

# Review of Meteorological Data Sharing Project in China

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国家气象信息中心

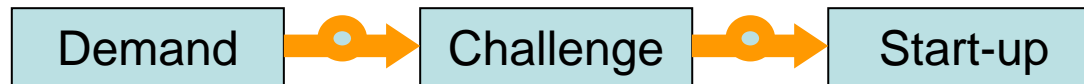
National Meteorological Information Centre

# OUTLINE

- Starting
- Policy
- Standardization
- Resource Development
- Data Sharing System
- Data Services

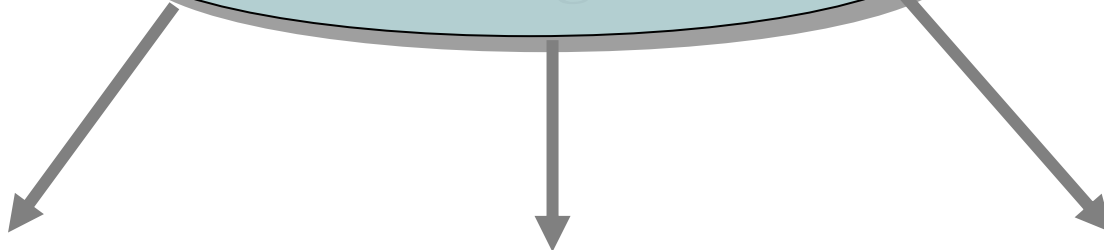
# STARTING

Due to the widely application and requirement, and the good operational base, meteorological data sharing is ranked as one of the first of **China Scientific Data Sharing Project**.



## A basis for environmental research

Meteorological data



**Cryosphere**



**Lithosphere**



**Atmosphere**



**hydrosphere**



**Biosphere**



# STARTING

**an important role for national economic and social development**



**Economy**



**Disaster reduction**



**Research & education**



**National defense**



**Health**



**Energy**



**Environment**



**Agriculture**

# START-UP

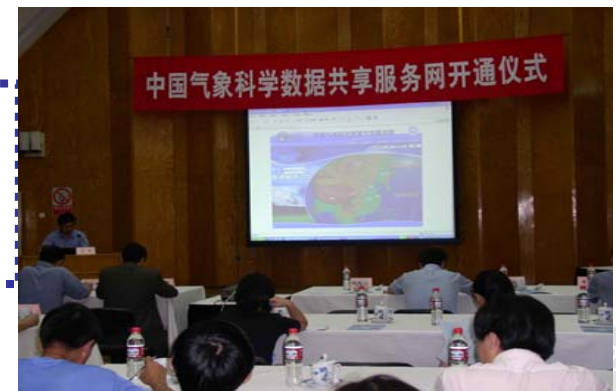
**In December 2001, under the support of the MOST, CMA Startup Mete. Data Sharing project**



**In July 2003, MOST held Experience Exchanging Conference of Experimental Work on Mete. Data Sharing in CMA**



**In October 2004, New Web Site “China Mete. Data Sharing Service System” were upbuilt**



CMA need to do and have done:

1. Develop the sharing strategy and technical standards
2. Integrate the data resources
3. Develop the service system

## Sources of Met. Data Sharing Policy

- *Meteorological Laws of the People's Republic of China*
- *Measures for Meteorological Data Sharing (issued by CMA)*
- *No.40 Resolution of WMO*





## **Main Policy:**

1. Service at a cost not to exceed that of shipping.
2. For certain type of requests, for example, specific mete. elements, limitations in procedure or attestation may need.
3. For requests for unusually large amounts of data, for specifically formatted data, for derived products, CMA will normally be required to recover the costs of specific processing and shipping.

- Standardization is the prerequisite for meteorological data sharing in the digital era.
- There are two kinds of standards: data sharing service system technical standards and dataset making standards. They both are based on meteorological data management (DM).

- *Classification of Meteorological Data*
- *Metadata Standards of Meteorological Dataset*
- *Meteorological Dataset Making and Archiving*
- *Meteorological Data File Naming Rules*
- *The Document Format of Description for Meteorological Dataset*
- *Implementation Guideline of Classification for Data Sharing*
- *etc.*

## *Metadata Standards of Meteorological Datasets*

with references of :

- *WMO Core Metadata*
- *ISO Geography information metadata standard (ISO 19115)*
- *Chinese sustainable development information core metadata dictionary*

Define:

- Metadata Entities, Elements
- Database: ID, QC, Time, Coverage, KeyWords, Format, Restriction, Distribution.....(attributes)



