



European
Commission

JRC TECHNICAL REPORT

Weekly analysis of wildfires in the Amazon region and South America: November 22 - November 28, 2021

2021



GWIS

Global Wildfire Information System



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

The screenshot displays the GWIS Current Situation Viewer interface. On the left, there is a sidebar with several sections:

- Map Options:** Includes checkboxes for Country Boundaries Layer, Human Settlement Layer, Protected Areas Layer, and CCI Landcover.
- Forecasts:** Includes a FIRE DANGER FORECAST section with Source set to 'ECMWF (8 km res.)' and Index set to 'Fire Weather Index (FWI)'. It also has a LIGHTNING FORECAST section.
- Rapid Damage Assessment:** Includes a date range selector (From: 22 Nov 2021 To: 28 Nov 2021) and sections for ACTIVE FIRES, BURNT AREAS, and FIRE EMISSIONS.
- Analysis Tools:** Includes a 'GWIS Estimates per Country' button.

The main map area shows South America with various countries and states labeled, including Brazil, Peru, Colombia, Venezuela, and others. A right-hand navigation panel contains standard map controls like zoom in/out, home, and search.

JRC127447

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How to cite this report: San-Miguel-Ayanz, J¹, Artes, T.¹, Oom, D.¹, Pfeiffer, H.³, Branco, A.³, Liberta, G.¹, De Rigo, D.³, Grecchi, R.³, Maianti, P.³, Boca, R.³, Durrant, T.⁴, Ferrari, D.⁴, 2021. Weekly analysis of wildfires in the Amazon region and South America: November 22 – November 28, 2021, European Commission, Ispra, JRC127447.

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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 14.51 Million ha (Mha) burnt since January 1 until November 28, 2021. This value the lowest of the last 6 years.** Last week, 62 fires occurred, following the decreasing trend from previous weeks.
- **In Brazil, 23.74 Mha burnt since January 1 until November 28, 2021**, with a total of 42,784 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.** 201 fires occurred last week, while the area burnt in the last week 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 (8.07 Mha) and number of fires (36,511 fires) increased slightly from the previous week. **The total burned area this year is below the values of 2019 and 2020.**
- **In Colombia**, the total burnt area in the country (2.88 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 10,196, which is the second highest value since 2015 for the same period (below 2020).
- **In Paraguay**, 3.53 Mha burnt since January 1 until November 28, 2021. This figure is above those of 2018 but below the value of 2019 and 26 % below the value of 2020.
- **In Peru**, since January 1 until November 28, 2021, the total burnt area is 2.81 Mha and total number of fires is 10,724. These are the second highest values recorded since 2015 (below 2020).
- **In Venezuela**, 4.03 Mha burnt in the current year until November 28. The value of the total burnt area in Venezuela is lower than that in 2019 and 2020.
- **In Chile**, 451,139 ha burnt in the current year until November 28, 2021. This value is 51% higher than that of 2020. This year, the number of fires (1,851) is the highest since 2015.
- **In Argentina**, a total of 5.05 Mha burnt since January 1 until November 28, 2021, which is less than half of what was burned in 2020 in the same period. A total of 16,718 fires were mapped in this period.
- **In Ecuador**, a total of 1,069 fires burnt 285,030 ha since January 1 until November 28, 2021. **The number of fires and the burnt area last week had a sharp decrease with respect to the previous week.** However, these values are about the same values in 2018 and below those in 2020.
- **In Uruguay**, a total of 51,106 ha burnt since January 1 until November 28, 2021. This value is higher than those of 2018 and 2019 but lower than the figure of 2020. 1 fire was recorded last week.
- **In French Guiana** a total of 6,641 ha burnt since January 1 until November 28, 2021. This value is the lowest of the last 6 years. 1 fire was recorded last week.
- **In Guyana**, a total of 80,734 ha burnt since January 1 until November 28, 2021, the lowest value of the last 6 years. 5 fires were mapped last week.
- **In Suriname**, 54 fires burnt a total of 12,810 ha since January 1 until November 28, 2021, the lowest value of the last 6 years. No fires were mapped last week.
- This week, fire danger conditions will be very high to extreme in southern Argentina and northern Chile. Paraguay and eastern part of 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 November 28, 2021, with 14,196 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 62, decreasing from the previous week. The number of thermal anomalies until November 28, 2021 (642,587) shows a typical trend in the region as compared to the trends in 2018 and 2020, but the values remain below. 7,283 thermal anomalies were registered last week.

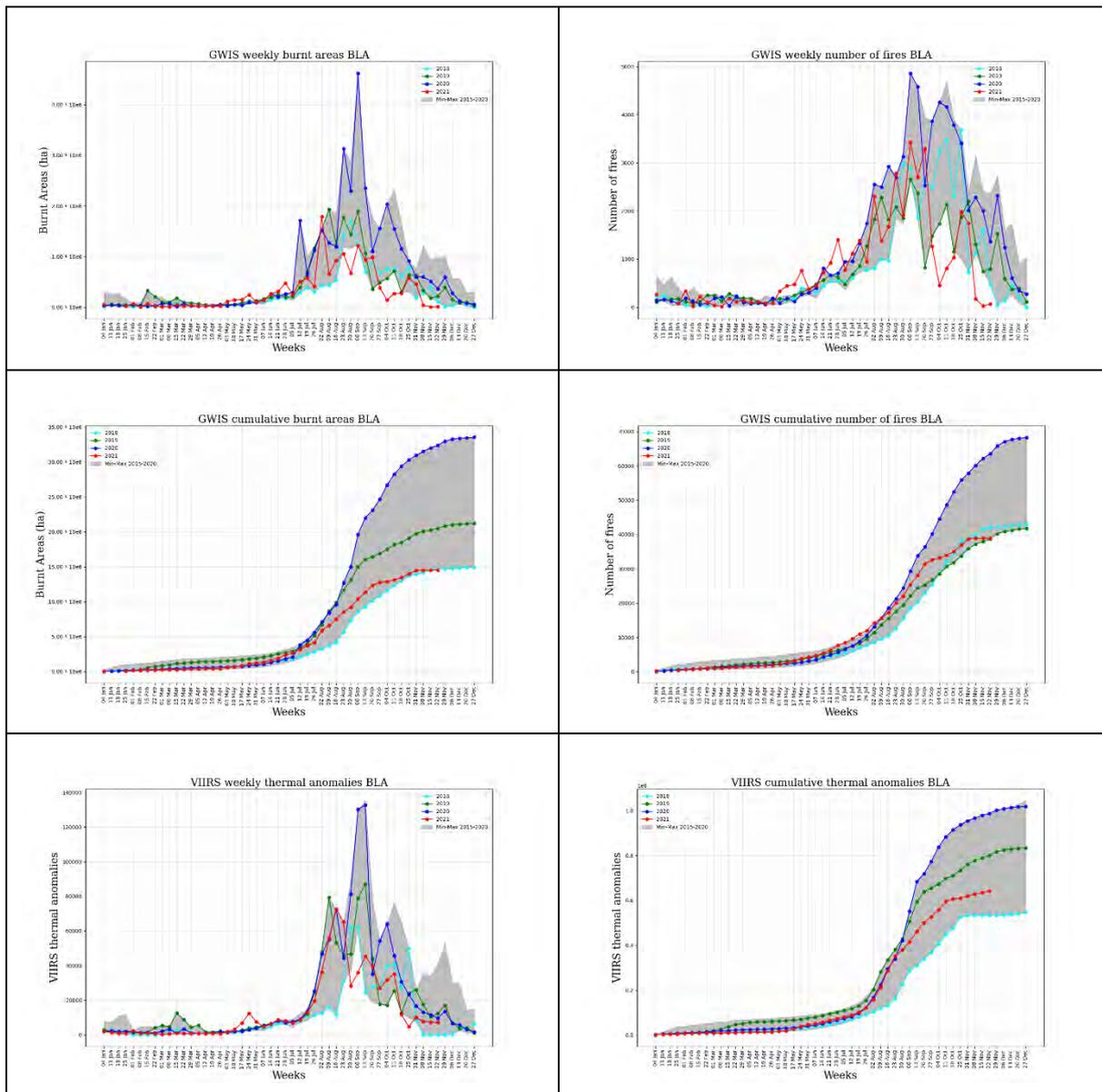


Figure 2. Trend of burnt areas and number of fires as compared to data in the last 6 years.

