



European
Commission

JRC TECHNICAL REPORT

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

August 23 - August 29, 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: 30 Aug 2021

Rapid Damage Assessment

Select a date-range

Last 1 Day | Last 7 Days | Last 30 Days

Fire Season

From: 01 Jan 2021 To: 29 Aug 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



Joint
Research
Centre

JRC126335

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How to cite this report: San-Miguel-Ayanz, J.¹, 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: August 23 – August 29, 2021, European Commission, Ispra, JRC126335

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⁴ Engineering Ingegneria Informatica S.p.A. Rome, Italy

Contents

Scope of this report and executive summary 1

1 Wildfires in the Brazilian Legal Amazon Region 3

2 Wildfires in Brazil..... 4

3 Wildfires in Bolivia..... 5

4 Wildfires in Colombia..... 6

5 Wildfires in Paraguay..... 7

6 Wildfires in Peru..... 8

7 Wildfires in Venezuela 9

8 Wildfires in Chile 10

9 Wildfires in Argentina..... 11

10 Wildfires in Ecuador 12

11 Wildfires in Uruguay 13

12 Wildfires in French Guiana 14

13 Wildfires in Guyana 15

14 Wildfires in Suriname 16

15 Fire danger and fire weather forecast in the Amazon region..... 17

16 List of Figures 18

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 8.41 Million ha (Mha) burnt since January 1 until August 29, 2021. This value is below those of 2019 and 2020 in the same period. **Last week, 2,124 fires occurred**, which is below the values of 2019 for the same week.
- **In Brazil, 13,92 Million ha (Mha) burnt since January 1 until August 29, 2021**, with a total of 975,643 Mha ha burnt in the last week. The total burnt area in Brazil is close to the values of 2019 and 2020 in the same period and number of fires is higher than in the previous 6 years (3,003 fires occurred last week).
- **In Bolivia**, the total burnt area in 2021 (3.20 Million ha (Mha)) is lower than that recorded for 2019, which was a critical year in the country, while the number of fires is higher than in the previous 6 years. 205 fires were recorded last week. Critical fires are still taking place near Robore, in the southeast of the country, where similar critical fires occurred in 2019.
- **In Colombia**, the total burnt area in the country (2.76 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 9,409, the highest value since 2015 for the same period.
- **In Paraguay**, 2.70 Million ha (Mha) burnt since January 1 until August 29, 2021. The area burnt and the number of fires in the last week are the lowest in the last 6 years for the same week. The total burnt area in 2021 is above those in 2018 and 2019 and reaching the values of the severe season of 2020. The fires during last week happened mainly in the eastern part of the country near the border with Brazil.
- **In Peru**, for the period January 1 until August 29, 2021, the total burnt area (1.20 Mha) and total number of fires (4,464). The current fire season follows the trend of the worst fire season of the last 6 years (2020) in Peru. The burnt area and the number of fires in the last week are the second highest the values reached in the last 6 years.
- **In Venezuela**, 4.26 Million ha (Mha) burnt in the current year until August 29. The value of the total burnt area in Venezuela is lower than that in 2019 and 2020.
- **In Chile**, 427,507 ha burnt in the current year until August 29, 2021. This value is 51% higher than that in 2020. The number of fires until now (1587), is the highest value since 2015.
- **In Argentina**, a total of 3.14 Million ha (Mha) burnt since January 1 until August 29, 2021, which is less than half of what burned in 2020. A total of 10,622 fires were mapped this year.
- **In Ecuador**, a total of 193 fires burnt 54,328 ha since January 1 until August 29. These values are similar to the values of the last six years but the fire season is just starting.
- **In Uruguay**, a total of 46,548 ha burnt since January 1 until August 29 with 1,666 ha burnt last week. The total area is larger than the area burnt in 2018 and 2019 but lower than in 2020. 10 fires were recorded last week.
- **In French Guiana** a total of 893 ha burnt since January 1 until August 29, 2021. This value is similar with the previous years. 1 fire was recorded last week.
- **In Guyana**, a total of 61,285 ha burnt since January 1 until August 29, 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 4,533 ha since January 1 until August 29, 2021, a value similar to that of 2018 and lower than 2019 and 2020. One fire was recorded last week.

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](#))

- This week, fire danger conditions will continue to be very high to extreme in the central and eastern part of Brazil, northern Chile and moderate to high in eastern Bolivia, Paraguay and northern/western 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 8.41 Mha burnt in the BLA since January 1 until August 29, 2021, with 0.72 Mha burnt in total during the last week, which is below the values of the same week for the last 6 years. The number of fires recorded in GWIS last week was 2,124, and the total number of fires up to August 29 is close to the maximum value of the last 5 years. The number of thermal anomalies until August 29, 2021 (351,240) shows a typical trend in the region as compared to the trends in 2019 and 2020. 65,214 thermal anomalies were registered last week.

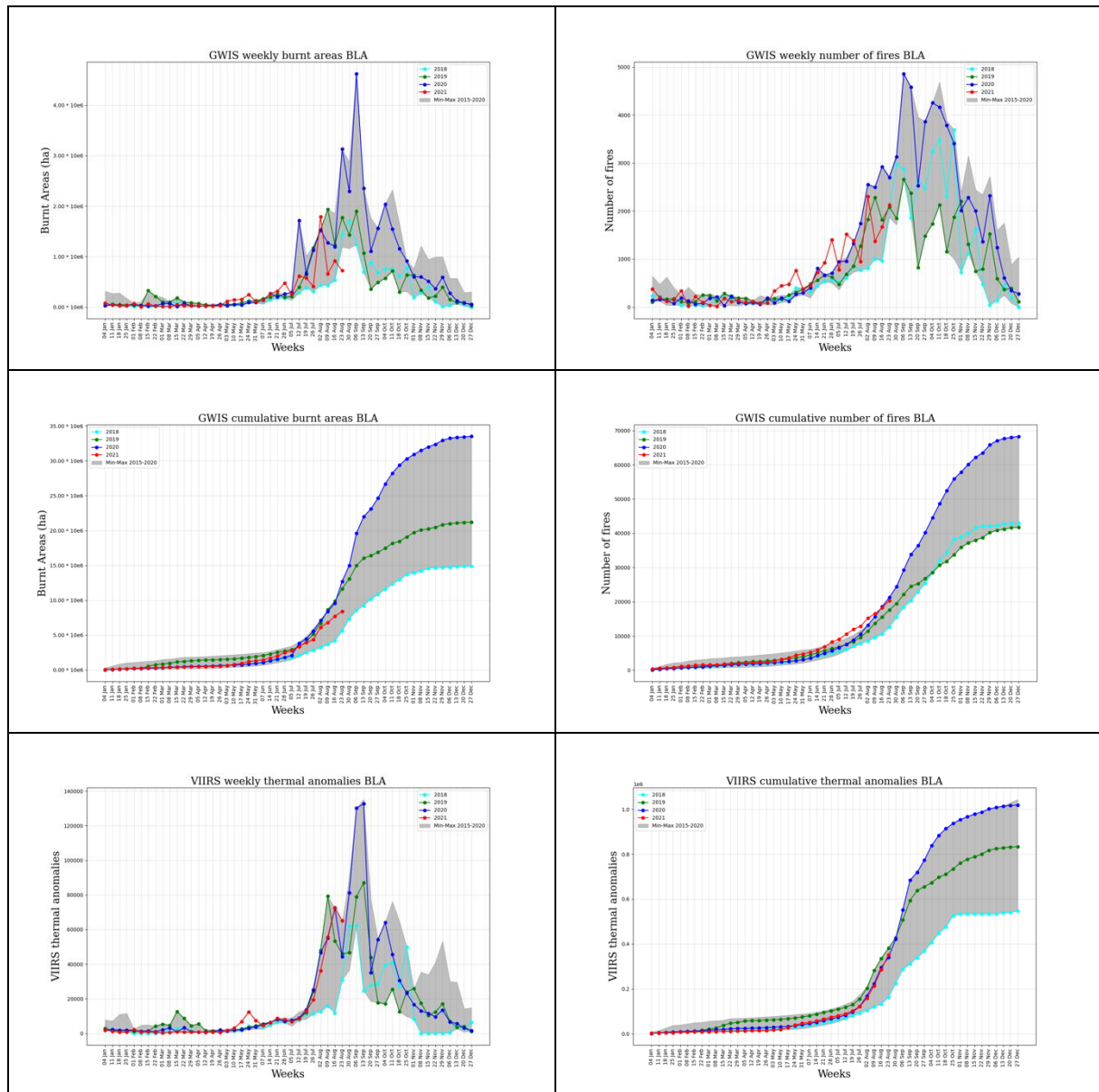


Figure 2 Trend of burnt areas and number of fires as compared to data in the last 6 years.