## ***Classification, Coding and Naming Rules of Meteorological Datasets***

- *Based on all kinds of attributes of Meteorological data, using line and area classifying method , the meteorological data can be classified 14 classes.*
- *The rules also define the regulations of coding and naming database and its files.*

## *Criterion of Making and Archiving Meteorological Datasets*

## *Description Composing Rules of Meteorological Dataset*

A dataset



- Entity of data
- Metadata file
- Documentation file

The major tasks are:



- *Develop datasets for scientific research programs;*
- *Improve data quality*
- *integrate multi-source data, for example, meteorological observation, satellite and radar*
- *Safeguard endangered data and records*



## *Issues:*

- **Historical data are recorded in different medias with different formats.**
- **Much of data is not digitized.**
- **There are a lot of quality problems with historical data which should be tested and adjusted.**



## QC Schemes:

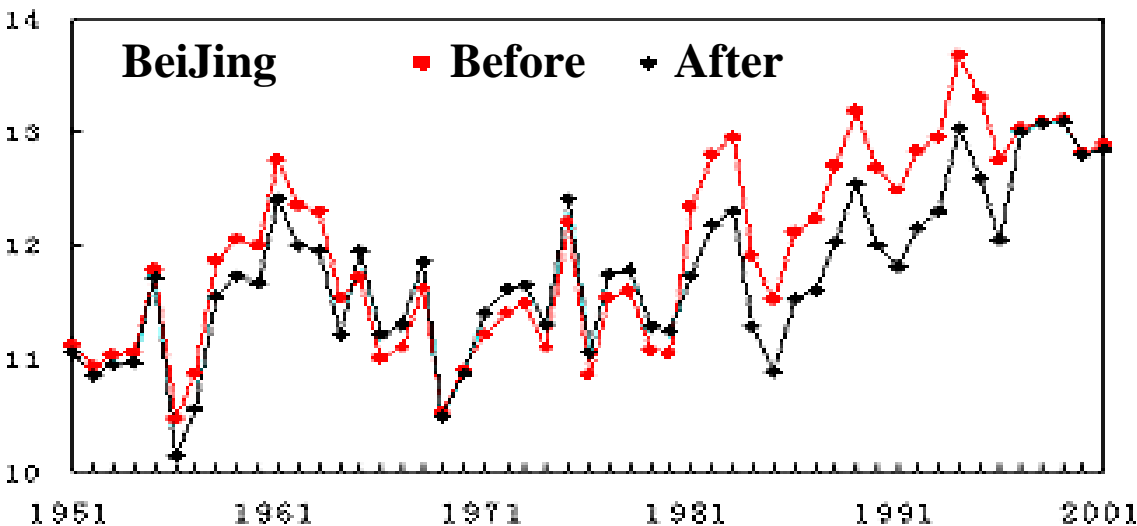
- ***Quality Control Procedure for surface observations.***
- ***Quality Control Procedure for upper-air observations.***
- ***Quality Control Procedure for radiation observation.***



- **Global surface weather dataset**
- **Global upper-air weather dataset**
- **China surface climate dataset**
- **China upper-air climate dataset**
- **China radiation climate dataset**

## *Homogeneous Check and Adjust:*

- *Because of station relocating, sensor changing, obs. Time altering,....,there are lots of inhomogeneities in the Climatic Series.*
- *To test and adjust these inhomogeneous Climatic Series.*

