

JAXA/AIT
1ST JOINT PROJECT TEAM MEETING FOR SENTINEL ASIA STEP 3
(JPTM2013)
27-29 NOVEMBER 2013
GRAND MILLENNIUM SUKHUMVIT

Activities of
National Remote Sensing Center
(Environmental Information center)
for Disaster

www.icc.mn

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Remote Sensing/

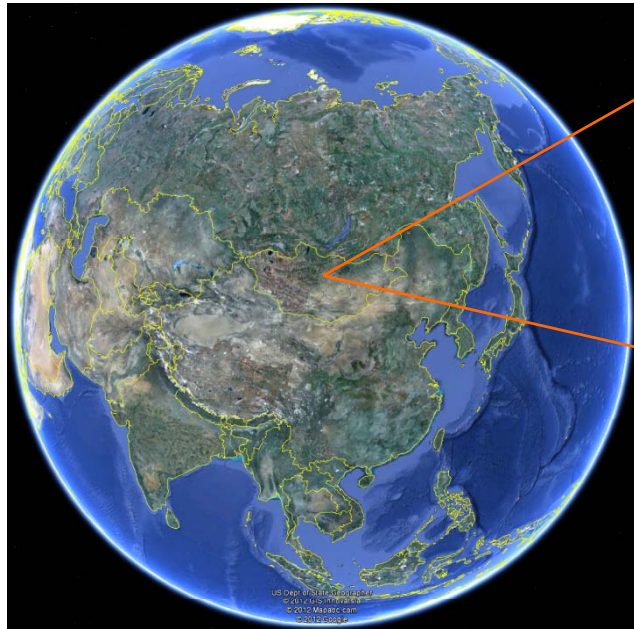
CONTENT

- Background
- Disaster situation of Mongolia
- Activity of NRSC
- Operational services, NRSC
- Natural disaster Monitoring
- Environmental database



BACKGROUND

Mongolia is a landlocked country located in Central Asia. The highland with an area of 1,565,000 km² and a population of 2.9 million, The country is bordered by Russia to the north and China to the south, east and west.



Mongolia nature and geography

Mongolia has one of the coldest climates in the world, with temperatures dropping below -25°C for several months each year. And but summer is hot and not so long. Therefore Mongolia is known to the world as a country of "Blue Sky"



Spring



Autumn



Summer



Winter

DISASTER SITUATION OF MONGOLIA (MAIN DISASTERS)

Drought



Dzud (Winter storms)



Storms



Dust storm

Wildfire

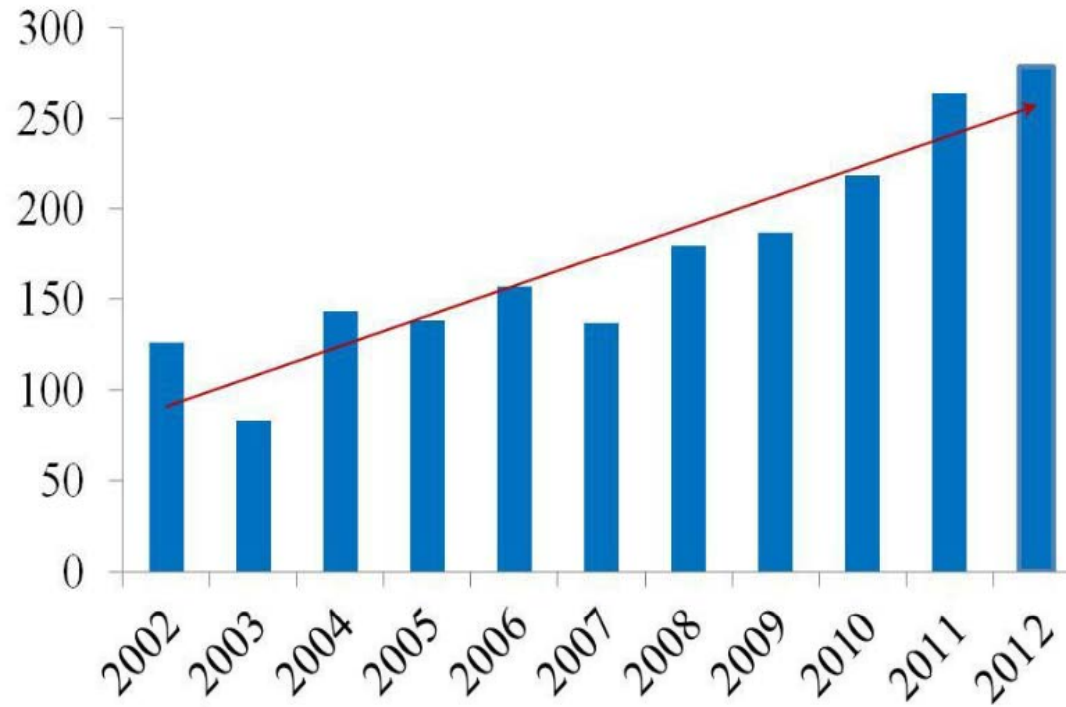


Wildfire

Winter storms



NUMBER OF DEAD PEOPLE LOST IN THE DISASTERS BETWEEN 2002-2012.



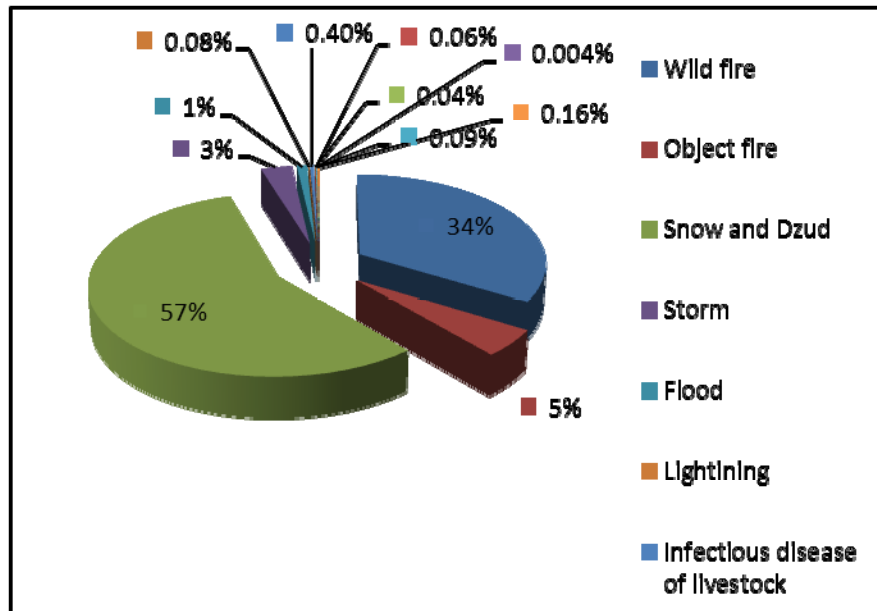
The number of the people lost their lives in the disasters

