



**National Agency for Meteorology and
Environmental Monitoring of Mongolia**

Meteorological alert system in Mongolia

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2nd Regional Workshop on Impact-based Forecasts in Asia

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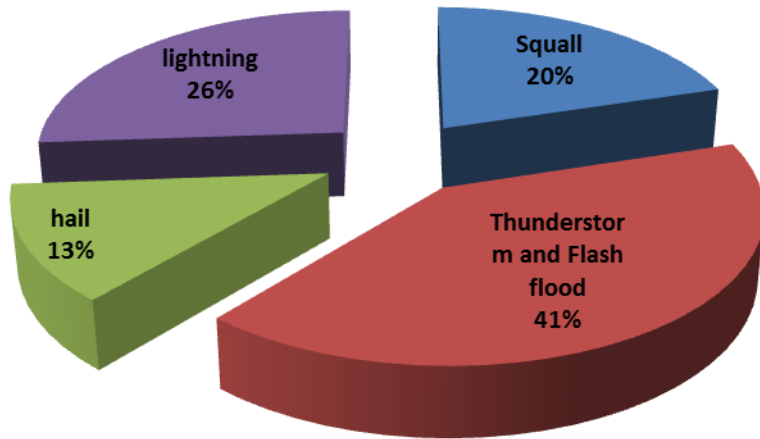
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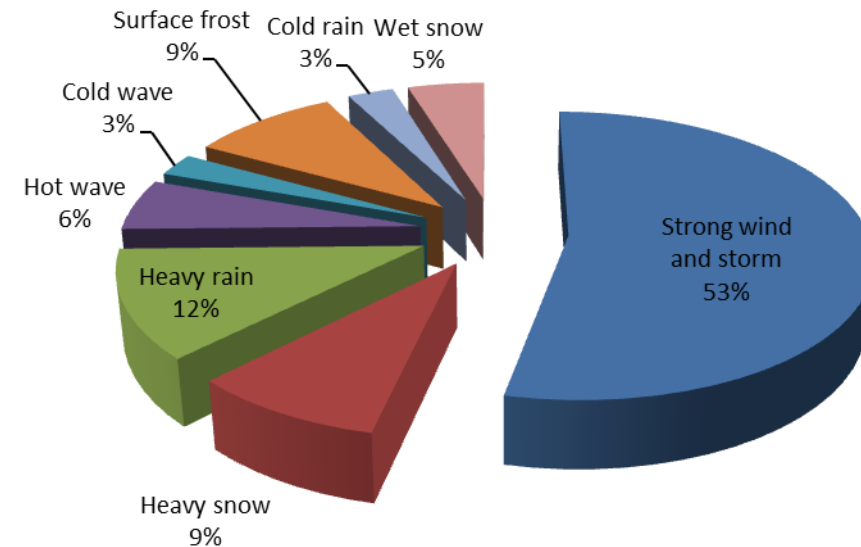
Convective and Cold front related weather events



