



Characteristics analysis on the **2013 summer** in Mongolia

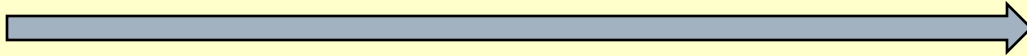
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05 November 2013



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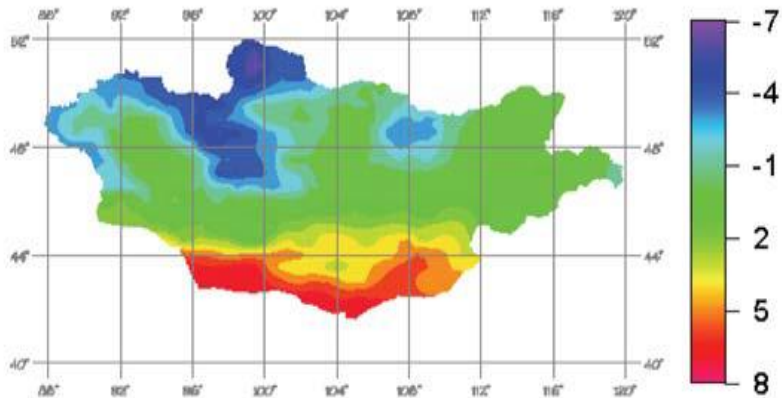
Climate of Mongolia

- Topography



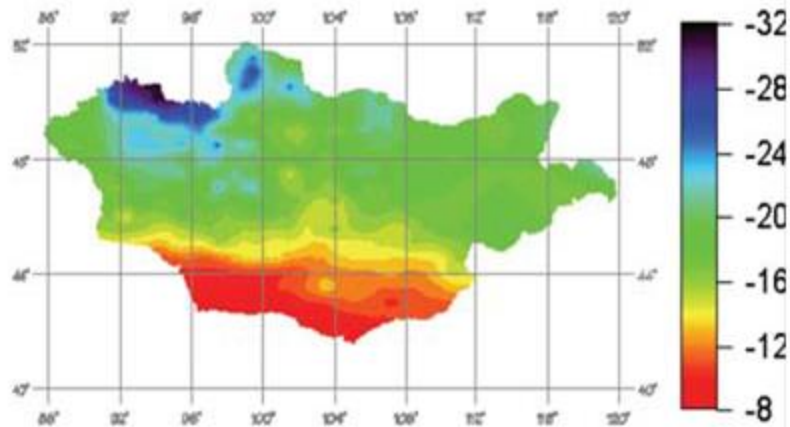


Climate of Mongolia

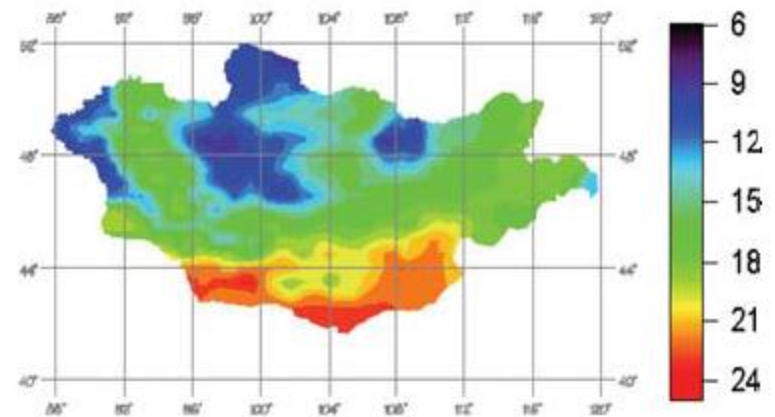


Annual Mean Air Temperature Map

- Generally climate is dry short summer and long cold winter
- Annual mean temperature varies 8 to -7°C
- Winter mean temperature varies -8 to -31°C
- Summer mean temperature varies 6 to 24°C