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 23.74 Mha ha burnt in Brazil since January 1 until November 28, 2021, with a total 42,784 ha burnt in the last week. The total burnt area in the country remains below the values of the previous 6 years. The number of fires recorded in GWIS in the last week was 201, decreasing from the last week. The number of thermal anomalies until November 28, 2021 (1,170,045) shows a typical trend in the region. 15,043 thermal anomalies were registered last week.

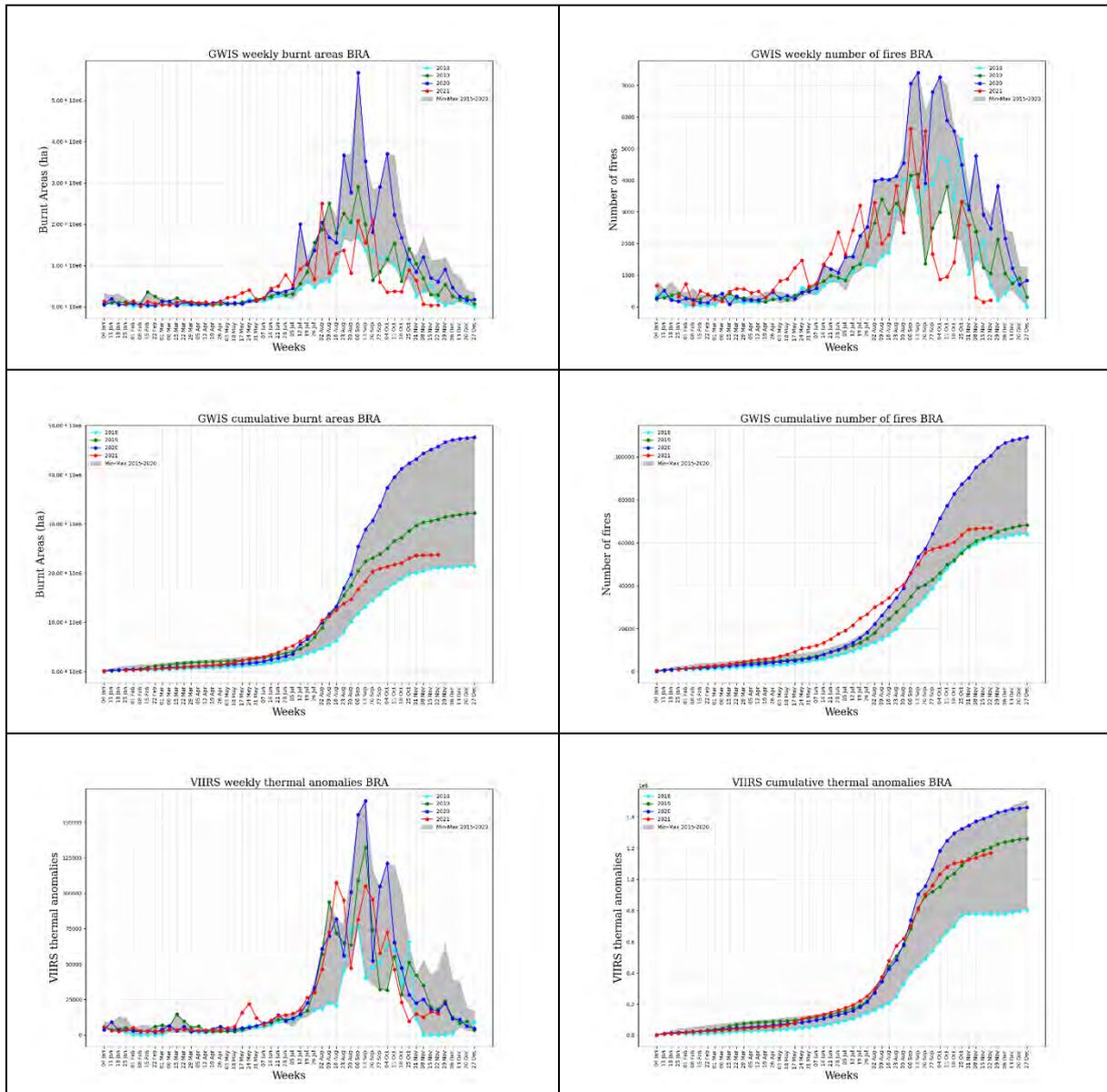


Figure 3. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 8.07 Mha ha burnt in Bolivia since January 1 until November 28, 2021, with 36,551 ha burnt in the last week, decreasing from the last week. The number of fires recorded in GWIS in the last week was 141, lower than the number of fires in the same week from the last 6 years. The number of thermal anomalies until November 28, 2021 (277,227) is between the values of 2018 and 2020 the same period. 1,937 thermal anomalies were detected by VIIRS in the last week.

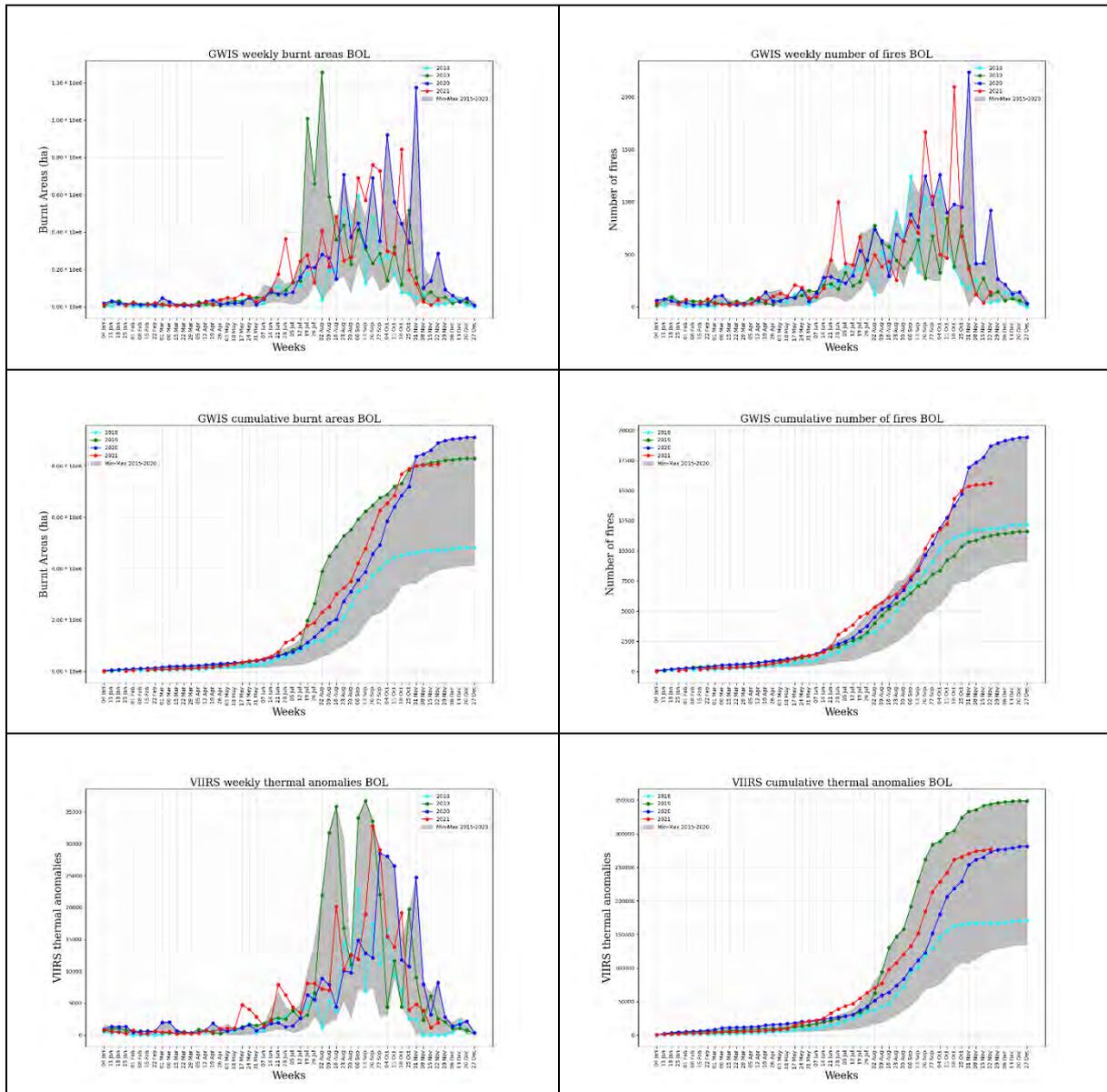


Figure 4. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 2.88 Mha burnt in Colombia since January 1 until November 28, 2021. Approximately 11,243 ha burnt in the country the last week. The number of fires recorded in GWIS in the last week was 49 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 November 28, 2021 (75,049) follows a typical trend in the region with similar values of 2018 but way below of 2019 and 2020. 436 thermal anomalies recorded by VIIRS last week.