source by NEMA

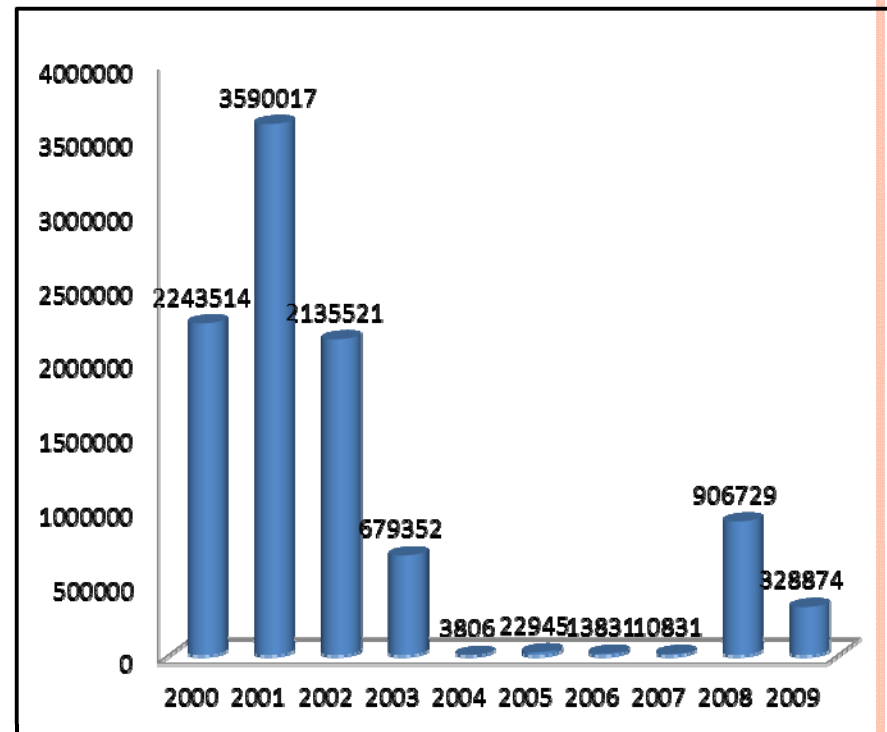


Major disaster types:

Type of disasters in percentage, between 2000-2009.



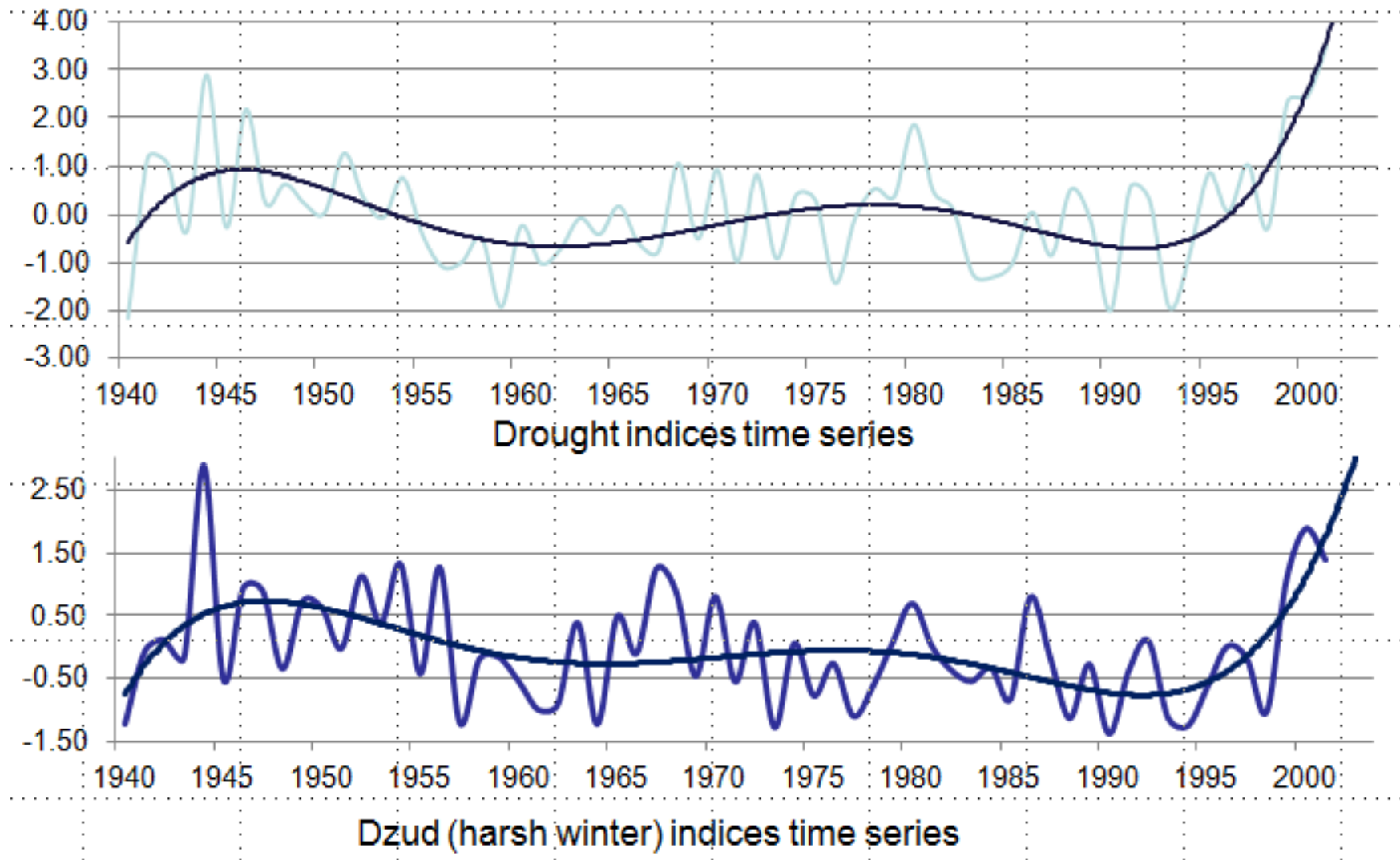
Number of dead livestock in all disaster, between 2000-2009.



Maximum dead livestock: 2001: 3590017



Drought and Dzud dynamics



The intensity, frequency and area of natural hazards/natural disasters are increasing
(L.Natsagdorj et al, 2004)

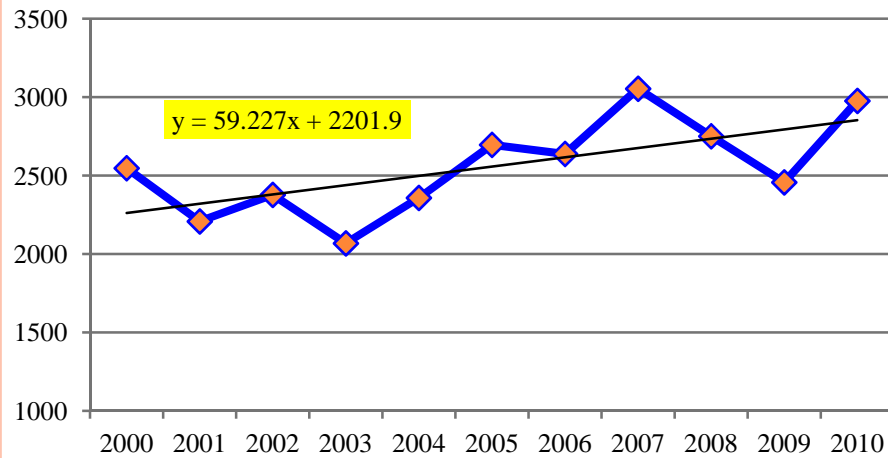
Livestock losses, 2000-2012



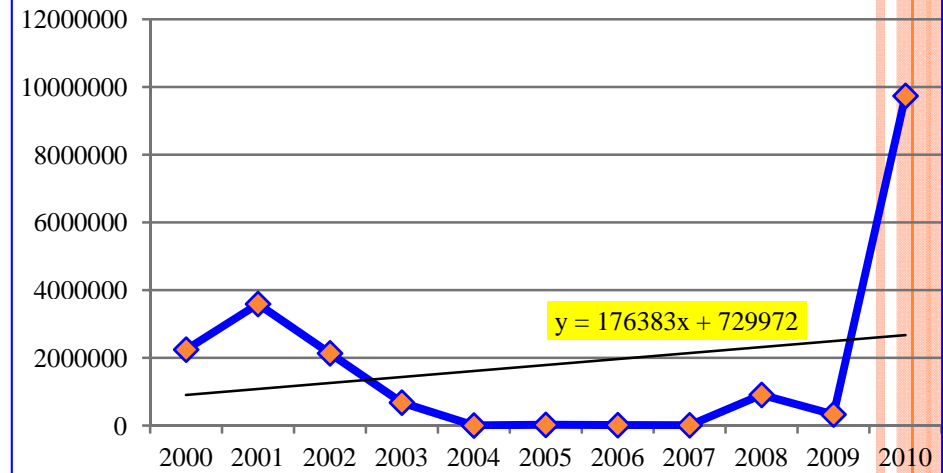
In 2010, 1/3 of total livestock died. One reason is the poor condition of many pastures as a result of last summer's drought (2009).

