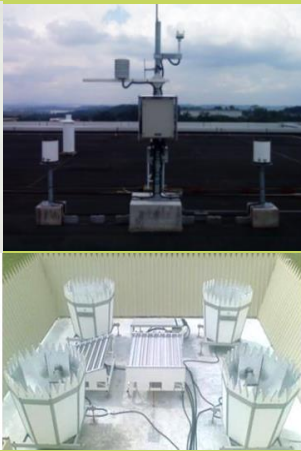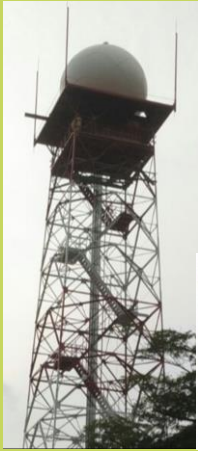# Meteorological Service Singapore's milestones over the last 50 years

Ms Patricia Ee
Director (Weather Services Department)

50th Session
ESCAP/WMO Typhoon Committee

28 Feb 2018
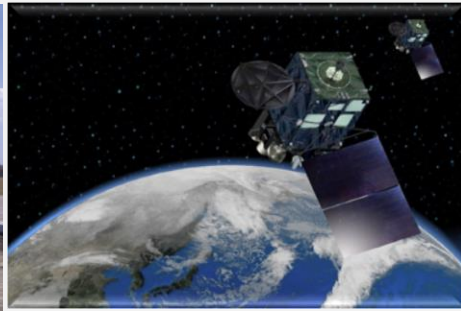
Significant Milestones

1971 – First weather radar Today – Comprehensive observation network


1997 – National Seismic Network

2008 – National Tsunami Early Warning System

1972 – Meteorological satellite data reception Today – Receiving data from an array of meteorological and environmental satellites


1993 – 2002 – ASEAN Specialised Meteorological Centre (ASMC) as regional centre for enhancing weather and climate prediction services, and haze monitoring
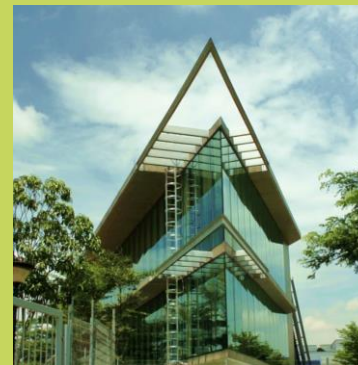
2013 – Centre for Climate Research Singapore (CCRS), focusing on research on tropical weather and climate systems
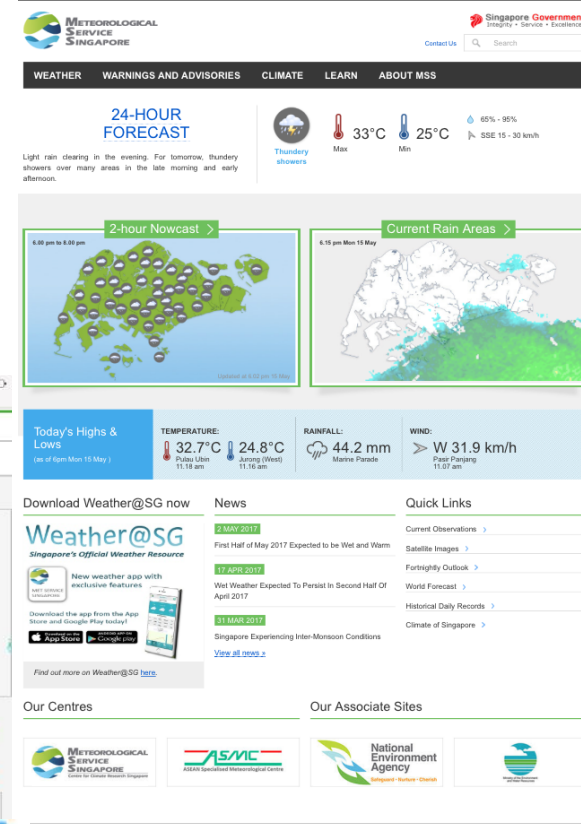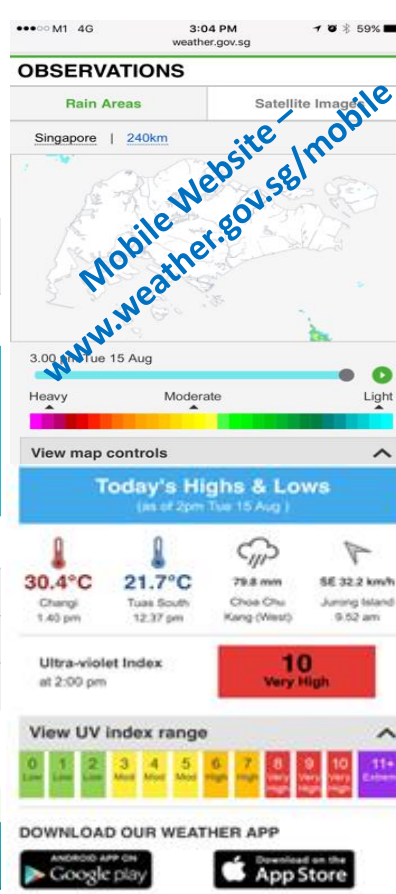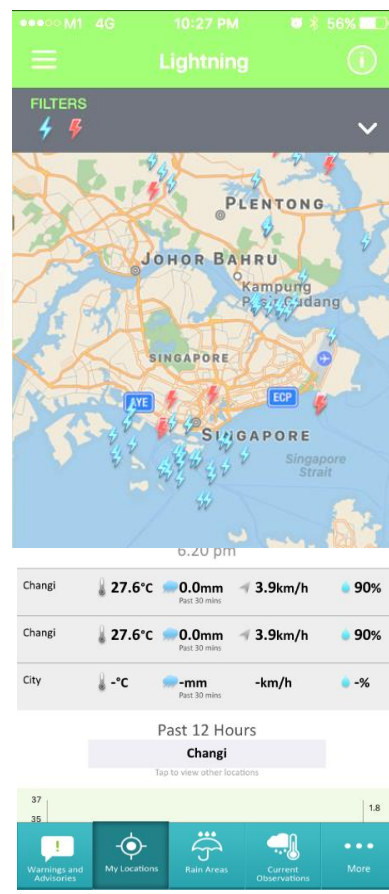
Key Weather Services

