



A Comparison of the Trait of Tourist flows before and after Natural Disaster

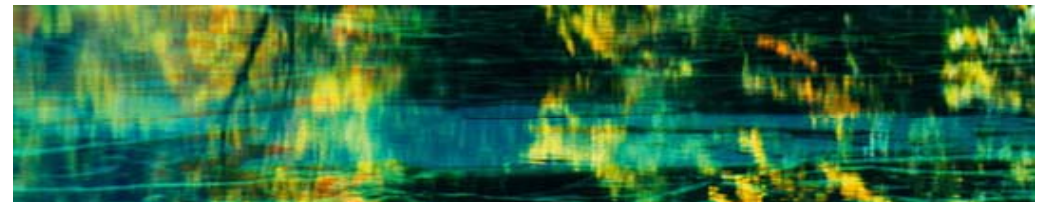
- case of the tourist flow to Jiuzhaigou before and after 8.0 Ms Wenchuan Earthquake, China

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⌘ Outline of this presentation

- ☑ Introduction
- ☑ Data collection and Methodology
- ☑ Result and Discussion
- ☑ Conclusion and implication



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⌘ Introduction-Studies on disasters' effects on tourism

- ☑ **Negative effects** (cf. Murphy 1989, Robinson 2008, Hystad 2008, Faulkne 2001, Ritchie 2004, Szalai 2007, Rittichainuwat 2009, Huang 2002, Cavlek 2002, Floyd 2004, Sönmez 1999, Huan 2004, Birkland 2006, Müller 2009, Calgaro 2008, Blake 2003)
- ☑ **Positive effects** (cf. Murphy 1989, Robinson 2008, Hystad 2008, Faulkne 2001, Szalai 2007, Rittichainuwat 2009).
- ☑ **Visible effects** (cf. Murphy 1989, Ritchie 2004, Sönmez 1999, Szalai 2007, Huang 2002, Birkland 2006, Müller 2009, Blake 2003)
- ☑ **Invisible effects** (cf. Robinson 2008, Cavlek 2002, Floyd 2004, Huan 2004, Birkland 2006, Calgaro 2008).



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⌘ So studies on natural disasters' effects on tourism can be classified into two categories:

- ☑ Negative vs Positive
- ☑ Visible VS Invisible
- ⌘ **This study : from the perspective of spatial structure, attitude and evaluation of tourist**
 - ☑ Changes in spatial structure of the tourist origin before and after the natural disaster – with index of market share
 - ☑ Comparing tourists' attitudes or perception to the effects of disaster on tourism and destination

Study aim

- ☒ To reveal certain traits of tourist flow related to disaster
 - ☒ Spatial structure of market share
 - ☒ Attitude and perception of disaster on tourism
- ☒ To provide scientific basis for crisis management
 - ☒ Try to provide a useful reference for the recovery and revitalization of tourism in a strategic way under similar circumstances in the future

2. Data collection and methodology

Study area and its location

Study area: Jiuzhaigou National Park

- ☒ World Natural Heritage Sites enrolled by UNESCO
- ☒ National Geological Park and National Conservation
- ☒ The site identified by Green Globe 21 Program
- ☒ World Biosphere Reserves in Man and Biosphere Program (MAB).

Attractions:

- ☒ Numerous waterfalls(3 mains) and Colorful lakes(>100)
- ☒ Primitive forests and Wildlife – giant panda?

Geomorphic location:

- ☒ Easter edge of Tibet-Qinghai plateau with complex and active geologic structure movement

Geographic position:

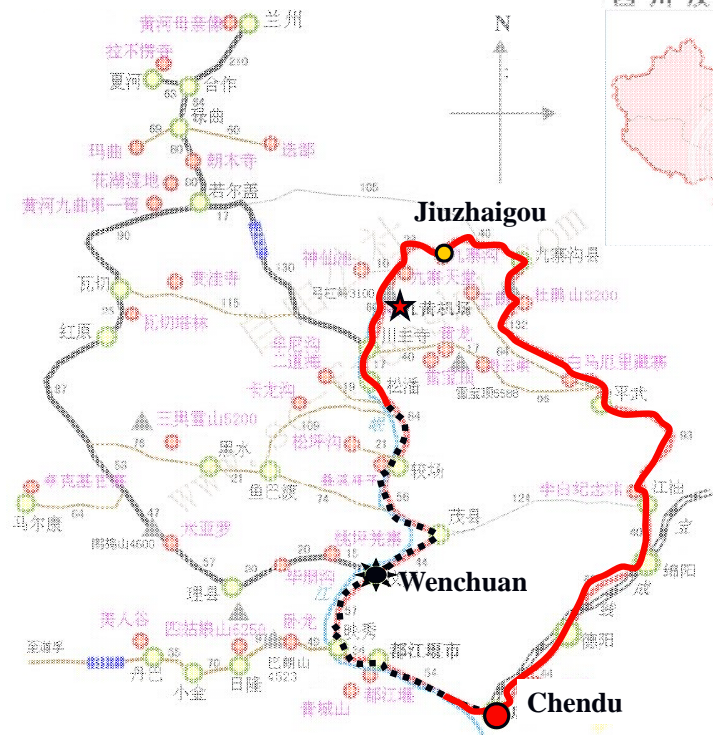
- ☒ Latitude: 32.54 ~ 33.16 (N)
- ☒ Longitude: 103.46 ~ 104.3 (E)

