



# Geology Hazard Monitoring and Risk Assessment

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## **1. Introduction**

## **2. Prediction and information acquisition in the earthquake rescue**

## **3. Emergency in one sudden geology hazard**

## **4. Suggestion and Forecast**

## **Before 2008:**

The dammed lakes induced by Yigong landslide, PaliHu landslide in Tibet  
Qianjiangping Landslide in Hubei,  
Tiantaixiang Landslide in Sichuan et al.

## **Since 2008:**

1. Emergency of secondary disaster induced by earthquakes

Wenchuan, Yushu, Lushan, Minxian and Changdu

2. Emergency of one landslide or debris flow

**Debris flows:** Zhouqu in Gansu, Puladi in Nujiang Prefecture of Yunnan, et al..

**Landslides:** Guanling in Guizhou; Qiyan in Shanxi; Wulong in Chongqing,  
Zhenxiong in Yunnan, Jiama in Tibet, Sanxi in Sichuan, et al..

**Lake break:** debris flow induced the lake break of tailing pond in Linfen,  
Sichuan; ice lake break in Zhongyu Village, Jiali County, Tibet ; et al..

Based on the previous work, **one database** and **two systems** are building

- **Database for susceptible area of geology hazard**
- **Decision support system of remote sensing on geology hazard**
- **Rescue system of geology hazards based on technics of remote sensing and low-level unmanned plane**

**unmanned plane, communication vehicle, information service platform**

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# 2 Prediction and information



## acquisition in the earthquake rescue

- **Just after earthquake :**
- **Predict the possibility of geology hazards occurrence and the likeliest area**

**Yushu earthquake:** we stated that no large-scale secondary geological disasters would occur in the meeting organized by Ministry of Land and Resources in 15, April, 2010, the day after the earthquake. And the statement is proved true.