Convective related



Cold front related

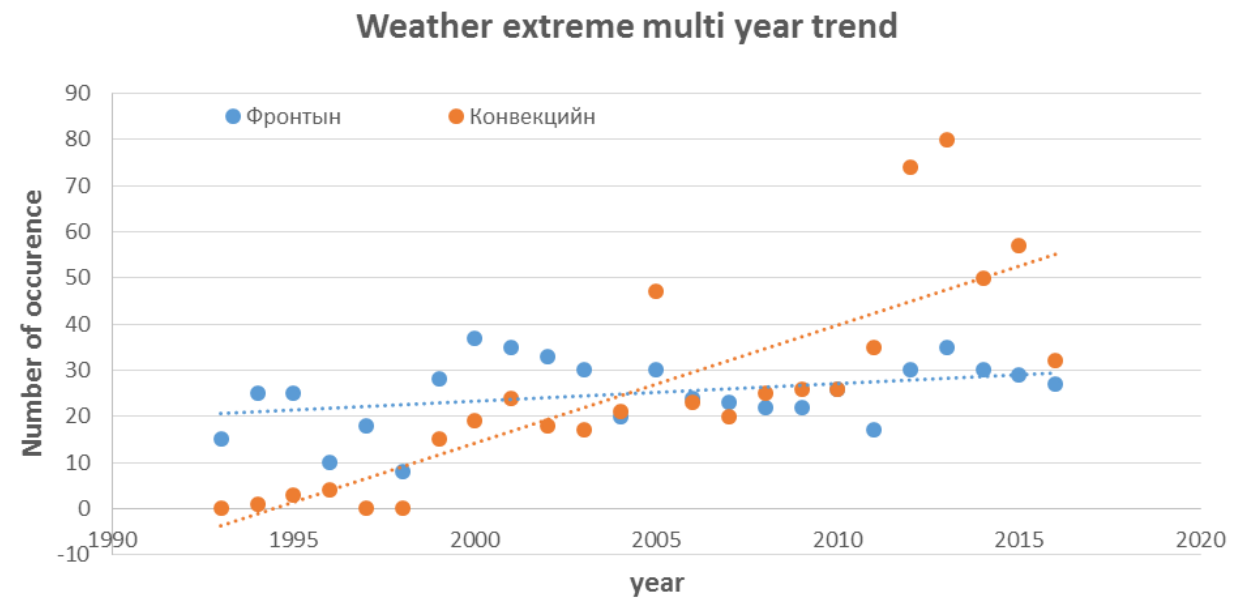
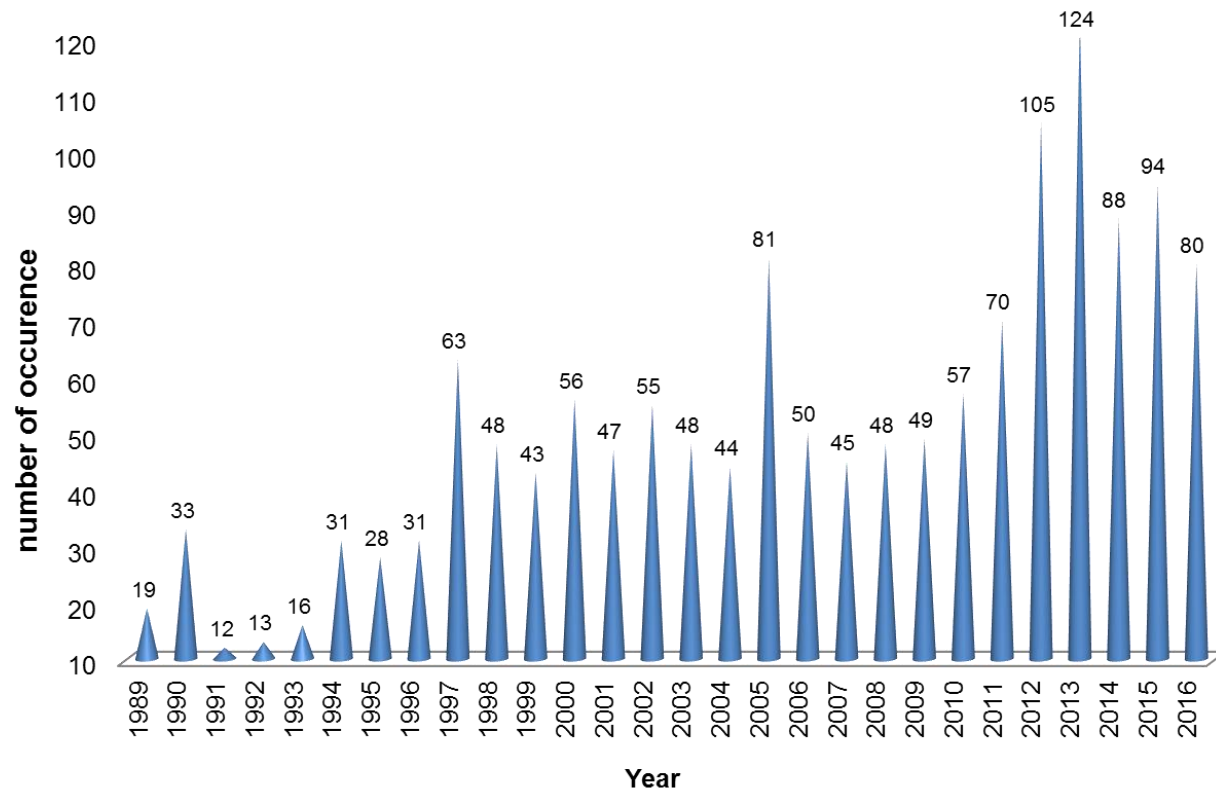


Convective related disasters counted for 53.3% of all hydro-meteorological disasters in last 12 years and flash flood is about 41.1% of all convective related extreme events, which occurs about 12 times per year.

Cold front related severe weather such as strong wind, snow storm, heavy snow and rain, surface frost, cold rain and wet snow can cover large area and it causes huge damage on agricultural products. Among these types of disasters, severe storms occur more frequently which is about 14 times per year.