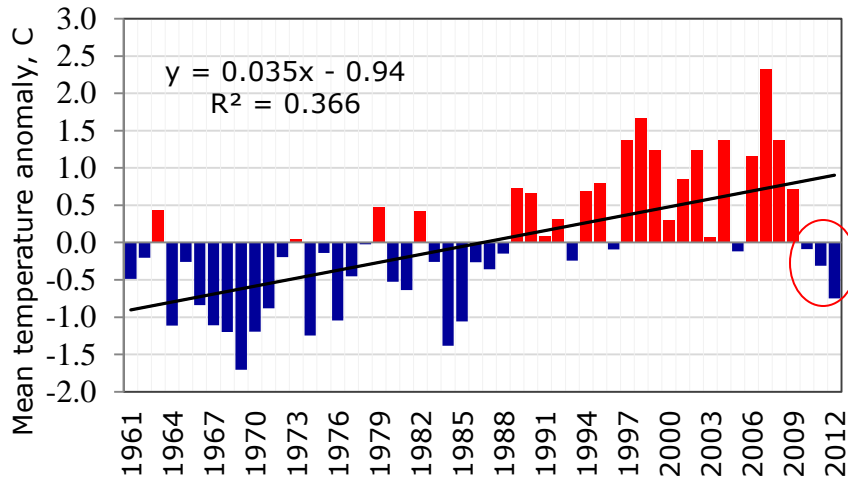
Map of Mean Temperature in Winter



Map of Mean Temperature in Summer

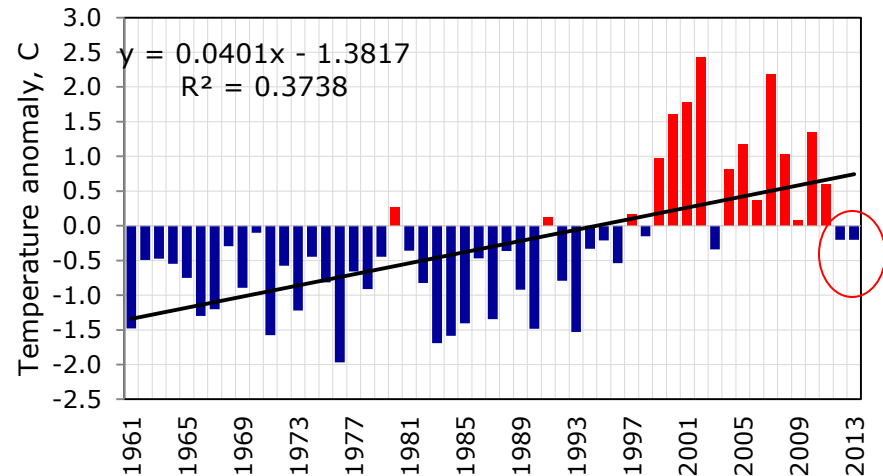


Changing temperature



Normalized anomalies of mean annual temperature period 1961-2012 in Mongolia (anomaly 1981-2010)

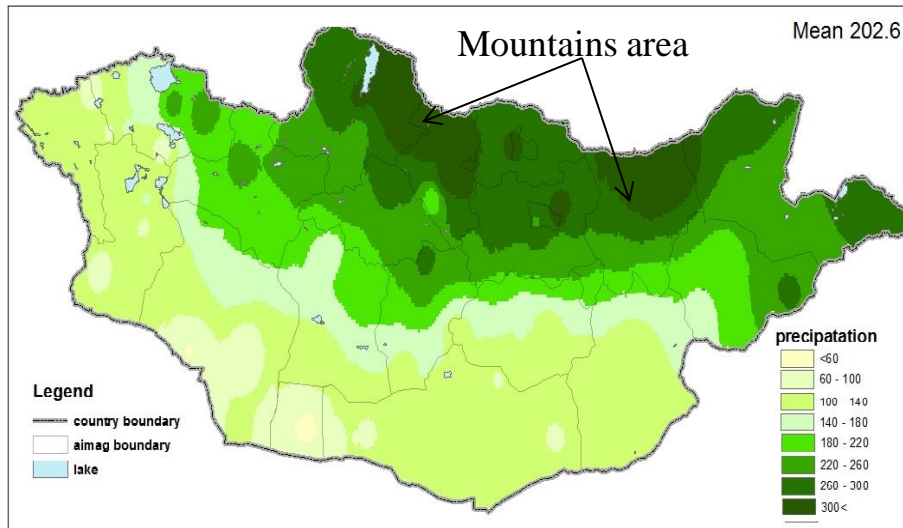
- During last 50 years (1961-2012) the annual mean temperature in increased by 1.8°C
- Summer temperature is increasing by 1.9°C



