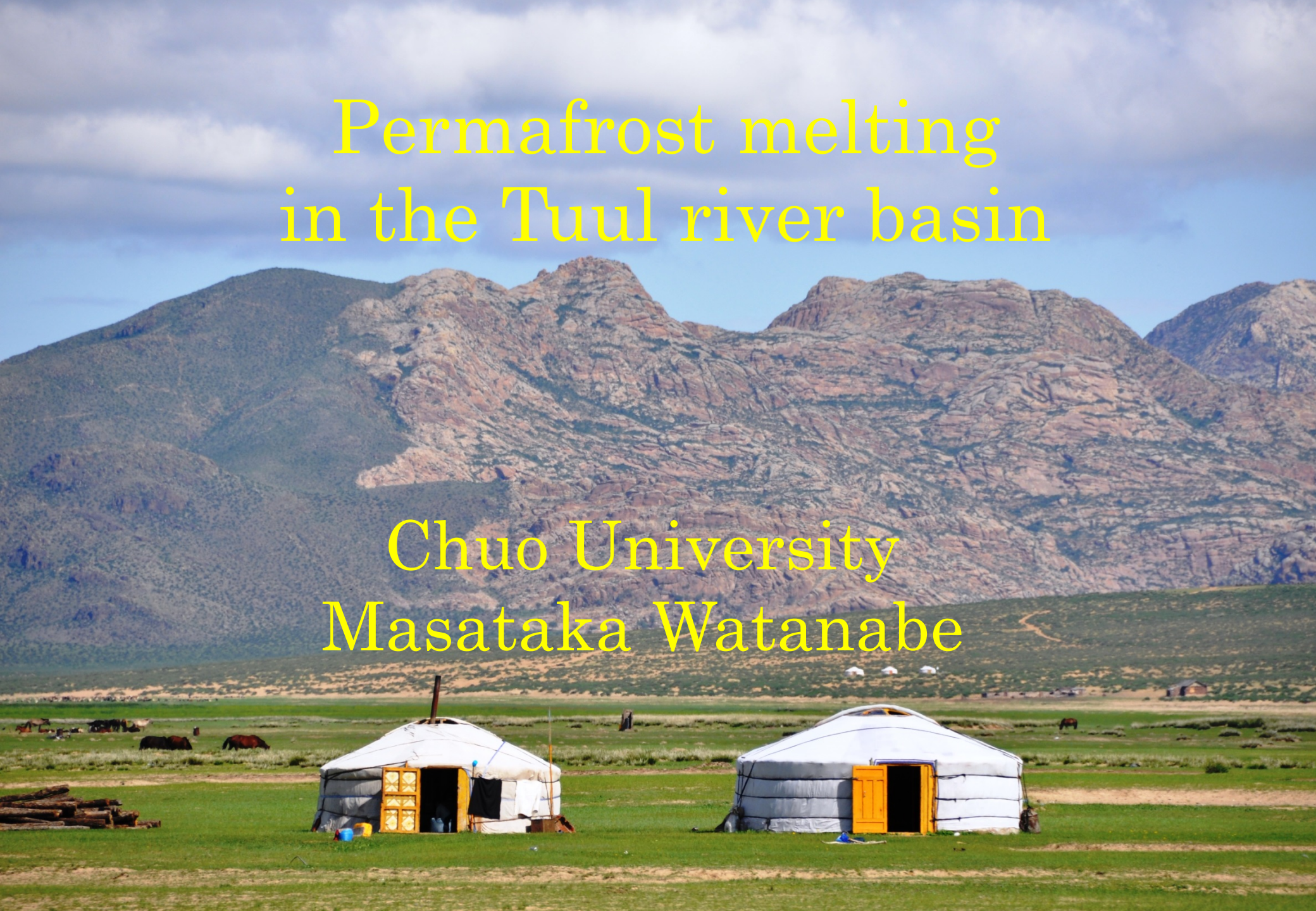


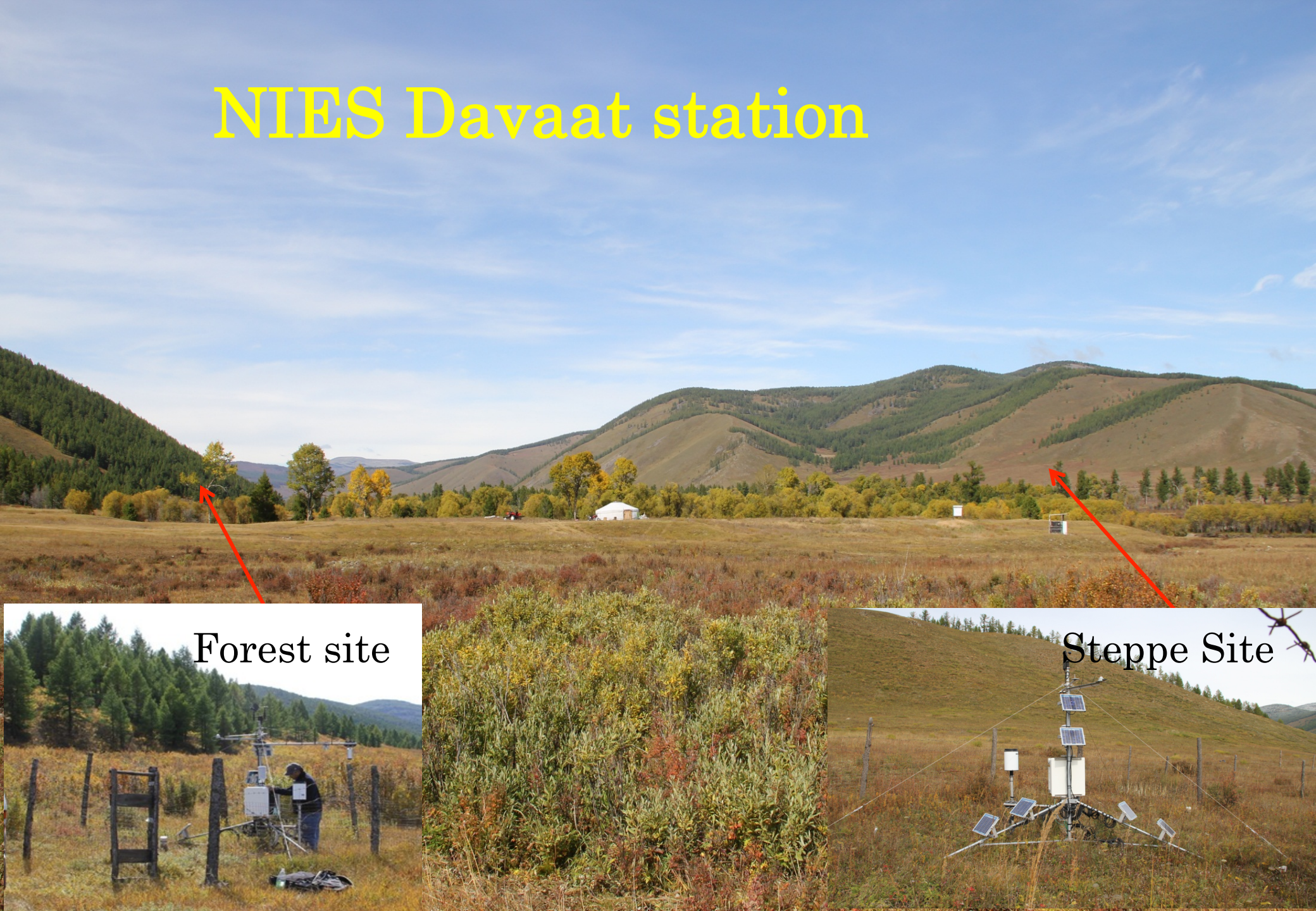
Permafrost melting in the Tuul river basin

