

# CAP Implementation Workshop 2017

## WMO Global Multi-hazard Alert System

### WWIS & SWIC as platforms to disseminate weather warnings in CAP

WEATHER CLIMATE WATER  
TEMPS CLIMAT EAU



WMO OMM

World Meteorological Organization  
Organisation météorologique mondiale

20-21 Sep 2017

# WMO GLOBAL MULTI-HAZARD ALERT SYSTEM (GMAS)

- Decision 3.2(1)/1 (EC-69) on GMAS
- Vision
  - Recognized globally by decision makers as **authoritative warnings and information** related to high-impact weather, water, ocean and climate events
- Rational
  - Sendai framework – NMHSs and WMO agreed to do more to enhance services, strengthen regional and global collaboration to support Multi-Hazard Early Warning System (MHEWS)
  - To make warning information from all countries more easily available for decision makers



# WMO GLOBAL MULTI-HAZARD ALERT SYSTEM (GMAS)

## ○ Rational (Cont'd)

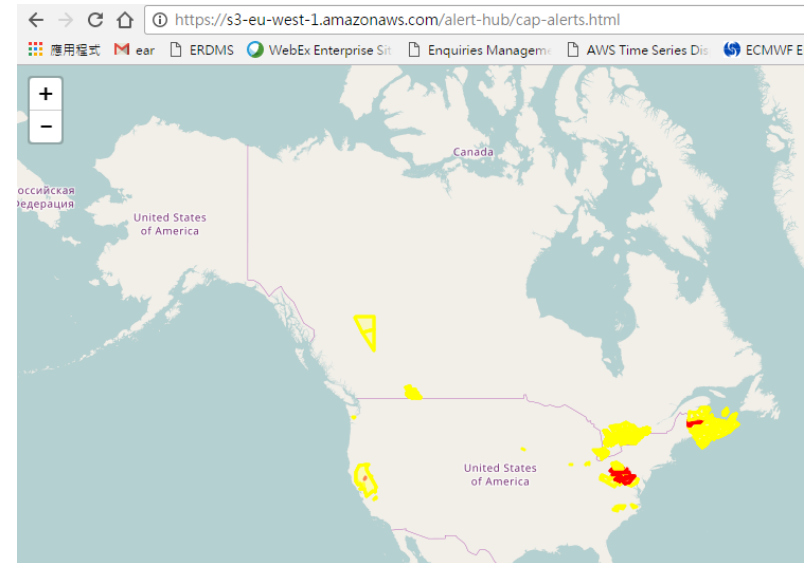
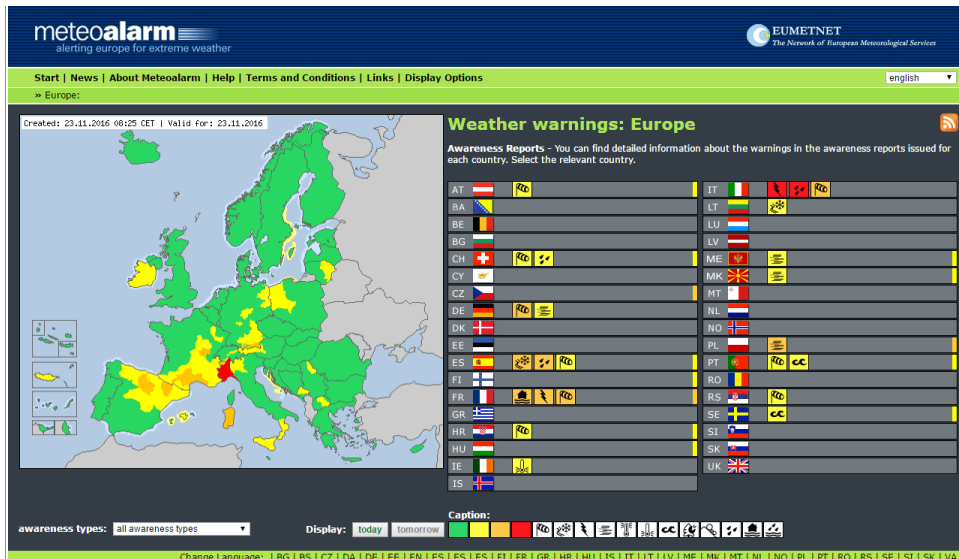
- Share vital lessons learnt by NMHSs in delivering vital multi-hazard services with global DRR community
- Strengthen NMHSs as official authoritative source
- Ensure global community receives the multi-hazard information from authoritative source
- Ensure complex hydrometeorological language is translated into information which can be “actioned” by decision makers



