



INTERNATIONAL RESEARCH CENTER OF BIG DATA  
FOR SUSTAINABLE DEVELOPMENT GOALS  
可持续发展大数据国际研究中心

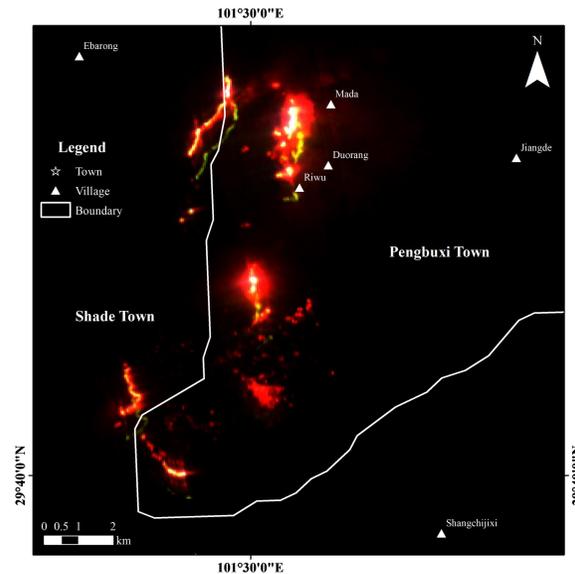
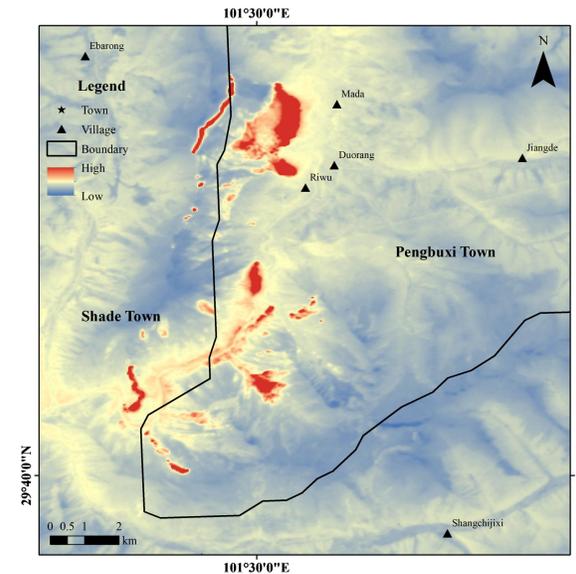
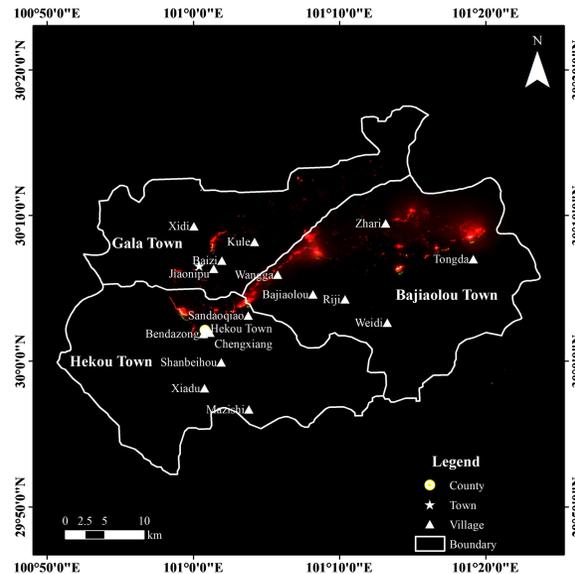
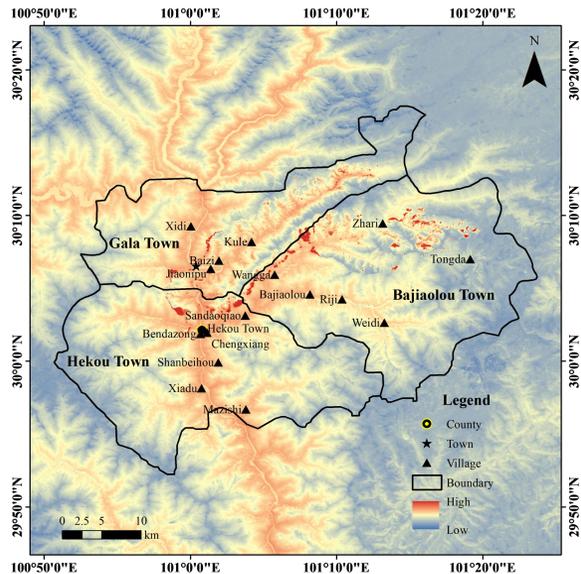


