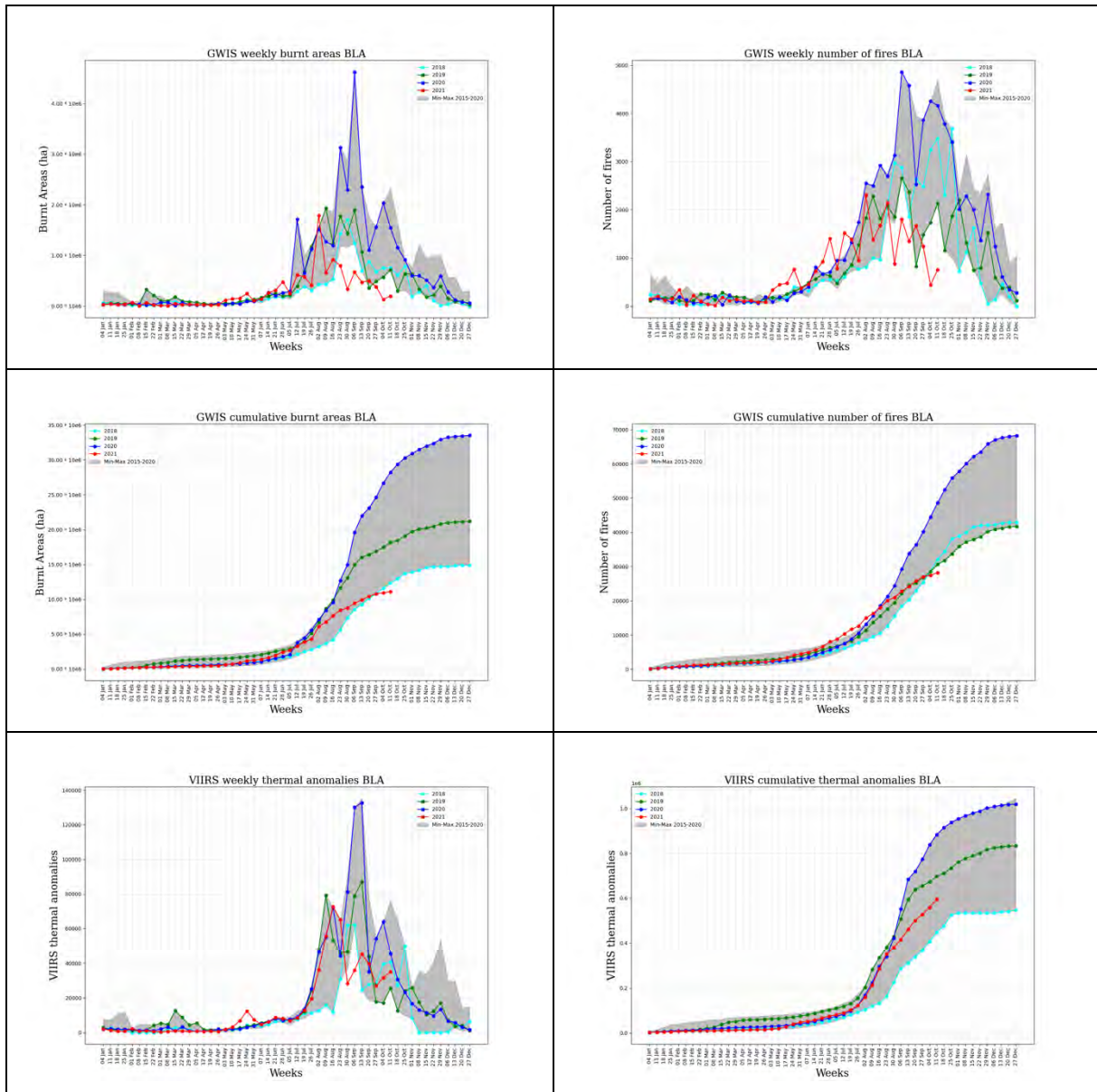


Figure 2 Trend of burnt areas and number of fires as compared to data in the last 6 years.

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 18.49 Mha burnt in Brazil since January 1 until October 17, 2021, below the burnt area of 2019 up to the same date, with a total 230,229 ha burnt in the last week. The number of fires recorded in GWIS in the last week was 839; the total of number of fires up to October 17 is close to the values in 2019 for the same period. The number of thermal anomalies until October 17, 2021 (1.07 M) shows a typical trend in the region. 46,108 thermal anomalies were registered last week.

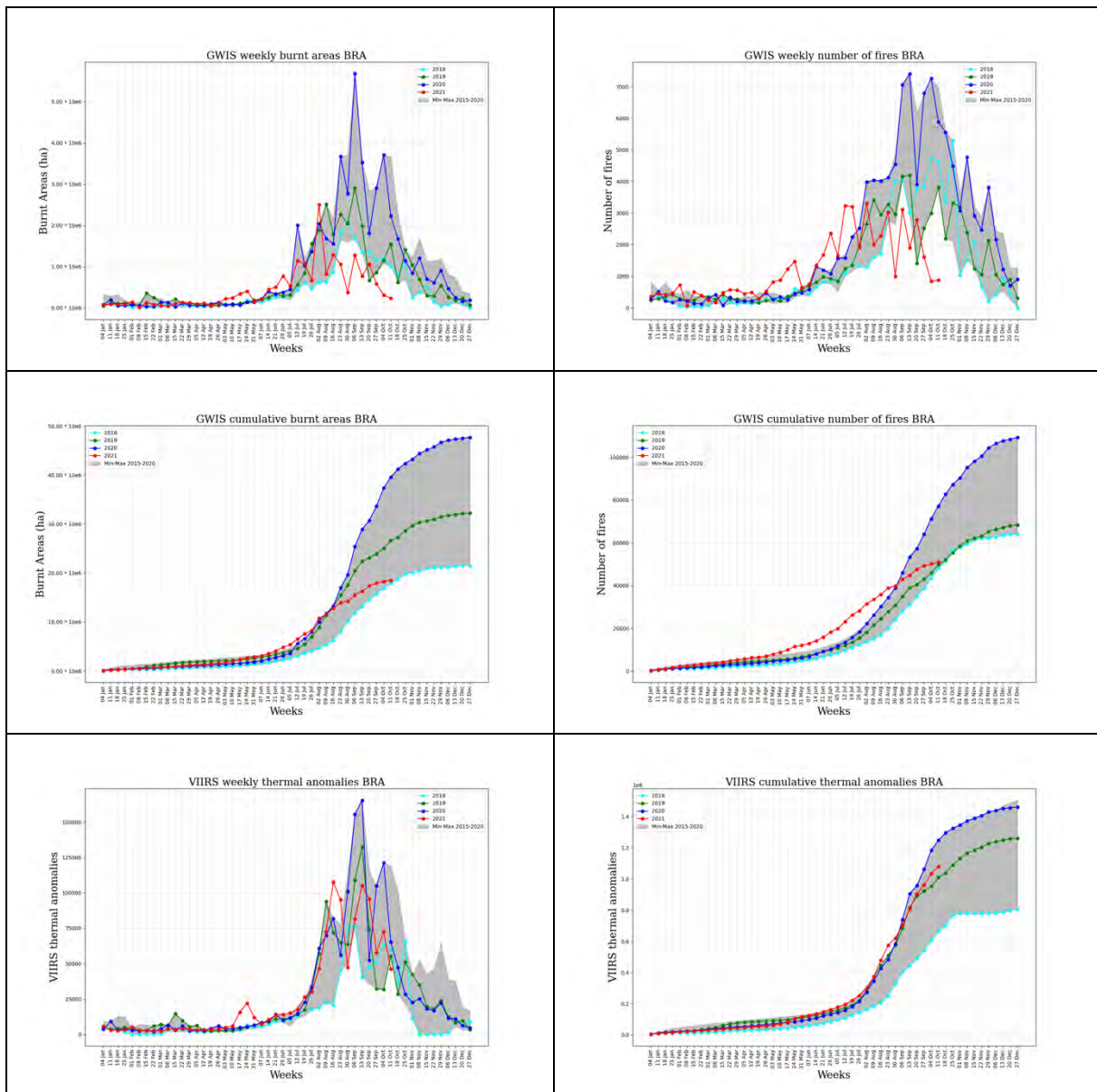


Figure 3. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 5.53 Mha burnt in Bolivia since January 1 until October 17, 2021, with 149,859 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 404. 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 17, 2021 (242,394) is the second highest value since 2015 for the same period. 13,832 thermal anomalies were detected by VIIRS in the last week. Critical fires are still active in the central part of the country.