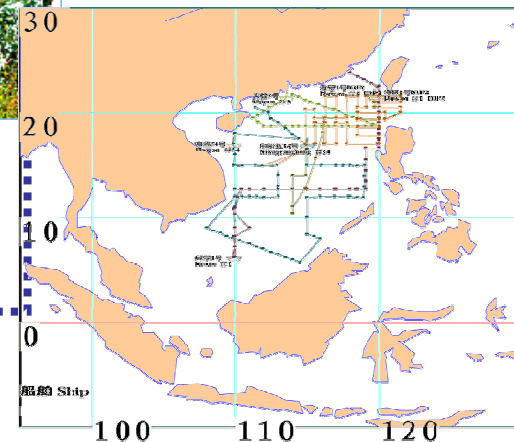
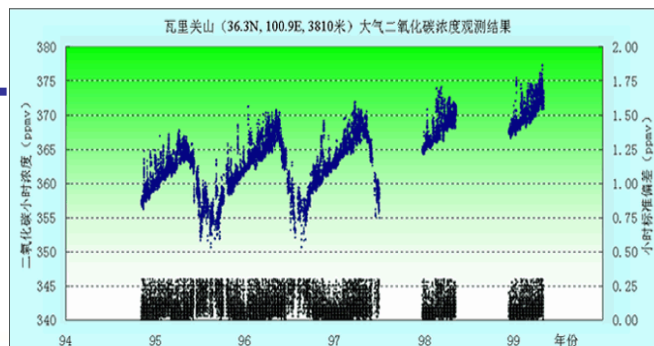
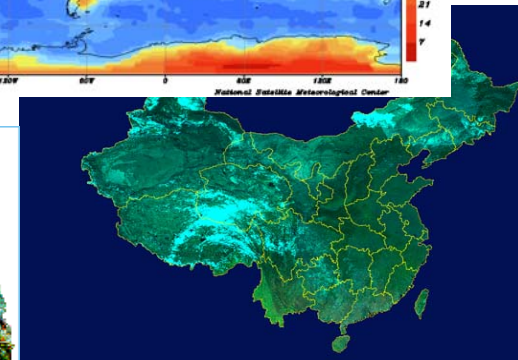
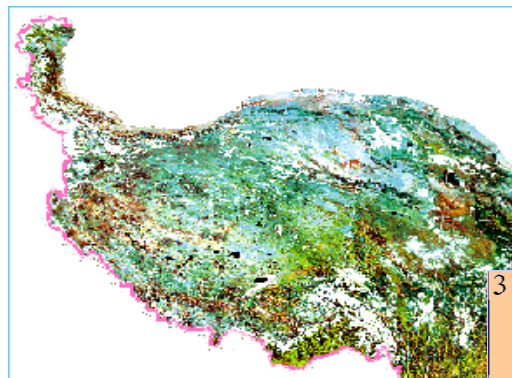
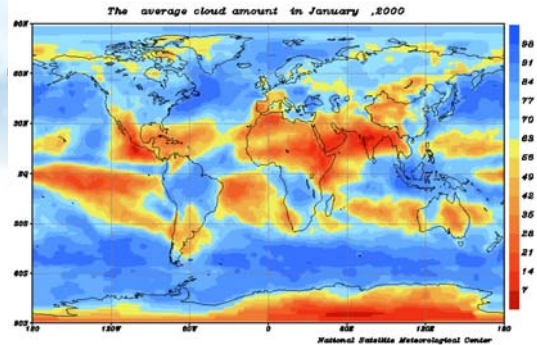


● Monthly Temperature dataset (1951-2005)

# RESOURCE DEVELOPMENT

In recent 5 years, we have developed many datasets, totally more than 1500GB, 13 different kinds

- Surface data
- upper-air data
- Radiation data
- Oceanic Mete. data
- Satellite Mete. data
- scientific experiments data
- .....



**China Meteorological Data Sharing Service Platform is a distributed sharing service system, which allows a uniform and integrated access to distributed data source which store any kind of meteorological data and products**





Services

# 中国气象科学数据共享服务网



数据服务

会员服务

最新动态

法规标准

关于我们

数据关键字:

(数据类型, 要素, 地理区域)

Main Server

Observing data service web site

Low temp. data service

Satellite data service web site

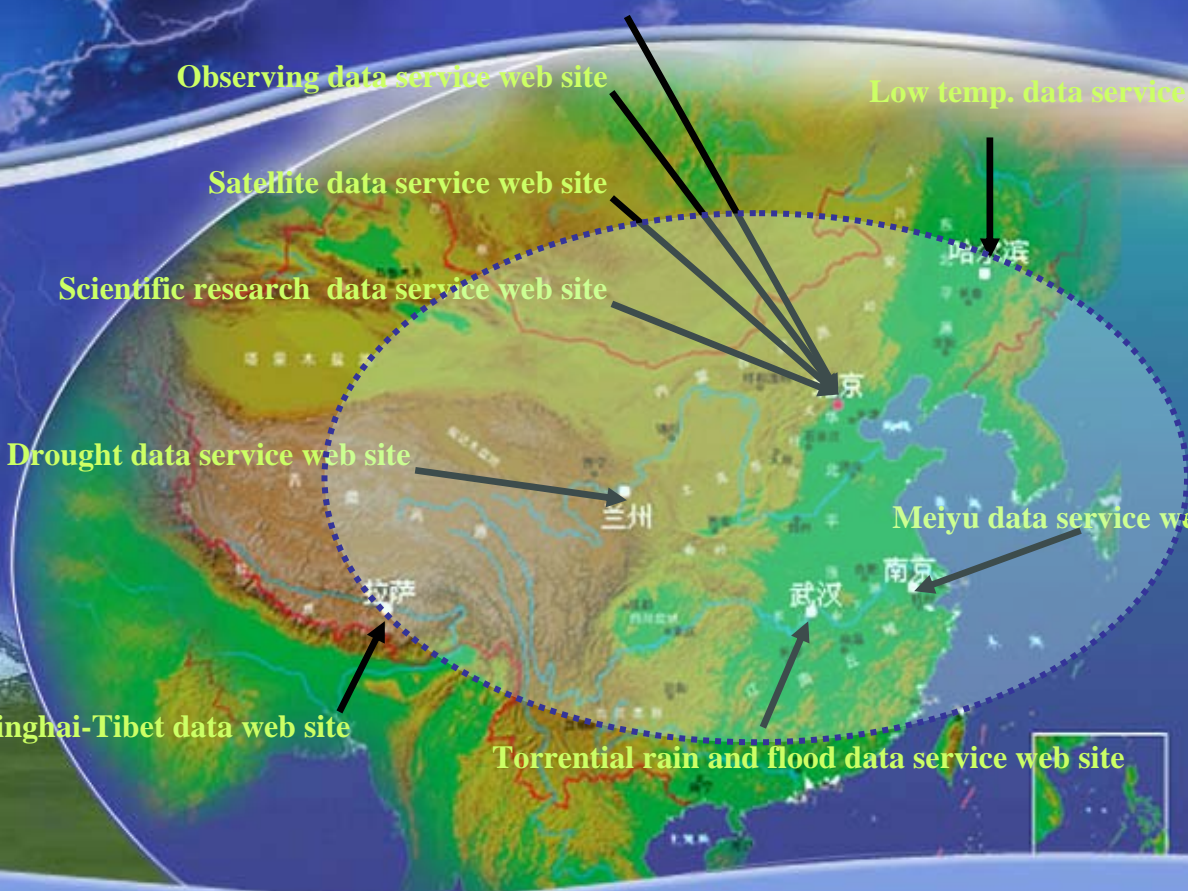
Scientific research data service web site