# Analysis of Wildfire in Ganzi Prefecture, Sichuan Province, Based on SDGSAT-1 Satellite Data

21 March 2024

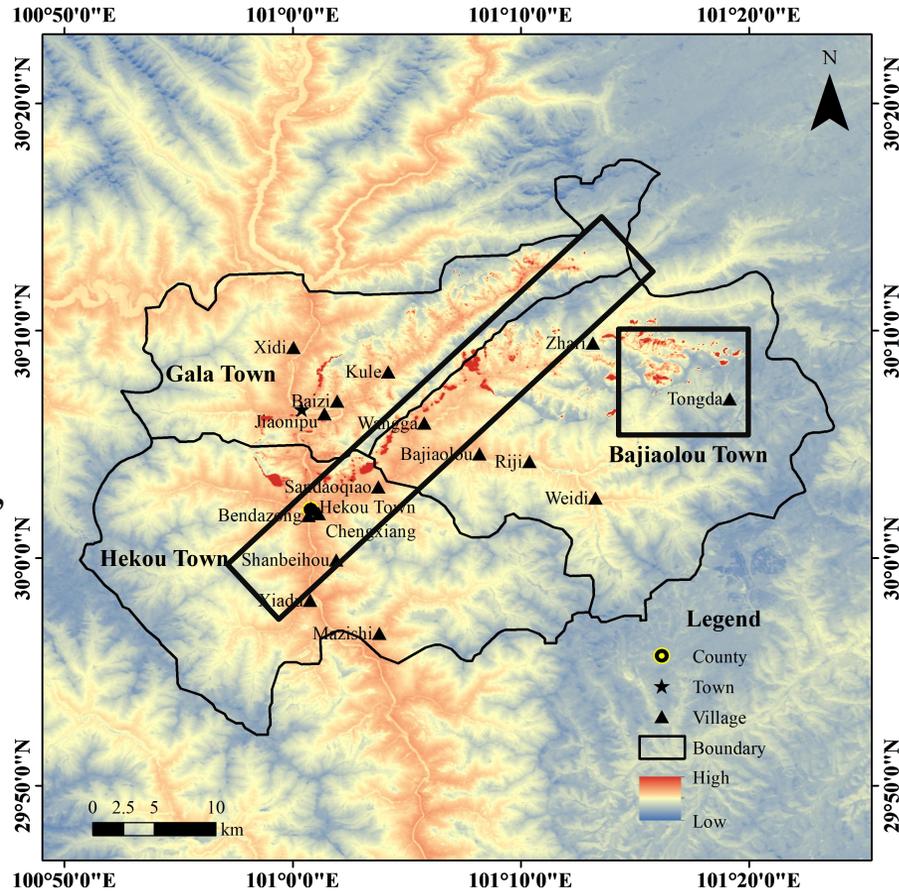
# Introduction

- A wildfire broke out at 17:00 (BJT) on 15 March, 2024, in Ganzi Prefecture, Sichuan Province. Due to strong winds the fire rapidly propagated, causing the wildfire area to expand swiftly. The fire impacted over 3,000 individuals residing in more than 800 households across 11 villages and 1 community.
- The International Research Center of Big Data for Sustainable Development Goals (CBAS) conducted emergency mapping of wildfire affected areas. The SDGSAT-1 satellite was arranged for the passover to acquire the GLI and TIS data within 24 hours of the fire outbreak (nighttime of 16 March), and MSI and TIS data within four days of the event (daytime of 19 March).

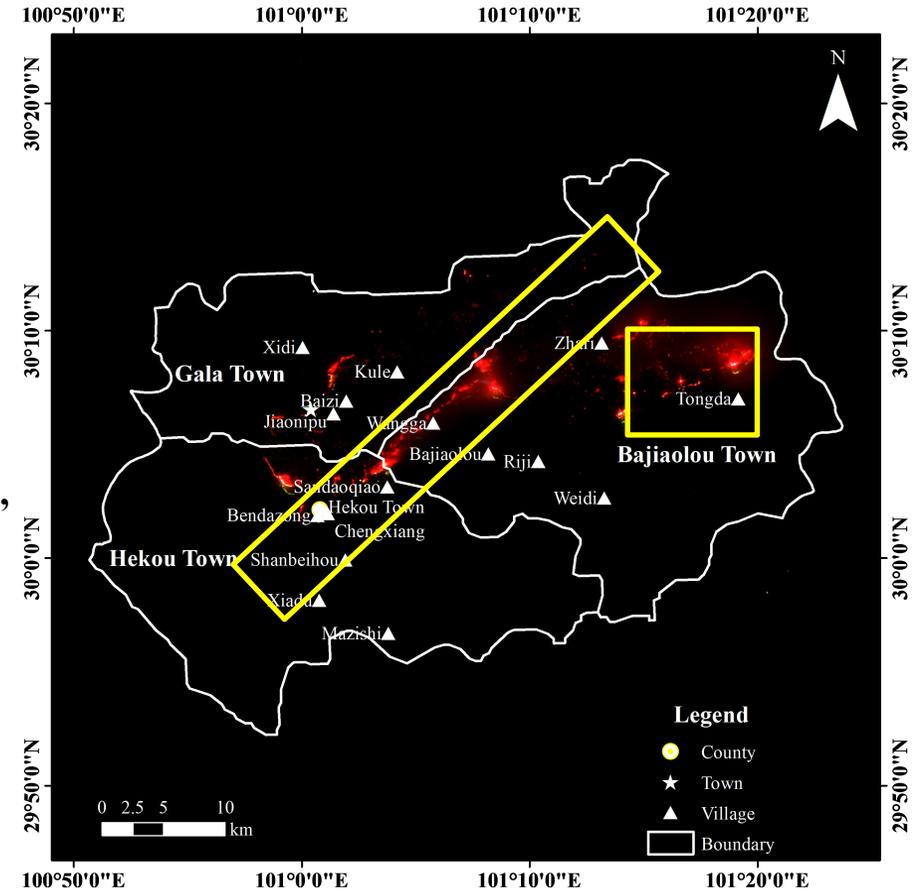


# Effects of wildfire on local lighting conditions (16 March, 2024)

Yajiang County TIS (16 March, 2024)