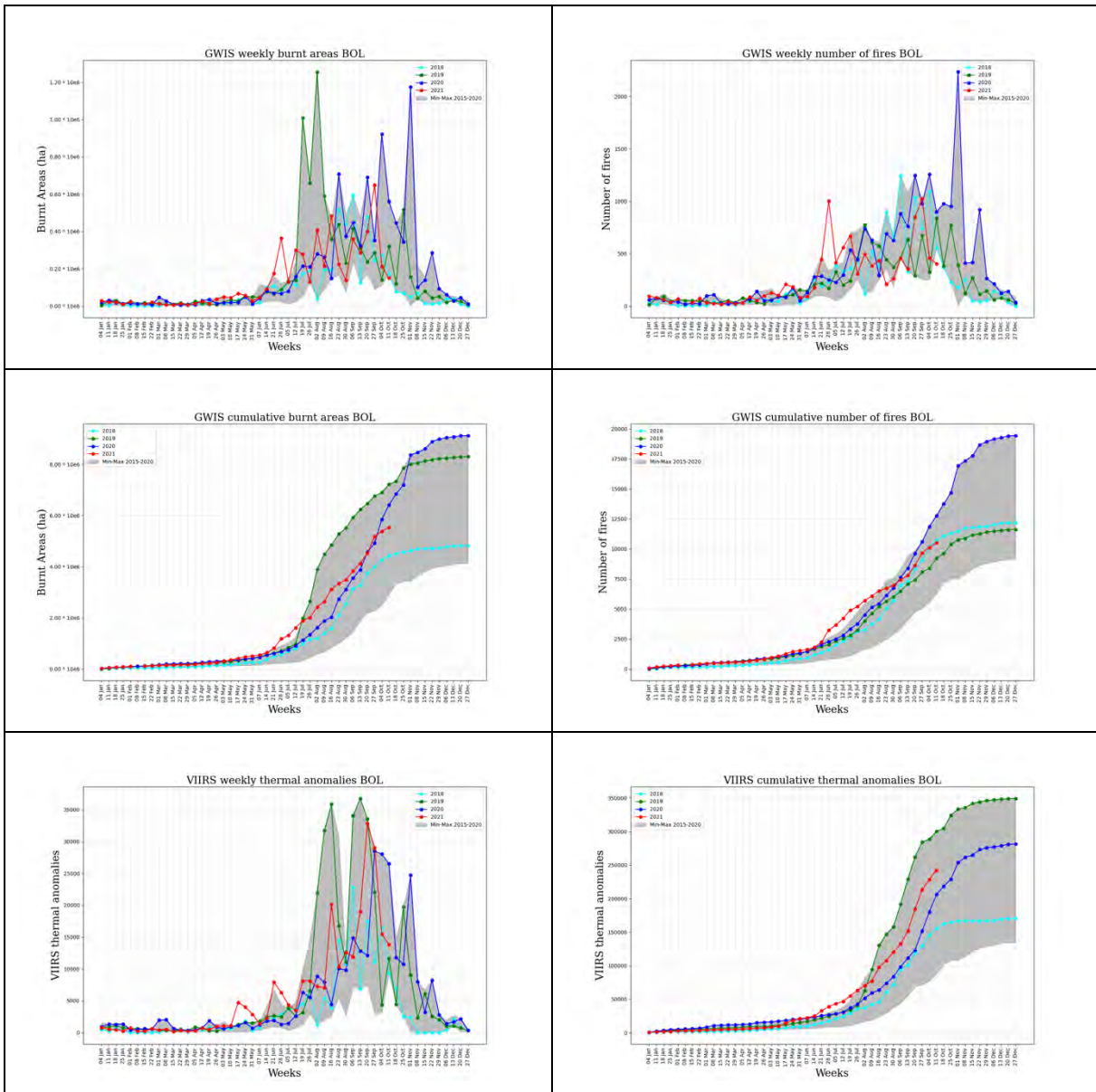


Figure 4. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 2.80 Mha burnt in Colombia since January 1 until October 17, 2021. Approximately 14,807 ha burnt in the country the last week. The number of fires recorded in GWIS in the last week was 65. The number of thermal anomalies until October 17, 2021 (68,951) follows a typical trend in the region with values below of 2019 and 2020. 796 thermal anomalies detected by VIIRS last week.

