Speech by Dr B Y Lee, Director of the Hong Kong Observatory
23 March 2010

Every year, we celebrate the World Meteorological Day on 23 March. The theme for the World Meteorological Day this year is "60 years of service for your safety and well-being" to mark the 60th anniversary of the World Meteorological Organization (WMO). Since its inception in 1950, the WMO has played a leading role in collaborating with its Members in contributing towards the safety and well-being of mankind. Established in 1883 and with science as our firm basis, the Hong Kong Observatory has in over 120 years been striving to protect the safety of the public, minimize the threat of natural disasters and contribute towards the well-being of Hong Kong, our neighbouring areas and the international community.

Speaking of international cooperation, I am happy to report that the Hong Kong Observatory successfully hosted the WMO 14th session of the Commission for Aeronautical Meteorology (CAeM) in February this year which was attended by around 130 aviation meteorological experts from all over the world. The Commission has its session once every four years and this is the first time that it was held in Asia. During the session, the Assistant Director of the Hong Kong Observatory, Mr C M Shun, was elected President of the Commission for a term of four years. This is the highest position in the WMO that an official of the Observatory has ever taken up in its history and is a testimony to the recognition the world has given us.

I would now like to take this opportunity to report on the latest developments in the Hong Kong Observatory. First, let me introduce my assistant directors. They are:

1. Mrs Hilda Lam, responsible for climate and geophysical matters,
2. Mr HG Wai, responsible for public weather service,
3. Mr WM Leung responsible for instruments and radiation monitoring,
4. Dr CM Cheng responsible for aviation weather service in acting capacity.

It is worth noting that in the past year we provided meteorological support for the East Asian Games. With the Games taking place in December, the risk of severe weather such as tropical cyclones or rainstorms was not high but intense winter monsoon could still disrupt outdoor events such as windsurfing. To meet the challenge, a weather buoy mounted with observation instruments was set up at Tai Tam Bay to provide site-specific observations and specially configured forecast

products. Drawing on the skills developed for the East Asian Games, a 'Wind Forecast for Wind Surfers' website was launched this January to provide the public with site and time-specific weather forecasts for ten local wind surfing hotspots.

With the opening of the automatic weather station for Sham Shui Po District this month, the goal of having temperature stations at all 18 districts under the "One District One Station" progamme was accomplished. Furthermore, there is significant progress in the Hong Kong Community Weather Information Network (Co-WIN) jointly established by the Observatory, Hong Kong Polytechnic University and Joint School Meteorological Association. Over 70 schools and community organizations have joined this collective effort to build a weather network for the community.

The World Expo will soon be opened in May this year. The Observatory's nowcasting system "SWIRLS", which had supported the 2008 Beijing Olympics, would participate in the World EXPO 2010 Nowcast Services Demonstration Project jointly organized by WMO and China Meteorological Administration. There will be five other nowcasting systems selected from other places/countries. The World Weather Information Services Website (http://worldweather.wmo.int/) for official city weather forecasts developed by the Observatory for WMO will also be showcased in the World Expo, with an enhanced Geographical Information System (GIS) capability.

During the past decade, the Observatory has been improving further its Internet services. The Observatory's Website is now a major channel for disseminating weather information to the public, registering a total of 1.6 billion page hits in 2009. It is one of the most popular websites of the Hong Kong Government and has won several awards last year, including the Yahoo! Hong Kong's BUZZ Award 2009 ("government department" category), Silver Prize of the Web Care Award 2009 and the Hong Kong Information and Communication Technology (ICT) Award "Best Public Service Application (Small Scale Project)" Silver Award.

For new services on the Internet, we will start today the following:

1. Radar images within 128km – the new radar product will help the public better understand the rain situation in the Pearl River Estuary region. Together with the existing 64 km and 256 km radar images, the public will have a firmer grasp of the rain situation both near and afar.
2. Digital Weather Forecast webpages – utilizing high speed computer, this

webpage provides weather forecasts in finer spatial and temporal details. Forecast temperature, wind speed and direction in hourly intervals at a resolution of 10 kilometres covering Hong Kong and the neighbouring Pearl River Estuary region one day ahead would be made available.