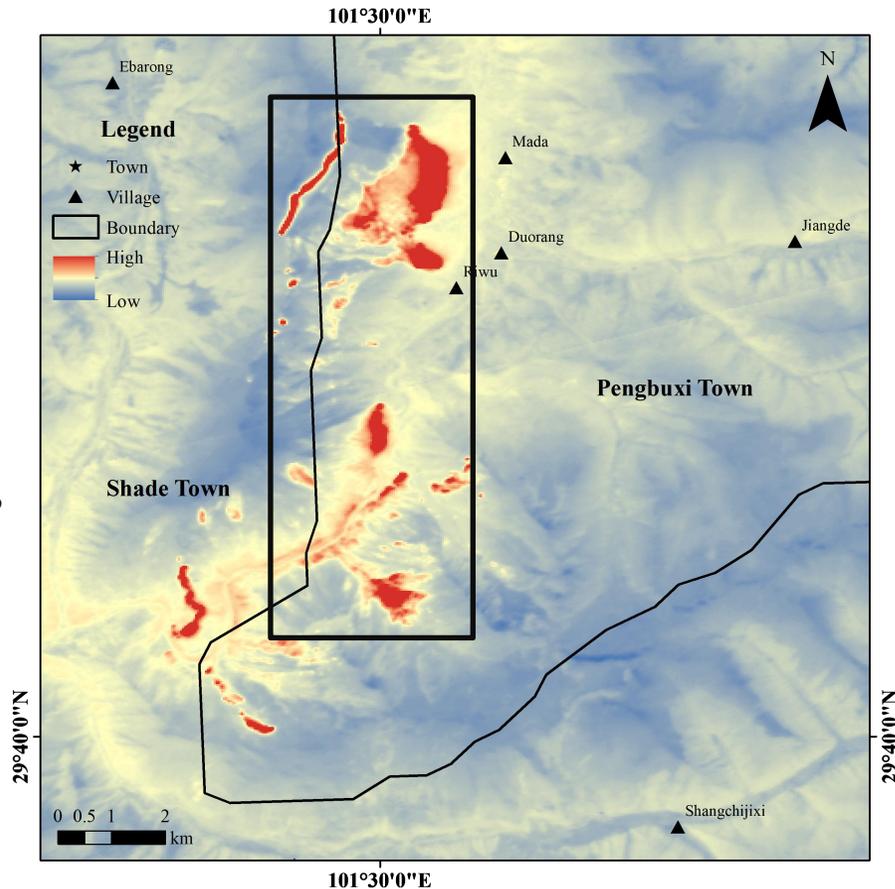
Yajiang County GLI (16 March, 2024)



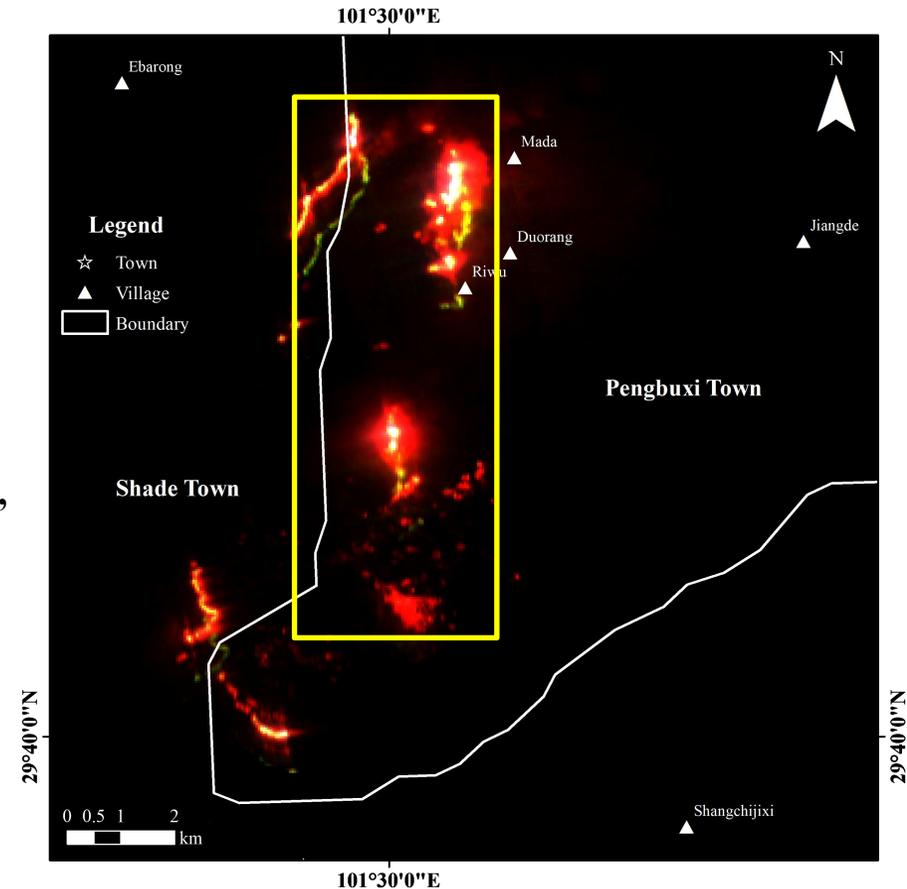
- In Yajiang County, numerous fire points exhibiting significant high temperatures were observed, primarily distributed in a southwest to northeast direction. Notably, in the northern region of the county, two large-scale fire point areas were present, specifically in the vicinity of Hekou Town and Chengxiang Village. Wangga Village, Sandaoqiao Village, and Zhari Village were experiencing particularly severe fires. Additionally, in the central part of Gala Town, a burning point extended in a north-south direction.