# 2 Prediction and information



## acquisition of the secondary

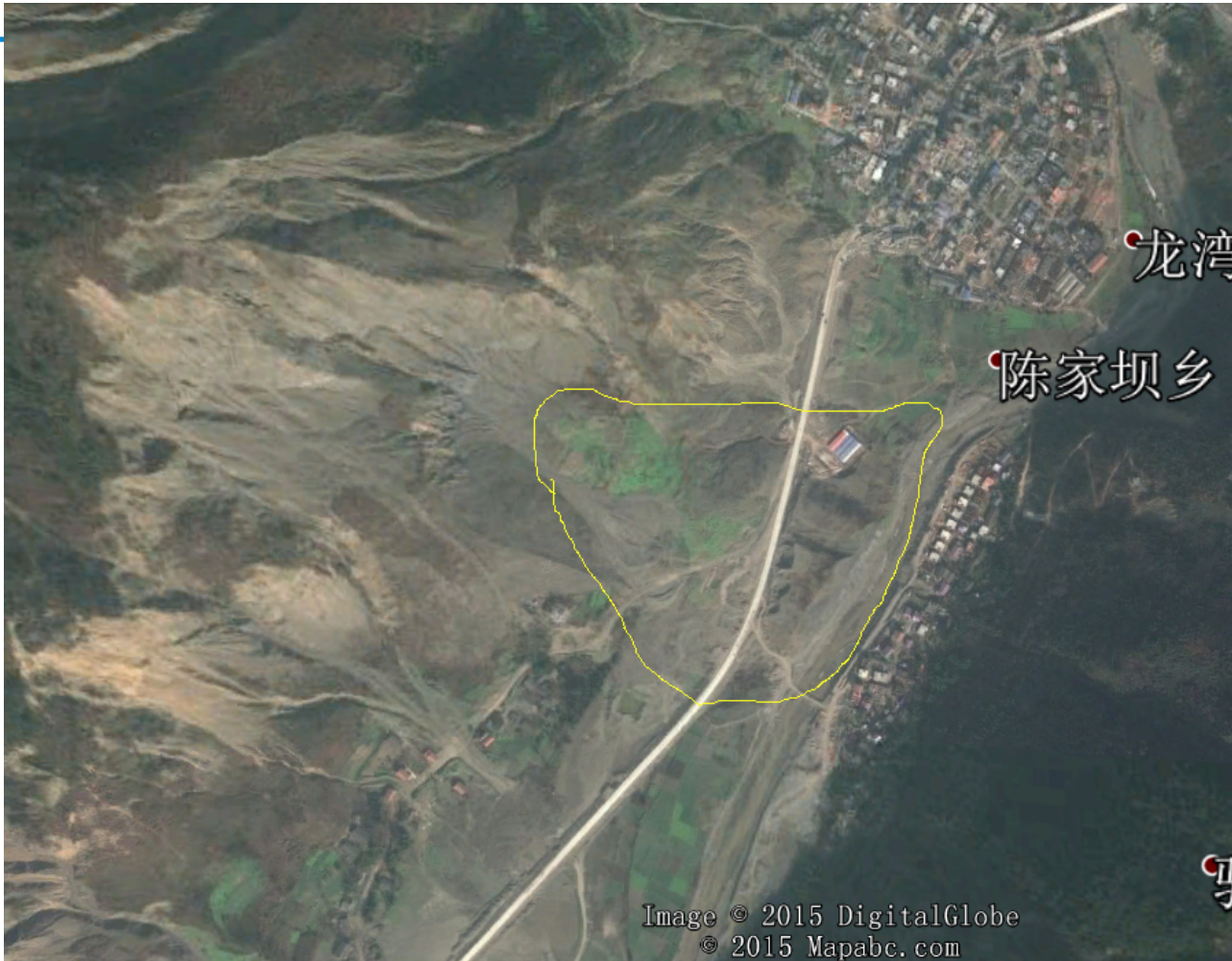
### geological disaster

- **Predict the range of remote sensing reception, aerial photograph and unmanned plane photograph**
- **Interpret the road passing condition to the disaster area;**
- **Interpret and plan the rescue route and key area;**
- **Interpret the secondary geology hazards**
- **Evaluate the induced damage**
- **Evaluate the scale and location of dammed lakes**
- **Evaluate the area and probability of the debris flow induced by the loess materials.**