Drought data service web site

Meiyu data service web site

Qinghai-Tibet data web site

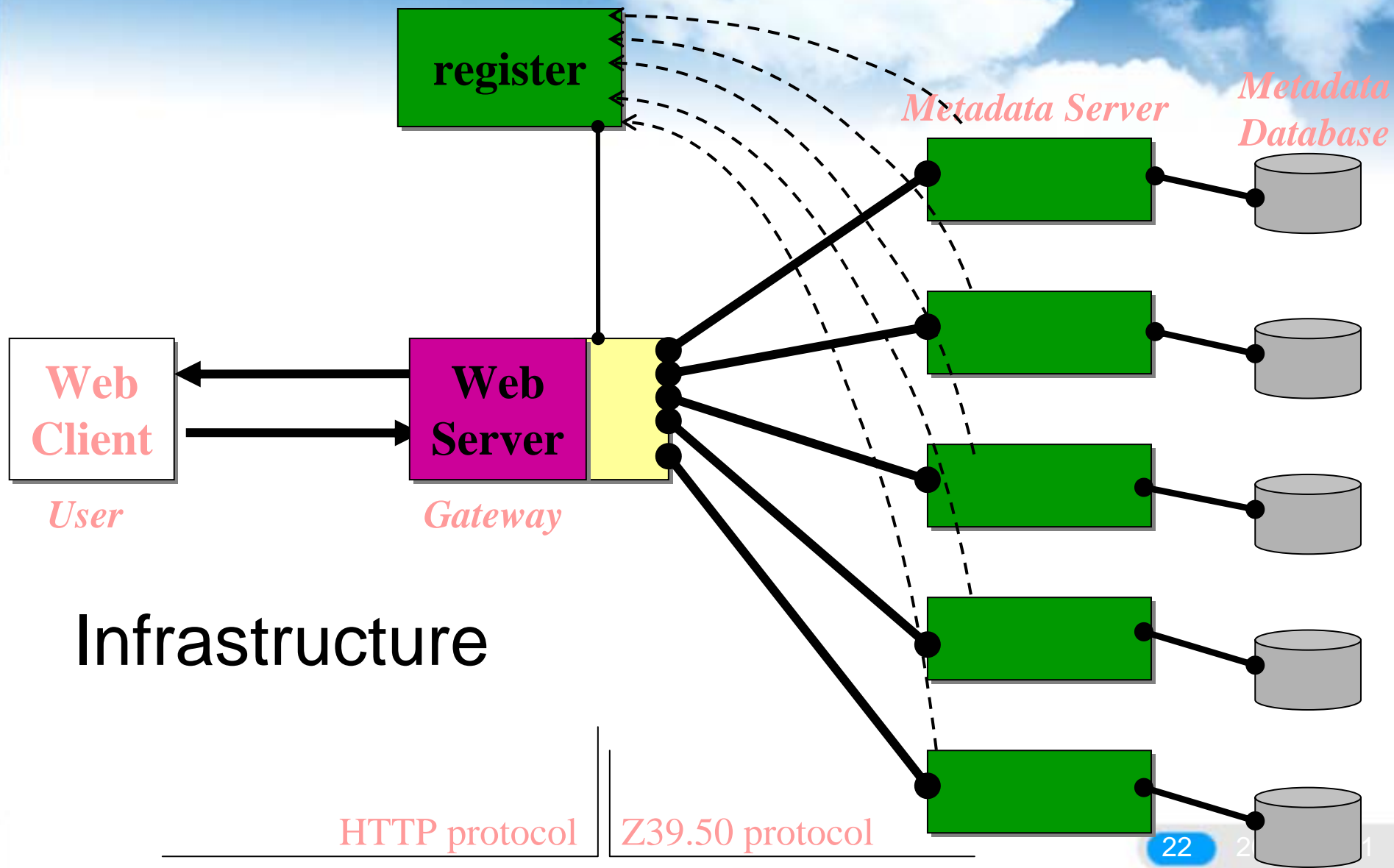
Torrential rain and flood data service web site