Seasonal air temperature anomalies in summer from 1961-2013 in Mongolia (June -August anomaly 1981-2010)

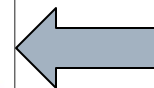


Precipitation

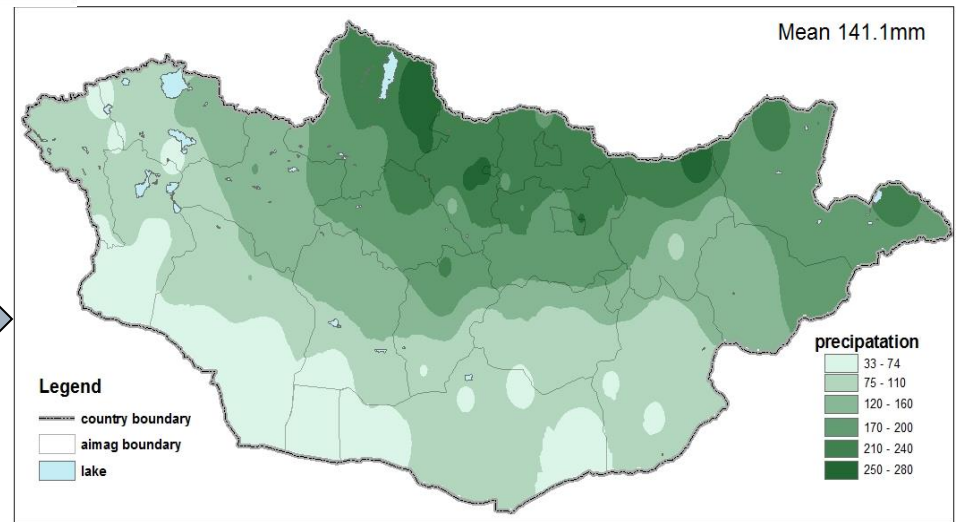
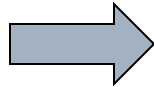


Annual mean precipitation

About 85% of total precipitation falls in warm season from April to September, of which about 50-60% falls in July and August.



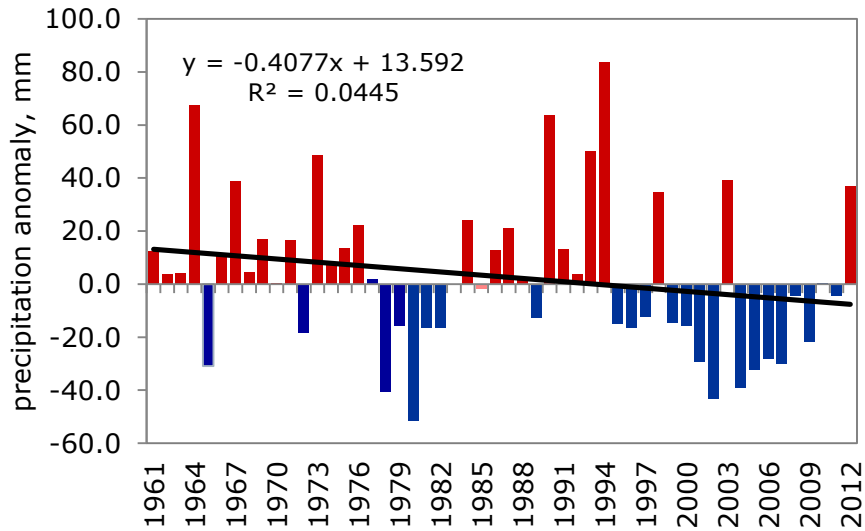
Summer rainfall generally exceeds 280 mm in the mountains and is less than 50 mm in the desert areas.