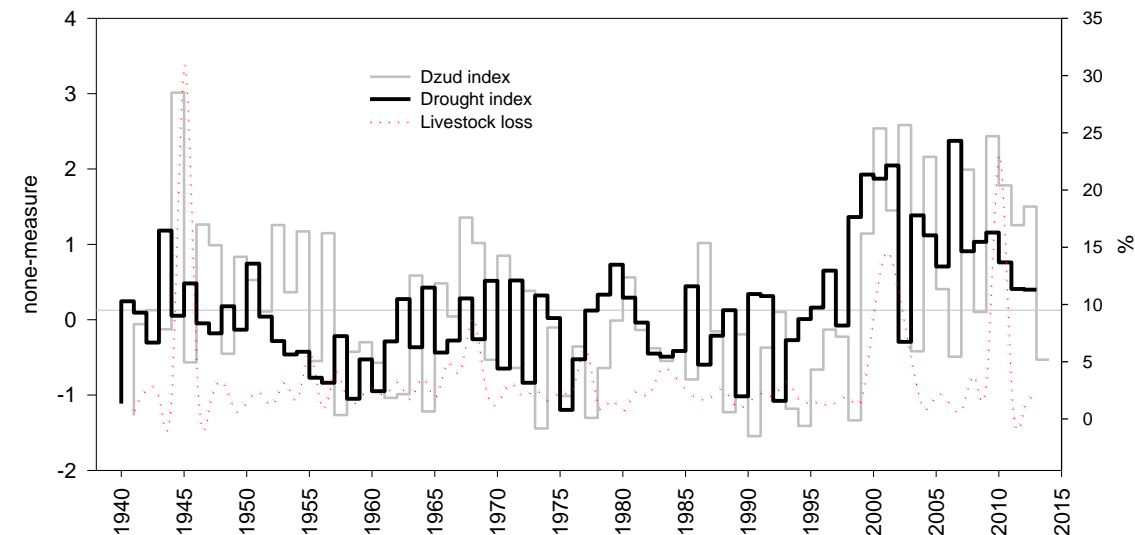
Weather extreme trend



Climate extremes



- Drought
- Dzud
 - Dzud (sometimes spelled zud) is a winter disaster in which deep snow, severe cold, or other conditions that render forage unavailable or inaccessible lead to high livestock mortality.
 - At least six types of dzud
 - **White dzud** happens when deep snow covers grass.
 - **Black dzud** refers to freezing temperatures and lack of snow (essential for livestock and human water in the winter) and forage.
 - **A combined dzud** occurs when there are both deep snow and cold temperatures.
 - **A storm dzud** is indicated by high wind and blizzard conditions.
 - **Iron dzud** happens when a layer of ice makes forage inaccessible. Finally, a **hoofed dzud** occurs when many livestock converge in a location, and the combination of trampling and heavy grazing eliminates forage.



