



European  
Commission

# JRC TECHNICAL REPORT

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

July 19 – July 25, 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: 26 Jul 2021

- Rapid Damage Assessment**
- Select a date-range
- Last 1 Day   Last 7 Days   Last 30 Days
- Fire Season
- From: 01 Jan 2021   To: 26 Jul 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



JRC126138

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Contact information

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

EU Science Hub  
<https://ec.europa.eu/jrc>

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

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

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

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## Scope of this report and executive summary

This report describes the trends of wildfires in the Amazon in 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)<sup>1</sup> 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)<sup>2</sup>, 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 3.79 Million ha (Mha) burnt since January 1 until July 25, 2021. This value is similar to those of 2019 and 2020 in the same period. **Last week, 1414 fires occurred, which is the highest value of the last 5 years for the same week.**
- **In Brazil, 7.50 Million ha (Mha) burnt since January 1 until July 25, 2021**, with a total of 933,694 ha burnt in the last week. The total burnt area and number of fires in Brazil are the highest values recorded since 2015 in the same period (3,231 fires occurred last week). The area burnt in the last week was greater than that of the same week in 2019 and similar to the one in 2020.
- **In Bolivia**, the total burnt area (1.82 Million ha (Mha)) and number of fires (4919 fires) in 2021 are about the highest values recorded since 2015 for the same period. The total burned area this year until now is higher than in 2020, which was a critical year in the country.
- **In Colombia**, the total burnt area in the country (2.59 Million ha (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 8972, the highest value since 2015 for the same period.
- **In Paraguay**, 1.61 Million ha (Mha) burnt since January 1 until July 25, 2021. This figure is above those in 2018 and 2019, but 29 % below the values of 2020.
- **In Peru**, since January 1 until July 25, 2021, the total burnt area (0.32 Mha) and total number of fires (1679) are the highest values recorded since 2015. So far, the total burned area for 2021 is 12 % higher than in 2020.
- **In Venezuela**, 4.13 Million ha (Mha) burnt in the current year until July 25. The value of the total burnt area in Venezuela is lower than that in 2019 and 2020. However, the burned area last week was the highest since 2015 for the same week.
- **In Chile**, 396 493 ha burnt in the current year until July 25, 2021. This value is 51% higher than that in 2020. The total burnt area and number of fires (1493), until now, are the second highest values since 2015.
- **In Argentina**, a total of 1.72 Million ha (Mha) burnt since January 1 until July 25, 2021, which is less than half of what was burned in 2020, despite of an increase in the number of fires last week. A total of 6634 fires were mapped this year.
- **In Ecuador**, a total of 166 fires burnt 32,035 ha since January 1 until July 25. These values are similar to the values of the last five years.
- **In Uruguay**, a total of 32,242 ha burnt since January 1 until July 25. This area is larger than the area burnt in 2018 and 2019 but lower than in 2020. 19 fires were reported last week, an increase from the previous week.
- **In French Guiana** a total of 726 ha burnt since January 1 until July 25, 2021. This value is similar with the previous years. No fires were reported last week.
- **In Guyana**, a total of 60,021 ha burnt since January 1 until July 25, 2021, a value higher than that of 2018 but lower than the values in 2019 and 2020. 2 fires were mapped last week.
- **In Suriname**, 21 fires burnt a total of 4533 ha since January 1 until July 25, 2021, a value similar to that of 2018 and lower than 2019 and 2020. No fires were reported last week.

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

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

- This week, fire danger will remain very high to extreme in the central and eastern part of Brazil and moderate to high in southern Bolivia, Paraguay and across Argentina.



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 3.79 Mha burnt in the BLA since January 1 until July 25, 2021, with 474,065 ha burnt in total during the last week, which is similar to the values of the same week in 2018 and 2019 but lower than in 2020. The number of fires recorded in GWIS in the last week was 1414, above the average value of the mean of the last 5 years. The number of thermal anomalies until July 25, 2021 (102,106) shows a typical trend in the region as compared to the trends in 2019 and 2020. 12,795 thermal anomalies were registered last week.

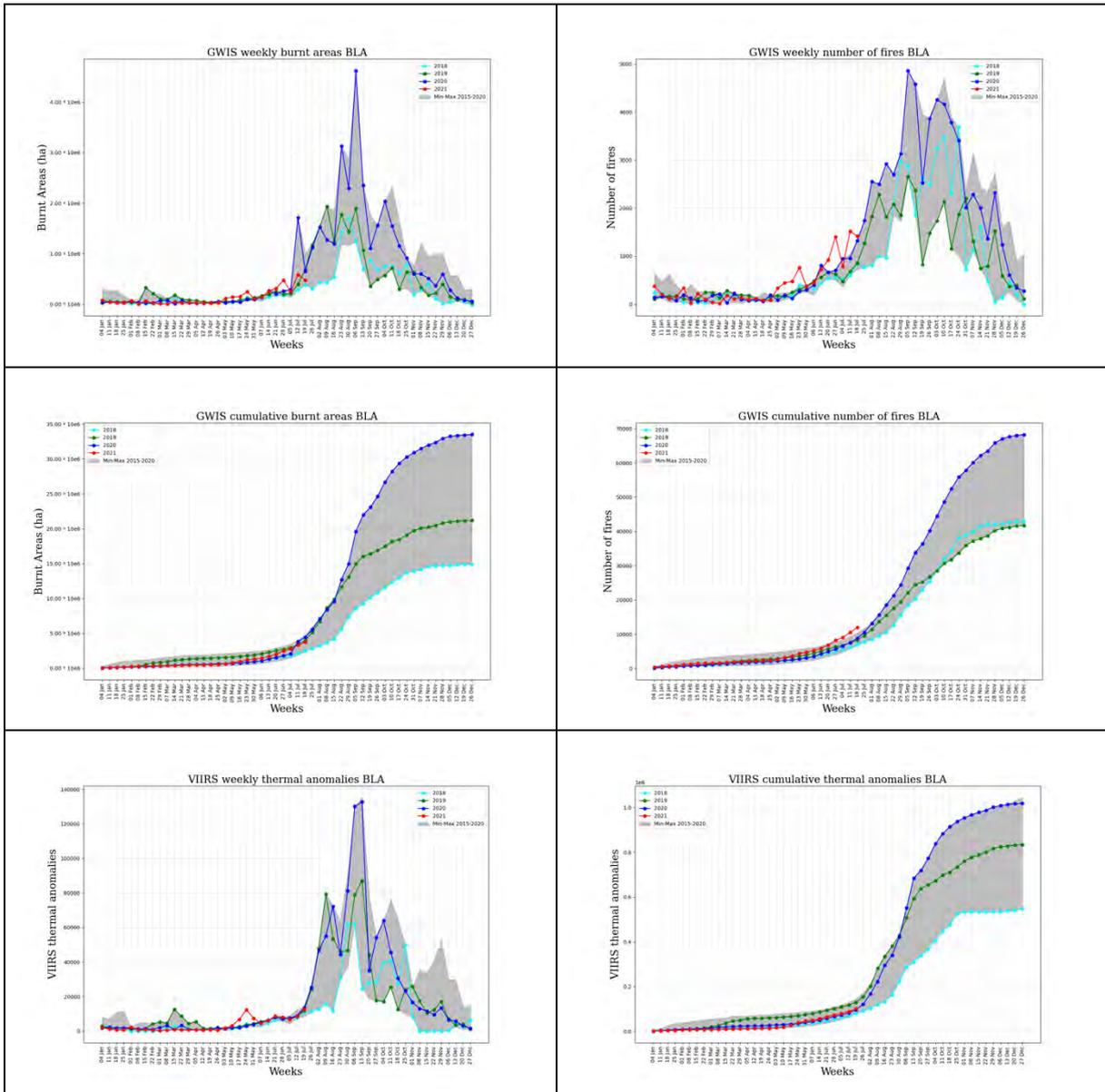


Figure 2. Trend of burnt areas and number of fires as compared to data in the last 5 years.

## 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 7.50 Mha ha burnt in Brazil since January 1 until July 25, 2021, being this the highest value in the last 5 years, with a total 933,694 ha burnt in the last week. The number of fires recorded in GWIS in the last week was 3231, the highest value in the last five years for the same week. The number of thermal anomalies until July 25, 2021 (221541) shows a typical trend in the region; 26,345 thermal anomalies were registered last week.

