# Maximizing the effectiveness and socio-economic benefits of weather products and services – the Hong Kong Experience

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*Geneva, 15-18 May 2006*

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# Content

- Mission of PWS
- Design of weather services
- Product presentation and dissemination
- Public education
- Case illustrations on product launching

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# Mission of PWS

- reduce loss of life and damage to property

- Minimize disruptions to economic and social activities during hazardous weather

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# Design of Weather Services

| | | |
|---|---|---|
| **Safety & Welfare of the Society** | **Target users** | **User Requirements & Expectations** |
| **Weather Services** | | |
| **Meteorological Science** | **Communication** | |

Factors determining the types of weather products and services

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# Strategies


- Product launching
  - "bottom-up" strategy based on users' needs and preferences
- Priority setting
  - what impacts people and the society most
- Capacity building
  - continuous professional development of Met Service staff
  - public education

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# Public Education

- Promote user understanding of the characteristics of different types of weather systems and the nature of weather hazards
- Increase user capability to utilize weather information more effectively
- Collaborative synergy – partnering with other organizations, universities & the media
- Increase visibility and credibility of Met Service

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# Key requirements for effective weather information service

- Relevancy
- Reliability
- Timeliness
- Diversity of dissemination channels
- Consistency

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# Target users

- The public (a wide spectrum)
- Government departments (weather-related operations)
- Socio-economic sectors (transportation, education, fisheries, energy, leisure and sports)

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# User communications

Annual liaison meetings with decision makers of relevant government departments

Seminars for government officials

Briefings for user sectors

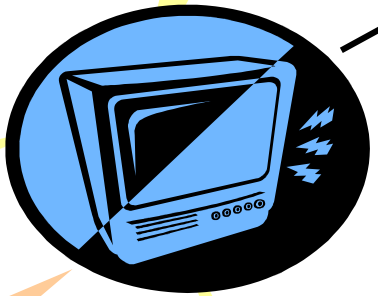
# Dissemination of Weather Information to the public

HKO Website
http://www.weather.gov.hk
http://www.hko.gov.hk

Dial-a-Weather
Tel: 187 8200

Public

WAP
wap.weather.gov.hk
wap.hko.gov.hk



Mass media
(newspaper, radio
and television)

PDA Website
http://pda.weather.gov.hk
http://pda.hko.gov.hk

Mobiles and Pagers

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# Dissemination of weather information to Government departments

Fax


SMS weather warnings (pilot project)

Email weather warnings

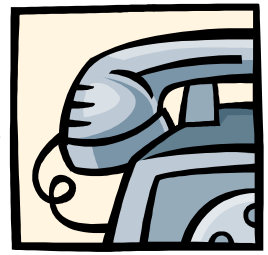
FTP


XML

**Government departments/Bureaux**

Data line

GOWISE (general/registered users)
(embargo messages for registered users)



Telephone consultation

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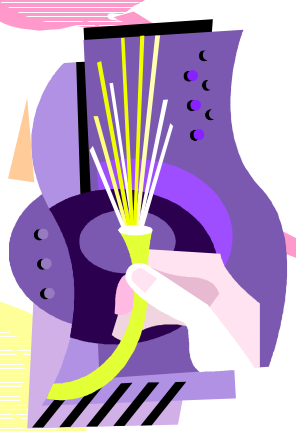
# Dissemination of weather information to special clients (cost-recovery service)


Extensible Markup Language (XML)

Special clients
- Information providers
- Public transport
- Construction companies
- Private sector

File Transfer Protocal (FTP)



Data Lines

Telephone Consultation

Fax

WISE (dedicated webpage)

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# Product Presentation

- Content - Easy-to-understand, tied in with decision-making and response actions

- Present in different forms fitted to the strength of dissemination channels & level of intended audience

- Tailor-made services to weather sensitive operators

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# Case illustrations on product launching

Illustrate

- how to respond to user requirements;
- what levels of detail, data format and dissemination channels are adopted;
- how to involve users in the process; and
- how to promote the new product

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# Case 1 – Launch of lightning information

Understand user response to thunderstorm warning

- Suspension of outdoor work (e.g. construction companies) and activities (e.g. leisure and sports)

Collect views and comments from the public

- Compliants received via telephone calls, emails, letters, radio phone-in programmes regarding the closing of swimming pools due to thunderstorm warning

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# Launch of lightning information (cont'd)

Meet the public's demand

- provide regional lightning information to assist one's planning on outdoor activities

- decide the choice of levels of detail, data format and dissemination channels, with target users in mind

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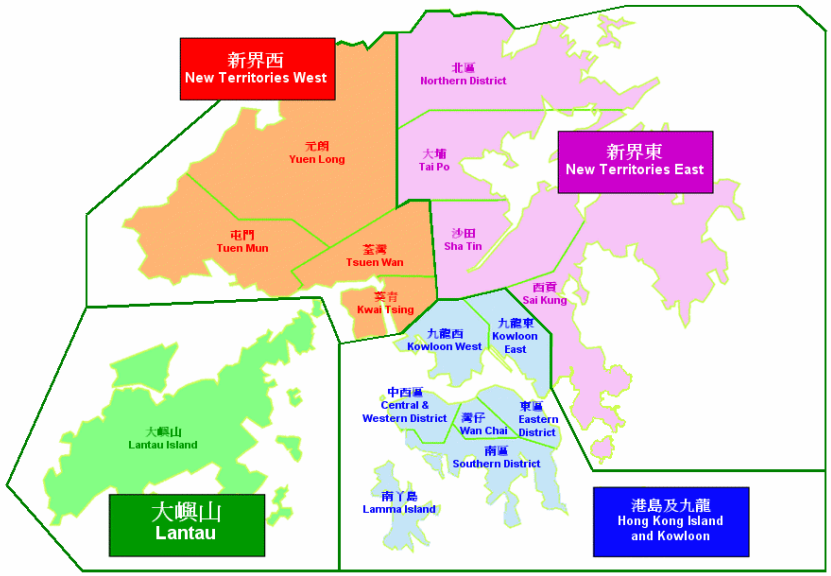
# Launch of lightning information (cont'd)

- The public and the Media
  - Text format
    - current weather bulletin on the Internet website and fax to the media
    - regional information (4 regions)
    - hourly update