Our services serve a wide spectrum of users/customers and sectors who rely on **time-critical meteorological forecasts and information** to make important decisions in operations and planning
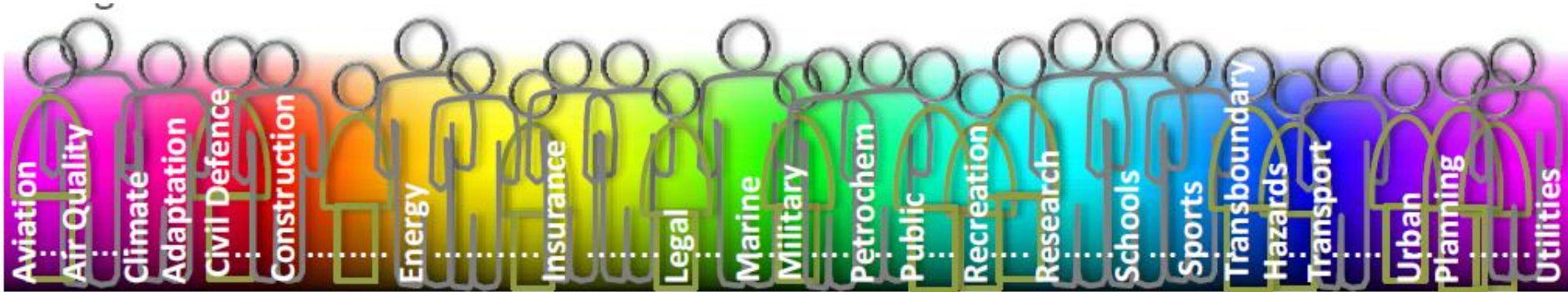
- **Weather Forecast and Warning Services**