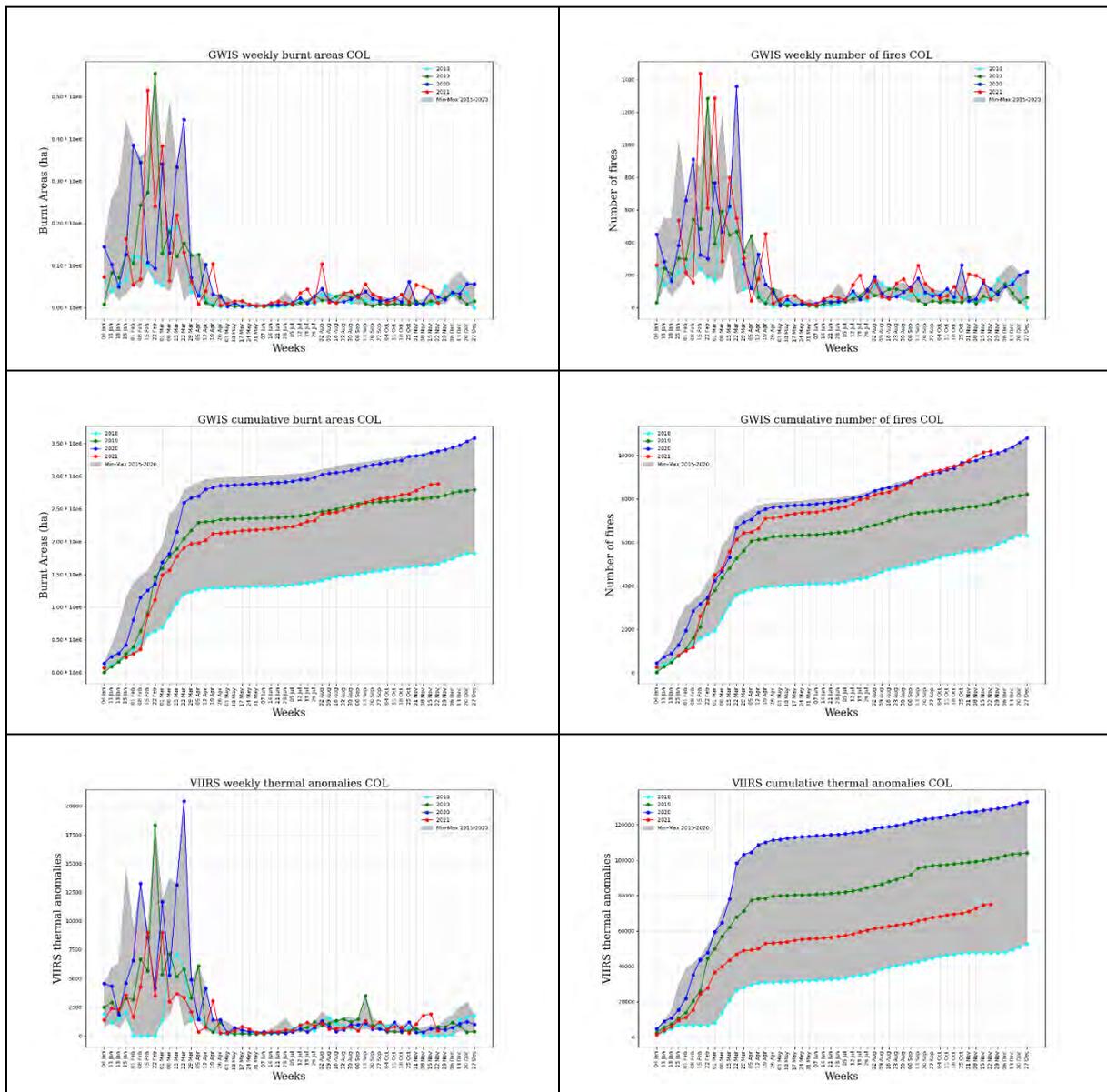


Figure 5. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 3.53 Mha burnt in Paraguay since January 1 until November 28, 2021. Approximately 37,189 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 37. The number of thermal anomalies until November 28, 2021 (125,528) follows a typical trend in the region. 2,636 thermal anomalies detected by VIIRS last week.

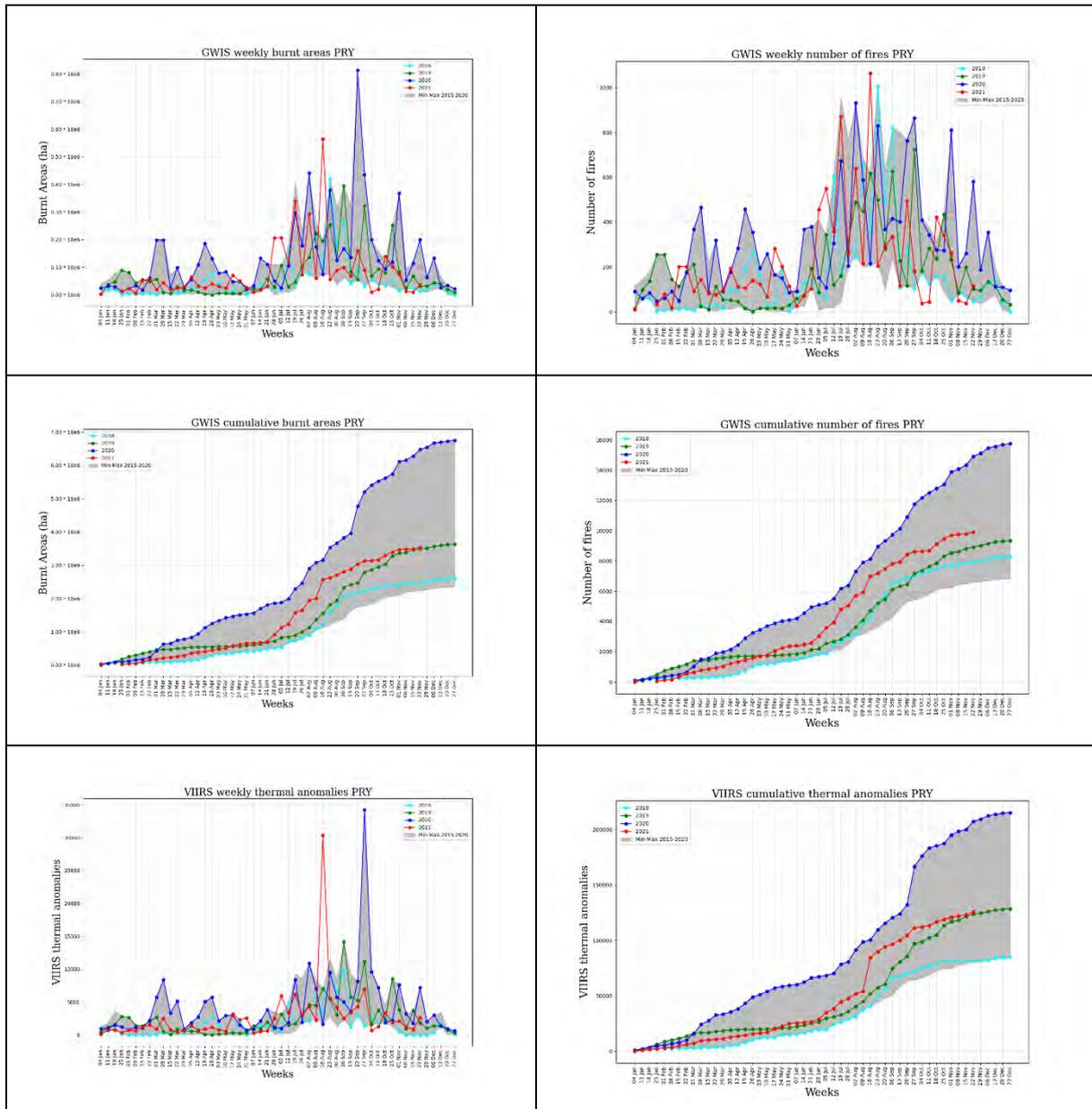


Figure 6. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 2.81 Mha burnt in Peru since January 1 until November 28, 2021, the second highest value since 2015 for the same period. Approximately 3,599 ha burnt in the last week, decreasing from the previous week. The number of fires recorded in GWIS in the last week was 22. The number of thermal anomalies until November 28, 2021 (58,411) shows a typical trend in the region. 180 thermal anomalies registered last week, decreasing after the last week.

