

Hydrometeorological Network and Service in Mongolia

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Hydrometeorological Service in Mongolia has been established in 1936. Since that time the name and functions of the Mongolian Hydrometeorological Service has been changed several times. Several meteorological stations operated since 1886 in capital city Urgo (today's Ulaanbaatar), and some other administrative centers of Mongolia.

Mongolian National Agency of Meteorology, Hydrology and Environment Monitoring (NAMHEM) has joined to the World Meteorological Organization(WMO) in 1963.

At present time the Mongolian National Agency of Meteorology, Hydrology and Environment Monitoring is a one of the Agency of the Ministry of

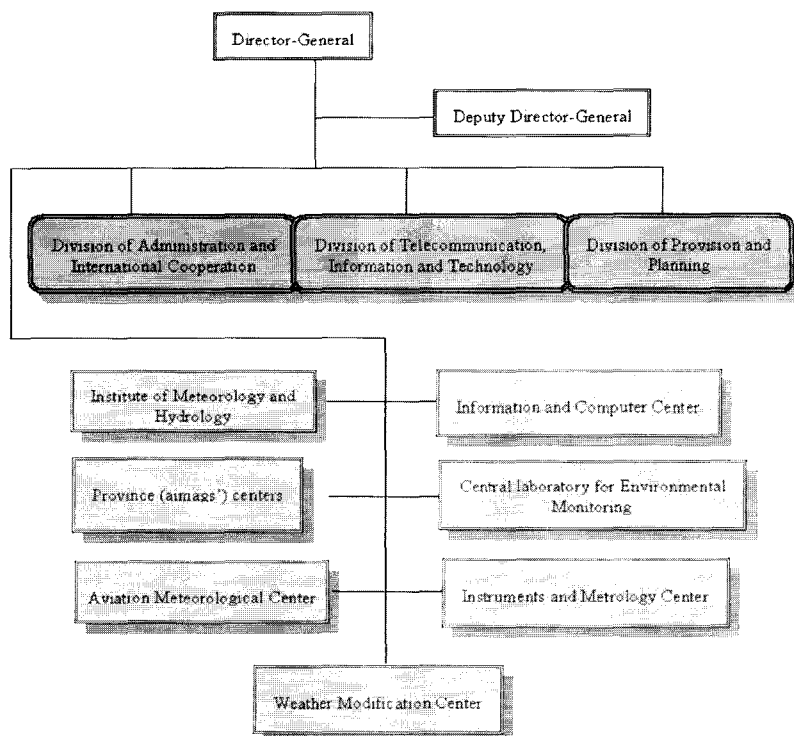


Fig. 1. Organizational structure of NAMHEM

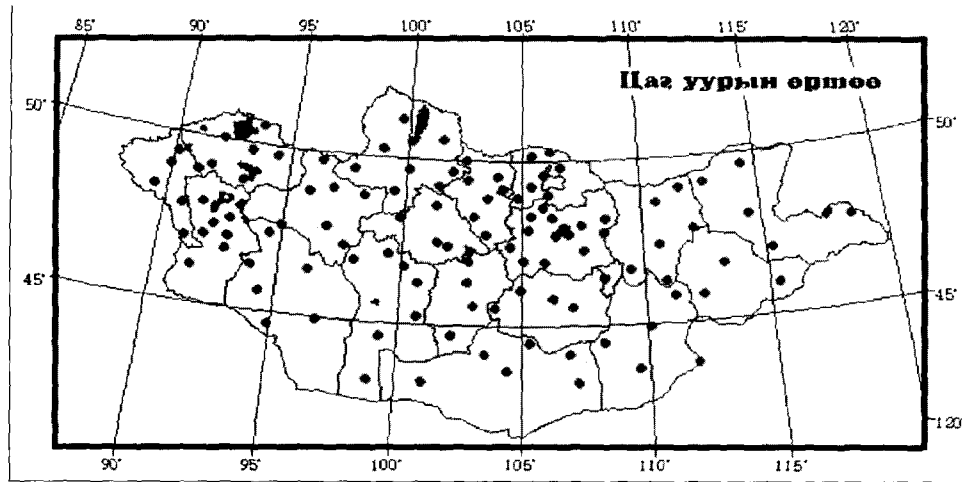


Fig. 2. The location of Meteorological stations in Mongolia

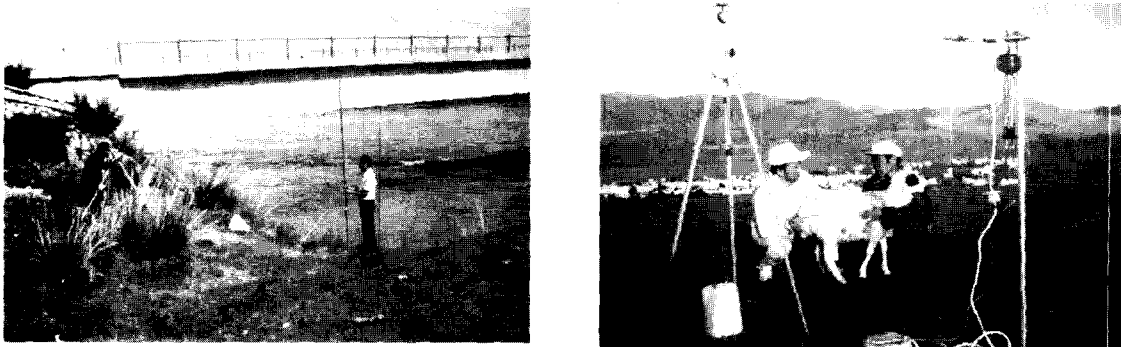


Fig. 3. Hydrological, animal husbandry observations

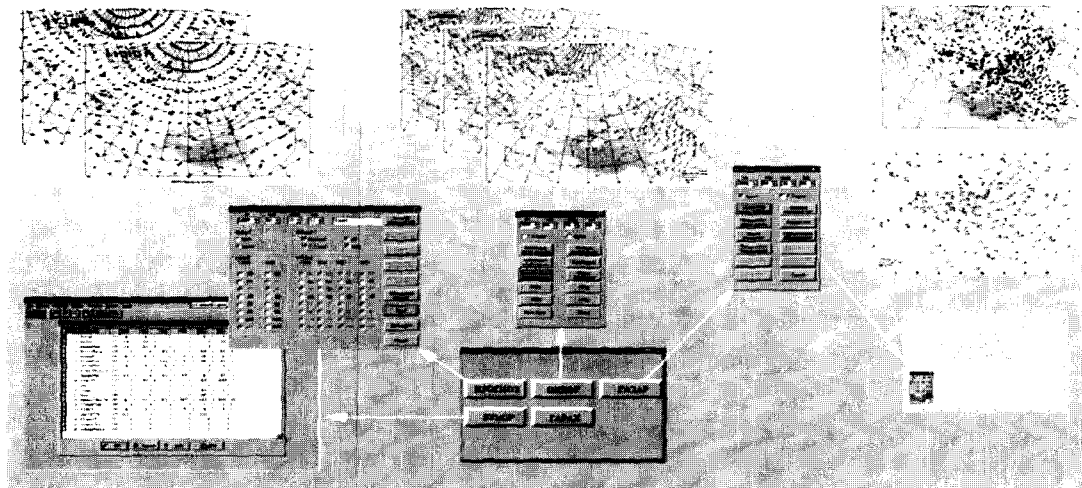


Fig. 4. Data collection and weather forecasting processing

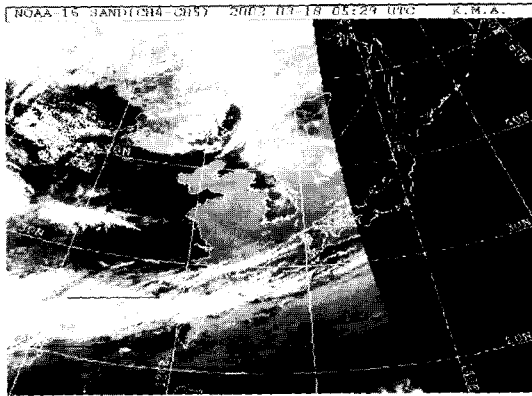


Fig. 5. NOAA-16 satellite image

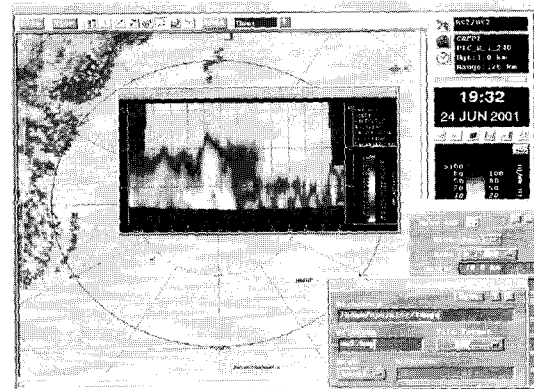


Fig. 6. Doppler radar data

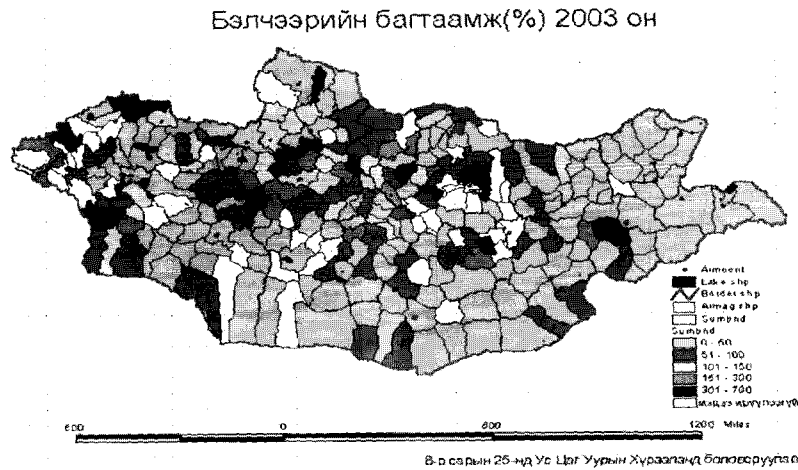


Fig. 7. The pasture capacity for winter 2003-2004 in Mongolia

Nature and Environment.

NAMHEM has several organizations, which showed in the next figure.

Currently, more than 1600 people are working in this service throughout the country.

The Agency has 120 meteorological stations, 200 meteorological posts, 120 hydrological stations including posts, 2 agrometeorological stations, 320 agrometeorological posts, 3 animal husbandry stations, 19 solar radiation stations, 5 aerological (radiozonde) stations, satellite information receiving center, 9 environment monitoring laboratories, 22 environmental monitoring