Basin area: 641.35 km²

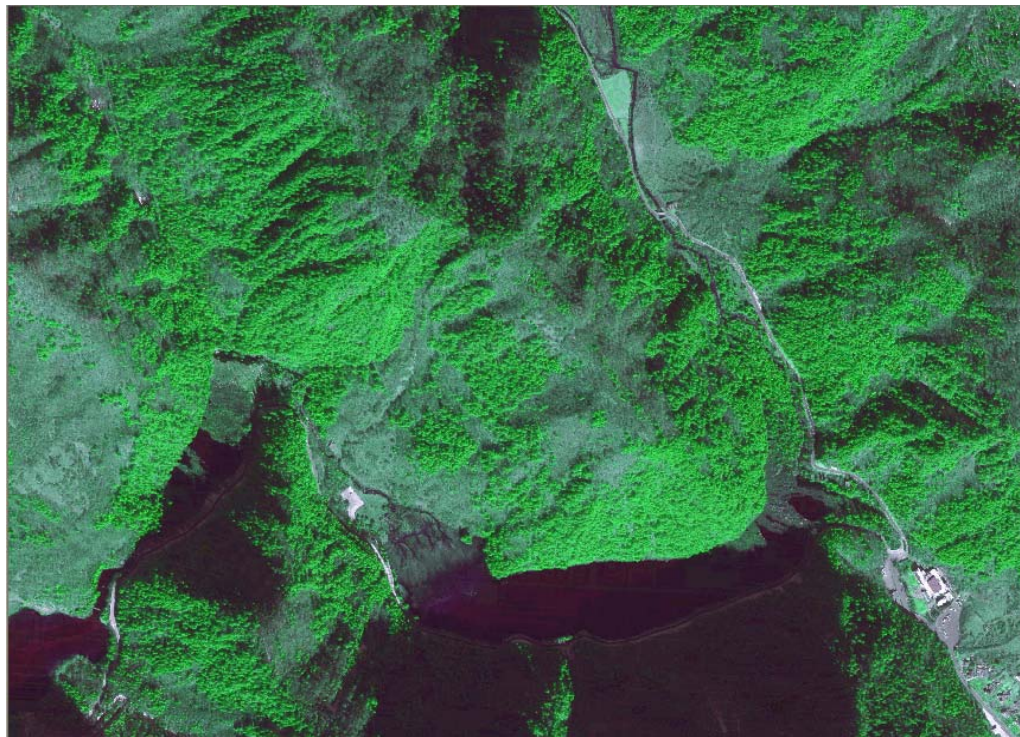
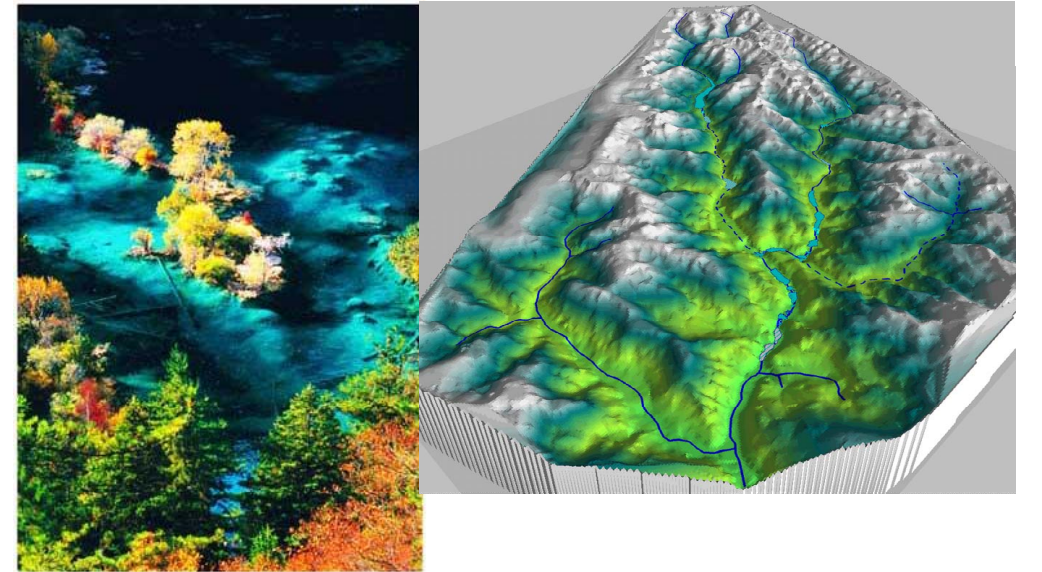
Valley length