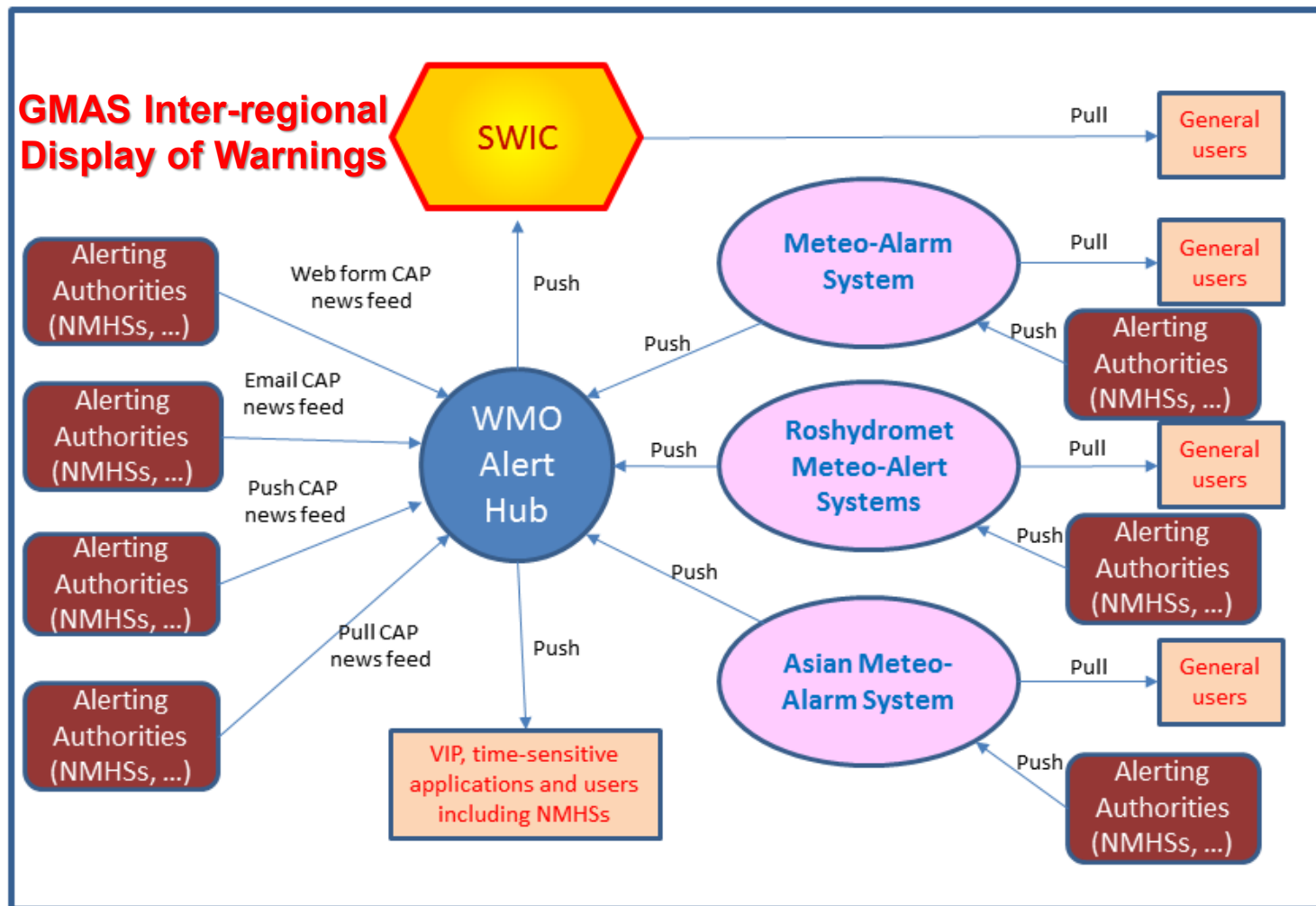
# WMO ALERT HUB

- WMO working with NOAA to develop an alert hub for free service to all alerts from Members (*Partners: Open Commons Consortium, Amazon Web Services, IBM/TWC, Hong Kong Observatory, Honeycomb Networks*)
- Hub to provide one-stop platform for alerts issued by authorized agencies/institutions
- Prototypes developed

## Other WMO Systems featuring Warnings



# AN INITIAL IDEA



# SEVERE WEATHER INFORMATION CENTRE (SWIC)



*Severe Weather Information Centre*  
Official Observations. Official Warnings.

