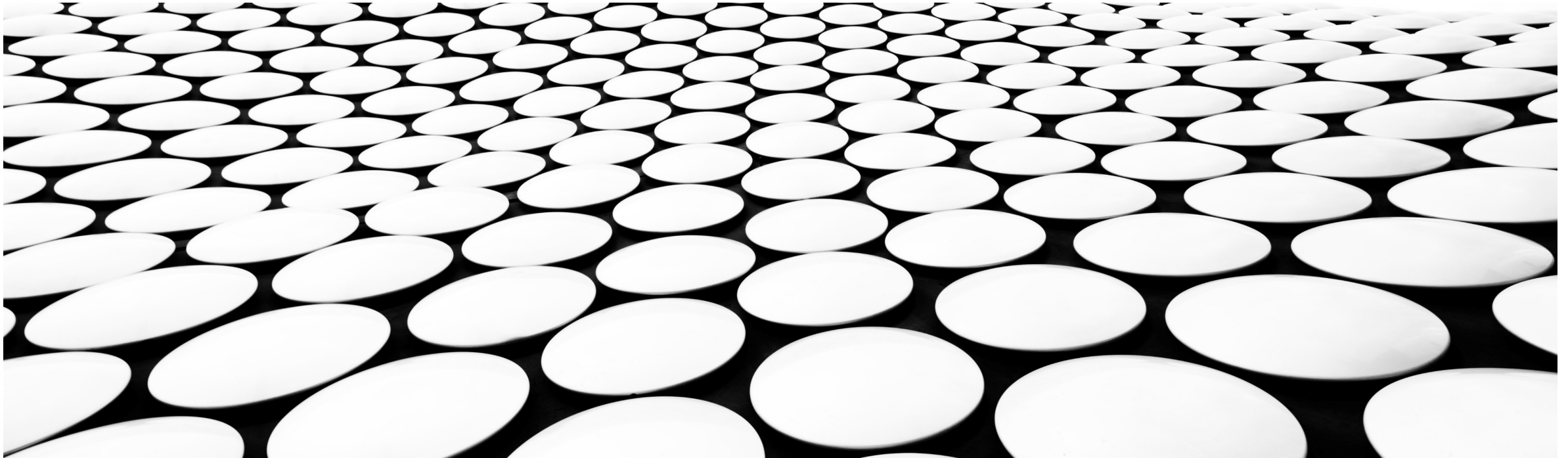


ANALYSIS OF WILDFIRE IN NORTHERN PORTUGAL



INTRODUCTION



A fire burns on a hillside near Sever do Vouga, a town in northern Portugal that has been surrounded by forest fires, on Tuesday (17 Sep.). (Source: Bruno Fonseca/AP)

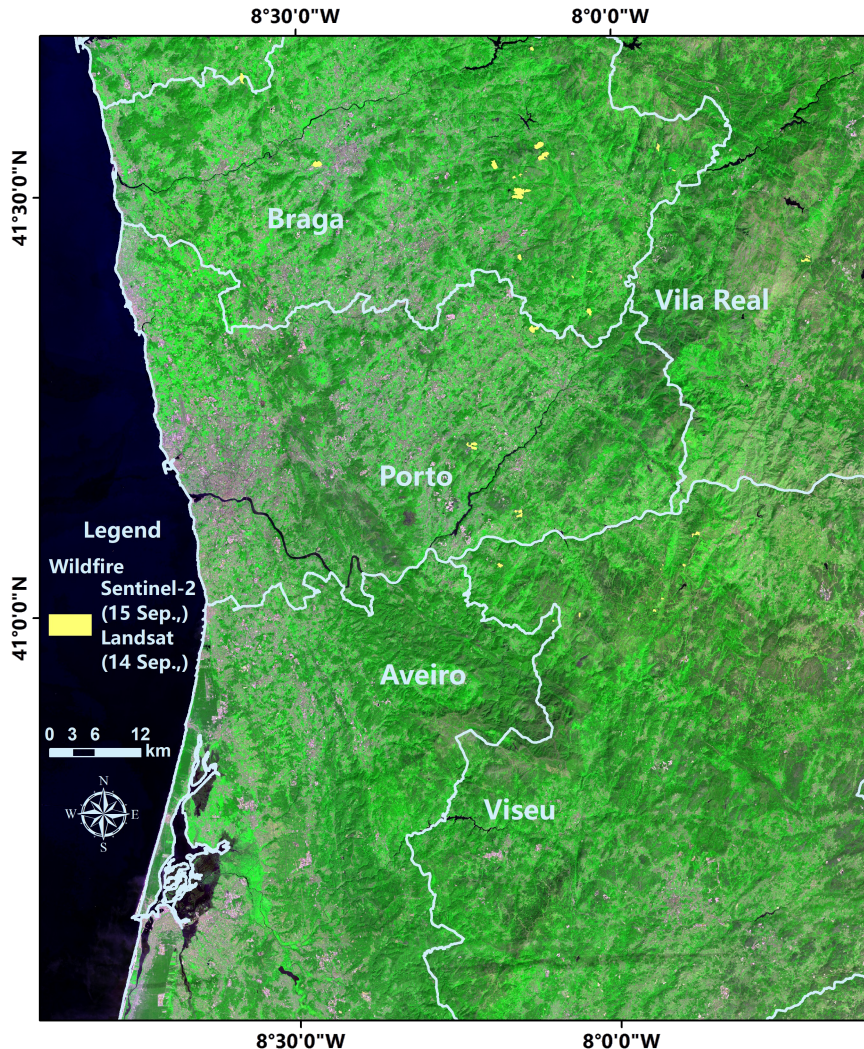


A metalworking warehouse burns on Monday (16 Sep.,) in Sever do Vouga, a town in northern Portugal besieged by wildfire. (Source: Bruno Fonseca / Associated Press)

