Brief Introduction to China Emergency Early Warning Release Platform

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OUTLINE

- Background
- Present situation
- Guangdong Emergency Early Warning Release Center
WHAT?

- Public institutions entrusted by Government, managed by CMA, provincial, municipal and county meteorological services.
- To perform [government functions](#) of releasing emergency warning.
- To gather emergency warnings from responsible government departments, and release them effectively and timely when emergency happens. A trigger for social response.
China’s emergency incidents

- Natural disasters
- Accidental disasters
- Public health incidents
- Social security incidents
In the August of 2007, a rumor that there would be an earthquake spread and caused public panic in Zhanjiang (a coastal city in Guangdong province) after a heavy rainstorm.

Several hours later, Zhanjiang Meteorological Bureau together with Zhanjiang Earthquake Bureau sent out 2.8 million SMS to refute the rumor and calmed the public soon.

The State Council and Guangdong Provincial Government was satisfied and realized the importance and necessity of establishing a unified & efficient emergency warning release platform.

CMA proactively undertook the responsibility of it, and decided to carry out pilot work first in Guangdong province.
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Omnimedia release of early warning

Government departments
- Agriculture
- Hydrology
- Health
- Meteorology
- Environment
- Education
- Security
- Ocean

Emergency Early Warning Release Center

Warning release network
- Website
- App
- Microblog
- WeChat
- Video
- Telephone
- SMS
- Email
- Radio
- TV

Network providers
- China Mobile
- China Telecom
- China Unicom

Distribution channels
- Social media
- Website
- Video
- Telephone
- SMS
- Email
- Radio
- TV
- App
- Microblog

Areas of interest
- Agriculture
- Ocean
- Meteorology
- Health
- Security
- Hydrology
- Environment
- Education

...
Horizontal **sharing, vertical connection**
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Guangdong Province

- **Largest population** in China, 104 million of resident in 2016.
- **Highest GDP** in China since 1989, 7951 billion RMB ($\approx 1156$ billion $\$) in 2016.
- **133 deaths per year** due to meteorological disasters in the past 5 years.
- Suffered a lot from other natural disasters, accident disasters and public health events, etc.
Since the pilot work started, Guangdong has established 99 branches of the EWRC all over the province. Information is delivered and shared among these branches.

Provincial emergency early warning release center (in Guangzhou)

Municipal and county centers
Ownership and Duty

Guangdong Province Government

China Meteorological Administration

Guangdong Meteorological Service

GD EWRC

Department of Education
Department of Science and Technology
Department of Land and Resources
Department of Water Resources
Department of Agriculture
Department of Health
Environmental Protection Bureau

Public Weather Service

weather disaster

Emergency early warning

Natural Disaster
Public Health
Accident Disaster
Government draws attention

Many provincial conferences to deploy

Relevant Law and Legal Regulations be published to standardize our operation
Providing: code of conduct; decision-making proof

Launching: the management of reserve plan
To release early warning effectively and accurately
1 Risk Analysis & Judgement System (Analyse)
2 Emergency Early Warning Release System (Release)
The Risk Analysis & Judgement System analyzes and aggregates mass of digital data from different departments of government to one GIS map, We call it “One Atlas”.

44 kinds of information from 14 different departments on the Atlas (including population, economy, schools, hospitals, dangerous chemical storages, reservoirs location, real-time ship information etc.)
Based on “One Atlas” and “One Grid”
Have developed multiple professional disaster models, such as Pollution Diffusion Model.
City Waterlogging Monitoring and early warning based on radar quantitative precipitation estimation and forecast

Early Warning info

Type: urban waterlogging
Age: next 6 hours
Condition: Sliding precipitation exceeded
Model: Urban flood and waterlogging model

水logging point: Zhongshan street-Above Gangding bridge
Warning released to targeted users

- Accurate warning to **targeted** service object by
  - Selected areas & Specific population

- Early and quickly warning released by **One Click** through multiple channels

- Warning spread channels are all monitored, displayed, controlled on line

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**Targeted release**

- Radio
- TV
- Website
- Loudspeaker
- LCD
- SMS
- Wei bo
- Wechat
- Etc.

100+ million click-through rate on emergency response website
5852 loudspeakers
3822 LCD
1+ billion SMS per year
7 million users
0.35 million users
Class suspension warning signals

**Function:** Pushing Weather warning signals for severe weather

**Purpose:** Protecting students from severe weather
<table>
<thead>
<tr>
<th>Date</th>
<th>Emergency</th>
<th>SMS(million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007.8</td>
<td>Zhangjiang Earthquake rumor</td>
<td>2.8</td>
</tr>
<tr>
<td>2008.1</td>
<td>Low Temperature and Snow-ice Weather</td>
<td>800</td>
</tr>
<tr>
<td>2008.5</td>
<td>Wenchuan Earthquake</td>
<td>4.2</td>
</tr>
<tr>
<td>2008.7</td>
<td>Oil price rumor</td>
<td>0.94</td>
</tr>
<tr>
<td>2010.11</td>
<td>Guangzhou Asian Games</td>
<td>123</td>
</tr>
<tr>
<td>2011.3</td>
<td>Nuclear radiation romor</td>
<td>55</td>
</tr>
<tr>
<td>2012.2</td>
<td>Heyuan Earthquake</td>
<td>1.0</td>
</tr>
<tr>
<td>2013.8</td>
<td>Severe Typhoon Utor</td>
<td>170</td>
</tr>
<tr>
<td>2013.8</td>
<td>Railway romor</td>
<td>118</td>
</tr>
<tr>
<td>2014.7</td>
<td>Super Typhoon Rammasum</td>
<td>24</td>
</tr>
<tr>
<td>2014.9</td>
<td>Typhoon Kalmaegi</td>
<td>21</td>
</tr>
<tr>
<td>2014.9</td>
<td>Dengue fever</td>
<td>112</td>
</tr>
<tr>
<td>2015.10</td>
<td>Super Typhoon Mujigae</td>
<td>74.9</td>
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<tr>
<td>2016.1</td>
<td>Strong cold wave</td>
<td>140</td>
</tr>
<tr>
<td>2016.8</td>
<td>Severe Typhoon Nida</td>
<td>140</td>
</tr>
<tr>
<td>2016.10</td>
<td>Severe Typhoon Haima</td>
<td>140</td>
</tr>
</tbody>
</table>
## Improvement of Disaster Prevention and Reduction in Guangdong Province

<table>
<thead>
<tr>
<th>Influence rate of meteorological disaster to GDP</th>
<th>Death due to meteorological disaster</th>
<th>Public satisfaction</th>
<th>Casualties to the lowest level in disasters</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;0.8% in recent 3 years</td>
<td>Lowest(28) in recent 30 years</td>
<td>Top 4 of 40 departments in recent 7 years</td>
<td>No death in Super/Severe Typhoon Rammasum, Kalmaegi, Nida, etc.</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>Comparison between No.1522 Mujigae(14 deaths) and No.9615 Shally(359 deaths).</td>
</tr>
</tbody>
</table>

- **Death due to disastrous weather in recent 30 years**

- **Public satisfaction to weather service in Guangdong**

![Graph showing death due to disastrous weather in recent 30 years](image1)

![Graph showing public satisfaction to weather service in Guangdong](image2)
In the future

◆ More intelligent
  • Location-based
  • Customizable
  • Anywhere, anytime
◆ Artificial intelligence
  • Combining with various models
  • Data from all walks of life
  • Be managed, analyzed
Thanks for Your attention