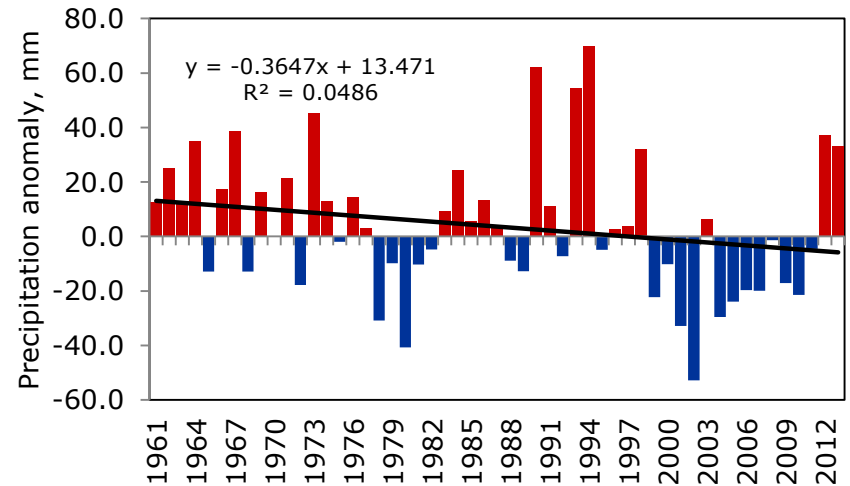
Summer annual precipitation



Changing precipitation



Normalized anomalies of annual mean precipitation for 1961 to 2012 period



Normalized anomalies of summer mean precipitation for 1961 to 2013 period



