“Integrated global water cycle observations and Mongolia activities”

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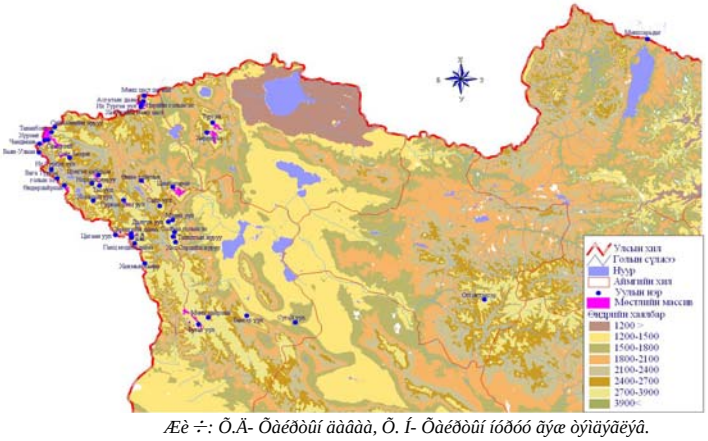
Lake inventories (to be continued using 2010 data)

Size of lake	Size of lake area	Landsat ETM, 2000		Topographic map, scaled S1:100000 (1940th)		Difference of lake area, sq.km	Difference of number of lakes
		Number of lakes	Sum of lake area, sq. km	Number of lakes	Sum of lake area, sq. km		
Very big	>1000	4	8815.214	4	8801.343	13.7	0
Big	≥500.0-<1000.0	2	1196.1	2	1192.3	3.8	0
Bigger	≥100.0-<500.0	9	1913.55	8	1812.8	100.8	1
Medium	≥50.0-<100.0	11	760.62	12	851.8	**-91.2**	**-1**
Medium to small	≥20.0-<50.0	9	256.421	9	254.8	2	0
small	≥10.0-<20.0	30	419.23	29	383.4	36	1
Very small	≥5.0-<10.0	71	489.38	75	444.6	45	-4
Tiny	≥1.0-<5.0	239	556.01	287	531.2	25	-48
Very tiny	≥0.1-<1.0	1710	531.355	3399	964.4	-433	-1689
Шал тойром	0.1>	3081	96.79	1391	114.6	-18	1690
Total		5166	15034.70	5216	15372.07	-373.37	-50

Glacier inventories



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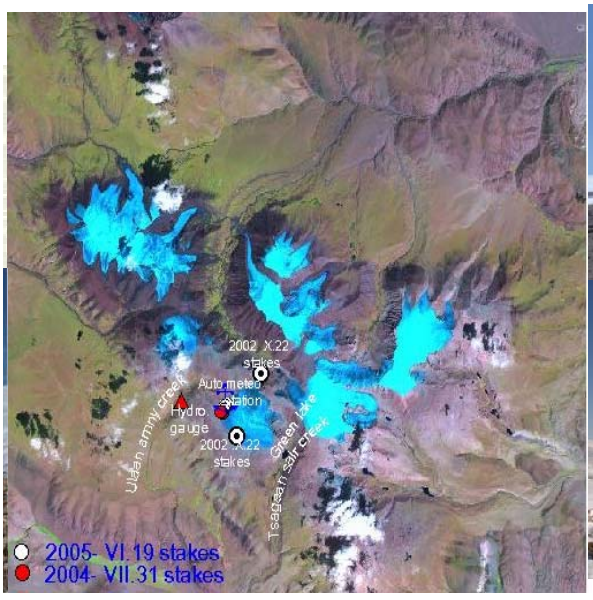
Can be concluded that glacier area decreased by 12.3 % in the period from 1940th till 1989-1992 and by 9.8 % in the period from 1989-1992 till 1999-2002, totally 22 % in last 60 years.

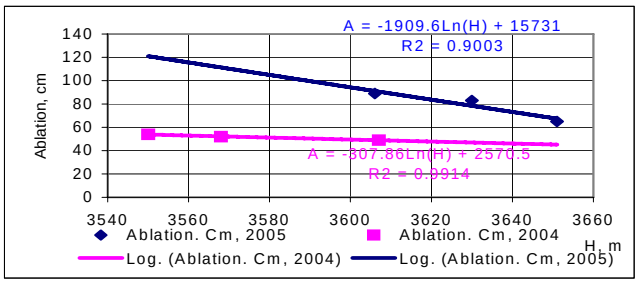
❖ Glacier mapped in topographic S1:100000 in 4 Mts. (Doush, Zurkh, Baga and Chuluut) aren't revealed by LANDSAT ETM.