Statistics of Natural disasters between 2000-2010

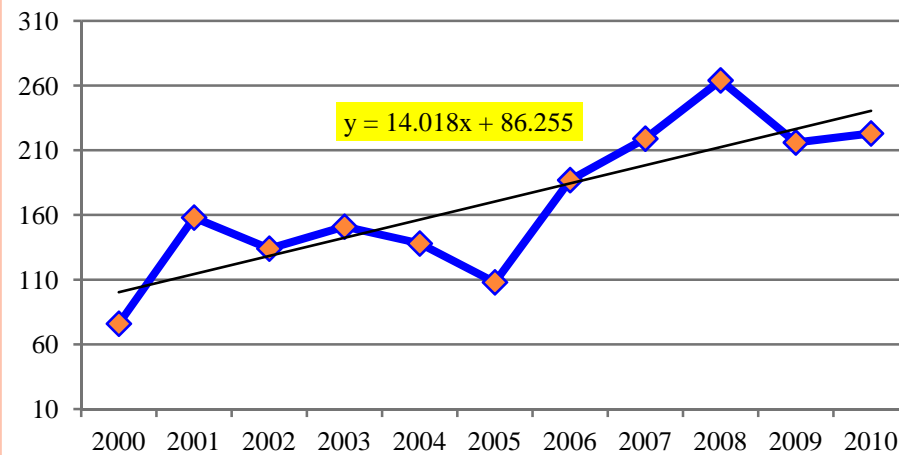
Total # of disasters and trend of change



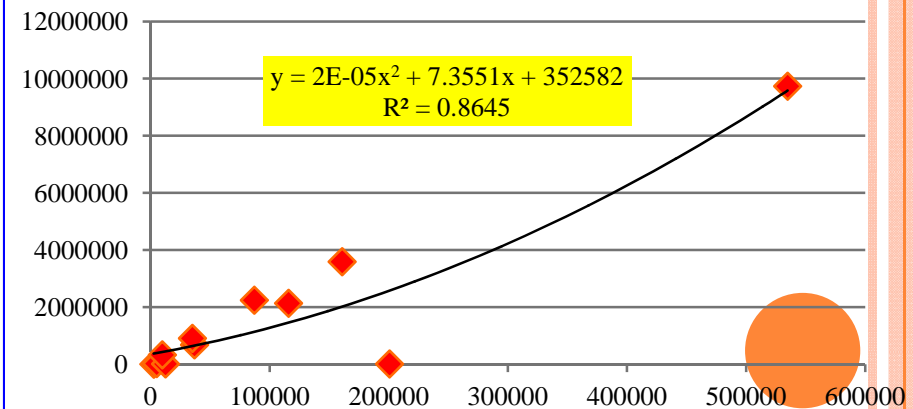
of dead livestock



of affected people



Correlation between # of dead livestock & economic losses



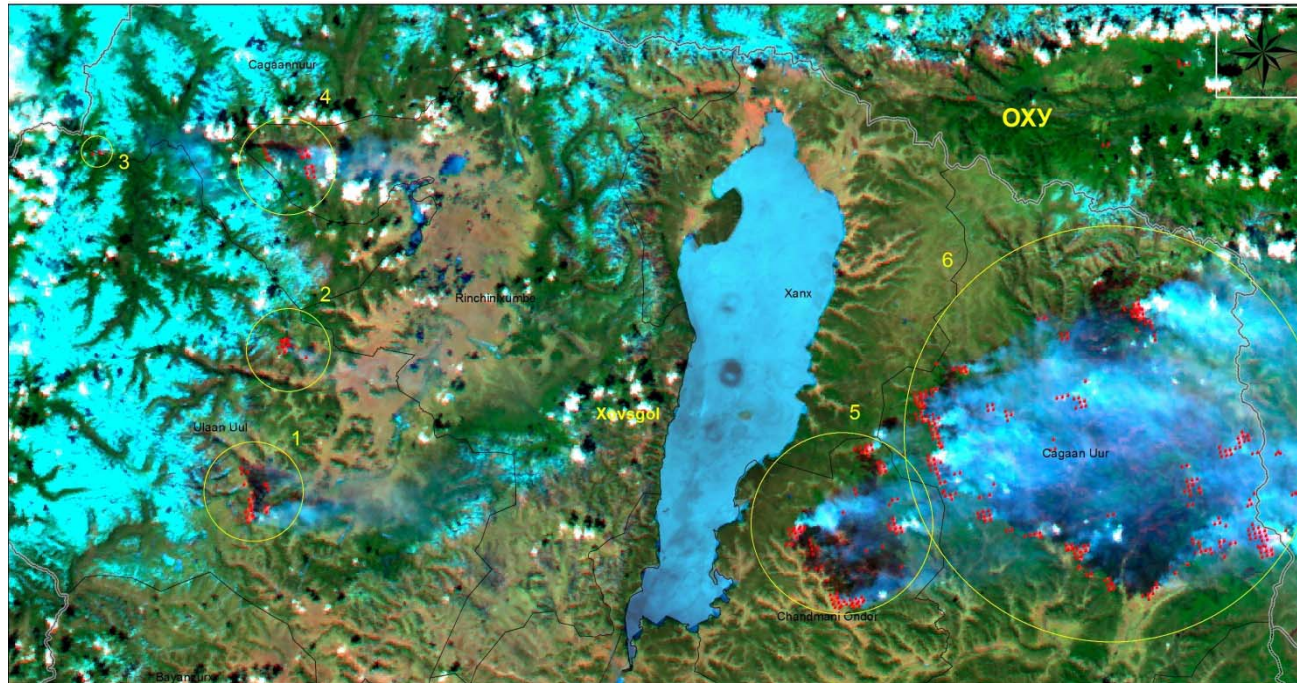
OPERATIONAL SERVICES of NRSC

- NRSC has its operational activities like acquisition of satellite data from MODIS-TERRA/AQUA, NPP, NOAA, FY2C/D/E, processing satellite data to products, data sharing to the users, etc.
 - Wildfire: Steppe fire and Forest /MODIS/
 - Snow cover /MODIS/
 - Vegetation /MODIS/
 - Biomass
 - Dust /MODIS/
 - Aerosol /MODIS/
 - Land surface temperature /MODIS/
 - Drought /MODIS/
 - Cloud /FY2D/
 - Cloud /Suomi-NPP/