Climate characteristics of 2013 summer

Temperature

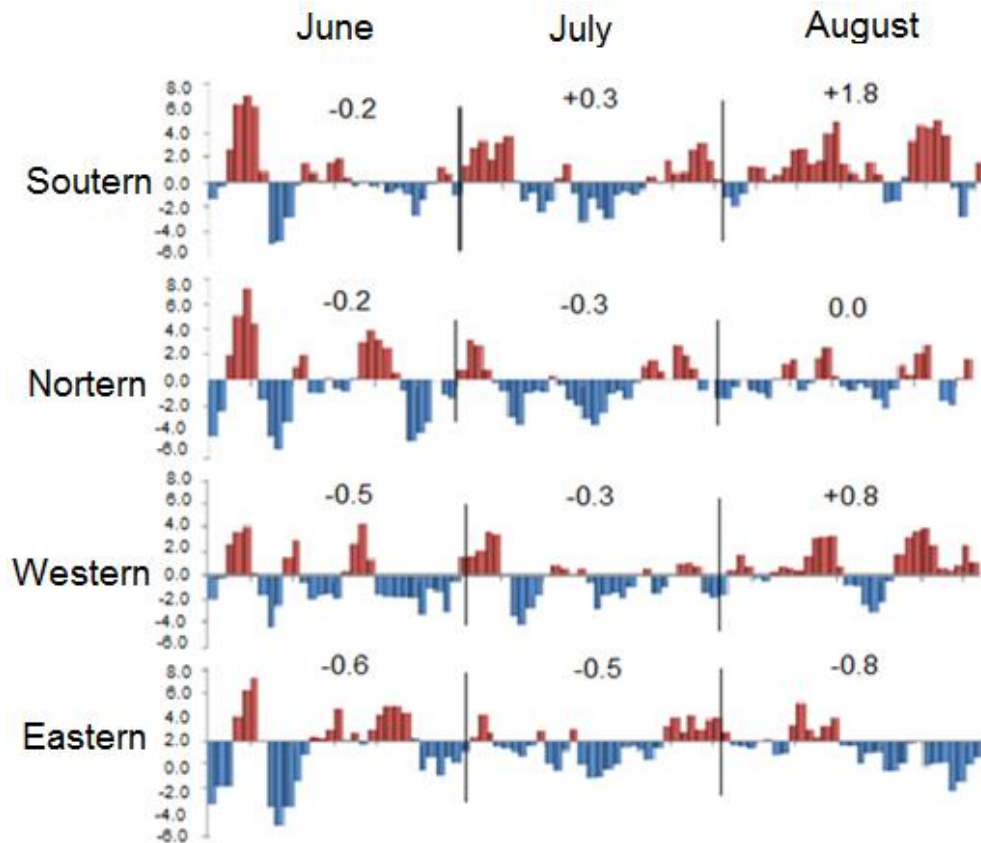
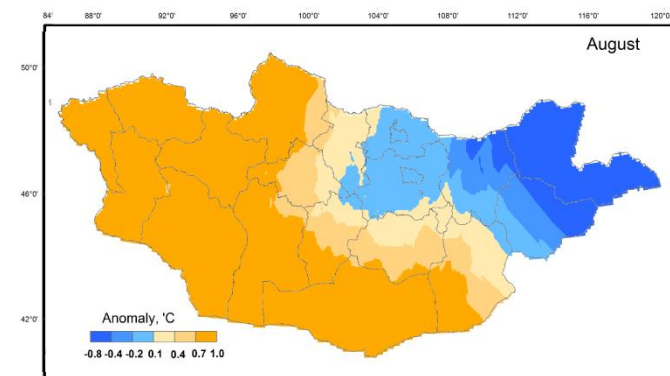
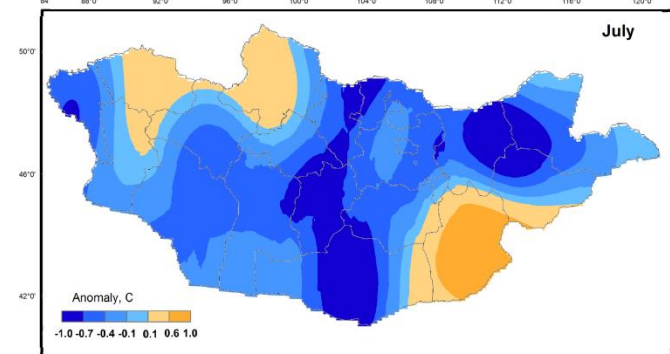
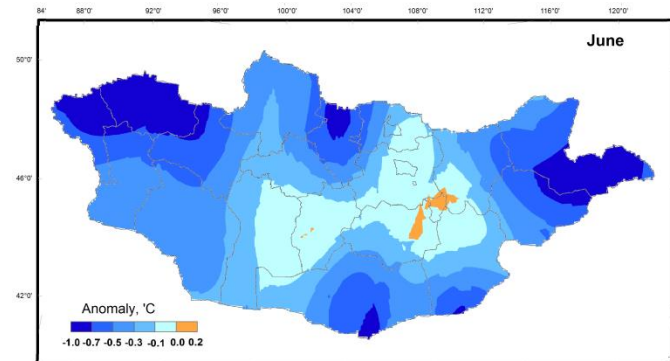