- Centralized platform to provide **official authoritative** warnings and information issued by NMHSs
- Contains advisories issued by RSMCs
- Features warnings on tropical cyclones and worldwide information on severe weather

## Challenges


- Not all hazards covered
- Inconsistent content/format
- **Proliferation of warning websites from other sectors**



# ENABLING CAP IN **SWIC** (*PROTOTYPE*)


COMMON PLATFORM TO COLLATE, DISPLAY & SHARE  
WARNINGS IN CAP FORMAT ISSUED BY NMHSSs

## Global View



# Global Multi-hazard Alert System

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### Weather Warning Information

Date (UTC)	Event	Headline
2017-08-16 16:30:00	Severe Thunderstorm Warning	Severe Thunderstorm Warning issued August 16 at 16:30PM PDT until August 16 at 17:15PM PDT S
2017-08-16 15:07:00	18006	北京市暴雨黄色预警信号(朝阳区)
2017-08-16 14:59:00	强降雨注意	强降雨注意 一小時內
2017-08-17 23:39:00	Special Weather Statement	Special Weather Statement issued August 17 at 23:39PM EDT by NWS Binghamton
2017-08-17 23:39:00	Flood Flood Warning	Flood Flood Warning issued August 17 at 22:55AM MST until August 17 at 23:15PM MST by NWS PH
2017-08-17 22:27:27	18164	万那那暴雨黄色预警信号(图们市)
2017-08-17 22:07:00	大雨注意 强降雨	大雨注意 强降雨
2017-08-17 15:20:00	雷暴注意	雷暴注意 强降雨


### Tropical Cyclone (TC) Information

Date (UTC)	Name	Category	Region
2017-07-28 06:00	NE-SAT	Typhoon	Western North Pacific; Ocean and South China Sea
2017-07-28 06:00	NORU	Typhoon	Western North Pacific; Ocean and South China Sea
2017-07-28 03:00	HLARY	Tropical Storm	Caribbean Sea, Gulf of Mexico, North Atlantic, and eastern North Pacific; Oceans
2017-07-28 03:00	JRWNY	Tropical Storm	Caribbean Sea, Gulf of Mexico, North Atlantic, and eastern North Pacific; Oceans

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## Regional View




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### Weather Warning information

Date (UTC)	Event	Headline
2017-08-16 15:07:08	11809	台灣地區發布中度至強烈颱風警報(中) (严重)
2017-08-16 14:59:08	海警注意報 - 一般地方	海警注意報 - 一般地方
2017-08-17 22:27:27	11814	台灣地區發布中度至強烈颱風警報(中) (中)
2017-08-17 15:21:08	海警注意報 - 海警系統	海警注意報 - 海警系統
2017-08-17 15:20:08	海警注意報 - 海警系統	海警注意報 - 海警系統
2017-08-17 15:08:08	11814	台灣地區發布中度至強烈颱風警報(中) (中)
2017-08-17 14:51:11	11814	台灣地區發布中度至強烈颱風警報(中) (中)
2017-08-17 14:49:26	11814	台灣地區發布中度至強烈颱風警報

### Tropical Cyclone (TC) Information

Date (UTC)	Name	Category	Region
2017-07-28 06:00	NEBART	Typhoon	Western North Pacific Ocean and South China Sea
2017-07-28 06:00	NORU	Typhoon	Western North Pacific Ocean and South China Sea
2017-07-28 03:00	HEARY	Tropical Storm	Caribbean Sea, Gulf of Mexico, North Atlantic and eastern North Pacific Oceans
2017-07-28 03:00	IRWIN	Tropical Storm	Caribbean Sea, Gulf of Mexico, North Atlantic and eastern North Pacific Oceans