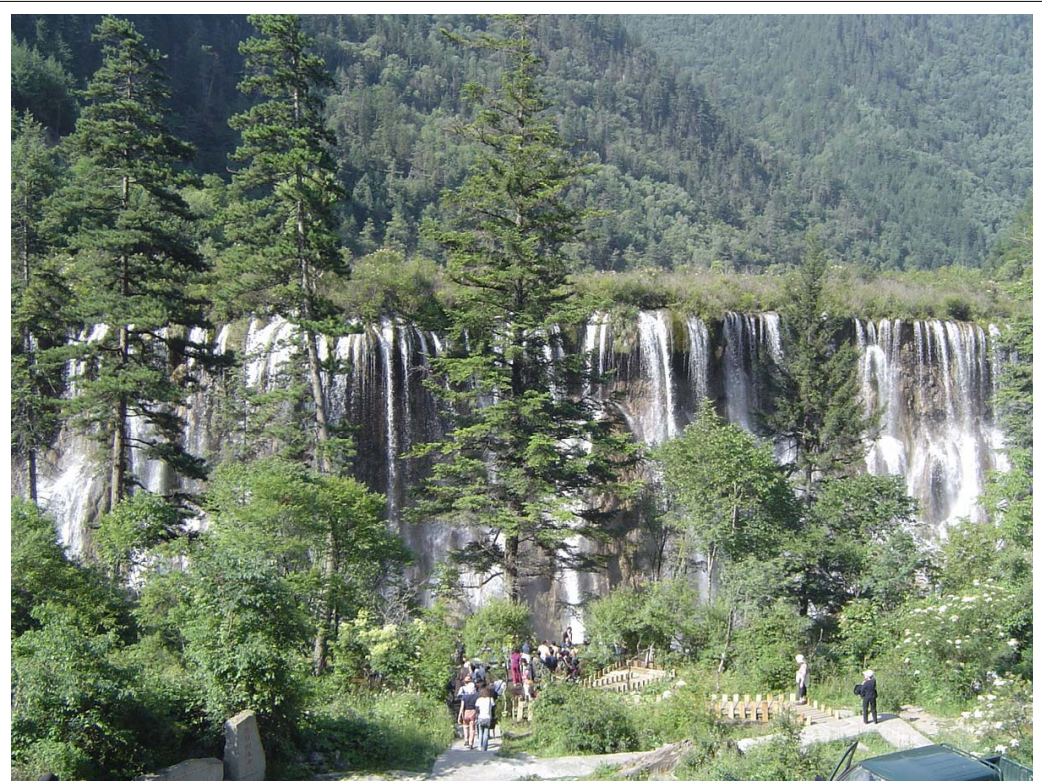
- ☒ Y shaped 3 sightseeing valleys with 17, 14, 21 km





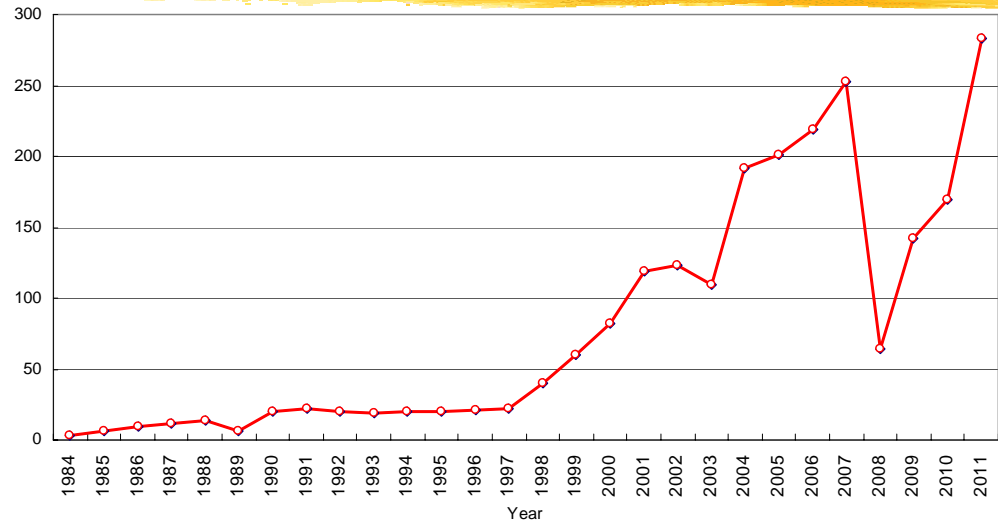
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⌘ Data collection-questionnaires

