



# **An Overview on Meteorological Services in China**

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- 1. Introduction**
- 2. Decision-making meteorological service**
- 3. Public Meteorological Services**
- 4. Professional Meteorological Service**
- 5. Meteorological Disaster Prevention and Reduction**
- 6. Meteorological Service Efficiency**

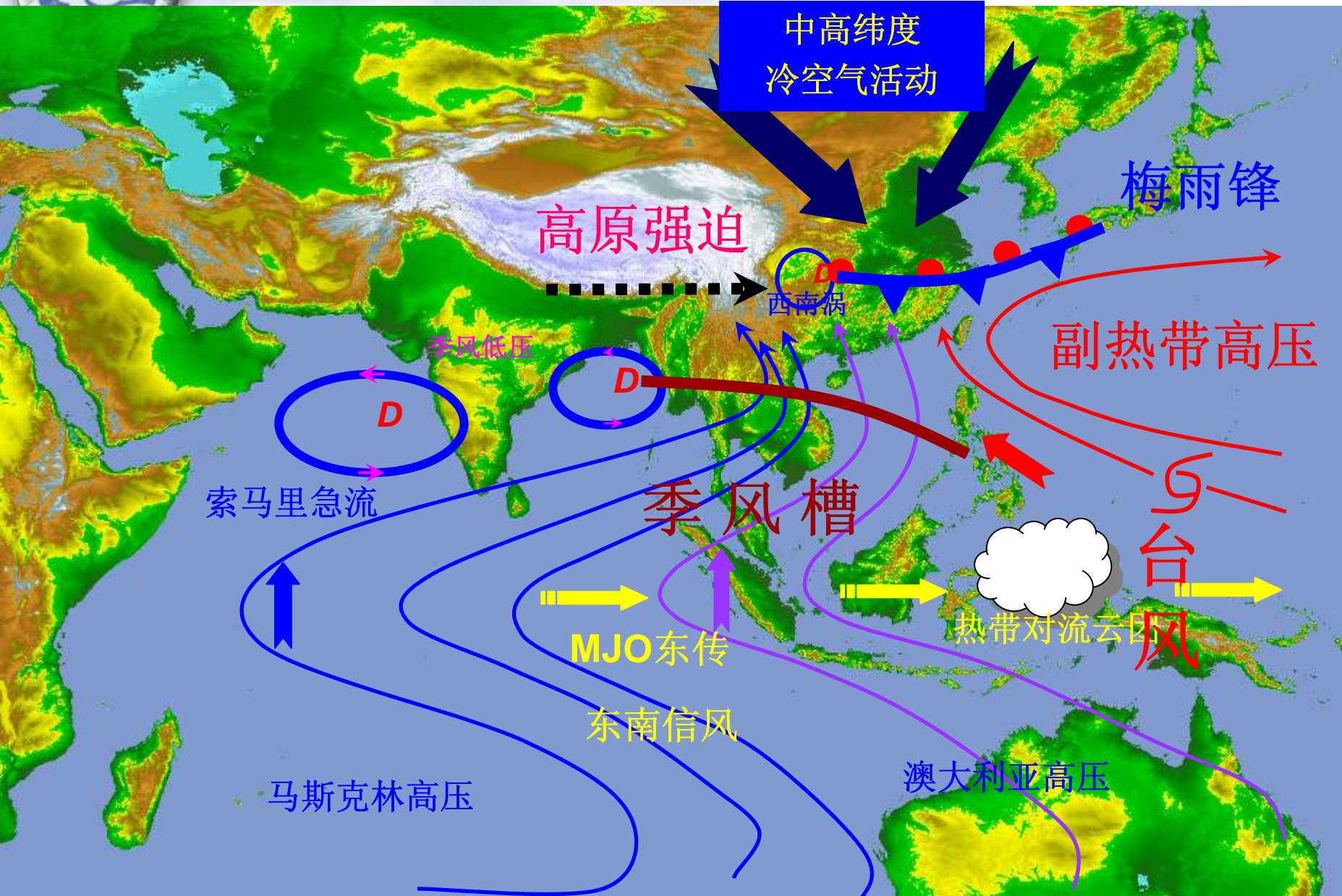




# 1. Introduction

**First, China is located in the East Asian monsoon area, with vast territory and complex topography, it is one of the "climate vulnerable zone" in the world with both Qingzang-Tibet Plateau which is called "the roof of the world", and large area of the desert and arid, semi-arid zones in northwest, and also with the frequently flooding-prone areas in Yangtze-Huaihe River Basin and its southern regions.**



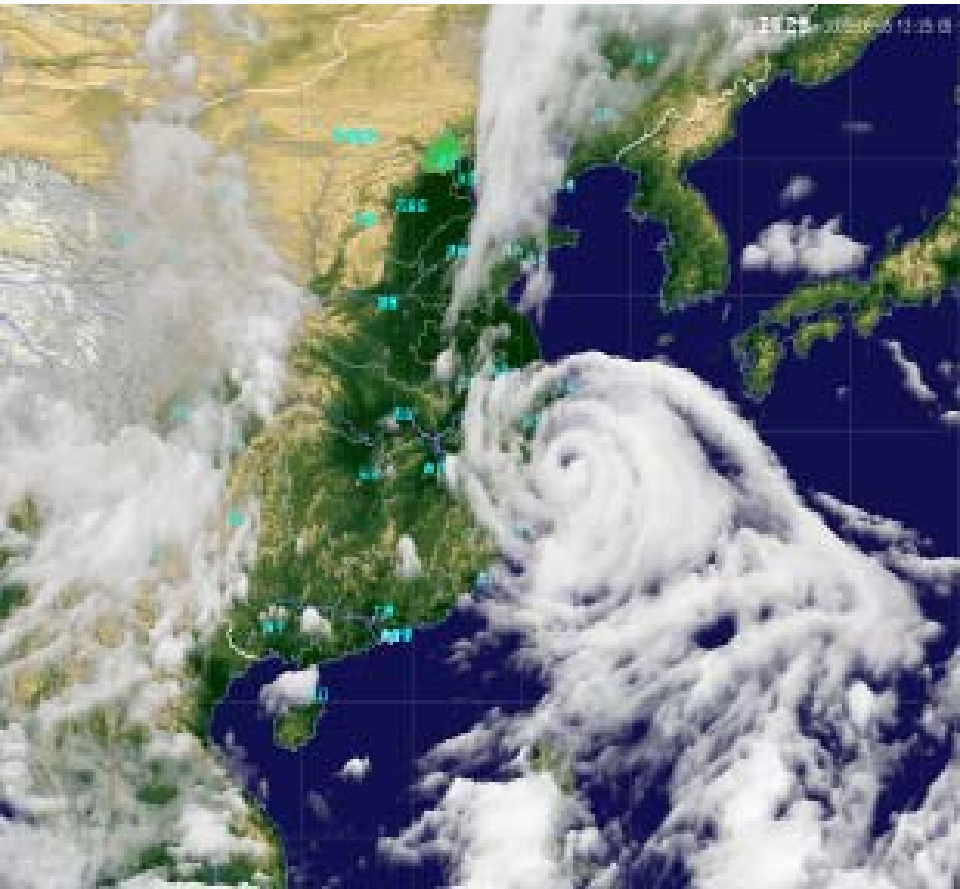


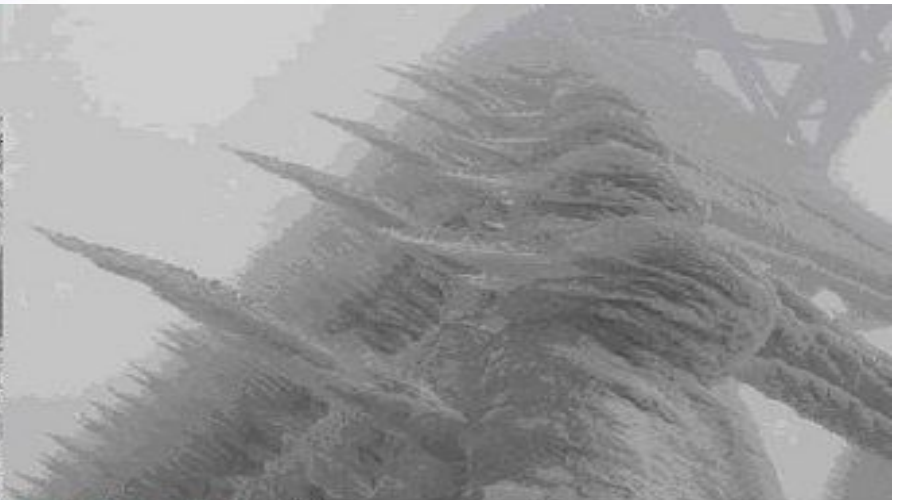


# 1. Introduction

**China is one of the highest natural disaster frequency countries in the world, there are many kinds of meteorological disasters with the characteristics of widely distributed, high-impact, suffered heavy losses.** Meteorological disasters such as typhoons, rainstorms, hail, thunderstorms, lightning, drought, high temperature, dust storms, snow and cold occur every year.









# 1. Introduction

According to statistics, **there are 34 million hectares** farmland areas afflicted by meteorological disasters per year in China, and suffered population is approximately **600 million** affected by drought, torrential rains, floods, tropical cyclones and other major meteorological disasters annual.







# 1. Introduction

From 1990 to 2000,

the average annual number of deaths **was 4500,**

and the economic loss caused by meteorological disasters per year **was 3.4% of Gross Domestic Product (GDP);**

Even in this century,

the average annual number of deaths is **between 2000 to 3000,**

and during 2001 to 2006, the economic loss is still **1.4% of Gross Domestic Product.**





# 1. Introduction

In 1998, the economic loss up to 299.8 billion Yuan, and the death toll more than 3,000.





# 1. Introduction

In early 2008, the freezing rain and snow disaster in southern China, affected the power system operation of **13 provinces** (cities, districts), and there were **35,739 power line and 2008 substation outage in national grid**, and there were **8,381 line towers of 110 kV to 500 kV fall down**.





# 1. Introduction

**Crops affected area is 1.18 billion hectares,  
1.69 million hectares gets no crops,  
and the direct economic loss caused by this disaster was 111.1 billion  
Yuan.**

**So, meteorological service work responsibility is significant.**





# 1. Introduction

Second, as rapid economic growth and people's lives improving, the public meteorological service needs tend to **diversification, accuracy, timeliness and professionalism**, and meteorological services are being pay more and more attentions by the government, society and public. Yet , contrast to the rapid growth of social demands, the development of meteorological science, forecasting accuracy rates, capabilities of services, **these all cannot keep up with social demands**





# 1. Introduction

**Especially in the global climate change background, the extreme weather and climate events occurred frequently, and there are some extreme situations that we never come across the occurrence in our past service works, thus we always cannot give the accurate judgments based on nowadays abilities in such extreme circumstances.**





# 1. Introduction

For example, the super typhoon "Saomai" (桑美) landed Mazhan town (马站镇), Cangnan County (苍南县) in Zhejiang Province at 17:25 on August 10, 2006, the central pressure is 920 hPa when it landing, the biggest wind force near the center is 17 degree. **Saomai is the strongest typhoon landed in China during the last 50 years.**





# 1. Introduction

China Meteorological Administration forecasted Saomai's landing time, landing place and its intensity accurately and promptly. **It is the first time for CMA to start a first-level meteorological emergency response status,** and provide an accurate service for all levels of government in advance. The government also took powerful defensive measures to transfer up **1.559 million populations,** and it is the largest number in history.







