

# Emergency Communications for Disaster Relief in China: Experiences and Lessons Learned

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- ◇ Nature disasters in China: an overview
- ◇ Disaster emergency communications in China
- ◇ Satellite communications for emergency and e-resilience
- ◇ Considerations on international cooperations
- ◇ Conclusions and discussions

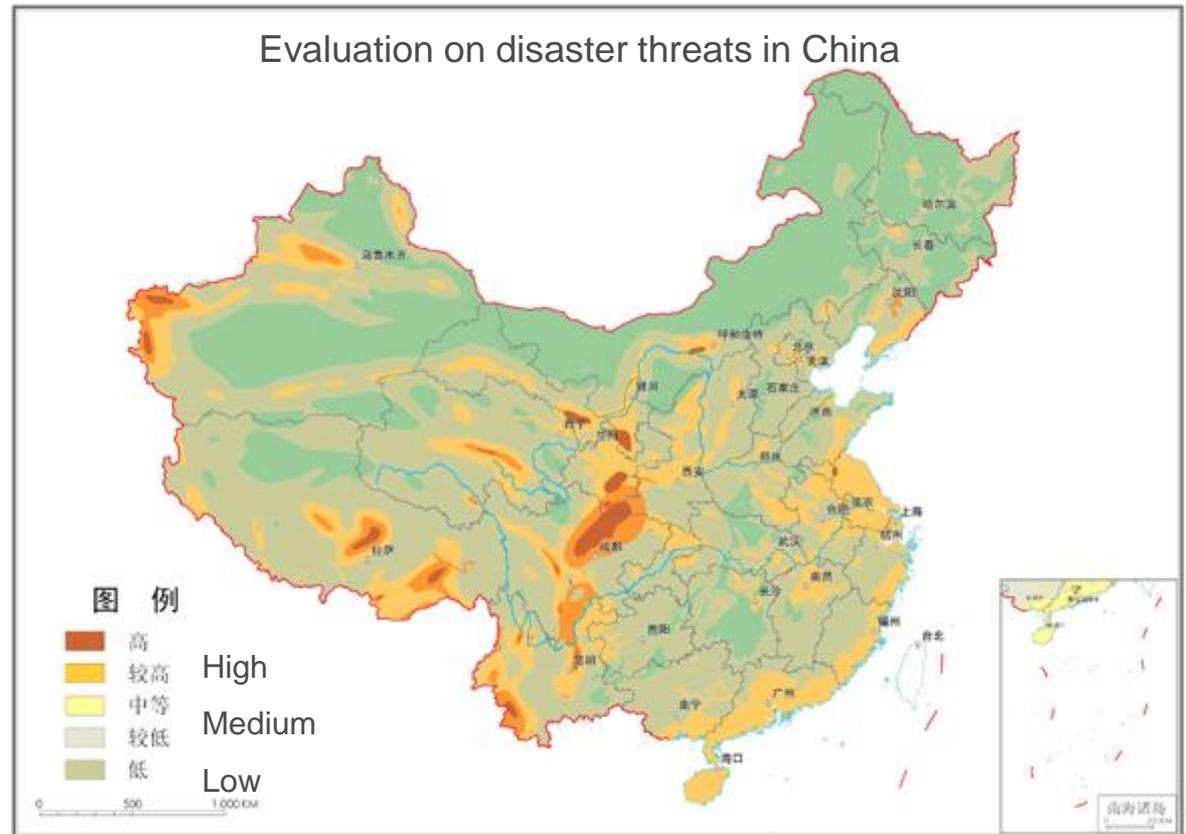


# Nature Disasters in China- Overviews

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China is one of the countries most affected by nature disasters in the world. Nature disasters occur frequently in China that seriously threaten the human lives, and also have huge impacts to economy and social development of China.