# Effects of wildfire on local lighting conditions (16 March, 2024)

Kangding County  
TIS  
(16 March, 2024)

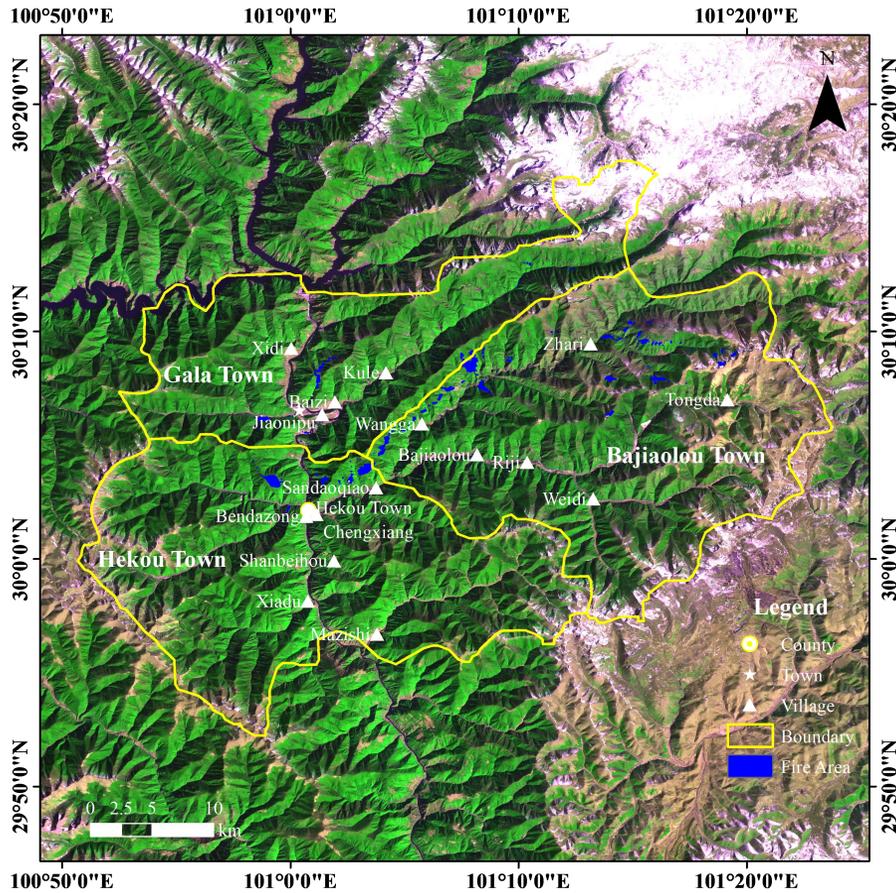


Kangding County  
GLI  
(16 March, 2024)

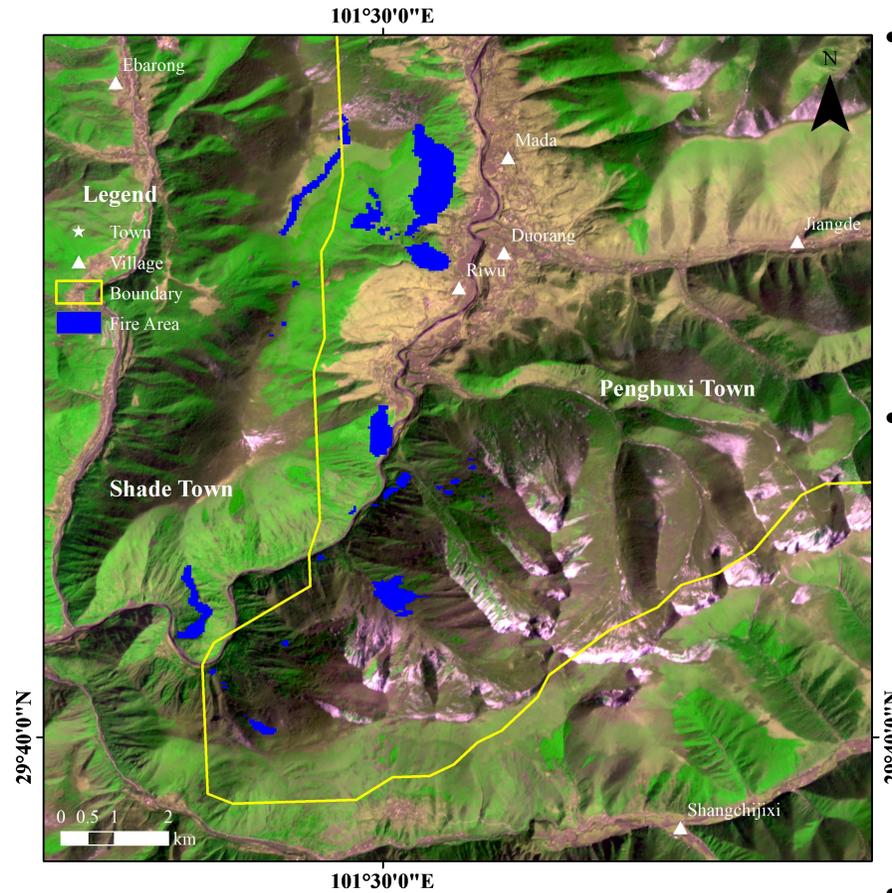


- The fire point in Shade Town, Kangding County, was primarily distributed along a north-south axis, with Mada Village, Duorang Village, and Riwu Village situated in close proximity to the affected areas.
- Utilizing TIS and GLI imageries, we estimated the total fire point area to be approximately 9.38 km<sup>2</sup> in Yajiang County and 2.76 km<sup>2</sup> in Kangding County.