Current Meteorological Warning System

Classification of extreme weather

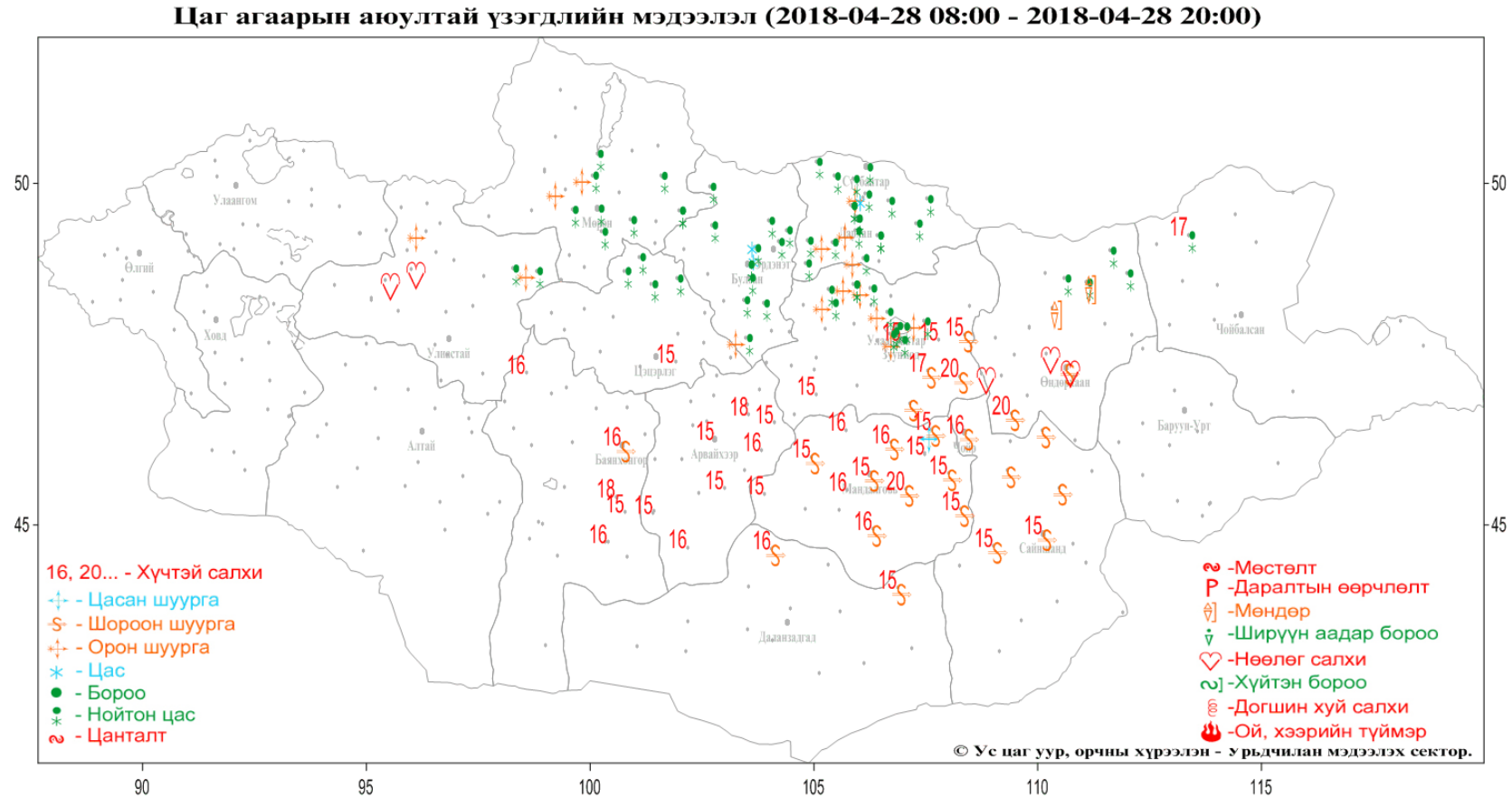


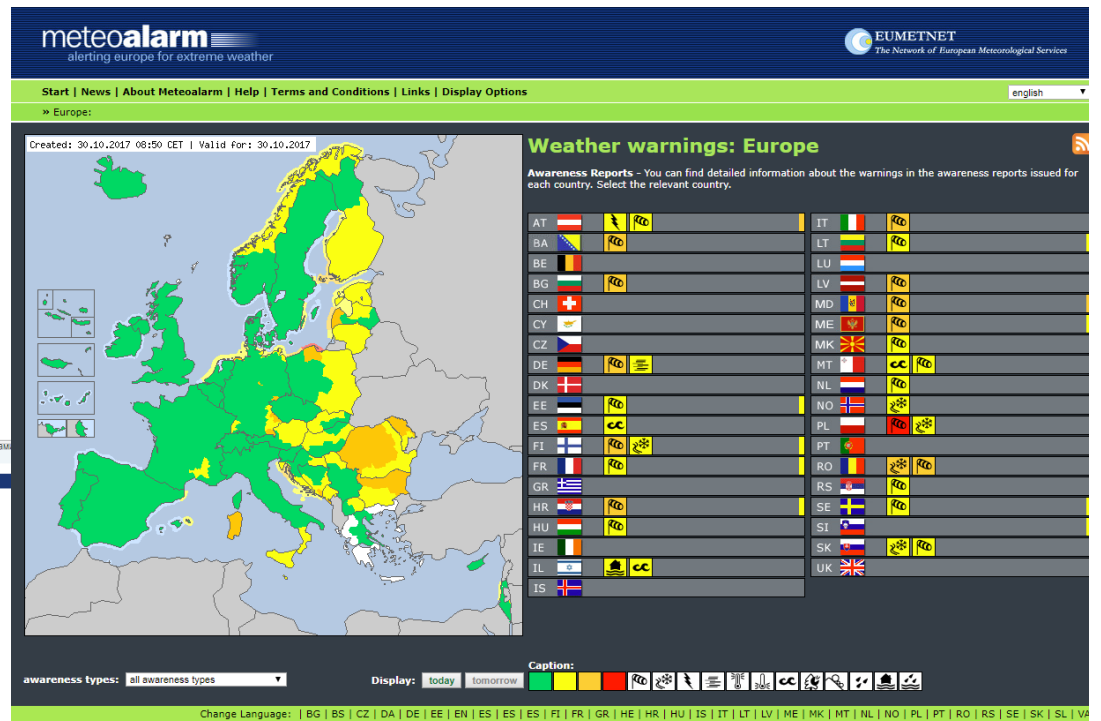
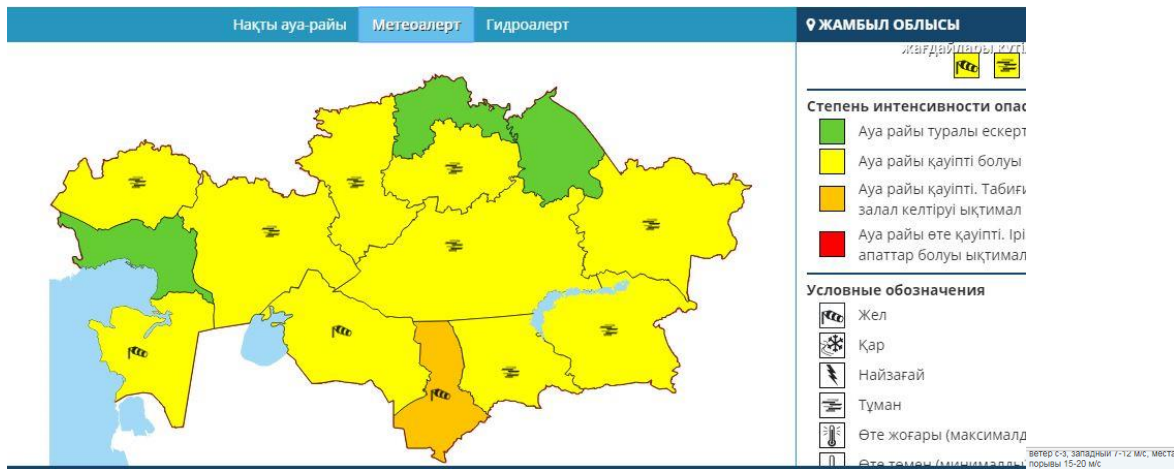
Altogether 17 weather phenomena included in this classification