- Characters of Nature Disasters in China
  - Widely affected: almost every provincial region
  - Various type: earthquake, floods, typhoons etc, most of major nature disaster occurs in China
  - Seasonal features: June- Sept. flooding affected many area of China( mostly South China and Northeast China)



根据洪水、地震、地质灾害、热带风暴等自然灾害分布数据，以公里网络为单元经单要素及综合自然灾害危险性评估得出  
数据来源：中国科学院，水利部，中国地震局，中国气象局等

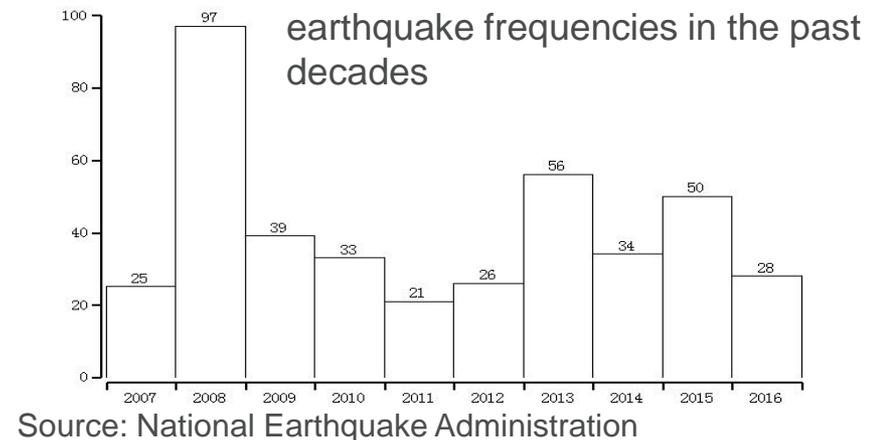
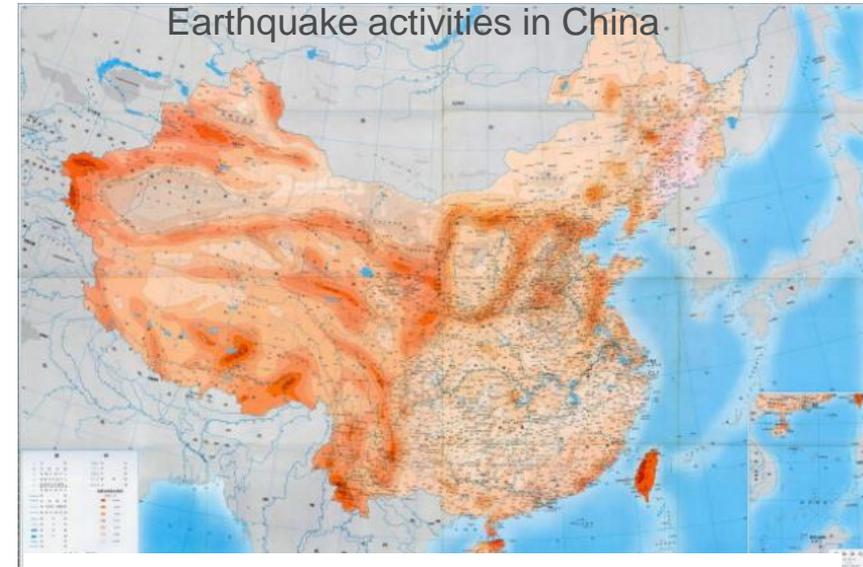


# Nature Disasters- Earthquakes affected China

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Earthquake is one of the most frequent disaster in china, and devastating earthquake mostly affected Westen-China, Yunnan, Sichuan,Tibet, Gansu, ShanXi ,Qinghai in recent years

- 5.12 Wenchuan Earthquake
  - May 12, 2008, Wenchuan county, Sichuan Province;magnitude 8.0
  - 70,000 death,374k injured; \$100 billion lost
- 4.20 Lushan(Ya'an)Earthquake
  - April 20, 2013, Lushan county, Sichuan Province; magnitude 4.8
  - 196 death, 11k+ injured;
- 7.22 Dingxi Earthquake
  - July 22, 2013; Dingxi ,Gansu province, magnitude 6.6
  - 95 death, 800+ injured
- 8.3 Ludian Earthquake
  - August 3, 2014 Ludian Yunnan province; magnitude 6.5
  - 617 death,3.1k+ injured;\$71 million lost



Source: National Earthquake Administration



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# Disaster's Influences to ICT infrastructure

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ICT infrastructure is one of the most critical resources for saving lives when a disaster happens. However, the ICT infrastructure is also fragile during disaster.