- ☑ 2008 Samples just before earthquake
 - ☑ Precious data of pre-earthquake: Finished field investigation just before earthquake due to lucky collaborating research with Dr. Xu, lecturer from Bournemouth University supported by British Academy
- ☑ 2009 revisit to questionnaire
- ☑ 2011 second revisit

Tab.1 Distribution of sample

survey time	samples about tourist origin					samples about tourist attitude to disaster impact on tourist destination		
	D	province		county(city)				
		N	R	N	R	D	N	R
April 27 th - May 5 th in 2008	2400	2225	92.7 %	1556	64.8 %	——	——	——
May 5 th to 10 th in 2009	2400	2099	87.5 %	1656	69.0 %	600	572	95.3 %
August 8 th to 14 th in 2011	2200	——	——	1525	69.3 %	——	——	——

D-number were distributed, N-efficient number, R-effective rate

2.Methodology

- ⌘ Measuring the tourist attitude to disaster's impact on tourist destination

ITEMS
extensive damage
inconvenient transportation
decrease in the number of tourists
destruction of tourism resources
long recovery time
weakening of the environment
trip becoming dangerous
less fun

⌘ 2.3 Analysis

- ☑ Analyzing the distribution of tourists with unit of origins referring to long tail market share
- ☑ Comparing the changes in the market share occupied by various provinces (autonomous regions and municipalities included) before and after the earthquake.
- ☑ Examining the significant differences in eight items of tourists' attitudes to (or perception of) the effects of disaster on the destination.

3 Results and discussions

Changes in spatial structure of Jiuzhaigou's markets before and after the Earthquake

Changes in the long tail of the distribution of travelers before and after the earthquake

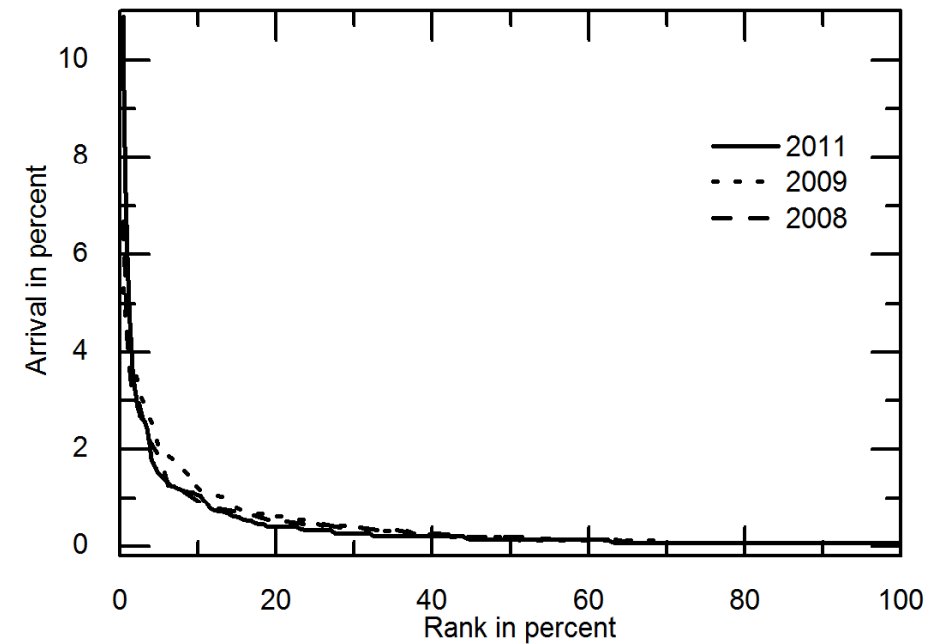


Fig.1 Market analysis of Jiuzhaigou before and after the earthquake

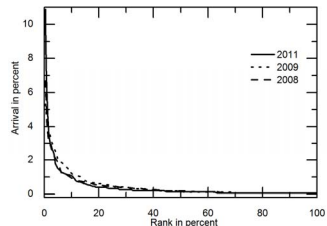


Fig.1 The line graph of market analysis of Jiuzhaigou before and after the earthquake