# 1. Introduction

But this typhoon **still made 420 people were killed and 168 missing**, large quantities of houses collapsed, and affected more than 400 million people in Fujian province and Zhejiang province. In Shacheng Port (沙埕港), Fuding City (福鼎县), Fujian province, (which was known as a natural sheltered harbor), **there were still 952 ships at anchor sunken and damaged caused by Saomai.**

Although the forecast is accuracy, **how much the wind force 17 will impact, and how seriously the typhoon will be are all unclear, therefore has caused the significant casualties.**





# 1. Introduction

Another example is the No. 8 typhoon "Morakot" (莫拉克) this year, first landed in the coastal of Hualian (花莲), Taiwan Province at 23:45, 7th August, the wind force is 13 degree (40 meters/second) near the landed center. After passing through the Taiwan Straits, "Morakot" landed once more on the coast of Xiapu County (霞浦), Fujian province at 16:20, 9th August, and the wind force nearby the center is still 12 degree (33 meters/second).





# 1. Introduction

There were more than 14 million people hit by the typhoon in Fujian, Zhejiang, Jiangxi, Anhui, Jiangsu provinces and Shanghai city, and the direct economic losses is more than 128 billion Yuan.





# 1. Introduction





# 1. Introduction

The most prominent feature of "Morakot" is the heavy rain. There are rainstorm or heavy rainstorm in Taiwan, Fujian and Zhejiang provinces; the land process precipitation of these three provinces is more than 200 millimeter, and coverage reach 12.5 million square kilometers. **In Taiwan province, the cumulative precipitation is 3016 mm at Alishan, Jiayi county (嘉义县阿里山), 2959 mm at Weiliao mountain Pingdong county (屏东县尾寮山), 2901 at Yuyou mountain, Gaoxiong county (高雄县御油山).**





# 1. Introduction

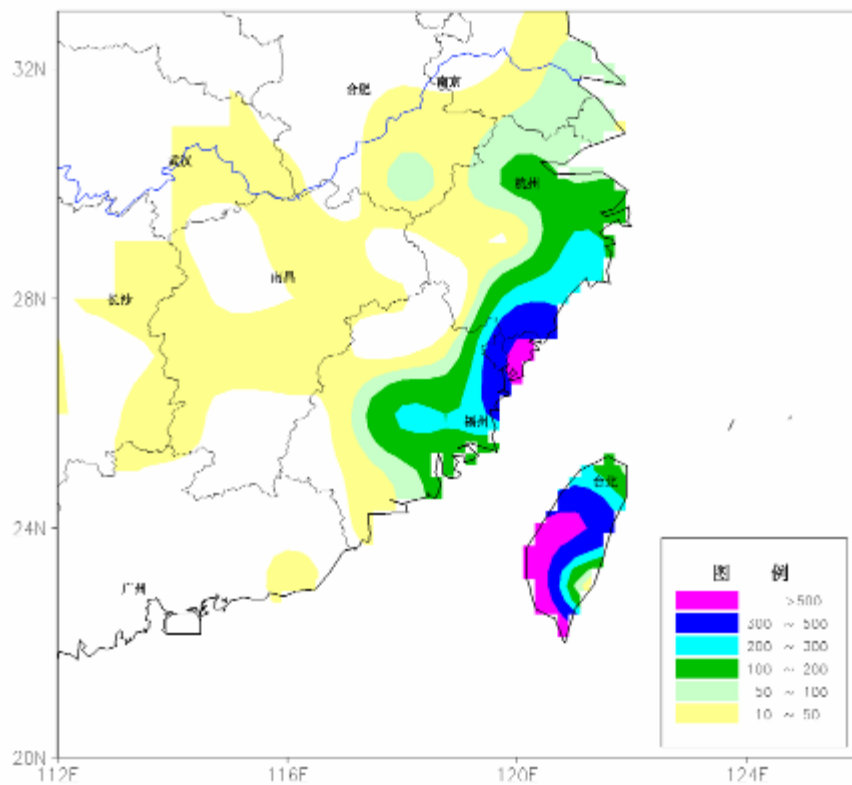
In Zhejiang province, the cumulative precipitation is 1250 millimeter at Jiufeng, Taishun county (泰顺九峰), (750 millimeter in 24 hours of rain, which is a rare historical), the second record is 881 millimeter at Guishan Wencheng county (文成桂山), and 734.4 millimeter at Zherong county (柘荣县), Fujian province.

These process precipitations all exceeded the local maximum records of history of the typhoon rainfall, such rainfall intensity and precipitation are impossible to forecast accurately at present.





# 1. Introduction





# 1. Introduction

**Meteorological service facing challenges:**

**increasing demand,**

**new extreme weather and climate events**







# 1. Introduction

**China Meteorological Administration has always attached great importance to the meteorological service, the meteorological services as the starting point and ownership of the whole meteorological work, as the foundation of meteorological career.**





# 1. Introduction

Put forward the early-warning forecasting requirements for **"year round without any relaxation, focus on each weather process with no ignorance"**;

proposed concept for service work as **"people-oriented, meticulous, ubiquitous"**.

National leaders also requested for meteorological services work, **"insist on facing the people's livelihood, production-oriented and facing the decision-making"**.





## 2. Decision-making meteorological service

**Concept:** Decision-making meteorological service is defined **as to provide meteorological services for party and government organizations.** Service is targeted at the CPC Central Committee, State Council, the State Flood Control and Drought Relief Headquarters, and government agencies at all levels. Products are mainly provided to the state and at all levels of the government's macro policy makers and governing bodies, **meteorological service products become one of the indispensable basis for decision making in modern scientific management.**





## 2.1 Service content

### Calamitous weather service:

Whenever a major severe weather occurs, the meteorological departments at all levels will take different forms of decision-making meteorological service to government departments, **to give advice of disaster prevention and mitigation**, such as typhoons, freezing rain and snow in south, heavy rain, floods and so on.





## 2.1 Service content

### **Advisory services for the key season and turning weather:**

For critical season and turning weathers, provide prompt meteorological service. For example, the festival meteorological service provide to transportation departments timely during the spring festival, weather service for harvest season, and prompt service to long drought transfer rain, etc.





## 2.1 Service content

### **National events special services:**

National events decision-making meteorological service is also a feature of the meteorological services, such as large-scale games services, **Olympic Games**, **University Games**, **Asian Games**, **National Games**, **National Day** celebration activities, etc.





## 2.1 Service content

### State emergency services:

Meteorological departments at all levels will promptly start and specialized services for the occurrence of sudden disasters, such as forest fires, etc.





## 2.1 Service content

### **Weather modification:**

**Artificial influence, including artificial precipitation, artificial hail suppression, usually organized by local government, and specific implemented by meteorological department.**







## 2.1 Service content

### Planning and design advice:

Provide advices to assessment and use of wind resources and solar energy resources, prevention planning of disaster risk and urban planning and so on.





## 2.2 Service mode

### Reporting services materials:

Meteorological departments at all levels are provided fixed forms of service materials regularly, and also with occasional and emergency thematic services materials, and reporting to the relevant government departments timely.





## 2.2 Service mode

### **Service programs transmission:**

In 1990, China Meteorological Administration began to provide special meteorological service programs for the State Council regularly through the transmission cable line. China Weather Channel began broadcasting in 2006, and transmitting to Zhongnanhai in 2007, **making service program "Zhongnanhai Weather Service special report" for the national leaders twice a day**, especially for the significant weather and climate events, that national leaders can see the weather and situation at the scene.





## 2.2 Service mode

### Face to face report important information:

For major and important services, when reported service materials cannot meet requirements, the service will taken the report directly, this is normally provided by leaders of meteorological departments at all levels to carry out services.





## 2.2 Service mode

### Field Service:

For major activities, catastrophic events such as extreme cases, the meteorological department will send on-site services group to carry out on-site service, which always led by the leaders and senior forecasters to participate in, and has emergency services vehicles. Field services such as **the Olympic Games, the Northeast forest fires field services.**





## 2.3 Service Organizations

**Meteorological department internal defense and different level carry out services respectively:**

In most situation, meteorological department take the internal defense way and different level carry out service respectively; carry out national video weather consultation every morning, leaders of meteorological departments and forecasters can discuss and analysis face to face, then provide services according to results of discussions.





## 2.3 Service Organizations

State-level meteorological department provide services to the central government, and provincial, prefectural and county to provide services to local government. For relatively large impact of severe weather to start "emergency response command", issued by the leaders of China Meteorological Administration, national business sector and the relevant provinces will be in the state of emergency. In emergency state, increase monitoring times, the frequency of consultation, key positions on duty for 24 hours, increase warning and publicity of disaster prevention to the public and so on.





## 2.3 Service Organizations

### **Centralized power of department to provide joint services:**

For some significant services, it is hard to complete only by one unit, thus China Meteorological Administration will come forward, re-deployed common business and technical personnel from other areas to participate in the service work. For example, the Beijing Olympics Games, organized forecasters to participate in service work together.







## 2.3 Service Organizations

### **Governmental organizations:**

For the need for joint operation of the services, it is usually organized by the governmental organizations; many departments participate in joint services. For example, when there is a basin-wide flood, services always organized by the State Flood Control and Drought Relief Headquarters to operate; another example, when there have forest fires in the Northeast region, it will be also organized by the State Council, forestry, meteorology and other departments to act together; and weather modification was also organized by local governments.





### 3. Public Meteorological Services

#### Concept:

Providing services to the public through a variety of media, the service object is society and general public. Public weather services is to improve public disaster prevention and mitigation capacity and protect people's lives and property security, and an important means of well-being of the people, it is an important means of public welfare meteorological services.





## 3.1 Service Content

**Conventional weather forecast:**

**the weather trend forecasting** of the next few days which is daily periodic release, and **fixed-point prediction** of the meteorological elements.





## 3.1 Service Content

### Conventional severe weather forecasting and early warning:

Provide all kinds of **severe weather warning**, such as a typhoon warning, storm alerts, cold wave warnings, and so on. The meteorological department also releases **weather warning signals for different disasters**; totally, there are 14 kinds of warning signals related to such types of severe weathers: typhoon, rainstorm, hail, thunderstorm, lightning, strong wind, snow, cold, frost, road ice, high temperature, drought, dust storm, fog and haze.



### 台风



### 暴雨



### 高温



### 寒潮



### 冷空气大风



### 雷雨大风





### 沙尘暴



### 冰雹



### 泥石流滑坡



### 城市积涝



### 雪灾



### 风暴潮





## 大雾



## 道路结冰





## 3.1 Service Content

According to severity, the warning signals are divided into four levels, that are **blue, yellow, orange, and red from low to high**, each level has strict rules and specific preventive recommendations. Once the warning signals are released, the signals are readily to publish to the public media.







## 3.1 Service Content

### Life Meteorological Index:

According to the public personalized service requirements, meteorological departments developed many life meteorological indexes to provide services to the public, such as dressing index, morning exercise index, car-washing index, UV index, heat index, cold index, diarrhea index, maple index, etc., to provide service in accordance with local needs.





## 3.1 Service Content

### **Travel Weather Forecasting:**

Weather forecasting in tourist attractions, some travel routes predictions and some notices need to pay attention to during tourism.

### **Traffic Weather Forecast:**

Mostly for highway weather forecasting services.

### **Environmental Forecast:**

Jointed environmental protection department to carry out air quality forecasts.





## 3.1 Service Content

### **Geological Disaster Grade Forecast:**

Providing geological disasters grade forecasts with the Ministry of Land and Resources department jointly.

### **Forest, Grassland Fire Risk Rating Forecast:**

Providing weather fire grade forecasting with the Ministry of Forestry and the Ministry of Agriculture jointly.





## 3.1 Service Content

### **Agricultural drought, pest diseases forecasting:**

Carrying out drought, pest disease forecasting with the Ministry of Agriculture jointly.