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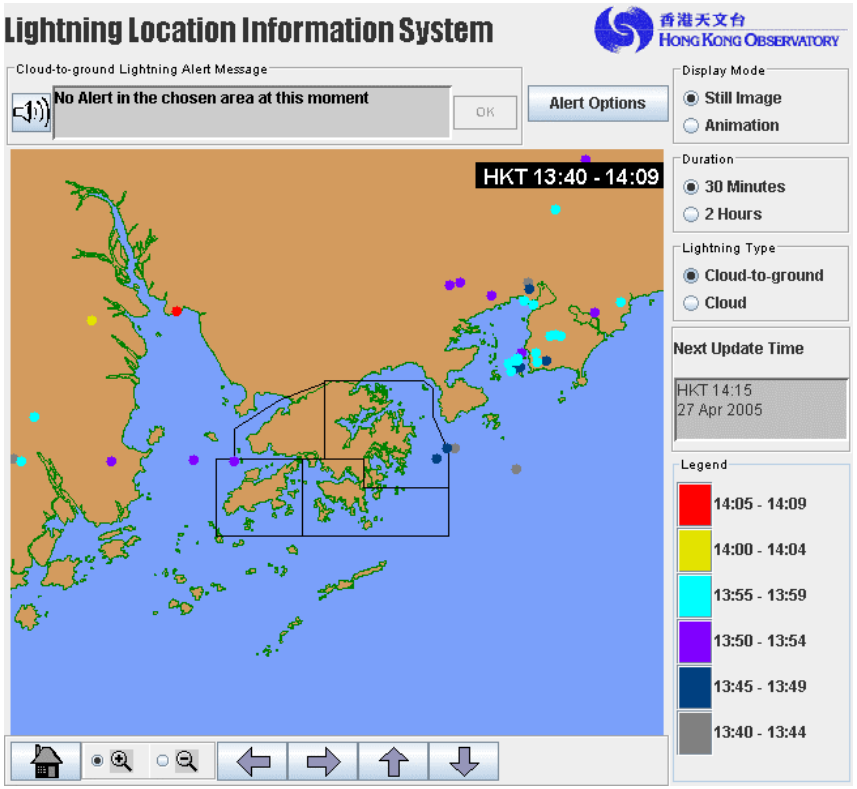
# Launch of lightning information (cont'd)

- The public without access to the Internet
  - Audio format
    - Dial-a-Weather
    - regional information (4 regions)
    - 15-min update

**187 8200**

# Lightning location information webpage

- The public with access to the Internet & need more spatial and temporal details
  - Graphical format
    - Internet website
    - Alarm for chosen region
    - Java-version (animation, zoom function)
    - Latest still picture
    - Points-to-note for users
    - Abridged version on PDA website for on-the-go & outdoor users
    - 5-min update



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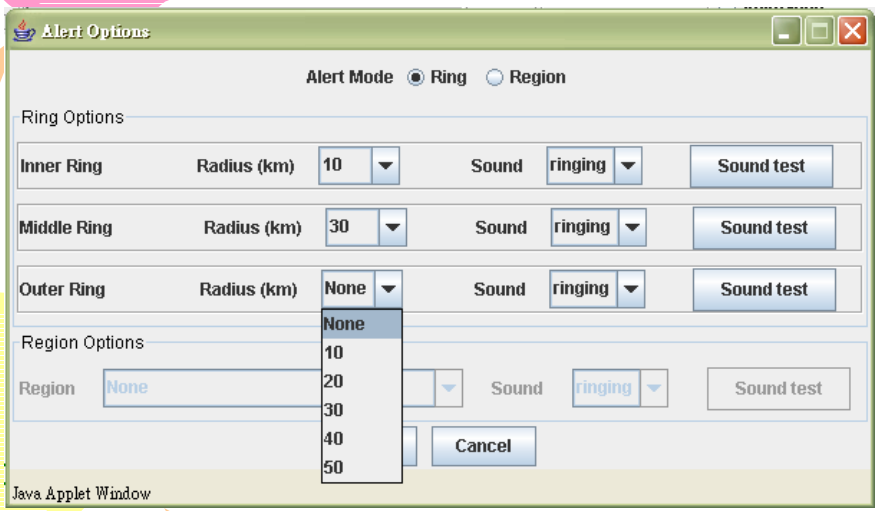
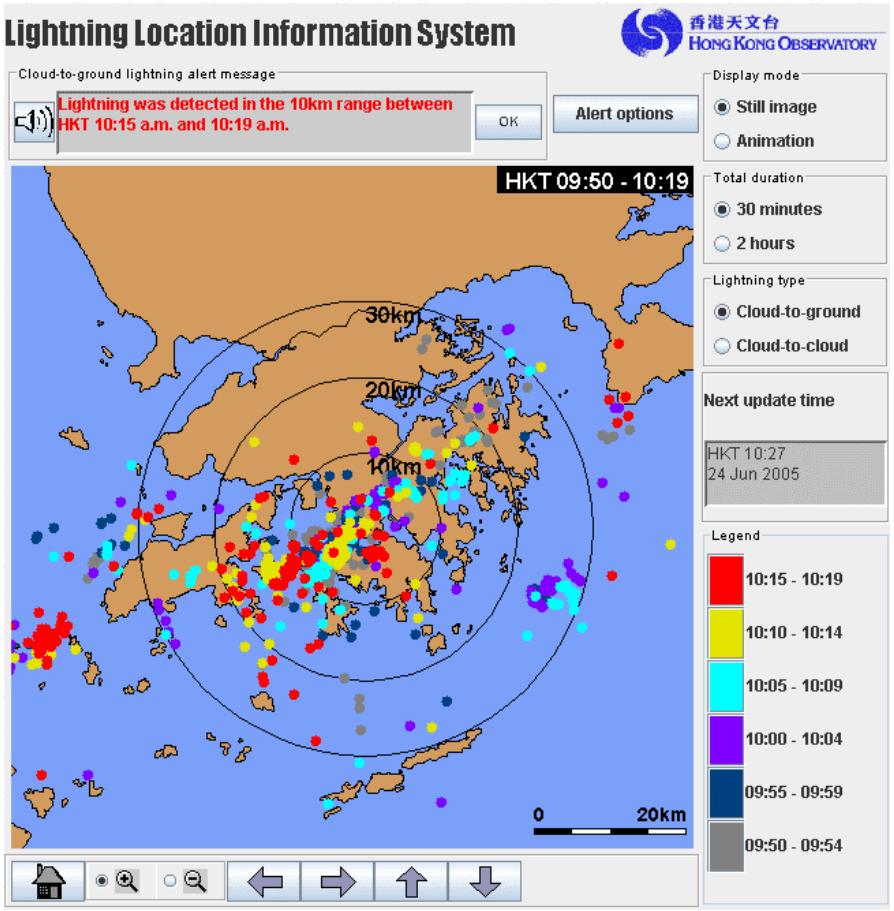
# Lightning webpage for clients