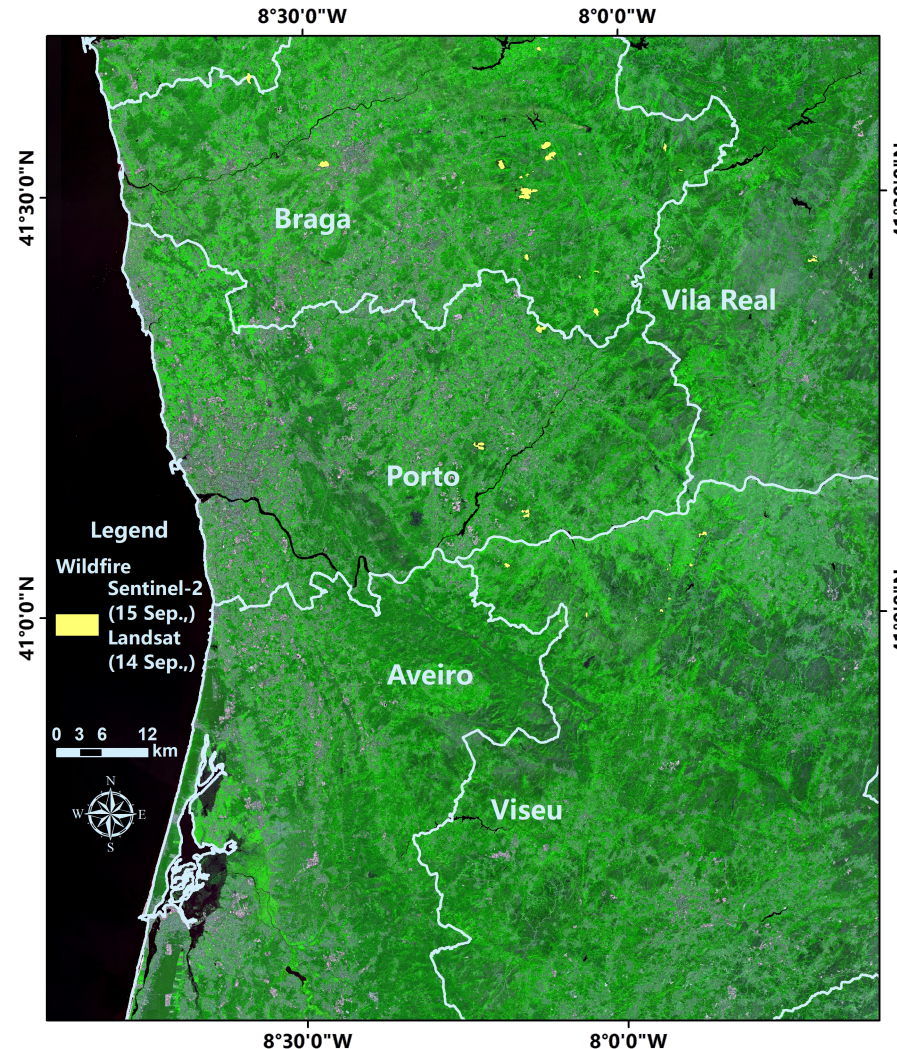
- More than 100 wildfires stretched thousands of firefighters to the limit in northern Portugal on Wednesday (18 Sep.), with seven deaths since the worst spate of fires in recent years spread out of control over the weekend.
- Authorities have prohibited the use of heavy farming equipment to reduce the risk of inadvertently starting a blaze.
- Among the hardest-hit areas is the district of Aveiro, south of the northern city of Porto, but several major blazes were also raging out of control in other wooded areas.

ANALYSIS

Before 15 Sep., 2024, a total area of 42.55 km² in Northern Portugal was affected by wildfires



**Landsat OLI 14 Sep., 2024
(False Color, B4/B5/B2 30 m)**

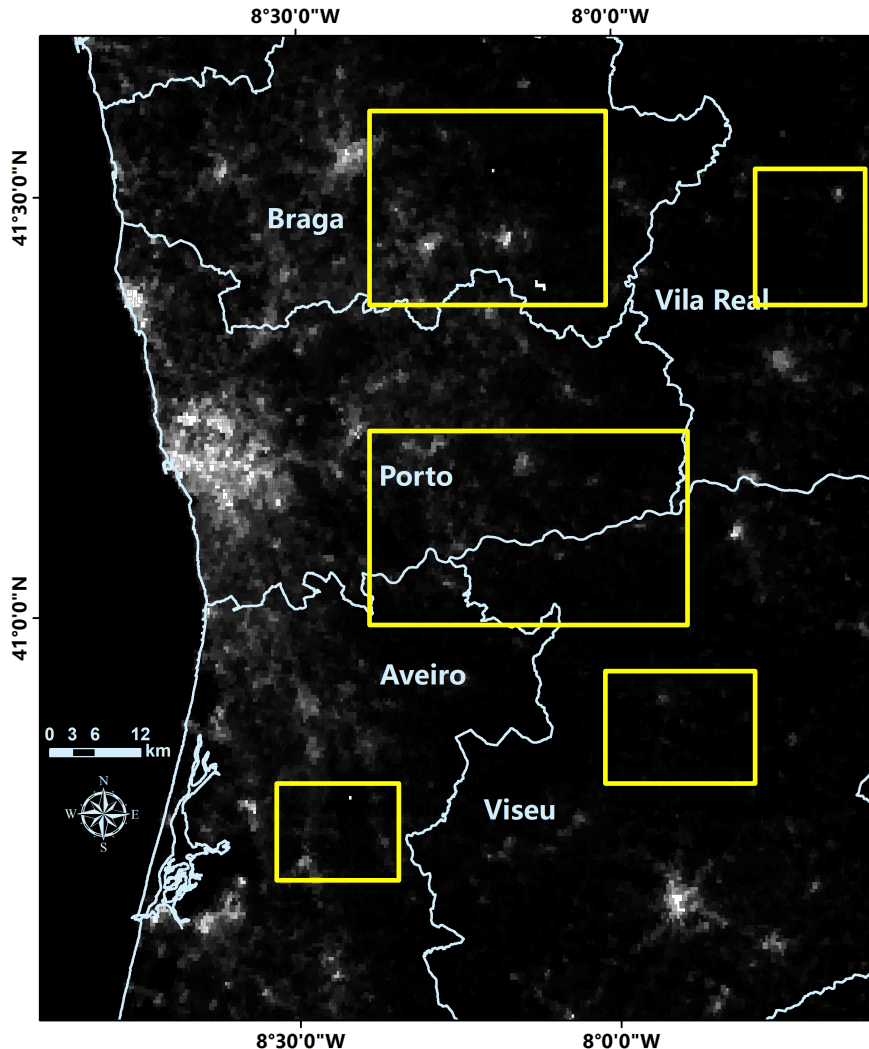


**Sentinel-2 MSI 15 Sep., 2024
(False Color, B3/B8/B4 10 m)**

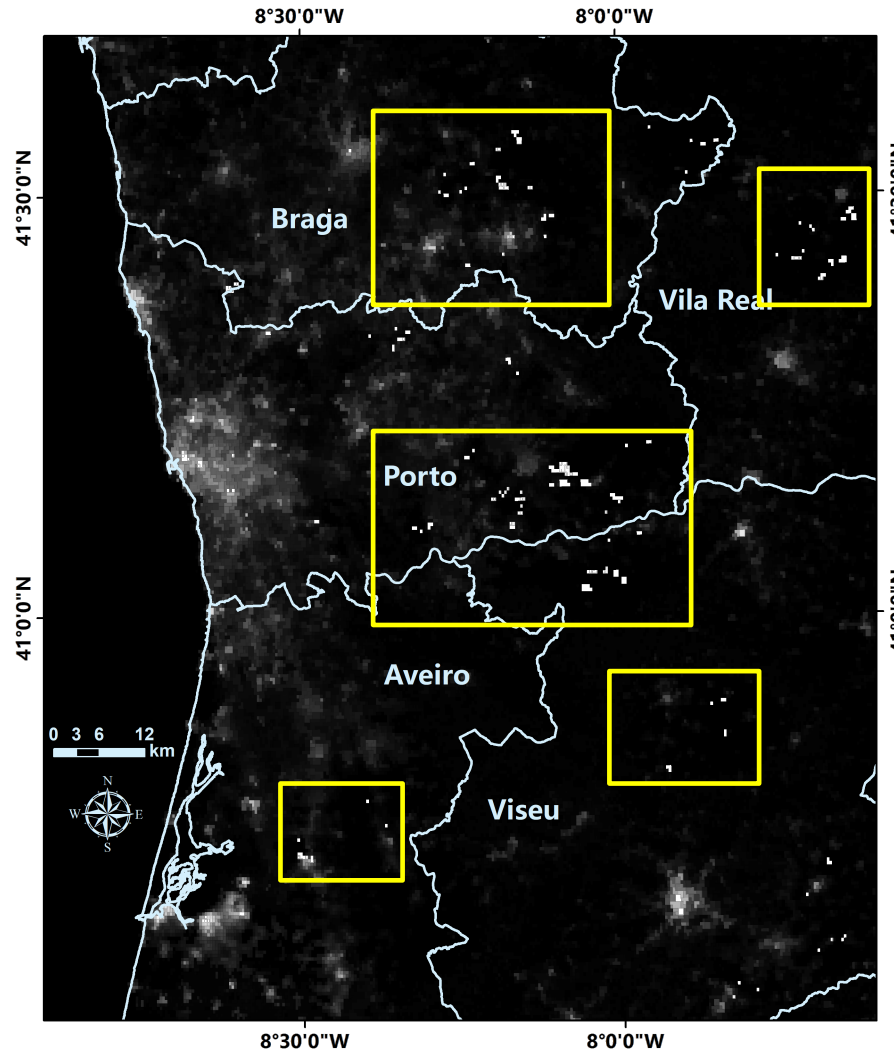
- A combination of Landsat and Sentinel multispectral images revealed that a total area of 42.55 km² in Northern Portugal was affected by wildfires
- Before 15 Sep., 2024, the wildfires were mainly located in Braga, and Porto and Viseu also suffered from the wildfires