Extreme weather	POTENTIALLY DANGEROUS	DANGEROUS	VERY DANGEROUS	Heavy rain	RR>=.0mm/12hours Further expected to be dangerous	RR>=30.0mm Duration: =< 12hours	RR>=50.0mm Duration: =< 12hours
Strong wind	Mean wind speed >=10m/s Wind gust >= 20-23m/s	Mean wind speed >=18m/s Wind gust >= 24m/s Duration: no limit	Mean wind speed >=24m/s in mountainous area Wind speed >= 28m/s in steppe and gobi area Wind gust >= 34m/s in Duration: no limit	Heavy shower	RR>=2.0mm/12hours Further expected to be dangerous	RR>=30.0mm Duration: =< 3hours	RR>=10.0mm Duration: =< 1hours
Snow storm	Expected to be dangerous	Snowstorm with mean wind speed >=10m/s Visibility =< 2000m Duration: >=3 hours	Snowstorm with mean wind speed >=15m/s Wind gust >= 24m/s Visibility =< 2000m Duration: >=6 hours	Cold rain /Jun-Jul/	Rain is expected to continue =>12hours	Rain in condition with 9-11°C air mean temperature and >=6m/s wind speed Duration: >=12 hours	RR>=5.0mm rain in condition with =<8°C air mean temperature and >=6m/s wind speed Duration: >=12 hours
Dust storm	Mean wind speed >=10-15m/s Visibility =< 10km by dust	Mean wind speed >=18m/s Visibility =< 1km by dust	-	Frost /growing season/	Soil surface temperature is expected to be near 0°C	Soil surface temperature: =< 0°C	Soil surface temperature: =< -5°C
Snow and wet snow /OCT-MAR/	RR>=2.0mm/12hours Further expected to be dangerous	RR>=5.0mm Duration: =< 12hours	RR>=10.0mm Duration: =< 12hours	River flood	River level is exceeded normal	River is overflowed	River level is reached at flood dangerous level

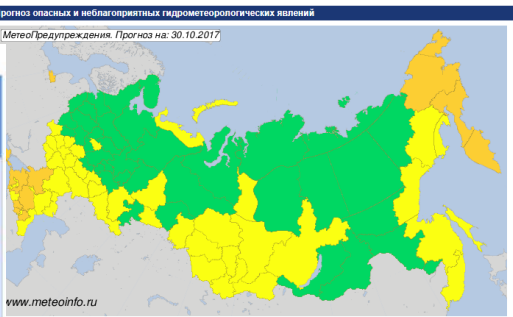
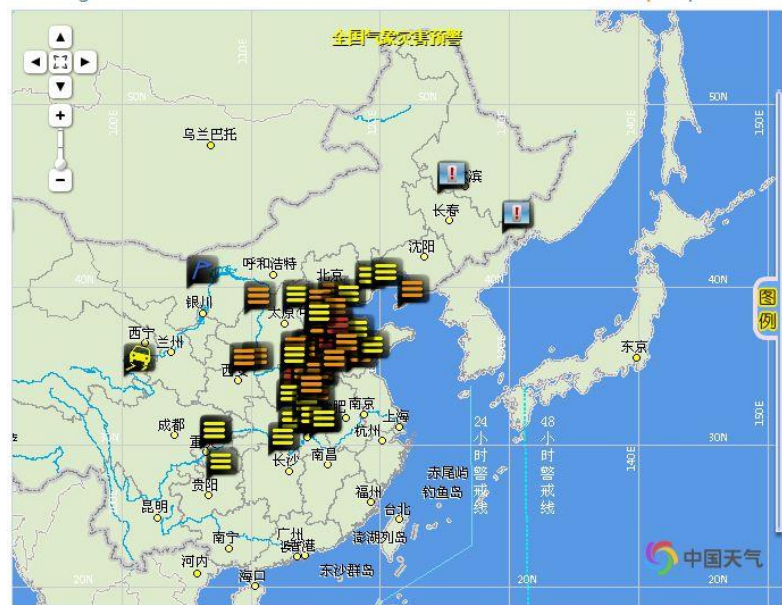
- Advisory – for Potentially dangerous weather
 - Area, date, type and duration of weather change, expected to be dangerous, and advisory
- Warning information- for dangerous weather
 - Area, date, and type of extreme weather and advisory
- Alert information – for very dangerous weather
 - Area, date, and type of extreme weather and advisory

Real time weather disaster information displaying system





warning information



зеро-Западный федеральный округ. 30 октября в Калининградской области ветер 20-25 м/с.