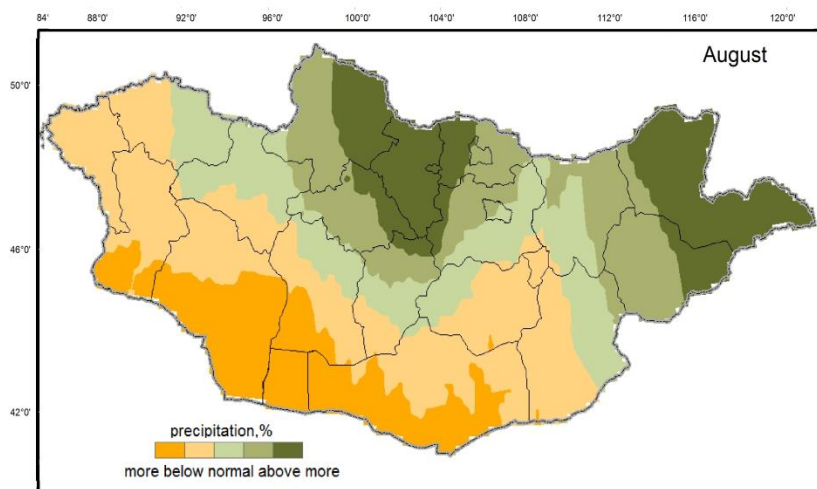
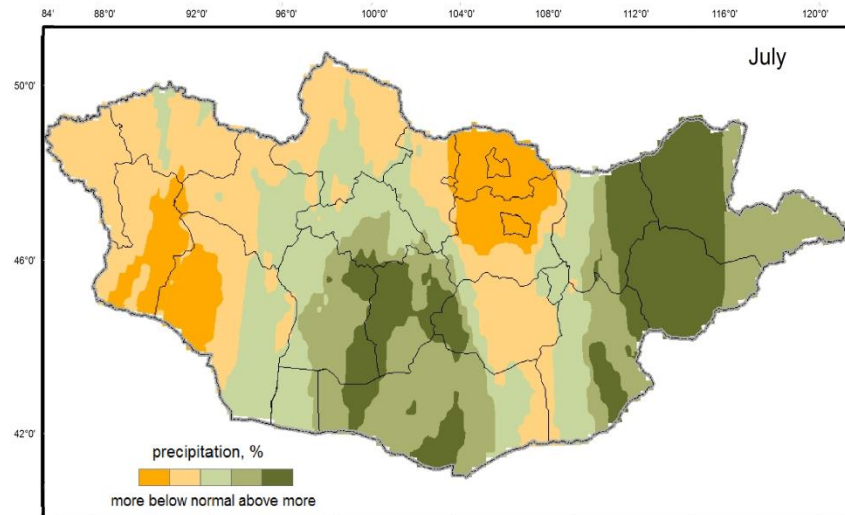
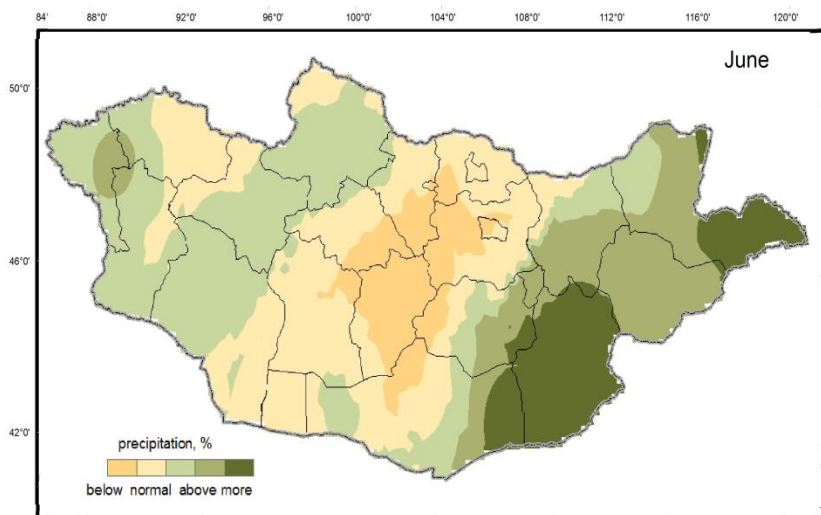
Fig Time series of five days running mean anomalies (unit: 0C) for four regions of Mongolia from 1 June to 31 August, 2013