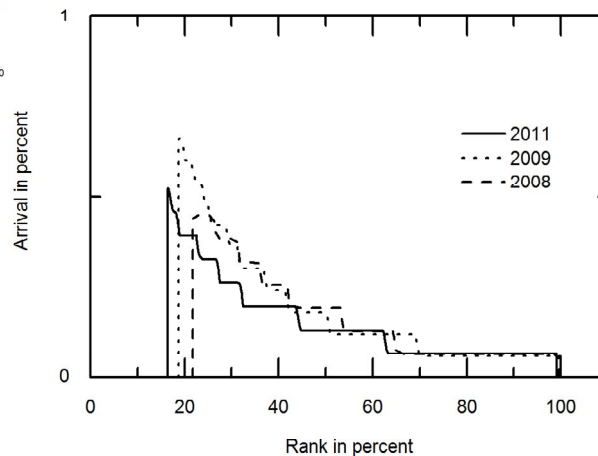


Fig.2 The Distribution of the Long Tail Market in Jiuzhaigou before and after the Earthquake

Changes in the domestic tourist market share before and after the earthquake

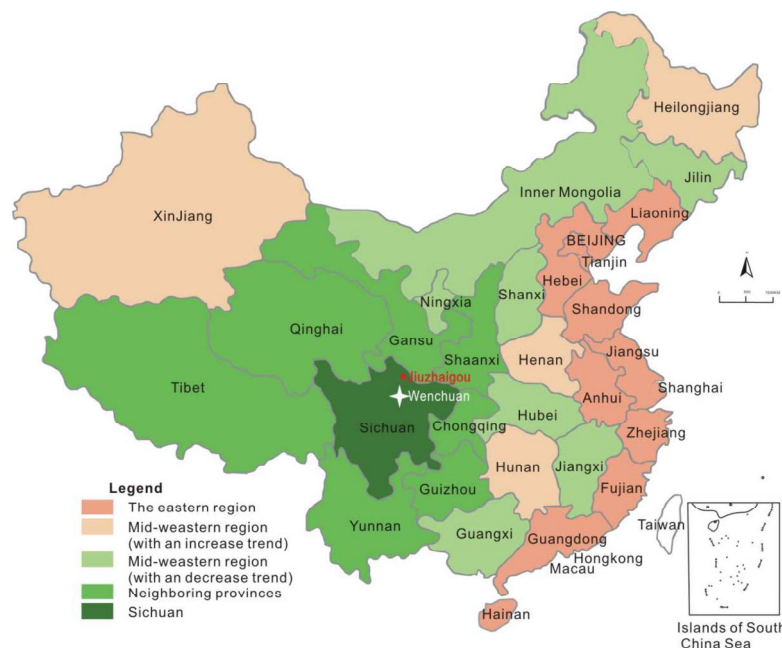


Fig.3 Fluctuations of market share of Jiuzhaigou's domestic tourist origins before and after the earthquake

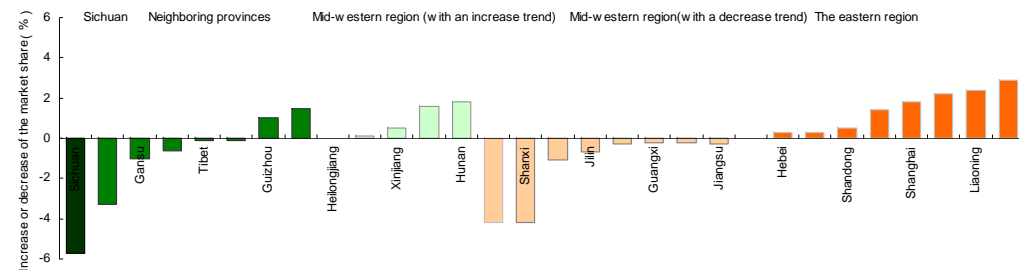
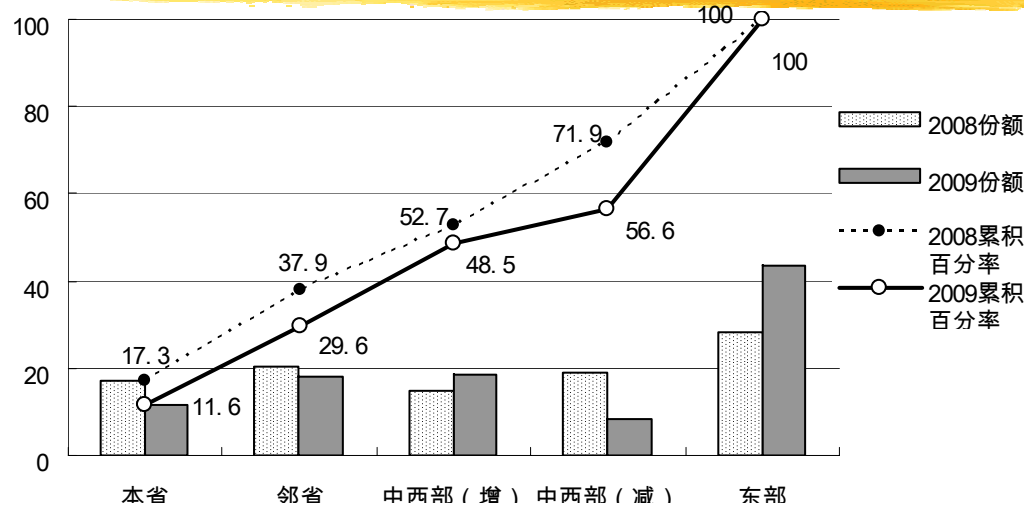