- Password protected webpage
- Audio alarm range rings centred at user pre-defined location
- Maximum 3-level Ring Alert



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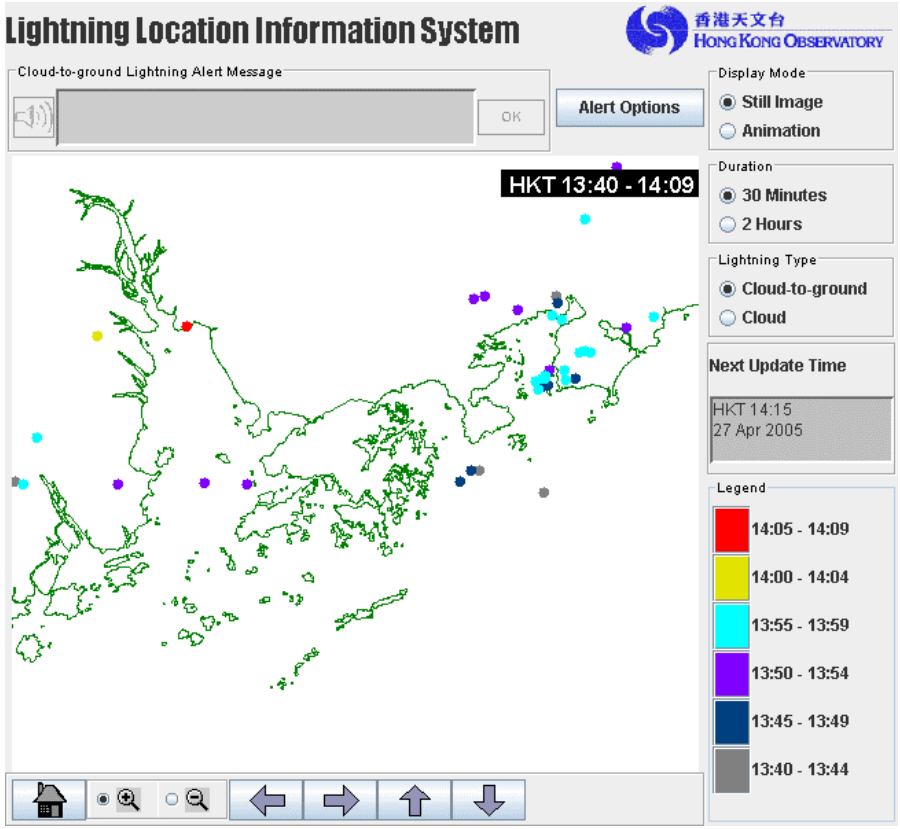
# Product launching process

- Design process
  - Comments collected from the gatherings with the "Think Tank" of the Friends of the Observatory on product presentation (Jan 2005)
- Partial launch with beta version on the Internet
  - Comments and suggestions received via suggestion form on the Internet and emails
  - simple items implemented before formal launch (May 2005)



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# Product launching process (cont'd)

- Full launch
  - Information available through all types of dissemination channels (June 2005)
  - Publicity through press conference, press release, radio interviews and solicited press interviews
  - Promotion at the meetings with government officials, talks for the public and briefings for user sectors

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# Product launching process (cont'd)

- Phase-by-phase service enhancements based on users' suggestions
  - GIS information including main roads overlaid on lightning information in response to user comments (June 2006)

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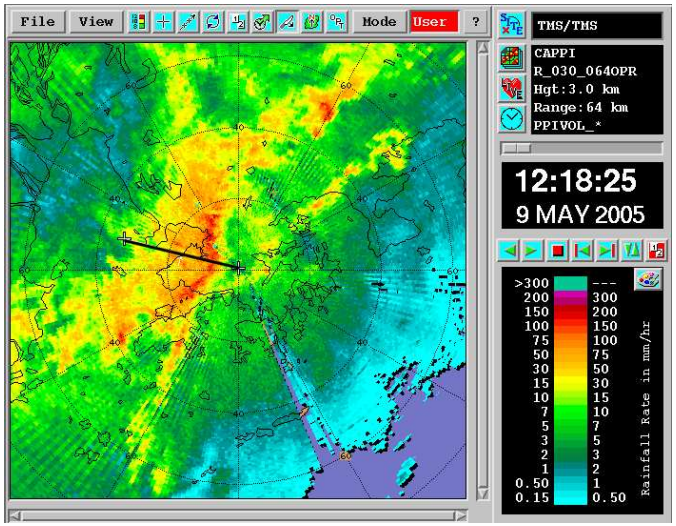
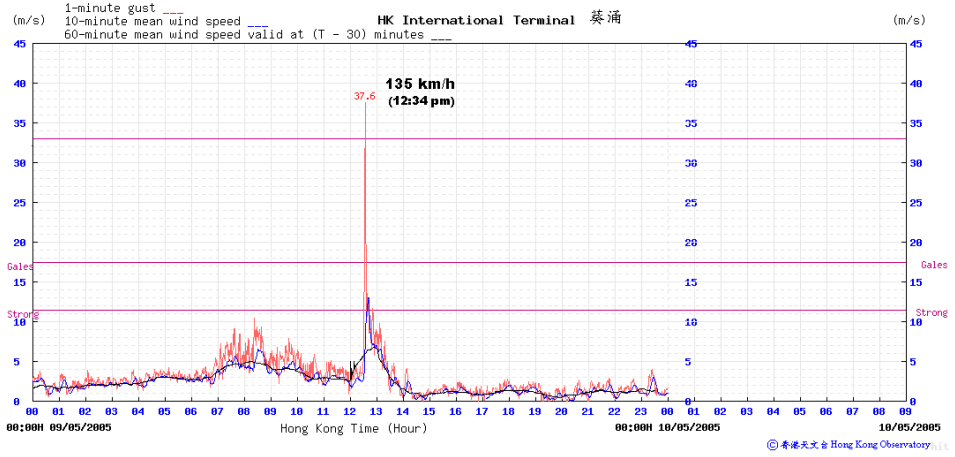
# Case 2 – Launch of wind gust information