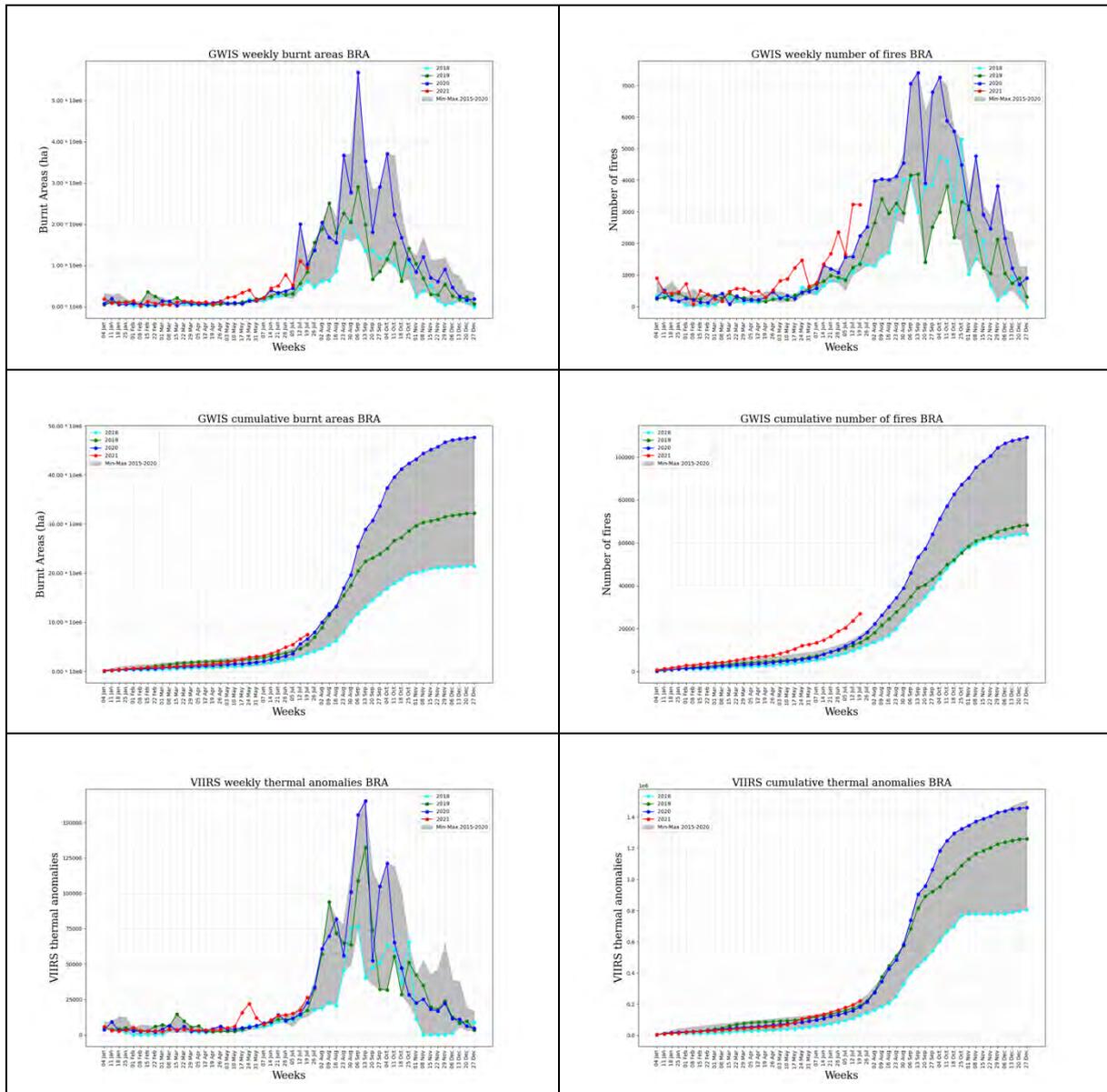


Figure 3. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 5 years.

### 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 1.82 Mha burnt in Bolivia since January 1 until July 25, 2021, with 265,432 ha burnt in the last week. Weekly and cumulative values of burnt areas are higher than 2018 and 2020 but lower than 2019. The number of fires recorded in GWIS in the last week was 678, higher than the number of fires in the same week from the last three years. The number of thermal anomalies until July 25, 2021 (54,945) is the highest value since 2015 for the same period. 8,089 thermal anomalies were detected by VIIRS in the last week.

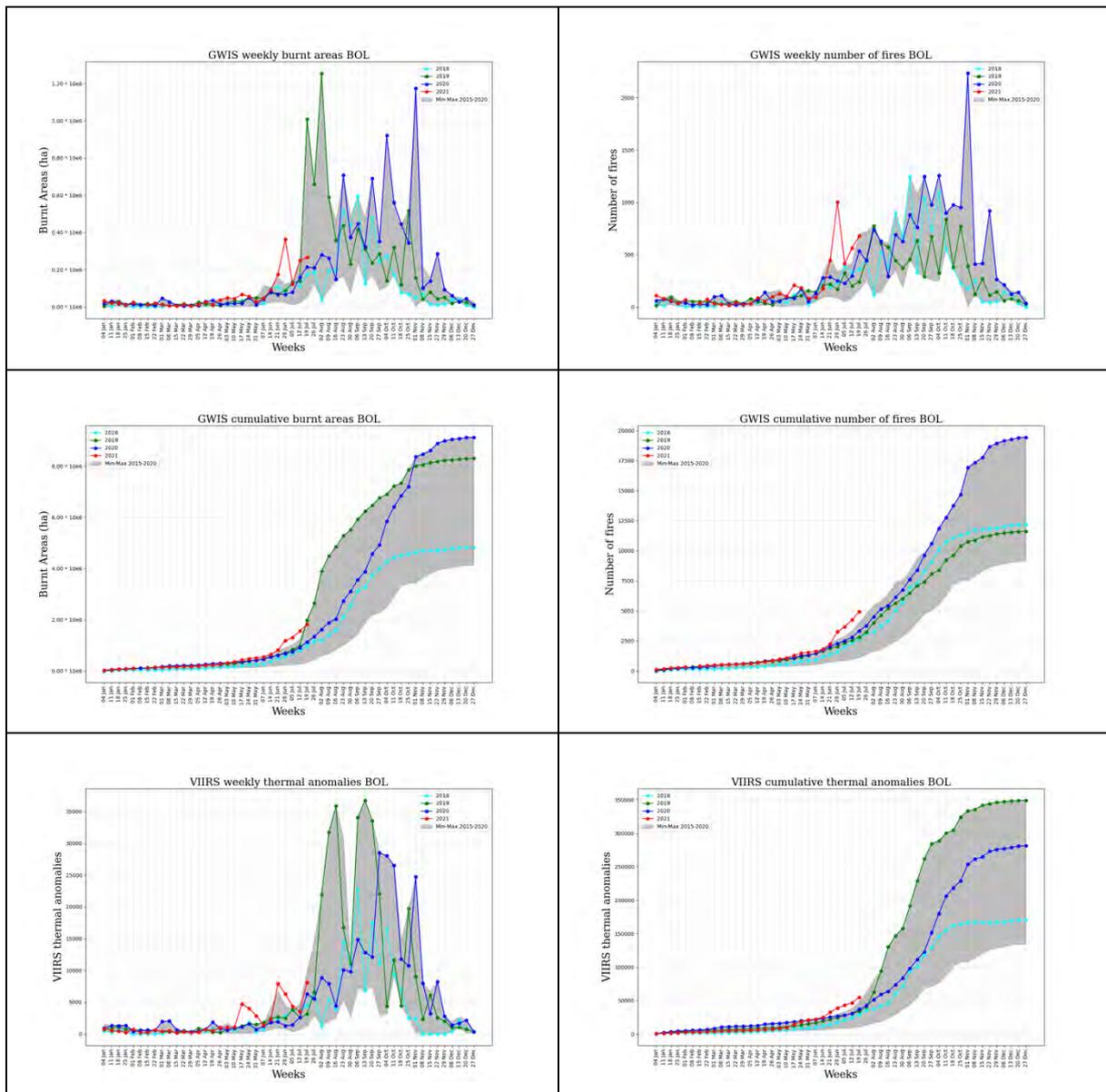


Figure 4. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 5 years.