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 13.92 Mha ha burnt in Brazil since January 1 until August 29, 2021, close to the highest value in the last 6 years, with a total 975,643 ha burnt in the last week. The number of fires recorded in GWIS in the last week was 3,003; the total of number of fires up to the 22 of August is the highest value in the last 6 years for the same period. The number of thermal anomalies until August 29, 2021 (573,169) shows a typical trend in the region. 95,075 thermal anomalies were registered last week.

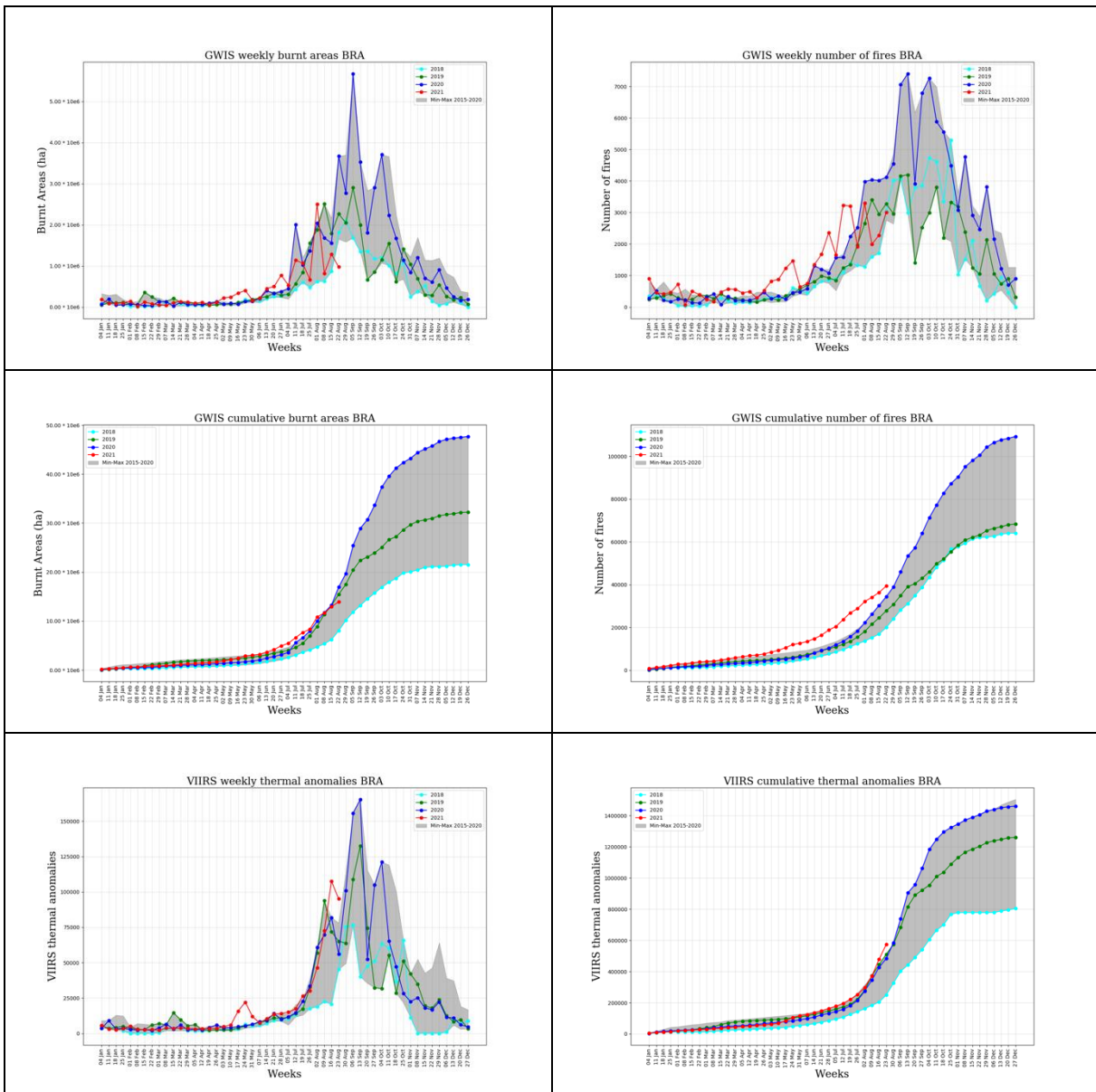


Figure 3. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 3.20 Mha ha burnt in Bolivia since January 1 until August 29, 2021, with 80,003 ha burnt in the last week. The 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 205, the lowest value in the last 6 years for the same week. The number of fires in 2021 is above the values of the last 6 years for the same period. The number of thermal anomalies until August 29, 2021 (107,751) is the second highest value since 2015 for the same period. 10,280 thermal anomalies were detected by VIIRS in the last week. Critical fires are still active in the southeast of the country.

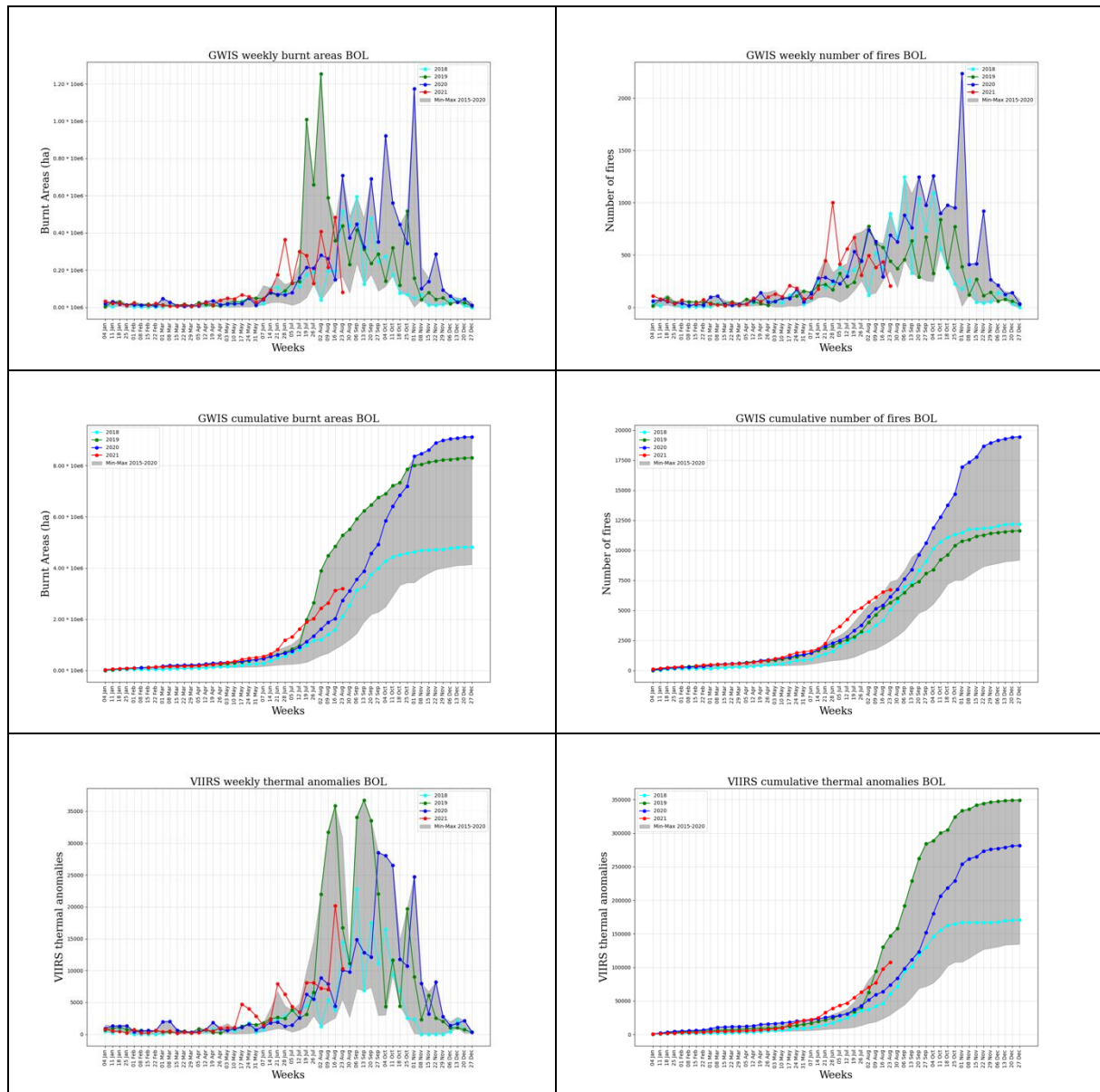


Figure 4. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 2.76 Mha burnt in Colombia since January 1 until August 29, 2021. Approximately 19,844 ha burnt in the country the last week increasing from the last week. The number of fires recorded in GWIS in the last week was 91 and the total number of fires since January 1 is 9,409. The number of thermal anomalies until August 29, 2021 (63,212) follows a typical trend in the region with similar values of 2018 but way below of 2019 and 2020. 661 thermal anomalies detected by VIIRS last week.