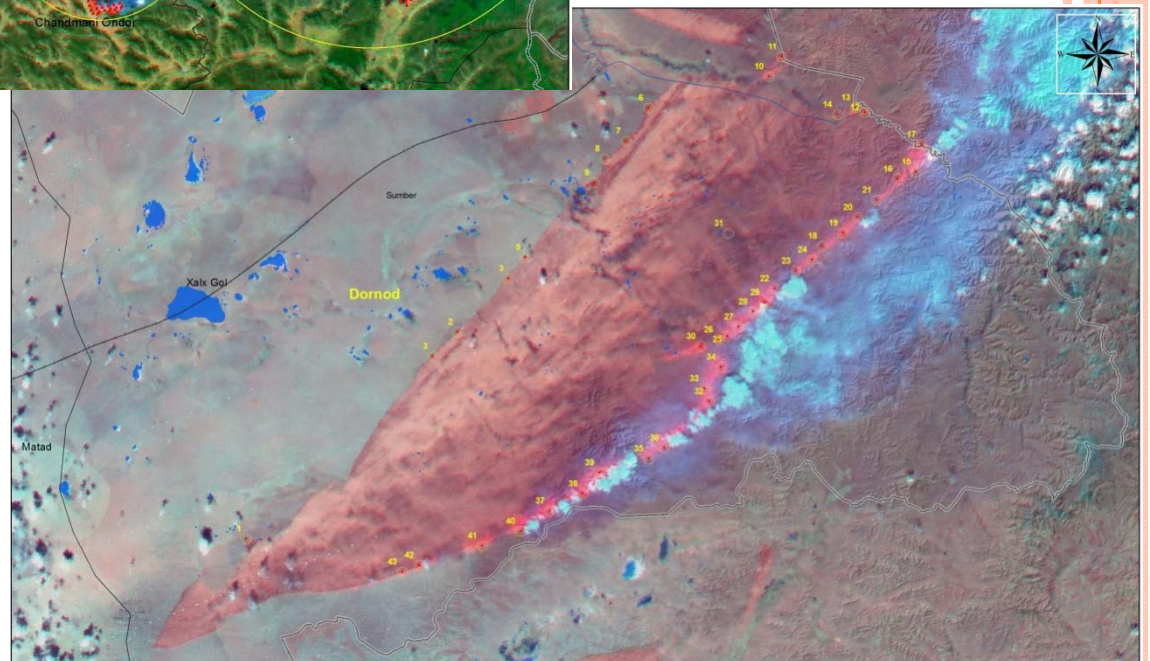


WILDFIRE

Forest fire



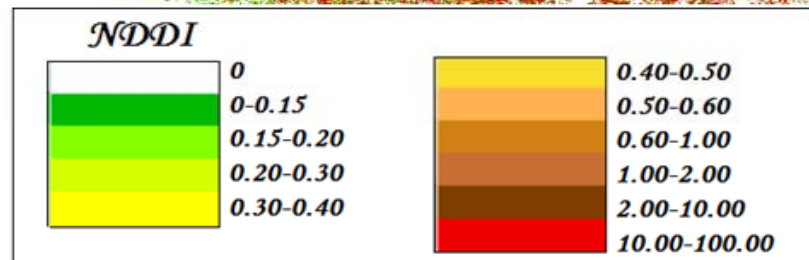
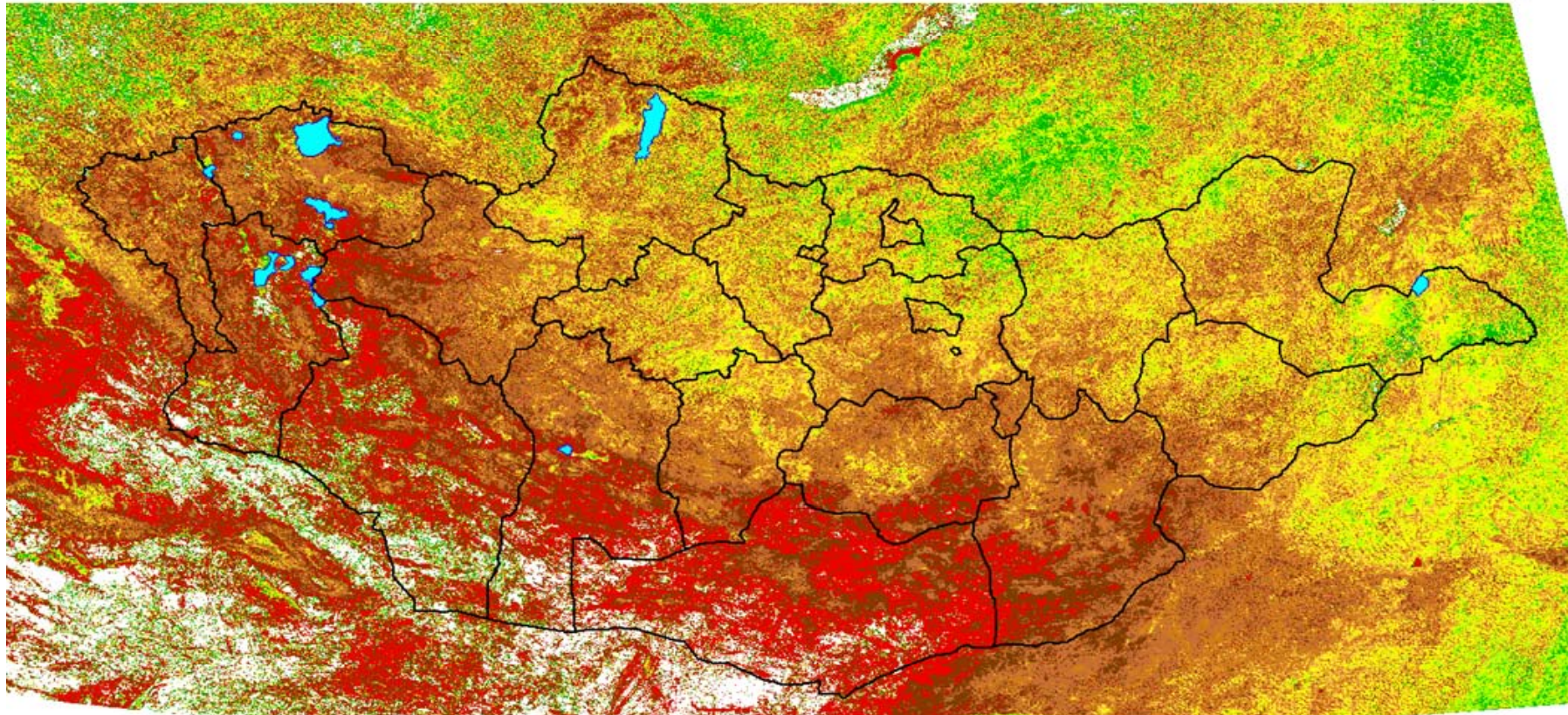
Steppe fire