## 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 2.59 Mha burnt in Colombia since January 1 until July 25, 2021. Approximately 42,440 ha burnt in the country the last week. The number of fires recorded in GWIS in the last week was 200 and the total number of fires since January 1 it's the highest value since 2015 for the same period. The number of thermal anomalies until July 25, 2021 (59,428) follows a typical trend in the region with similar values of 2018 but way below of 2019 and 2020. 113 thermal anomalies detected by VIIRS last week.

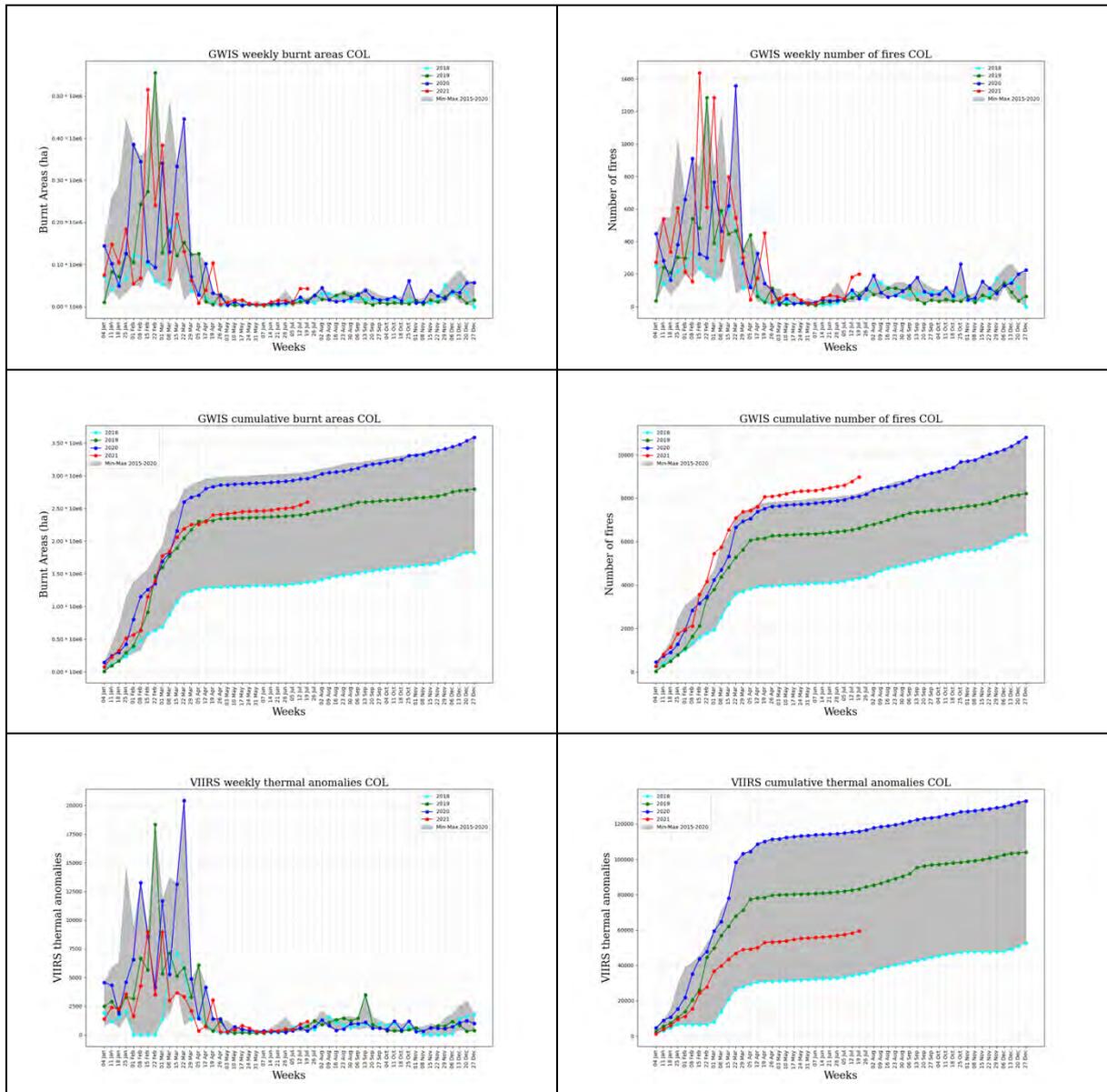


Figure 5. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 5 years.

## 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 1.61 Mha burnt in Paraguay since January 1 until July 25, 2021. Approximately 301,524 ha burnt in the country the last week, increasing from the previous week. The number of fires recorded in GWIS in the last week was 889. The number of thermal anomalies until July 25, 2021 (44,526) follows a typical trend in the region. 6164 thermal anomalies detected by VIIRS last week.

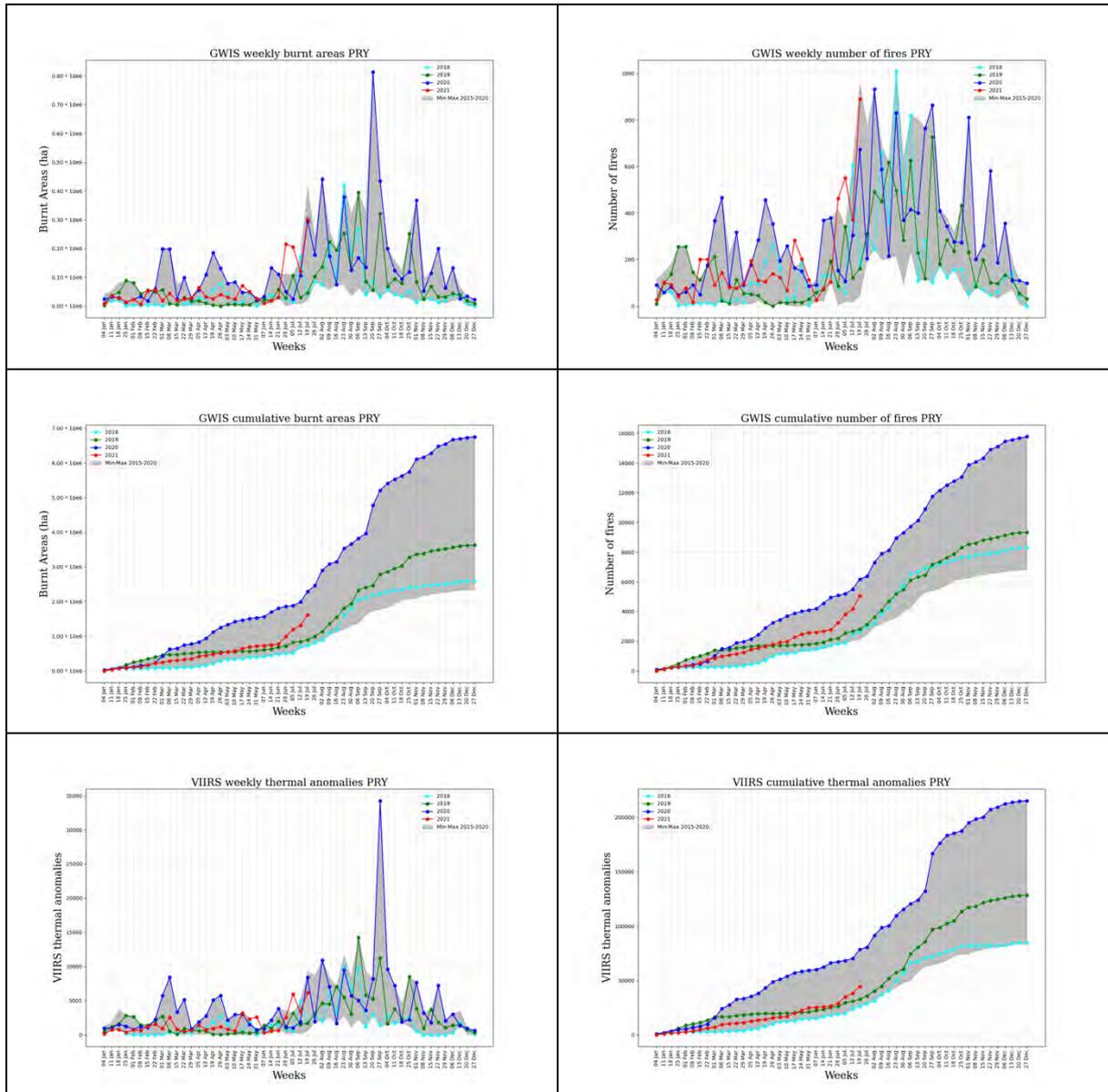


Figure 6. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 5 years.

