

# “End-To-End” Approach in Early Warning: The Hong Kong Experience

M.C. Wong  
Hong Kong Observatory  
Hong Kong, China

## Weather-related Disasters in Hong Kong

A container vessel collided with the Star Ferry pier during the passage of Typhoon Hope in 1979.  
Casualties due to Hope:  
Dead : 12  
Injured: 260

Typhoon Rose's onslaught in 1971.  
Casualties due to Rose:  
Dead / Missing: 115  
Injured: 286

## Weather-related Disasters in Hong Kong

Flooding in Hong Kong, 12 Jun 1966  
Casualties from 11-13 Jun 1966  
Dead / Missing: 112  
Injured: 29

## Weather-related Disasters in Hong Kong

Po Shan Road landslide in 1972

Kotewall Road landslide in 1972

Casualties from 16-18 Jun 1972  
Dead: 150  
Injured: 93

## Weather-related Disasters in Hong Kong

Drought

## Roles of NMHS

- Provide data and expertise to help assess of the threats and implementation of physical infrastructure to cope
- Operate early warning systems
- Help raise the awareness of the community to the hazard threats, community vulnerability and protective actions

## Hyogo Framework of Action 2005-2015

- Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation
- **Identify, assess and monitor disaster risks and enhance early warning**
- Use knowledge, innovation and education to build a culture of safety and resilience at all levels
- Reduce the underlying risk factors
- Strengthen disaster preparedness for effective response at all levels



## Successful Early Warning: “End-To-End” Approach



## Dual Nature of EWS



## Examples of EWS in Hong Kong:

### I. Landslip Warning



Civil Engineering and Development Department  
The Government of the Hong Kong Special Administrative Region

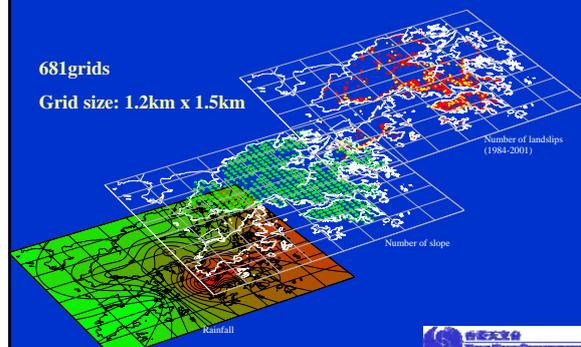


## Landslip Warning System in Hong Kong

- Assessment based on 24 hours accumulated rainfall:  
Observed rainfall in past 21 hours recorded by raingauges + Forecast accumulated rainfall in next 3 hours
- Criteria based on “Vulnerability-weighted” sum of expected landslides
- Decision based on consultation between HKO and GEO
- Warning includes advisory



## Relationship between landslip rate and rainfall



### Advisory When Landslip Warning Is Issued:

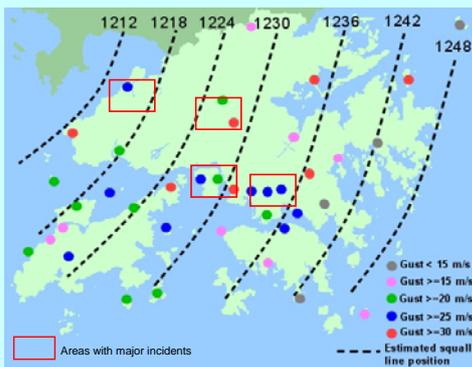
- Check to ensure that you are safe where you are and that there are no potential risk of slope instability. Report any signs of landslip danger to the Police immediately.
- Those living in squatter structures should stay alert and if necessary, leave for a safe place or temporary shelter as soon as possible.
- If a notice has been served to evacuate because of landslip risk, or if you believe that your home is endangered by an unstable slope, a retaining wall or overhanging boulders, you should make immediate arrangements to move to a safe shelter.
- Pedestrians should avoid walking or standing close to slopes or retaining walls. Motorists should avoid driving in areas by the hillside or on sections of road with the standard traffic warning sign No. 487 (the landslip warning sign) until the Landslip Warning is cancelled.



### Examples of EWS in Hong Kong: II. Gust Alert



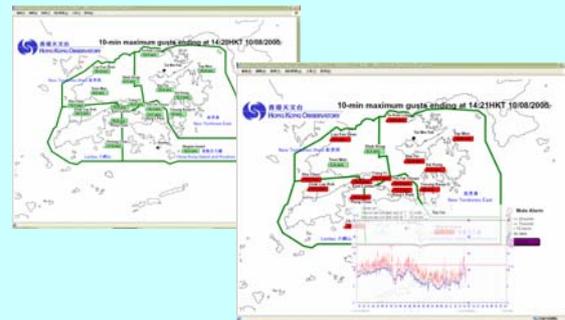
Stacked containers collapsed in a Container Terminal due to a gust front on 9 May 2005



Passage of Gust Front on 9 May 2005



### Gust alert web page panel for registered users



```
ZCZC
MESSAGE NO. 323
[R]
THUNDERSTORM WARNING (URGENT)[R]
[[[WTSHIS]]]
THUNDERSTORM WARNING

THE THUNDERSTORM WARNING ISSUED AT 5:55 A.M. ON 20 AUG 2005
HAS BEEN EXTENDED UNTIL 8:30 P.M. TODAY. ISOLATED SQUALLY
THUNDERSTORMS ARE EXPECTED TO OCCUR OVER HONG KONG.

[C]<G>[C]
GUSTS EXCEEDING 70 KILOMETRES PER HOUR WERE RECORDED AT
SHEK KWU CHAU AT AROUND 5:15 P.M.
[C]<G>[C]

DISPATCHED BY HONG KONG OBSERVATORY AT 17:25 HKT ON 20.08.2005
NNNN
```

Revised thunderstorm warning message to the public



### Out-reaching Activities in Hong Kong



NMHSs



Decision-makers & Public







熱帶氣旋命名比賽  
Tropical Cyclone Name  
Nomination Contest

“Tropical Cyclone Name Nomination Contest” attracted more than 25,000 nominations from the public.



A series of 6 Popular Science Lectures opened for the public.





Reducing  
Natural Disasters  
防天災 保平安  
Safer Living 晴天行動

Slogan Design Contest and Bookmark Design Contest




Technical Seminar on Natural Disaster Reduction – more than 200 personnel from government departments, tertiary institutions, professional institutions and NGOs.



Examples of Out-reaching Activities in Hong Kong



Annual Lecture for Government Officials



Annual Visit to Department



Annual Briefing to Frontline Staff