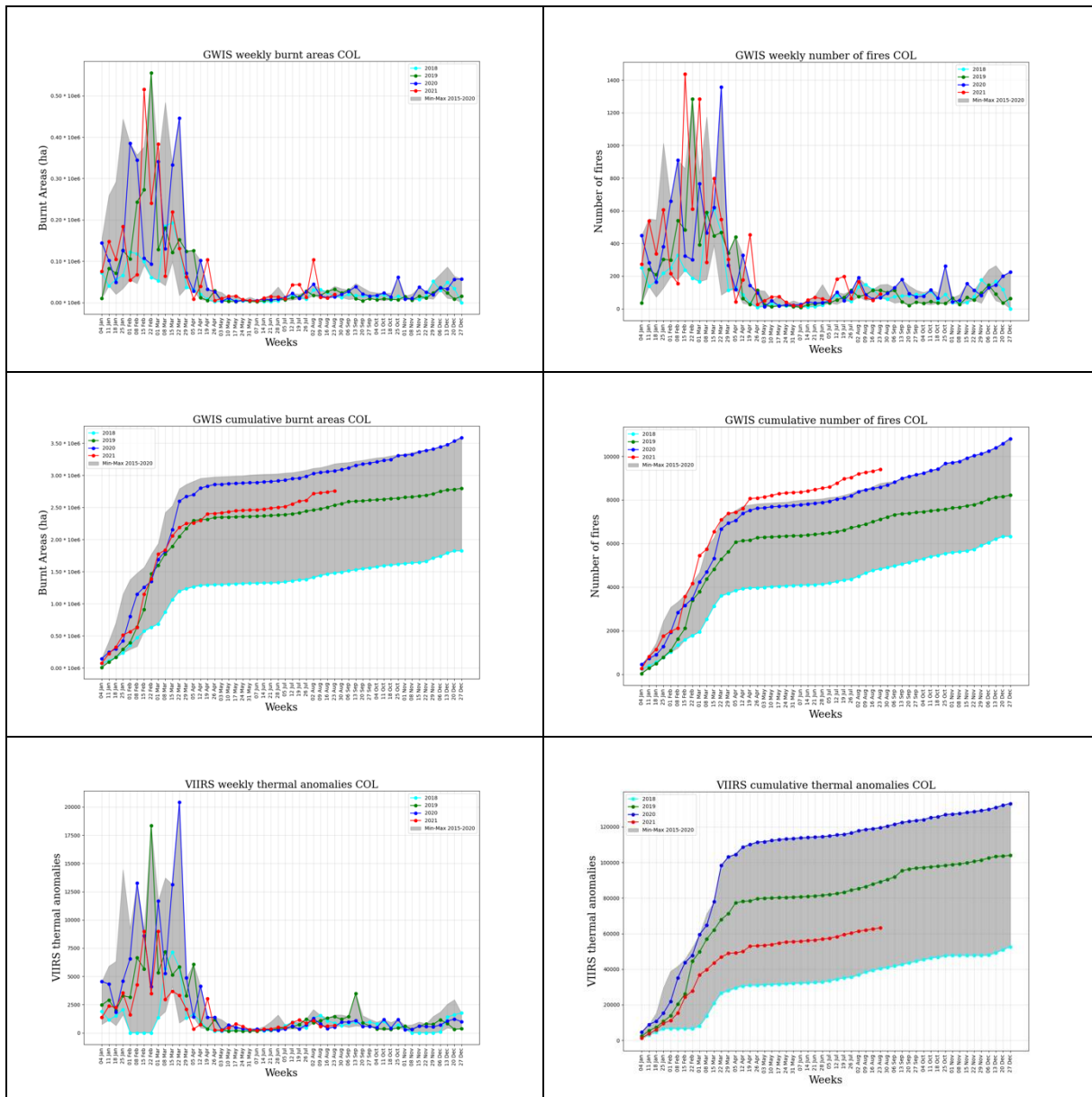


Figure 5. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 2.70 Mha burnt in Paraguay since January 1 until August 29, 2021. Approximately 0.52 Mha 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 188, above the values of the last 6 years for the same week. The number of thermal anomalies until August 29, 2021 (89,940) follows a typical trend in the region. 5,523 thermal anomalies detected by VIIRS last week, which is the highest value in the last 6 years.

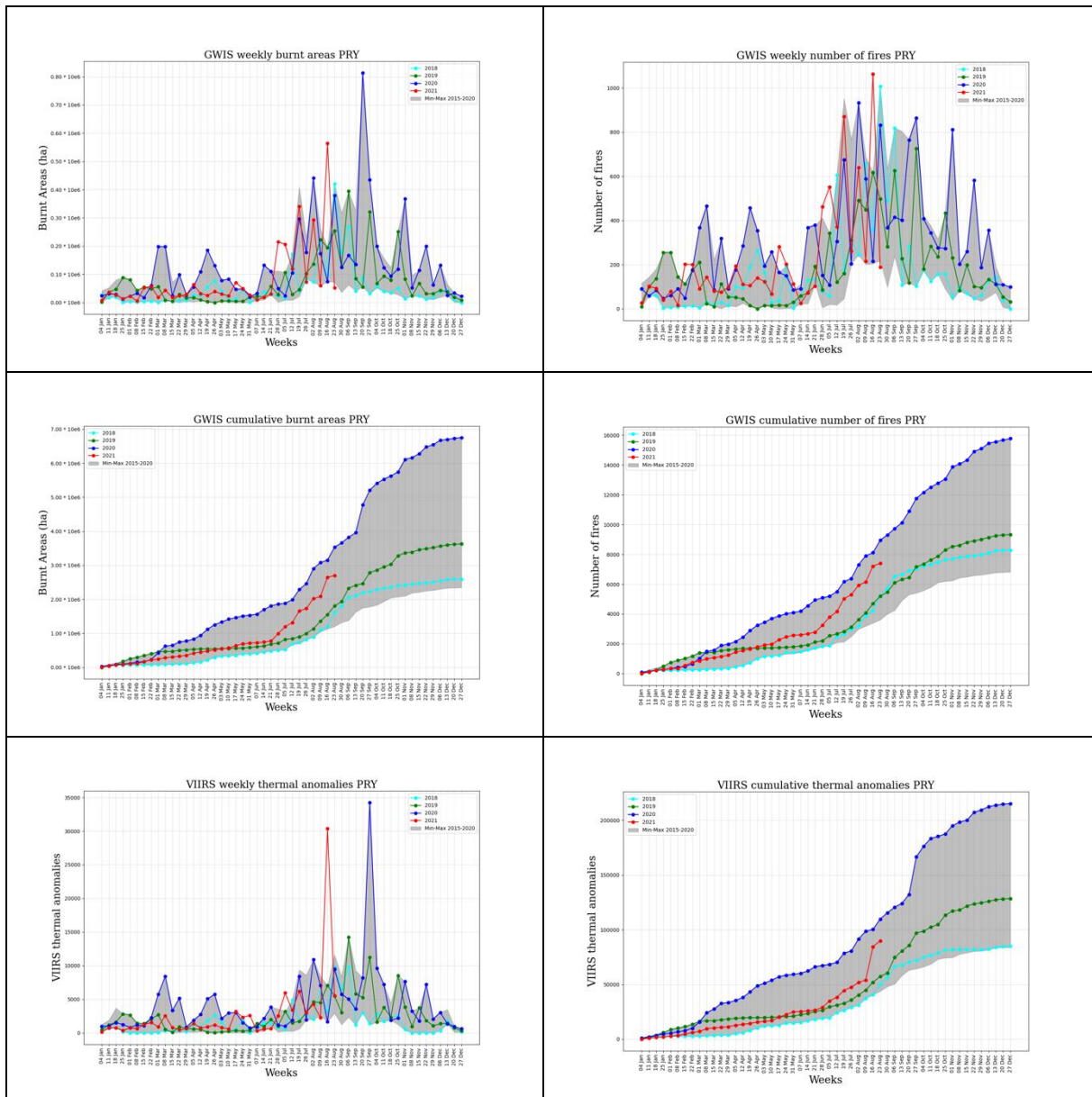


Figure 6. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

6 Wildfires in Peru

Error! Reference source not found. 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 1.20 Mha burnt in Peru since January 1 until August 29, 2021, the second highest value since 2015 for the same period, lower than 2020. Approximately 202,940 ha burnt in the last week. The burnt area and the number of fires last week are the second highest values reached in the last 6 years for the same week. The number of thermal anomalies until August 29, 2021 (30,016) shows a typical trend in the region. 4,750 thermal anomalies registered last week, increasing after the last week.