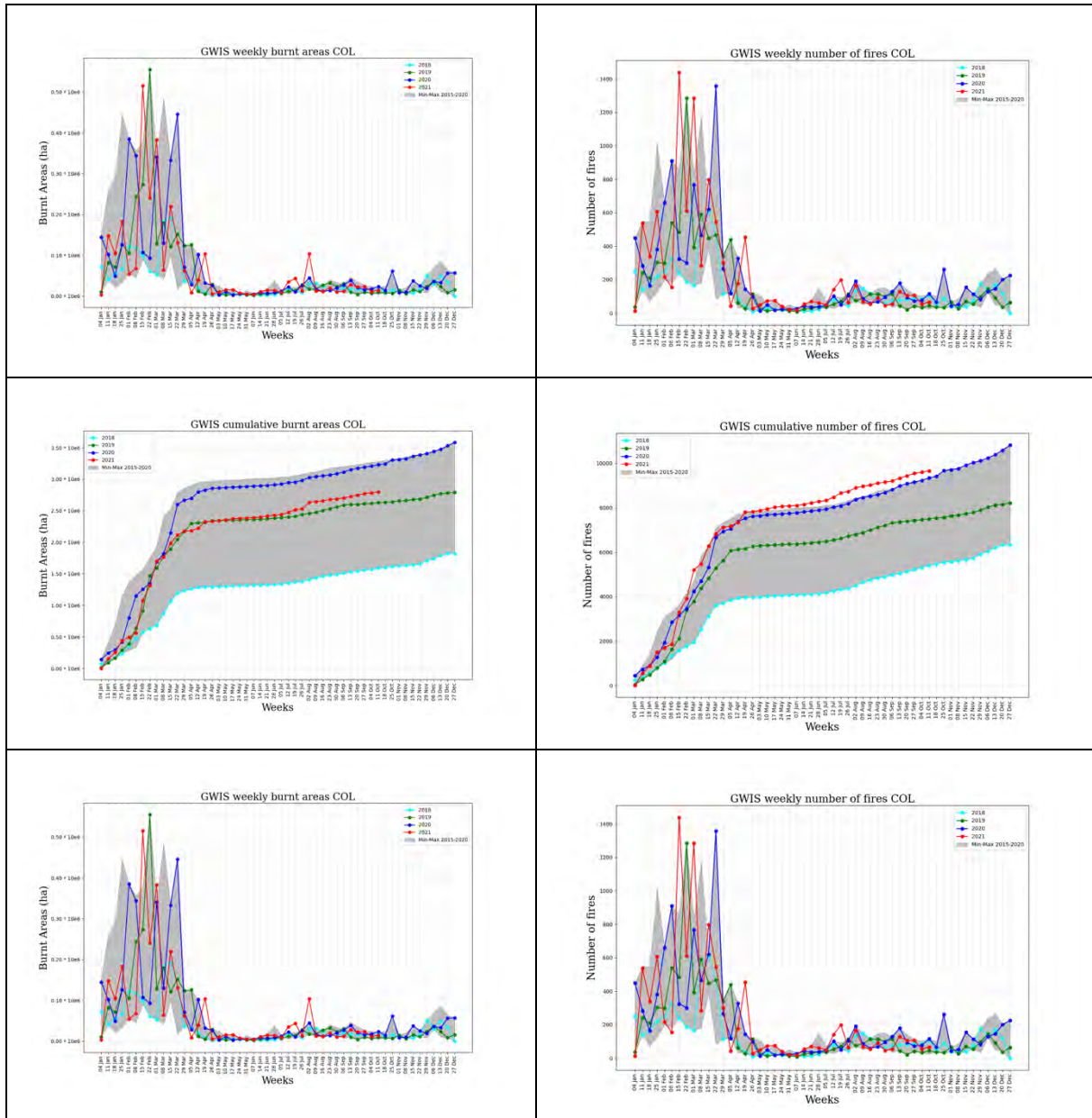


Figure 5. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 3.02 Mha burnt in Paraguay since January 1 until October 17, 2021. Approximately, 13,101 ha burnt in the country the last week, being this the lowest value for this week in the last 6 years. The number of fires recorded in GWIS in the last week was 35, also the lowest value of the last 6 years for the same week. The number of thermal anomalies until October 17, 2021 (113,375) follows a typical trend in the region. 1256 thermal anomalies detected by VIIRS last week.

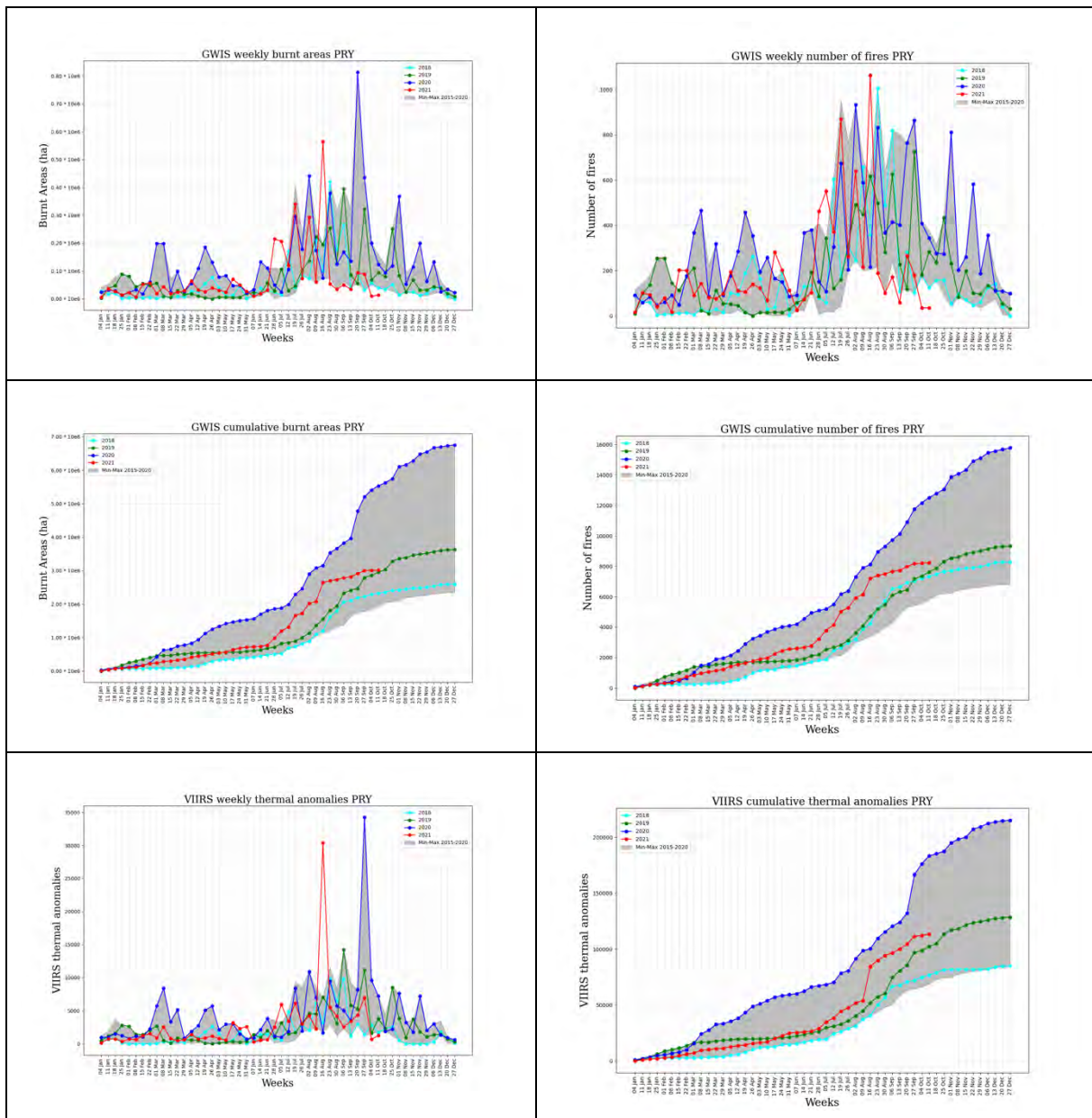


Figure 6. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 2.05 Mha burnt in Peru since January 1 until October 17, 2021, the second highest value since 2015 for the same period, lower than 2020. Approximately, 59,720 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 17, 2021 (53,930) shows a typical trend in the region. 2,945 thermal anomalies registered last week, increasing after the last week.