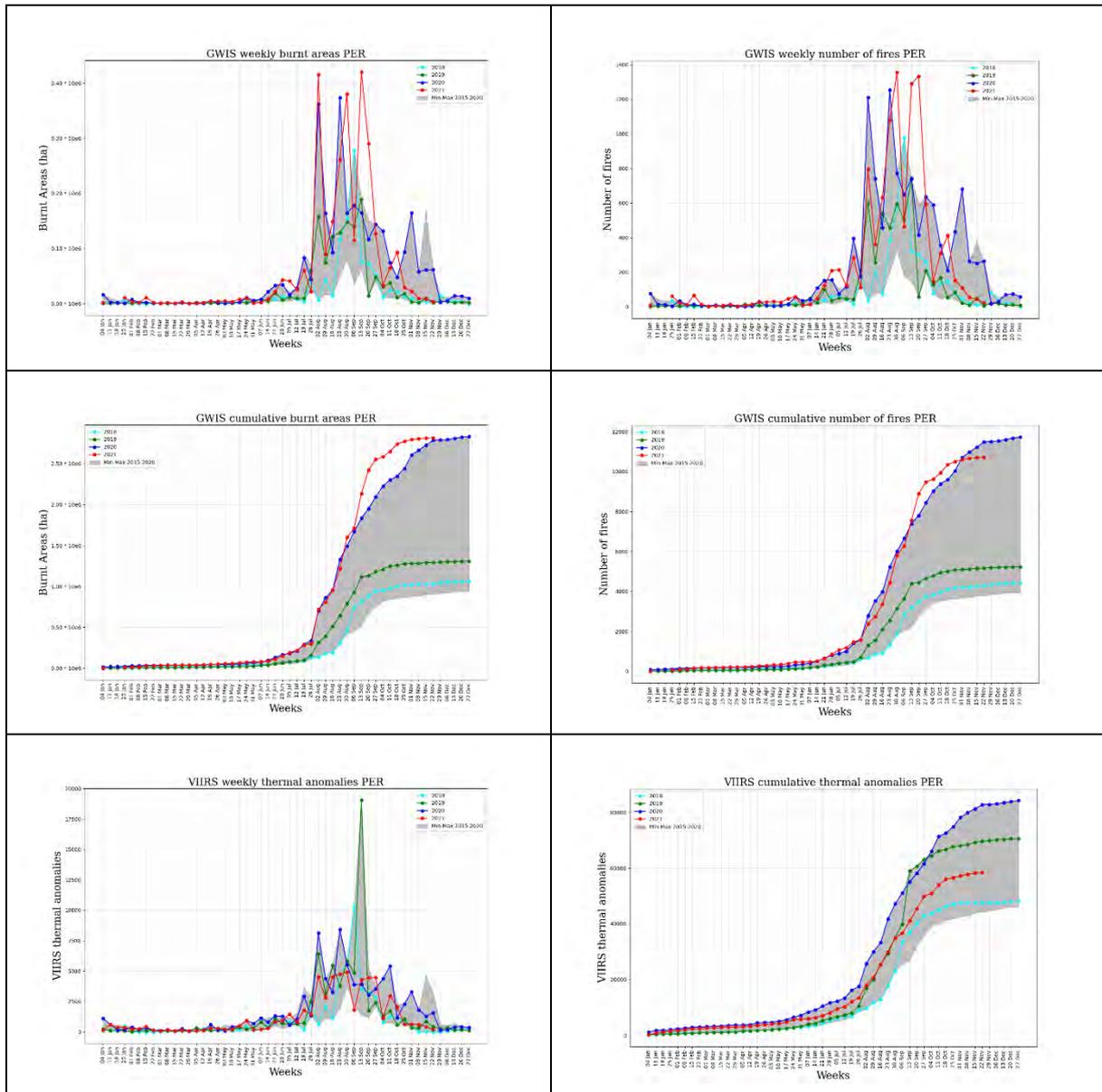


Figure 7. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 3,95 Mha burnt in Venezuela since January 1 until November 28, 2021, with 12,583 ha burnt in the last week. The number of fires recorded in GWIS in the last week was 58. The number of thermal anomalies until November 28, 2021 (145,415) shows a typical trend in the region. 1,322 thermal anomalies were recorded by VIIRS during the last week.

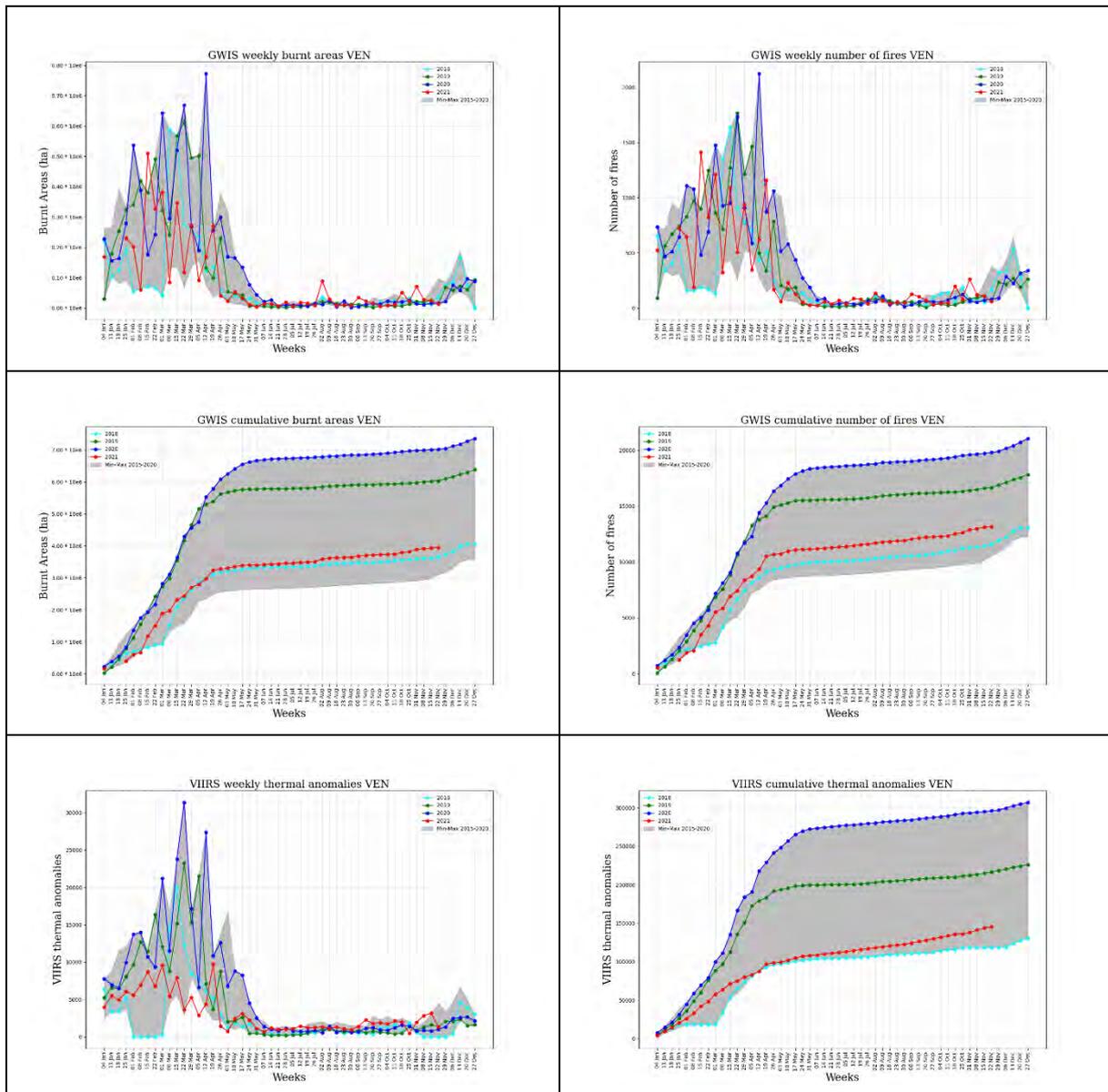


Figure 8. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 451,139 burnt in Chile since January 1 until November 28, 2021, with 5,868 ha burnt in the last week. The number of fires recorded in GWIS in the last week was 28. The number of thermal anomalies until November 28, 2021 (14,588) shows a typical trend in the region as compared to the trends during previous years. 281 thermal anomalies were detected by VIIRS during the last week, which is similar to the values in the same week during previous years.