итральный федеральный округ. 30 октября в Брянской, Липецкой, Воронежской областях до 22 м/с. Подробнее >>

иволжский федеральный округ. 30 октября на юге округа сильный дождь.

ный федеральный округ. 30 октября в Крыму сильный и очень сильный дождь. >>

зеро-Кавказский федеральный округ. 30 октября в Ингушетии, Чеченской Республике до 25 м/с. Подробнее >>

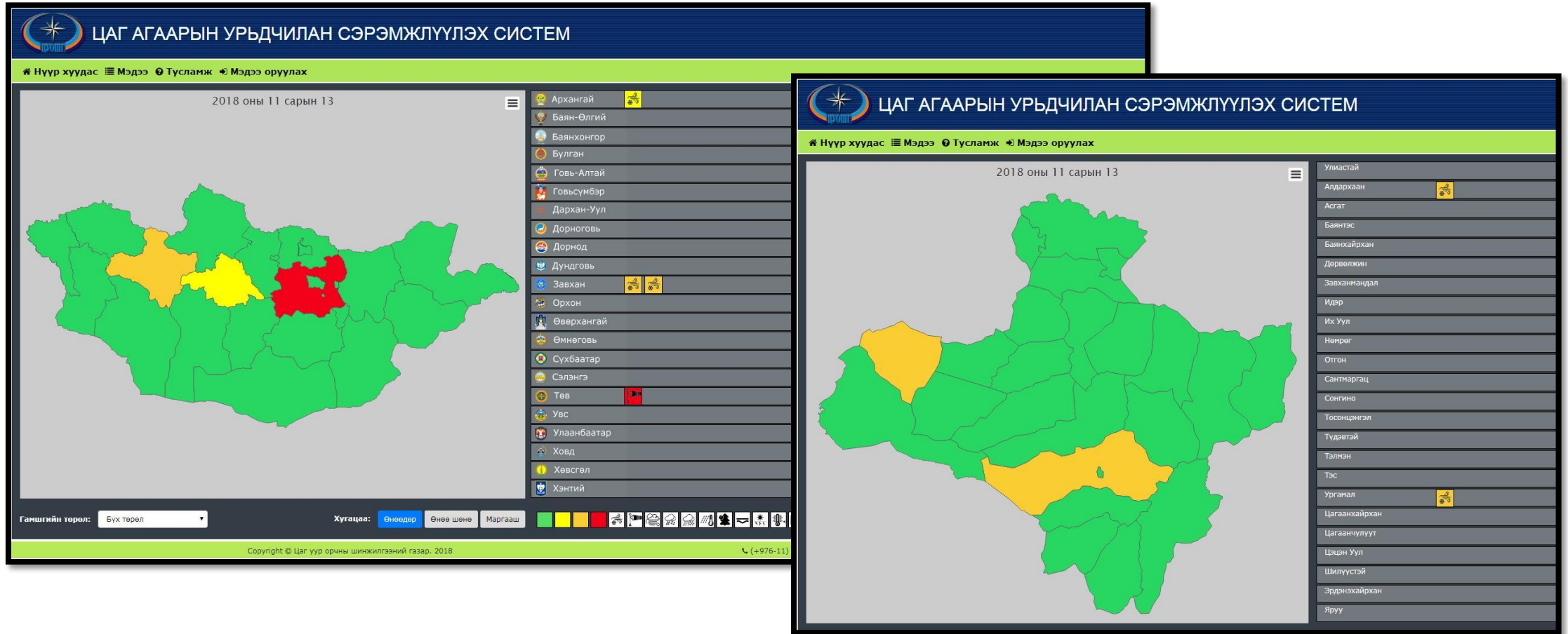
ирский федеральный округ. 30 октября в центральных и южных районах осадки, гололедица, в сельскохозяйственной зоне временные туманы.

ильновосточный федеральный округ. 30-31 октября на побережье юго-западной части Чукотки ветер до 25 м/с.