**Meteorological science knowledge, weather news, severe weather live report service**





## 3.2 Service mode

Public weather service mode is very rich, all the media and communication can provide meteorological services. It has built a modern information dissemination of release tools and platforms including **television, radio, newspapers, telephone, SMS, Internet, alarm system, marine warning radio and so on**; there will be more **than one billion people** can accept daily weather information services in China.





## 3.2.1 Television

TV weather program is the most popular public meteorological service mode. TV meteorological services began in July 1980 initially, based on the continuous efforts for nearly thirty years, the program coverage expanded; the program formats and services are continuously enriched too.

Thirty years ago, there is only the Central Meteorological Observatory can product and provides weather services programs, and now the TV weather services have been all over the country.





## 3.2 Service mode

At present all 31 provinces(autonomous regions and municipalities) and five cities with independent planning Meteorological Bureau in China can carry out weather programs,

**there were 359 sets of meteorological services programs broadcasting on 227 channels;**





## 3.2.1 Television

more than **800 channels** launch weather programs in 300 prefecture-level cities;

more than **1000 counties** have their own weather service programs.

Every day, there are more than **8 hundred million people** to watch TV weather service programs in China.







## 3.2.1 Television

### **National meteorological service on TV:**

Public TV Media including 8 Channels of CCTV, (CCTV-1, CCTV-2, CCTV-4, CCTV-5, CCTV-7, CCTV-9, CCTV-10, CCTV-New),

China Education TV,

Travel Channel,

Phoenix Satellite TV (Chinese, Information, the Americas, Europe)

and other channels,

the coverage achieves the whole world.



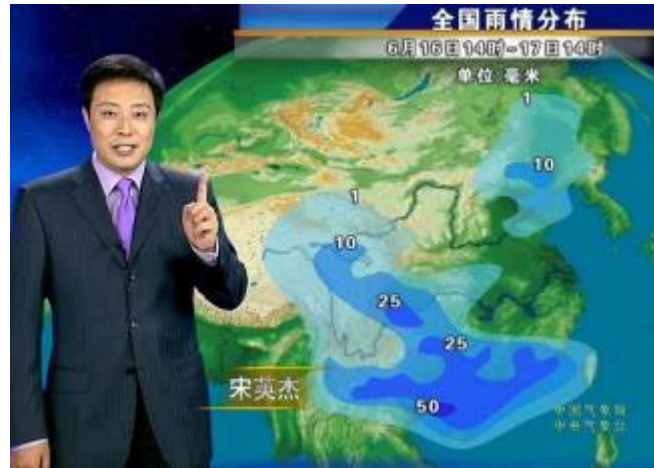


## 3.2.1 Television





## 3.2.1 Television





# 3.2.1 Television

北京		21-34°C
上海		28-34°C
广州		27-34°C
沈阳		21-27°C
西安		22-28°C
重庆		23-27°C
武汉		28-35°C

2005年7月8日 星期五 天气预报

华风气象影视

交通天气

2005.05.14

中国气象局 中央气象台

Europe

19°C

19mm Prague

14°C

11mm Vienna

50mm Regensburg

THUNDER STORMS

Austria Experiences Heavy Rain

節目中提到需要預防的夏季疾病是什麼?

- A 痲痘
- B 沙眼
- C 凍瘡
- D 感冒

TP增加留言(每條1元)  
移動: 10107788  
聯通: 90907788  
[www.weather.cn](http://www.weather.cn)



## 3.2.1 Television

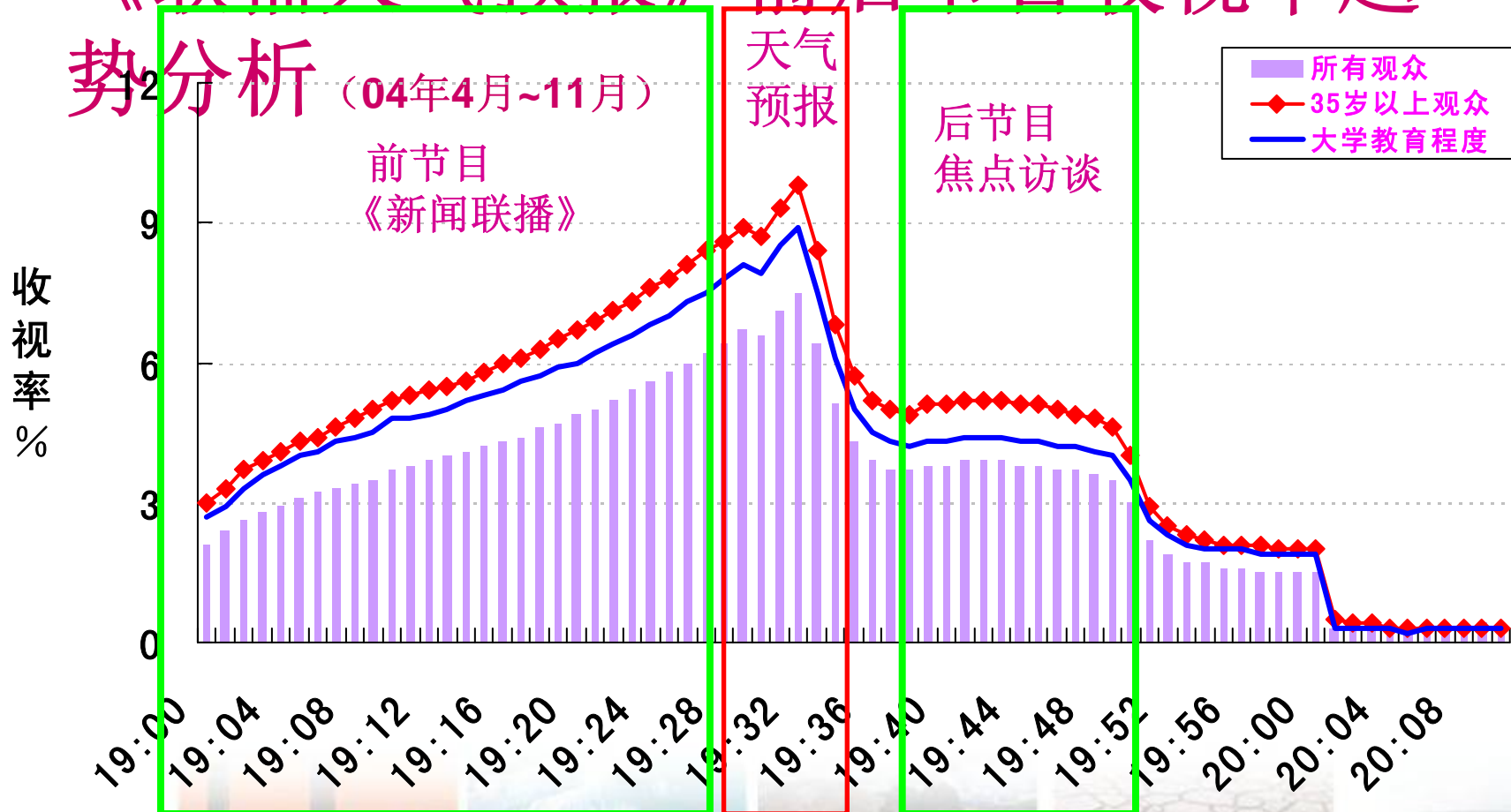
"Weather Forecast" is the first meteorological broadcast program, which is performed after "News Broadcasting" in Channel 1 of China Central Television; it has been a gold medal program and **keeps the highest audience rating in all television programs currently, and higher than the audience rating of "News Broadcasting"**. Other channel's meteorological service programs are also ranked ratings in its channel.





## 3.2.1 Television

# 《联播天气预报》前后节目收视率趋势分析





## **China Weather Channel (CWTV):**

**In May 2006 China Weather Channel (CWTV) on air, then China has a weather service television channels to provide meteorological services rolling around the clock. Since China Weather Channel on air, the service content and methods has been greatly expanded.**





## China Weather Channel (CWTV):

**The content including several parts:**

**update the live weather elements,**

**and the elements forecasting,**

**life meteorological Index,**

**trend forecasting,**

**all kinds of early warnings,**

**weather news,**

**the live report of major severe weather,**

**weather science knowledge etc.**







## China Weather Channel (CWTV):

### The forms of program:

host broadcast,

graphic information display,

news broadcast,

expert interviews,

live,

popular science films,

animation,

scene reproduction performances.





## China Weather Channel (CWTV):

o





## China Weather Channel (CWTV):

### The forms of organization:

Co-operated by state agencies and provincial departments; with national-based, state-level departments is **China Huafeng Group of Meteorological Audio & Video Information**, is responded by the provincial TV Center. Channel design and planning run by the state-level responsibility, when the channel on air locally, the localized programs which produced by local agencies can be broadcasted in the prescribed periods.





## 3.2.2 Radio

Radio is also a generally service mode. There are three cases, one is the radio broadcasts the manuscripts based on the Weather Bureau forecast; the others are recorded by the Bureau of Meteorology, transmissions or live broadcasting through the radio.





## 3.2.2 Radio





### 3.2.3 Newspaper

Publication based on the information and materials provided by the Bureau of Meteorology.





## 3.2.4 Telephone

Each region has the local meteorological service telephone **12121** and **96121**.





## 3.2.5 Internet

All levels of Meteorological department's government website, has the service of local weather information; and there are 934 national meteorology specialized website and 14050 village information service stations.







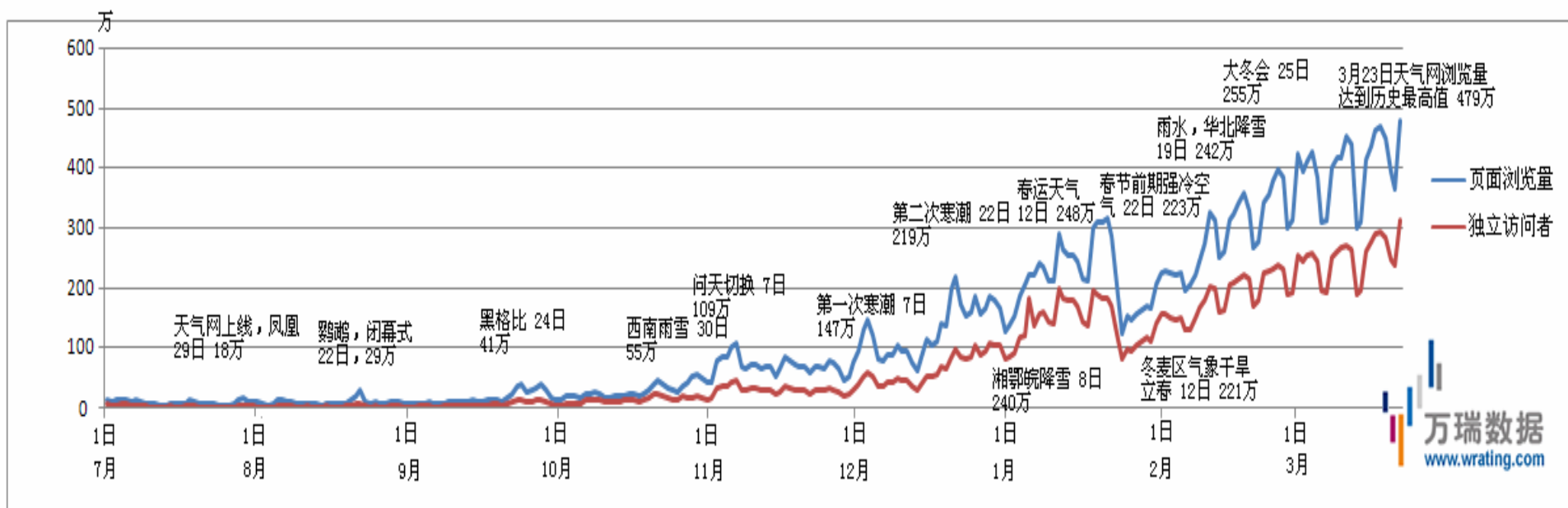
## Weather China([www.weather.com.cn](http://www.weather.com.cn))

China Meteorological Administration established "**Weather China**" in 2008, it is the portal website of public weather services provided by China Meteorological Administration, the click rate has been improved continuously since its on-line, now the website click rate has **reached more than 700 million each day**. Currently, the website is being build continuously, in the future it will be a unified weather service website supported by all provinces jointly.