❖ Existing 6 glacier massifs such as Siilkhem, Upper Salban river, Khokh serkh, Holagash, Ikh Turgen Mts (Syrgali), Otgontenger aren't mapped in topographic S1:100000.

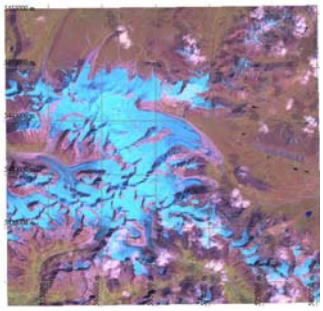
❖ Area and shape of arial distribution of 7 glacier massifs located in Samartai, Chandmani, Tsagaan-Uul, Hairtiin davaa, Hajmiin salaa, 'Sutai and Khatuugiin Monkh tsast Mts. are precise in both topographic map and Landsat images of 1989-1992.

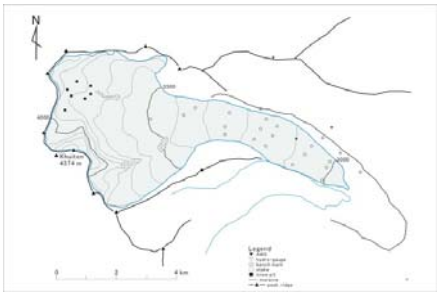
IMH Glacier monitoring, 2003-

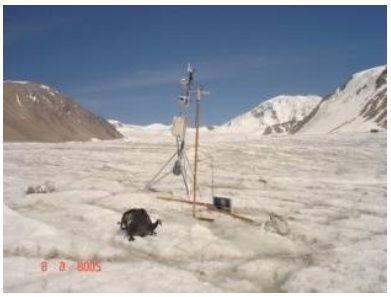


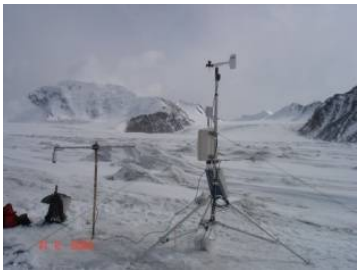


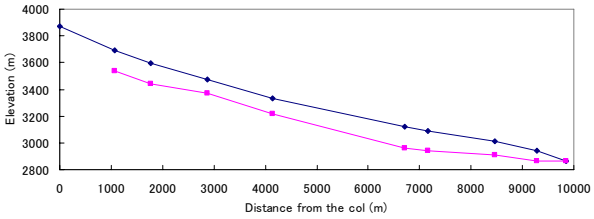
Glacier monitoring IRCC, JAMSTEC and IMH











Source: Dr. Kadota, 2009

Key issues and recommendations:

In situ data collection and country's expected benefit

❖**Soil moisture**

- ➢**Soil moisture monitoring and AMSR-E calibration**
- ➢**Use of calibrated soil moisture data for hydrologic modelling, analysis and contribution to drought monitoring**

❖ **Snow and ice**

- ➢**seasonal snow survey in mountainous region and glacier monitoring (snow measurement and MODIS)**
- ➢**Use of satellite products for snow water equivalent assessment to make model ling of snow and ice melting runoff and related water resources management**
- ➢**Continuation of glacier inventory development (Application of Remote sensing data (ALOS)**

Key issues and recommendations:

In situ data collection and country's expected benefit

- **Runoff and surface water storage**
  - **Hydrologic data collection and analysis (GRDS and update, trans-boundary waters)**
  - **Contribution to the world water resource assessment**
  - **Flash flood guidance system (?)**
  - **Water resource assessment tools (WMO and guidance)**
  - **Intercomparison of flood forecasting**
  - **Use of satellite derived evapotranspiration (Pan evaporation, FLUXNET, Landflux)**
  - **Use of satellite derived precipitation (Yatagai, TRMM and daily, 0.1-0.5^{o} grids)**
  - **Use of satellite derived ground water products (GRACE)**