- In the aftermath of a severe gust event during the passage of a squall line on 9 May 2005
  - Stack of containers fell in container terminal left one man dead
  - Traffic paralyzed due to fallen scaffolding on a busy road

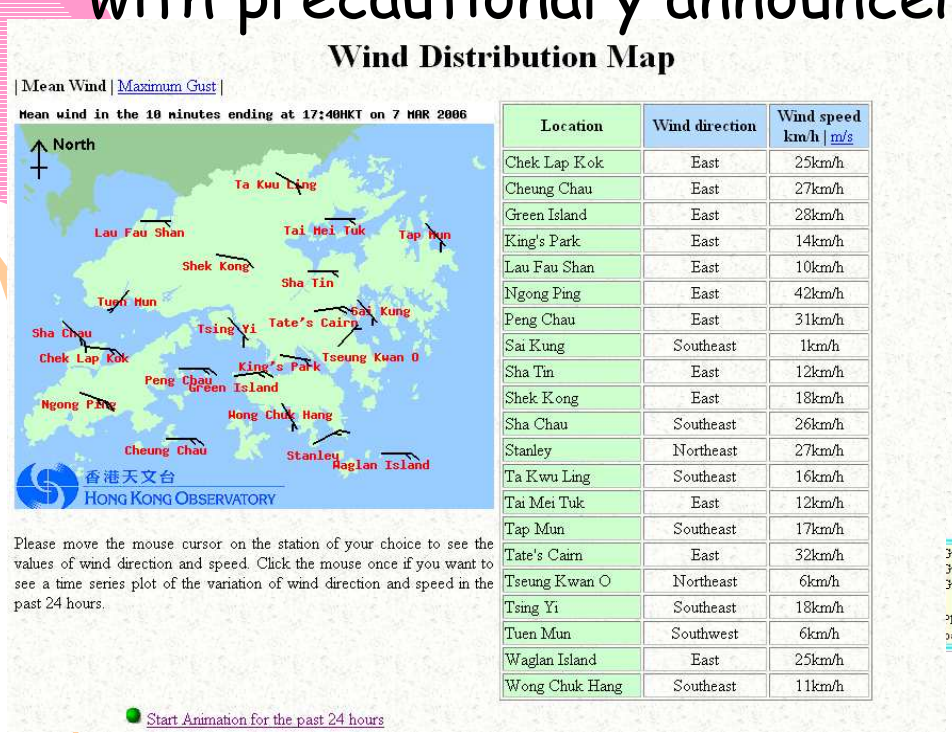



- Target users of wind gust information – container terminal operators and other wind-sensitive operators

# Service provision in consultation with container terminal operators

- Website
- Dial-a-Weather
- quote of severe gusts in thunderstorm warning with precautionary announcements



**Wind Distribution Map**

| Mean Wind | Maximum Gust |

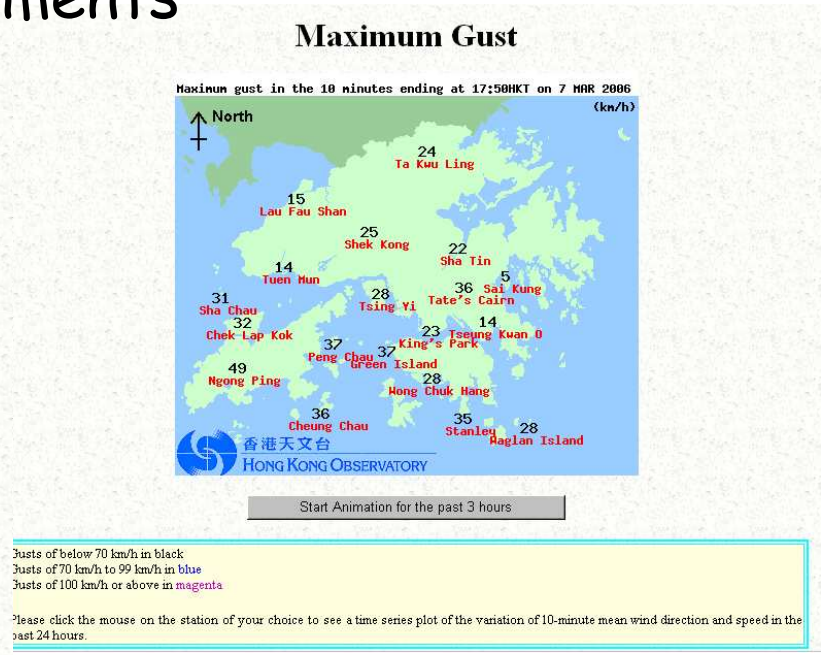
Mean wind in the 10 minutes ending at 17:40HKT on 7 MAR 2006



| Location | Wind direction | Wind speed km/h \| m/s |
|---|---|---|
| Chek Lap Kok | East | 25km/h |
| Cheung Chau | East | 27km/h |
| Green Island | East | 28km/h |
| King's Park | East | 14km/h |
| Lau Fau Shan | East | 10km/h |
| Ngong Ping | East | 42km/h |
| Peng Chau | East | 31km/h |
| Sai Kung | Southeast | 1km/h |
| Sha Tin | East | 12km/h |
| Shek Kong | East | 18km/h |
| Sha Chau | Southeast | 26km/h |
| Stanley | Northeast | 27km/h |
| Ta Kwu Ling | Southeast | 16km/h |
| Tai Mei Tuk | East | 12km/h |
| Tap Mun | Southeast | 17km/h |
| Tate's Cairn | East | 32km/h |
| Tseung Kwan O | Northeast | 6km/h |
| Tsing Yi | Southeast | 18km/h |
| Tuen Mun | Southwest | 6km/h |
| Waglan Island | East | 25km/h |
| Wong Chuk Hang | Southeast | 11km/h |

Please move the mouse cursor on the station of your choice to see the values of wind direction and speed. Click the mouse once if you want to see a time series plot of the variation of wind direction and speed in the past 24 hours.