3. My Observatory – a new location-specific weather service, which makes use of positioning software to estimate a user's location and supply him/her with temperature, relative humidity, rainfall, wind direction, wind speed and weather photo from the weather station nearby. Furthermore, if the user is interested in knowing the lightning locations, an associated computer program will automatically configure his/her as the centre of alert area. The public can use mobile computing devices such as computers, PDAs and smartphones to access the service.

We have also enhanced our operations in preparation of the coming typhoon season. Starting this year, we will alert relevant departments to make necessary preparations for specific low-lying areas vulnerable to flooding arising from storm surge.

The El Niño which started to develop last summer peaked in December 2009. It is expected to last until this spring. According to statistical information, under the influence of the El Niño, the chance of Hong Kong being affected by tropical cyclones before June is not high.

Looking ahead, on the basis of observed data and computer modeling, we expect that the number of tropical cyclones affecting Hong Kong in 2010 will be below normal. The annual rainfall is expected to be near normal (Appendix 1).

Speaking of climate, the snowstorms in December 2009 and January 2010, which affected parts of the mid-latitudes in the northern hemisphere, attracted considerable media attention and cast doubts in some quarters as to the credibility of "global warming". I will attempt to answer some queries in this regard.

The recent cold weather mainly affected Europe, the Asian landmass, the northern parts of China and North America. On the other hand, other regions such as parts of the Artic, the northern hemispheric tropics and many parts of the southern hemisphere experienced above normal temperatures. In Hong Kong, although we have several cold snaps from December 2009 to February 2010, the mean air temperature during this period was still 0.6 degrees above normal. For the whole year, 2009 was significantly warmer than normal and was the ninth warmest year since records began in 1884. The recent cold weather in parts of the northern

hemisphere can be regarded as normal short-term weather fluctuations.

Studies of climate change should be based on changes in the long term. We should exercise care in interpreting short term weather fluctuations and not to confuse them with climate (average of the weather for 30 years or more).

Under the influence of global climate change and urbanization, there is an increasing trend in both the mean temperature and the annual rainfall at the Observatory Headquarters. Using statistical analysis, we have studied the changes of extreme weather events in Hong Kong in more than 120 years in the past. The results indicate that the intensity and frequency of occurrence of extreme events have a general rising trend. In 1900, an hourly rainfall of 100 millimetres or above had a return period of 37 years, but in 2000, this has shortened to 19 years. In 100 years' time, the occurrence of heavy rain has doubled. For temperature, the return period for days with a maximum temperature of 35 degrees or higher, has shortened from 34 years in 1900 to 5 years in 2000. On the other hand, for days with a minimum temperature of 4 degrees or lower, the return period has increased from 6 years to 150 years. This indicates that days with extreme high temperature have become more frequent while those with extreme low temperature have become more infrequent (Appendix 2).

Finally, I would like to request your help in publicizing the Hong Kong Observatory's Open Day this Saturday and Sunday, that is, 27 and 28 March, when the Observatory ground and exhibits will be opened to the public. All are welcome.

Let me stop here. You are welcome to ask questions. I and my assistant directors will try our best to respond. Thank you.

Appendix 1

Outlook for 2010

Annual rainfall in Hong Kong	**Near normal (between 2200 and 2700 mm)**
Number of tropical cyclones entering 500 km of Hong Kong	**Below normal (6 or below)**

Appendix 2

Return Periods

Year	1-hour rainfall >= 100 mm	Temperature >= 35°C	Temperature <= 4 °C
1900	**37 years**	**34 years**	**6 years**
2000	**19 years**	**5 years**	**150 years**

The above return periods at different years are results computed by an extreme values statistical model using the climatological records at the Hong Kong Observatory Headquarters