用户名:

密码:

# DATA SHARING SYSTEM





科技大楼



卫星中心



DMZ

Web Service Servers



国家

INTERNET

Fire Wall

骨干网

Switches



I/O Server



Balance Server

Appl. Server



Monitor Server



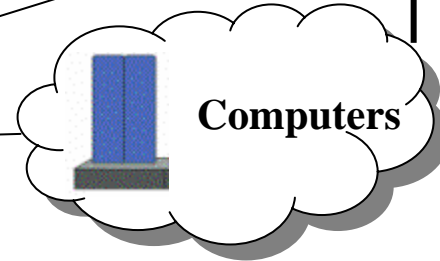
DataBase Server 1



DataBase Server 2



SAN Switches



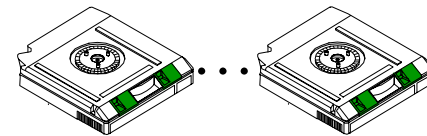
Computers



Disk Array



Tape library



Tapes for Archive

# Structure of MDSS (NMIC)





**Disk Array & Tape Library**





数据关键字:  在: (数据类型, 要素, 地理区域)

<http://data.cma.gov.cn>



用户名:   
 密码:   
[注册](#) [登录](#)

[设为首页](#)

# Sharing Service Web Sites

中国气象科学数据共享服务网

中国气象科学数据共享服务网

中国气象科学数据共享服务网

www.climatexz.cn

中国气象科学数据共享服务网

www.climatexb.cn

长江中上游暴雨洪涝数据共享服务

中国气象科学数据共享服务网

www.climatexh.cn

中国气象科学数据共享服务网

www.climatexgs.cn

西北地区干旱气象资料共享服务

- 气象科技展与... 召开... 技术...
- 共享...
- 数据...
- 本站数据...
- 基本地面气象日资料
- 梅雨过程特征数据集
- 长年代月降水量资料
- 栏目特色
- 长江中下游梅雨
- 气象科技开发应用中心
- 共享...
- 气象法规
- 中华人民共和国气象法

2004年6月26日

用户名:   
 密码:   
[登录](#) [注册](#)

2004年5月26日 星期三

用户名:   
 密码:   
[登录](#) [注册](#)

- 暴雨洪涝相关信息
- 暴雨洪涝标准
- 单站暴雨洪涝定义
- 区域暴雨洪涝定义
- 洪涝年定义
- 典型暴雨两个例定义
- 暴雨洪涝研究成果
- “七五”研究成果
- “八五”研究成果
- “九五”研究成果
- 其他研究成果

“单站逐时各历时逐时最大降水量”、“日降水量集”、“分别日降雨量”

“日面雨量集”分为“暴雨过程量程”、雨厄

- 共享信息
- 气象数据分级分类
- 如何成为会员
- 气象资料共享协议
- 一般用户申请表
- 气象法规
- 中华人民共和国气象法
- 气象资料共享管理办法
- 合作网站
- 国家气象中心
- 兰州区域气象中心
- 武汉区域气象中心
- 江苏省气候应用所
- 西藏自治区气候中心
- 北京市气候中心
- 友情链接