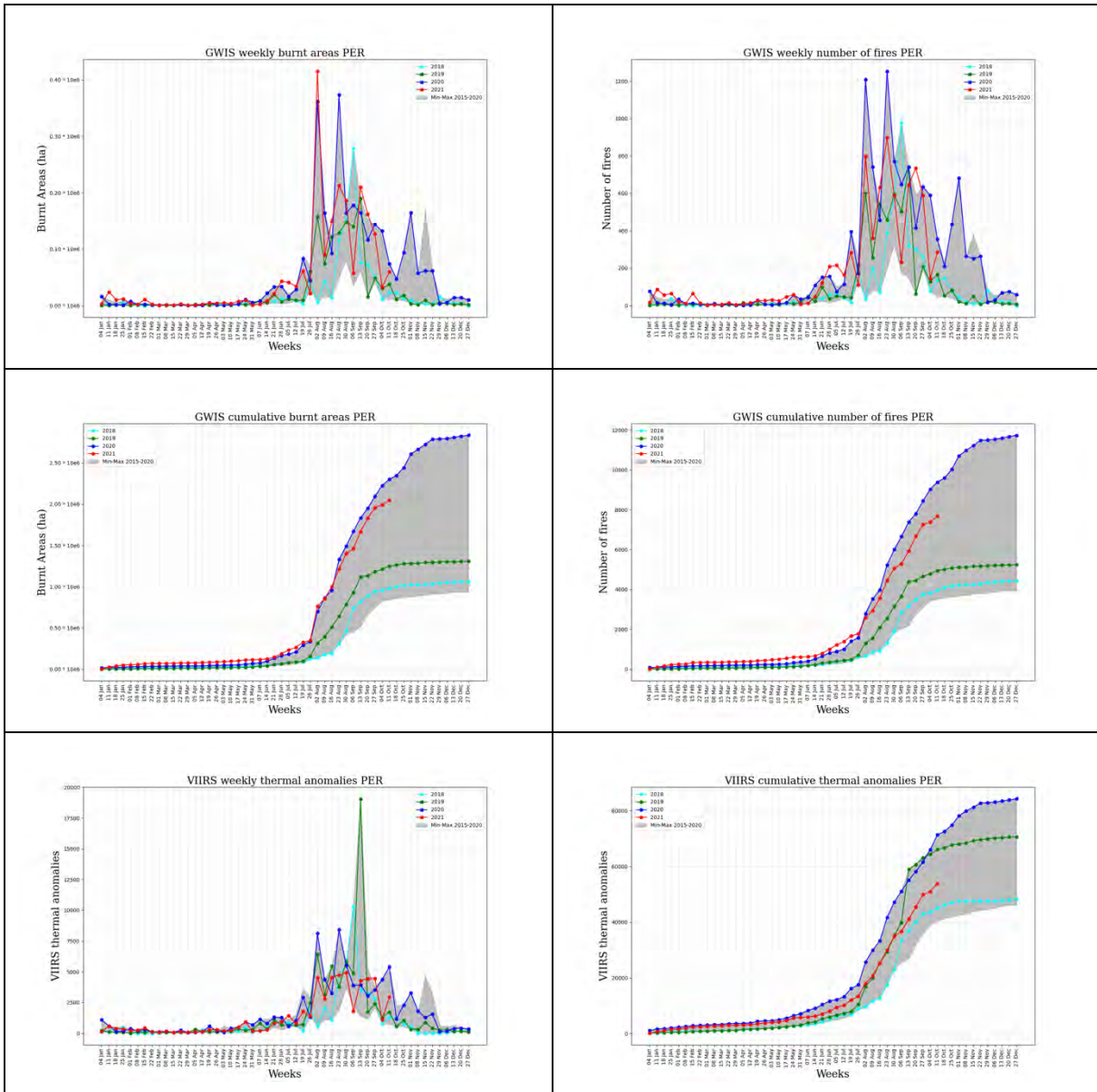


Figure 7. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 4.15 Mha burnt in Venezuela since January 1 until October 17, 2021, with 9,039 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 44. The number of thermal anomalies until October 17, 2021 (133,765) shows a typical trend in the region. 2097 thermal anomalies were recorded by VIIRS during the last week.

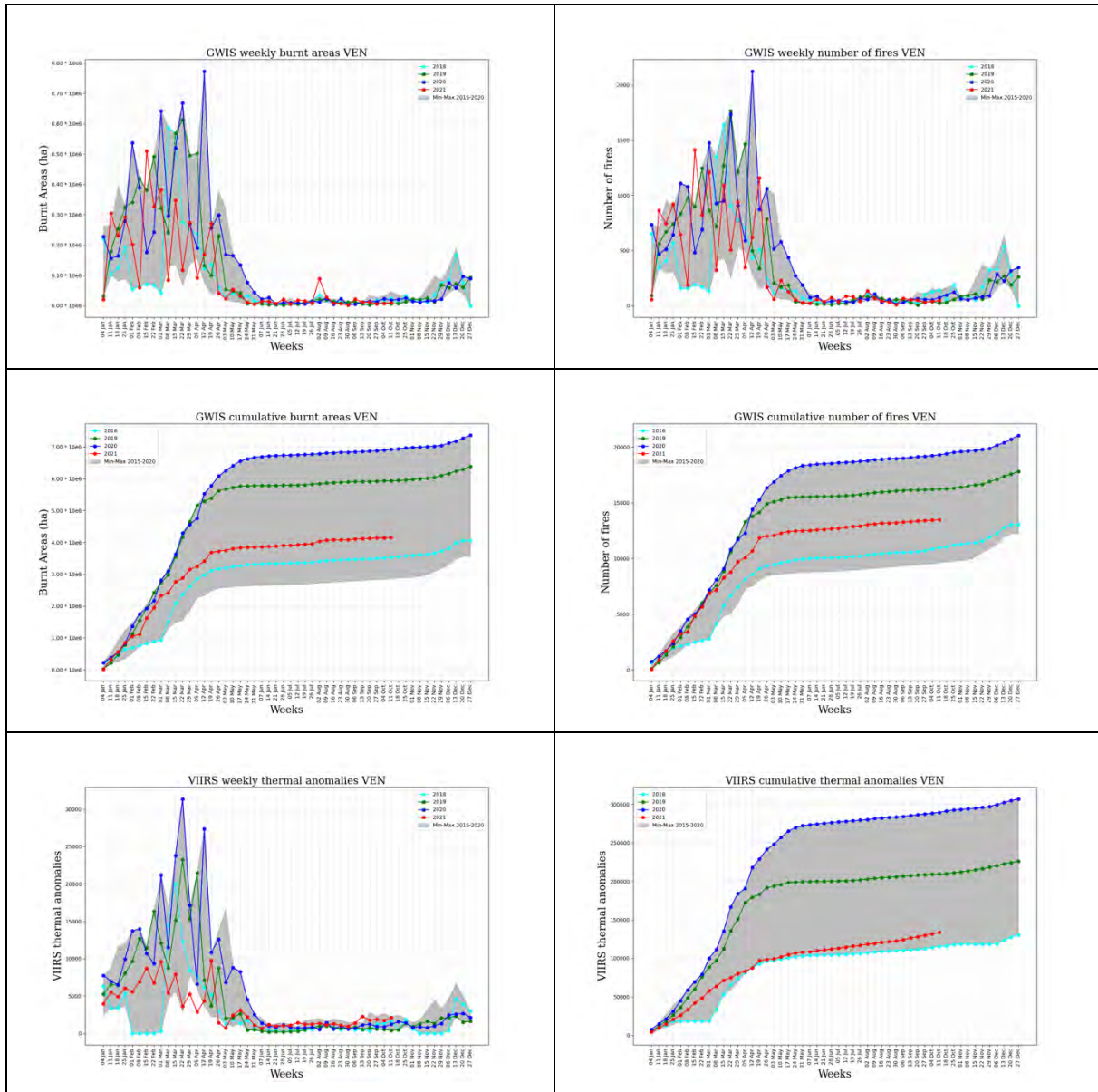


Figure 8. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 451,952 ha burnt in Chile since January 1 until October 17, 2021, with 2,268 ha burnt in the last week. The number of fires recorded in GWIS in the last week was 13, while the total number of fires remains above the numbers of the last 6 years. The number of thermal anomalies until October 17, 2021 (13,508) shows a typical trend in the region as compared to the trends during previous years. 136 thermal anomalies were detected by VIIRS during the last week, which is similar to the values in the same week during previous years.