Start Animation for the past 24 hours



**Maximum Gust**

Maximum gust in the 10 minutes ending at 17:50HKT on 7 MAR 2006 (km/h)



Start Animation for the past 3 hours

Gusts of below 70 km/h in black
Gusts of 70 km/h to 99 km/h in blue
Gusts of 100 km/h or above in magenta

Please click the mouse on the station of your choice to see a time series plot of the variation of 10-minute mean wind direction and speed in the past 24 hours.

(Sep 2005)

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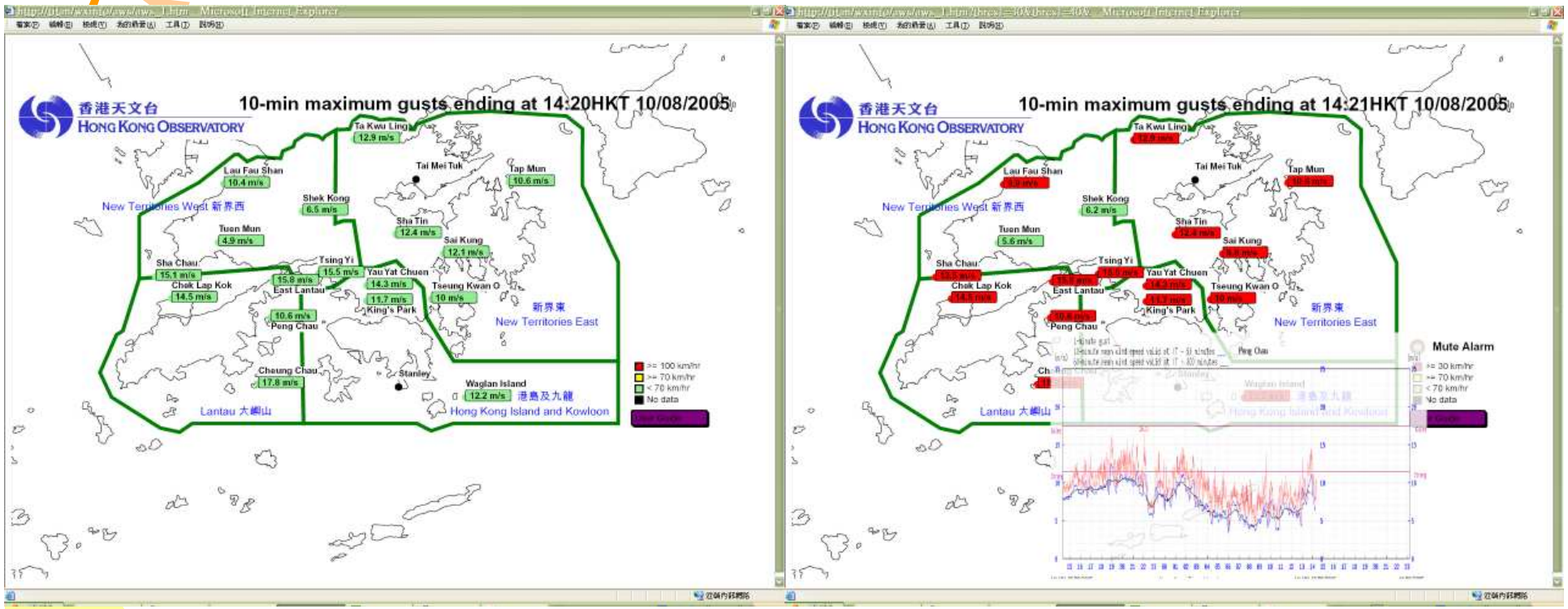
# Gust alarm panel (Sep 2005)




- Briefings for container terminal operators and outdoor workers during and after the product development
- Gust alarm thresholds pre-defined according to individual user requirement

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# Case 3 – Provision of tropical cyclone signal change probability forecast

- As a substitute to meet the demand of public transport operators on pre-warning
- Uncertainty in tropical cyclone forecast track and intensity incorporated into decision-based information of signal change
- Risk assessment and early preparation for traffic surge [no work and schooling when Signal No.8 (warning for gales) is in force]
- Advanced notification not to be disseminated to the public

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# Tropical Cyclone Signal Assessment

- Content : Probability forecast of the next level of signal no. issued when Signal No.3 (warning for strong winds) or above

- Level of details : Three categories of probability forecast :
  - LOW (0 - 33 %)
  - MEDIUM (34-66 %)
  - HIGH (67-100 %)

- Dissemination : Transport Department to re-disseminate the probability forecast to public transport operators via fax

- Pre-agreed scheduled time of issuance (4 times a day) ; update when necessary; operators critical times noted