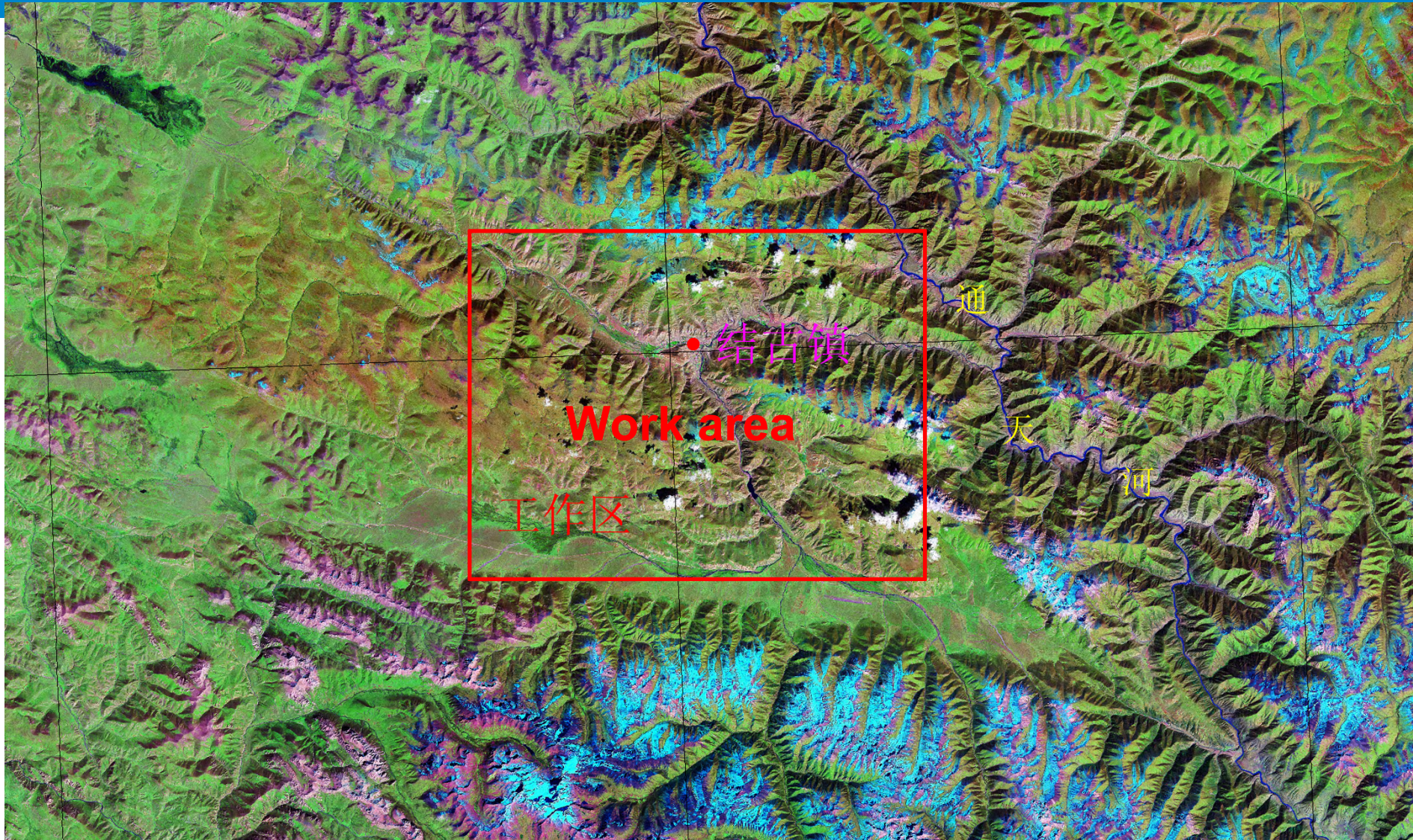






**Chenjiaba  
landslide**

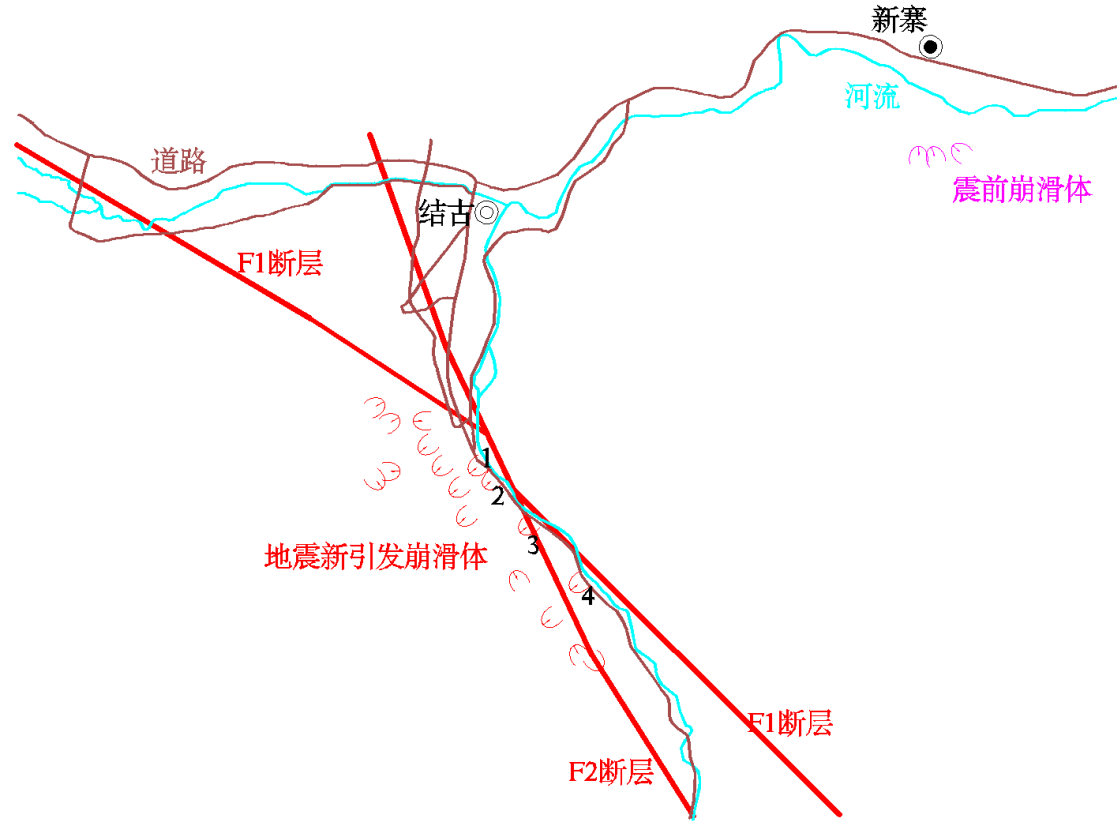
# Yushu earthquake



# Yushu earthquake

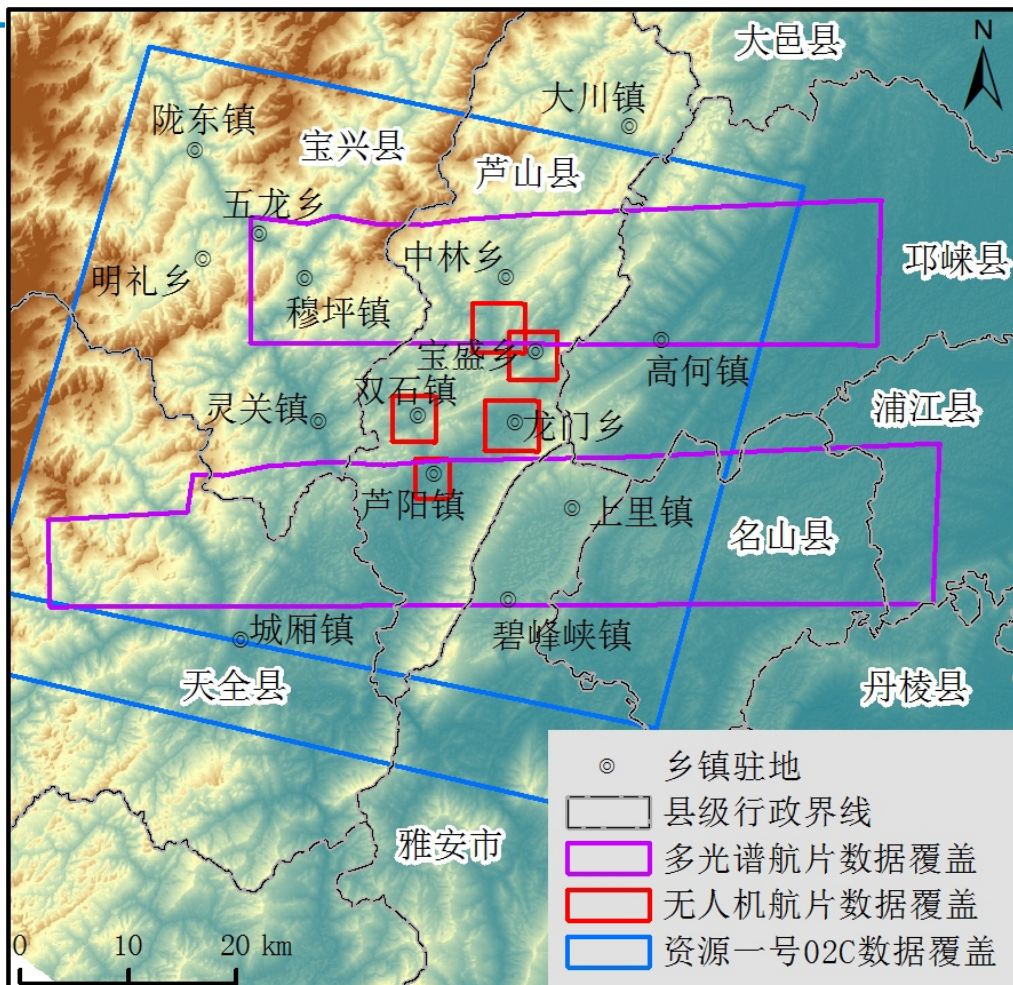


Ground rupture induced by the earthquake in the remote sensing image