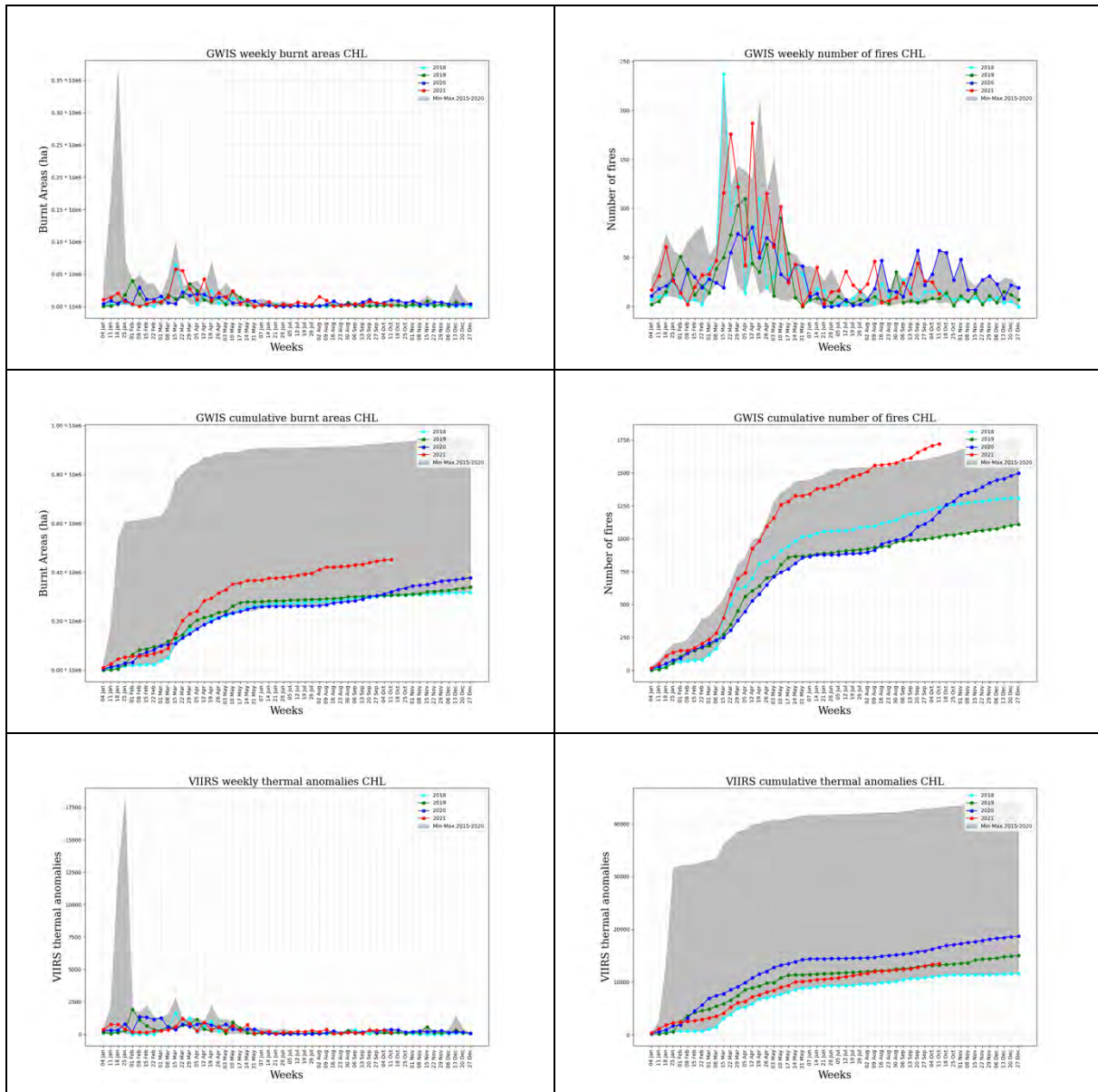


Figure 9. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 3.83 Mha burnt in Argentina since January 1 until October 17, 2021, with 52,626 ha burnt in the last week. These values are one of the lowest in the last 6 years for the same week. The number of fires recorded in GWIS in the last week was 167. The number of thermal anomalies until October 17, 2021 (131,780) shows a typical trend in the region. 3,173 thermal anomalies were recorded by VIIRS during the last week.

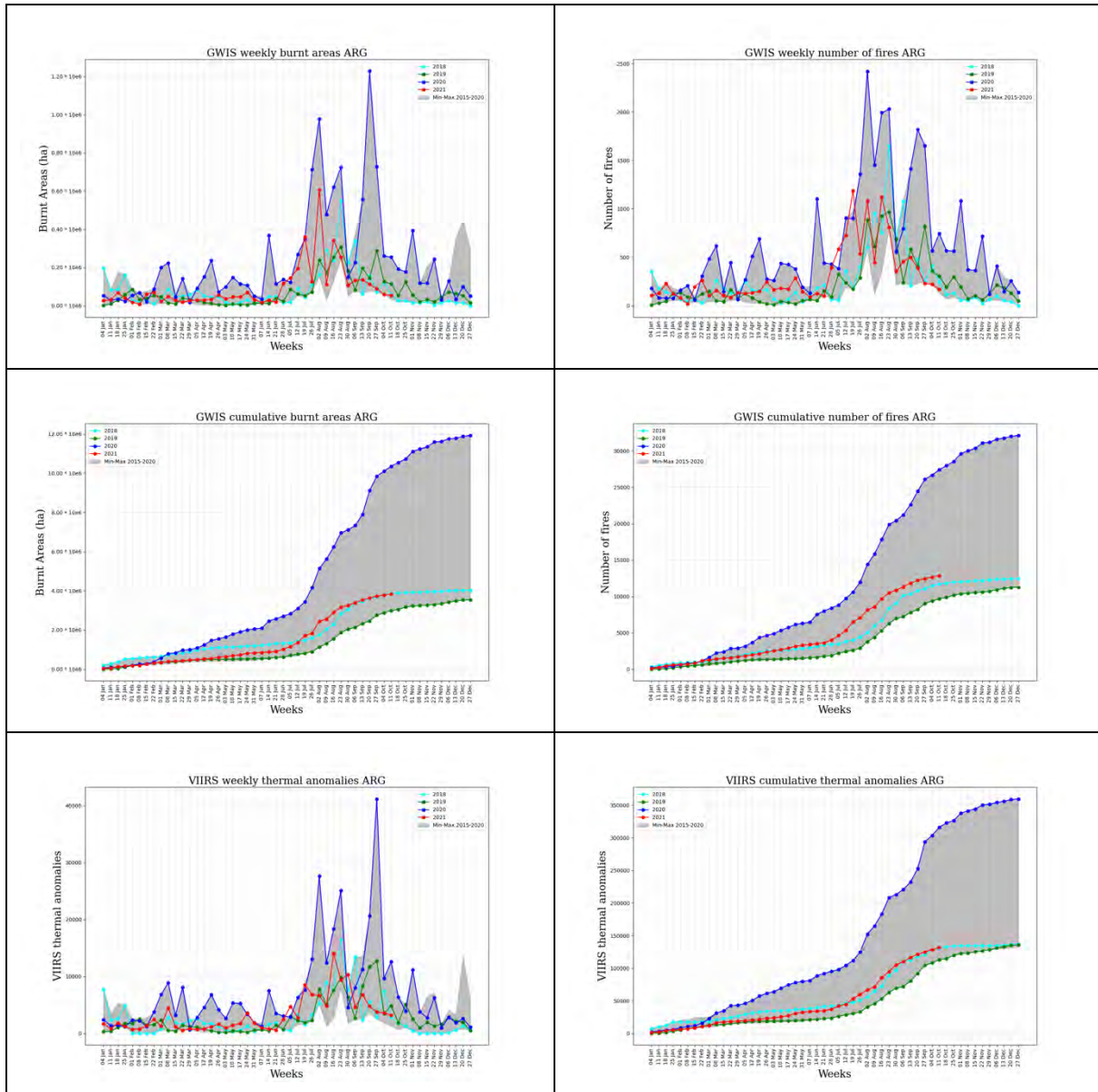


Figure 10. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 110,475 ha burnt in Ecuador since January 1 until October 17, 2021, with 5,996 ha burnt in the last week. The number of fires recorded in GWIS in the last week was 32. 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 17, 2021 (3,503) shows a typical trend in the region. 230 thermal anomalies were detected by VIIRS in the last week.