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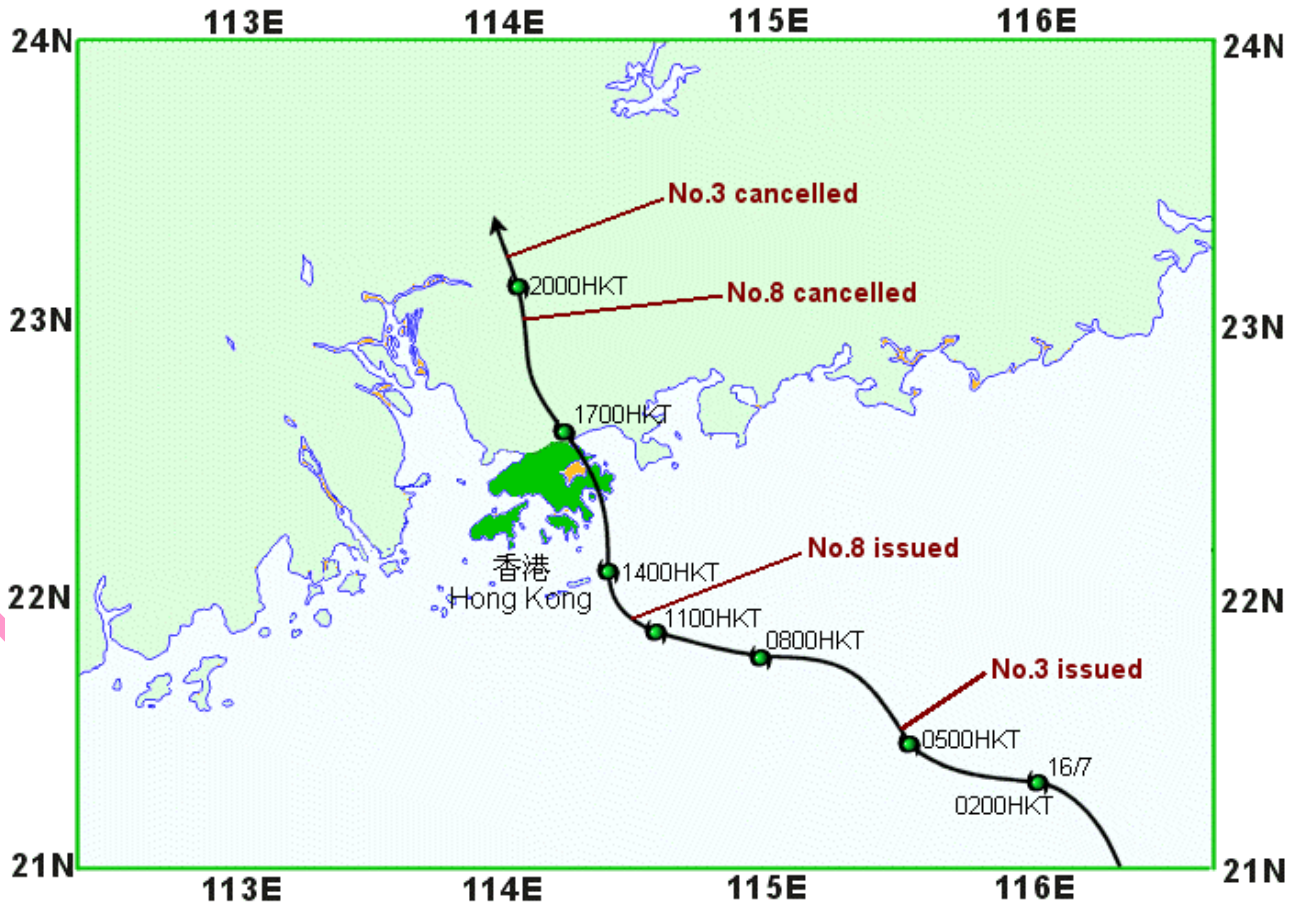
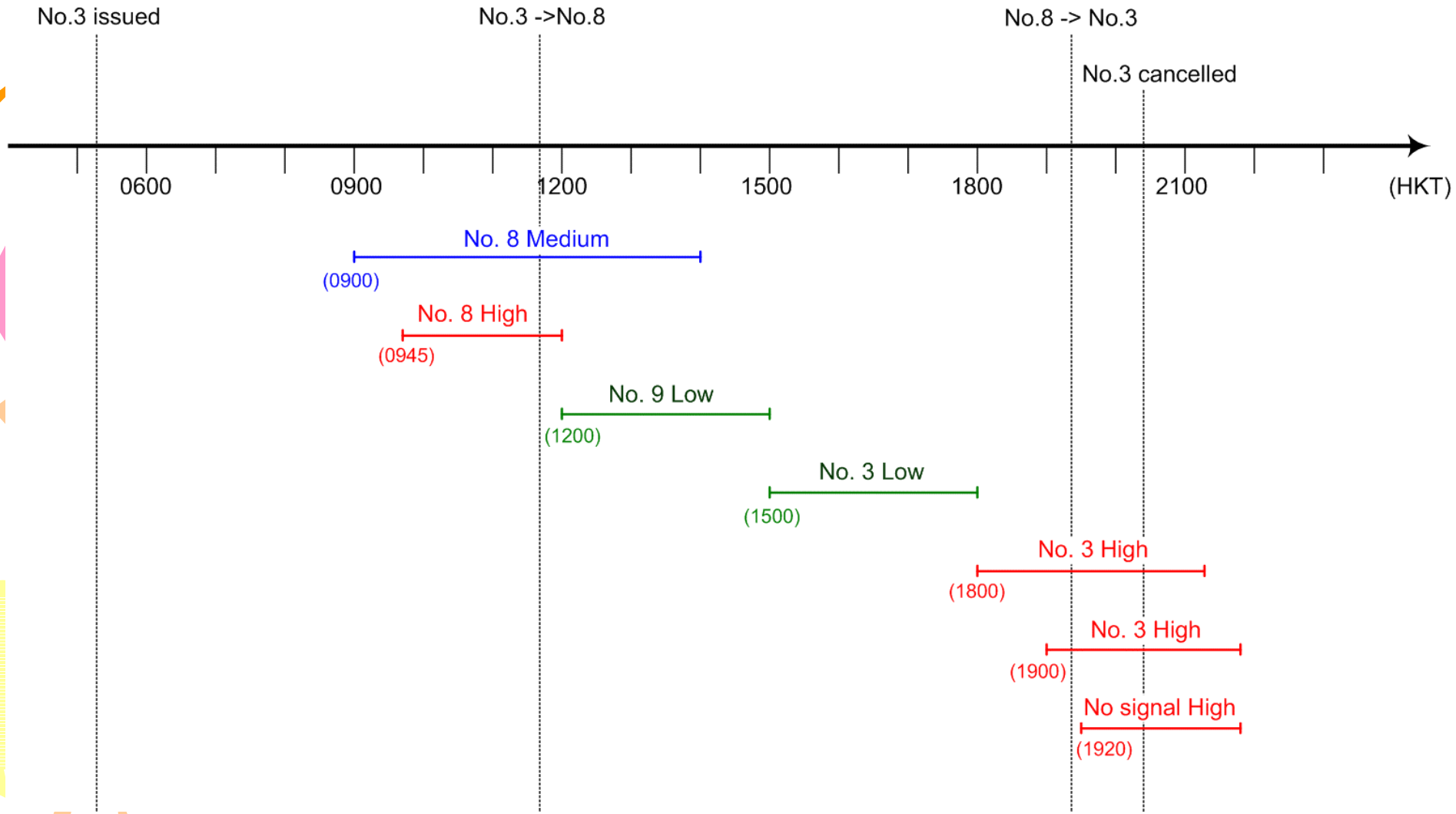
# Review of the signal assessment trial service in the meetings with public transport operators