Good practice



Mongolian Meteorological Alarm new system

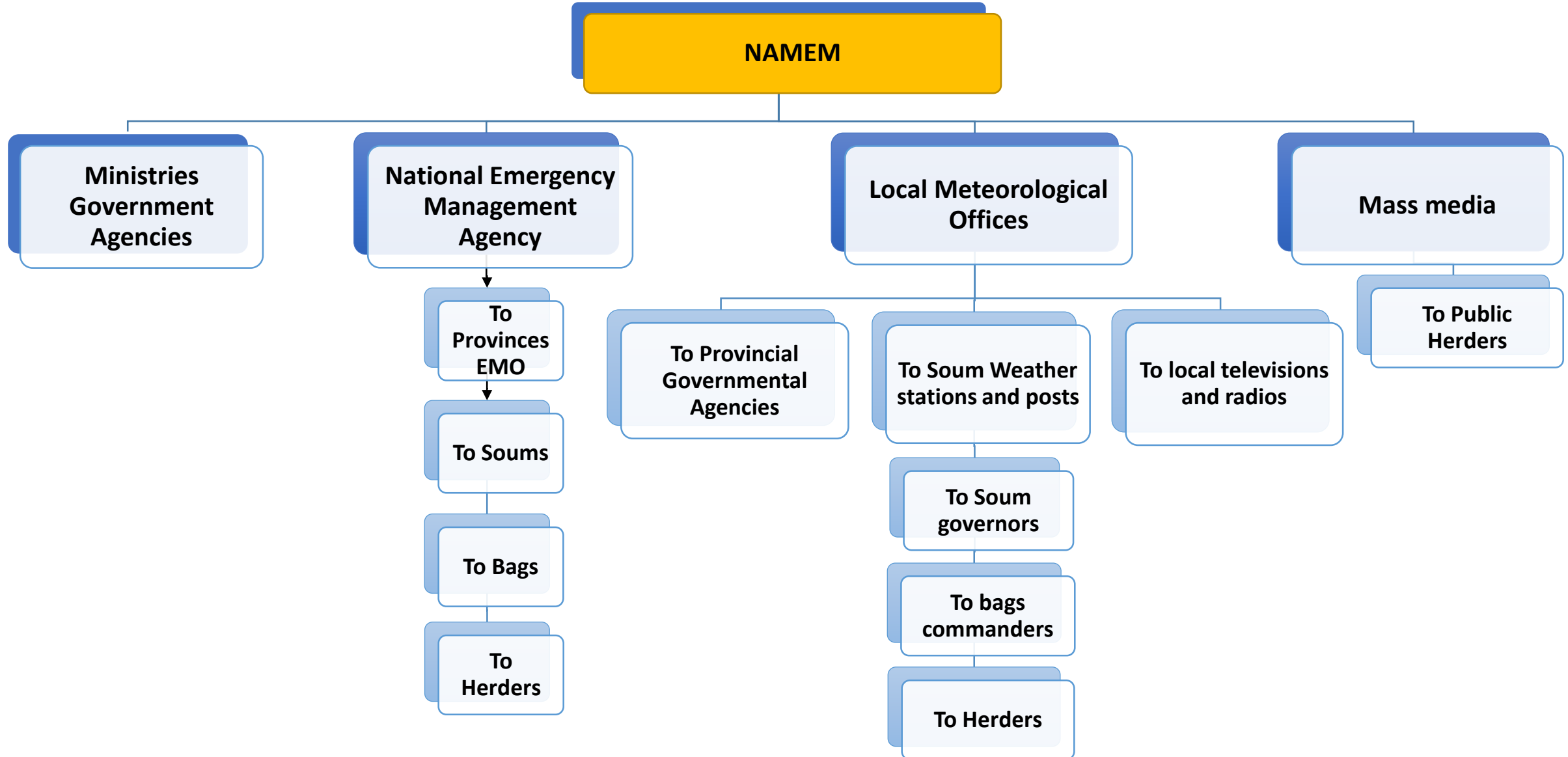


The general philosophy is as similar as those EUMETNET, Roshydromet, ҚАЗГИДРОМЕТ Meteorological Alarm system

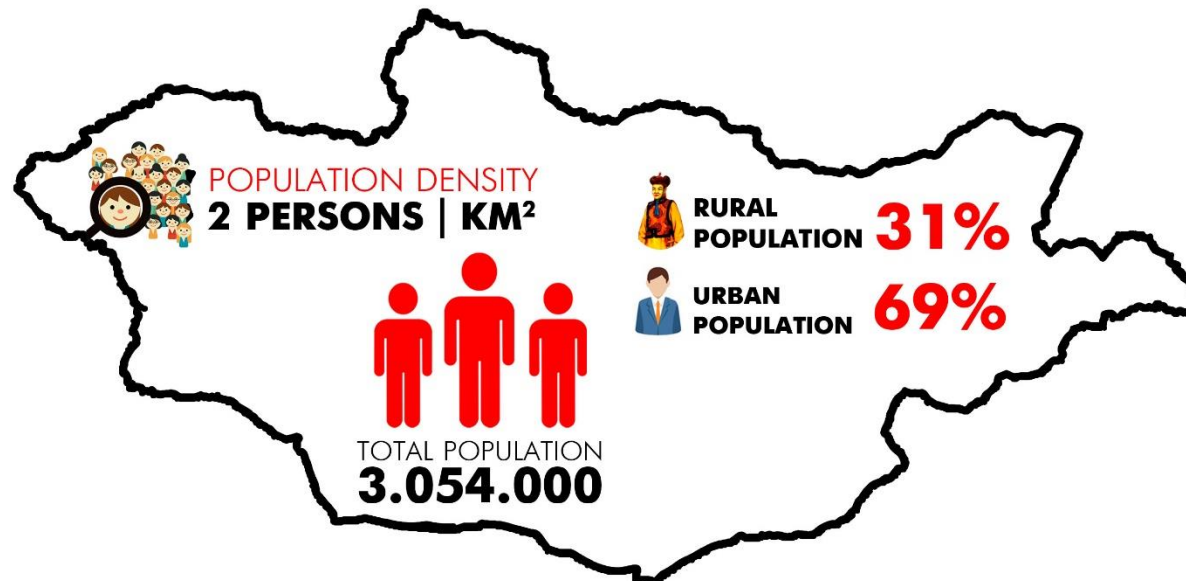
New system is going to start from 2019.01.01