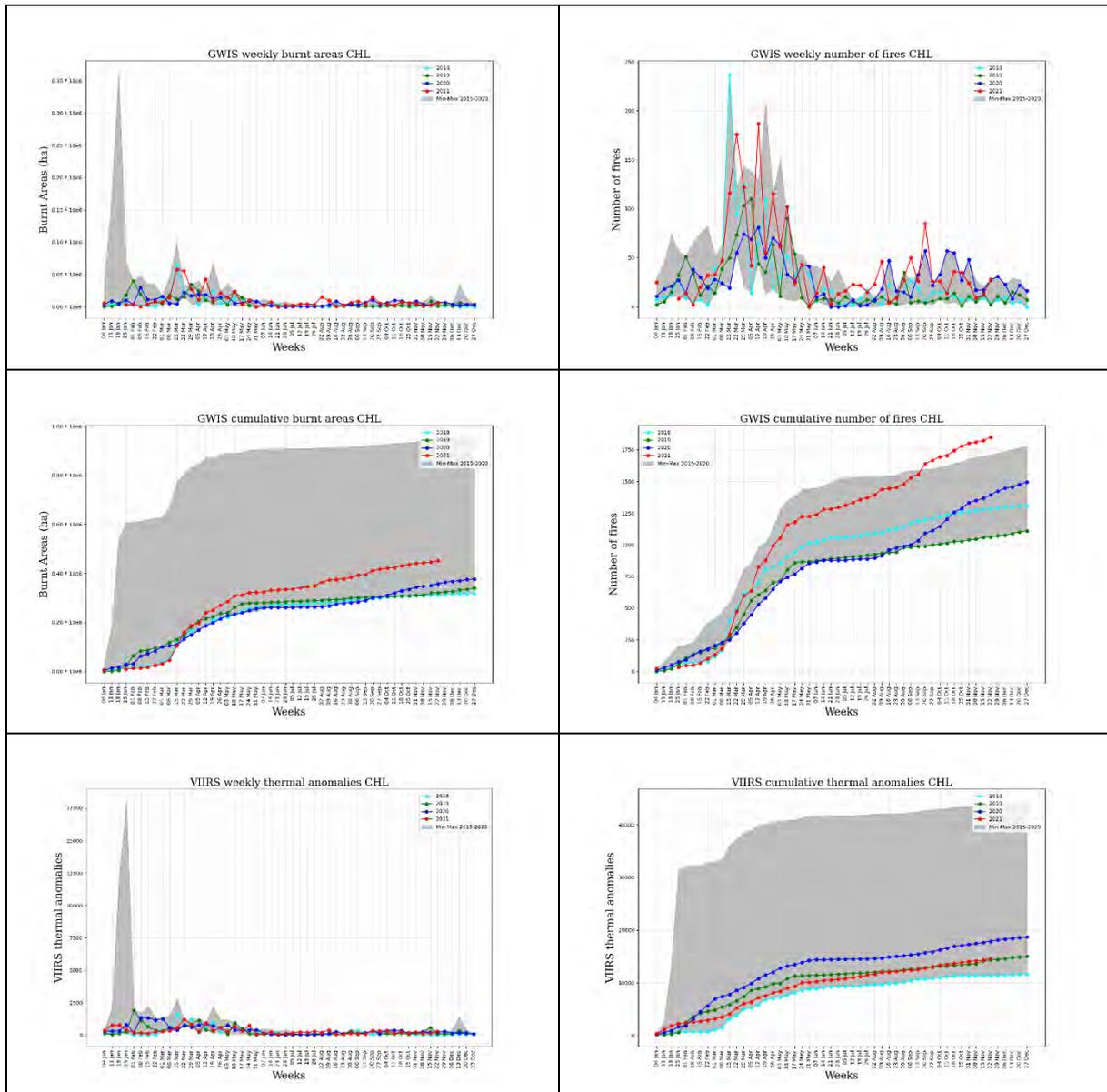


Figure 9. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 5.05 Mha burnt in Argentina since January 1 until November 28, 2021, with 29,139 ha burnt in the last week. These values are the second highest since 2015 for the same week. The number of fires recorded in GWIS in the last week was 102, the second highest value since 2015 for the same period. The number of thermal anomalies until November 28, 2021 (149,184) shows a typical trend in the region. 1,530 thermal anomalies were recorded by VIIRS during the last week, a value that is like those recorded in that week for 2020.

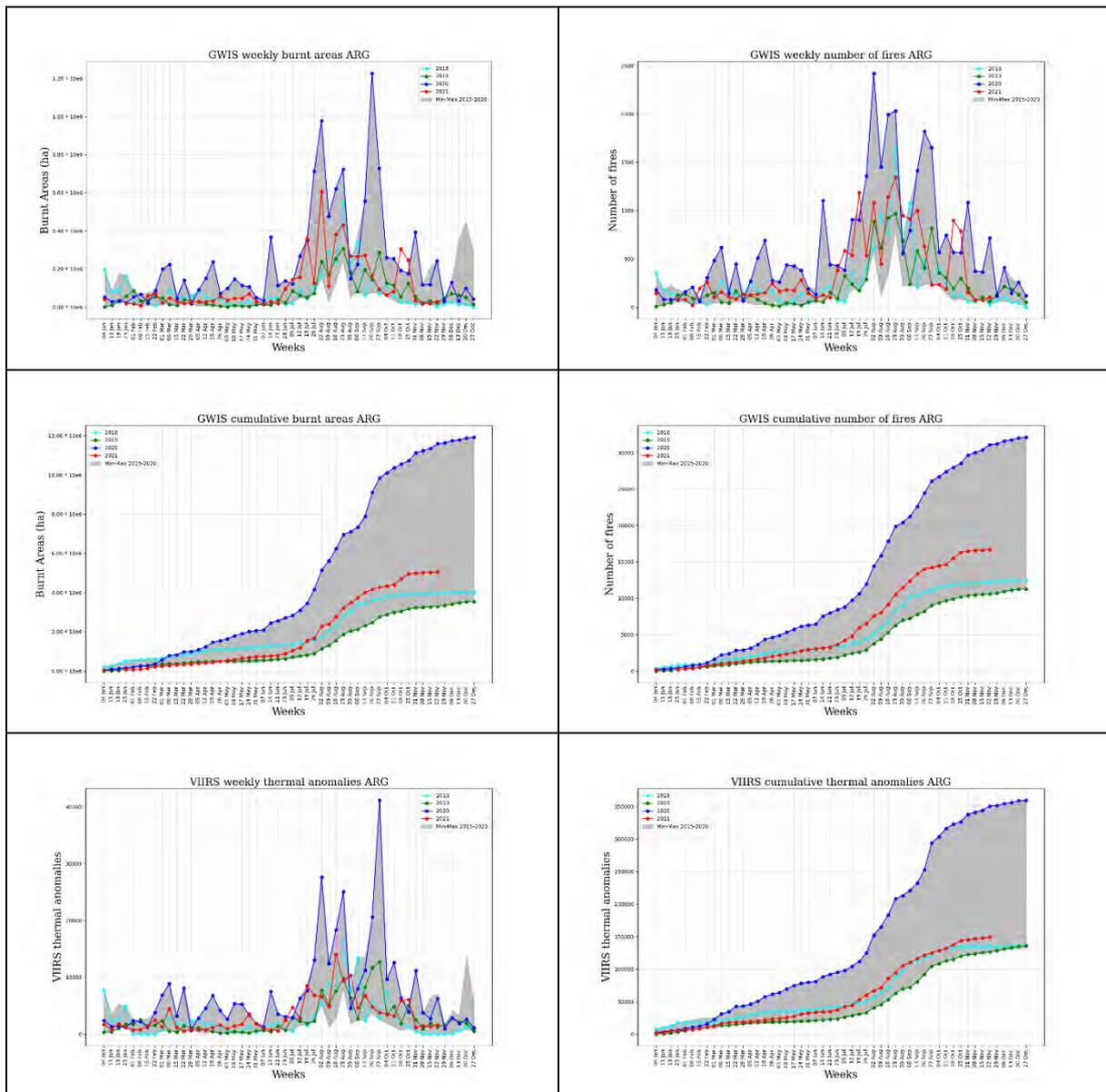


Figure 10. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 285,030 ha burnt in Ecuador since January 1 until November 28, 2021, the second highest value for the same period in the last 6 years, with 26,203 ha burnt in the last week, one of the largest weekly increases of the year. The number of fires recorded in GWIS in the last week was 114. The number of thermal anomalies until November 28, 2021 (6,797) shows a typical trend in the region. 781 thermal anomalies were detected by VIIRS in the last week.