The distribution characteristics of secondary geology hazards

# • Prediction and information acquisition of the rescue traffic situation



**Lushan earthquake**

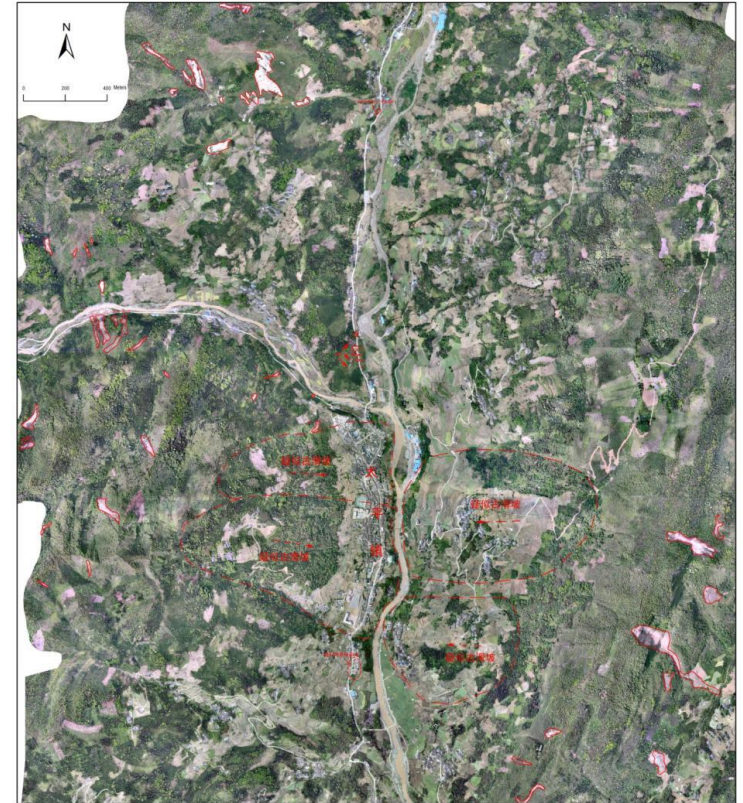
芦山县宝盛乡地震次生地质灾害排查遥感解译图



中国国土资源航空物探遥感中心解译

测绘局无人机航拍

芦山县太平镇周边地震次生地质灾害遥感解译图



数据源: 0.2m 分辨率无人机航拍

中国国土资源航空物探遥感中心解译