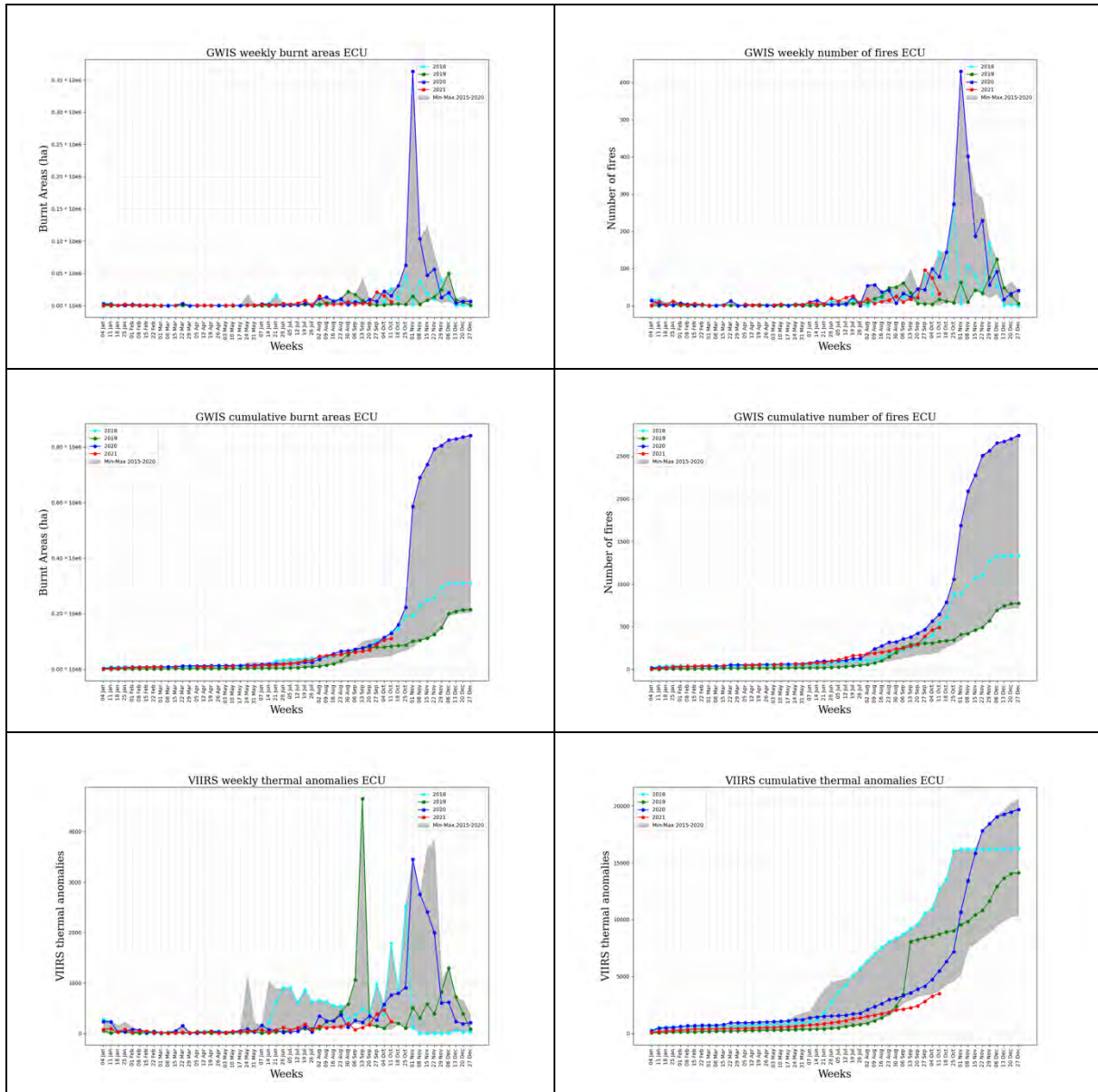


Figure 11. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 17, 2021, with 278 ha burnt last week, which a low value compared with the same weekly value in the previous year. 3 fires were recorded last week. The number of thermal anomalies until October 17, 2021 (1,825) shows a typical trend in the region.

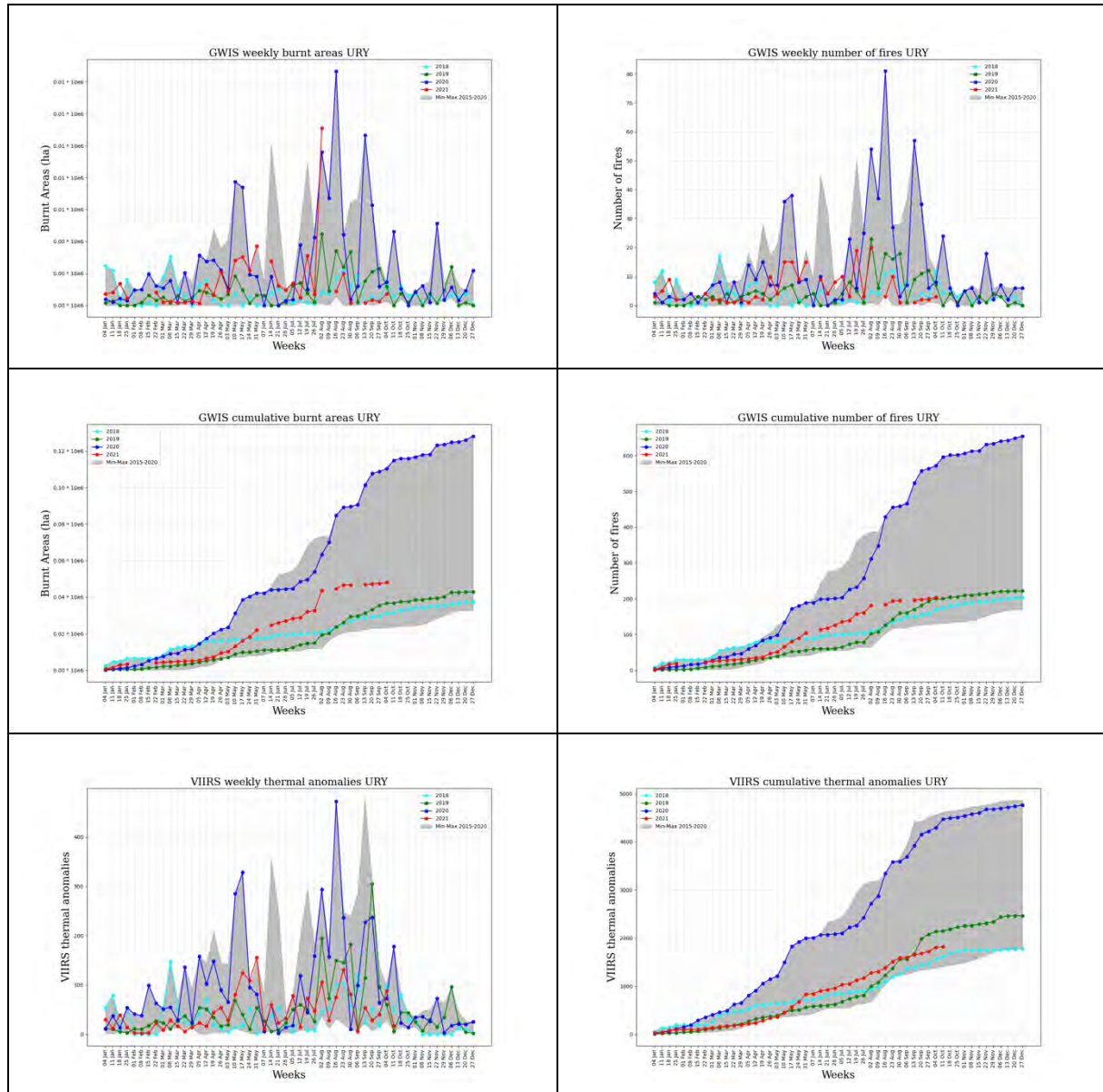


Figure 12. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 893 ha burnt since January 1 until October 17, 2021, in French Guiana, no fire was recorded last week. The number of thermal anomalies until October 17, 2021 (219) shows a typical trend in the region as compared to the trends during previous years. 56 thermal anomalies were detected by VIIRS during the last week, which is similar to the values in the same week during previous years.