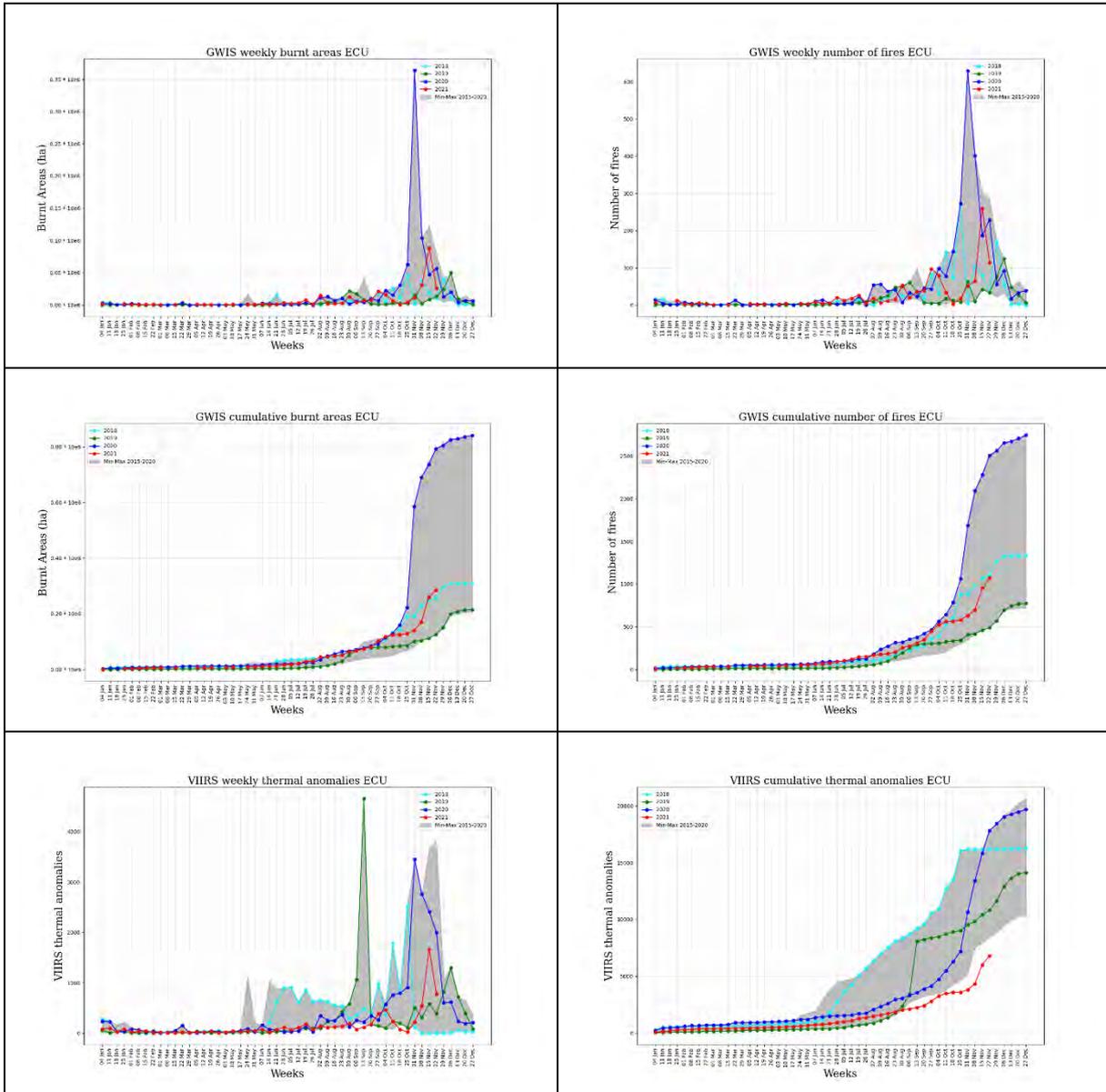


Figure 11. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 51,106 ha burnt in Uruguay since January 1 until November 28, 2021. 5 fire was recorded last week. The number of thermal anomalies until November 28, 2021 (56) shows a typical trend in the region.

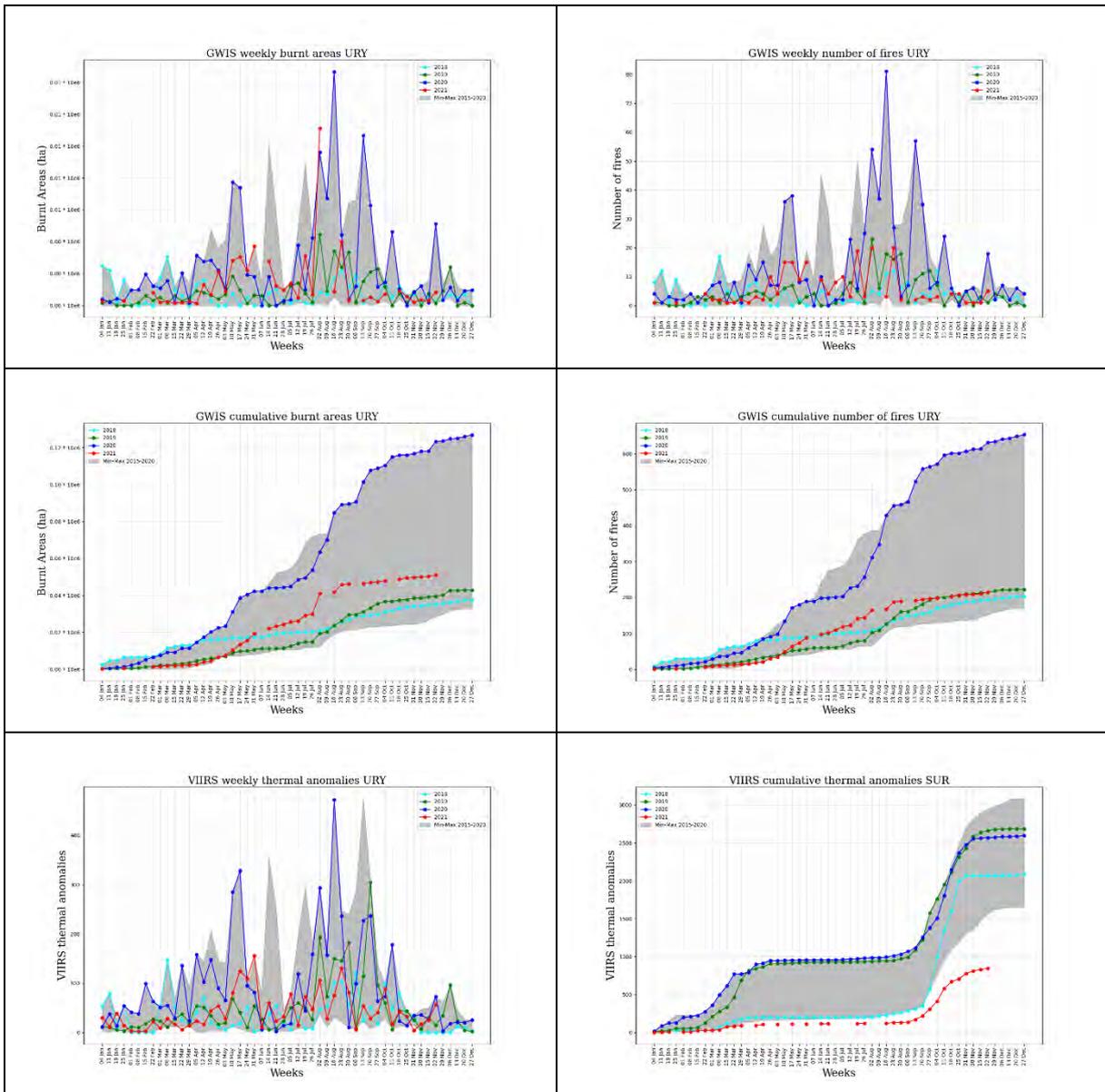


Figure 12. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 6,641 ha burnt since January 1 until November 28, 2021, with 1 fire recorded last week. The number of thermal anomalies until November 12, 2021 (361) shows a typical trend in the region as compared to the trends during previous years. 4 thermal anomalies were detected by VIIRS during the last week, which is similar to the values in the same week during previous years.