- **Monitoring and Early Warning Of Multi-Hazards**

Weather Forecast and Information Services

- Updating through online and mobile applications for timely dissemination

Mobile Website – www.weather.gov.sg/mobile

MSS' Website – www.weather.gov.sg
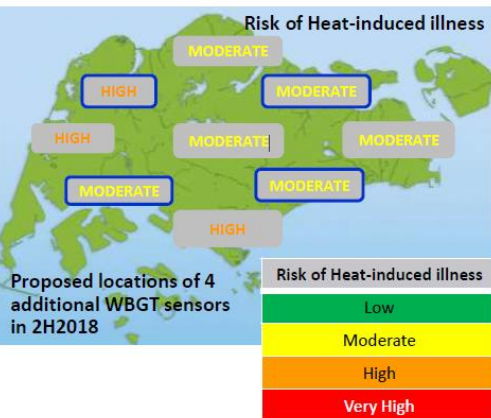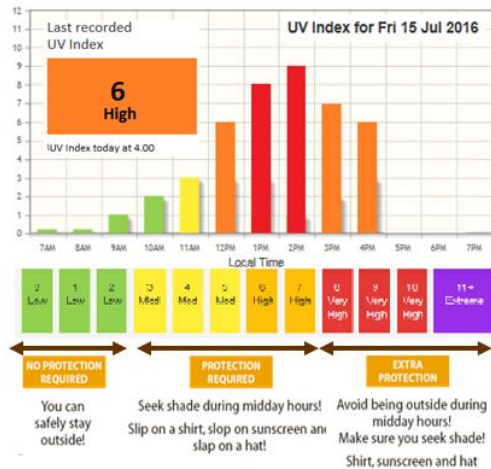