# Burned areas of Yajiang County



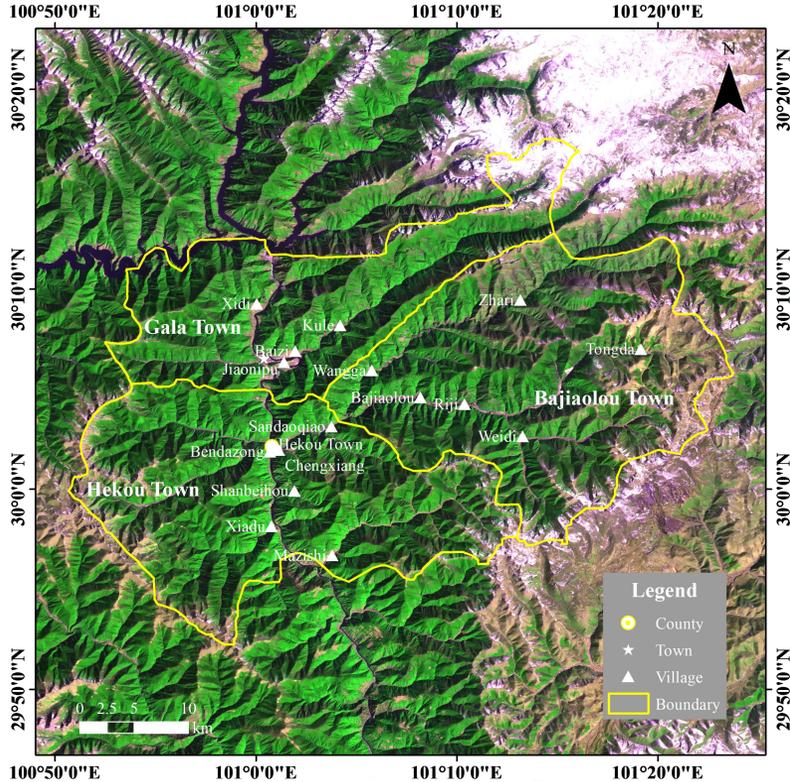
**Wildfire of Yajiang County on 16 March, 2024**  
**Base Image: 03 March, 2024**  
**R:B5, G:B6, B:B3**



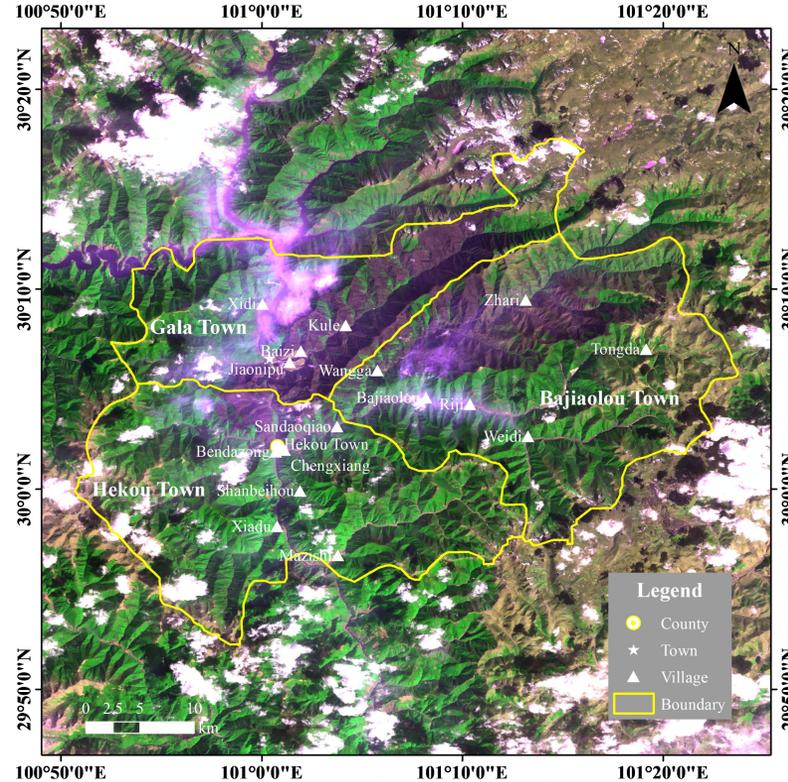
**Wildfire of Kangding City on 16 March, 2024**  
**Base Image: 03 March, 2024**  
**R:B5, G:B6, B:B3**

- The wildfire area on March 16 was extracted and overlapped on the MSI image before the disaster. The wildfires in Yajiang and Kangding were mainly concentrated on steep mountainside.
- In Yajiang County, the fire area in the southeast of Jiaonibao Village and Zari Village was primarily located on mountaintops. The fire area in Gala Town stretched along the ridgelines and extended to the slopes of a neighboring mountain.
- In Kangding, the fire area was mainly distributed on the western side of the mountains.