## 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 0.32 Mha burnt in Peru since January 1 until July 25, 2021, the highest value since 2015 for the same period. Approximately 63,282 ha burnt in the last week, increasing from the previous week. The number of fires recorded in GWIS in the last week was 290. The total number of fires since the beginning of the year is 1679, the highest value since 2015 for the same period. The number of thermal anomalies until July 25, 2021 (12,023) shows a typical trend in the region. 1768 thermal anomalies registered last week, increasing after the last week.

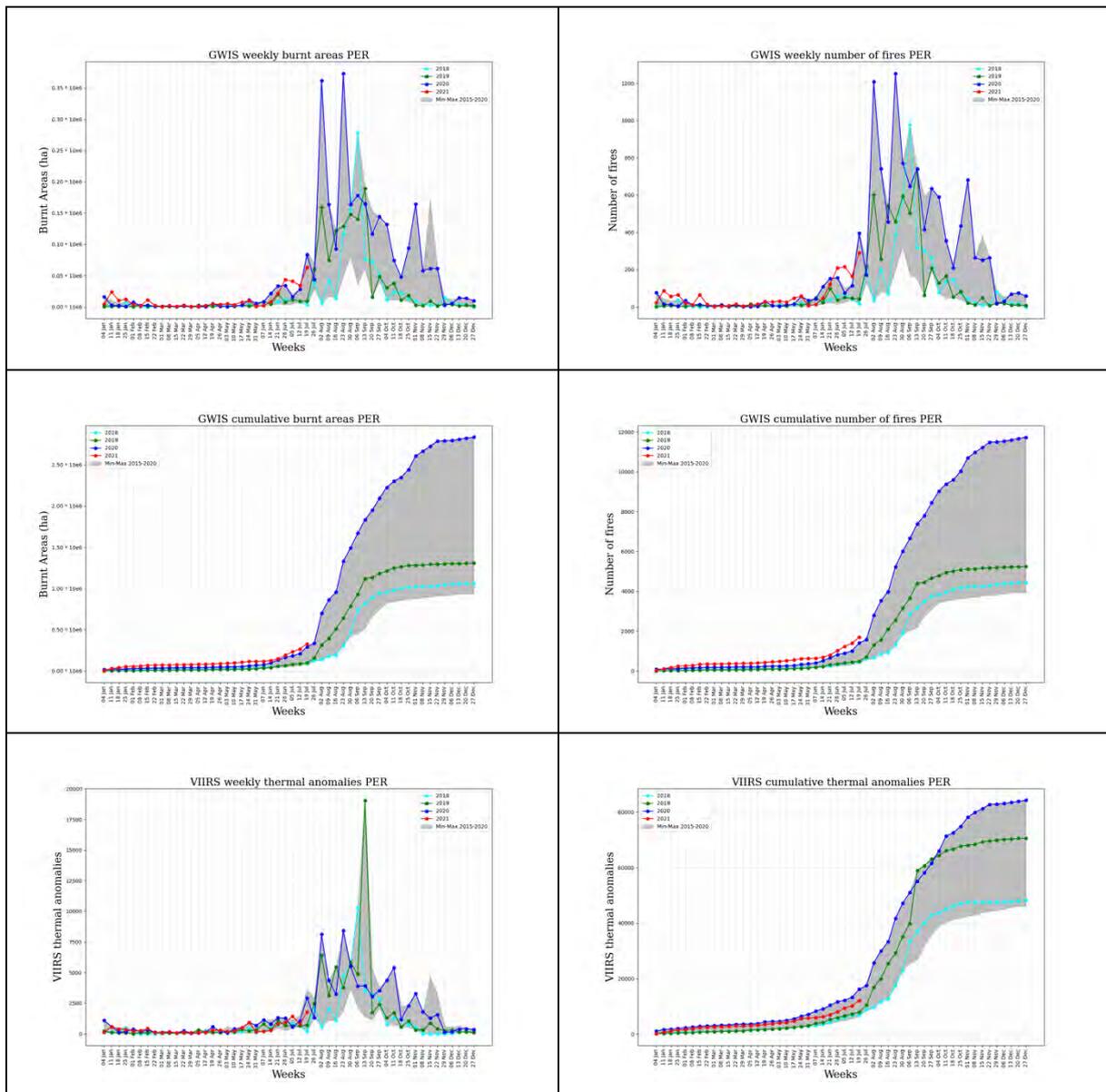


Figure 7. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 5 years.

## 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 4.13 Mha burnt in Venezuela since January 1 until July 25, 2021, with 15,699 ha burnt in the last week. The number of fires recorded in GWIS in the last week was 79. The number of thermal anomalies until July 25, 2021 (115,677) shows a typical trend in the region. 1209 thermal anomalies were recorded by VIIRS during the last week, a value that is the highest since 2015 for the same week.

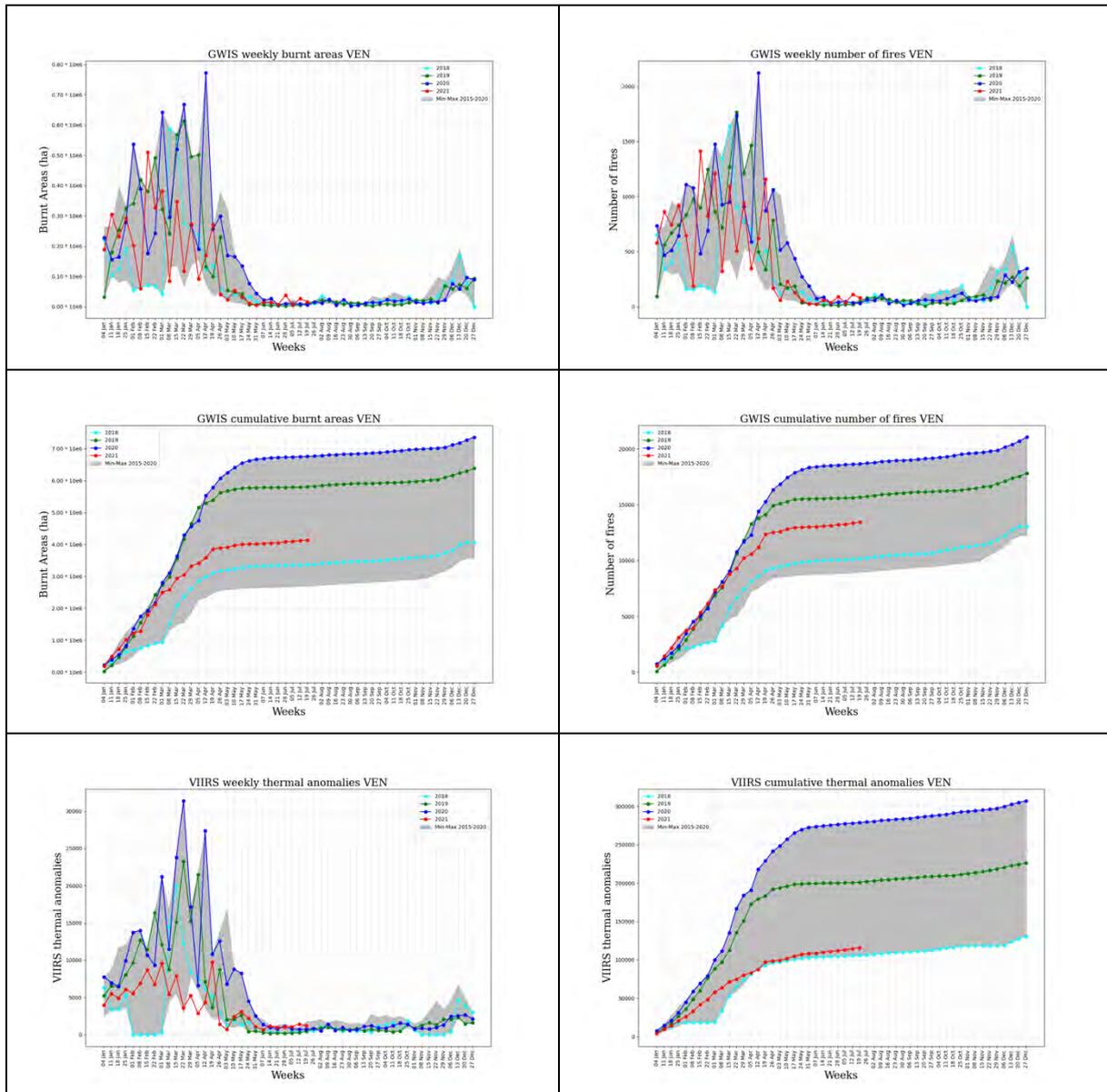


Figure 8. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 5 years.

