

Observatory Director Re-elected as President of WMO's Commission for Aeronautical Meteorology

CHOY Boon-leung, Daniel YEUNG

The Director of the Hong Kong Observatory, Mr SHUN Chi-ming, was re-elected President of the Commission for Aeronautical Meteorology (CAeM) of the World Meteorological Organization (WMO) at the Commission's 15th session held in Montreal, Canada, in July 2014. Following his re-election, Mr Shun thanked his supporters, in particular his colleagues at the Hong Kong Observatory, and highlighted the vital work of the Commission's experts in the development of aeronautical meteorology.

Aviation and Weather

'Most people think of aviation weather as the turbulence they occasionally experience on board a flight. But in fact, the weather also has to be taken into account in aircraft landings and take-offs as well as general airport operations. The development of the world's first LIDAR wind shear alerting system by the Hong Kong Observatory provides a good example of important work in this area,' explained Mr Shun. With air traffic in the airspace over Hong Kong increasing, the Observatory is constantly looking to enhance its severe convection weather forecast services, so that air traffic controllers can plan ahead and quickly adjust air traffic flow to minimise the impact of inclement weather. After Typhoon Kalmaegi struck Hong Kong in September, these enhanced services enabled flights to be resumed smoothly and efficiently. At the same time, the Observatory has actively promoted the use of this type of service in the international arena. The service received recognition at the July session of the CAeM and will soon be phased in at airports around the globe.



Observatory director Mr Shun delivers a speech at the opening ceremony of the 15th session of the Commission for Aeronautical Meteorology. Alongside him is Mr David Grimes, President of the World Meteorological Organization.



Mr SHUN (fifth from right) together with Mr SHEN Xiaonong, the Deputy Administrator of the China Meteorological Administration (fifth from left), and delegates from China, Hong Kong and Macau following his re-election as President of the Commission for Aeronautical Meteorology of the World Meteorological Organization.

International Vision

Mr Shun goes on to describe how the rapid development of 'big data' in recent years means that it has become easy to obtain large volumes of weather information on the Internet. However, the aviation industry cannot always tell whether this information is accurate. The Observatory has therefore invested a great deal of effort in establishing a quality management system for aeronautical meteorological services, while providing training and support to help more countries improve service quality and ensure aviation safety.

Future Plans

Accompanied by the rapid advances in information technology, the increase in air traffic volume has resulted in airspaces becoming even more crowded. As a consequence, Mr Shun believes that aviation safety and related meteorological services need to be further enhanced. In addition to new services that support air traffic control, the Observatory is currently working with airlines to develop an 'electronic flight bag' meteorological application that can be used in cockpits. The Director stresses that while state-of-the-art aeronautical meteorological services are being developed, a balance needs to be achieved that will also allow developing countries to benefit from the progress being made in this area.



Sizzling Summer

Sizzling Hot Summer Record-Breaking Temperatures, Typhoon-free August

LI Kin-wai



Summer (June to August)
Daily Mean Temperature (1884-2014)

With a mean temperature of 29.3 degrees, the summer of 2014 (June to August) was the hottest in Hong Kong since records began in 1884. The hot weather was particularly remarkable in the first two months of the season, with monthly mean temperatures soaring to record-breaking highs of 29.0 degrees in June and 29.8 degrees in July. This has been attributed to a stronger-than-usual subtropical ridge over southern China combined with water temperatures that were higher than normal in the northern part of the South China Sea and the subsiding air brought by passages of tropical cyclones over the East China Sea, all of which contributed to producing the high temperatures. Although the Observatory issues 1.33 tropical cyclone warnings on average every August, it did not have to issue any tropical cyclone signal in August 2014, a repeat of the situation in 1988, 1989 and 2011.