ANALYSIS

The wildfires trended to spread on 17 Sep., 2024, with approximately 59 km² detected as burning based on the estimations from VIIRS DNB.



VIIRS DNB 16 Sep., 2024 (500 m)

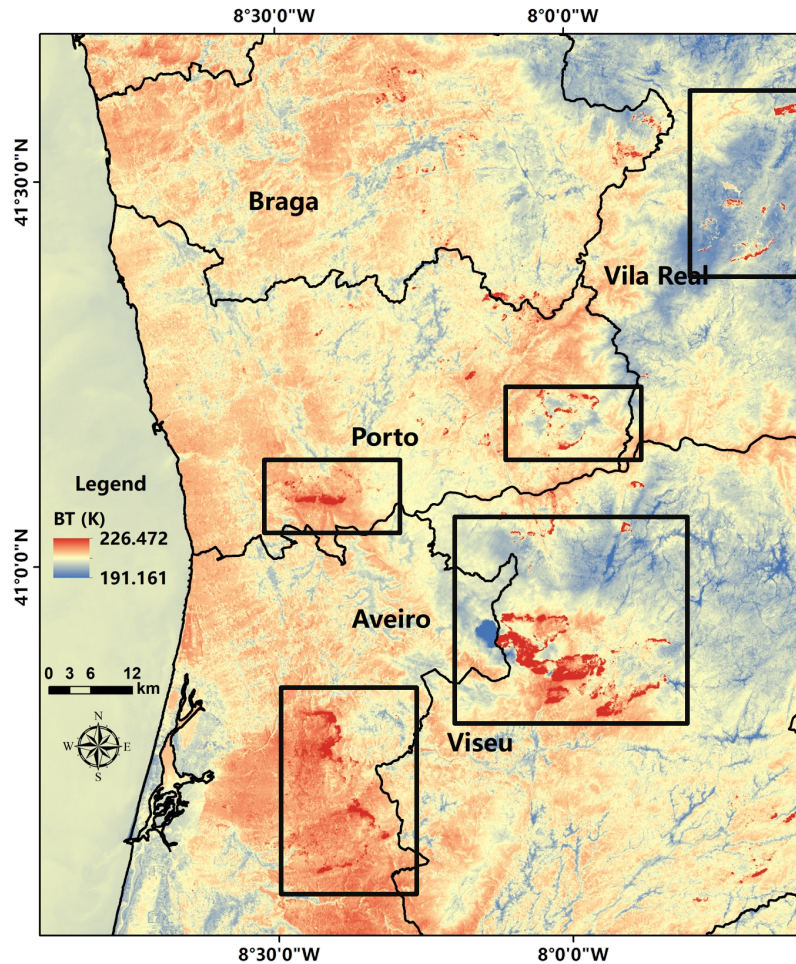


VIIRS DNB 17 Sep., 2024 (500 m)

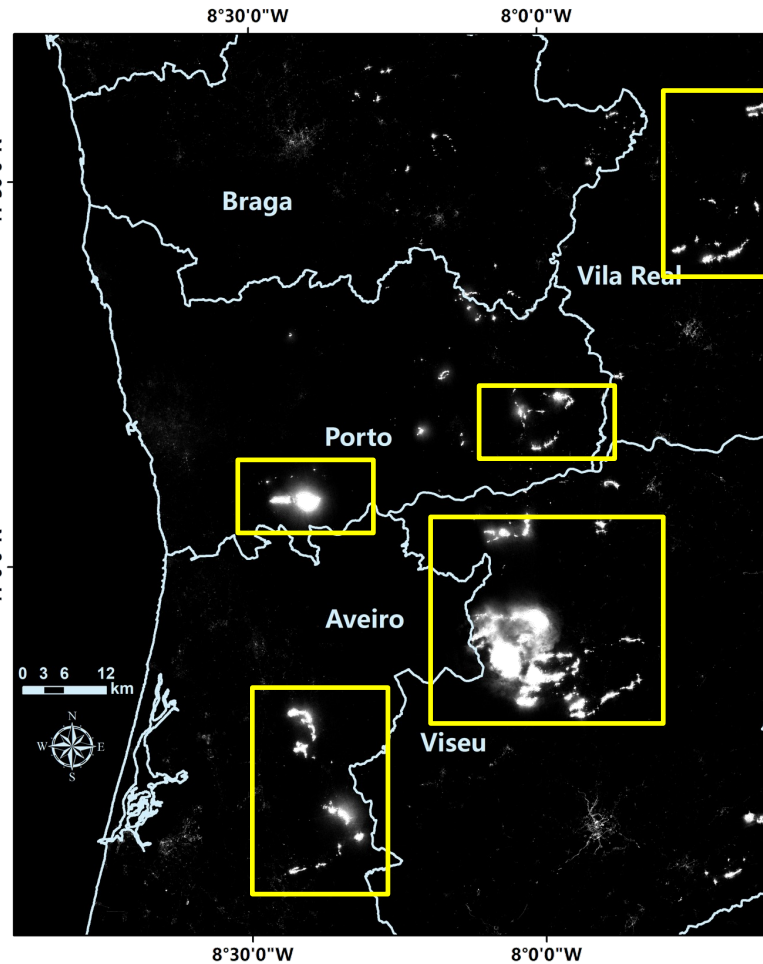
- The wildfires trended to spread on 17 Sep., 2024, around 59 km² area were detected burning with the estimation based on VIIRS DNB.
- Wildfires were detected in Porto, Braga, Vila Real, Aveiro, and Viseu, with areas near Viseu, Aveiro and Viseu being the most severely affected area.

