

U.S.EPA at the Asia-Pacific Mercury Monitoring Meeting & Workshop
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Calculation of mercury emissions from anthropogenic sources Mongolia

(where is best place for installation wet deposition monitoring equipment ?)

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North Mongolia



South Mongolia



	North Mongolian forest - steppe area	South Mongolian Gobi area
Number of days with temperature above zero on the ground surface	170-190 days	230-250 days (surface soil is heated up to 60 ⁰ -65 ⁰ C or more)
Average wind speed per month	2, 2 meter per sec	3, 7 – 4, 0 meter per sec
Average Humidity	50-60%	14-18%
Average monthly precipitation	30-40 mm	3,0-3,9 mm
Yellow dust transportation	Not known	by wind (sometime up to 30-40 m/sec)

Assessment of mercury emissions from anthropogenic sources Mongolia (annually)

	Mercury sources	Annual Mercury emission (Mg)		
		Global (N.Pirrone et.al,2010)	Mongolia (2017)	
1	In the global atmosphere, including re-emission -	5207	---	
2	From Anthropogenic sources	2320	----	
3	From fossil-fuel	810	0.93	
4	artisanal small scale gold mining	400	0,01 (?)	
5	non-ferrous metals manufacturing	310	No data	
6	cement production	236	No data	
7	waste disposal 187	187	No data	
8	caustic soda production -	163	No	
	TOTAL	7527	1.3	

- No production of mercury containing products; No mercury using industries; No recycling activities for mercury containing products

Capital city Ulaanbaatar in winter

Coal burning smoke (lignite from Baganuur,Nalykh deposits)