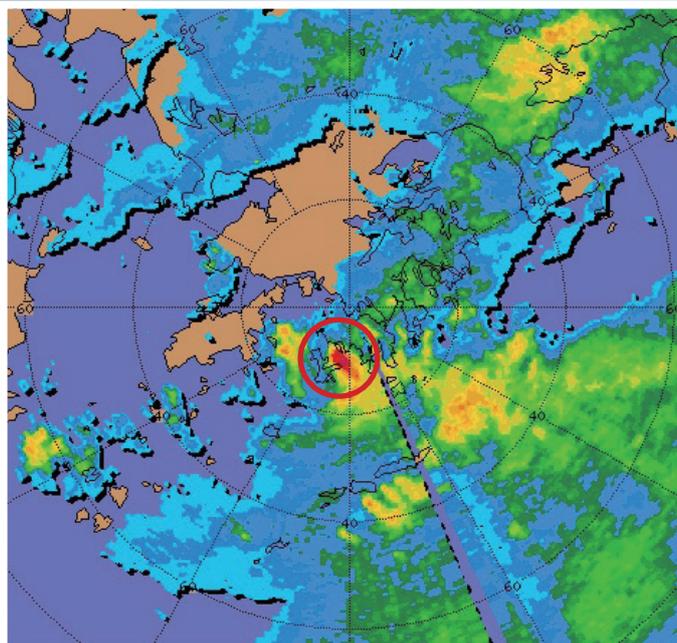
Rank	Year	Daily mean temperature (°C)
1	2014	29.3
2	2011	29.0
2	1983	29.0
4	2009	28.9
4	1998	28.9



Waterspout Incident

Daniel YEUNG

Hong Kong enjoyed sizzling hot and typhoon-free weather in August, but there were two incidents of torrential rain in the middle of the month, and a waterspout was even observed during the thunderstorm episode that broke over the territory at dusk on 12 August.



Radar image at 18:00 on 12 August: the small but intense rain area (red circle) in the sea near Ap Lei Chau shows the location of the waterspout.



Photograph by courtesy of Yuri Wong

Waterspouts are intense columnar vortices in the shape of funnel clouds over sea with very strong winds. This phenomenon is uncommon in the territory and occurs once every one or two years with just 32 waterspouts reported since 1959. The formation of waterspouts and tornadoes is closely related to severe convection associated with thunderstorms. They can affect areas extending from just a dozen metres up to a few kilometres wide and they can last from a few minutes to one or two hours. If you see a waterspout or tornado, you should immediately seek shelter and stay away from trees, cars and other objects that can be swept up by the strong wind.

Milestones

Observatory Enters A New Era

New Airport Weather Radar

KONG Wai

The Terminal Doppler Weather Radar (TDWR) located at Tai Lam Chung has safeguarded the airspace above Hong Kong International Airport at Chek Lap Kok since it was opened in 1998, monitoring the wind shear and microbursts induced by thunderstorms and providing alerts to the airport to ensure aviation safety. A new TDWR was recently erected on a small hill near Brothers Point that will soon replace its aging predecessor at Tai Lam Chung. The Observatory is currently collecting weather data in the vicinity of the airport in order to optimise the new radar system to suit the operation for Hong Kong's local environment.



The new Terminal Doppler Weather Radar located on a small hill near Brothers Point (small figure shows the exterior of the new TDWR).



On 7 November, Mr SHUN Chi-ming, Director of the Hong Kong Observatory (fourth from right), Dr Hon LAU Wong-fat, Chairman of the Heung Yee Kuk (fourth from left), and Mr Edward YU Kin-keung, Principal Assistant Secretary for Commerce and Economic Development (third from right), cut the ribbon at the opening ceremony for the new TDWR.

Milestone for aircraft weather observation in Hong Kong

SHUM Chi-tai

The Hong Kong Observatory has joined forces with Hong Kong Dragon Airlines Limited (Dragonair) since July 2014 to collect more automatic meteorological data from commercial aircraft. This data collection project is part of the World Meteorological Organization Aircraft Meteorological Data Relay (AMDAR) programme that was implemented in 2004 with Cathay Pacific Airways Limited as the Observatory's first partner. The participation of Dragonair marks a new milestone for the programme in Hong Kong. Captain Ross Taylor, the airline's Assistant General Manager (Flying), explained the reason behind the team-up: 'I am delighted that Dragonair is participating in the Hong Kong AMDAR programme. I believe our joint effort with the Observatory in this area can contribute to global aviation safety and efficiency.'



CHOY Boon-leung (left) and SHUM Chi-tai (right) of the Hong Kong Observatory together with Dragonair's Captain Ross Taylor in front of the carrier's first Airbus A330 that will provide automatic weather observations.

Webcast on the Total Lunar Eclipse

Dickson LAU



Photograph of the total lunar eclipse taken by the Observatory at Cape D'Aguilar.



The Observatory's webcast team prepares its astronomical equipment in order to film the eclipse at Cape D'Aguilar.