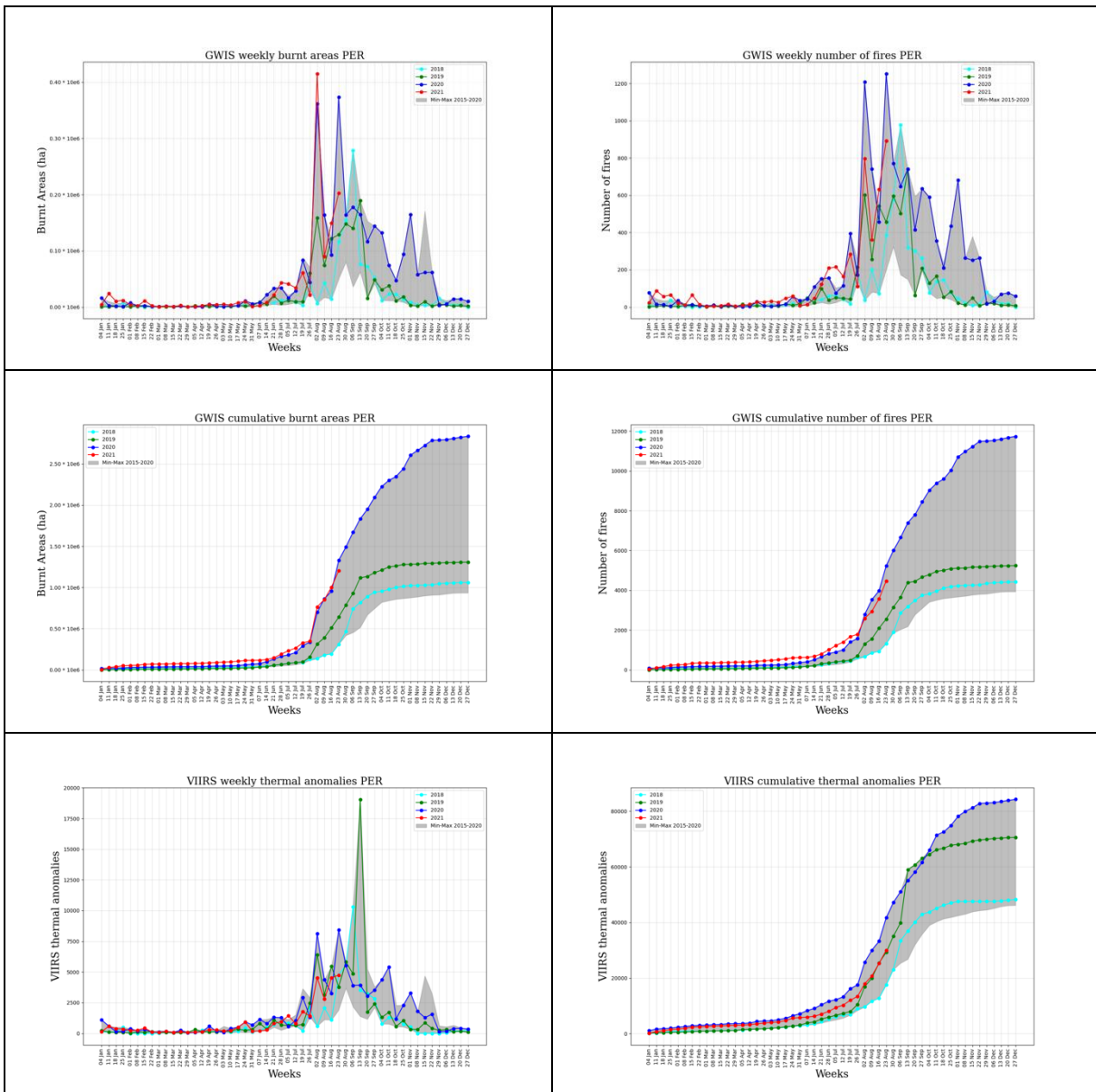


Figure 7. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 4.26 Mha burnt in Venezuela since January 1 until August 29, 2021, with 6.017 ha burnt in the last week. The number of fires recorded in GWIS in the last week was 30. The number of thermal anomalies until August 29, 2021 (121,721) shows a typical trend in the region. 1,074 thermal anomalies were recorded by VIIRS during the last week, a value that is the second highest since 2015 for the same week.

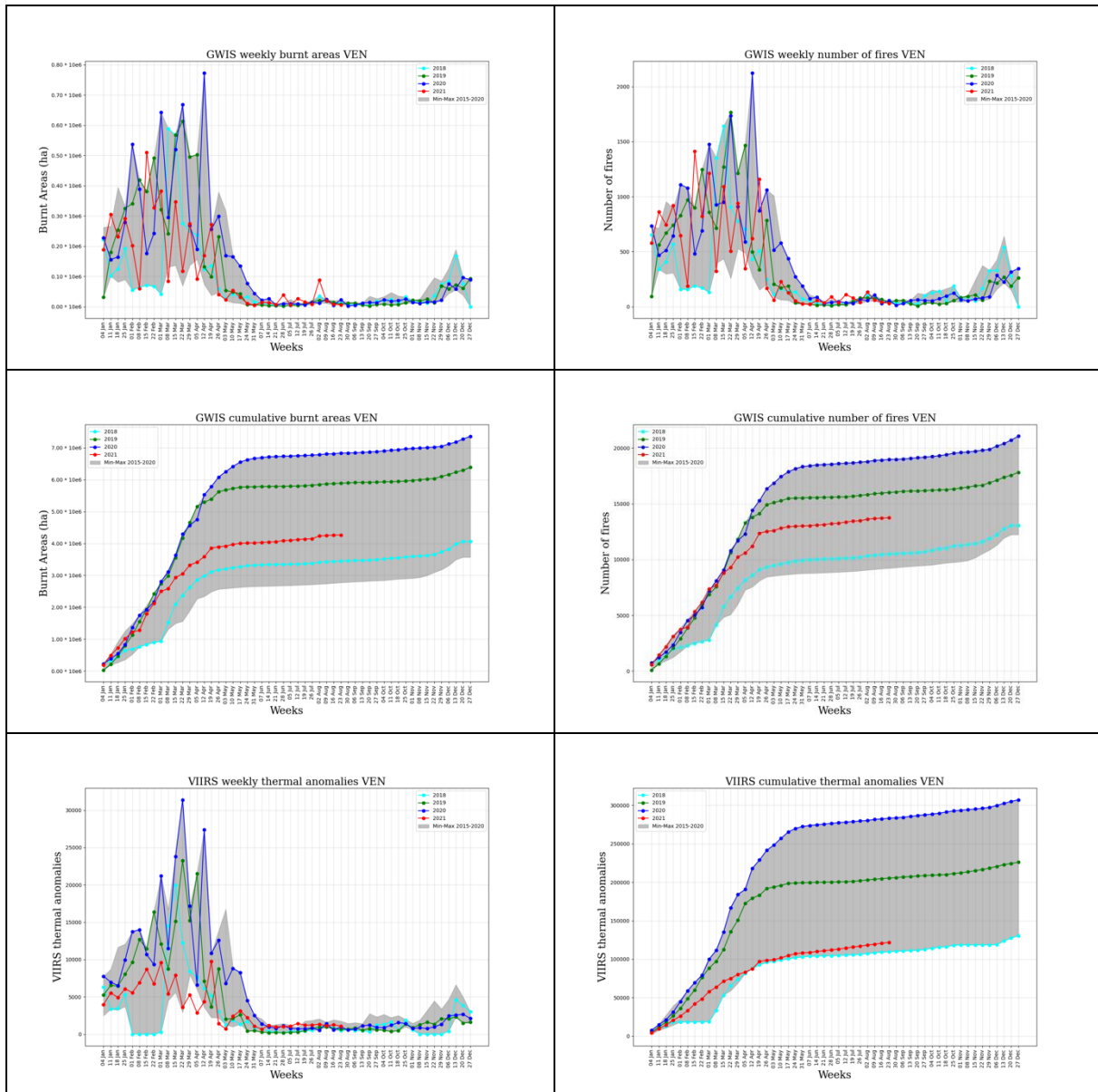


Figure 8. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

8 Wildfires in Chile

Error! Reference source not found. 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 427,507 ha burnt in Chile since January 1 until August 29, 2021, with 1,719 ha burnt in the last week. The number of fires recorded in GWIS in the last week was 6, while the number of fires remains above the numbers of the last 6 years. The number of thermal anomalies until August 29, 2021 (12,131) shows a typical trend in the region as compared to the trends during previous years. 58 thermal anomalies were detected by VIIRS during the last week, which is similar to the values in the same week during previous years.