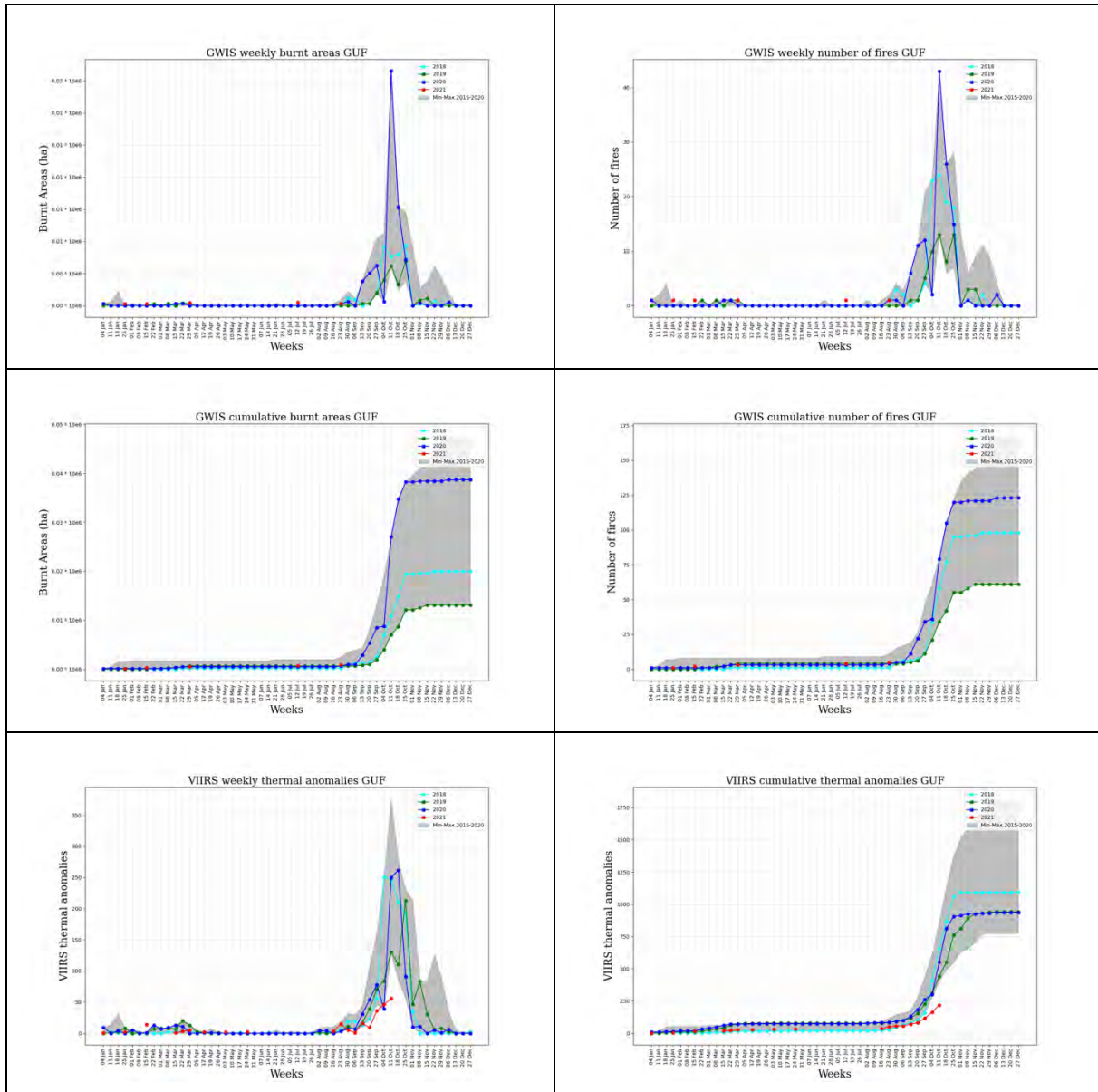


Figure 13. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 17, 2021, with no fires recorded last week. The total number of thermal anomalies until October 17, 2021 (2,941) are the lowest of the last 6 years. 392 thermal anomalies were detected by VIIRS during the last week, which is similar to the values in the same week during previous years.