DROUGHT /NDDI/

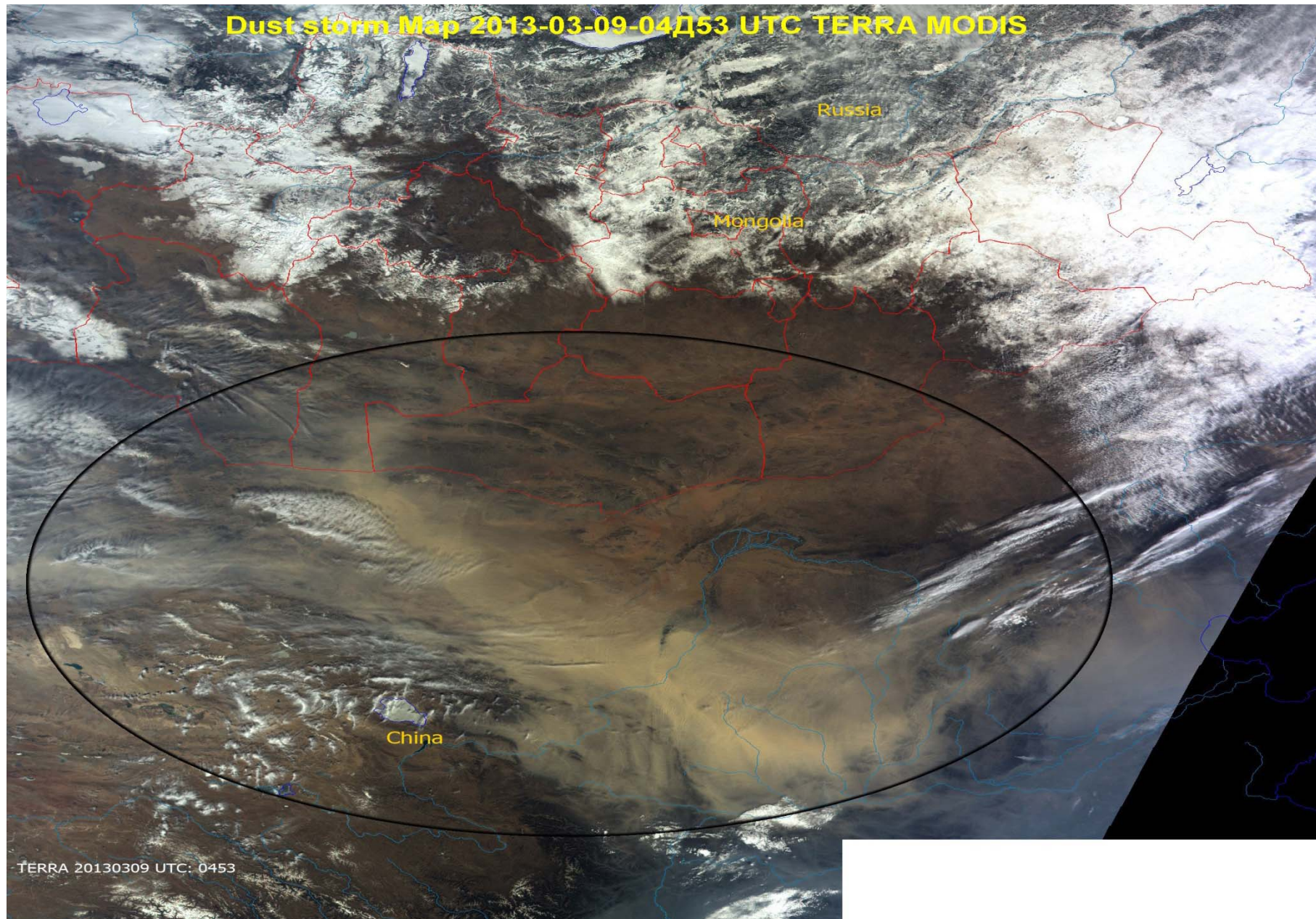
Normalized difference Drought Index

2nd decade June, 2013