Fig.4 Spatial distribution of market share of Jiuzhaigou's domestic tourist origins



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Discussion on the result of spatial structure

☒ Different long tail distributions and market shares

Possible cause - interpretations

☒ Long tail effects with result from e-commerce

☒ Development of the e-commerce of tourism

☒ Without earthquake this should be most reasonable interpretation with most academic implication

☒ Stronger psychological effect of disaster on potential tourists of nearer origins result in the decrease of market share of neighboring origins

☒ Distance decay of disaster effects on tourist?

☒ Different Travel behavior: Transportation mode

Comparison of tourists' attitude or perception towards the disaster's impact on the destination

☒ In general

☒ With geographical segmentations

☒ Sichuan and neighboring provinces

☒ Mid-western provinces

☒ Eastern coastal developed provinces

3.3 Differences in groups of tourists-perception

☒ Tab.3 ANOVA for comparison of tourist attitude to disaster impact on tourist destination by tourist origin groups

Factors		1	2	3	4	5
inconvenient transportation	n	81	90	74	43	237
	mean	2.98a	2.57b	2.59ab	2.53ab	2.49b
Extensive damage	n	81	90	73	42	235
	mean	3.30a	2.71b	2.88b	2.71b	2.75b
decrease in the number of tourists	n	81	90	75	42	238
	mean	3.06a	2.34b	2.52b	2.38b	2.42b
less fun	n	81	90	76	42	238
	mean	2.01a	1.87ab	1.93ab	1.83ab	1.76b

1- Sichuan Province; 2- neighboring provinces,

3- Mid-western region (increased)

4- Mid-western region (with a decrease trend)

5- the eastern region;

a and b indicate the source of different significant levels.

Factors	n	Mean	St.d	t	p
extensive damage	534	2.85	1.247	<u>6.397</u>	<u>.012</u>
inconvenient transportation	538	2.60	1.282	<u>6.123</u>	<u>.014</u>
decrease in the number of tourists	539	2.52	1.192	<u>8.869</u>	<u>.003</u>
destruction of tourism resources	542	2.32	1.151	.862	.487
long recovery time	535	2.31	1.136	1.252	.288
weakening of the environment	544	2.21	1.035	1.087	.362
trip becoming dangerous	533	2.14	1.022	.298	.879
less fun	540	1.84	.898	<u>4.829</u>	<u>.028</u>

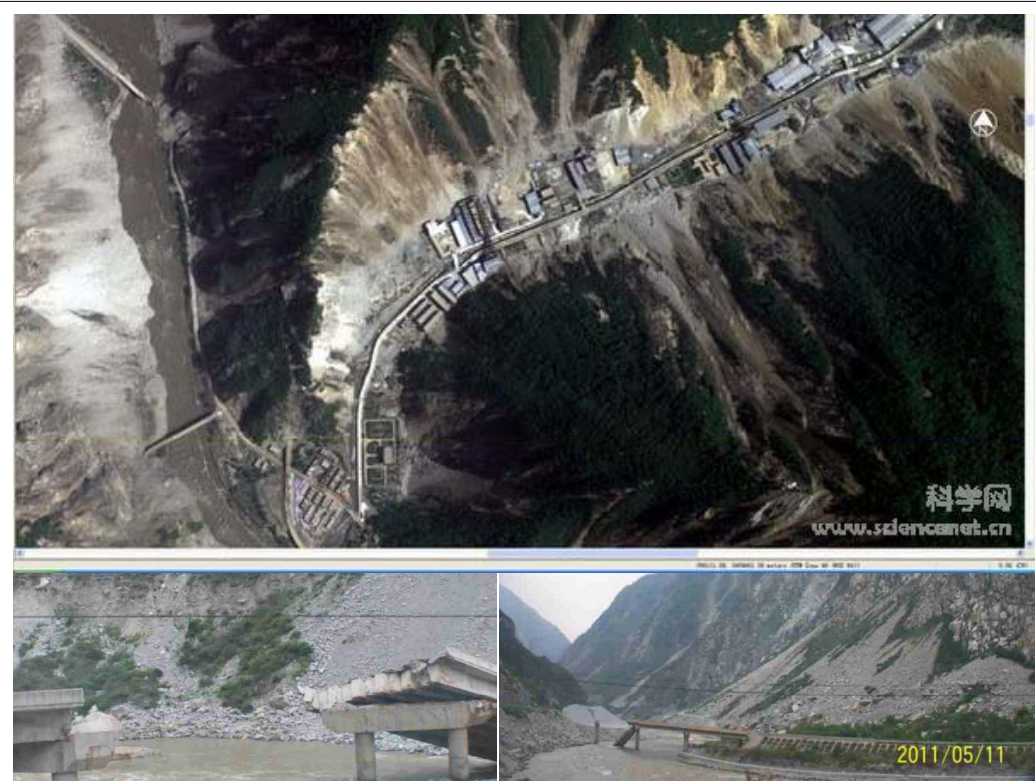
Result:

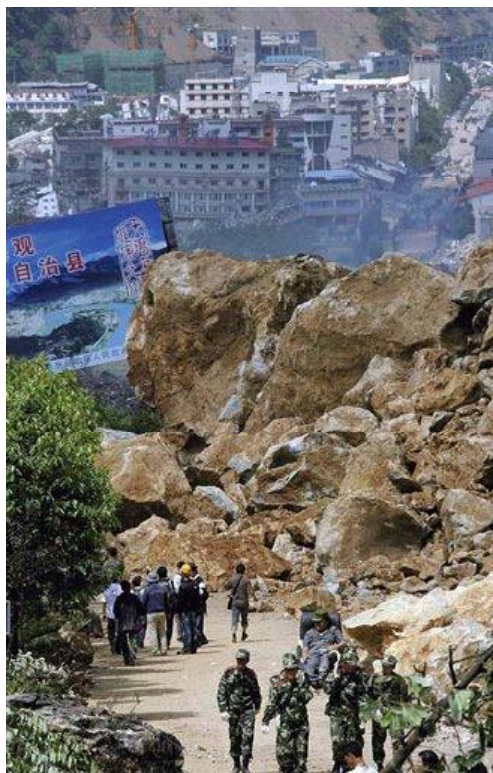
☒ Tourists from different origin cities have quite different attitudes towards the items of "inconvenience of transportation, a heavy blow, reduction in the number of tourists and less fun"

☒ Tourists from Sichuan Province score highest in these four items while tourists from eastern region score lowest in "inconvenience of transportation and less fun".