About 5,9 mln.ton of coal is burned in year 2017



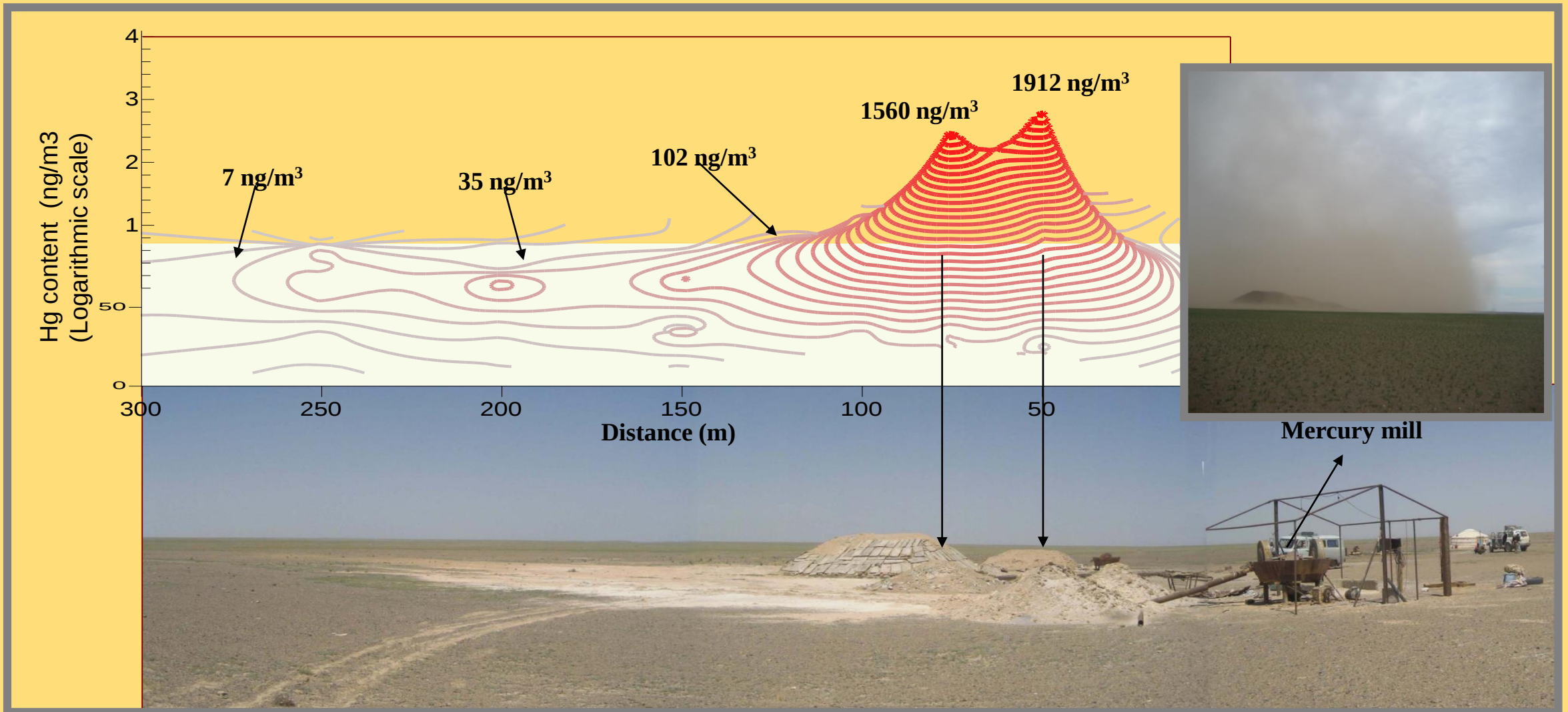
Photo by B.Tumenbayar

Coal consumption in Mongolia

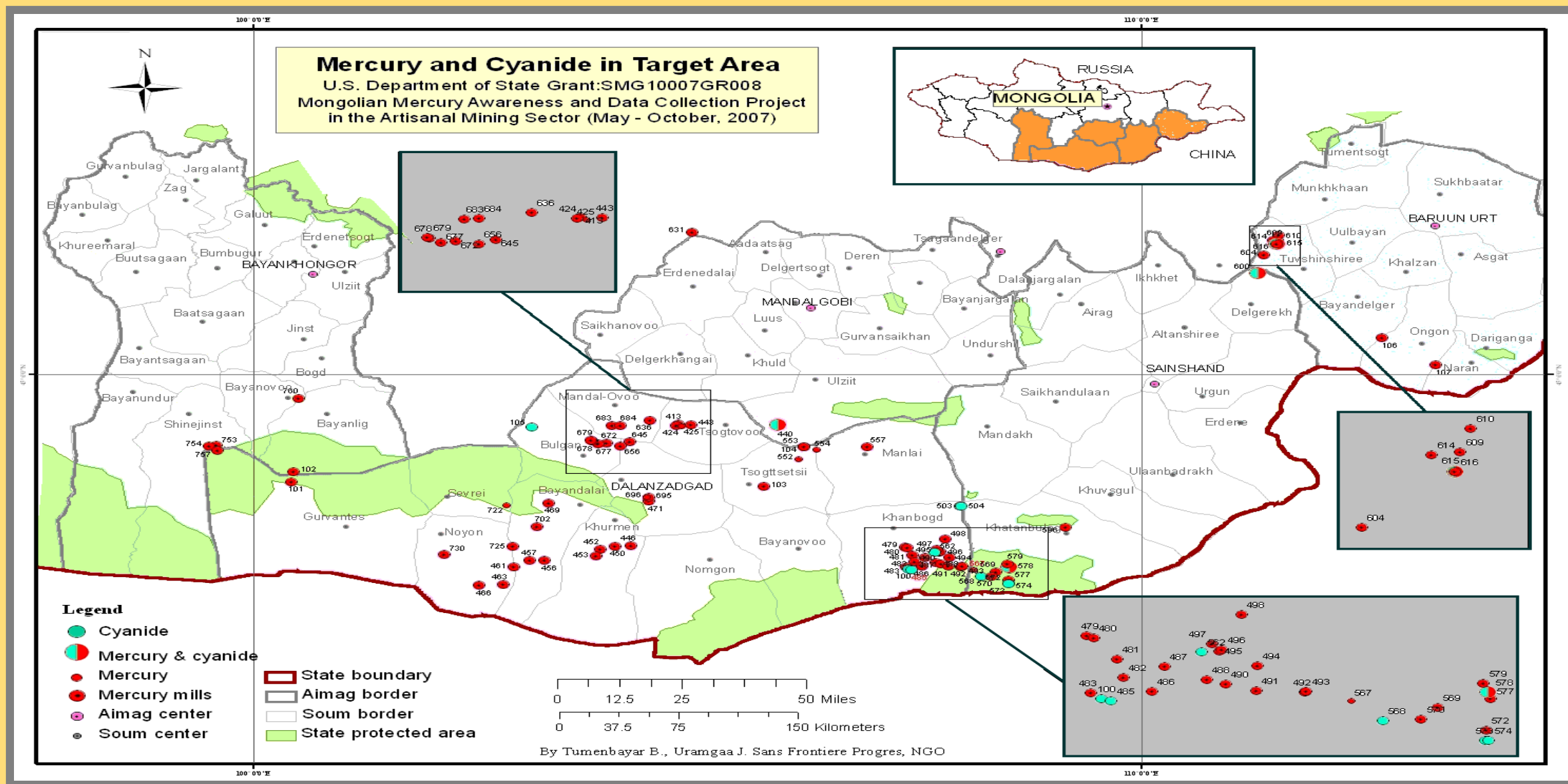
Reserve	173 bln. tons
Deposits	300
Production	49.4 mln. tons (2017)
Sold	41.9 mln. tons
Exported	33.4 mln. tons
Burned in capital Ulaanbaatar <u>(30km2)</u>	5.9 mln. tons
Burned in country side <u>(1,5 mln km2)</u>	2.6 mln. tons