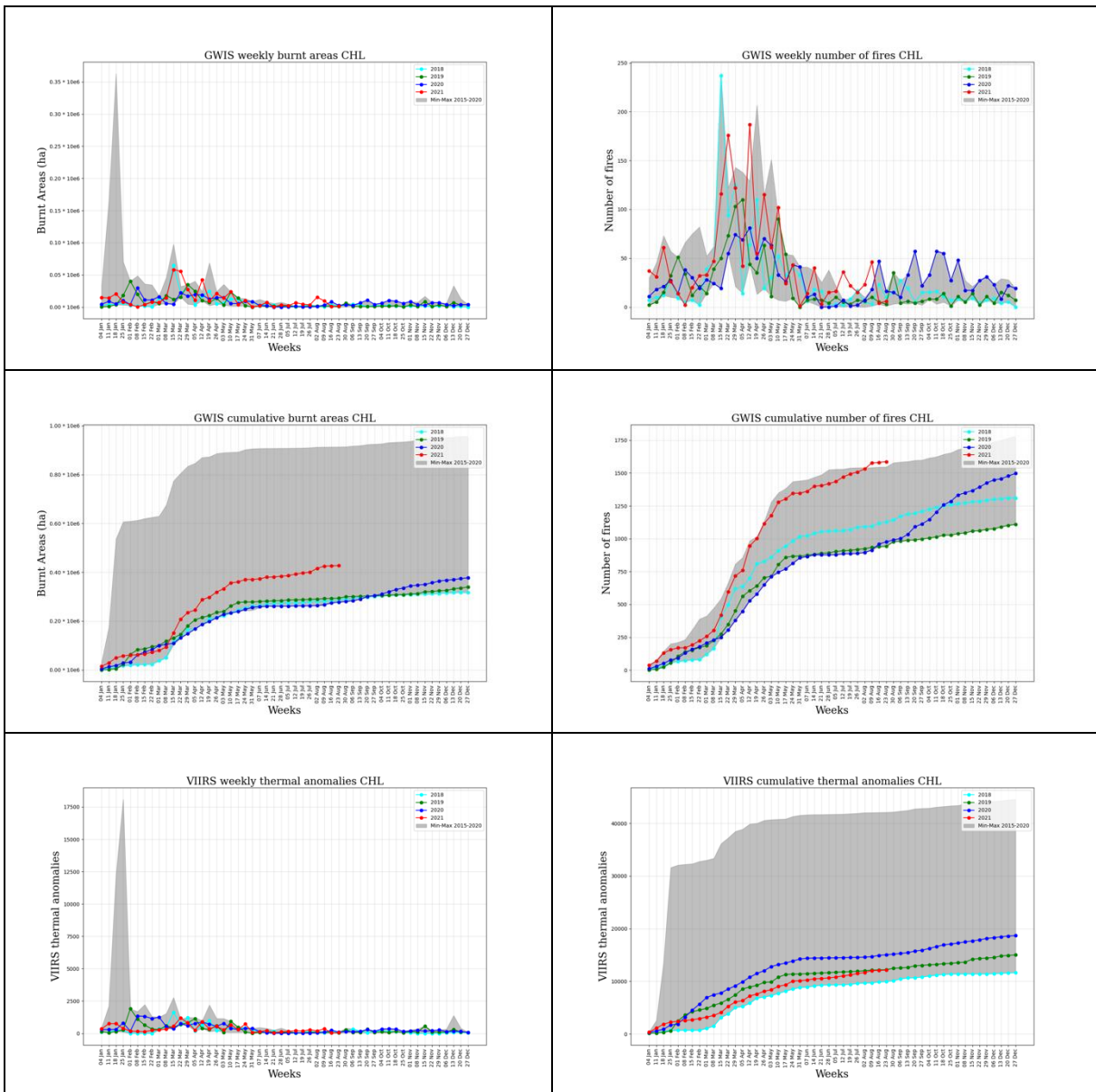


Figure 9. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 3.14 Mha burnt in Argentina since January 1 until August 29, 2021, with 0.22 Mha burnt in the last week. These values are below of those of 2020, but above all the other years, since 2015. The number of fires recorded in GWIS in the last week was 813. The number of thermal anomalies until August 29, 2021 (94,885) shows a typical trend in the region. 9,374 thermal anomalies were recorded by VIIRS during the last week, a value that is like those recorded in that week for 2020.

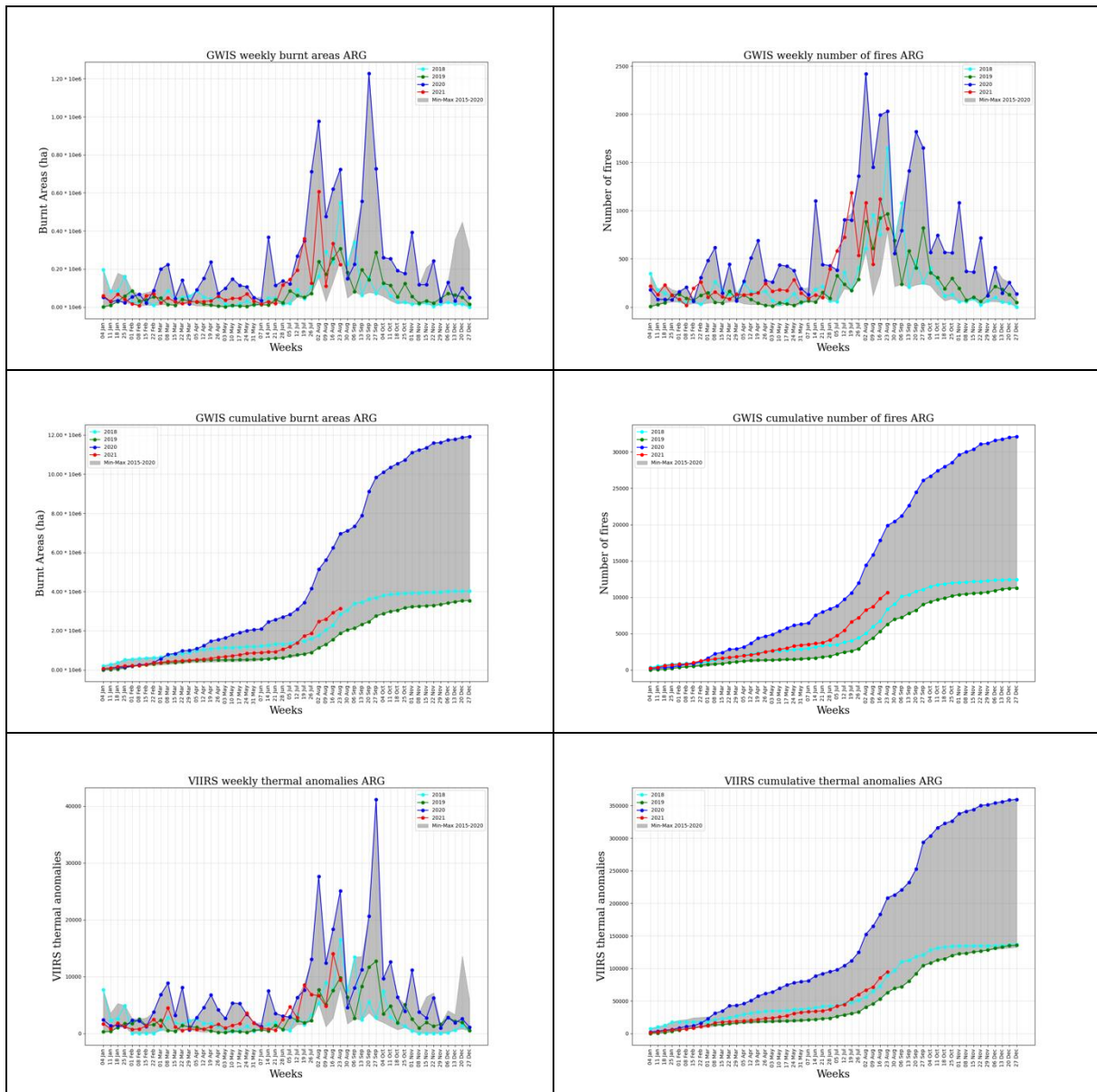


Figure 10. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 54,328 ha burnt in Ecuador since January 1 until August 29, 2021, with 2,772 ha burnt in the last week. The number of fires recorded in GWIS in the last week was 15. 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 August 29, 2021 (1,868) shows a typical trend in the region. 137 thermal anomalies were detected by VIIRS in the last week.