### Weather Warning information

Date (UTC)	Event	Headline
2017-08-16 15:07:08	11809	台灣地區發布中度至強烈颱風警報(中) (严重)
2017-08-16 14:59:08	海警注意報 - 一般地方	海警注意報 - 一般地方
2017-08-17 22:27:27	11814	台灣地區發布中度至強烈颱風警報(中) (中)
2017-08-17 15:21:08	海警注意報 - 海警系統	海警注意報 - 海警系統
2017-08-17 15:20:08	海警注意報 - 海警系統	海警注意報 - 海警系統
2017-08-17 15:08:08	11814	台灣地區發布中度至強烈颱風警報(中) (中)
2017-08-17 14:51:11	11814	台灣地區發布中度至強烈颱風警報(中) (中)
2017-08-17 14:49:26	11814	台灣地區發布中度至強烈颱風警報

### Tropical Cyclone (TC) Information


Date (UTC)	Name	Category	Region
2017-07-28 06:00	NEBART	Typhoon	Western North Pacific Ocean and South China Sea
2017-07-28 06:00	NORU	Typhoon	Western North Pacific Ocean and South China Sea
2017-07-28 03:00	HEARY	Tropical Storm	Caribbean Sea, Gulf of Mexico, North Atlantic and eastern North Pacific Oceans
2017-07-28 03:00	IRWIN	Tropical Storm	Caribbean Sea, Gulf of Mexico, North Atlantic and eastern North Pacific Oceans

## National View




# Global Multi-hazard Alert System

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▲ Tropical Cyclone Warning

■ Rainstorm Warning Signal

■ Thunderstorm Warning



### Weather Warning Information

Date (UTC)	Event	Headline
2017-08-18 10:07:00	11809	台灣地區發布中度颱風警報(11809)
2017-08-18 14:59:00	11809	台灣地區發布中度颱風警報(11809)
2017-08-17 22:57:27	11814	台灣地區發布中度颱風警報(11814)
2017-08-17 15:21:00	11815	台灣地區發布中度颱風警報(11815)
2017-08-17 15:20:00	11814	台灣地區發布中度颱風警報(11814)
2017-08-17 15:08:00	11814	台灣地區發布中度颱風警報(11814)
2017-08-17 14:25:11	11814	台灣地區發布中度颱風警報(11814)
2017-08-17 14:49:26	11814	台灣地區發布中度颱風警報

### Tropical Cyclone (TC) Information

Date (UTC)	Name	Category	Region
2017-07-28 06:00	NEIAS7	Typhoon	Western North Pacific, Ocean and South China Sea
2017-07-28 06:00	NORU4	Typhoon	Western North Pacific, Ocean and South China Sea
2017-07-28 03:00	HLA887	Tropical Storm	Caribbean Sea, Gulf of Mexico, North Atlantic and eastern North Pacific, Oce
2017-07-28 03:00	IRWIN6	Tropical Storm	Caribbean Sea, Gulf of Mexico, North Atlantic and eastern North Pacific, Oce

### Weather Warning Information

Date (UTC)	Event
2017-08-18 16:30:00	Severe
2017-08-18 11:07:00	NORU4
2017-08-18 14:59:00	中度颱風
2017-08-17 23:59:00	Special View
2017-08-17 22:59:00	Flash Flood
2017-08-17 22:57:27	11814
2017-08-17 15:21:00	中度颱風

### Tropical Cyclone (TC) Information

Date (UTC)	Name
2017-07-28 06:00	NEIAS7
2017-07-28 06:00	NORU4
2017-07-28 03:00	HLA887
2017-07-28 03:00	IRWIN6

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## Tropical Cyclone

WORLD METEOROLOGICAL ORGANIZATION

World Weather Information Service

Global Multi-hazard Unit System

5.5.14

English

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Member (cogn)

Please enter city / country name

Region:

Country:

Go

**Democratic People's Republic of Korea**

**Republic of Korea**

**NORU (1709)**

Date and Time: 2017-08-08 06:00 (JST)

Position: 37.7N 135.1E FAIR

Intensity: Tropical Storm

Maximum sustained wind: 35 kt

(TC forecast track from)