Mercury Emission to the atmosphere of Ulaanbaatar (2017)

Coal Deposits	Mercury content in coal (ppm)	Burned coal in 2017 (mln.tons)	Mercury emission in to atmosphere (kg)
Baganuur	0.131 (0.23-0.032)	5.31	695
Nalaikh	0.088 (0.16-0.047)	0.59	52
Total		5.9	747



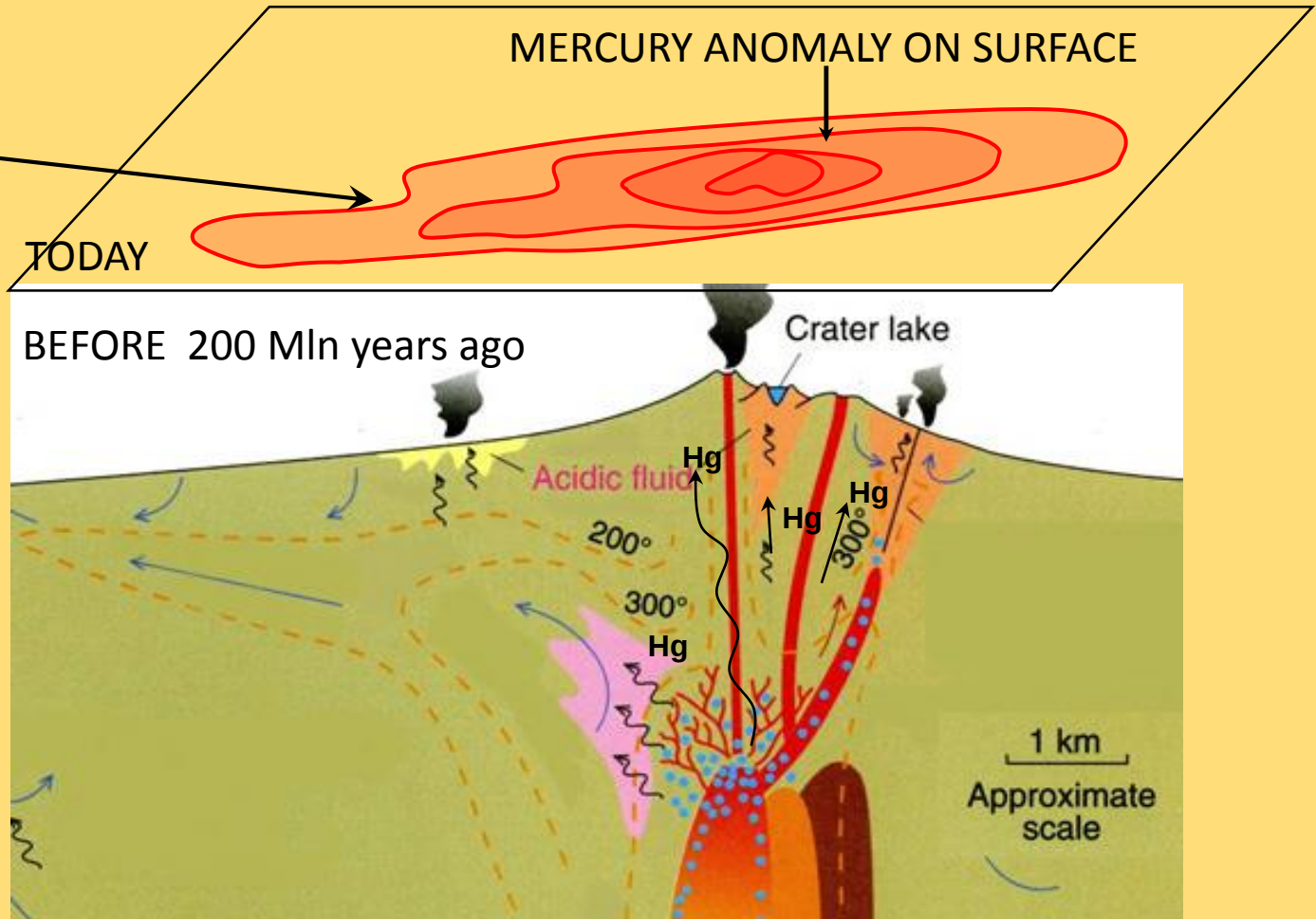
Transport of mercury by wind, as measured by Lumex Hg detector held 5–10 cm above the ground surface to detect mercury vapour. Khuzuu toirom, Noyon, South Gobi Aimag, (GPS 461.)