posts, 20 aeronautical stations, 1 radar station and etc.

These stations and posts are providing observations according to the WMO guidance and instructions.

The main activities of the NAMHEM are:

Hydrological, meteorological, agrometeorological, animal husbandry, aerological observations and environmental monitoring, plus data and information collection

Hydrological, climatic, agrometeorological, animal husbandry, aerological data and image processing

- Short term weather forecasting. /Forecast of temperature, precipitation, wind and weather phenomena

- up to 2 days ahead /
- Long term weather forecast. /Weather forecast for a one or two month and seasonal period/
 - River and Flash Flood Forecast
 - Warming

NAMHEM receives and analysis real-time data and images from Polar Orbiting Satellites such as the NOAA series and METEOR, and the Geostationary Meteorological satellite GMS-5. The satellite data and Geographical Information system are used to diagnose and determine the actual status of cloud and precipitation, snow and vegetation cover, and forest and steppe fires. Satellite data play an important role in weather forecasting and research activities. Meteorological radar system at the MorinUul mount located nearby to Ulaanbaatar International Airport "Buyant Ukhaa" was replaced in 2000 by modern C-band meteorological radar with doppler effects. Radar data is transmitting by the Micro-wave telecommunication system to the NAMHEM, Aeronautical Meteorological Center and Ulaanbaatar International Airport "Buyant Ukhaa". High resolution radar data are very useful for short-range weather forecasts and civil aviation service.