## 中国天气网页面浏览量和独立用户数变化



the click rate about 7,750,000





## **Weather China([www.weather.com.cn](http://www.weather.com.cn))**

**The current service channels are 22 channels, including disaster warning, weather forecasting, weather now, climate change, weather information, live weather, travel weather, weather video, products of service, meteorological science knowledge, China Weather Channel, weather community, weather service plug-in, meteorological satellite, weather radar, typhoons, storms, drought, lightning, high temperature, meteorological knowledge base, hands weather; and these channels will be increased and updated with seasonal changes.**





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快讯：我也来当“气象先生”

热点专题

其他专题

关注2009年世界气象日

3月23日是世界气象日，今年的主题是“天气、气候和我们呼吸的空气”。本专题详细阐释本届主题并推出特色产品让你更了解气象。

- 二十四节气之一——春分
· 长江中下游连阴雨 雷电冰雹暴雨相伴

天气要闻

更多

世界气象日：天气气候和我们呼吸的空气

今年世界气象日的主题是“天气、气候和我们呼吸的空气”，国家气象局及各地气象部门将在世界气象日向公众免费开放，使公众了解气象，关注天气。

【专访：天气预报&极端天气】【精美壁纸】

【网上在线问答】【美女探班天气预报】【参观导航】

冷空气南下 南方阴雨持续气温回落

昨天(21日)，青藏高原东部以及我国中东部大部分地区都被阴雨雪笼罩，其中安徽中北部、江苏等地继续出现雷雨天气，内蒙古北部和东北大部出现了雪或雨夹雪天气。

- 3-23公共气象服务多形式宣传受观众热捧
· 全国各省市气象局“323气象日”活动异彩纷呈
· 黑龙江频受冷空气“青睐” 昨日再降中到大雪
· 江西本旬天气条件较好 利于春耕春播
· 中国气象局气象日活动火热进行中(组图)
· 3.23世界气象日 中国气象局欢迎您
· 青海明显雨雪降气温 局地暴雪利春播
· 江西昨现首次强对流天气 大风冰雹雷雨来去匆匆

更多>>

323世界气象日的活动公告

气象科普频道上线

我的城市天气 (18:00发布)

定制我的城市

Table with 3 columns: City, Weather Icon, Temperature (e.g., 北京 3°C/12°C)



跟小璐一起参观气象局

网上323 专家在线解答

气象主持人签名照片壁纸

专家在线



专家谈天气预报及极端天气

3月18日，中国天气网与搜狐网站共同推出3.23世界气象日访谈直播。

- 专家解析我国进入沙尘天气多发期
· 专家解析南方阴雨暴雪天气
· 大旱来临 气象可否预测和改变
· 访国际大体联国际技术委员会主席罗格·罗斯
· 专访：大冬会北欧两项技术代表乔拉姆

更多>>

天气视频



[2009年03月22日]新闻联播天气预报



宋英杰 赵红艳 裴新华 杨丹 冯殊 王蓝一

最新气象公告



3月22日：全国主要公路沿线交通预报

中国气象局与交通运输部2009年3月22日联合发布全国主要公路气象预报。 详情



3月22日：未来三天全国天气预报

中央气象台2009年3月22日17时发布未来三天天气预报。 详情



3月22日：全国中期天气趋势预报

中央气象台3月22日10时发布全国中期天气趋势预报。 详情



3月22日：国外天气预报

中央气象台2009年3月21日10时发布亚洲、欧洲、美洲、大洋洲天气预报。 详情

生活天气

春季气温多变如何调节肠胃

春天到给爱车做个全身SPA

气象灾害警报与预警信号 正在预警中 0个



# Chinese National Agricultural Network ([www.cnan.gov.cn](http://www.cnan.gov.cn))

**Chinese National Agricultural Network** is organized by the China Meteorological Administration, an integrated rural economic information network system in nationwide. Chinese National Agricultural Network was formally inaugurated in June 28, 2001. Today, it has formed a basically five integrated information service system in rural areas, including the national, provincial, city, county, and township.





## **Chinese National Agricultural Network ([www.cnan.gov.cn](http://www.cnan.gov.cn))**

**There are 34 provinces (autonomous regions and municipalities), cities with independent planning Meteorological Bureau to work closely with the local agricultural sector to prompt the provincial Agricultural Network; more than 270 cities and more than 1300 counties were opened prefectural (city), county level Agricultural Network, there are more than 17000 township information stations, and more than 300 thousand rural information workers.**





# **Chinese National Agricultural Network ([www.cnan.gov.cn](http://www.cnan.gov.cn))**

**National Agricultural Network has 10 channels, such as trade information, market information, agricultural science and technology, weather agricultural condition, policies and regulations, business center, and other agriculture topics etc. Chinese National Agricultural Network is well received by peasants, and become a good helper and platform for agricultural production.**




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## 冷空气将影响我国北方地区需注意预防霜冻

眼下,我国大多数秋收作物正处于灌浆乳熟阶段,部分地区的一季稻、春玉米已经成熟可以收获了,这...

- “巨爵”登陆使华南大部强降雨 可适当蓄水缓和旱情
- 台风“巨爵”减弱 华南大部分地区出现大到暴雨
- 华南普降暴雨 做好防御工作
- 山东未来三天天气晴好 田间积水要及时清除
- 安徽20日前后明显降水降温 注意提前预防冷害
- 河南近期以阵性降水天气为主 玉米收割要抓紧晴好天...
- 山西中南部要及时整地蓄水 做好备播准备
- 河北将出现降雨降温 将延缓作物成熟

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洗车: 适宜

穿衣: 炎热

风力: 微风

晴转多云

18°C~29°C

[春](#) 立春 雨水 惊蛰 春分 清明 谷雨

[夏](#) 立夏 小满 芒种 夏至 小暑 大暑

[秋](#) 立秋 处暑 白露 秋分 寒露 霜降





## 3.2.6 SMS

**The daily weather forecasts timing send, early warning information needed to send at any time, there are more than 7450 million people to customize National Weather SMS.**





## 3.2.7 Vehicle TV

Including the TV weather information service broadcasted on trains, buses, subways etc.





## 3.2.8 Outdoor Electronic Display, etc

There are 43115 electronic displays have been completed for weather information services.





## 4. Professional Meteorological Service

### 4.1 Agricultural Weather Services

China is an agricultural country; the food is the top priority. Coupled with the complex topography, local weather and weather disasters are complex and diverse, so it is very important to provide services for agricultural production. Meteorological Department has established a national network of agricultural meteorological observation stations; there are regular weather conditions service materials can be provided to local farmers. There are several major services:





## Agricultural Climatic Zoning and Application Services:

The temporal and spatial variation of agro-climatic resource of the plain areas are being analyzed to give advice on how to improve the utilization of agricultural climatic resources; According to the diversity of climate in hilly areas, exploits and utilizes special climatic resources to promoting development of local economic; to carry out an integrated agricultural climatic zoning, climate divisions for different crops, and different **climatic zoning** of national, provincial, prefectural and county levels.



# 全国夏收气象服务信息



2008年 第31期

国家气象中心生态与农业气象室

2008年6月26日

## 西北大部将为晴好天气，利于冬小麦收晒

### 一、麦收区天气实况

6月25日08时至6月26日08时，西北麦收区未出现明显降水过程，对冬小麦收晒较为有利。陕西北部、山西、河北、北京、天津等地出现了小到中雨（见右图），其中河北、京津地区出现了大雨，使上述大部地区土壤墒情增加，利于夏播和春播作物生长发育。

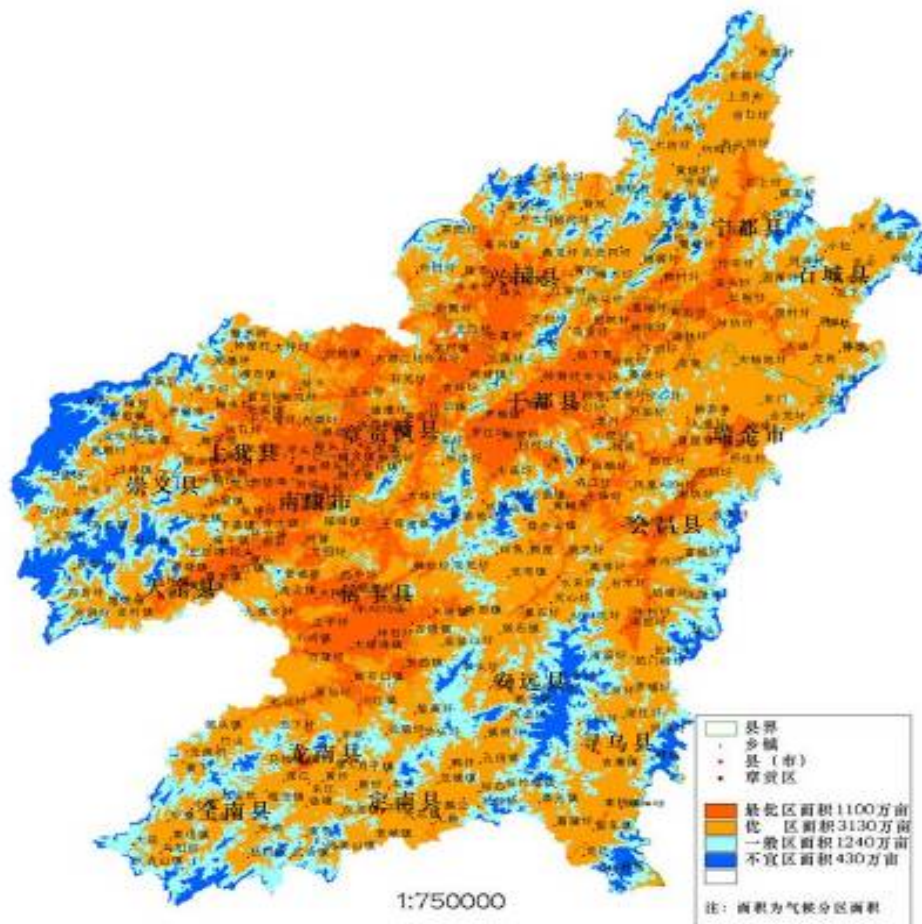


### 二、麦收区未来天气及影响

未来3天，华北大部多阵雨或雷阵雨天气，局地有大雨或暴雨，将对农业生产造成一定的不利影响。陕西中部、山西南部、河南中西部等地的部分地区白天最高气温可达35~37℃；新疆东部和南疆盆地的部分地区最高气温可达35~38℃，高温天气对夏播作物出苗和幼苗生长不利。

具体预报如下：

## 赣南脐橙种植气候区划



本图以赣州市17个县站1961-2000年共40年的基本气候资料为依据，从气候角度出发，针对脐橙气候适宜条件，利用“3S”（地理信息系统GIS、卫星遥感RS、全球定位系统GPS）高新技术进行制作。

赣州市气象局制作



## Agricultural Meteorological Disaster Prevention Service:

Study and establish the forecasting service system of meteorological disasters which will endanger agricultural production, such as cold damage, frost damage, drought, floods, dry-hot wind, cold dew wind, hail, strong winds and others. The system is including diagnostic indicators, forecasting methods, meteorological disasters defense technology and so on. For example, **monitoring and forecasting service on dry-hot wind in the wheat-growing areas each spring.**