## 数据信息



首页 | 干旱与沙尘暴 | 地面资料 | 内陆河资料 | 树木年轮 | 元数据信息 | 台站信息 | 公众服务

2004年春季(3月1日至今), 受2月份气温偏

<p><b>用户登陆</b></p> <p>用户名: <input type="text"/>                  密码: <input type="password"/>  <a href="#">提交</a></p> <p><a href="#">用户注册</a>   <a href="#">联系我们</a></p>	<p><b>干旱与沙尘暴</b></p> <ul style="list-style-type: none"> <li>大风与沙尘暴灾情</li> <li>西北区沙尘暴数据</li> <li>干旱文献与干旱指标</li> <li>西北区旱涝等级资料</li> <li>中国500年旱涝等级资料</li> </ul>	<p><b>每日天气实况</b></p> <p>兰州 5月12日实况 风向 东北 风速2 气温 30度 露点温度 23 相对湿度 45 水平能见度 25000 现在天气 无总云量 4</p>
	<p><b>地面资料</b></p> <ul style="list-style-type: none"> <li>西北区日气温降水量数据</li> <li>西北区候气温降水量数据</li> <li>西北区旬气温降水量数据</li> <li>西北区月多要素气象数据</li> <li>西北区逐日气象资料</li> <li>西北区历年逐月极值资料</li> <li>民国期间月降水气温资料</li> </ul>	<p><b>气象信息</b></p> <ul style="list-style-type: none"> <li>2004年3、4月份.. [5-10]</li> <li>据中国气象报报道.. [5-10]</li> <li>5月5日14时.. [5-8]</li> <li>宁夏引黄灌区发生霜冻.. [5-5]</li> <li>据中国科学院紫金山天.. [5-4]</li> <li>今天是“五一”长假的.. [5-2]</li> </ul>
	<p><b>西北内陆河及其他气象资料</b></p> <ul style="list-style-type: none"> <li>西北内陆河</li> <li>树木年轮资料</li> <li>台站相关参数</li> <li>干旱实验指数</li> <li>大气环流及海温数据</li> </ul>	<p><b>公告</b></p> <p>兰州中心气象台是省内气象资料提供单位。为保证资料的准确和可靠, 维护用户合法权益, 本单位申明: 任何单位或个人未经本单位批准不得转发、修改或用做商业行为。凡因引用非本单位提供的资料所造成的后果, 本单位概不负责, 同时将根据《中华人民共和国气象法》及相关法律追究相关个人</p>

网站链接

全国气象网



### 用户登录

用户名

密码

### 重点数据集推介

- 中国地面气候资料站日值数据国地面国际交换站1971-2000年整编值累年月值.....
- 中国地面气候资料站日值数据国地面国际交换站1971-2000年整编值累年月值.....

### 动态·资讯

- “享试点”项目进行全面检查
- 气象科学数据共享试点查
- 科技部对气象科学数据共
- 部对气象科学数据共
- 科技部对气象科学数据
- 对气象科学数据共
- 科技部对气象科学数据共

### 互动平台

- 论坛
- 常见问题
- 用户反馈及成果提交
- 网上调查

### 数据集清单



### 公众服务

#### 最新观测气象数据

- 卫星图像
- 天气雷达图像
- 天气实况

#### 气候背景

- 中国主要城市
- 世界主要城市
- 气候资源分布图

#### 实时分析产品

- 全国降水图
- 最高最低气温图
- 天气分析图

### 数据分类检索

- |                              |                                |                               |
|------------------------------|--------------------------------|-------------------------------|
| <input type="radio"/> 地面资料   | <input type="radio"/> 农业气象资料   | <input type="radio"/> 气象灾害资料  |
| <input type="radio"/> 高空资料   | <input type="radio"/> 数值分析预报产品 | <input type="radio"/> 天气雷达资料  |
| <input type="radio"/> 海洋资料   | <input type="radio"/> 大气成分资料   | <input type="radio"/> 卫星遥感资料  |
| <input type="radio"/> 气象辐射资料 | <input type="radio"/> 历史气候代用资料 | <input type="radio"/> 试验和考察资料 |
| <input type="radio"/> 海洋资料   | <input type="radio"/> 海洋资料     | <input type="radio"/> 海洋资料    |
| <input type="radio"/> 气象辐射资料 | <input type="radio"/> 气象辐射资料   | <input type="radio"/> 气象辐射资料  |

大气成分及相关资料

### 专题搜索

- 梅雨  干旱  暴雨  沙尘暴  台风

搜索

### 数据定位搜索

- |                             |                                |                             |
|-----------------------------|--------------------------------|-----------------------------|
| <b>气象要素</b>                 | <b>地理范围</b>                    | <b>统计时段</b>                 |
| <input type="checkbox"/> 气温 | <input type="checkbox"/> 全球    | <input type="checkbox"/> 年值 |
| <input type="checkbox"/> 降水 | <input type="checkbox"/> 中国    | <input type="checkbox"/> 月值 |
| <input type="checkbox"/> 湿度 | <input type="checkbox"/> 青藏高原  | <input type="checkbox"/> 日值 |
| <input type="checkbox"/> 风  | <input type="checkbox"/> 东北    | <input type="checkbox"/> 时值 |
| <input type="checkbox"/> 更多 | <input type="checkbox"/> 长江中下游 | <input type="checkbox"/> 旬值 |
| <input type="checkbox"/>    | <input type="checkbox"/> 更多    | <input type="checkbox"/> 更多 |