Multi-Hazard Warnings/Advisories

- Lightning
- Wind gusts
- Heavy rainfall
- Prolonged dry spell
- Prolonged high temperatures

Climate and Weather Extremes

Marine

- Storm surge
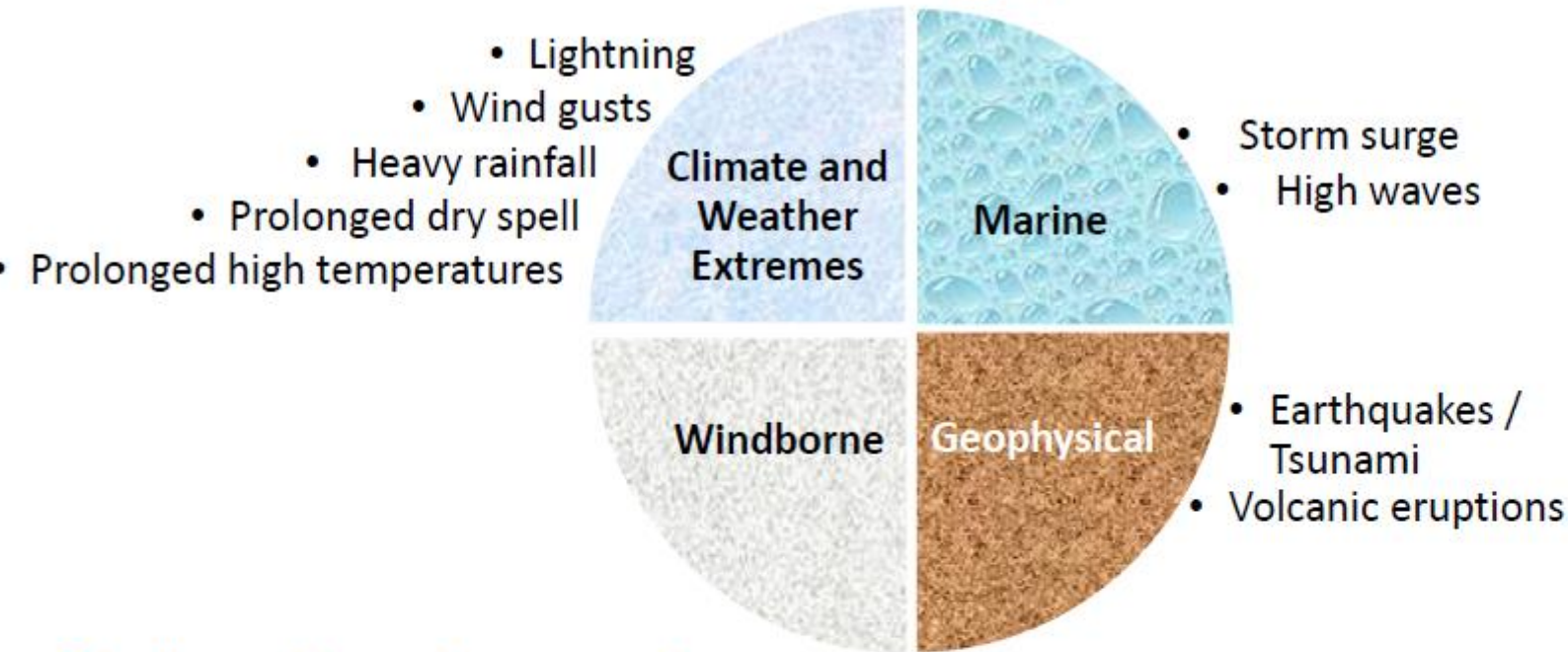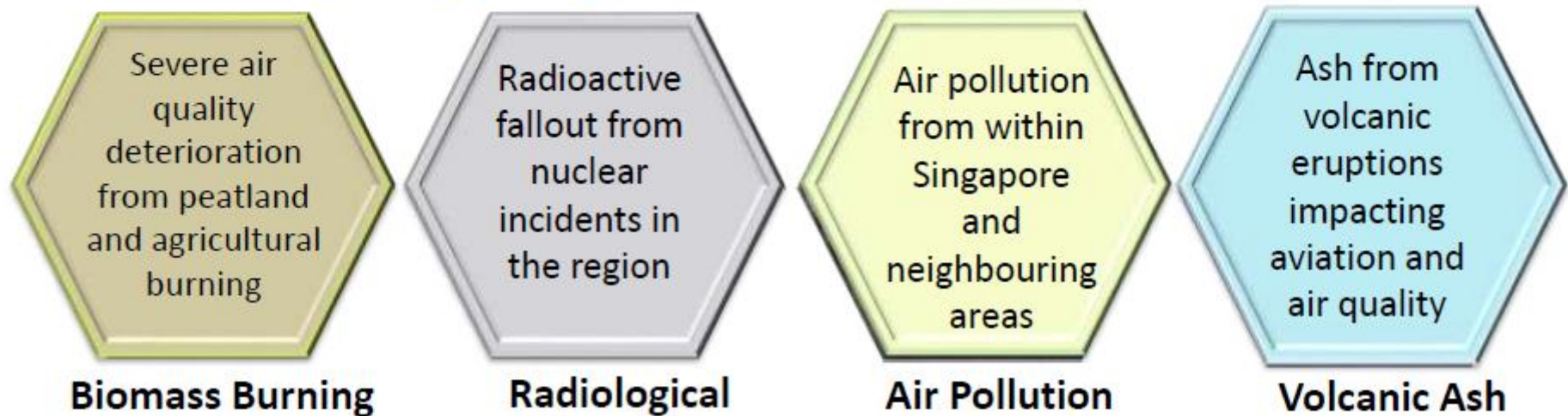- High waves