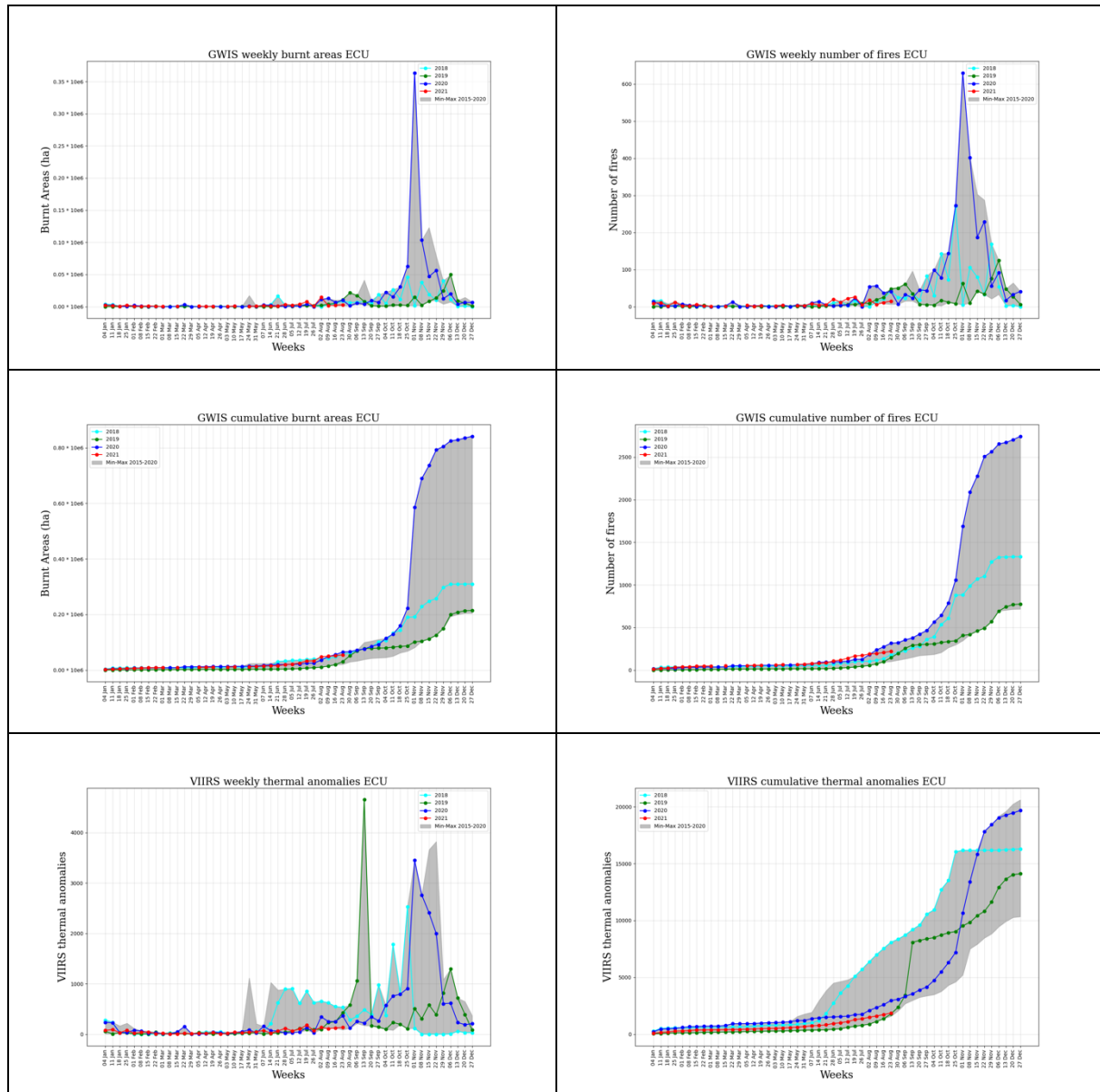


Figure 11. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 46,548 ha burnt in Uruguay since January 1 until August 29, 2021, with 1,666 ha burnt last week, which is the highest weekly value in 2021. 10 fires were recorded last week. The number of thermal anomalies until August 29, 2021 (1,511) shows a typical trend in the region.

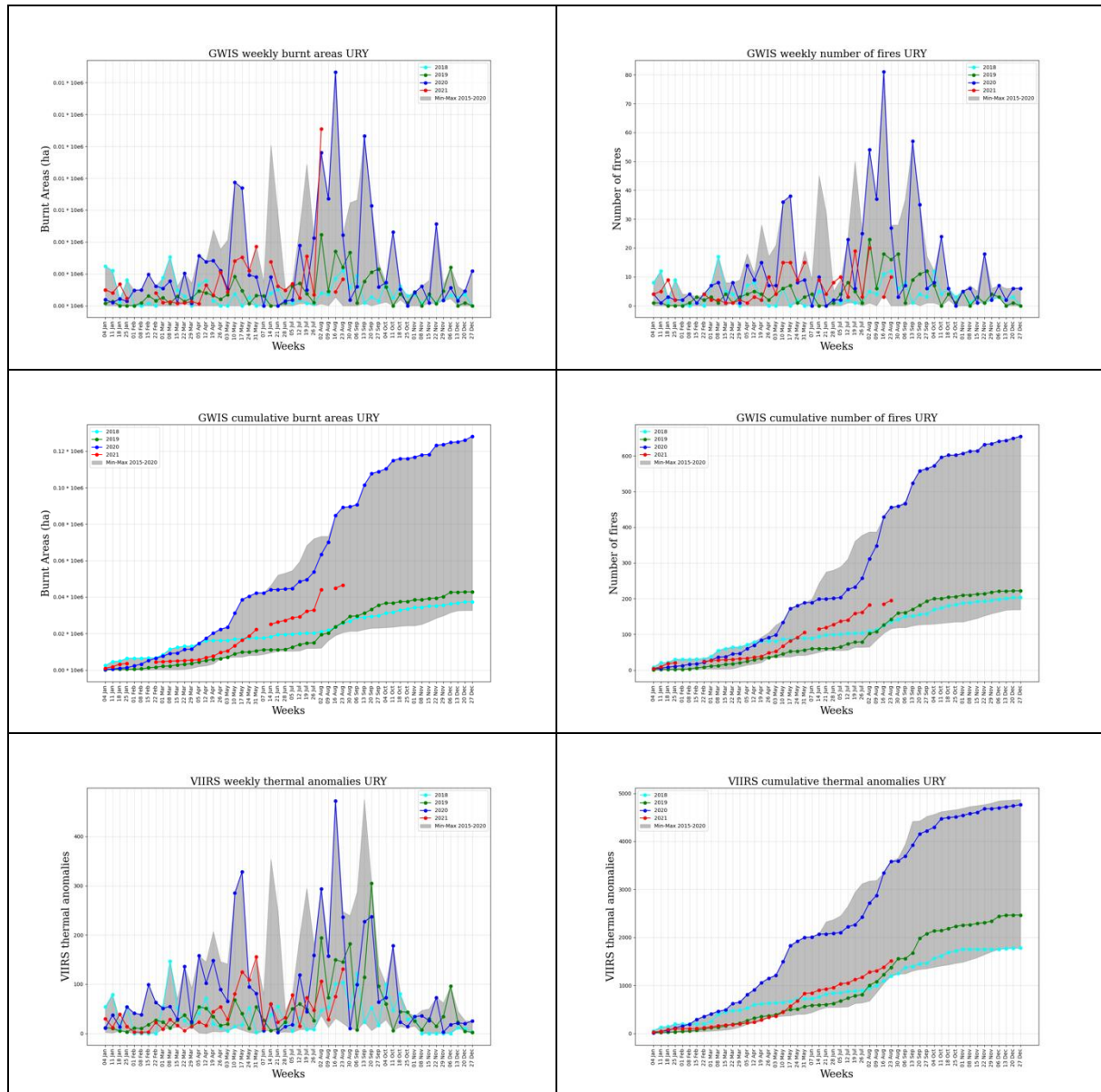


Figure 12. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 August 29, 2021, in French Guiana, 1 fire was recorded last week. The number of thermal anomalies until August 29, 2021 (50) shows a typical trend in the region as compared to the trends during previous years. 15 thermal anomalies were detected by VIIRS during the last week, which is similar to the values in the same week during previous years.