4. Conclusions and implication

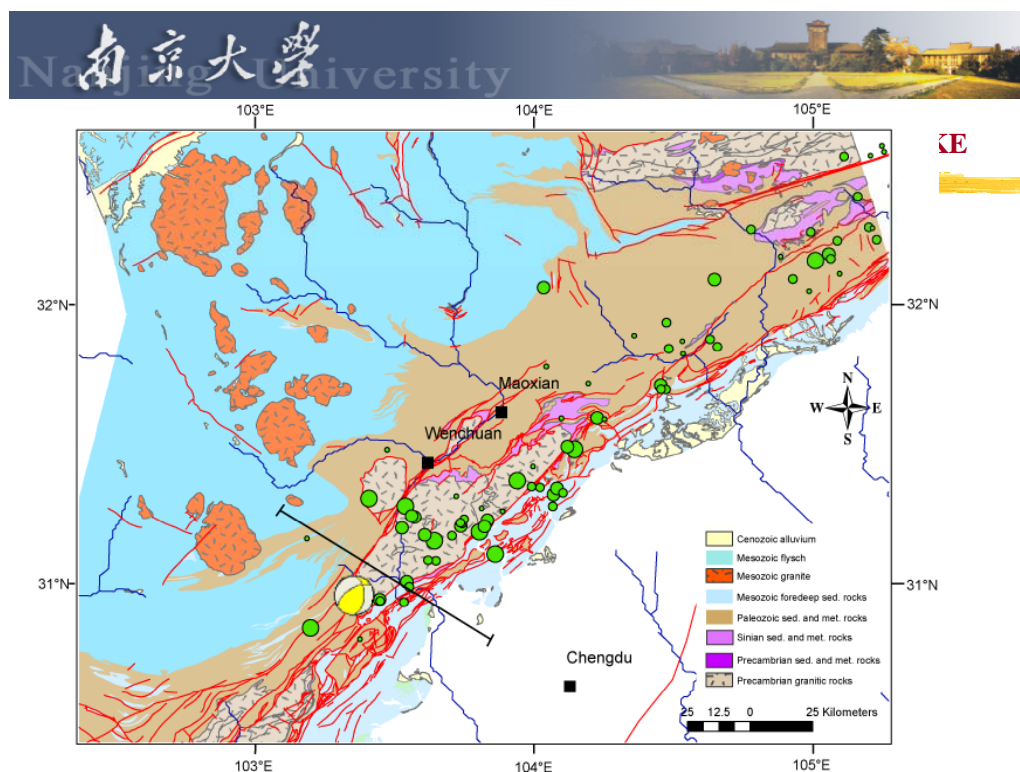
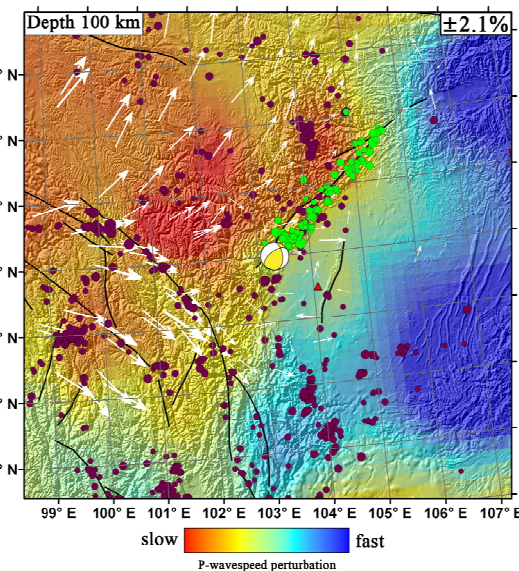
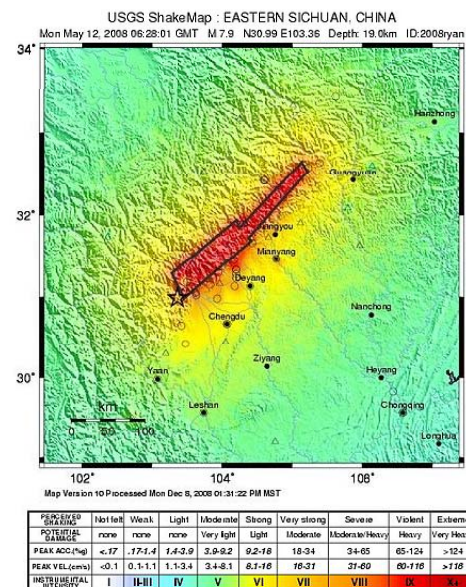
- 1) Earthquake caused significant changes in the market share
 - of the tourist origins in and near the disaster-hit area declined
 - of the remote origins (mainly eastern China) increased
 - 2) Tourists of different origins have different attitude of inconvenience of transportation, number of potential tourists, the fun of traveling. Tourist from developed region with optimistic view
- Implication:
- transport might directly or indirectly influence tourists' perception of transportation reconstruction or substitution very important
 - Longtail theory and e-commerce in tourism marketing

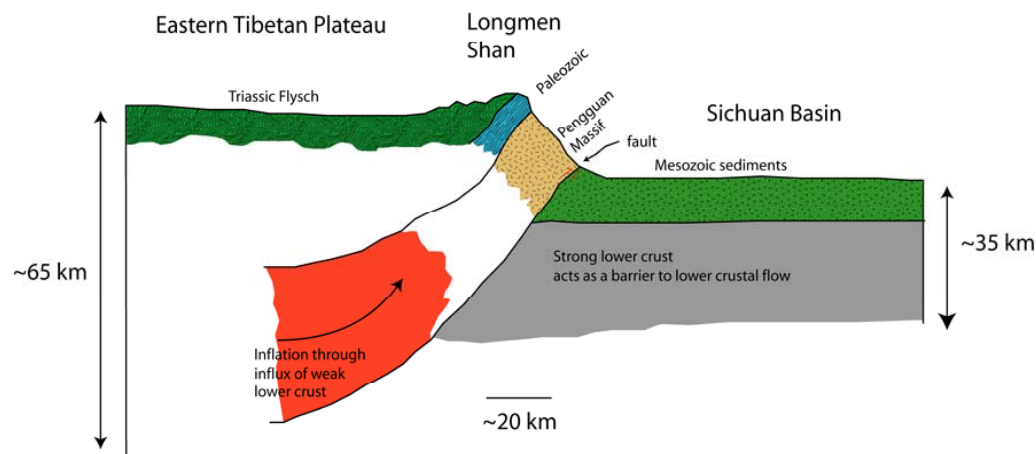






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Many
Thanks!