ANALYSIS

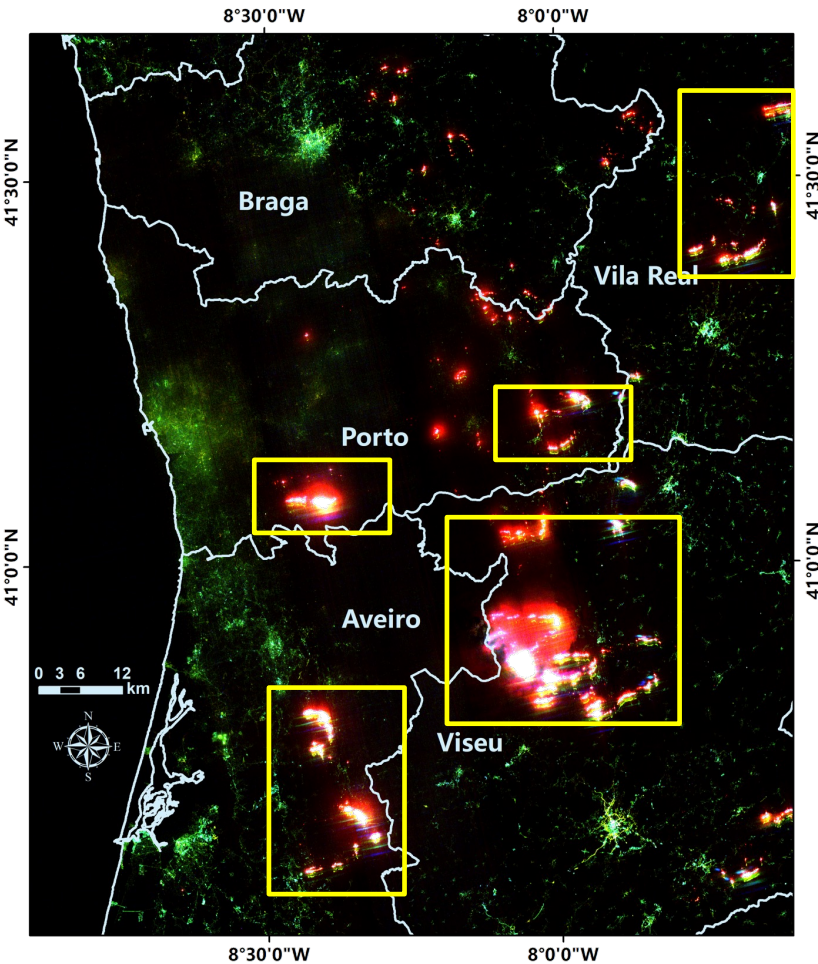
Based on the cooperative observation of SDGSAT-1 TIS and GLI on 17 Sep., 2024, wildfires are still raging in Northern Portugal, mainly located in Viseu



SDGSAT-1 TIS 17 Sep., 2024 (30 m)



SDGSAT-1 GLI 17 Sep., 2024 (10 m)

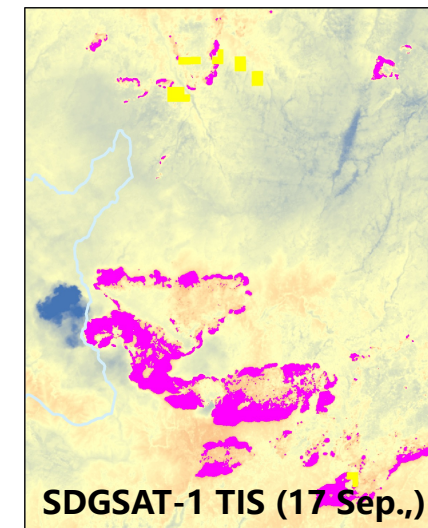
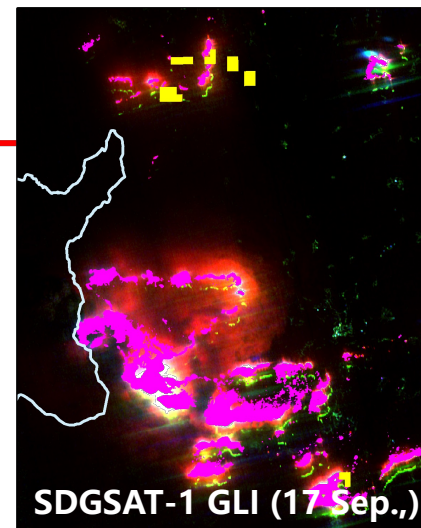
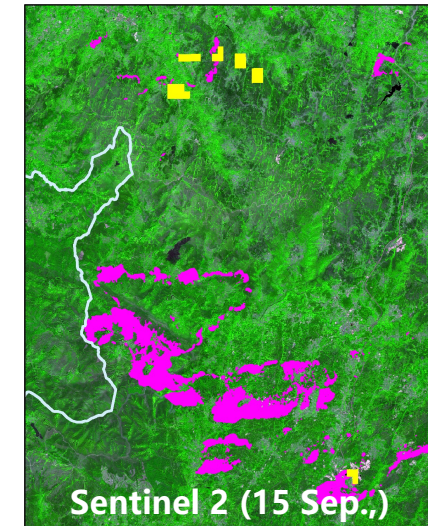
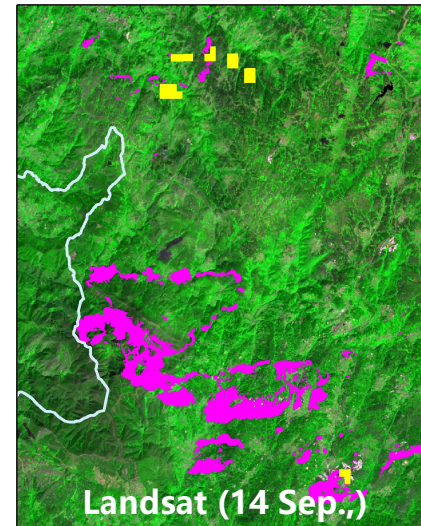
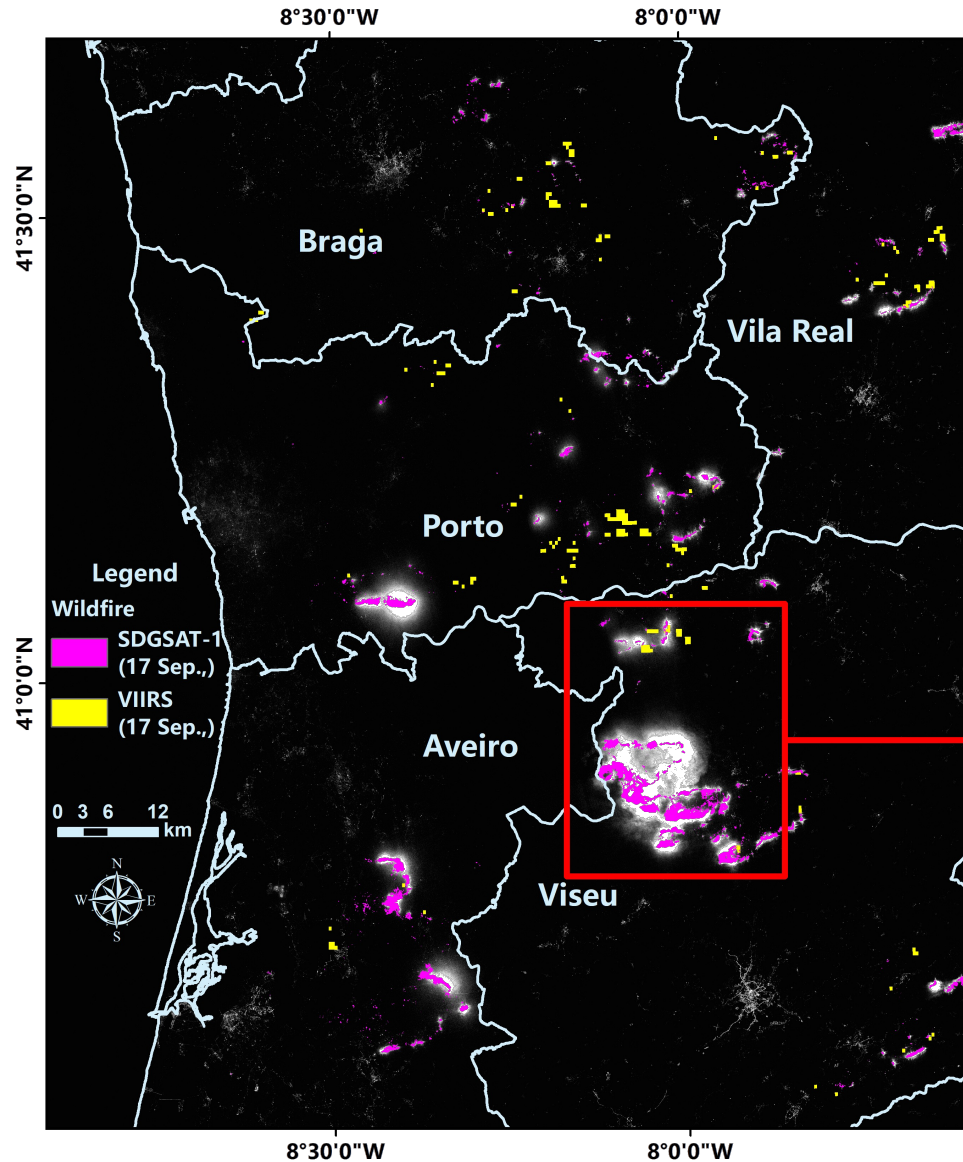