## 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 396,493 burnt in Chile since January 1 until July 25, 2021, with 3,965 ha burnt in the last week. The number of fires recorded in GWIS in the last week was 21. The number of thermal anomalies until July 25, 2021 (11,200) shows a typical trend in the region as compared to the trends during previous years. 176 thermal anomalies were detected by VIIRS during the last week, which is similar to the values in the same week during previous years.

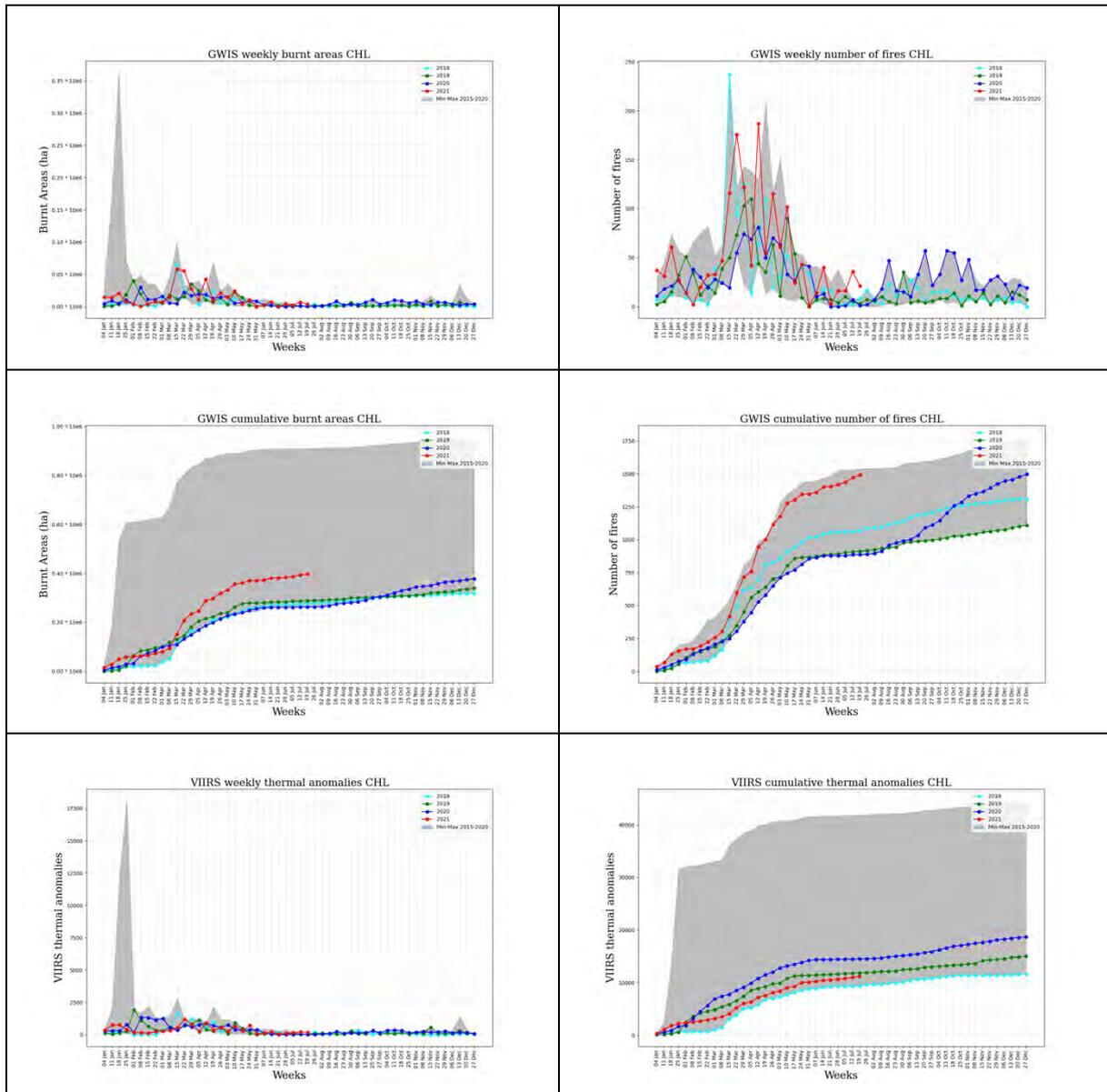


Figure 9. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last two years.

## 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 1.72 Mha burnt in Argentina since January 1 until July 25, 2021, with 350,607 ha burnt in the last week. These values are similar with than of 2020. The number of fires recorded in GWIS in the last week was 1199, the highest value since 2015 for the same period. The number of thermal anomalies until July 25, 2021 (53,242) shows a typical trend in the region. 8518 thermal anomalies were recorded by VIIRS during the last week, a value that is like those recorded in that week for 2020.

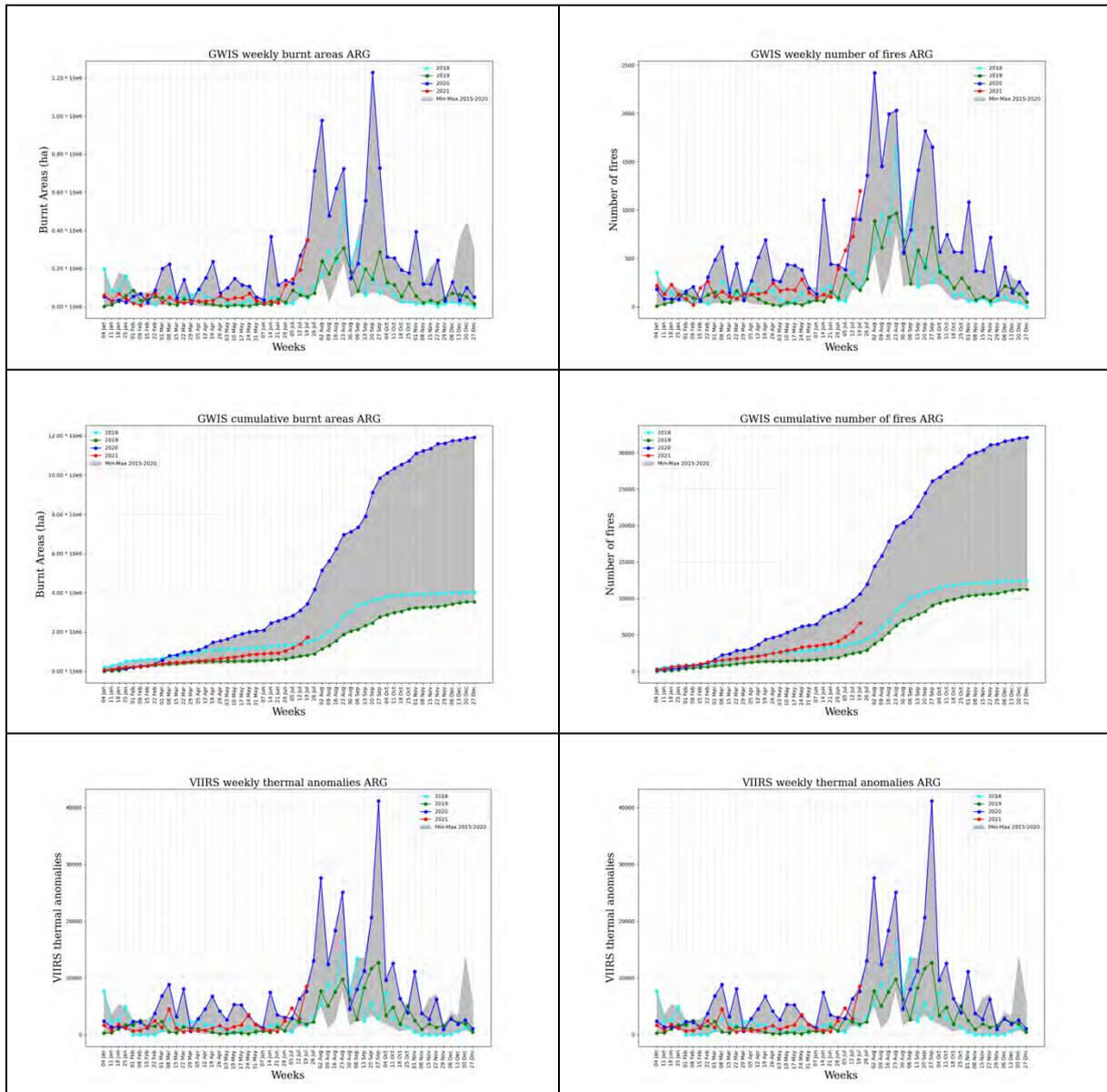


Figure 10. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 5 years.