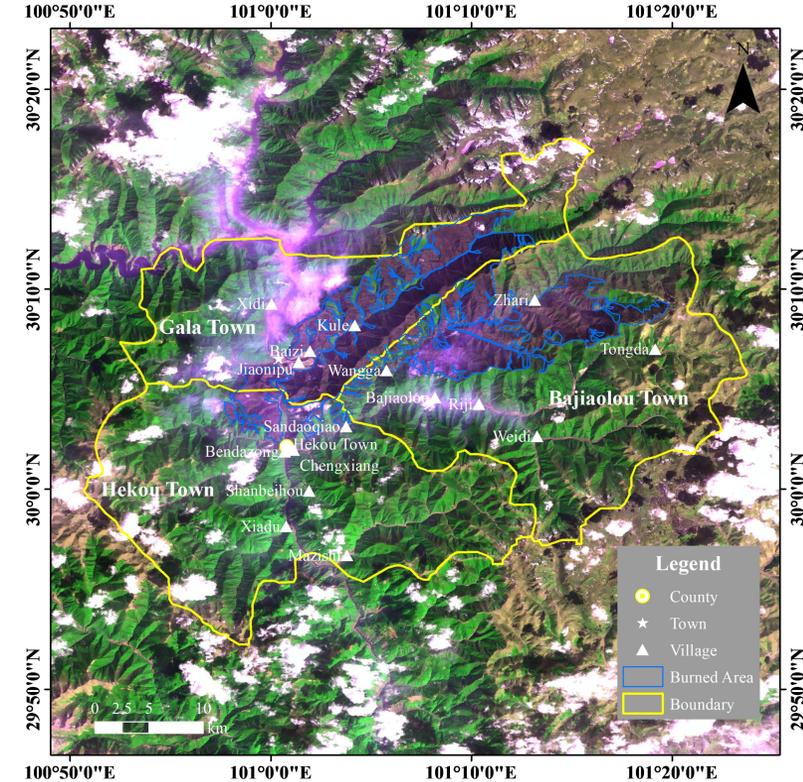
# Fire analysis in Yajiang County on 19 March, 2024