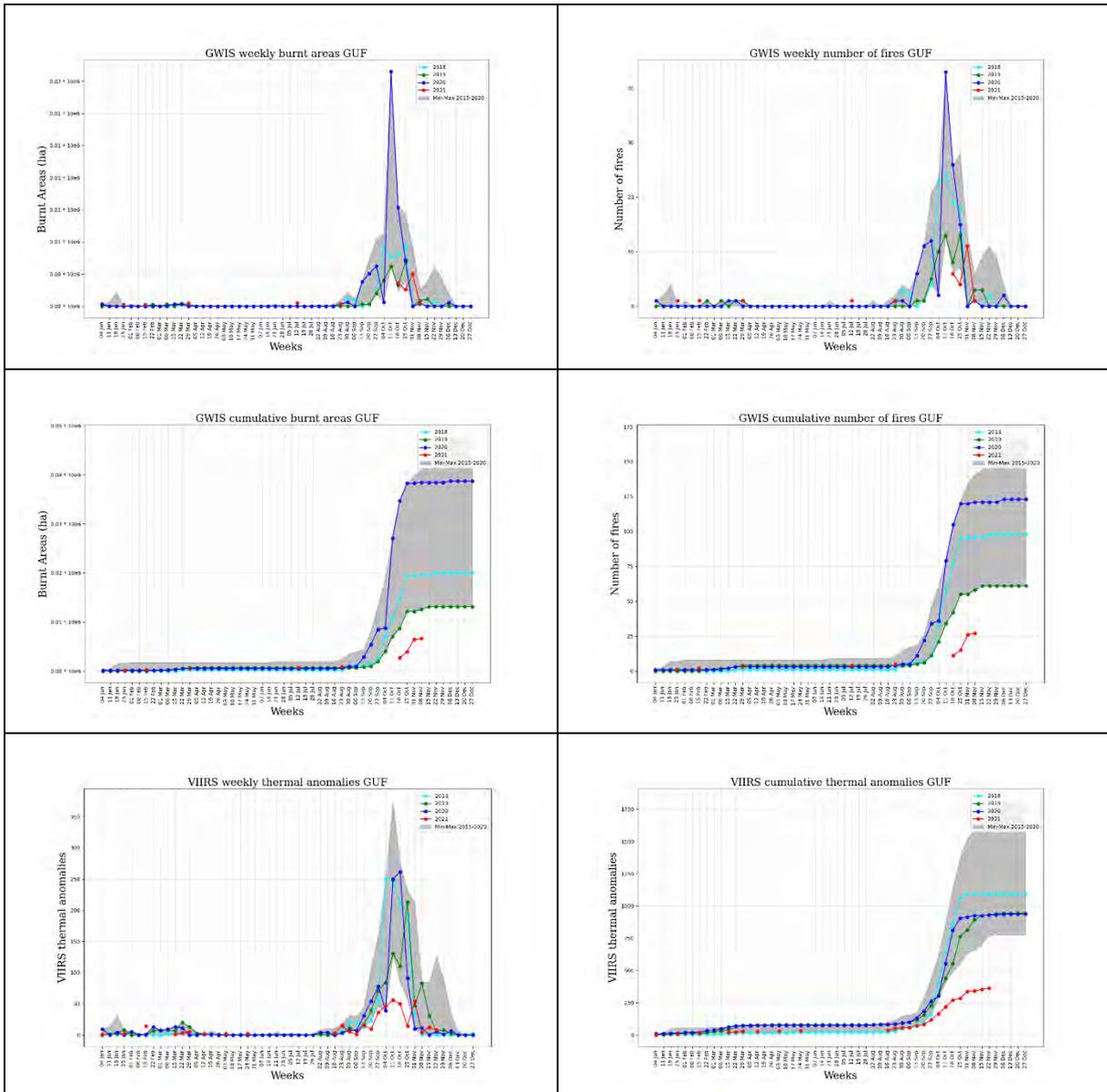


Figure 13. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 80,734 ha burnt in Guyana since January 1 until November 28, 2021, with 1 fires recorded last week. The number of thermal anomalies until November 28, 2021 (3,661) shows a typical trend in the region as compared to the trends during previous years. 79 thermal anomalies were detected by VIIRS during the last week, which is similar to the values in the same week during previous years.

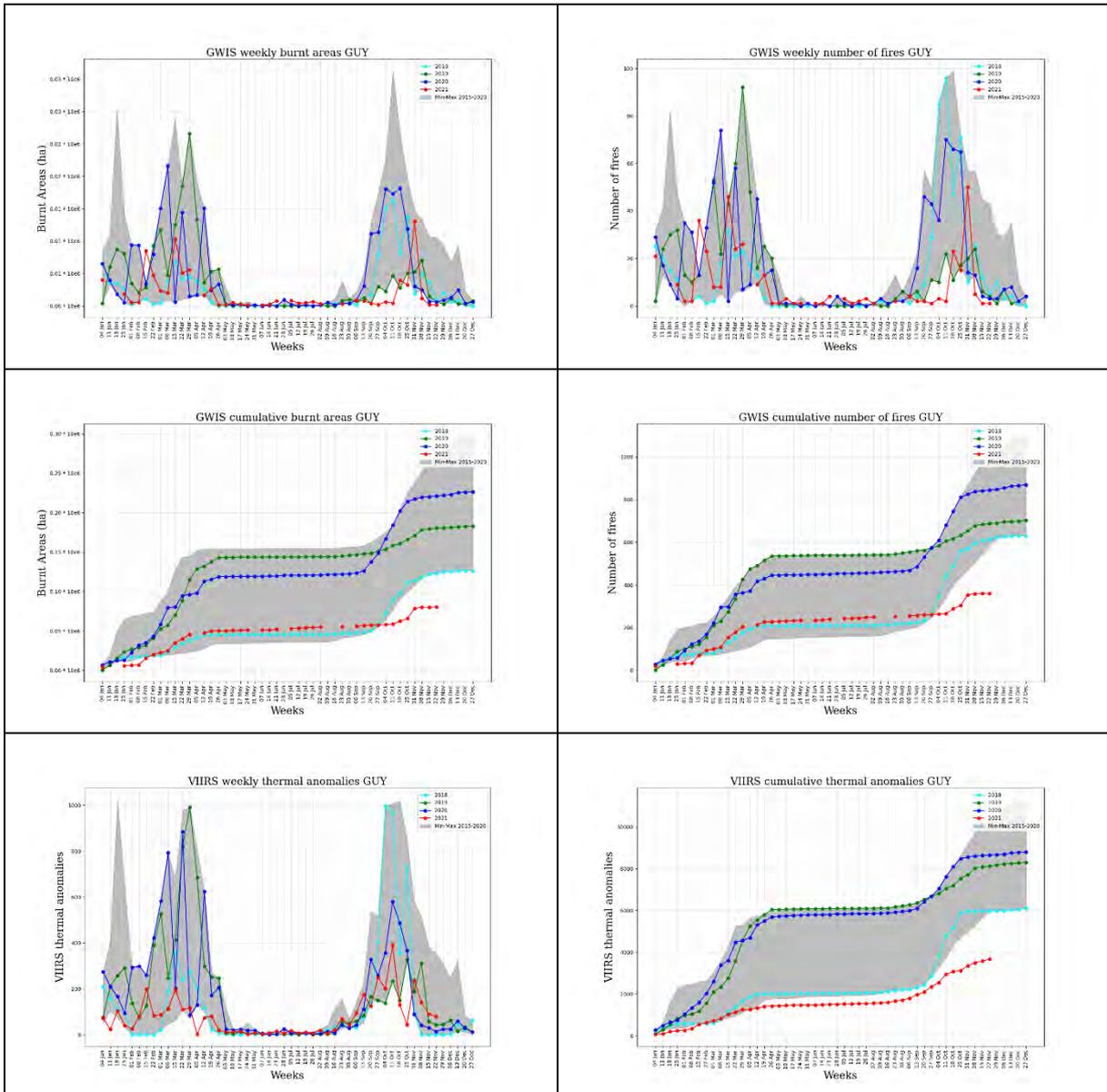


Figure 14. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 November 28, 2021. No fires were recorded last week. The total number of fires since the beginning of the year is 54. The number of thermal anomalies until November 28, 2021 (847) shows a typical trend in the region. 17 thermal anomalies registered last week, increasing after the last week.