## 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 32,035 ha burnt in Ecuador since January 1 until July 25, 2021, with 7,191 ha burnt in the last week. The number of fires recorded in GWIS in the last week was 22. The number of thermal anomalies until July 25, 2021 (1290) shows a typical trend in the region. 178 thermal anomalies were detected by VIIRS in the last week.

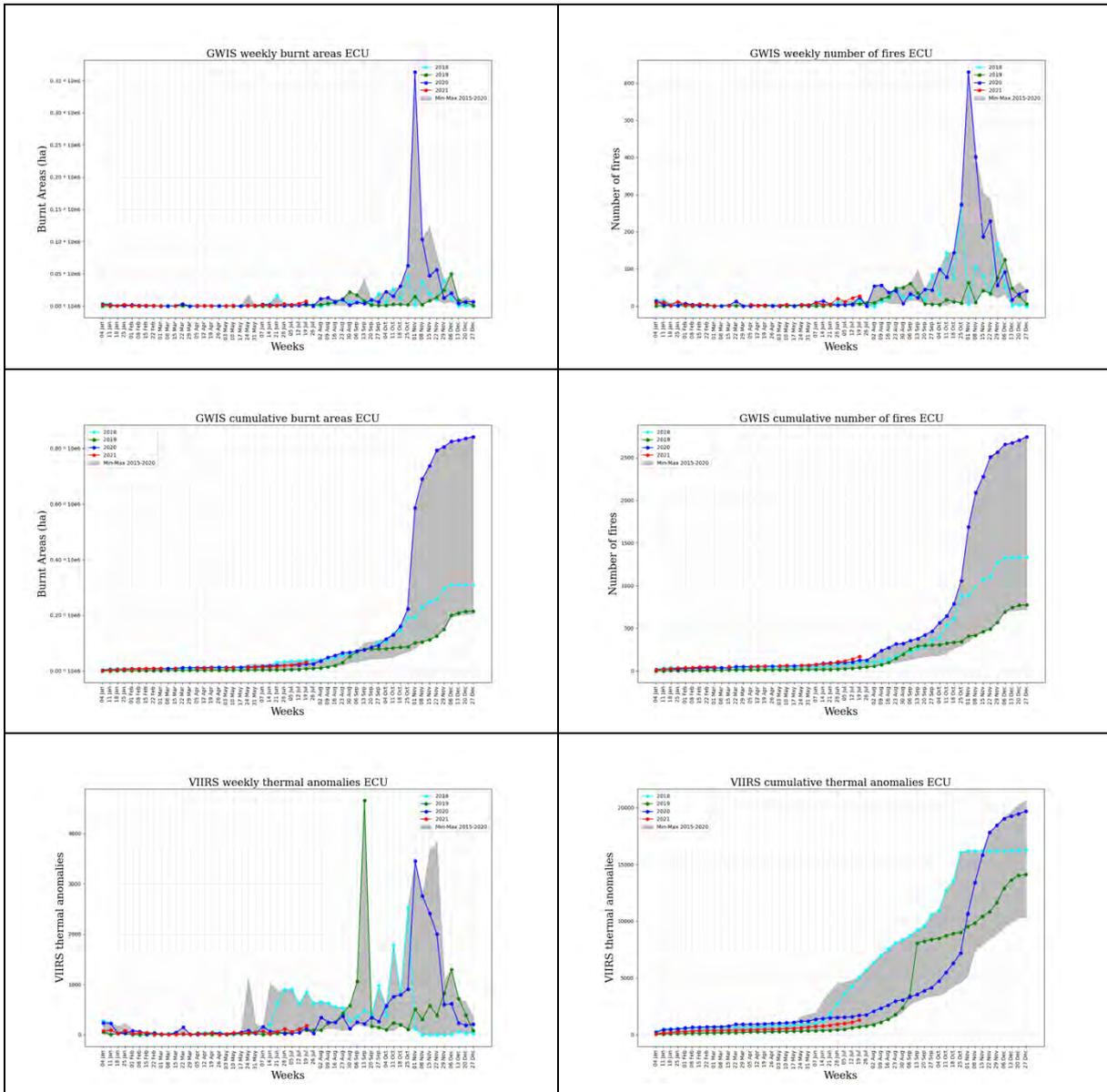


Figure 11. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 5 years.

# 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 32,242 ha burnt in Uruguay since January 1 until July 25, 2021. 19 fires were recorded last week. The number of thermal anomalies until July 25, 2021 (1,124) shows a typical trend in the region.

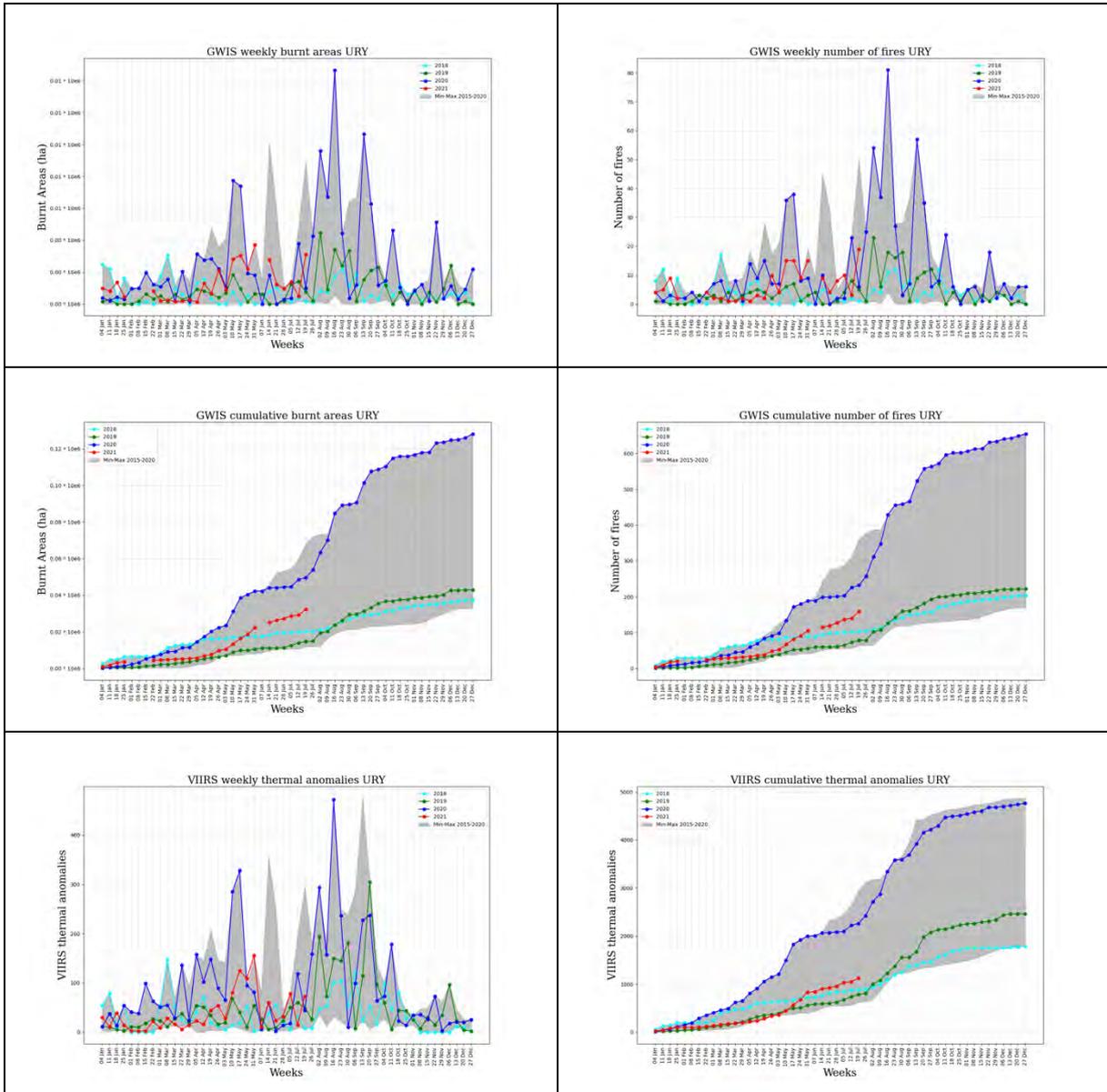


Figure 12. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 5 years.