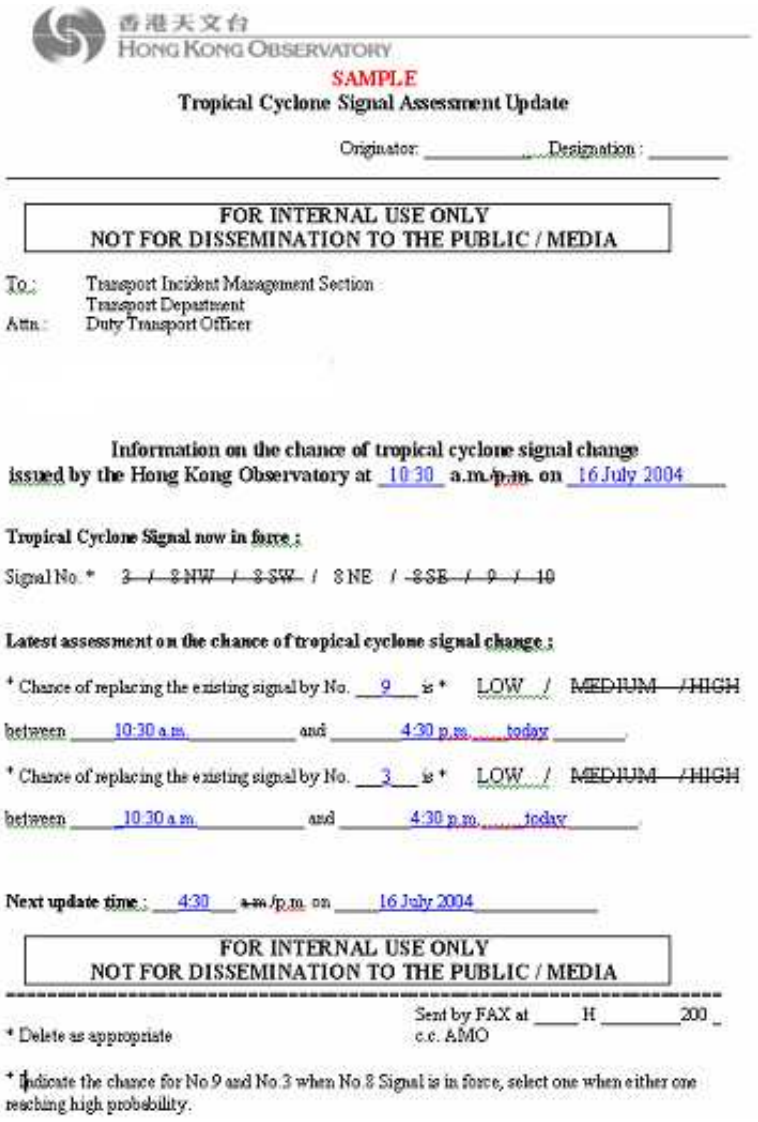

The passage of Tropical Storm Kompasu (0409) over Hong Kong

# Performance of TC signal probability forecast in the case of Kompasu on 16 July 2004



# Service enhancement after the review meeting

- First issue soon after Signal No.3
- Probabilities of both higher and lower signals when Signal No.8 is in force.
- Scheduled time of issuance unless an update already issued within an hour before.



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SAMPLE

**Tropical Cyclone Signal Assessment Update**

Originator: _____ Designation : _____

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To.: Transport Incident Management Section
Transport Department
Attn.: Duty Transport Officer

**Information on the chance of tropical cyclone signal change issued by the Hong Kong Observatory at** 10:30 **a.m./~~p.m.~~ on** 16 July 2004

**Tropical Cyclone Signal now in force :**

Signal No.* ~~3 / 8 NW / 8 SW~~ / 8 NE / ~~8 SE / 9 / 10~~

**Latest assessment on the chance of tropical cyclone signal change :**

* Chance of replacing the existing signal by No. 9 is * LOW / ~~MEDIUM / HIGH~~
between 10:30 a.m. and 4:30 p.m. today

* Chance of replacing the existing signal by No. 3 is * LOW / ~~MEDIUM / HIGH~~
between 10:30 a.m. and 4:30 p.m. today

**Next update time :** 4:30 ~~a.m./p.m.~~ on 16 July 2004

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Sent by FAX at ____ H _____ 200 _
c.c. AMO

* Delete as appropriate

* Indicate the chance for No.9 and No.3 when No.8 Signal is in force, select one when either one reaching high probability.