- disasters damage ICT infrastructure, result in telecom network and service outage within the affected area.
- disasters destroy power grid and result in power failure to ICT equipments.
- functionally disables telecom services of affected area due to large amount inquiry calls





# Emergency Communications for Disaster Relief

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## Emergency Communications:

- Communications methods in support of disaster prevention and disaster relief operations.
- Enhancement of resilience for public communications network
- Alternative communications methods during outage of public networks

Disaster Phase	Actions/Operations	Roles of ECDR
<ul style="list-style-type: none"><li>• Pre-Disaster</li></ul>	<ul style="list-style-type: none"><li>• Preparedness</li></ul>	<ul style="list-style-type: none"><li>• Improvement of resilience of networks and services</li><li>• Deployment of EC equipments</li><li>• Manoeuvres/Exercises</li></ul>
<ul style="list-style-type: none"><li>• Disaster Strike</li></ul>	<ul style="list-style-type: none"><li>• Disaster Response</li></ul>	<ul style="list-style-type: none"><li>• Early warning for publics</li><li>• hazard Information collecting and reporting</li></ul>
<ul style="list-style-type: none"><li>• Disaster Impact</li></ul>	<ul style="list-style-type: none"><li>• Disaster Mitigation</li></ul>	<ul style="list-style-type: none"><li>• On-site communications support</li></ul>
<ul style="list-style-type: none"><li>• Post Disaster</li></ul>	<ul style="list-style-type: none"><li>• Disaster Recovery</li></ul>	<ul style="list-style-type: none"><li>• Reconstruction of network</li><li>• Recover public telecom services</li></ul>



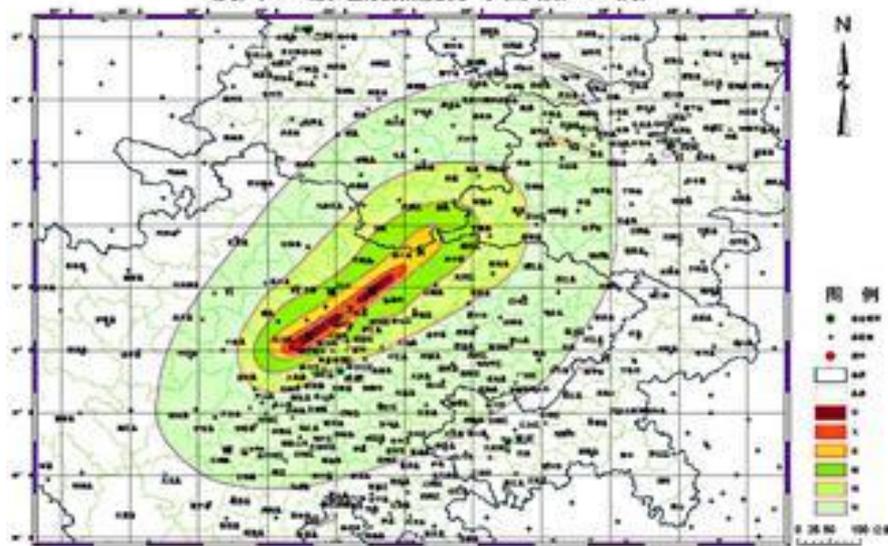
# Emergency Communications :Earthquakes cases

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## 5.12 Wenchuan Earthquake(2008):

- **Impacts:** telecom service out in 13 counties, 14k+ base stations damaged, optic fiber cable cut in many areas; power failure in all affected area
- **Emergency Response:** thousands of emergency communications equipment and supporting facilities (ie. electricity generators) deployed, 30k+ staffs engaged

汶川8.0级地震烈度分布图(第3.0稿)



预览已结束，完整报告链接和二维码如下：

[https://www.yunbaogao.cn/report/index/report?reportId=5\\_1912](https://www.yunbaogao.cn/report/index/report?reportId=5_1912)



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