**MSI Image of Yajiang County**  
**03 March, 2024**  
**R:B5, G:B6, B:B3**



**MSI Image of Yajiang County**  
**19 March, 2024**  
**R:B5, G:B6, B:B3**

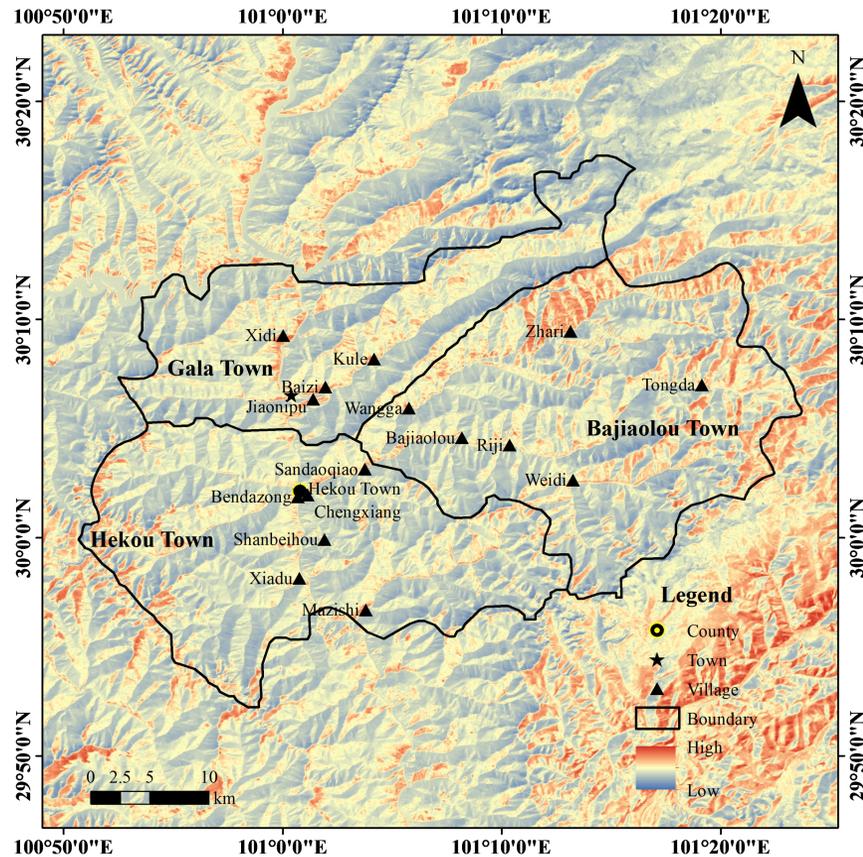


**Estimated Burned Area of Yajiang County**  
**19 March, 2024/03 March, 2024**  
**R:B5, G:B6, B:B3**

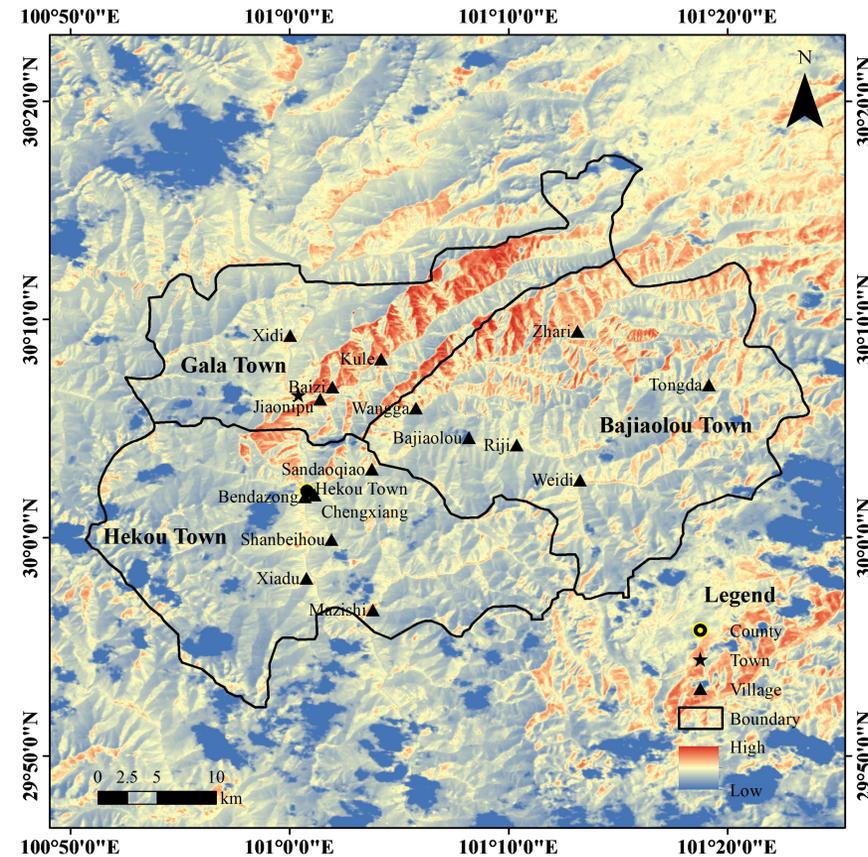
- Utilizing MSI images captured both before and after the wildfire, it was observed that the fire area was primarily concentrated in the southwestern to northeastern mountain ranges encompassing Baizi Village and Kule Village, as well as Zhari Village and Wangga Village.
- Based on the MSI image captured on 19 March, 2024, the burned area was estimated. The total burned area in Yajiang County was approximately 230 km<sup>2</sup>.

# Fire analysis in Yajiang County on 19 March, 2024

SDGSAT-1 TIS of  
Yajiang County  
(daytime, 03  
March, 2024)



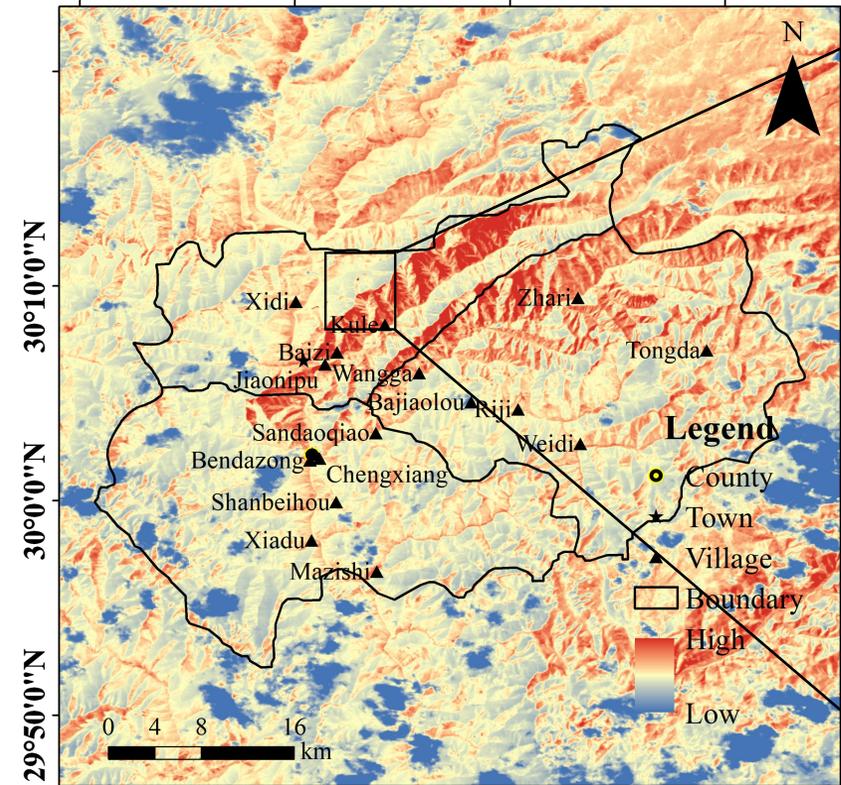
SDGSAT-1 TIS of  
Yajiang County  
(daytime, 19  
March, 2024)