Distribution of mercury and cyanide sites visited during the SFP survey.

Surface mercury anomaly from paleo sources

(not considered on estimation)

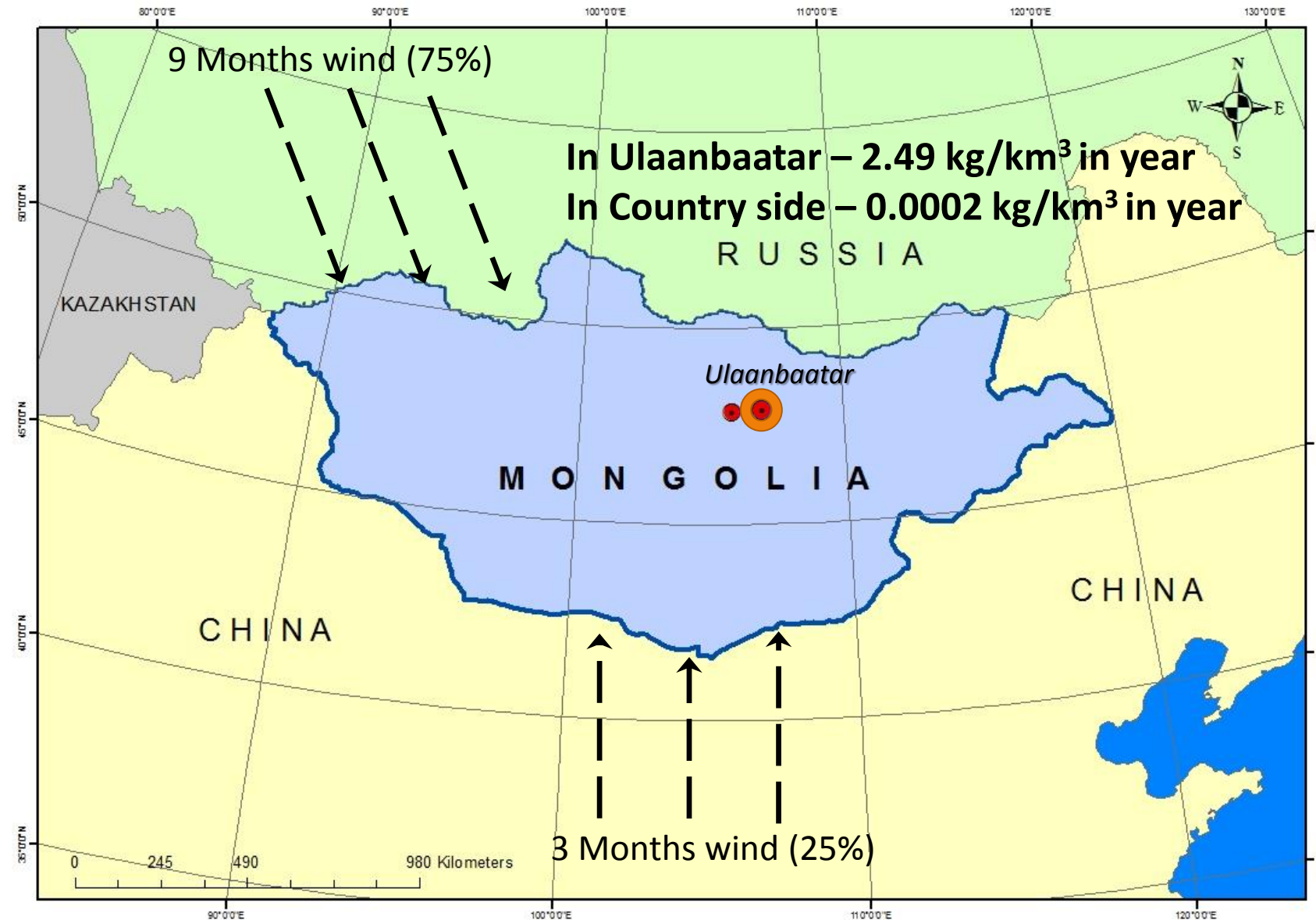


LOCATION OF ANOMALY

- PALEO VOLCANIC ACTIVITY
- EPYTHERMAL DEPOSIT
ALONG THE FAULTS
- POLYMETALIC DEPOSITS

Wind direction and Mercury emission density

where is best
place for
installation
wet
deposition
monitoring
equipment
for global and
local mercury
assessment?



THANK YOU
FOR YOUR ATTENTION