The total lunar eclipse on 8 October was the second episode of a tetrad eclipse,* following the first one that occurred on 15 April. A special feature of this lunar eclipse was that it was already in progress after moonrise, with the total eclipse beginning soon afterwards. As the eclipse took place at dusk, the elevation of the moon was relatively low, which meant that the event was best observed at places with an unobstructed view of the horizon to the east. To allow more members of the public to view this astronomical phenomenon, the Hong Kong Observatory joined hands with the Hong Kong Space Museum, Ho Koon Nature Education cum Astronomical Centre and Po Leung Kuk Ngan Po Ling College to conduct on-site observations at Cape D'Aguilar, Sai Kung, Tai Po and To Kwa Wan on the night of the eclipse and set up a live webcast of the event on its website. Although the eclipse was occasionally blocked by clouds, the webcast team was able to film the key episodes of the lunar eclipse, including the 'middle of eclipse', the 'end of total eclipse' and the 'moon leaving umbra', at these four locations.

* "tetrad" is a term for describing four consecutive total lunar eclipses with an interval of six full moons (six lunar months) with no partial eclipses in-between. The next episode will occur on 4 April 2015, when it will also be visible in Hong Kong, and the last will take place on 28 September 2015.

You can watch highlights of the Joint Webcast of the Total Lunar Eclipse at

<http://youtu.be/wqA4Niuqg4A>.





Human beings can never outrun the winds near the centre of a typhoon!



Following guidelines laid down by the World Meteorological Organization, tropical cyclones are categorised based on the maximum sustained wind near the centre. Currently, the Hong Kong Observatory categorises tropical cyclones based on their maximum mean wind speed over a 10-minute period and has adopted a six-grade scale since 2009.

Classification of tropical cyclone	Maximum sustained wind near the centre of the cyclone
Tropical depression	below 63 km/h
Tropical storm	63-87 km/h
Severe tropical storm	88-117 km/h
Typhoon	118-149 km/h
Severe typhoon	150-184 km/h
Super typhoon	185 km/h or above

Supermoon

Dickson LAU

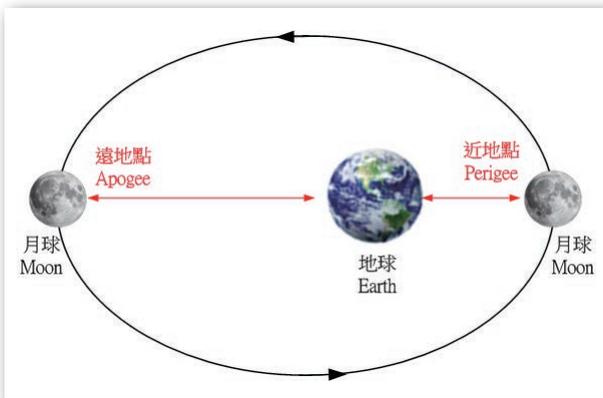


Figure 1: Perigee and apogee of the moon

'Supermoon' is not an astronomical designation, but a layman's term used to describe the larger moon observed during or close to the time of a full moon.

As the moon follows an elliptical orbit around the earth, its distance from the earth varies: the point at which it is closest to the earth is called the perigee, while the point at which it is furthest from the earth is the apogee, and it reaches these points about once a month (Figure 1). If a full moon takes place during the perigee, it will appear larger than usual (Figure 2).



Figure 2: Merged photo – the image on the left shows the moon at the perigee; the image on the right shows it at the apogee. (Courtesy of the Hong Kong Space Museum.)

HKO Side Lights



On 23 August, Mr SHUN Chi-ming, Director of the Hong Kong Observatory (third from right), gave a lecture entitled 'Hong Kong Astronomy, Meteorology and Collections' at the China Philatelic Association, introducing a number of invaluable postcards and old photographs featuring stories about the Observatory, Hong Kong history and typhoons. The great interest shown by the audience was reflected in their feedback, with everyone saying that they had learned a great deal from the lecture.



On 31 August, the Hong Kong Observatory Volunteer Team visited the CFSC Wang Tau Hom Day Care Centre for the Elderly to hold an early Mid-Autumn Festival celebration. All had a wonderful time on what proved to be a very enjoyable occasion.



Mr WONG Wai-kin, Acting Senior Scientific Officer, and Mr SHUM Chi-tai, Scientific Officer (left), gave lectures at the World Meteorological Organization's Regional Training Workshop on Severe Weather Forecasting and Warning Services held in Manila, the Philippines, in early and mid-June 2014 respectively. The workshop covered numerical modelling for weather prediction, the application of radar nowcast technology and effective media communications, among other topics.