## 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 726 ha burnt since January 1 until July 25, 2021, with no fire recorded last week. The number of thermal anomalies until July 25, 2021 (1) shows a typical trend in the region as compared to the trends during previous years. 0 thermal anomalies were detected by VIIRS during the last week, which is similar to the values in the same week during previous years.

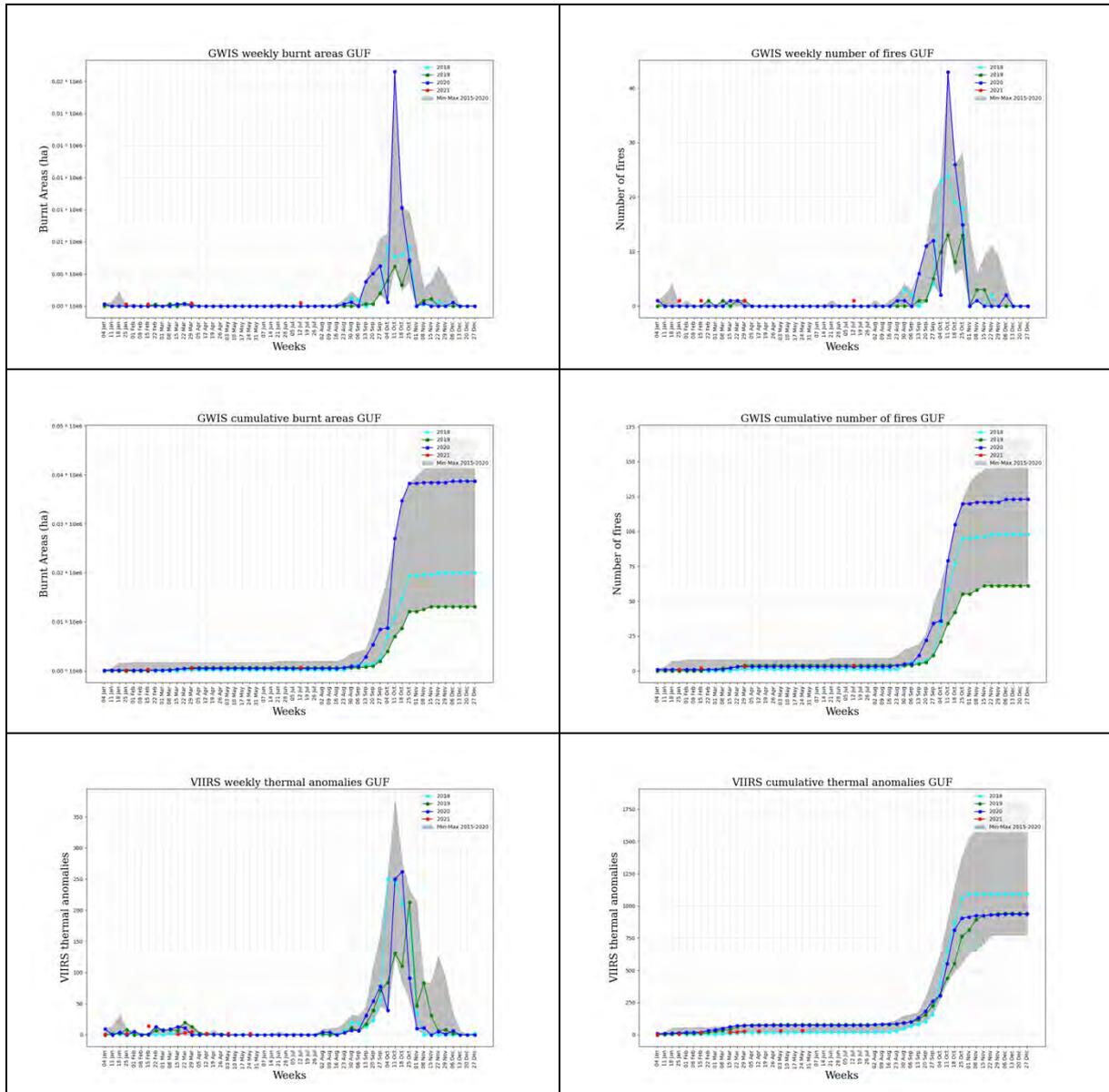


Figure 13. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 5 years.

### 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 60,021 Mha burnt in Guyana since January 1 until July 25, 2021, with 2 fires recorded last week. The number of thermal anomalies until July 25, 2021 (1,540) shows a typical trend in the region as compared to the trends during previous years. 10 thermal anomalies were detected by VIIRS during the last week, which is similar to the values in the same week during previous years.

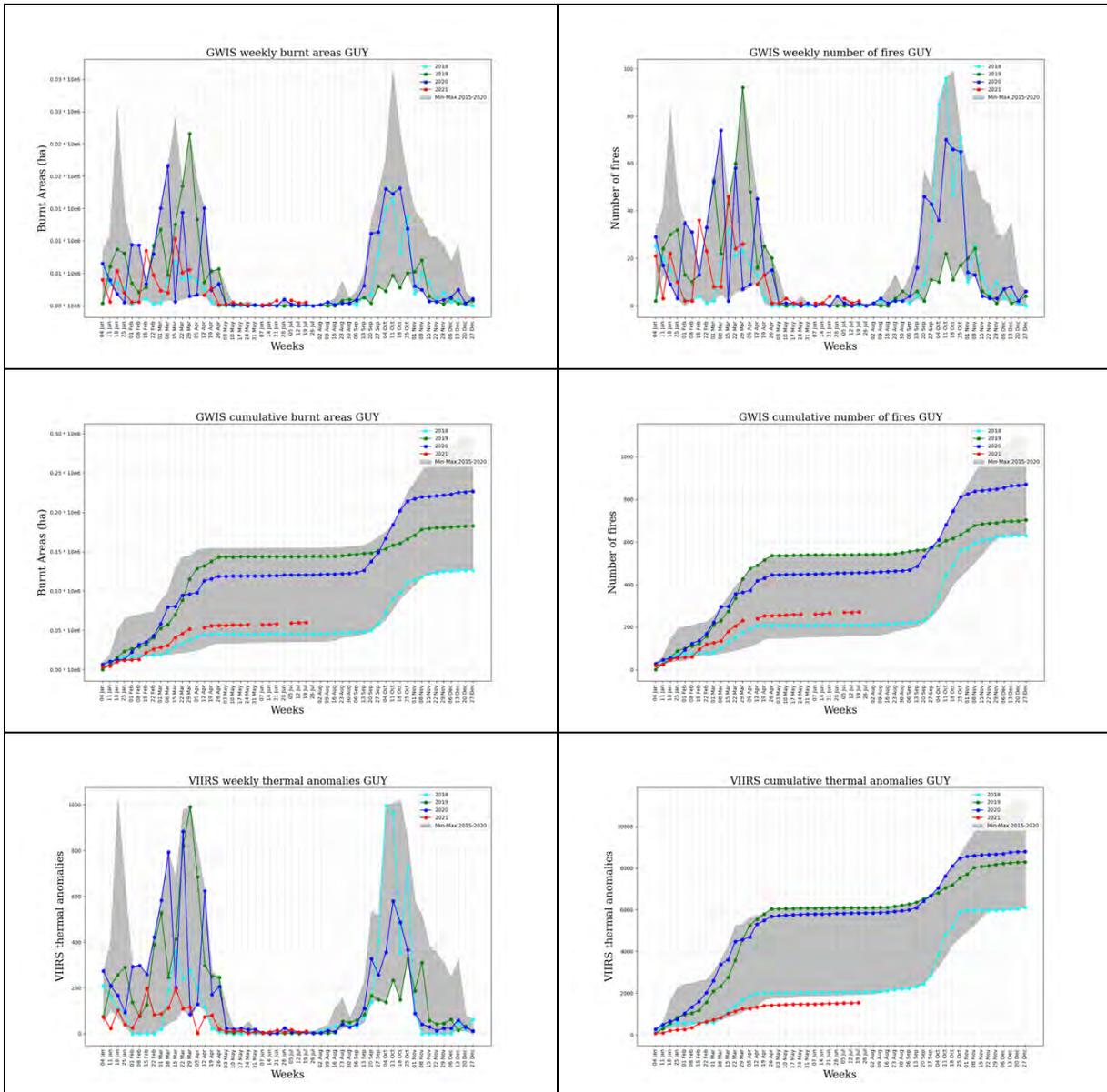


Figure 14. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 5 years.