- ☒ China
- ☐ Republic of Korea
- ☐ Hong Kong, China

Date (JTTC)	Event	Headline
2017-08-08 16:36:00	Severe Thunderstorm Warning	Severe Thunderstorm warning issued August 15 at 10:35PM PDT until August 16 at 17:15PM PDT by NWS Reno
2017-08-08 15:07:00	11609	三湖市 气象局发布有東風浪高浪警報(严重)
2017-08-08 14:59:00	海龍王臺射擊 - 十槍靶位	海龍王臺射擊 - 十槍靶位
2017-08-07 23:39:00	Special Weather Statement	Special Weather Statement issued August 17 at 23:39PM EDT by NWS Birmingham
2017-08-07 22:59:00	Flood Flood Warning	Flood Flood Warning issued August 17 at 22:59AM MST until August 17 at 23:15PM MST by NWS Phoenix
2017-08-07 22:57:27	11614	不列颠 气象局发布有東風浪高浪警報(严重)
2017-08-07 15:21:00	六湖市臺射擊 - 長射場	六湖市臺射擊 - 長射場
2017-08-07 15:20:00	龍王臺射擊 - 官射場	龍王臺射擊 - 官射場

**Tropical Cyclone (TC) Information**

Date (JTTC)	Name	Category	Region
2017-07-29 06:00	NESAT	Typhoon	Western North Pacific Ocean and South China Sea
2017-07-29 06:00	NORU	Typhoon	Western North Pacific Ocean and South China Sea
2017-07-29 03:00	HLARY	Tropical Storm	Caribbean Sea, Gulf of Mexico, North Atlantic, and eastern North Pacific Oceans
2017-07-29 03:00	IRWIN	Tropical Storm	Caribbean Sea, Gulf of Mexico, North Atlantic, and eastern North Pacific Oceans

# ENABLING CAP IN OTHER APPLICATIONS

## E.G. IN WWIS

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Weather - Climate - Water

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### HURRICANE WARNING REMAINS IN EFFECT.

Issued by: National Weather Service

Issued time: 2017-11-21T23:45:00-07:00  
Effective time: 2017-11-21T23:45:00-07:00

Description  
STORM SURGE WARNING IS CANCELLED

\* LOCATIONS AFFECTED - Miami - Coral Gables - Kendall - Miami Springs - Hialeah - Miami Lakes - Cutler Ridge

\* WIND - LATEST LOCAL FORECAST: Equivalent Tropical Storm force wind - Peak Wind Forecast: 40-50 mph with gusts to 75 mph - Window for Tropical Storm force winds: until early Monday morning - CURRENT THREAT TO LIFE AND PROPERTY: Moderate - The wind threat has decreased from the previous assessment. - Remain braced against the reasonable threat for strong tropical storm force wind of 58 to 73 mph. - To be safe, efforts should fully focus on protecting life. Properties remain subject to significant wind impacts. - Now is the time to hide from the wind. Failure to adequately shelter may result in injury. Remain sheltered until the hazardous wind subsides. - POTENTIAL IMPACTS: Unfolding - Potential impacts from the main wind event are unfolding.

\* STORM SURGE - No storm surge inundation forecast - CURRENT THREAT TO LIFE AND PROPERTY: None - The storm surge threat has decreased from the previous assessment. - Surf conditions may still be rough with some beach erosion. Stronger than normal rip currents may also be present. - Exercise due safety. - Review your seasonal plan and ensure readiness for the next storm surge event. - REALIZED IMPACTS: Being Assessed - Little to no additional surge impacts expected. Community officials are now assessing the extent of actual surge impacts accordingly.

\* FLOODING RAIN - LATEST LOCAL FORECAST: Flood Watch is in effect - Peak Rainfall Amounts: Additional 10-14 inches, with locally higher amounts - CURRENT THREAT TO LIFE AND PROPERTY: Extreme - The flooding rain threat has remained nearly steady from the previous assessment. - Emergency considerations should include a threat of flooding. - Be safe and remain ready to protect against flooding rain impacts. - If flood related watches and warnings are in effect, heed recommended actions. - POTENTIAL IMPACTS: Devastating to Catastrophic - Extreme rainfall flooding may prompt numerous evacuations and rescues. - Ditches and canals may overwhelmingly overflow their banks in many places with deep moving water. Flood control systems and barriers may become stressed. - Flood waters can enter numerous structures within multiple communities, some structures becoming uninhabitable or washed away. Numerous places where flood waters may cover escape routes with streets, parking lots and underpasses submerged. Driving conditions become very dangerous. Numerous road and bridge closures with some weakened or washed out.