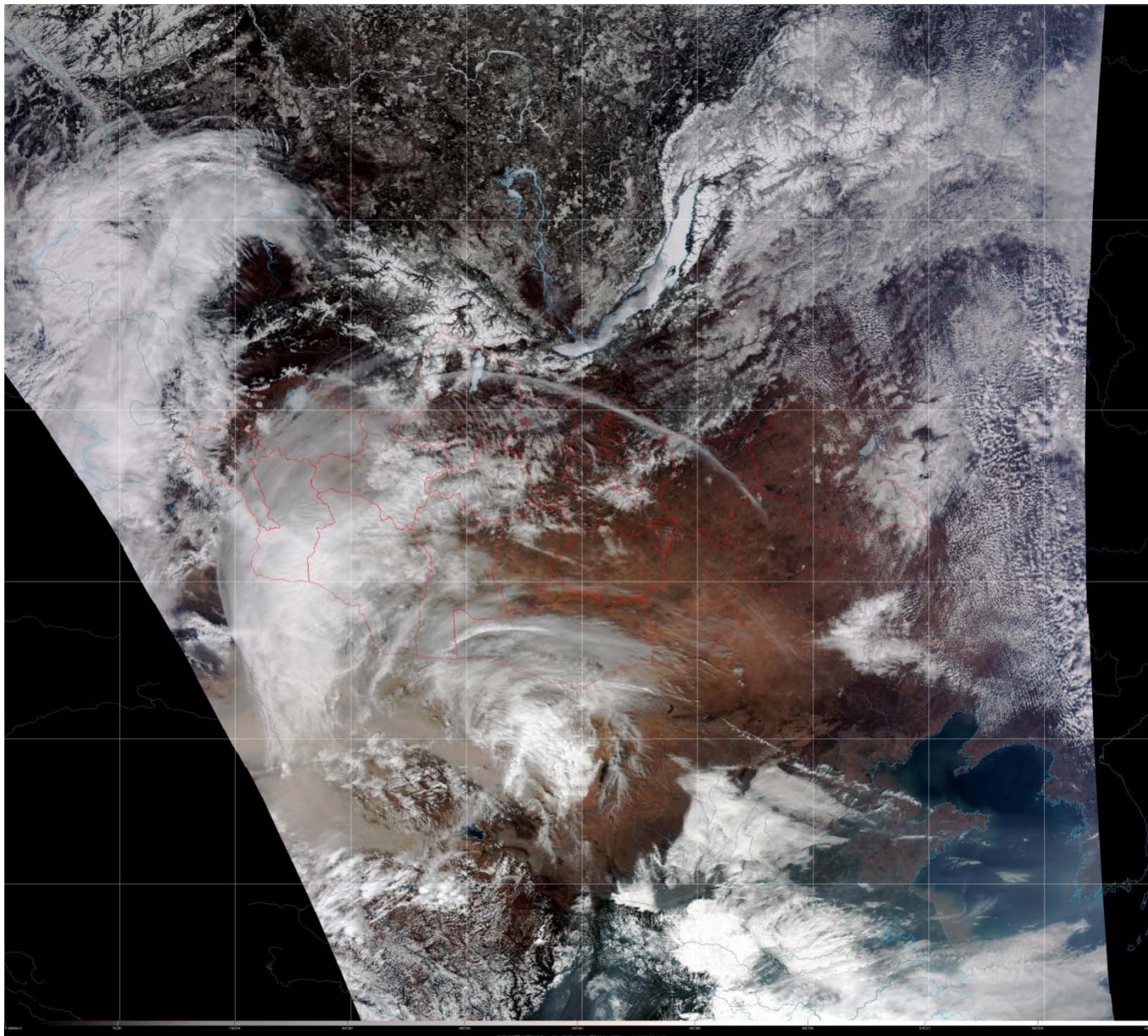


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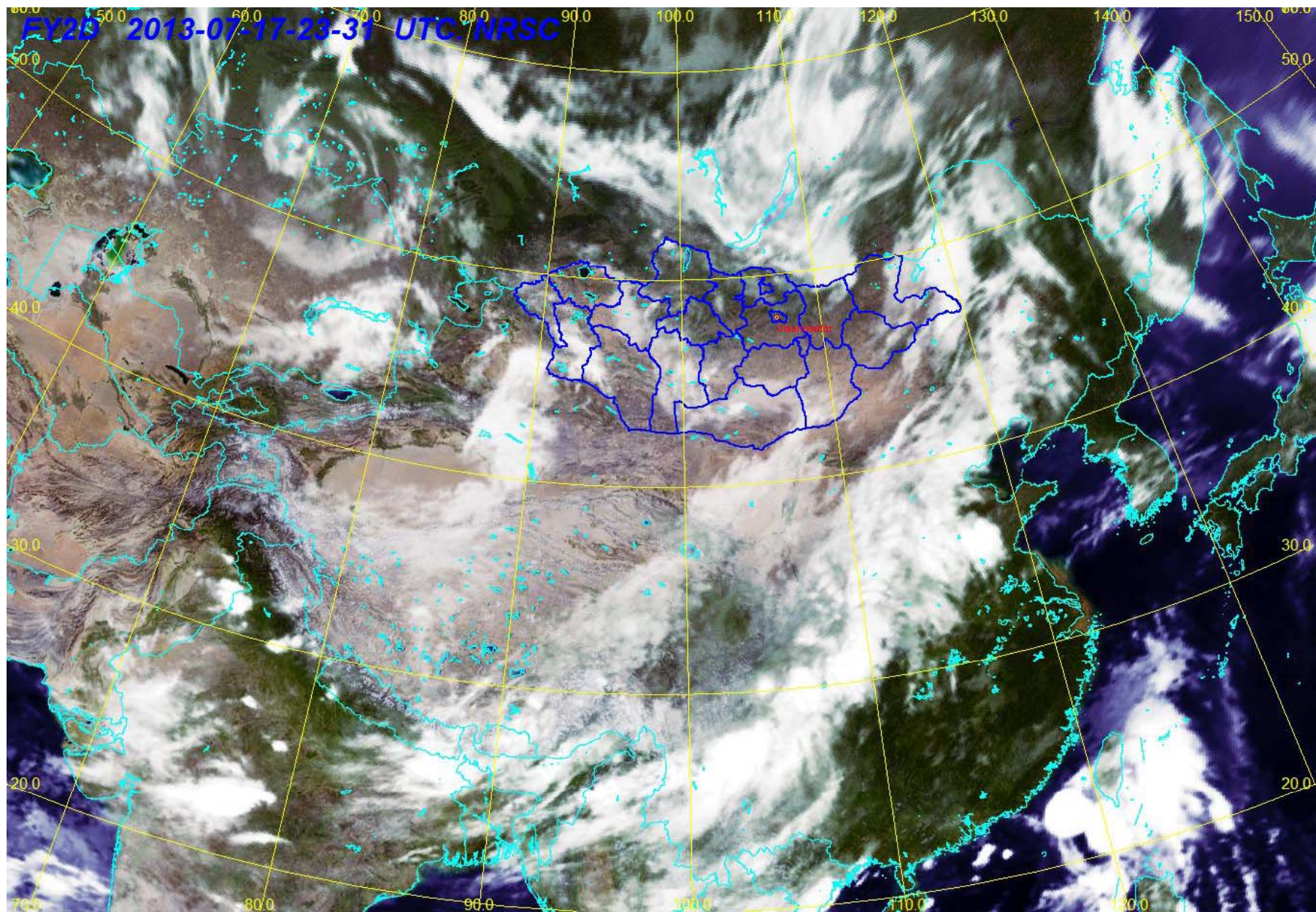
DUST