SDGSAT-1 GLI 17 Sep., 2024 (40 m)

- When SDGSAT-1 overpassed the affected area on 17 Sep., 2024, an area of 32.22 km² was being ravaged by wildfire, where Viseu is the most severe area.

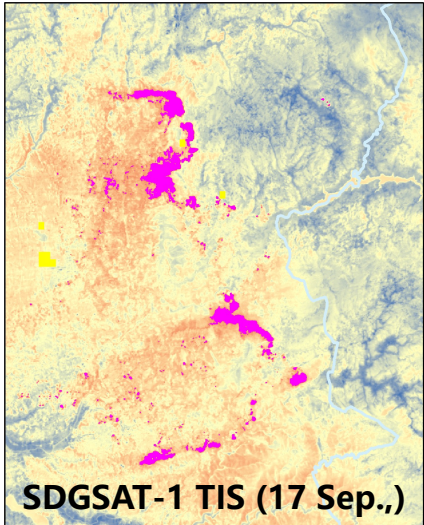
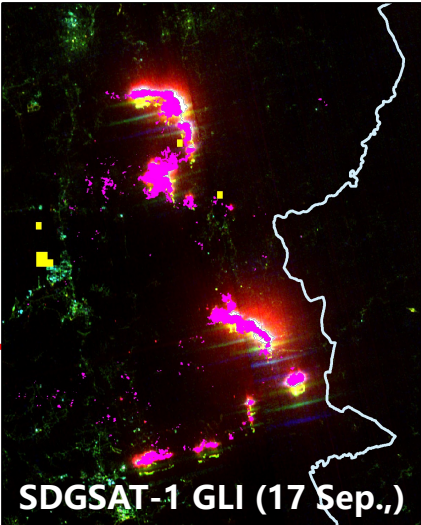
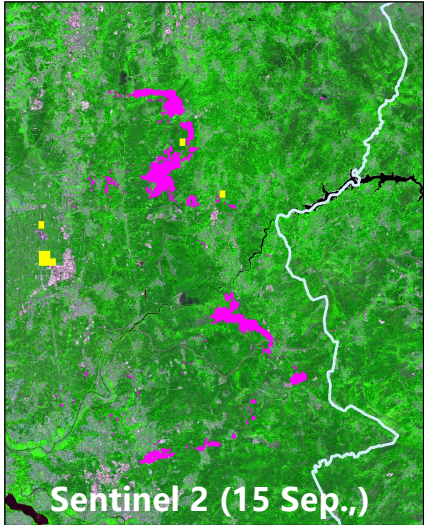
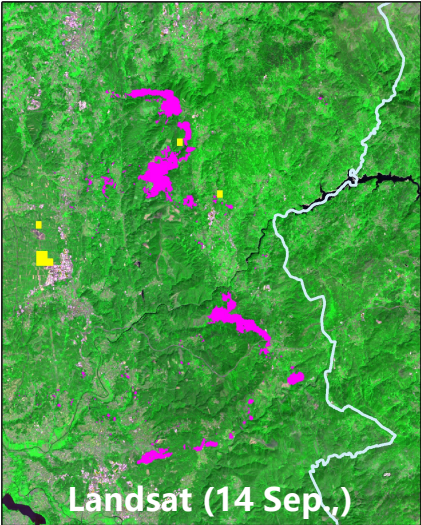
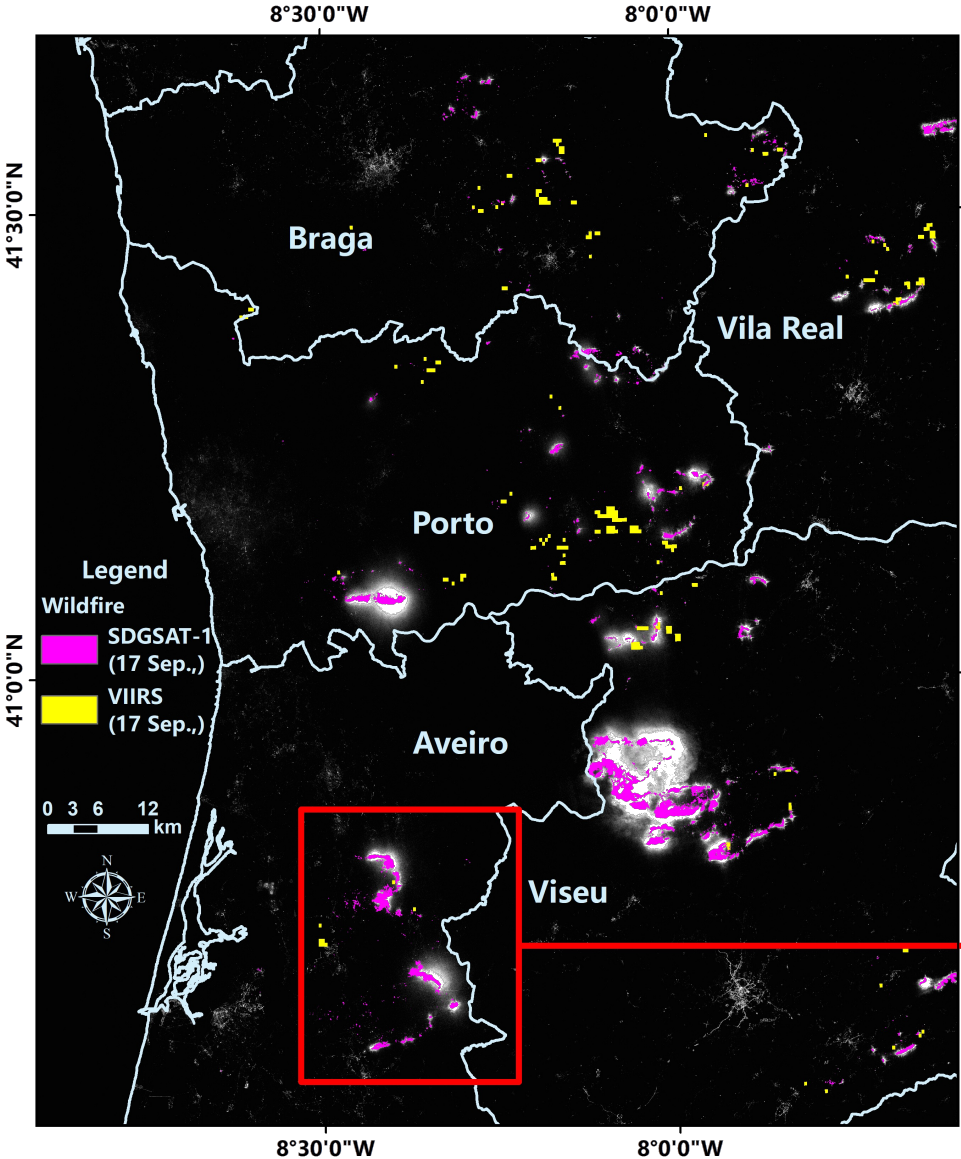
Area suffered wildfire (Part I)