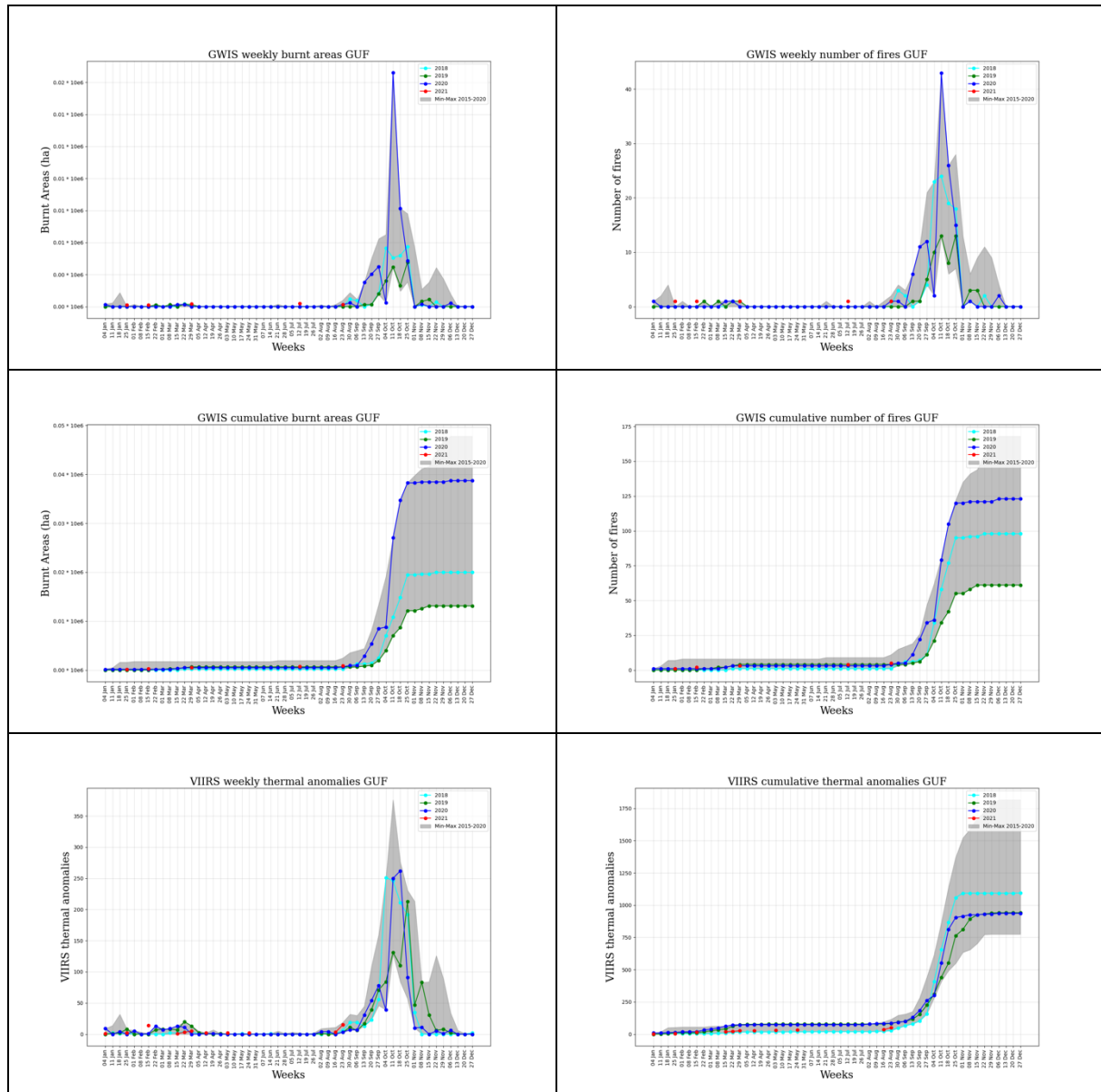


Figure 13. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 61,285 ha burnt in Guyana since January 1 until August 29, 2021, with 290 ha burnt and 2 fires recorded last week. The number of thermal anomalies until August 29, 2021 (1,663) shows a typical trend in the region as compared to the trends during previous years. 69 thermal anomalies were detected by VIIRS during the last week, which is similar to the values in the same week during previous years.

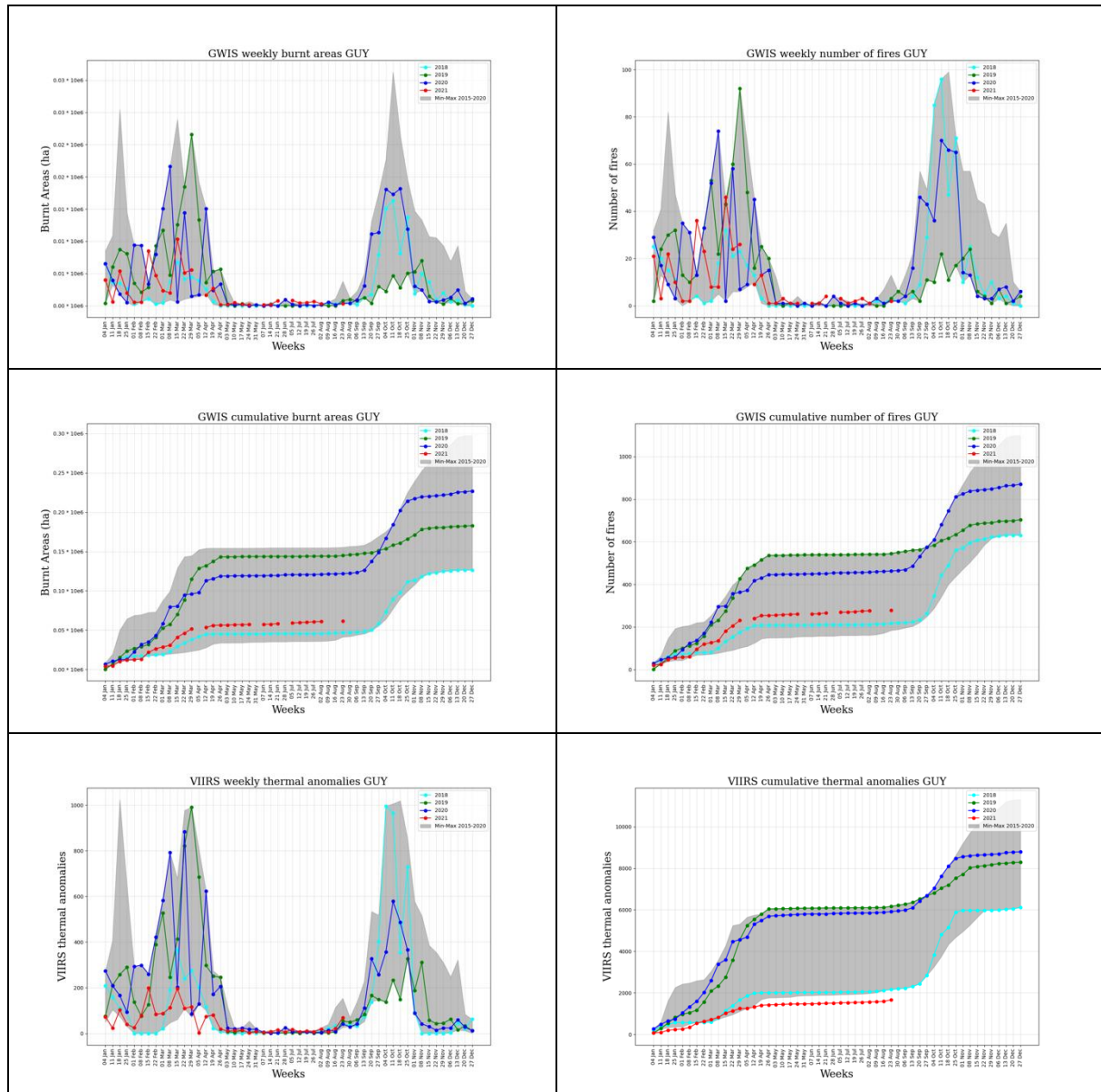


Figure 14. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 4,533 ha burnt in Suriname since January 1 until August 29, 2021. One fire was recorded last week. The total number of fires since the beginning of the year is 21. The number of thermal anomalies until August 29, 2021 (170) shows a typical trend in the region. 7 thermal anomalies were registered last week.