# (Prevent Hail)



**rocket**



**cannon**







# Agricultural Yield Forecasting Services

**Agricultural yield forecasting services, such as the yield forecast of wheat, soybeans, cotton and so on; the prediction of summer, autumn and annual grain output.**





## **Agricultural Meteorological Information and Intelligence Services:**

**Agricultural Meteorology Reporting Every Ten Days, Monthly. The content is covering the weather conditions in agricultural production(light, temperature, water), crop conditions, weather disasters and pests in the past ten days or a month; forecasting the weather conditions in the future, and its impact on agricultural production, agricultural production proposals.**





# (Reporting Every Ten Days)

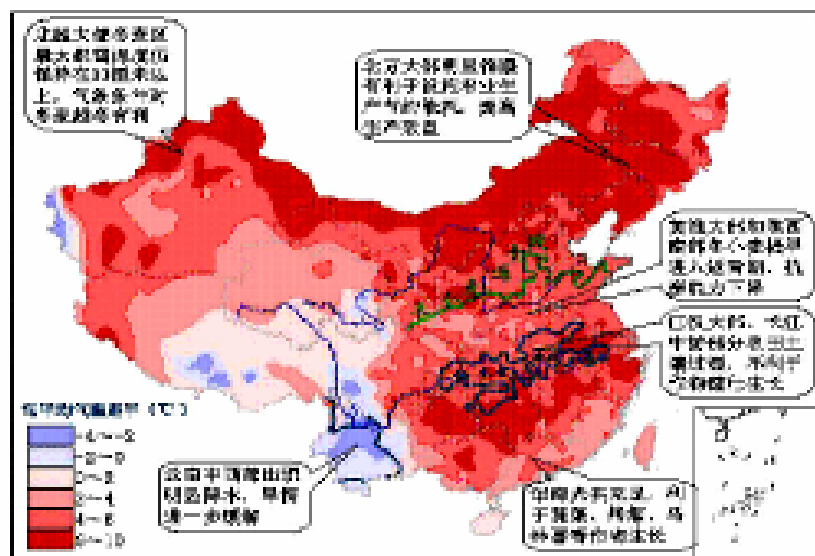
## 全国农业气象情报

2007年2月上旬

VOL.25 NO.4

国家气象中心农业与生态气象室

2007年2月12日



### 要点评述

全国大部地区气温显著偏高，部分地区气温创历史同期最高纪录。中东部分地区中期出现大范围雨雪天气，西北地区东部、华北、黄淮大部旱情有所缓和。新疆西南部、西北地区东部、华北大部和黄淮东北部旬平均气温回升至 0~4℃，比常年同期偏高 4~7℃，其中西北地

## 山西农业气象信息

预报 (2008) 第 1 期

山西省气候中心

2008年4月9日

### 山西省 2008 年春玉米适宜播种期预报

#### 一、预报结论

通过对我省历史和近期的农业气象、气候资料进行综合分析，结合未来一段时期的天气预报，作出全省春玉米适宜播种期预报，结果如下表：

山西省各地春玉米适宜播种期预报结果表

地(市)	春玉米适播期	地(市)	春玉米适播期
大同市	4月下旬到5月上旬	晋中市	4月中旬末到4月下旬
朔州市	4月下旬到5月上旬初	离石市	4月中旬末到4月下旬
忻州市	4月中旬末到4月下旬	晋城市	4月中旬
太原市	4月中旬到4月下旬	长治市	4月中旬到4月下旬初
阳泉市	4月下旬	临汾市	4月中旬到4月下旬

#### 二、预报依据

1、春玉米播种的适宜农业气象指标为：气温稳定通过 10℃，土壤相对湿度达 60~80%。通过统计各代表站历年来气温稳定通过 10℃的初日，再结合今年的地面观测资料和长期天气预报以及各站历年来的平均播种期，综合得出春玉米的适宜播种期预报。

2、3月份我省降水量介于 5~39mm 之间，与历年同期相比，中北部大部分地区偏多 1 成~1.6 倍，东南部晋城、长治和忻州西部偏少 1~9 成。其中：3 月上、中旬我省中南部降水显著偏多，3 月下旬中北部降水偏多，土壤水分得到



## 4.2 Marine Meteorological Service

### **Marine Warning and Forecast Services:**

The national meteorological services on a regular telegraphy through the maritime satellite, to provide early warning and forecast services of the duty sea area, services with emphasis on wind and waves, visibility, and description of the weather systems; there has established marine meteorological broadcasting stations to issue forecasts and early warning service for the nearby sea area **in Dalian, Qingdao, Shanghai, Guangzhou , Xiamen and other coastal cities in China.**





## **Marine Navigation**

**Central Meteorological Station marine meteorological navigation center provides technology services for marine ship navigation, help to take advantage of favorable wind and flow field during voyage, avoid bad weather, and choose the best routes which is safe, economical and time-saving.**





## **Marine Meteorological Services on Fishing and Aquaculture:**

**Providing a variety of severe weather warning services to fisheries, aquaculture farm; providing services of water temperature, salinity, dissolved oxygen, light and other conditions which can affect fishery yield and fishing production.**





## **Salt Production Meteorological Service :**

**Salt production is closely related to air temperature, wind, precipitation, sunshine and other meteorological conditions. The meteorological department provides meteorological guarantee services for salt.**

## **Development of Ocean Wind Power and Solar Energy Resource**





## 4.3 Services on Water, Electricity, Energy etc.

**Reservoir operation and scheduling:** Providing services of proposal about operation dispatch according to the situation of rainfall.

**Hydroelectric Production Services:** Providing capacity of circumstances, runoff conditions and weather conditions.

**Electricity Services:** Providing services of temperatures high or low in summer.

**City heating:** Determine the heating timing of the beginning and end; control daily heating volume.







## 4.4 Major Engineering Support Services

Local meteorological departments at all levels are all carried out meteorological support services for the major projects. **Three Gorges Project Construction meteorological protection services** is a typical meteorological support service which is directly organized by China Meteorological Administration.





## 4.4 Major Engineering Support Services

The project lasted 7 years from 1997 to 2003, it is organized by the China Meteorological Administration, the National Meteorological Center, the National Climate Center, Hubei Meteorological Bureau, Sichuan Meteorological Bureau, Chongqing Meteorological Bureau, and Guizhou Meteorological Bureau participated in and completed the project jointly.





## 4.4 Major Engineering Support Services

**Services include:** climate background analysis, the shorts-weather monitoring and warning forecasting, key duration to determine security, climate monitoring and evaluation analysis of environmental impact and so on. The project provides a strong guarantee to the smooth development of construction.





## 4.5 Lightning Protection

Everywhere carried out lightning protection services. The services including monitoring and warning forecasting of thunder and lightning, services of testing equipment, project construction, engineering acceptance and so on.





## 4.6 Transportation Industry

Provide services to the departments of highway, railway, shipping and so on.





## 4.7 Other Services

Provide services to commercial companies, wholesale markets; for air-conditioning, clothing and other production units; for insurance industry and so on.





## 5. Meteorological Disaster Prevention and Reduction

### China disastrous weather features

There many kinds of meteorological disasters with high frequency, widely distributed, high-impact, suffered serious losses. The major meteorological disasters include heavy rain, floods, typhoons, droughts, geological disasters, and extreme weather and climate events.





## 5. Meteorological Disaster Prevention and Reduction

### Disaster Risk Zoning, Establishing Emergency Plan:

Developing disaster risk zoning of sub-regional and sub-species, establishing the corresponding emergency plan.







## 5. Meteorological Disaster Prevention and Reduction

### **Emergency Response and Information Dissemination:**

When major disaster weather occurs, start respond timely; enhance the internal monitoring, analyzing and forecasting of disaster; release the severe weather warning information to the public; submission relevant disaster prevention service recommendations to government departments timely; assist the government in carrying out the work of prevention of meteorological disasters.





## 5. Meteorological Disaster Prevention and Reduction

### Extension of the functions:

Under the unified framework of disaster prevention and reduction, strengthening the building of rural meteorological information staff team, strengthening of social services and management functions to prevent and reduce disasters.





## 6. Meteorological Service Efficiency

Meteorological Service has significant economic and social efficiency. In this century, the number of deaths caused by meteorological disasters has dropped from 4,500 annual in the 1990s to 2,500 annual; casualties caused by weather and its derivatives disasters is reduced significantly; economic losses caused by meteorological disasters in GDP had decreased from **3% - 6% in the 1980s to 1% -3%**. According to the 2007 survey estimates, the input-output ratio of meteorological work is 1:50.





## 6. Meteorological Service Efficiency

In 1994, China Meteorological Administration carried out the methods research on public weather services effectiveness evaluation, and carried out the investigation and assessment for the first time, the research achieved some experiences.





## 6. Meteorological Service Efficiency

In 2006, a nationwide public weather service survey of satisfaction, needs and benefits evaluation were launched and completed by the meteorological sector organizations. The public expressed satisfaction ratio of **weather services is 74.2%**. In 2008, China meteorological administration entrust Horizon Research Company to survey, the proportion of public who is satisfied with the meteorological services **is 84.9%**.





## 6. Meteorological Service Efficiency

In 2009, the China Meteorological Administration launches a survey to assess the national public weather service. In this work, 45,800 respondents from 31 provinces (autonomous regions, municipalities) are surveyed, which include 30,500 urban residents from 139 cities and 15,300 rural residents from 137 counties. The major findings of the survey are as follows:





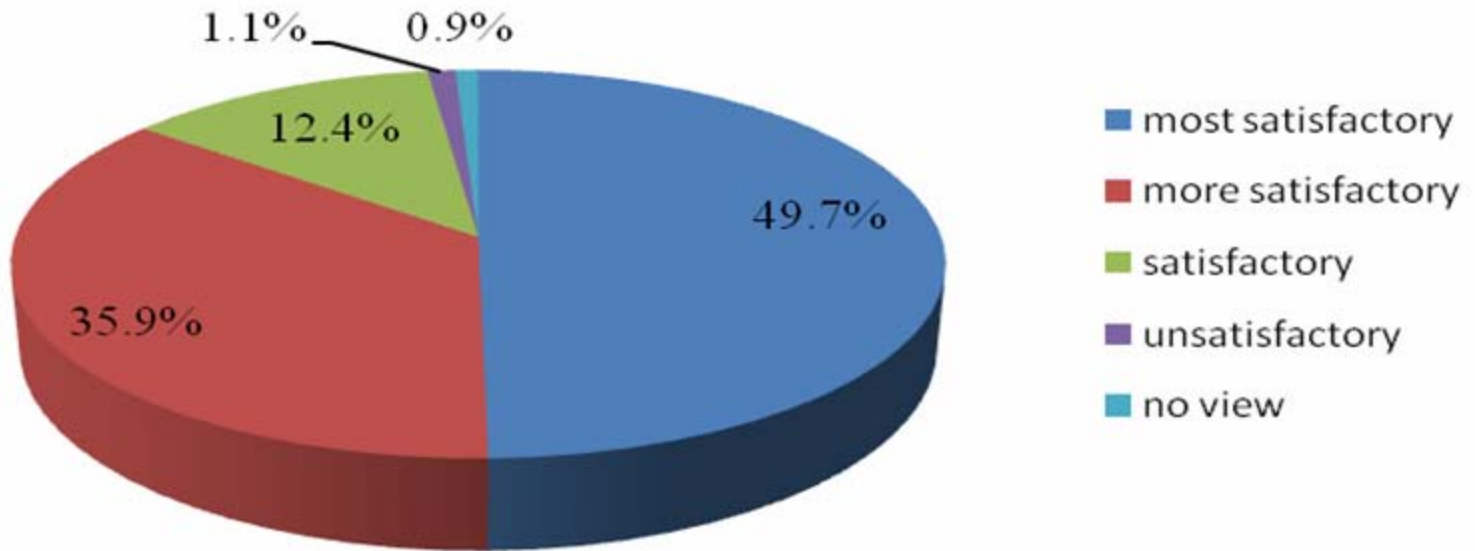
## 6. Meteorological Service Efficiency

(1) In 2009, **85.6%** of respondents satisfy with the weather service(the plus of the ratios of “most satisfactory” and “more satisfactory”), close to the result of 2008 which is 84.9% (Figure1). But the score of the general satisfaction of 2009 is **87,5**, obviously higher than that of 2008, which is only 75.6.