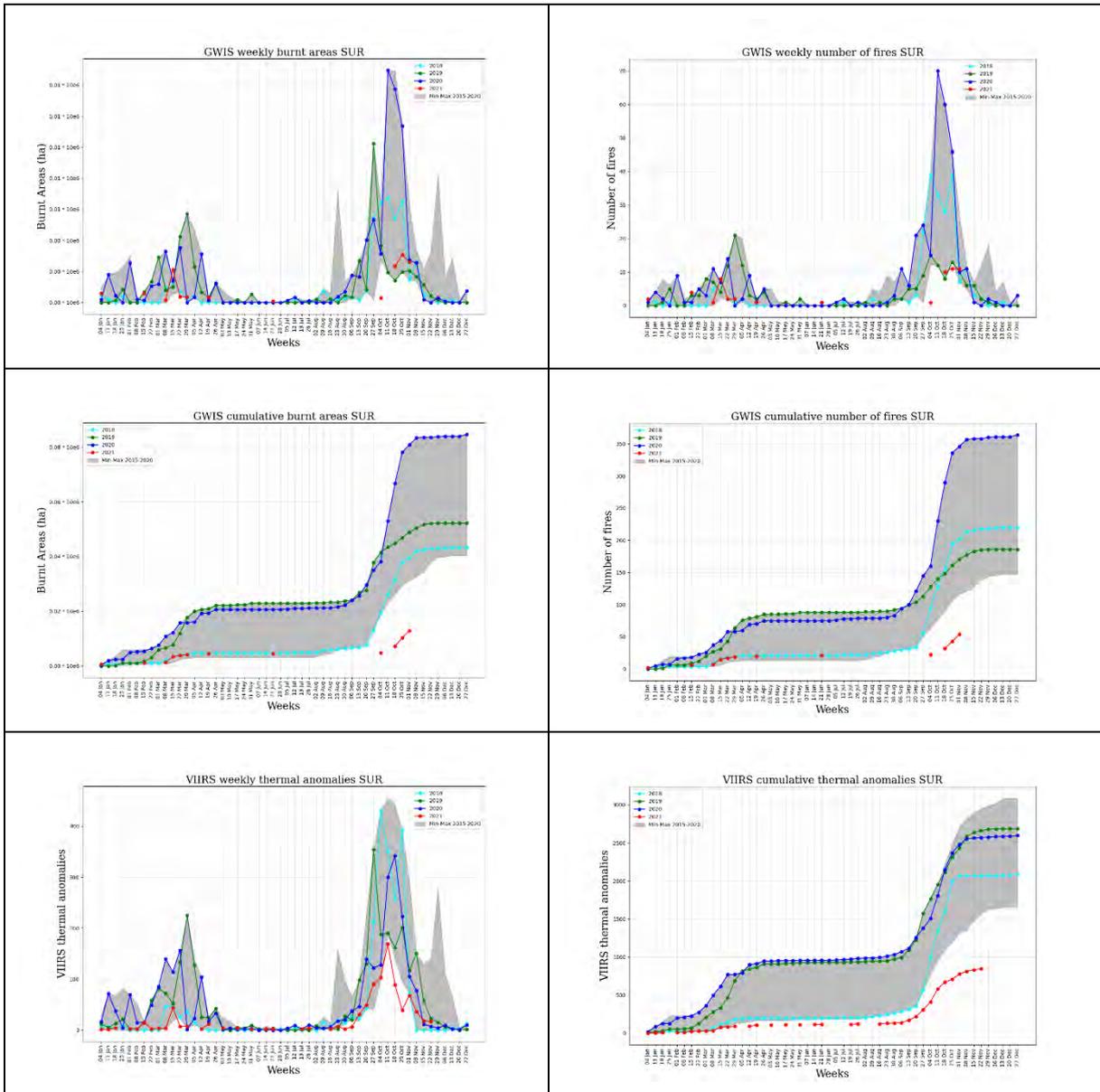


Figure 15. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 November 29 to December 05, 2021. This information is based on the daily fire danger forecast that is provided online in GWIS³. According to this forecast, it is expected that fire danger conditions will be very high to extreme in southern Argentina and northern Chile. Paraguay and eastern part of Brazil will have moderate to high fire danger.

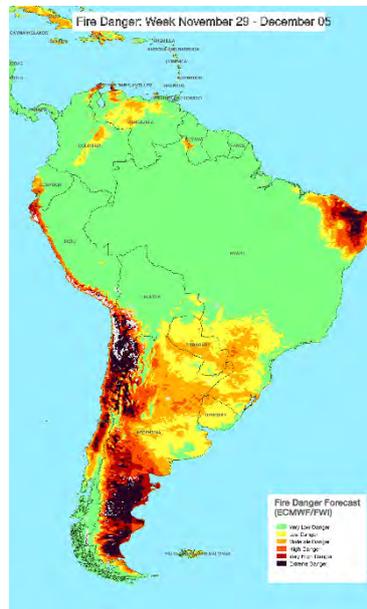


Figure 16. Average Fire danger forecast. Week, November 29– December 05, 2021.

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 southeastern Brazil, Paraguay and southern Argentina. Below average temperatures are forecasted in northern Brazil and Bolivia. The models estimate an above average precipitation rates for next week mainly in Brazil and Bolivia. Below average precipitation is foreseen mainly in southeastern Brazil, northern Argentina and Paraguay.

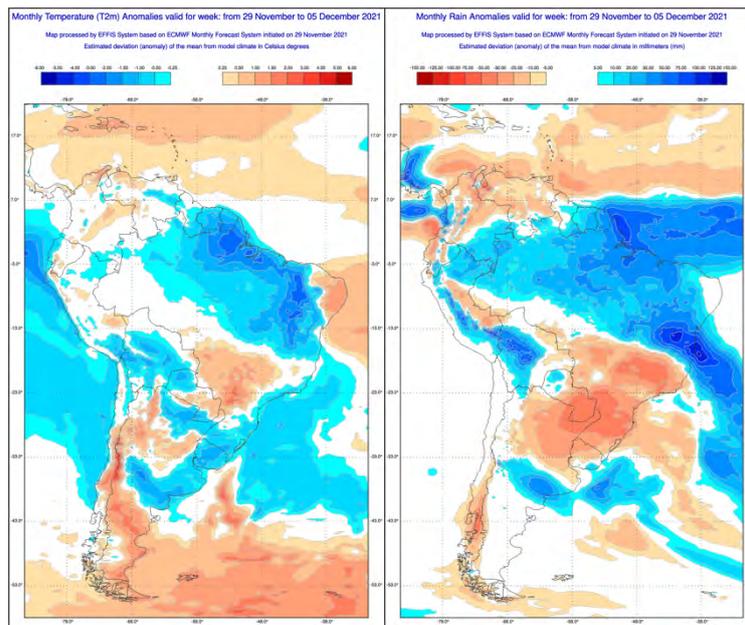


Figure 17. Fire weather anomalies of the current week, November 29 - December 05, 2021.

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

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Figure 3. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years. 4

Figure 4. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years. 5

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

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Figure 17. Fire weather anomalies of the current week, November 1 - November 7, 2021. 17

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