The distribution of secondary geology disaster

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# 3 Emergency in one sudden

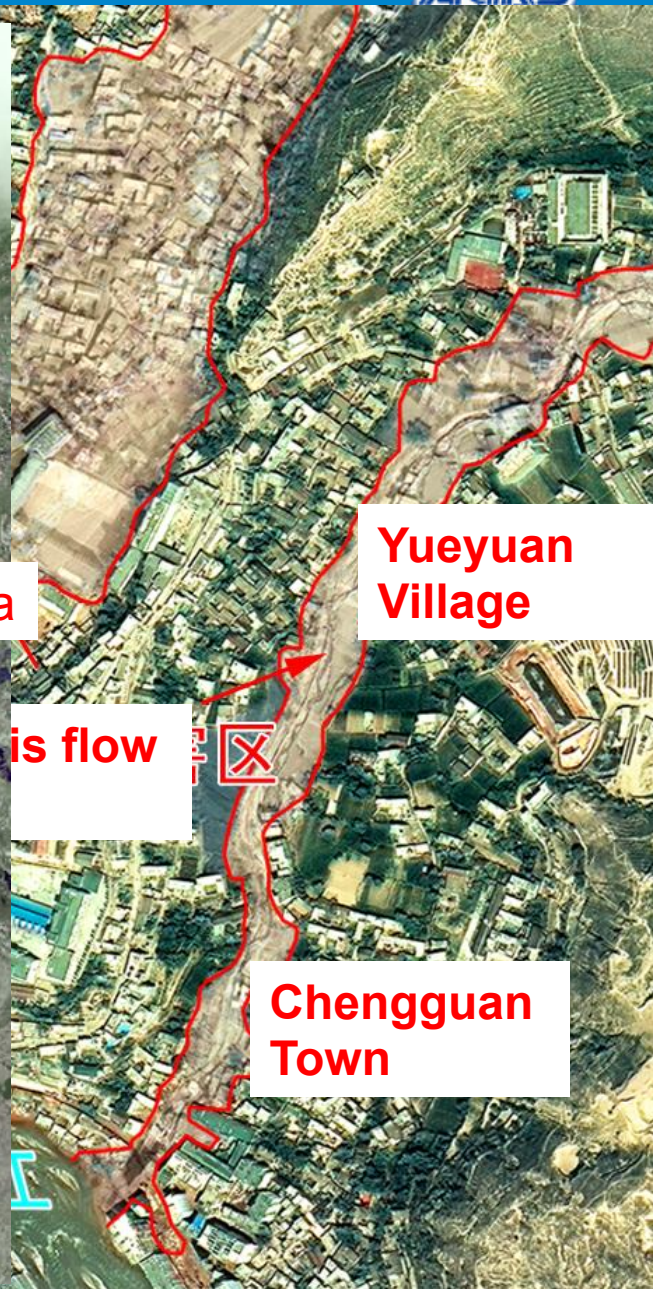
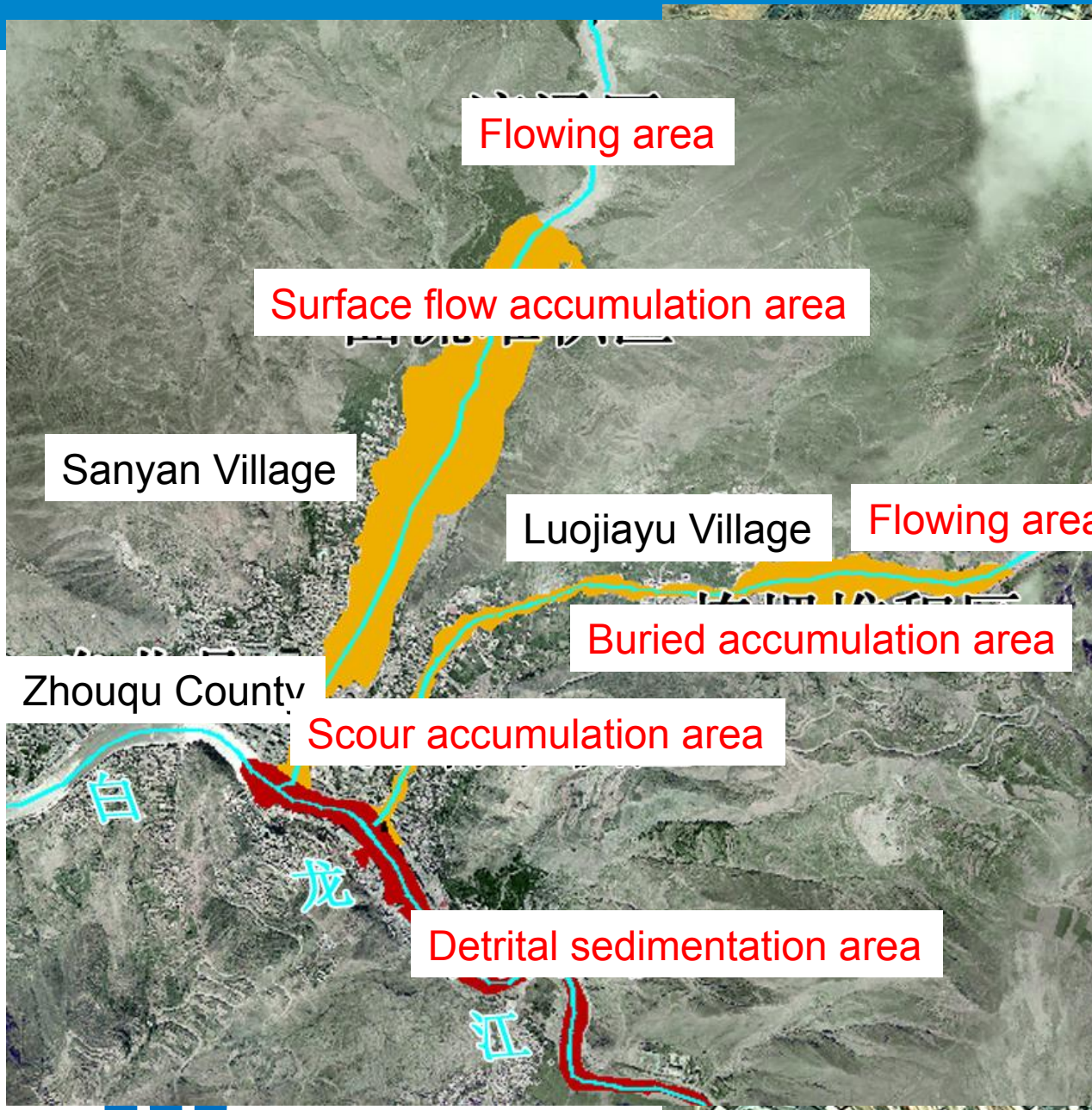


## geological disaster



**Jiweishan Landslide in Wulong county-  
5, June, 2009**

# Zhouqu debris flow in Gansu



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- **Strengthen the communication among the institutions on RS**
- **Strengthen data sharing**
- **Standardize and improve the accuracy of the data**
- **Found an association of the RS on geology hazards**

Thank you !