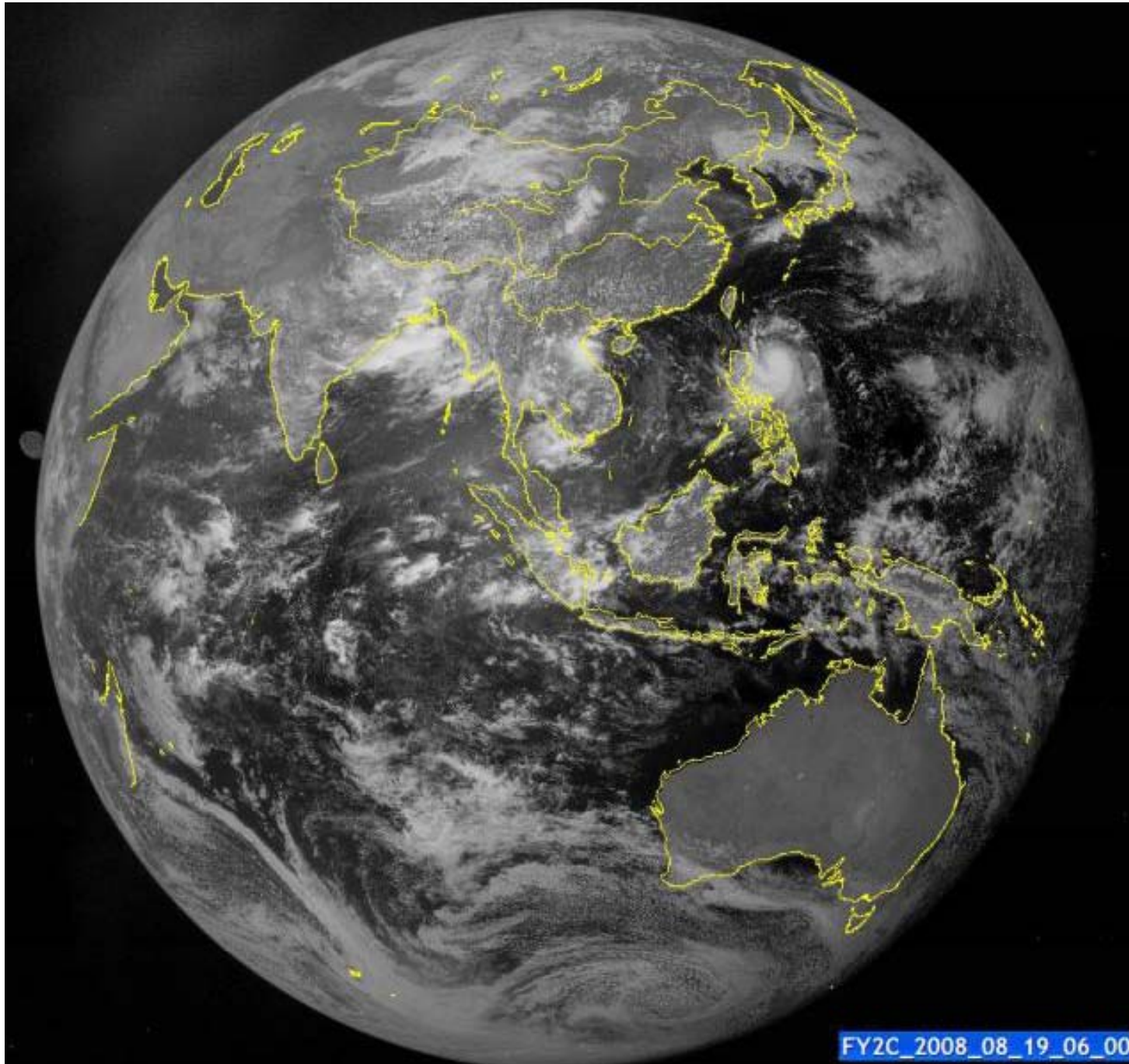


CLOUD BY SUOMI-NPP/VIIRS/



CLOUD BY FY2D





ILLUSTRATE
D EARTH BY
FY2C
SATELLITE
IMAGE





ILLUSTRATE
D EARTH
AND MOON
BY FY2C
SATELLITE
IMAGE

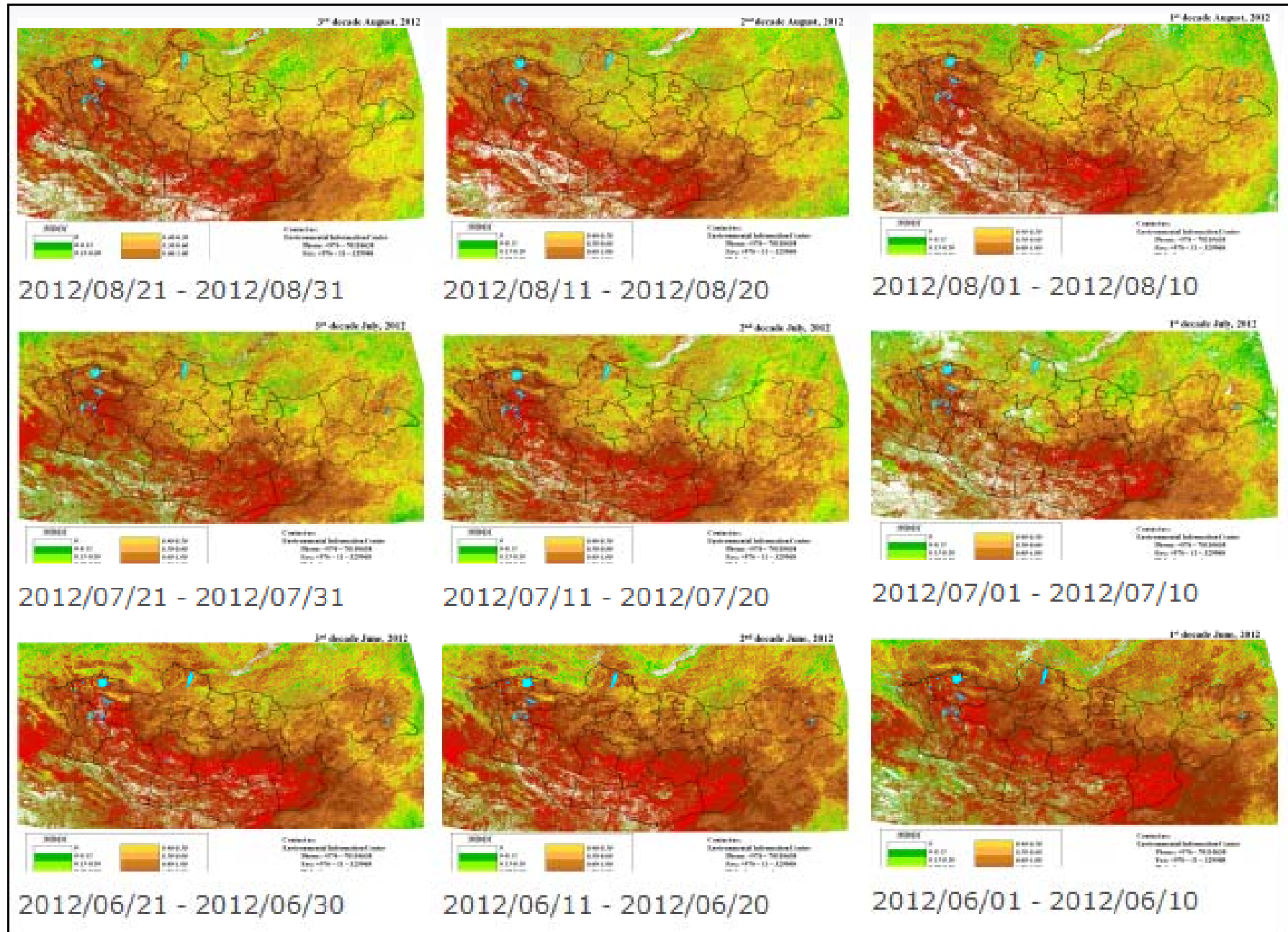


NATURAL DISASTER MONITORING

- Natural Resource monitoring:
 - Drought map
 - Wildfire detection and mapping
 - Dzud (harsh winter, heavy snow cover)



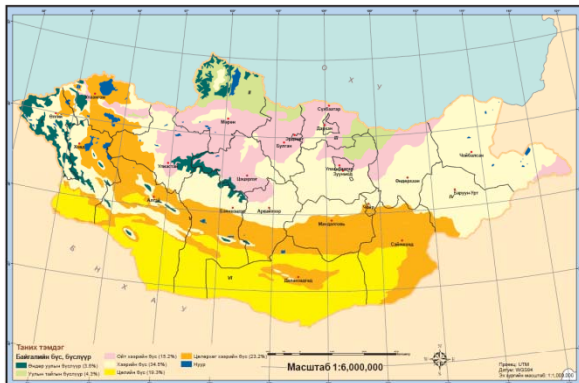
DROUGHT MONITORING



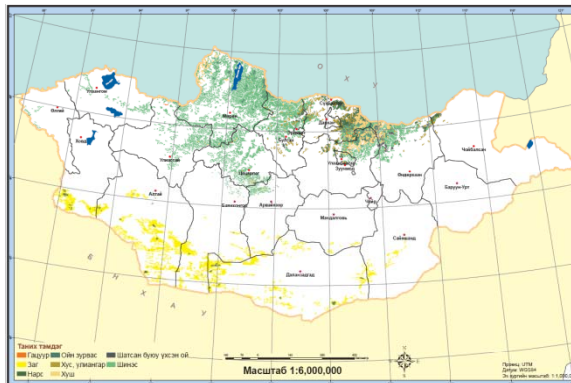
Wildfire detection and mapping

- In mid 1990s increased fire occurrence and affected forest and grassland ecosystem of Mongolia
- Most of fire caused by human activities (80-90%)
- Fire damaging forests its resource is counted only 8.1% of territory including saxaul trees in the Gobi region

