WMO Climate Friendly Demonstration City
- Hong Kong Experience

Objectives

(i) Showcase the wide range of weather, environmental and climate services for the city development and urban activities in Hong Kong

(ii) Highlight the future thrusts in enhancing and integrating the urban services for climate friendly development of Hong Kong in the Big Data era

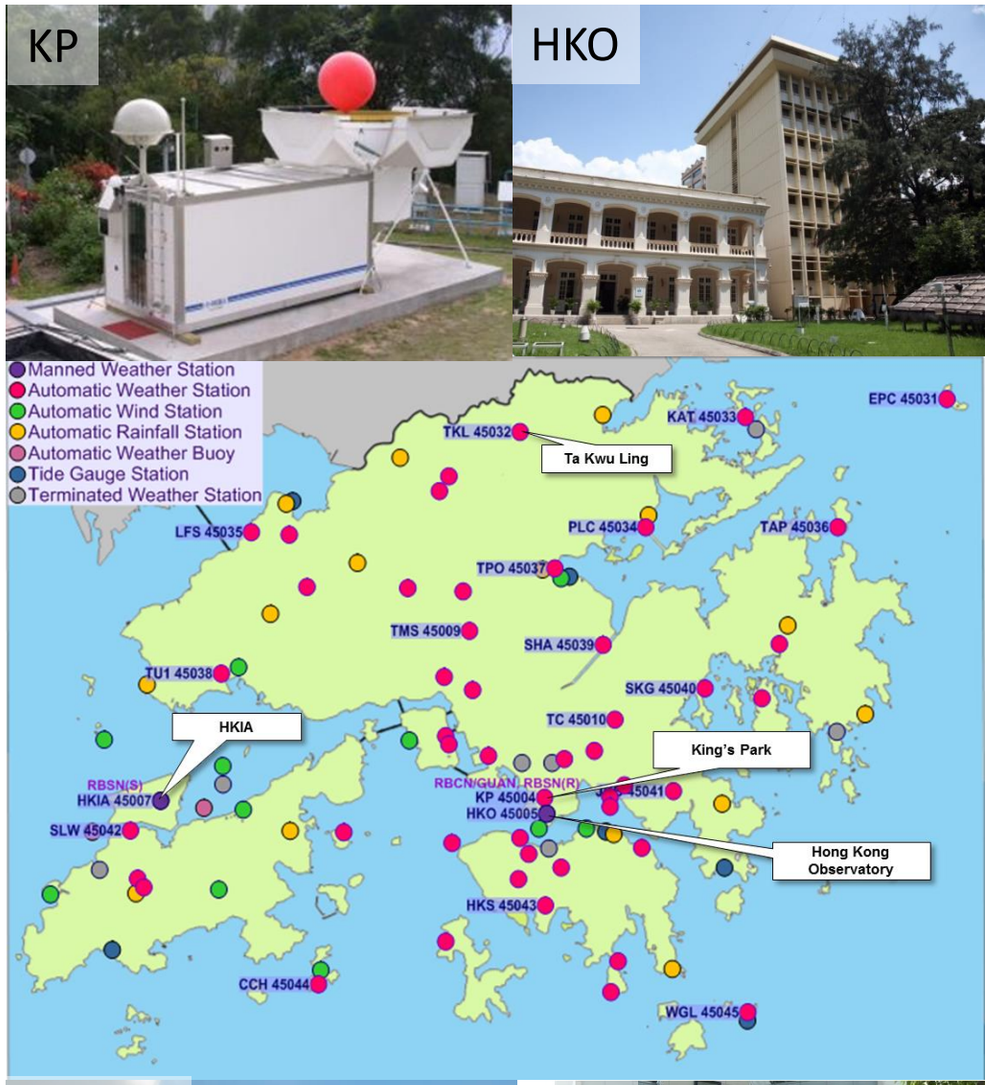
Weather and environmental monitoring in Hong Kong

Weather and Climate Monitoring

- Long term meteorological observations at Hong Kong Observatory (HKO) headquarters since 1884
- Upper air sounding at King's Park (KP) since 1950s
- Dense automatic weather station and raingauge networks over Hong Kong since 1985 (including those operated by Drainage Services Department and Geotechnical Engineering Office)
- The Community Weather Information Network (Co-WIN), jointly organized by HKO, Hong Kong Polytechnic University and the Chinese University of Hong Kong
- Other remote sensing systems (e.g. radar, lightning location network, wind profilers, lidars, etc.)

Environmental Monitoring

- Ozone sondes at KP since 1993
- CO_2 concentration measurement since 2009
- Air and water quality monitoring networks of the Environmental Protection Department (EPD)



Urban focus weather and climate services

Weather and Air Quality

Weather and AQ forecasts
Weather forecast (9 days)
Regional (city district scale) forecasts
Special client services (e.g. festivals, sports events)

Warning and advisories for high impact weather
Tropical cyclone
Thunderstorm and lightning
Thermal Stress (hot and cold)
Heavy rain, flooding and landslide
Air Pollution Episodes

Numerical modeling
Nowcasting (QPE and QPF)
Mesoscale and fine-scale models

Climate

Climate information services
One-stop shop information webpage
Data provision, extreme statistics and publications

Climate services for GFCS priorities
Water – water resource management
Energy – energy saving and management
DRR – infrastructure standard and code of practices
Health – communicable diseases and thermal stress

Climate prediction and projections
Annual outlook
Monthly and seasonal forecasts
Climate change and sea level rise projections

Communications

HKO Webpage
TV/Radio/Newspaper
Social media platforms
MyObservatory mobile app
Partnership and stakeholder engagement

Applications

- User routine operations / planning
- Emergency preparedness
- Disaster risk reduction
- Air quality monitoring and forecasting

- Climate change mitigation and adaptation
- Sustainable development
- Urban planning
- Infrastructure & building design

- Big Data analytics
- Smart city development

- Research development
- Public education

Future directions (provisional draft)

(i) Partner with researchers and collaborators in designing and developing a new set of compact and mobile sensors for enhancing weather and environmental monitoring in the high density urban environment.

(ii) Conduct studies to integrate the collected data in high resolution weather, air quality, urban climate models and other related forecasting systems in support of multi-hazard impact-based forecasts and warnings for the city.

(iii) Establish a data sharing platform in support of Big Data analytics and smart city development, as well as research and development for other weather or climate sensitive operations, applications and services in collaboration with relevant stakeholders.