The climate of Mongolia is harsh continental with four seasons. Average annual temperatures are around 8.5°C in the Gobi and -7.8°C in the high mountainous areas. The extreme minimum temperature is -31.1°C to -52.9°C in January and the extreme maximum temperature is +28.5°C to +42.2°C in July.

The annual precipitation amount is low, averaging 200-220 mm and ranging from 38.4 mm per year in the extreme South(Gobi desert region) to 389 mm per year in limited areas in the North. Most precipitation occurs in summer season (June, July and August), the driest months are from November to April. Every year in March and April mostly observe dust storms. Drought in the spring and summer seasons occurs about every five years in the Gobi region, and one in every ten years over most other parts of the country. Mongolia has on an average 3,000 hours of sunshine annually.

According to the results of pasture capacity assessment for winter 2003-2004 the following results were obtained:

Data received from Bag (administrative unit, smaller than soum) and Soums (administrative unit, smaller than province) on pasture capacity shows that 82.2% of Mongolian territory has good condition for cattle during this winter and the remaining 17.8% of the area has badly condition.

The weather prediction shows in March 2004 mean monthly air temperature in the Western and Gobi regions will be around longterm average temperature, in the Central and eastern regions the temperature will be warmer than longterm average temperature by 2.0-2.5°C.

The precipitation amount in March 2004 will be in the Eastern and Gobi regions more than longterm average amount and in the Western and in some areas of the Central region of Mongolia will be around longterm average amount and in the Central region less than longterm average amount.