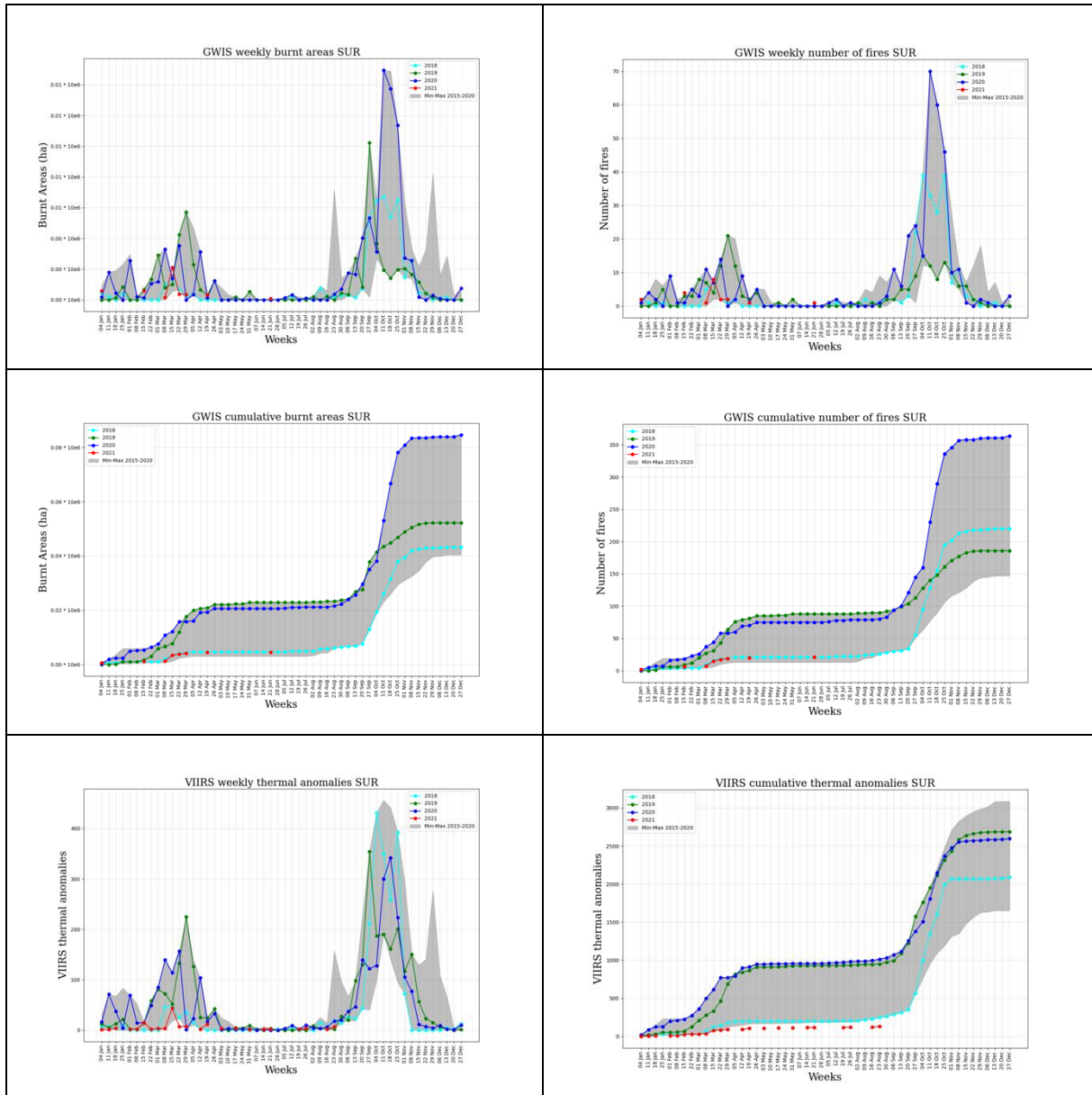


Figure 15. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.

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 August 30 to September 05, 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 the central and eastern part of Brazil, northern Chile and moderate to high in eastern Bolivia, Paraguay and northern/western Argentina.

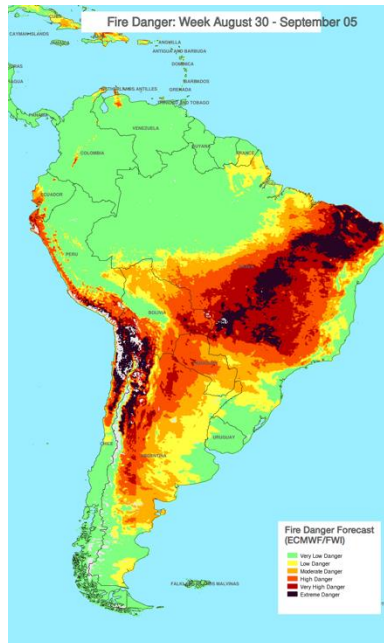


Figure 16. Average Fire danger forecast. Week, August 30- September 05 , 2021.

The weekly weather forecast of temperature and precipitation anomalies for is presented in Figure 17. Below average temperatures are forecasted for areas of northern Brazil. Above average temperatures are forecasted in eastern Paraguay, Bolivia, southeastern Brazil, Argentina and Peru. The models estimate average precipitation for next week in the region, except for an above average precipitation in Colombia, northern Brazil, southern Paraguay and eastern Argentina.

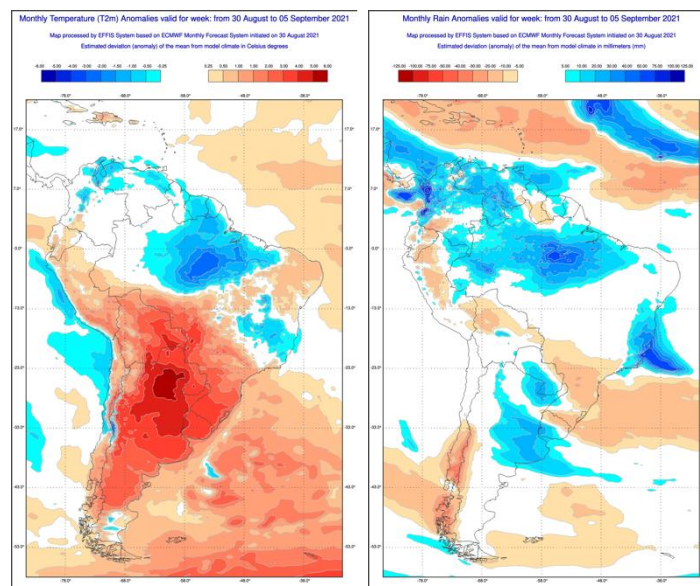


Figure 17. Temperature and rain anomalies of the current week, August 30- September 05, 2021.

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

16 List of Figures

- Figure 1. Areas analyzed in this report: Brazil Legal Amazon, Brazil, Bolivia, Colombia, Paraguay, Peru, Venezuela, Chile, Argentina, Ecuador, Uruguay, French Guiana, Guyana and Suriname2
- Figure 2 Trend of burnt areas and number of fires as compared to data in the last 6 years.3
- 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
- Figure 6. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.7
- Figure 7. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.8
- Figure 8. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years.9
- Figure 9. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years. 10
- Figure 10. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years. 11
- Figure 11. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years. 12
- Figure 12. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years. 13
- Figure 13. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years. 14
- Figure 14. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years. 15
- Figure 15. Trend of burnt areas, number of fires and thermal anomalies as compared to data in the last 6 years. 16
- Figure 16. Average Fire danger forecast. Week, August 30- September 05 , 2021. 17
- Figure 17. Temperature and rain anomalies of the current week, August 30- September 05, 2021. 17

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