ANALYSIS



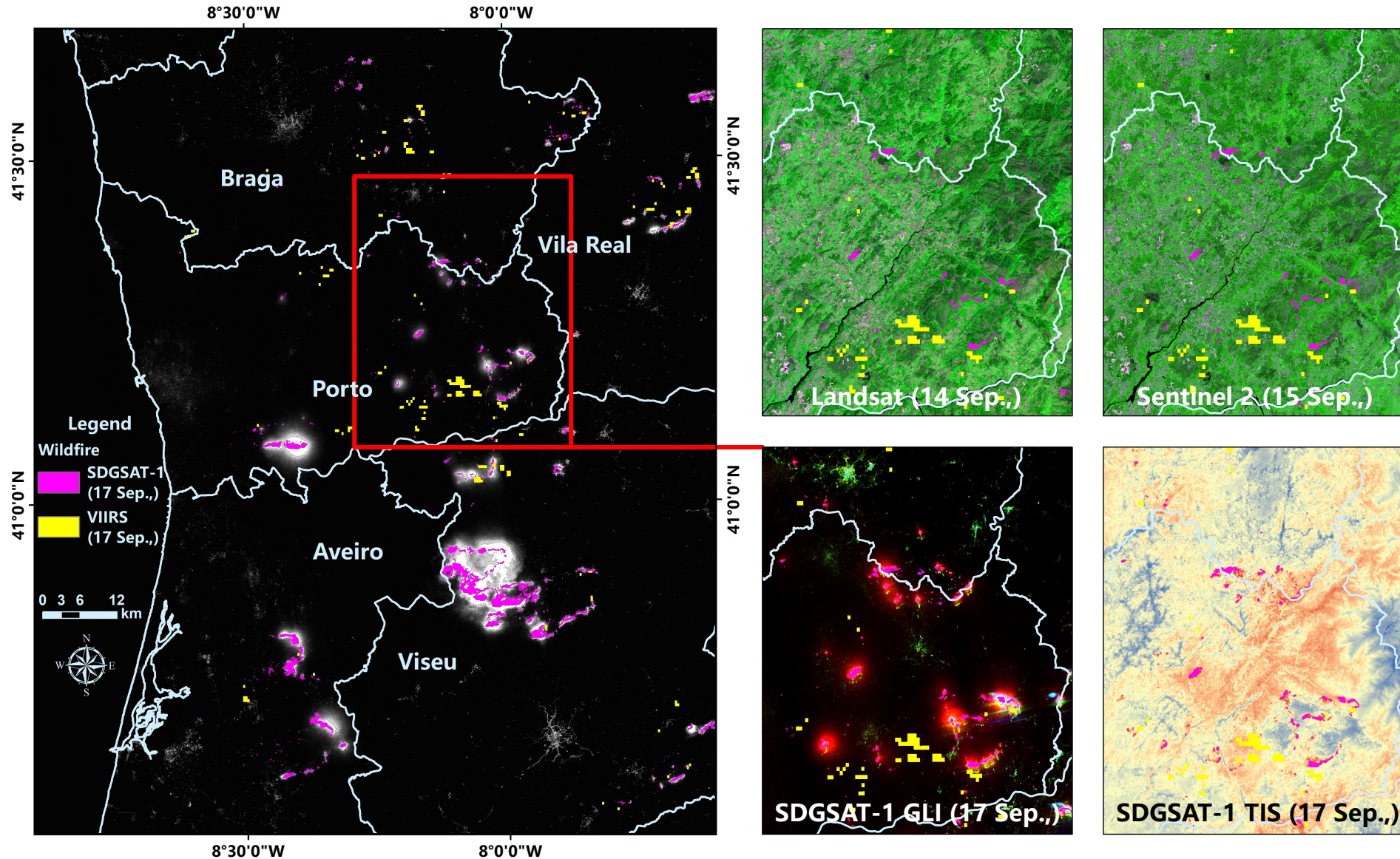
Area suffered wildfire (Part II)