搜索

重填

### 图片新闻



站内搜索

### 最新数据集

- 中国地面气候资料站日值数
- 国地面国际交换站1971-2000
- 整编值累年月值数据
- 国家气象信息中心
- 中国地面气候资料国际
- 整编值累年月值数据

### 下载排行榜

- 地面气候资料站日值数据
- 国地交换站1971-2000年
- 整编值累年月值数据
- 国家气象信息中心
- 中国地面气候国际交换站
- 中国地面气候站日值数据
- 国地面国际971-2000年
- 整编值累年月值数据

### 分布节点

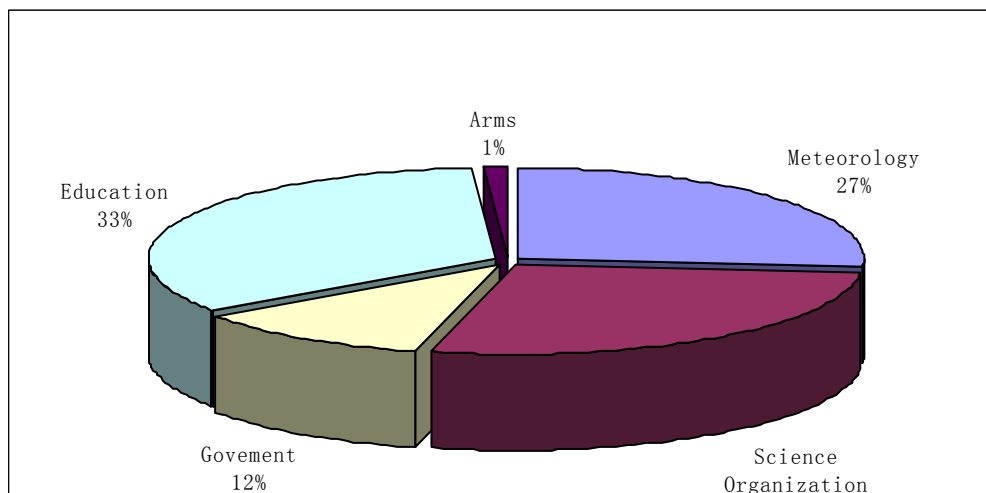
- |     |      |    |
|-----|------|----|
| 兰州  | 乌鲁木齐 | 上海 |
| 哈尔滨 | 拉萨   | 北京 |

## System can do:

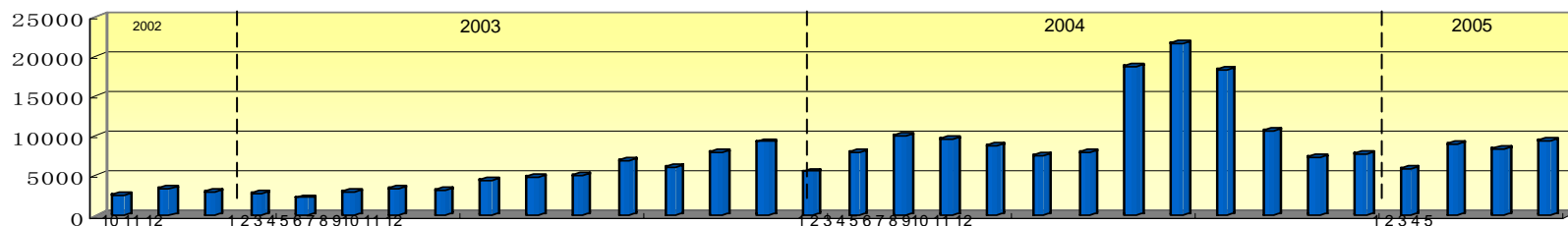
1. Search for data and products through metadata (Data Discovery)
2. Query and download of data (Data Access)
3. Registration of new products and users (Data Management for data providers)

## ON-LINE WWW, FTP USERS:

More than 800 registration users, come from 258 different organizations, total download: 4,800GB, end of December, 2005