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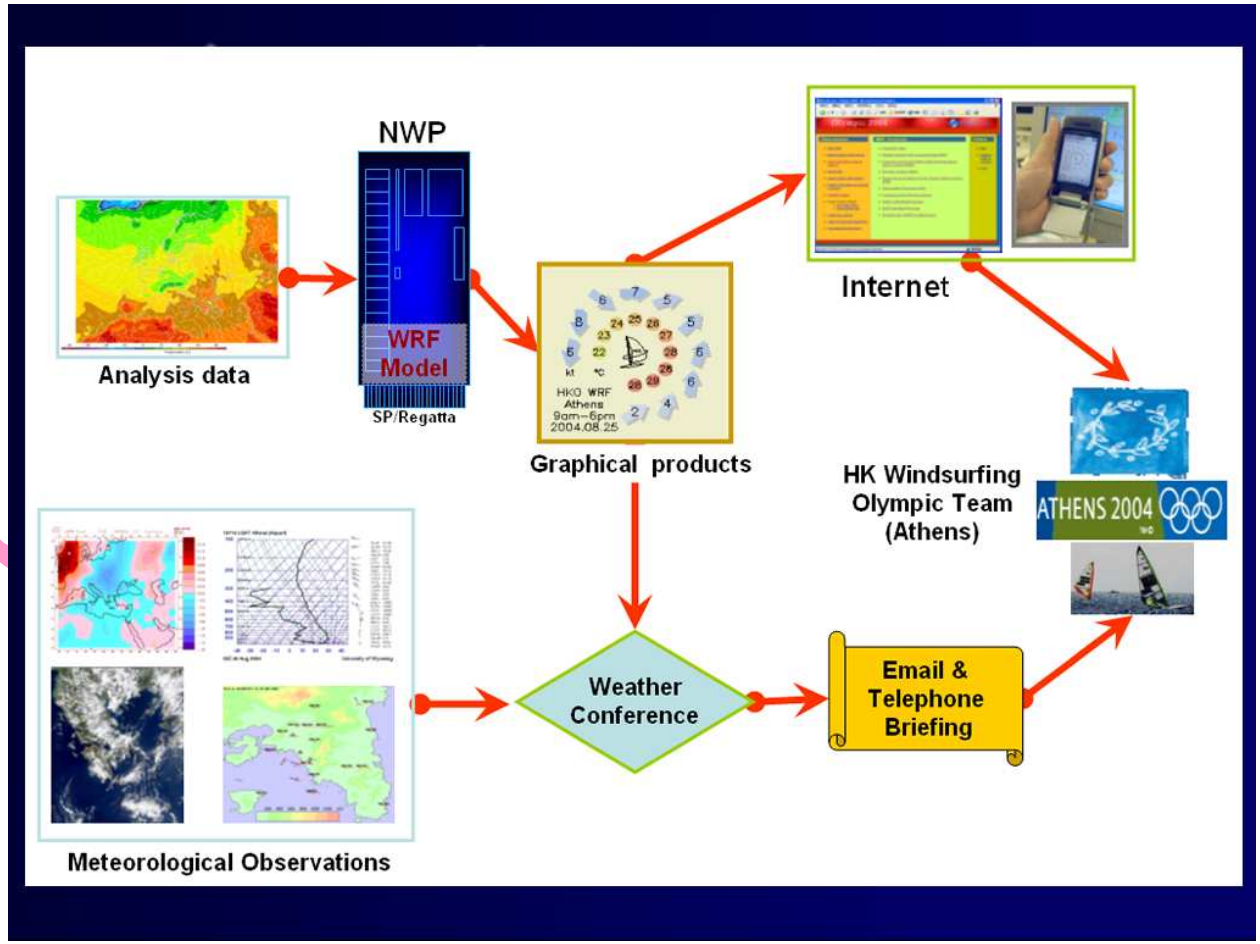
# Case 4 : weather service support to local windsurfing team in 2004 Olympic Games



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# Tailored-made products and services in consultation with the windsurfing team

- Dedicated website - model prognostic charts from specifically configured model runs
- PDA – model forecast surface wind & temperatures presented in a clock-like diagram
- Email – daily forecast and 4-day outlook
- Telephone consultations – when situations required such as unexpected changes in wind

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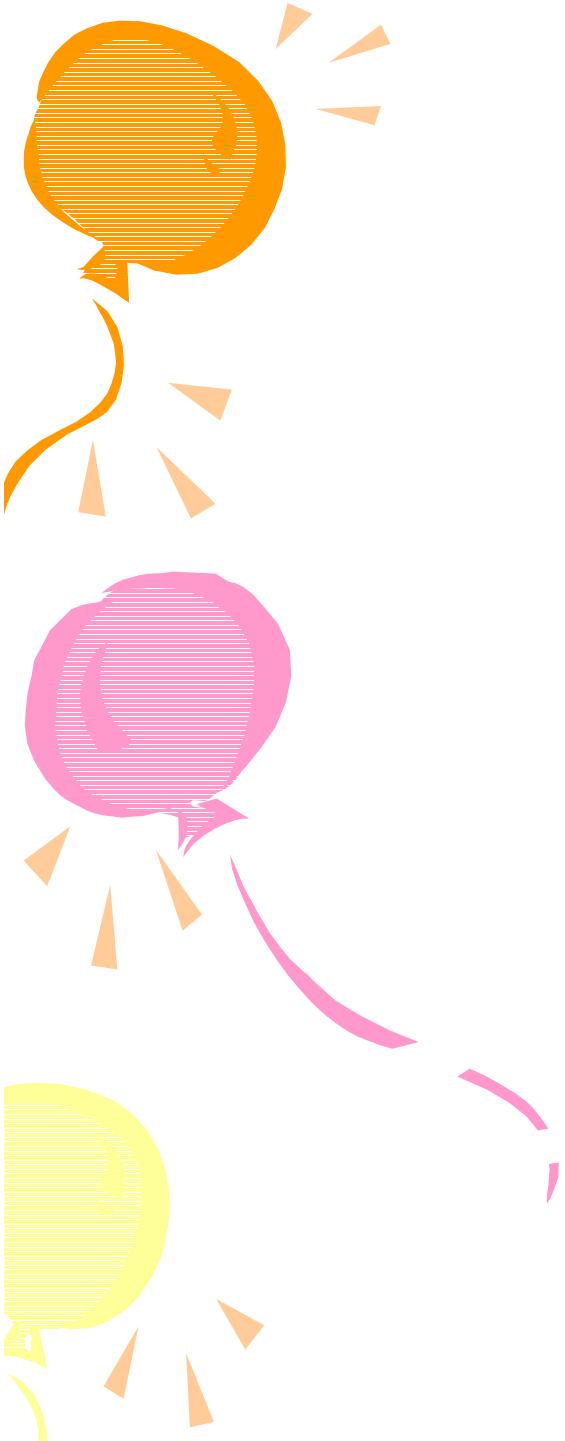
# Win-Win outcomes

- User comments
  - Head of Windsurfing Coach, Rene Appel, expressed that HKO's support enabled them to make better strategic decision on the course
  - Rene once commented in a Hong Kong press interview in Athens that "the forecast by HKO was more accurate than the local authority today as HKO did catch the unstable winds in the latter part of the race".
- Outcomes
  - Wide coverage in media reports -> HKO's visibility and professional image promoted



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# Thank You !