Climate characteristics of 2013 summer

☐ Precipitation



region	June	July	August
Southern	171%	82%	67%
Western	124%	105%	126%
Northern	120%	74%	169%
Eastern	135%	124%	184%

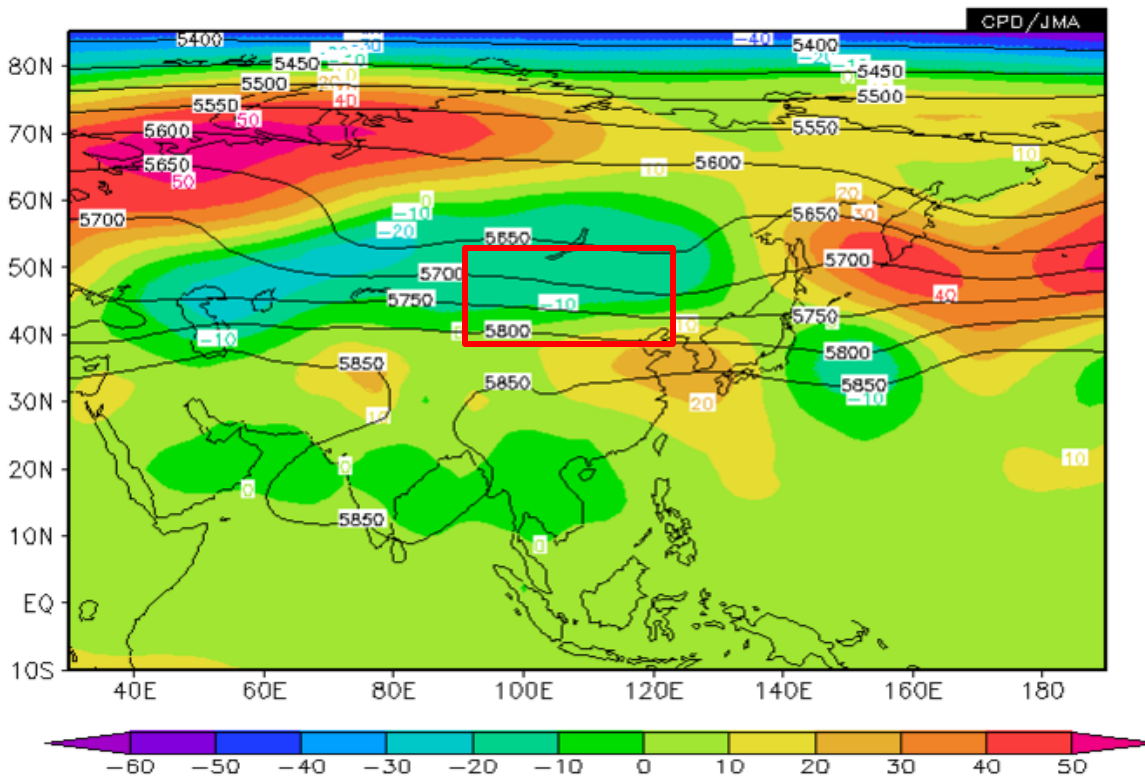


Climate characteristics of 2013 summer

□ Temperature

DATA1 JRA-JCDAS z23 ANOM lat = -10:85 lon = 30:190 level = 6:6
time = 2013060100:2013080100 ave = 3MO

DATA2 JRA-JCDAS z23 HIST lat = -10:85 lon = 30:190 level = 6:6
time = 2013060100:2013080100 ave = 3MO analysis method = DATA1_DATA2



500hPa Geopotential height and anomaly in JJA of 2013, air mass is dominant westerly over Central Asian and Mongolia.