Continues to exhibit a rapid increase



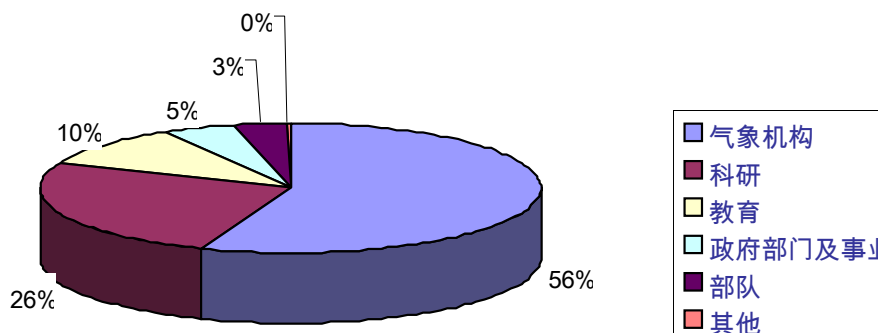
2002.10—2005.05网站访问量逐月变化

## OFF-LINE SERVICES:

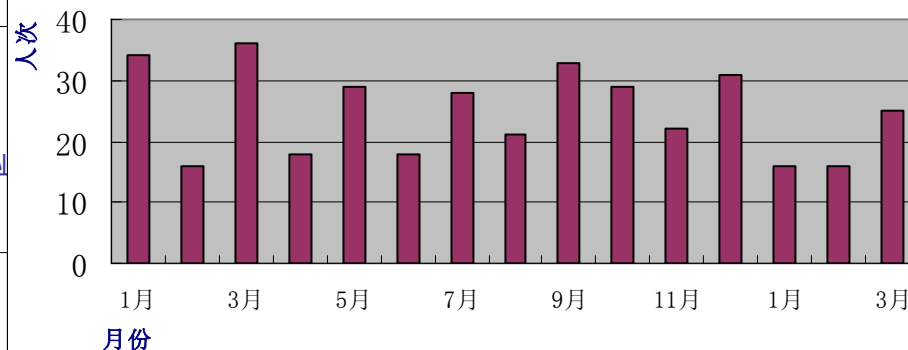
From Jan. 2002—Dec. 2005, more than **2,700 persons** visited the reception centre in NMIC and got data **850GB** totally.



2003年1月-2004年3月用户领域分布图



2003年1月-2004年3月共享服务访问人次统计图



## Data Applications

**ENGINEERING** *Provide guidance in the design and construction of facilities / infrastructure*

**BUSINESS** *Sales impact, site relocation, environmental impacts*

**GOVERNMENT** *Research, investigations, legal claims, risk management, policy guidance / support*

**RESEARCH** *Environmental issues, science studies, weather, prediction*

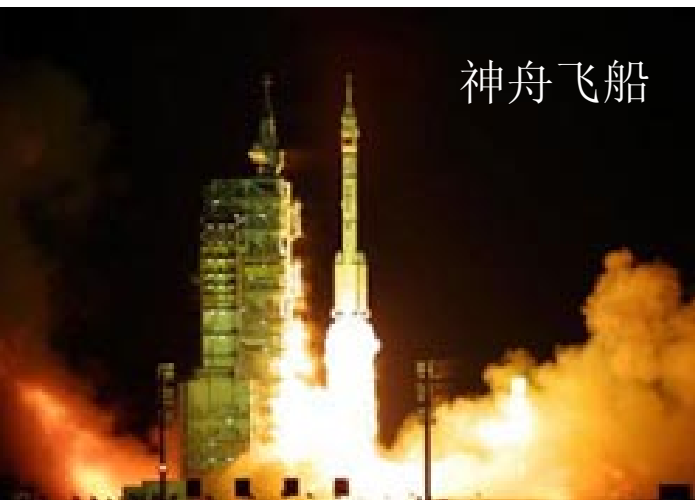
**EDUCATION** *Teacher, student*

**OTHERS** *Consulting, legal, insurance industry*



# DATA SERVICES

- **National important projects** -- Qinghai-Tibet railway, Sanxia, Shanxi-Beijing transmit oil
- **National defence projects** -- Shenzhou space shuttle
- **Disaster-reduction** -- Qinghai earthquake, guarding against forest fire
- **Scientific research** -- NSFC, 863, 973, KIP, NKTRDP



神舟飞船



三峡工程



青藏铁路



# DATA SERVICES

In addition, there are **21 provincial** meteorological bureaus to set up their data sharing platform on internet and afford data sharing services.



**Stand on the Forefront of  
Scientific Data Sharing**

Thank you for your attention!

Any requirements, please contact with:

e-mail: [wanggf@cma.gov.cn](mailto:wanggf@cma.gov.cn)

web site: <http://cdc.cma.gov.cn>



国家气象信息中心  
National Meteorological Information Centre