## 6. Meteorological Service Efficiency



**General public satisfaction of meteorological service**

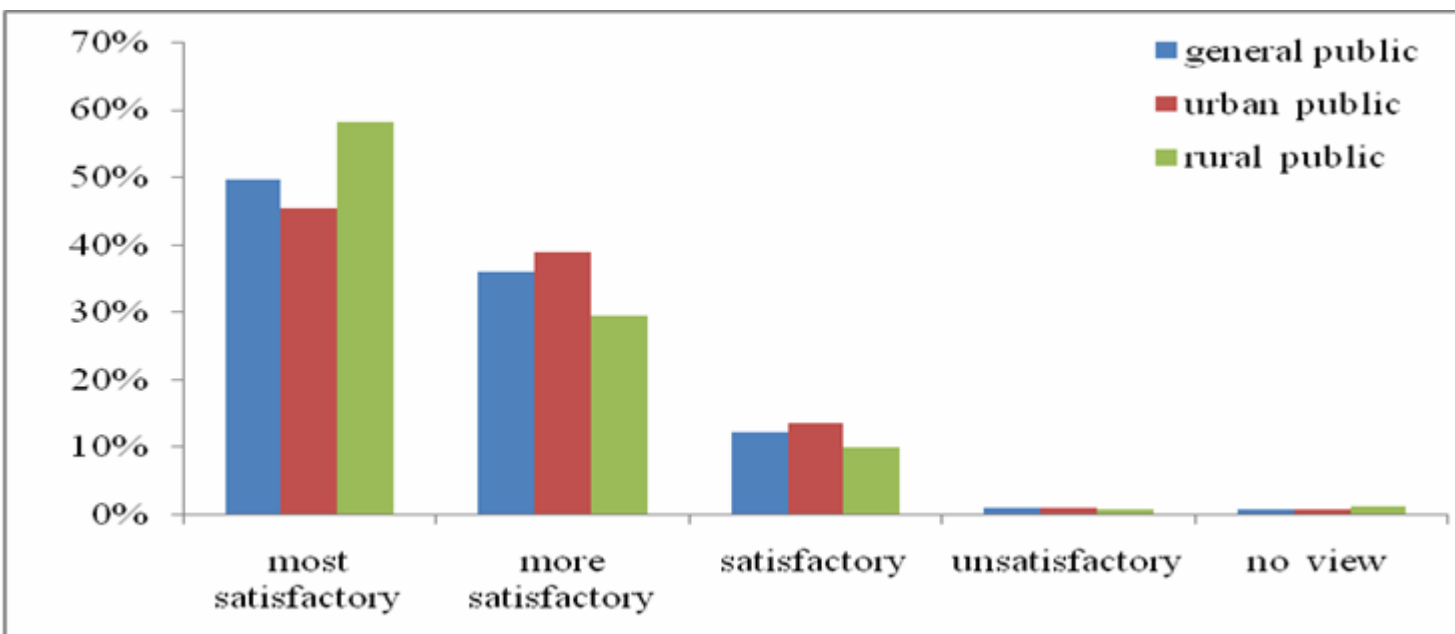






## 6. Meteorological Service Efficiency

And the satisfaction score of rural residents is generally higher than that of urban residents in 2009 (Figure2).



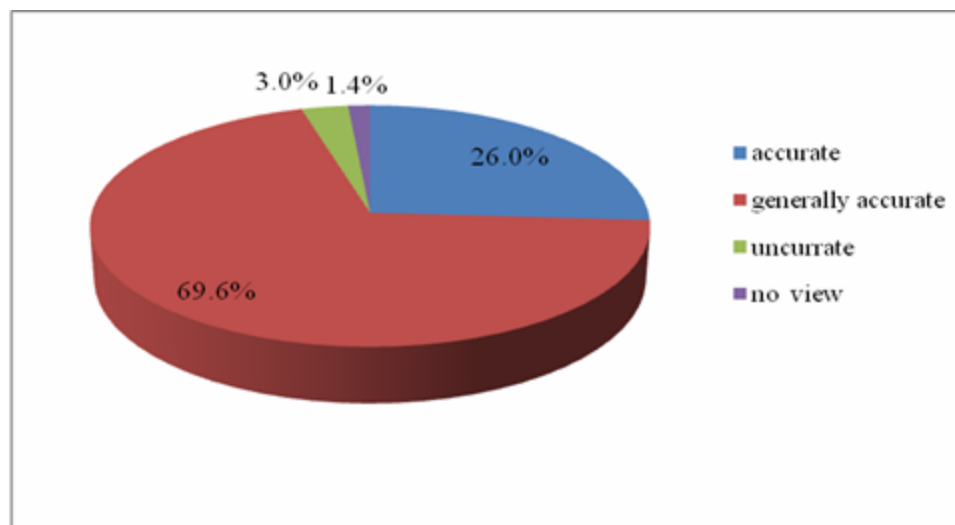
The comparison of the general, urban, rural ratio of satisfaction





## 6. Meteorological Service Efficiency

(2) 95.6% of the respondents hold a positive attitude in the accuracy of weather forecasts, with 26.0% of them think the forecasts are accurate and 69.6% of them think the forecasts are generally accurate(Figure3).



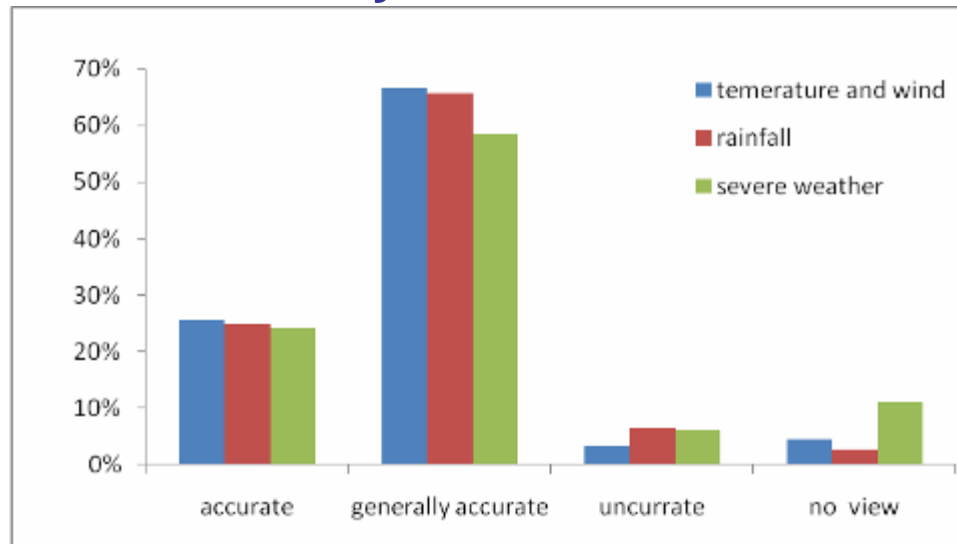
Urban public evaluation of the accuracy of weather forecasts





## 6. Meteorological Service Efficiency

In detail, 92.2% of the respondents think the forecasts of temperature and wind direction/speed are accurate; 90.7% of the respondents believe the rainfall forecast are accurate; 82.7% of the respondents feel positive about the accuracy of severe weather forecast(Figure4).



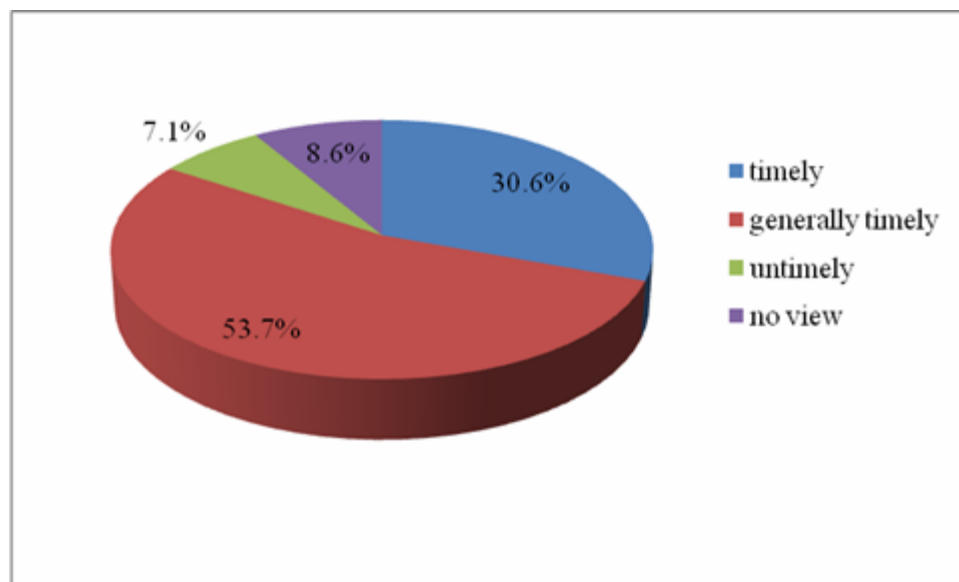
Urban public evaluation of the accuracy of meteorological information





## 6. Meteorological Service Efficiency

(3) 84.3% of the urban public believes the meteorological disaster warning signals are timely or generally timely sent out (Figure5a)



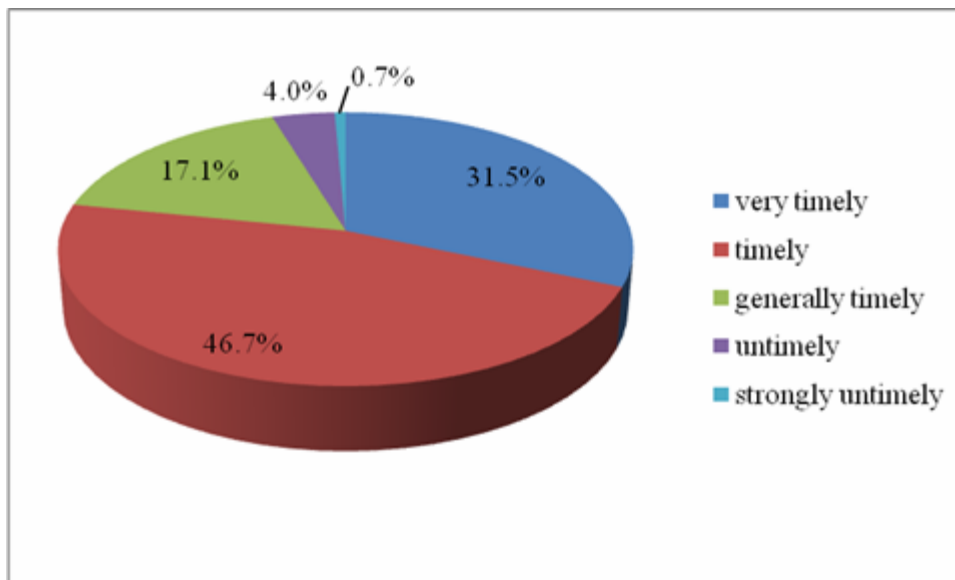
**Urban public evaluation of the timeliness of meteorological disaster warning signals**



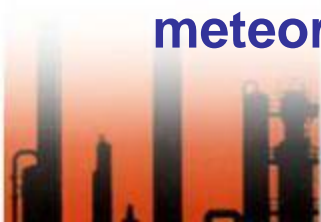


## 6. Meteorological Service Efficiency

78.2% of the rural public thinks meteorological disaster warning signals or agricultural weather services are timely or generally timely (Figure5b).