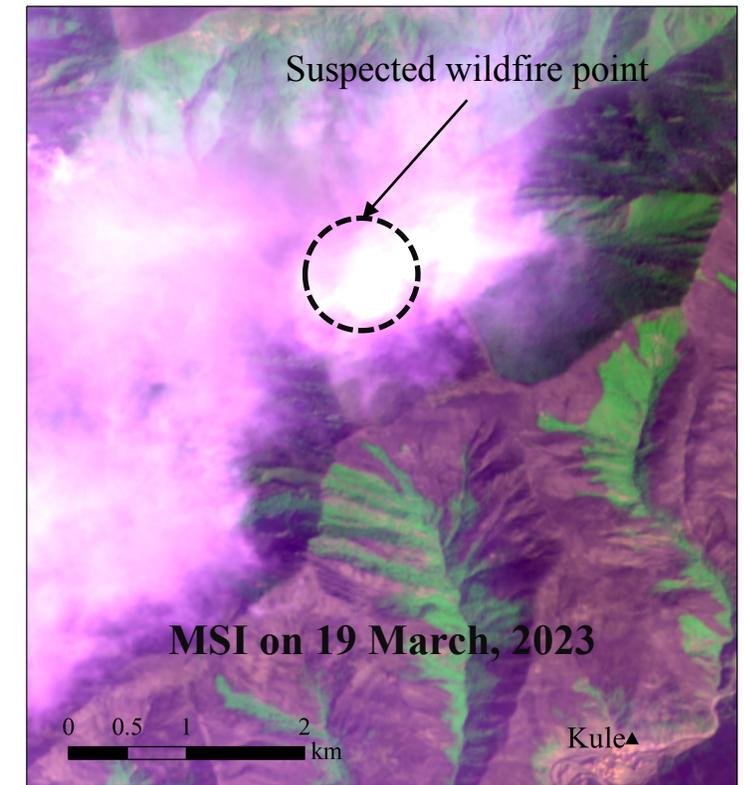
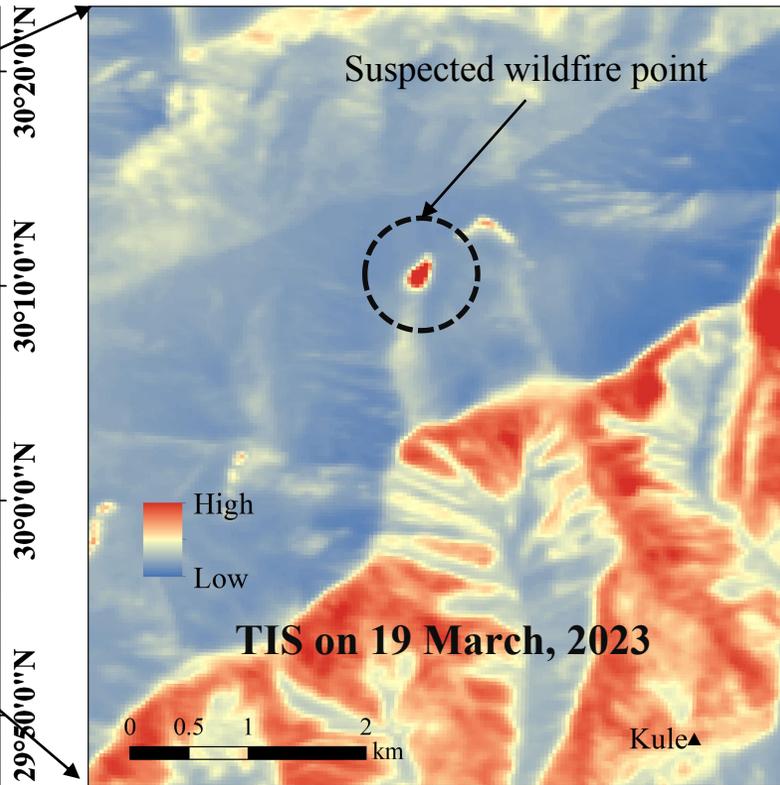
- In comparison to the TIS imagery from March 16, the deep red high-temperature area observed on March 19 had significantly diminished, indicating that most of the fire points in Yajiang County had been extinguished.
- Compared with the TIS imagery obtained on the 03 March, 2024, it becomes evident that the temperature in the affected area of Yajiang County remains elevated, indicating a higher-than-normal temperature since the occurrence of the fire.

# Distribution of Wildfire on 16 March, 2024

100°50'0"E 101°0'0"E 101°10'0"E 101°20'0"E



SDGSAT-1 TIS of Yajiang County  
(daytime, 19 March, 2024)



SDGSAT-1 MSI of Yajiang County  
(daytime, 19 March, 2024)

- On March 19, the surface temperature in an area northeast of Xidi Village was still very high, and there is a suspected wildfire point.

# SUMMARY OF FINDINGS

- After the wildfire, the surface temperature of the affected area increased, and the light intensity increased significantly. The wildfire was affected by the trend of the mountains and the wind, and basically ran southwest to northeast. In Yajiang County, the fires in Wangga Village and Sandaoqiao Village were distributed continuously along the mountainside in a long range. In Kangding County, the mountain fires were trending north-south, mostly concentrated in the area near mountaintops.
- Four days after the wildfire, most of the vegetation in the mountains where the Villages of Kule, Baizi, Wangga and Zhari are located in Yajiang County has turned black. Through analysis and calculation, the fire area of Yajiang County about 230 km<sup>2</sup>.
- As of 19 March, 2024, the surface temperature of most of the affected areas had been significantly reduced, but it was still at a high value. In addition, the surface temperature in an area northeast of Xidi Village was still very high, and there was a suspected wildfire point.
- Continue monitoring is planning.

# COPYRIGHTS & SOURCES



## *Data sources:*

### *(1) Satellite Images*

*Satellite Data: SDGSAT-1 Glimmer Imager (GLI) / Thermal Infrared Spectrometer (TIS) / Multispectral Imager (MSI)*

*Imagery Date: 03 March, 2024, 16 March, 2024, and 19 March 2024.*

*Resolution: 10 m for GLI, 30 m for TIS, 10 m for MSI*

*Copyright: International Research Center of Big Data for Sustainable Development Goals (CBAS)*

*Source: International Research Center of Big Data for Sustainable Development Goals (CBAS)*

### *(2) Ancillary data*

*Administrative boundaries, and other Geographic Information System data (i.e., POI) are kindly provided by the National Geomatics Center of China.*

### *(3) Contribution*

*Analysis: International Research Center of Big Data for Sustainable Development Goals (CBAS)*

*This work is supported by International Big Science Program Cultivation Project “Space Technologies for Sustainable Development Goals” (313GJHZ2022040BS).*



INTERNATIONAL RESEARCH CENTER OF BIG DATA  
FOR SUSTAINABLE DEVELOPMENT GOALS  
可持续发展大数据国际研究中心



# Thanks

No.9 Dengzhuang South Road, Haidian District, Beijing 100094, China

Tel: +86-10-82170000

Fax: +86-10-82178980