\* TORNADO - LATEST LOCAL FORECAST: Tornado Watch is in effect - Situation is favorable for tornadoes - CURRENT THREAT TO LIFE AND PROPERTY: Moderate - The tornado threat has remained nearly steady from the previous assessment. - Emergency considerations should include a reasonable threat for tornadoes. - Be safe and remain ready to protect against tornado impacts. Stay informed. - Listen for tornado watches and warnings. If a tornado approaches, quickly move to the safest place within your shelter. - POTENTIAL IMPACTS: Significant - The occurrence of scattered tornadoes can hinder the execution of emergency plans during tropical events. - Several places may experience tornado damage with a few spots of considerable damage, power loss, and communications failures. - Locations could realize roofs torn off frame houses, mobile homes demolished, boxcars overturned, large trees snapped or uprooted, vehicles tumbled, and small boats tossed about. Dangerous projectiles can add to the toll.

\* FOR MORE INFORMATION: - <http://www.weather.gov/mfl> - [www.miamidade.gov](http://www.miamidade.gov) - For storm information call 3-1-1

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New York City + Please enter city / country / territory name

### Miami, Florida

United States of America

Hurricane Warning was issued at 7:26PM, 17 October 2017 (local time)

26°C 85% ENE 44 km/h

Sun, 10 Sep 2017 3:53 AM (Local Time)

N.B.

National Weather Service

Issued at 11:31 PM (Local Time) 9 Sep 2017

Click a city on the map to see forecast and/or climatological information.

10 Sep 2017  
Sunrise 6:31 AM Sunset 7:12 PM

N.B.

Miami, Florida  
30-year period

Temperature (°C) Rainfall (mm)

Month	Mean Daily Minimum Temperature (°C)	Mean Daily Maximum Temperature (°C)	Mean Total Rainfall (mm)	Mean Number of Rain Days
Jan	17.3	23.7	56.1	6.7
Feb	18.3	24.7	58.7	6.6
Mar	19.3	25.7	61.3	6.5
Apr	20.3	26.7	63.9	6.4
May	21.3	27.7	66.5	6.3
Jun	22.3	28.7	69.1	6.2
Jul	23.3	29.7	71.7	6.1
Aug	24.3	30.7	74.3	6.0
Sep	25.3	31.7	76.9	5.9
Oct	26.3	32.7	79.5	5.8
Nov	27.3	33.7	82.1	5.7
Dec	28.3	34.7	84.7	5.6



# PLANS

- Upgrade **SWIC** to become an online GIS-enable platform to aggregate, display and share authoritative warnings and alerts in CAP format from WMO Alert Hub and other industry standards
- A example of display platform for the **GMAS**
- Mature WMO Alert Hub aggregating official alerts and warnings from NMHSs and officially Registered Alerting Authorities (RAAs)
- Encourage NMHSs to adopt CAP format for their warnings and disseminate these warnings to WMO Alert Hub and thus **SWIC**
- Enhance **WWIS** to become a online GIS-enable platform for official weather observations, authoritative forecasts and warnings provided by NMHSs around the world
- To implement RA II Pilot Project on **Regional GMAS** (Resolution 5.2/10 (RA II-16))



# Thank you



WORLD  
METEOROLOGICAL  
ORGANIZATION

# REGIONAL GMAS IN ASIA

- RAII-16 approved the pilot project to enhance the capability of meteorological disaster risk reduction (Resolution 5.2/10)
- To establish a regional system, based on the implementation of CAP and the experience in WMO WWIS and SWIC
- To promote experience sharing among NMHSs in RAII in disaster risk reduction
- To organize training courses
- To provide assistance to relevant RAII members to improve operational capability in meteorological risk reduction
- CMA and HKO as co-coordinators



# TARGETS OF RAII PILOT PROJECT

- To develop a prototype of Alert Hub for aggregating CAP alerts issued by NMHSs and an upgraded SWIC website for displaying the CAP alerts with GIS interface by end of 2017
- To develop a prototype website for sharing of advisory products among RAII members by mid-2018.
- To develop plans for training and development of advisory products for RAII members in early 2018