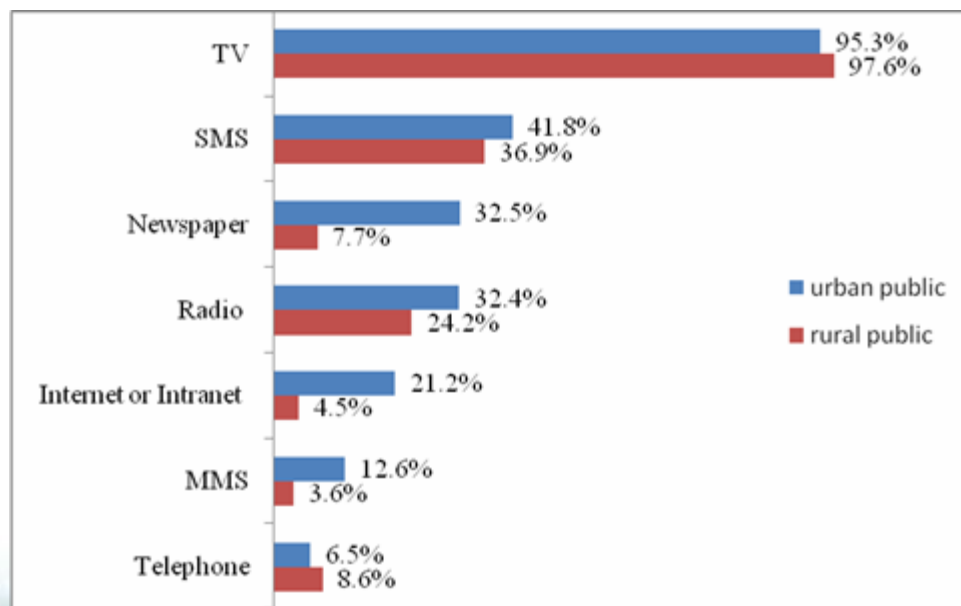
Rural public evaluation of the timeliness of meteorological disaster warning signals





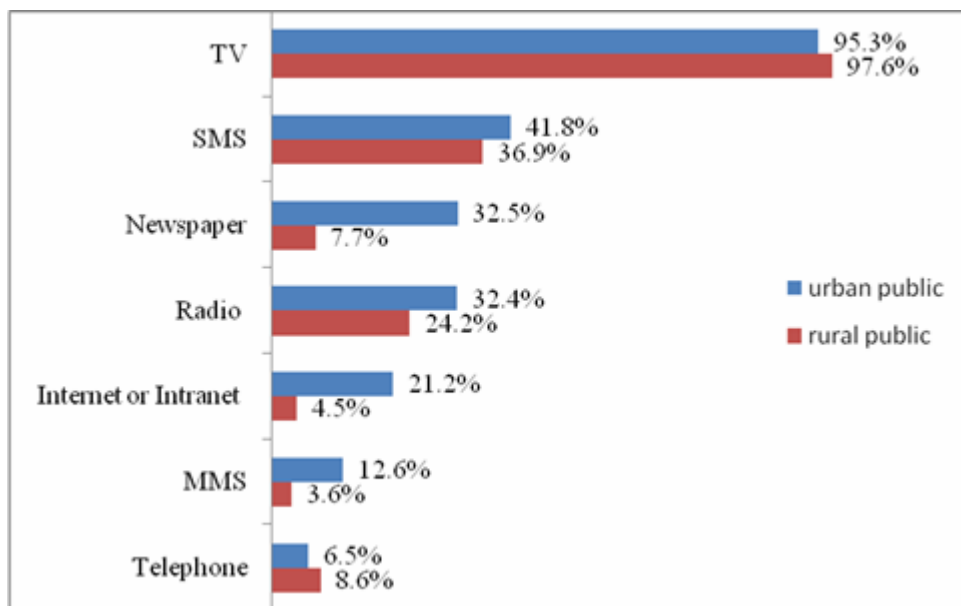
## 6. Meteorological Service Efficiency

(4) TV is the main access of weather service, 95.3% of the urban public and 97.6% of the rural public access the meteorological information on TV. And the ratio of access information by mobile obviously increased in 54.4% of the urban public and 40.5% of the rural public in 2009 (Figure6).





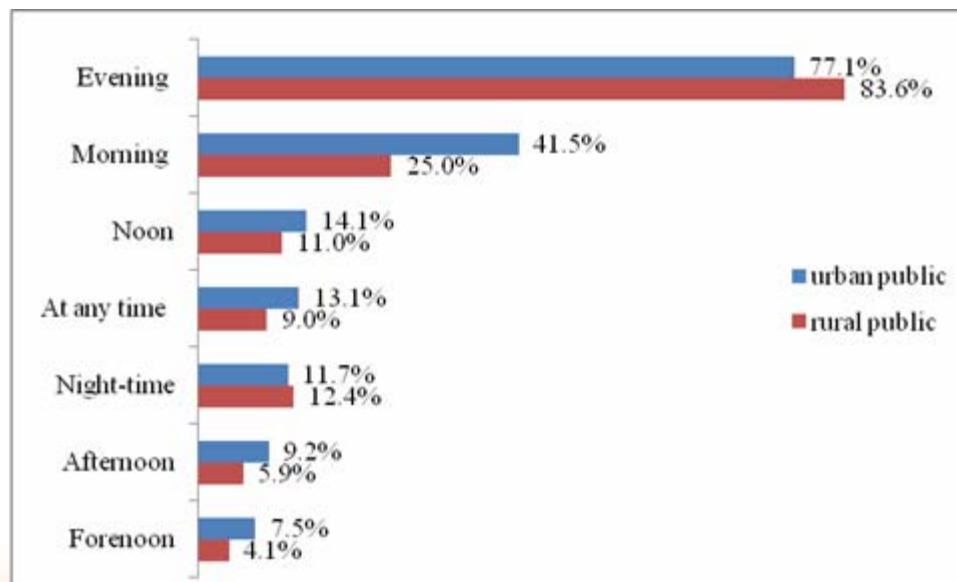
## 6. Meteorological Service Efficiency





## 6. Meteorological Service Efficiency

(5) Most of the respondents used to receive weather service information in evening during the day, and this ratio respectively reached 77.1% of the urban public and 83.6% of the rural public (Figure7).







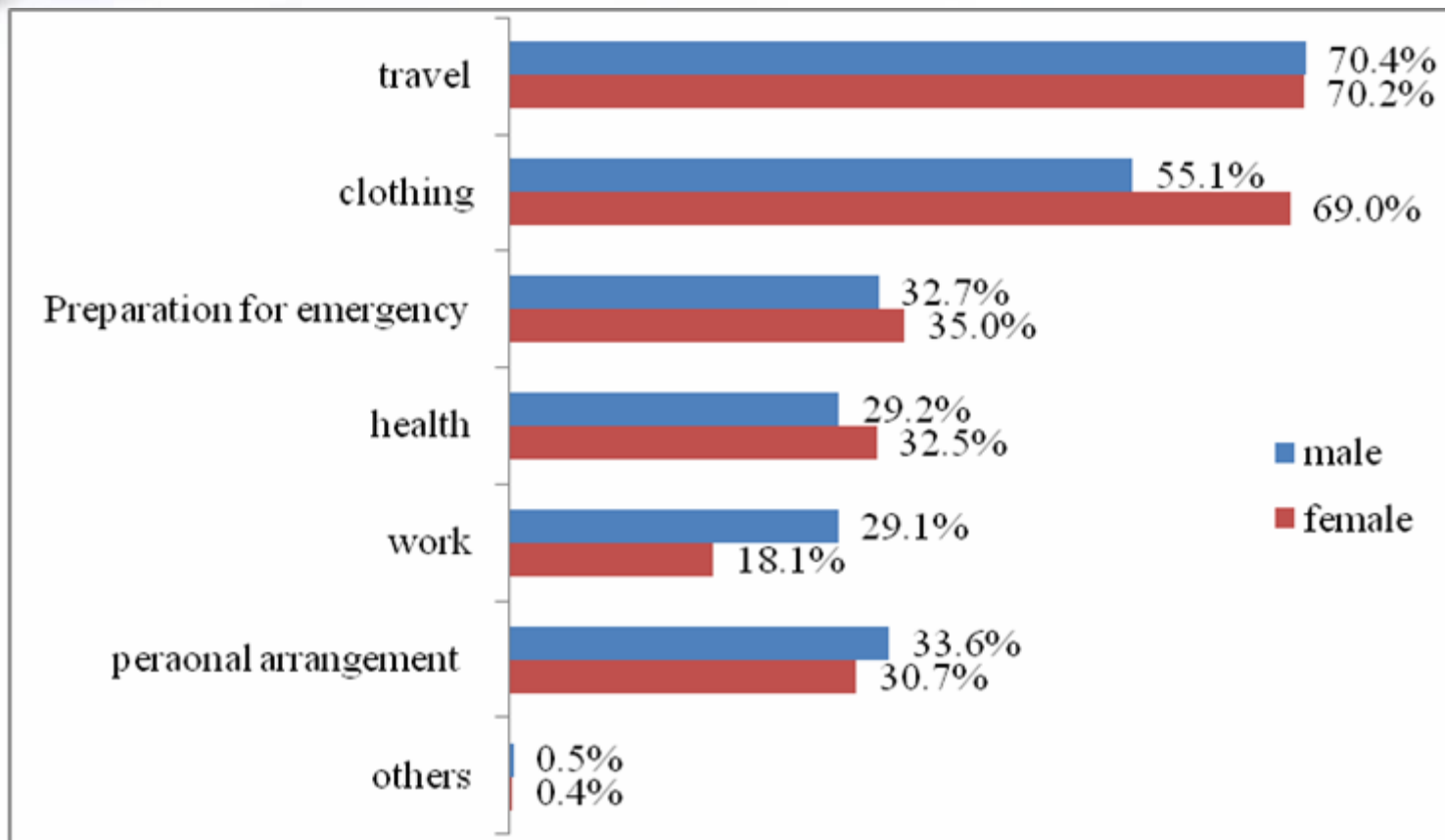
## 6. Meteorological Service Efficiency

**(6) The urban public is mainly concerned about the weather forecast for travel or clothing to provide reference. The ratio of travel and clothing is 68.4% and 61.5% respectively, which is significantly higher than other purposes. This characteristic is true for both male and female (Figure8).**