ANALYSIS



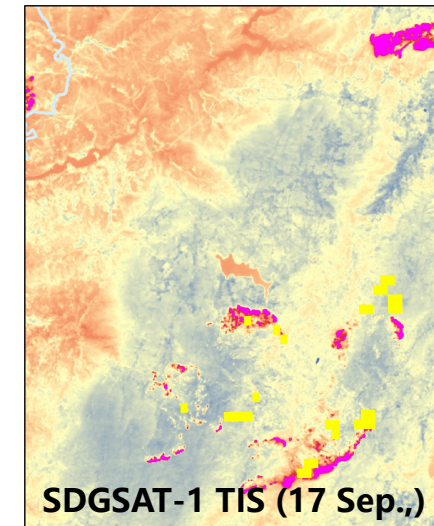
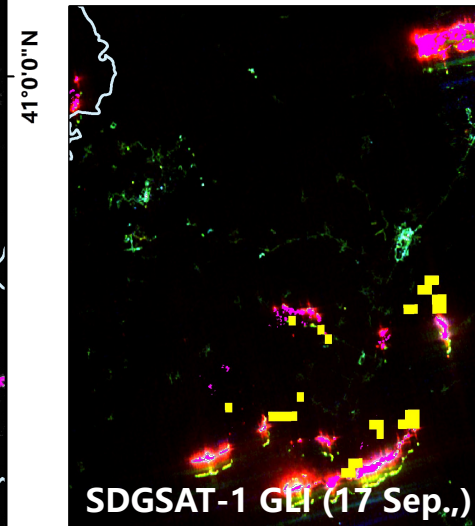
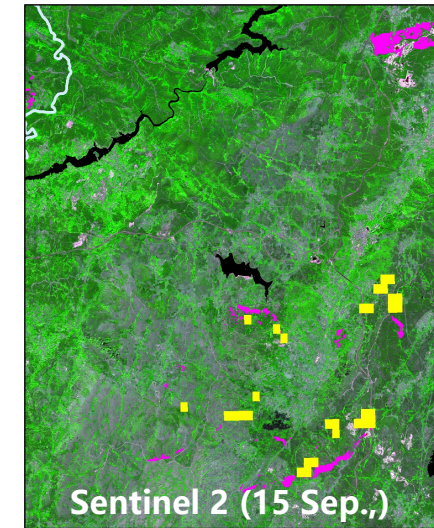
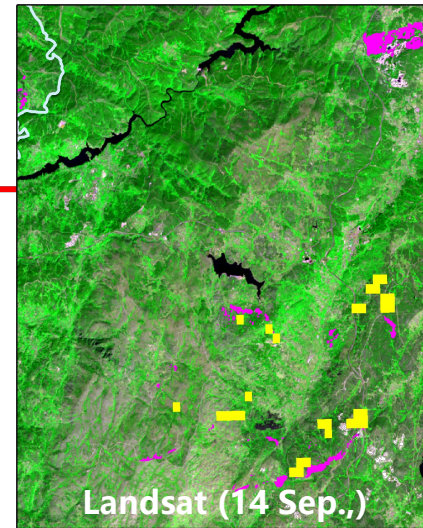
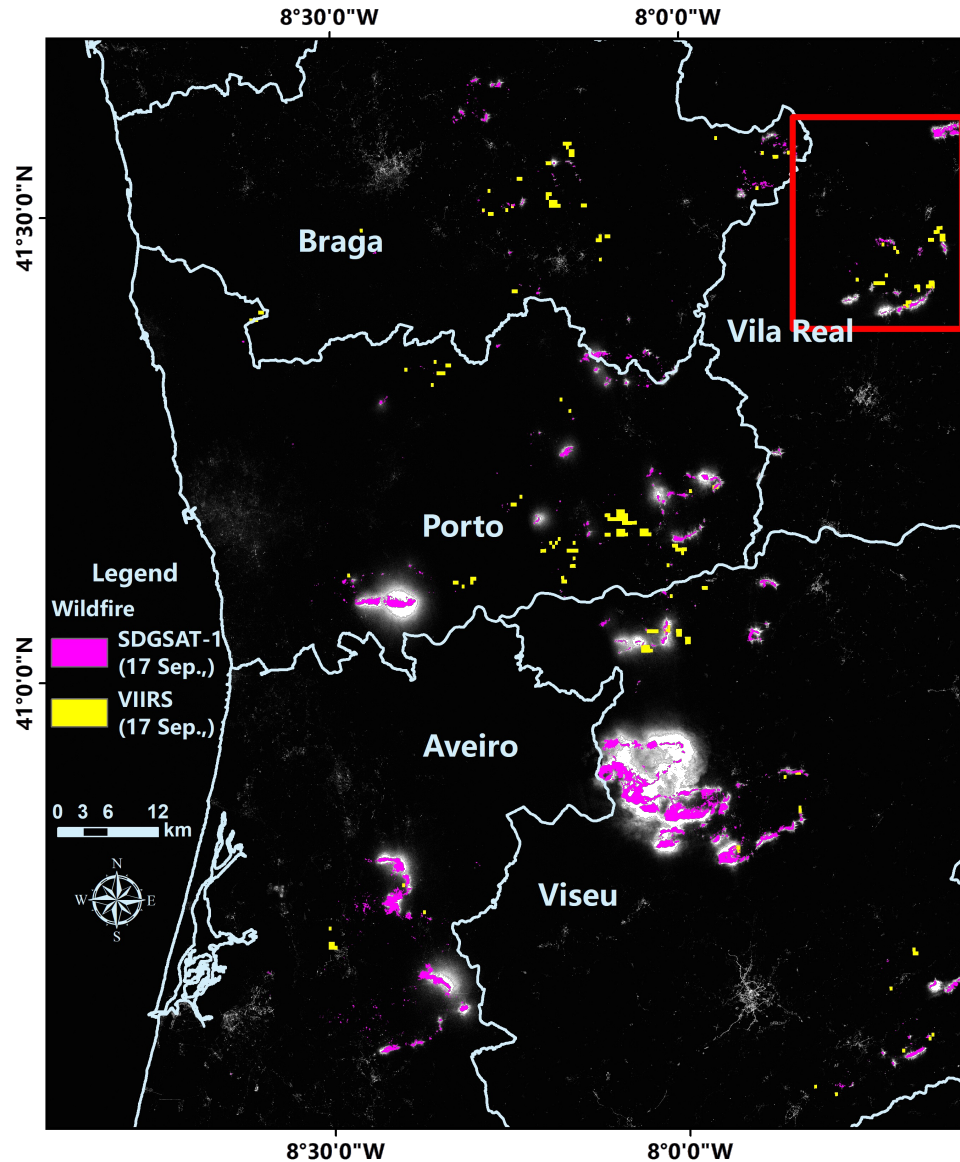
Area suffered wildfire (Part III)