## 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 4533 ha burnt in Suriname since January 1 until July 25, 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 July 25, 2021 (97) shows a typical trend in the region. 0 thermal anomalies registered last week, increasing after the last week.

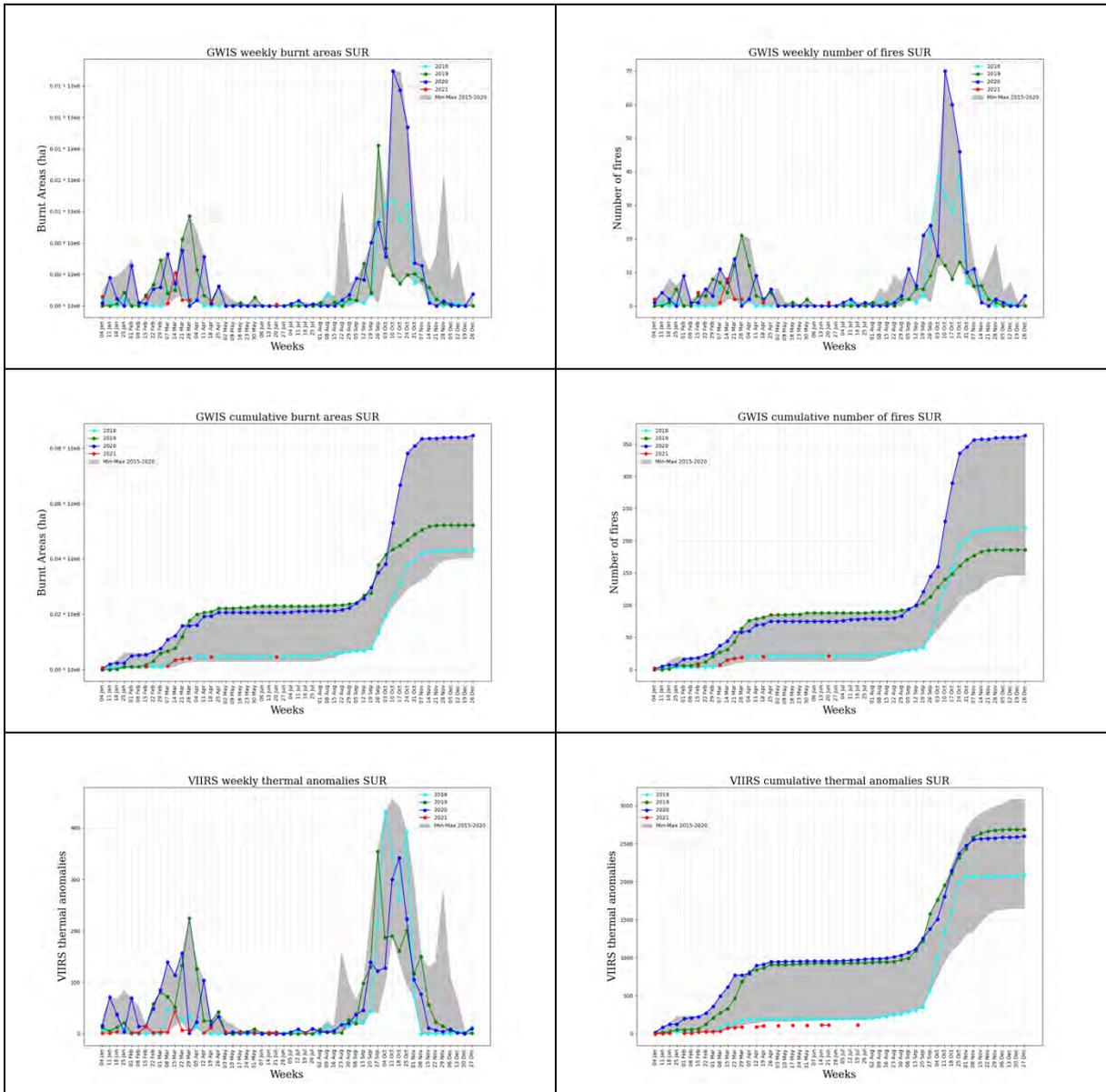


Figure 15. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 5 years.

## 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 July 26 to August 1, 2021. This information is based on the daily fire danger forecast that is provided online in GWIS<sup>3</sup>. According to this forecast, it is expected that fire danger conditions will continue to be very high to extreme in the central and eastern part of Brazil and moderate to high in eastern and southwestern Bolivia, Paraguay and across Argentina.

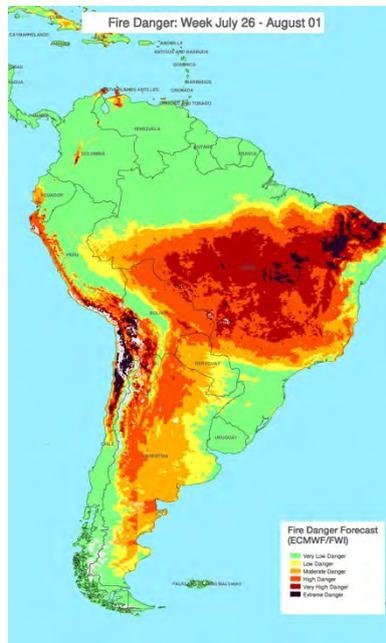


Figure 16. Average Fire danger forecast. Week, July 26- August 1, 2021.

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

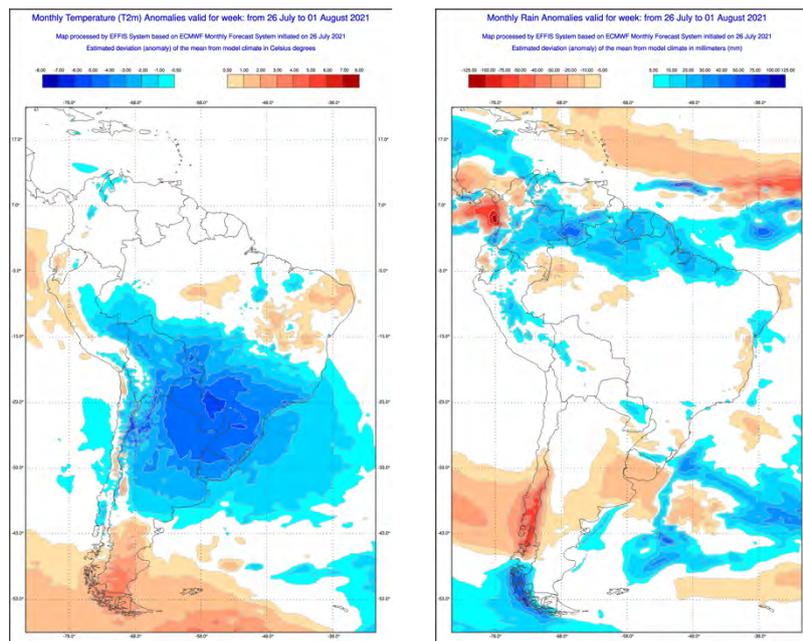


Figure 17. Fire weather anomalies of the current week, July 26- August 1, 2021.

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

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