Held in October, the 7th Public Weather Observation Course placed special emphasis on weather hazards, weather proverbs and platforms for sharing weather reports. 135 people took part in the course, a new attendance record for the event.



On 7 June, the Hong Kong Observatory organised a public seminar entitled 'Exploring Severe Convection Weather', which was attended by more than 60 members of the public. Using a large number of images and weather cases, Scientific Officer Mr YEUNG Wai-lung introduced the causes of severe convection weather, the characteristics of the weather along the south China coast during the transition from spring to summer and the formation of severe convection weather phenomena such as hail, squall lines and tornadoes.

On 11 October, 12 members of the Hong Kong Observatory Staff Association took part in the team event of the 22nd Hong Kong Open Nei Jia Chuan Competition organised by the Hong Kong Chinese Martial Arts Dragon and Lion Dance Association. The team's fantastic performance has won them the merit award.



At the invitation of the Hong Kong Observatory's Community Weather Observing Scheme, Miss Christina Y.M. CHAN shared her insights into cloud viewing and photography on 8 August at an event attended by close to 100 members of the public.



On 19 October, Dr CHENG Ching, Acting Director of the Hong Kong Observatory (fourth from left), attended the Mountaineering Safety Promotion Day organised by the Civil Aid Service and cut the ribbon at the opening ceremony.

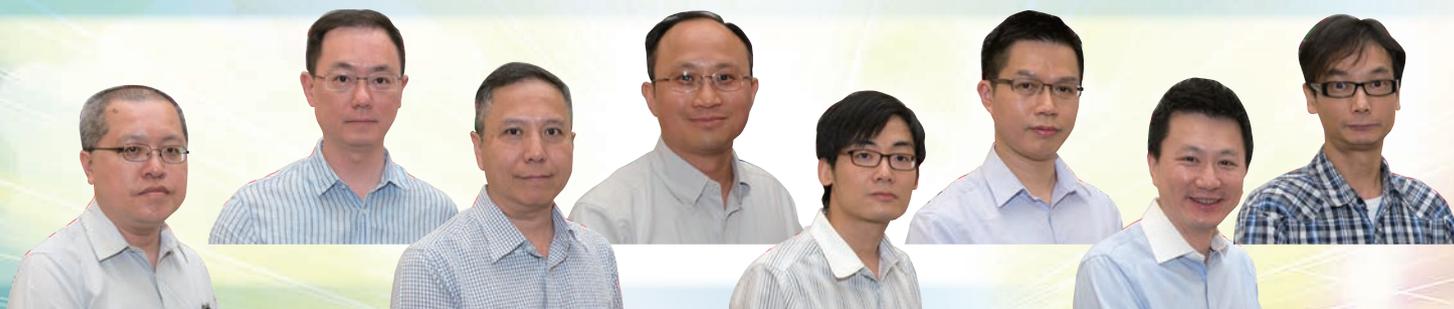


For details of the activities, please visit:
<http://www.hko.gov.hk/wisnew.htm>
<http://www.hko.gov.hk/hkonews/indexe.htm>



Presentation of Certificate of Appreciation from the Commission for Aeronautical Meteorology of the World Meteorological Organization

(From left to right) Senior Scientific Officers Mr CHAN Sai-tick, Mr CHOY Boon-leung, Dr LI Ping-wah and Ms Sandy SONG, and Scientific Officer Mr CHEUNG Ping



Presentation of Certificate of Commendation for Outstanding Research Performance

(From left to right) Senior Scientific Officers Mr CHAN Pak-wai, Mr CHAN Sai-tick, Mr MOK Hing-yim and Dr LEE Tsz-cheung, and Scientific Officers Mr LEE Yiu-fai, Mr WONG Wai-kin, Mr Linus YEUNG and Experimental Officer Dr Wu Man-chi

Presentation of Letter of Appreciation for Hong Kong Observatory Docents

Experimental Officer Mr CHENG Tsz-lo and Scientific Assistant Mr CHEN Yung



Staff Up Close

Staff of the Observatory who received words of thanks and commendations from the public or organisations from July to September 2014:

- (Senior Scientific Officer) Ms Sandy SONG
- (Scientific Officer) Mr LEE Kwok-lun, Dr Daniel YEUNG
- (Experimental Officer) Mr LUN Siu-hung, Mr CHIU Yu-yeung, Mr CHENG Tsz-lo
- (Departmental Secretary) Miss Letty NG