## 6. Meteorological Service Efficiency



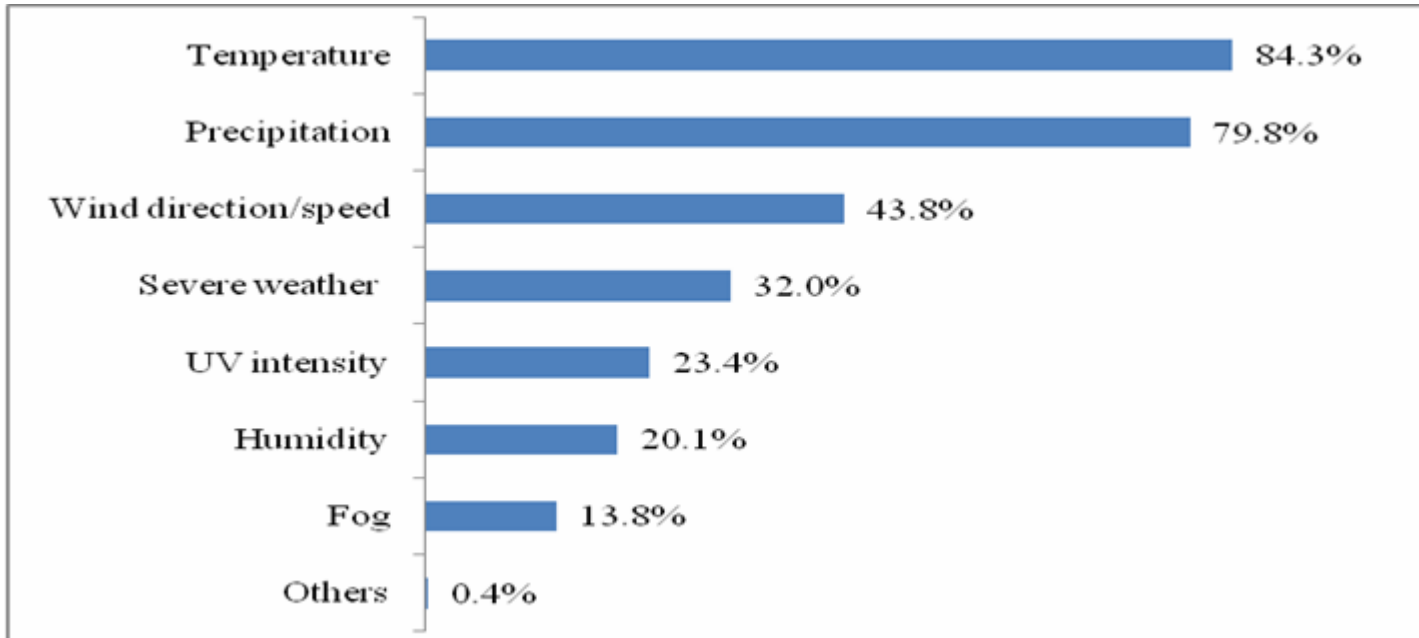
The purpose male and female urban public concern with meteorological information for





## 6. Meteorological Service Efficiency

(7) In all kinds of weather service information, the public is most concerned about temperature and precipitation, and secondly, the wind and severe weather (Figure9, 10)

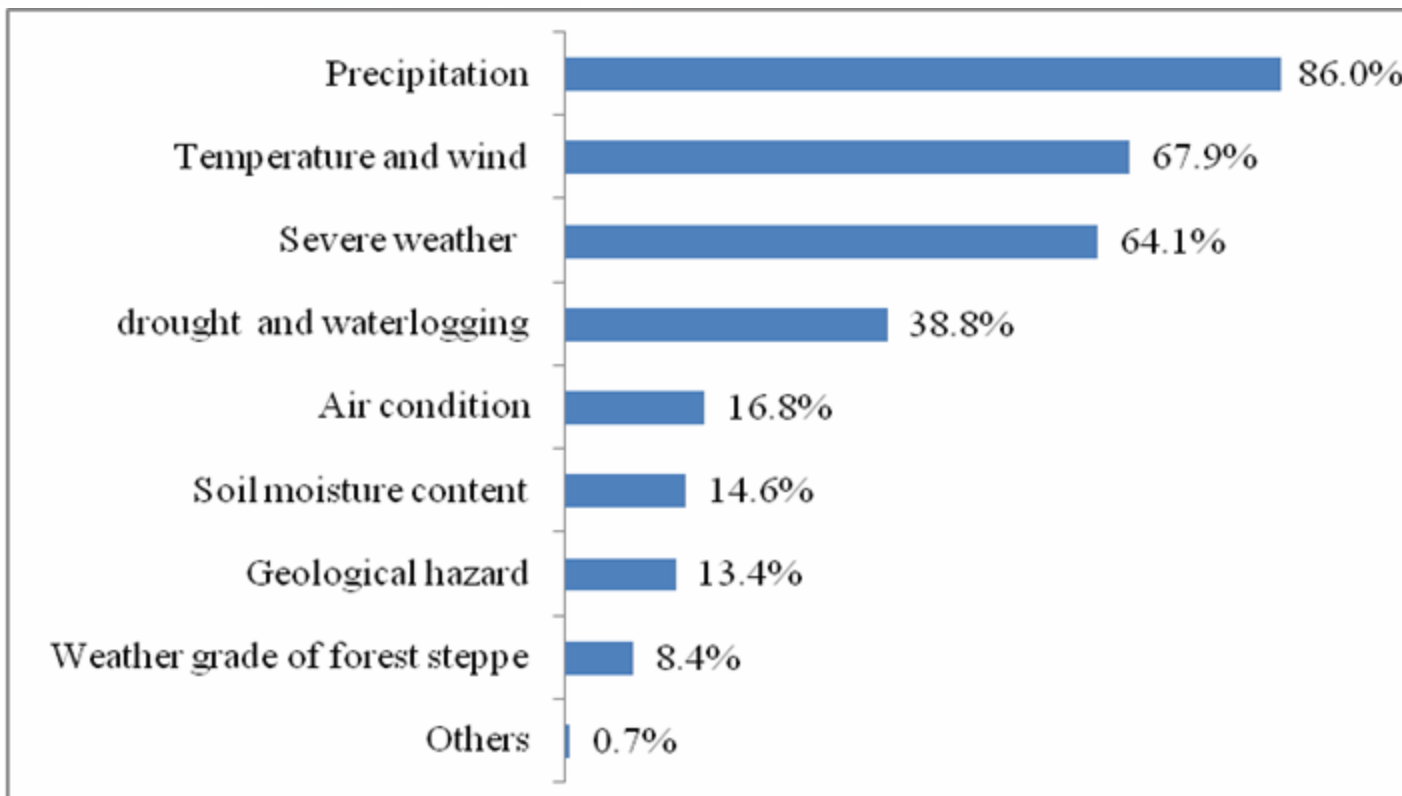


Weather service information which urban public concern with





## 6. Meteorological Service Efficiency

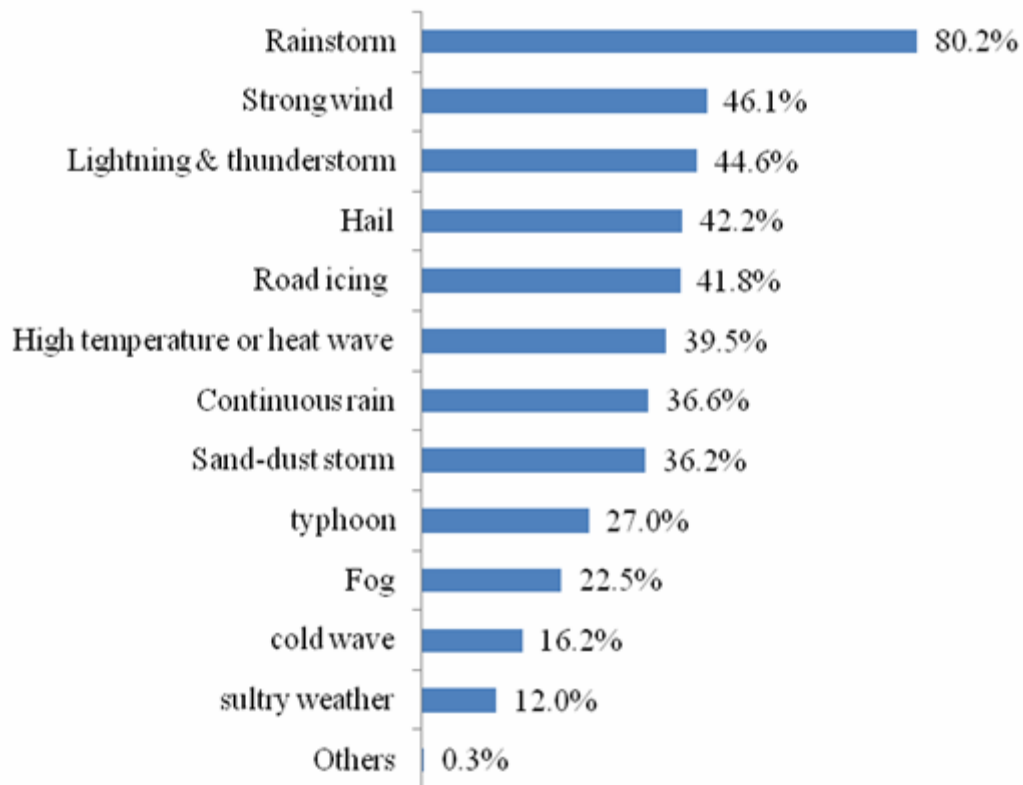


**Weather service information which rural public concern with**





## 6. Meteorological Service Efficiency



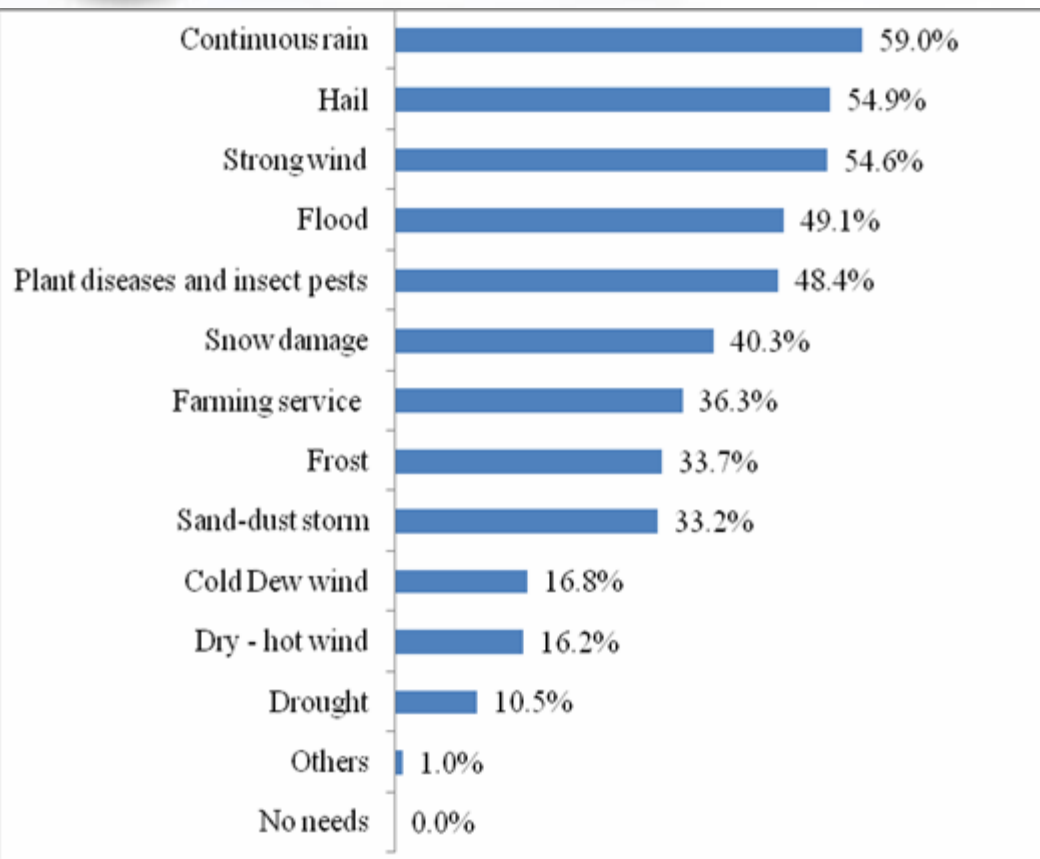
Among the all kinds of severe weather, rainstorm is most concerned about by the urban public (Figure11)

Severe weather urban public concerned with





## 6. Meteorological Service Efficiency



while continuous rain is most concerned about by the rural public (Figure12).

Severe weather rural public concerned with





Thanks