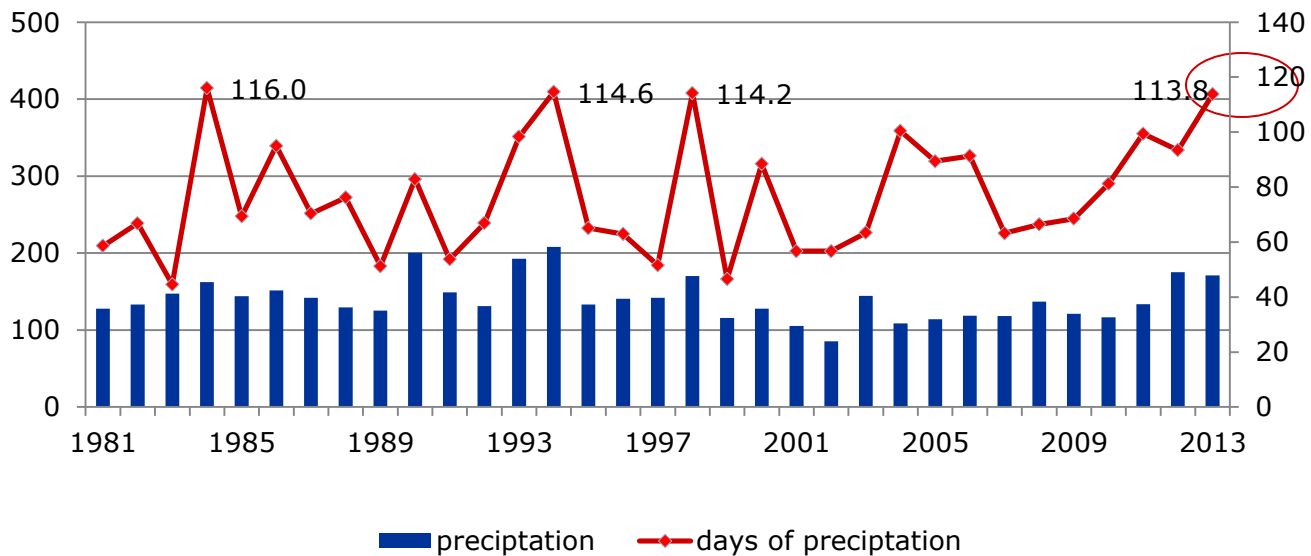
- Increasing rainfall
- Decreasing temperature

-In the 500hPa anomalies, it was less than normal over central Asia (-20hPa) and Mongolia (-10hPa).



Climate characteristics of 2013 summer

☐ Mean and daily Precipitation in Mongolia for 30 years



- ✓ The mean precipitation in Summer 171.2 mm
- ➡ Its 123% compared to the normal
- ✓ The daily precipitation is 113.8mm



Notable news of the climate weather events



The heavy rain with hail observed on 4 July 2013 in Tushig in Northern Mongolia was caused much losses:

- ❑ 204 household windows were broken
- ❑ 202 household the yards were burst
- ❑ 104 number livestock died
- ❑ 1420 fruits bushes damaged
- ❑ 22.7ga vegetables damaged

total estimated at \$250.000





Summary

- In case of June and July, the mean temperature in most part of Mongolia was lower than normal. In August, most regions of Mongolian were above the climatology and the eastern part of Mongolia was lower than normal.
- From June to August 2013, the precipitation of Mongolia was 123% compared the normal. /1981-2010 base average/. The precipitation in June was more- than- normal in all regions of Mongolia.
- The heavy rain with hail events occurred on 4 July 2013 in Tushig sum Of Selenge province, the northern Mongolia. This extreme event *caused loss of life*, disrupt normal human activities, estimated at \$250.000.



Thank 
You

for attention