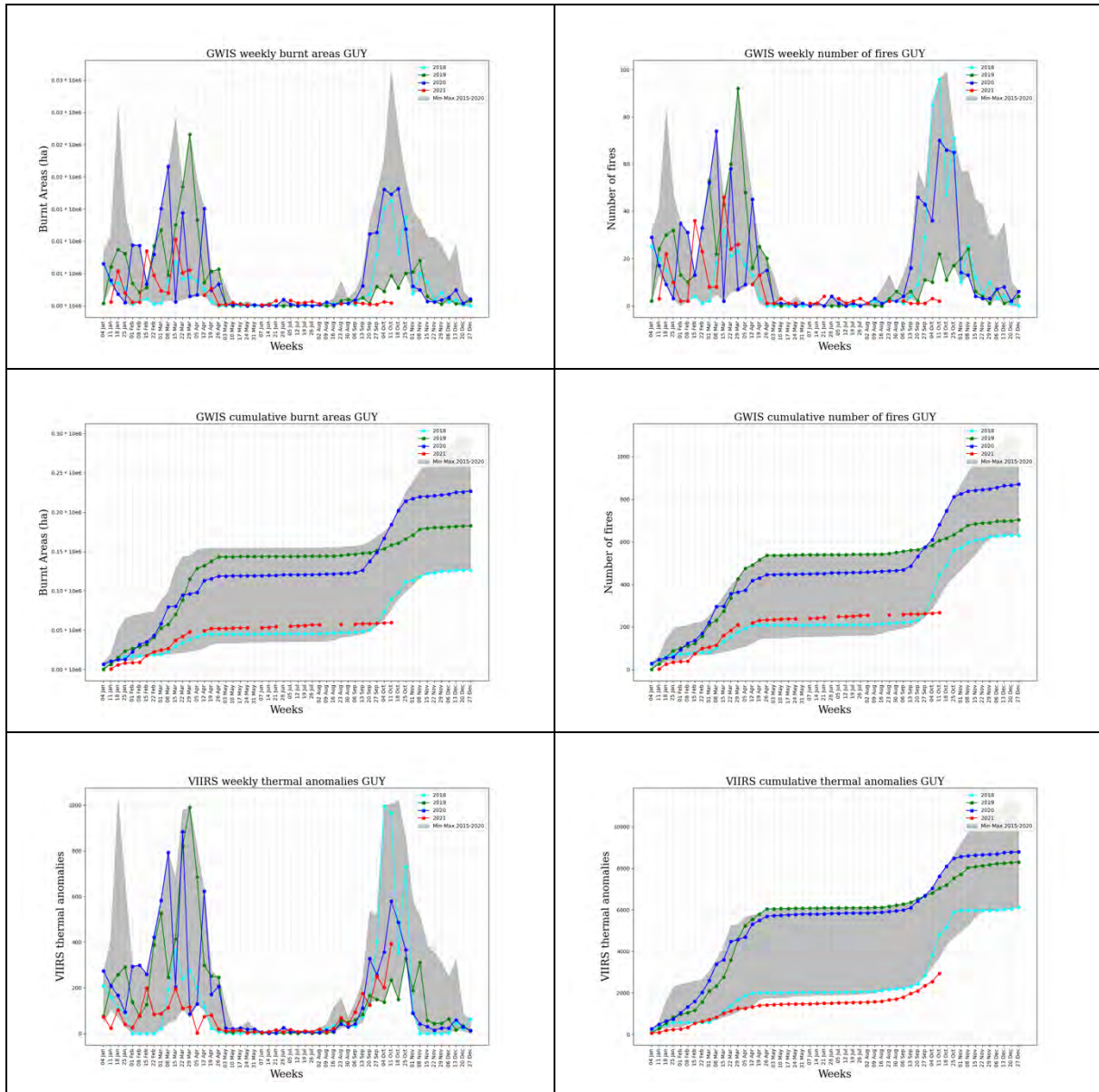


Figure 14. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 4,558 ha burnt in Suriname since January 1 until October 17, 2021. No fires were recorded last week. The total number of fires since the beginning of the year is 21. The number of thermal anomalies until October 17, 2021 (580) shows a typical trend in the region. 169 thermal anomalies were registered last week.

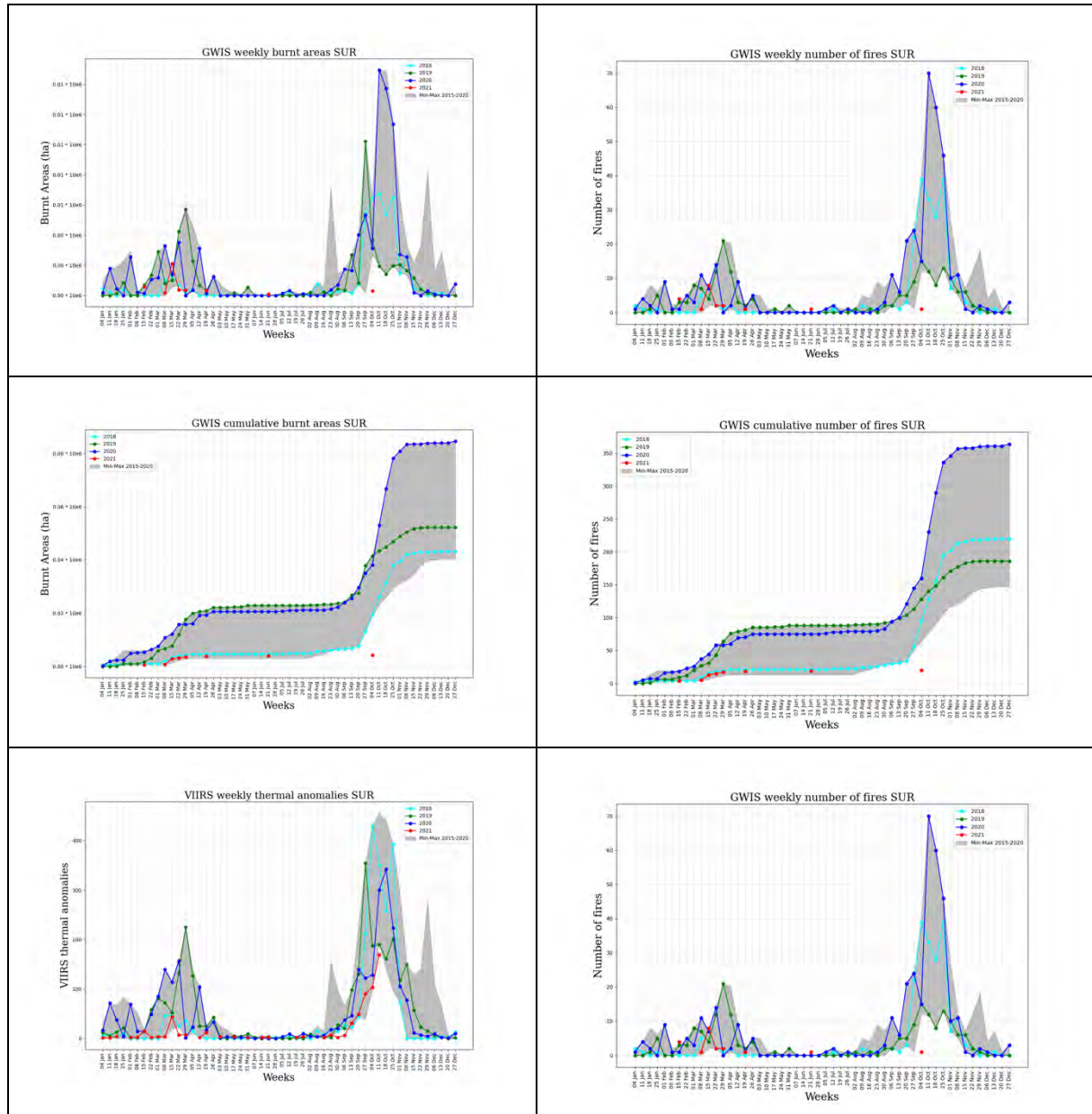


Figure 15. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 18 to October 24, 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.

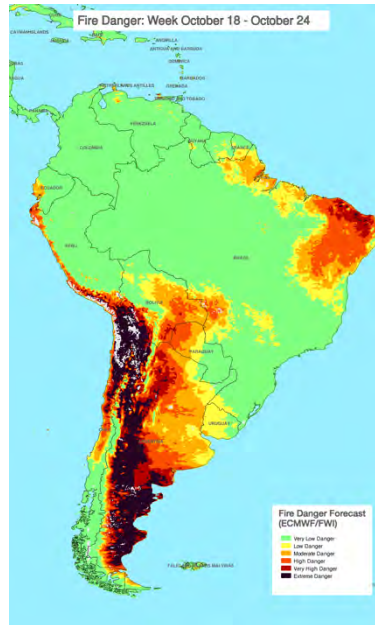


Figure 16. Average Fire danger forecast of the current week, October 18- October 24, 2021.

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.

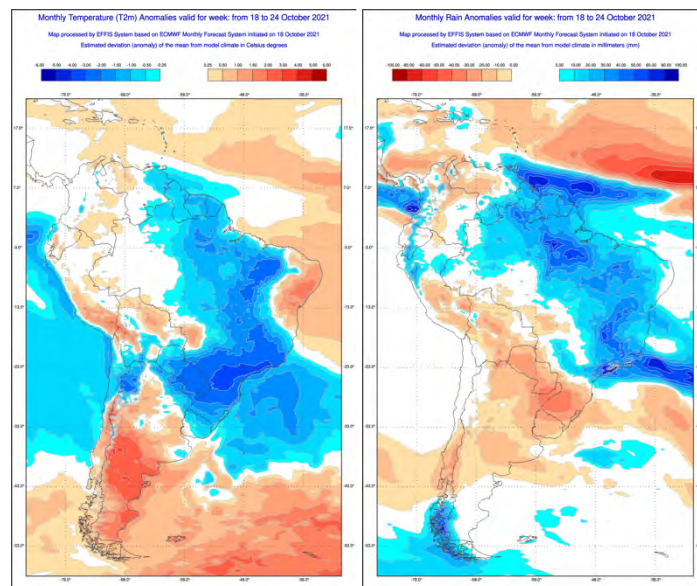


Figure 17. Temperature and rain anomalies of the current week, October 18- October 24, 2021.

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

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