Delivering information

General structure on Information delivery



The changes in approach of receiving the weather information of users



Our method on receiving and delivering the real time weather information has changed among user's demand

1. Receiving

2. Delivering



Mass messaging system

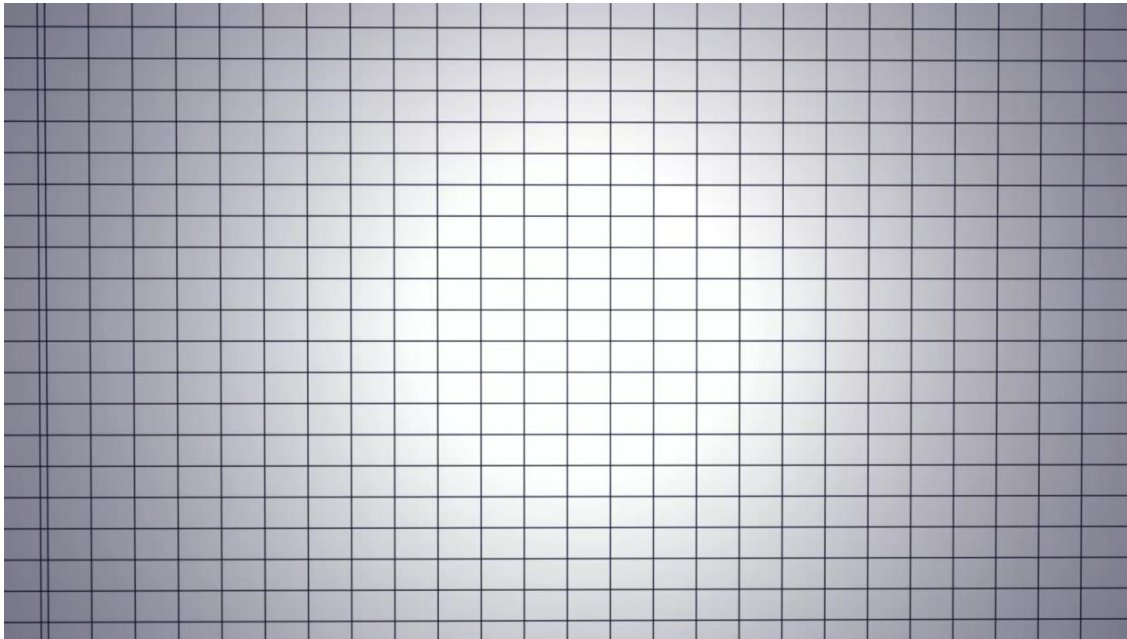
Mercy Cor & NEMA & NAMEM



Advisories on prevention of extreme weather

World Vision Mongolia & NEMA & NAMEM

How do kids understand about the weather?

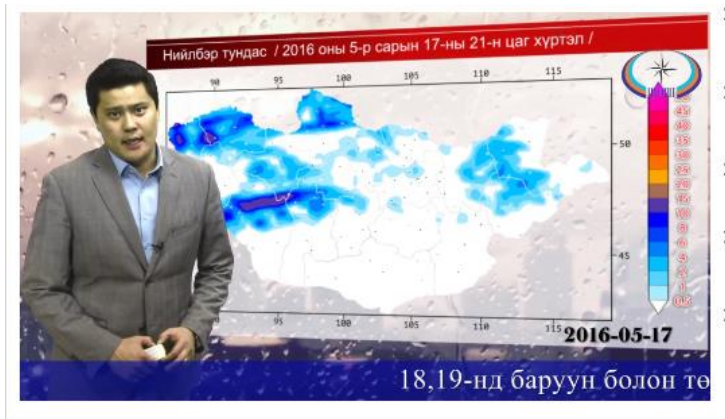


Advisory video



Types of information delivery

- **TV's**
- **Radio**
- **Homepage**
- **Mobile phone-SMS**
- **Mail**
- **Fax**
- **Social media**
- **Special connection to emergency organizations**





THANK YOU FOR YOUR ATTENTION