ANALYSIS



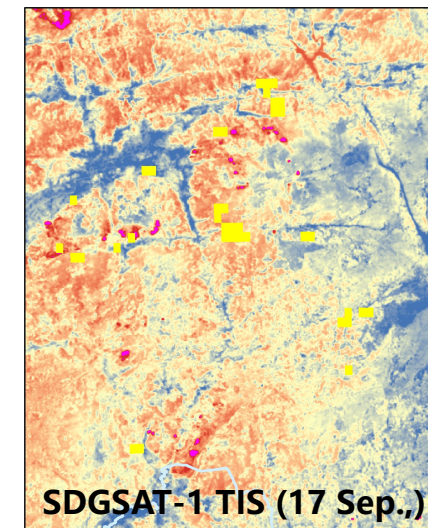
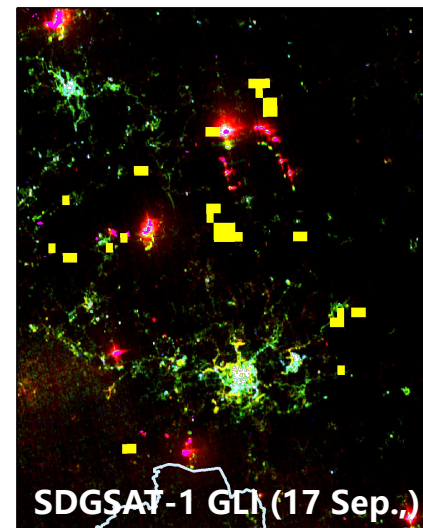
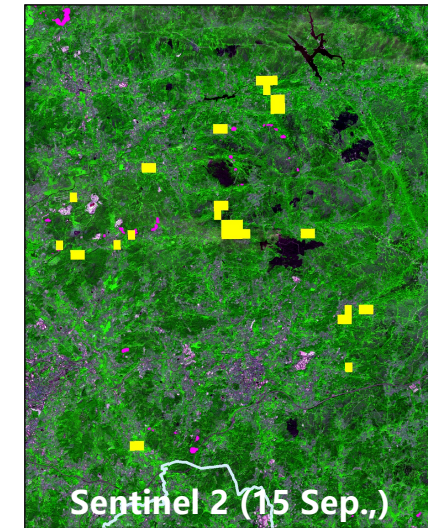
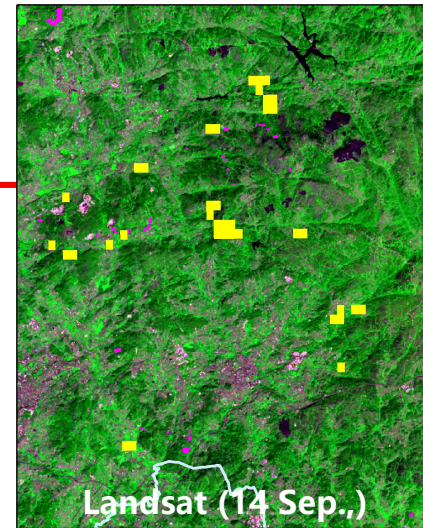
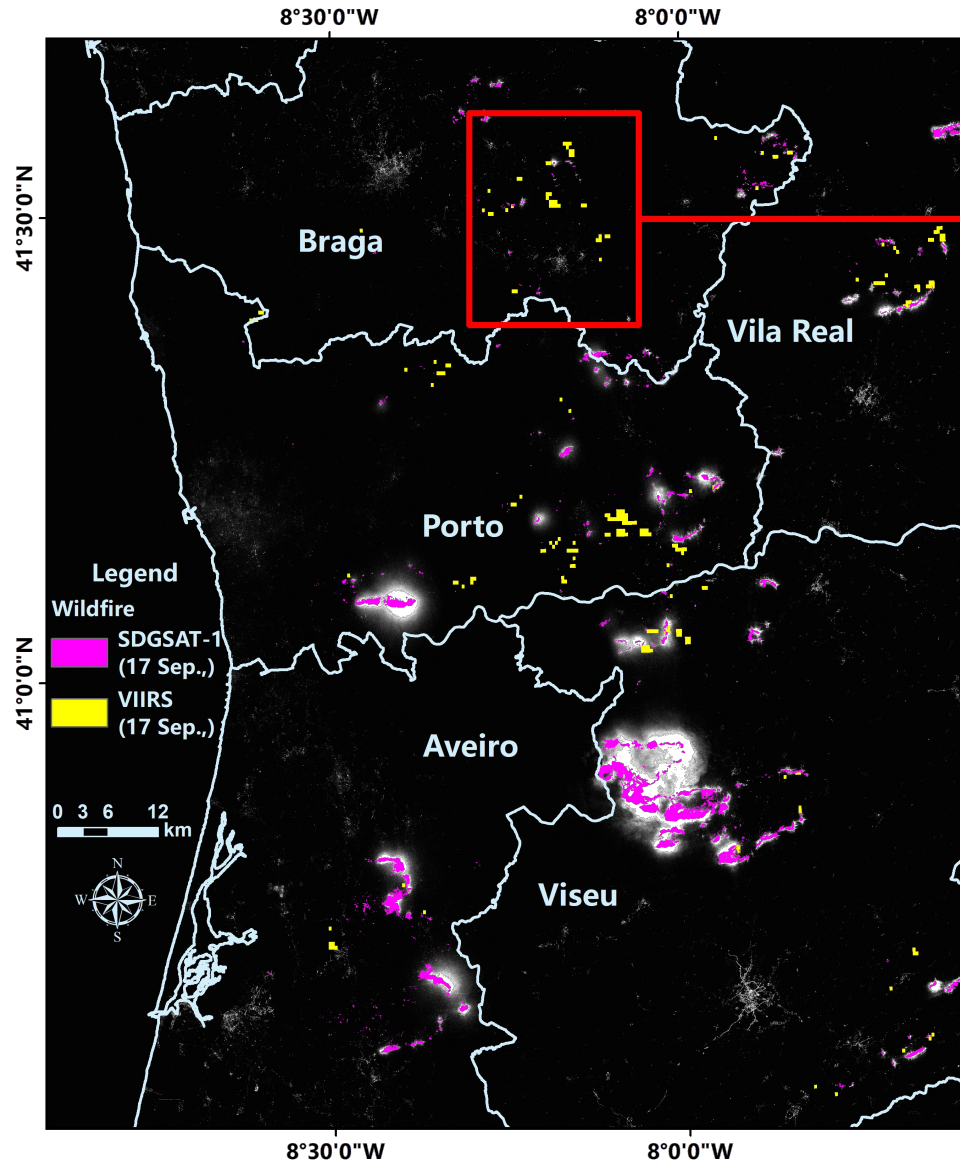
Area suffered wildfire (Part IV)

ANALYSIS



Area suffered wildfire (Part V)

ANALYSIS



SUMMARY



- **Before 15 Sep., 2024, a total area of 42.55 km² in Northern Portugal was affected by wildfires, which were mainly located in Braga, and Porto and Viseu also suffered from the wildfires.**
- **The wildfires trended to spread on 17 Sep., 2024, with approximately 59 km² detected as burning based on the estimations from VIIRS DNB.**
- **Based on the simultaneous acquisition of SDGSAT-1 TIS and GLI on 17 Sep., 2024, wildfires are still raging in Northern Portugal, mainly located in Viseu.**
- **Wildfires were detected in Porto, Braga, Vila Real, Aeriros, and Viseu, with areas near Viseu, Aveiro and Viseu being the most severely affected area.**
- **Continuous monitoring is scheduled.**

SOURCES



(1) Satellite Images

Satellite Data: SDGSAT-1 Glimmer Imager (GLI)
Imagery Date: 17 Sep., 2024.
Resolution: 10/40 m for GLI, 30 m for TIS.
Copyright: CBAS
Source: CBAS

Satellite Data: Landsat 8/9 Operational Land Imager (OLI)
Imager Data: 14 Sep., 2024
Resolution: 30 m
Copyright: U.S. Geological Survey (USGS)
Source: U.S. Geological Survey (USGS)

Satellite Data: Sentinel 2 Multispectral Instrument (MSI)
Imagery Data: 10 Sep., 2024 and 15 Sep., 2024.
Resolution: 10 m for MSI
Copyright: European Space Agency (ESA)
Source: European Space Agency (ESA)

Satellite Data: VIIRS Day-Night Band (DNB) VNP46A2
Imagery Data: 16 Sep., 2024 and 17 Sep., 2024.
Resolution: 500 m for VNP46A2
Copyright: National Aeronautics and Space Administration (NASA)
Source: National Aeronautics and Space Administration (NASA)

(2) Ancillary data

Administrative boundaries are downloaded from Database of Global Administrative Boundaries (GADM).

(3) Analysis & Production

Analysis: International Research Center of Big Data for Sustainable Development Goals (CBAS)
Production: International Research Center of Big Data for Sustainable Development Goals (CBAS) & Integrated Research on Disaster Risk (IRDR)

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