Windborne

Geophysical

- Earthquakes / Tsunami
- Volcanic eruptions

Windborne hazards are growing concern

Severe air quality deterioration from peatland and agricultural burning	Radioactive fallout from nuclear incidents in the region	Air pollution from within Singapore and neighbouring areas	Ash from volcanic eruptions impacting aviation and air quality
Biomass Burning	**Radiological**	**Air Pollution**	**Volcanic Ash**

These hazards are characterised by: | Sudden onset | Swift transport | Uncertainty at source
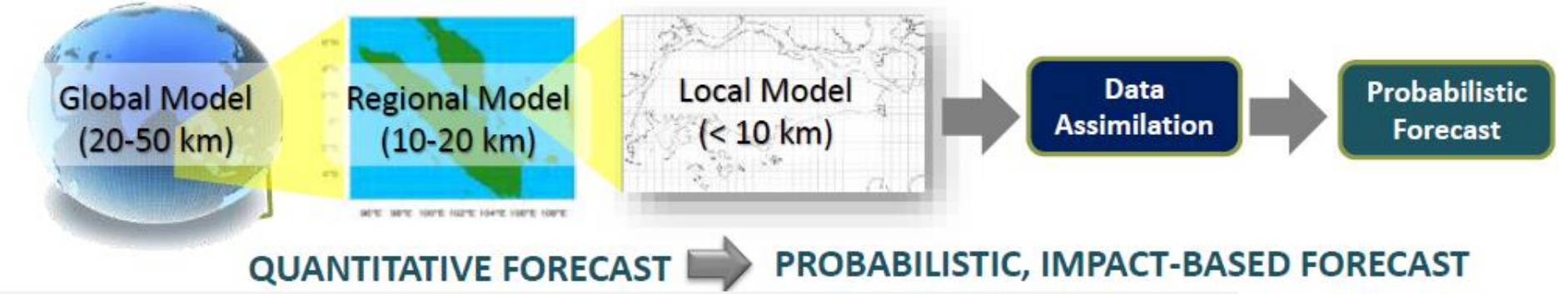
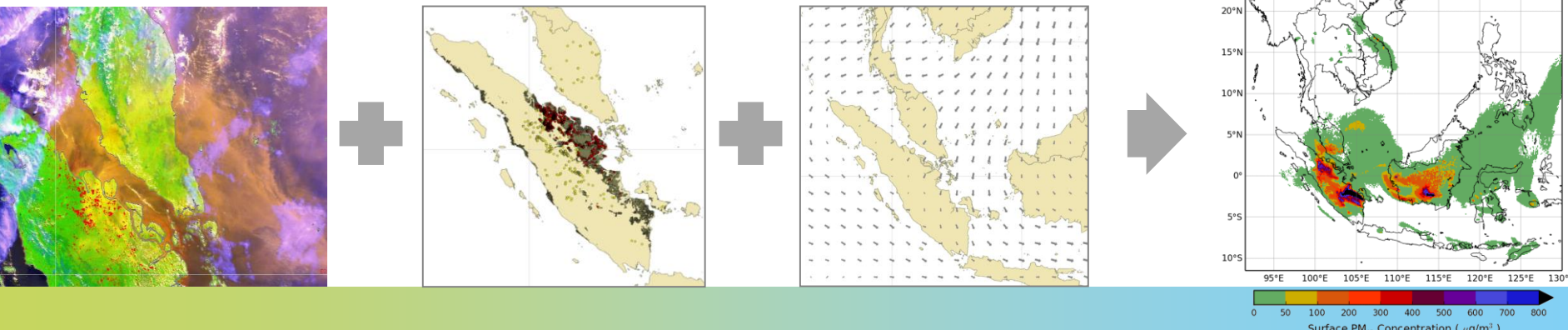# Enhancing Capabilities to Improve Forecast Services
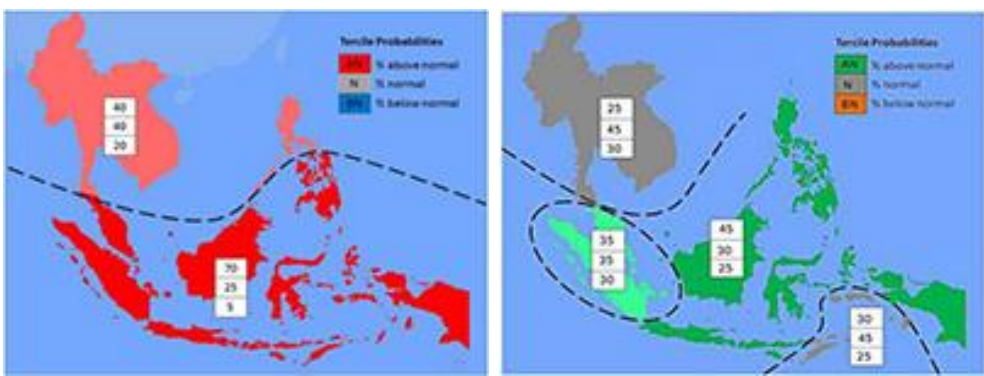
Better and improved **Seasonal and Sub-seasonal forecasts** to anticipate extreme conditions and climate variability

Enhanced **Numerical Weather Prediction (NWP) Modelling** capabilities, focusing on the tropics

Global Model (20-50 km) → Regional Model (10-20 km) → Local Model (< 10 km) → Data Assimilation → Probabilistic Forecast

QUANTITATIVE FORECAST ➡ PROBABILISTIC, IMPACT-BASED FORECAST

Applied Modelling – Downstream applications utilising NWP information

Biomass Burning Smoke Haze Dispersion
Valid 21 Oct 2015, 00:00 UTC

Surface PM₁₀ Concentration (μg/m³)

METEOROLOGICAL
SERVICE
SINGAPORE