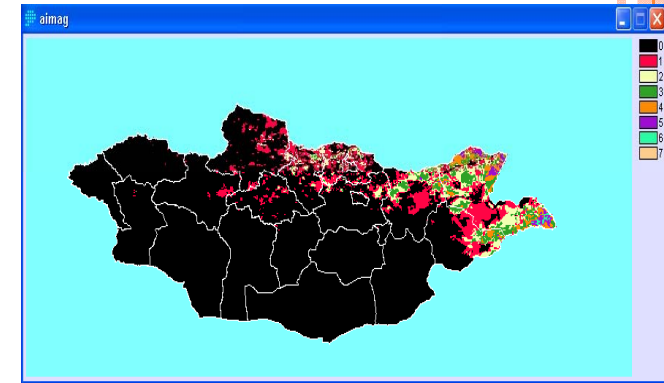
Natural zones map



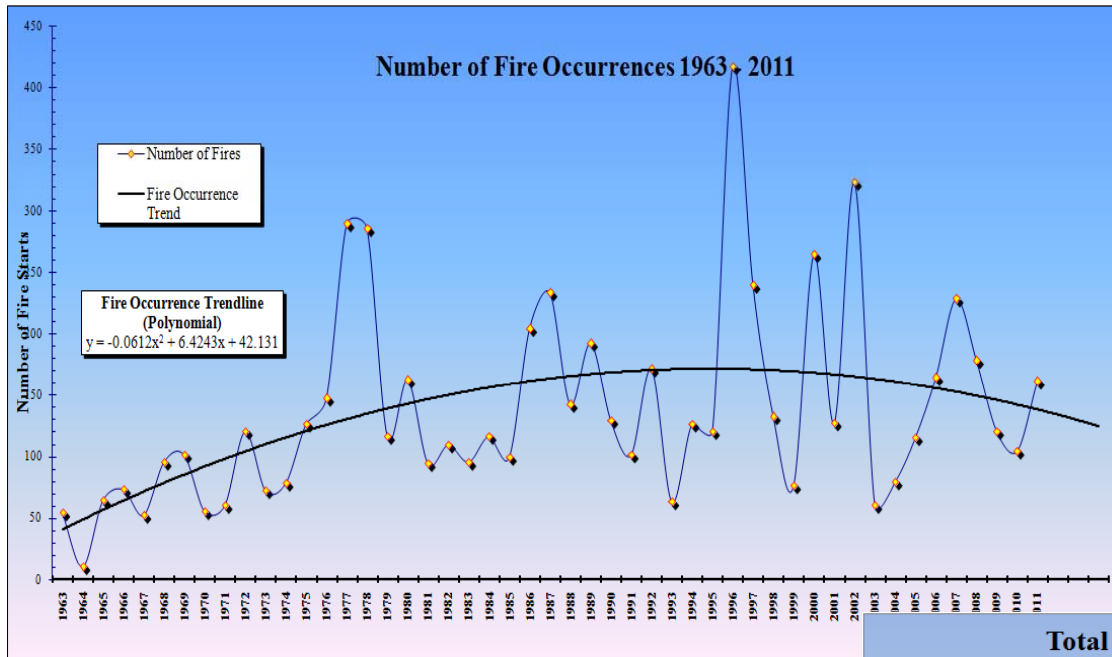
Forest map



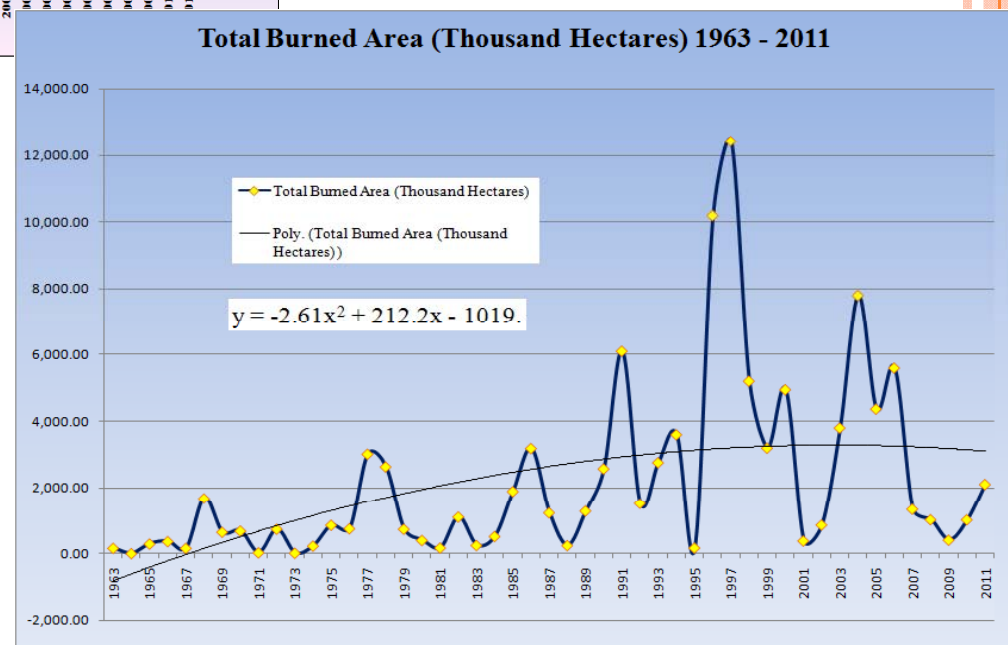
Fire frequency map



Fire Statistics, 1963 – 2011



Maximum number of fires:
 1996 – 415 fires
 Trend: slightly decreasing



Maximum burnt area:
 1997 – 12'440'000 ha
 Trend: increasing

Environmental Information Center



[MODIS Products](#) [NOAA Products](#) [FY Products](#) [Environmental Database](#) [Data Catalog Service](#) [Satellite Maps](#)

MODIS PRODUCTS

Maps:

- Aerosol
- Dust
- Fire
- Snow
- Vegetation
- Land Surface Temperature
- Drought

Data:

- Browse Data
- MODIS/Terra Raw Data
- MODIS/Aqua Raw Data

NOAA PRODUCTS

Maps:

- Biomass
- Drought
- Dust
- Fire
- Snow
- Vegetation

Data:

- Browse Data

FY PRODUCTS

Maps:

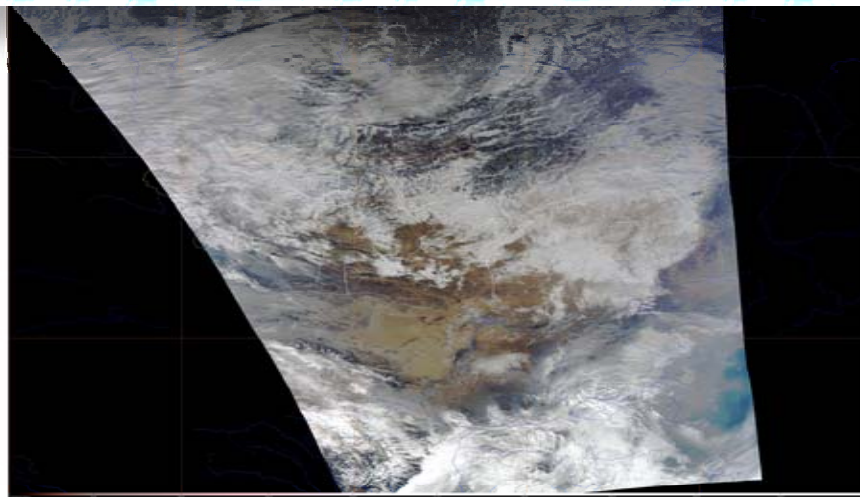
- Cloud
- Air temperature
- Precipitation

Data:

- Browse Data

The EIC is a specialized center in remote sensing, geographic information system, database applications and networking solutions.

<http://www.icc.mn>



LANGUAGES

 English

ENVIRONMENTAL DATABASE



DISASTER INFORMATION SERVICE



INFORMATION OF THE GOVERNMENT MONGOLIA

[Засгийн газрын хуралдаанаар хэлэлцэх асуудлын төлөвлөгөө](#)

WEATHER INFORMATION



www.1539-3933.mn

Үндэсний хэмжээний мэдээллийн сан - National Databases



Мета мэдээллийн сан
Metadatabase



Гео-Мэдээллийн сан
Geodatabase

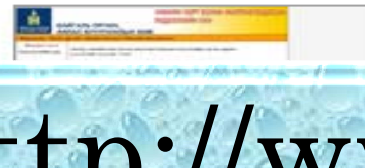


Удирдлагын мэдээллийн сан
Administration Database

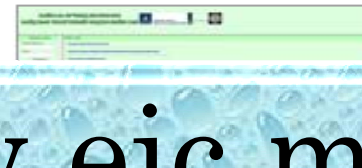
Дэд Мэдээллийн сан - Sub Databases



Тусгай хамгаалалттай газар нутгийн мэдээллийн сан
Special Protected Areas Database



Химийн бохирдлын мэдээллийн сан
Chemical Pollution Database



Экологийн гажуудал үнэлгээний мэдээллийн сан
Environmental Impact Assessment Database

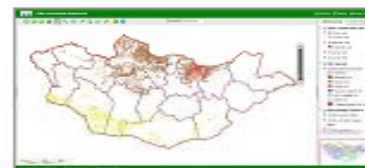


Агаарын бохирдлын мэдээллийн сан
Air Pollution Database

<http://www.eic.mn/>



Байгаль орчны статистик мэдээллийн сан
Environmental Statistical Database



Ойн тооллогын мэдээллийн сан
Forest Inventory Database



Эвдэрсэн газрын тооллогын мэдээллийн сан
Degraded Land Inventory Database



Цөлжилтийн мэдээллийн сан
Desertification Database



БО-ны эрх зүйн мэдээллийн сан
Environmental Legalinfo Database



БО-ны төсөл, хөтөлбөрийн мэдээллийн сан
Environmental Project and Policy Database

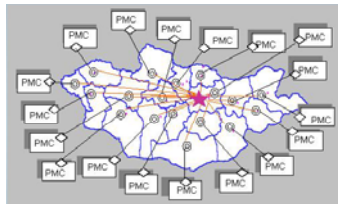
Data sharing to service by Disaster Information

NEMA
National Emergency Management Agency



- by phone call
- by internet using Web sites
- by hard copy

All aimags



- by existing VSAT network of EIC
- by internet using Web sites
- by FTP

Satellite products
(Daily and total)



Web sites:
www.icc.mn
www.mne-ngic.mn

• Bulletin (IMH)

Institute of Meteorology and Hydrology



- by phone call
- by internet using Web sites
- by hard copy

MNEGD

Ministry of Environment and Green Development of Mongolia



THANK YOU !





Dead livestock



Ger /home-house/



Winter storms



Wildfire





Storms