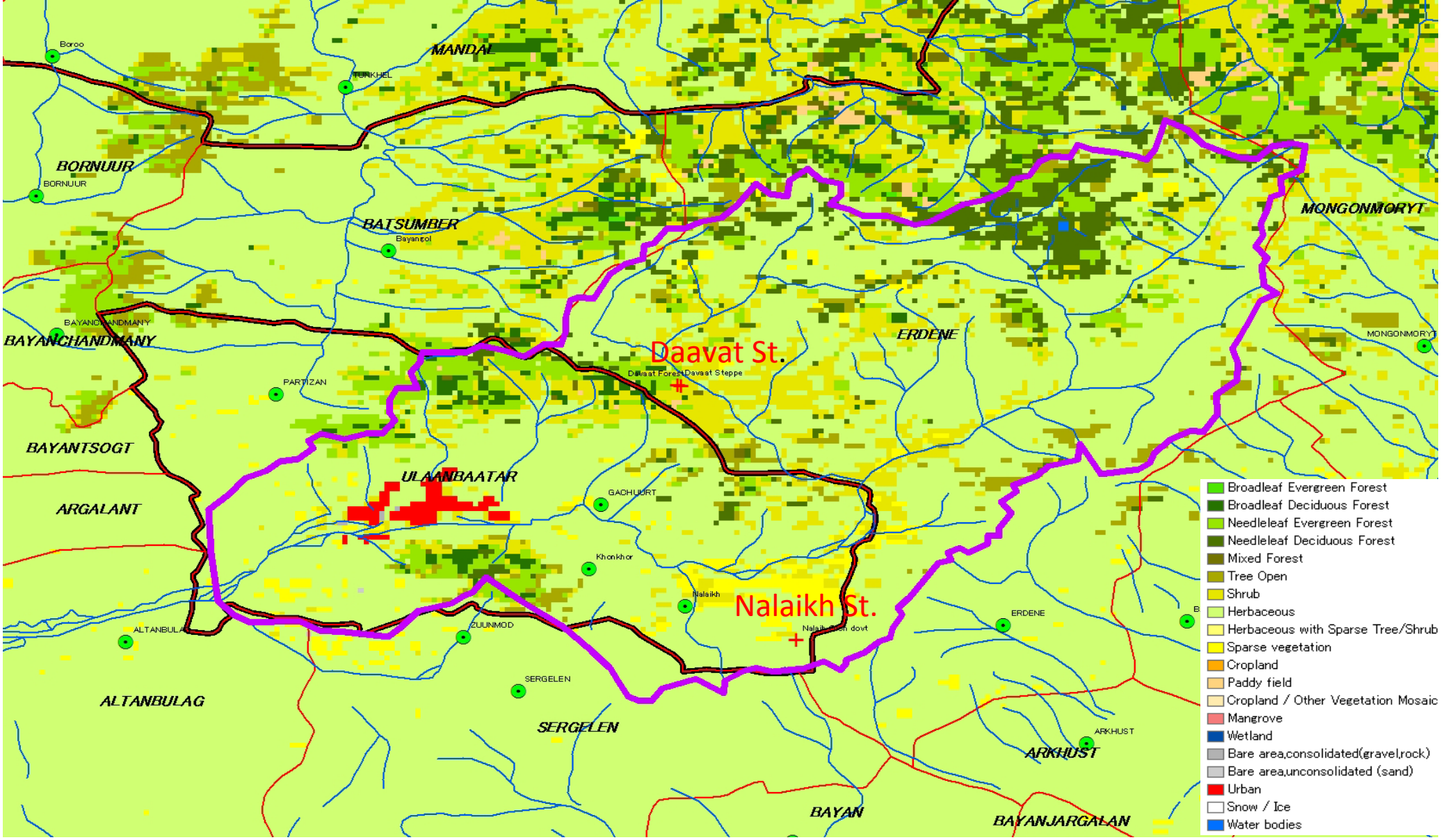
Chuo University
Masataka Watanabe

Detecting Permafrost by Drilling Boreholes

NIES Nalaikh station

NIES Davaat station

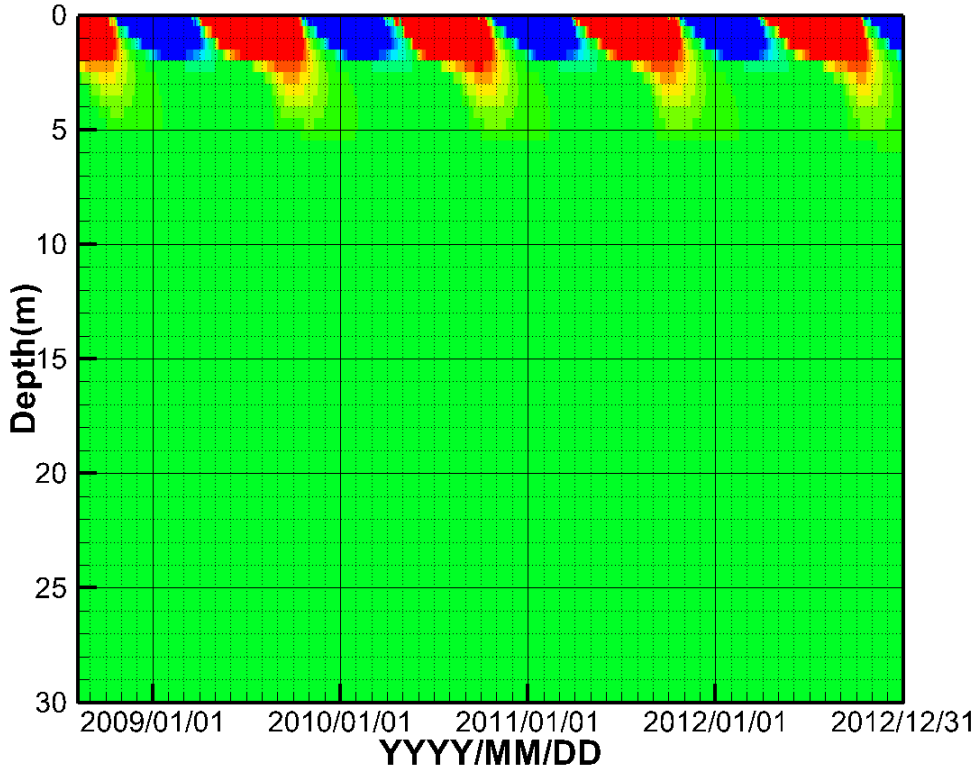


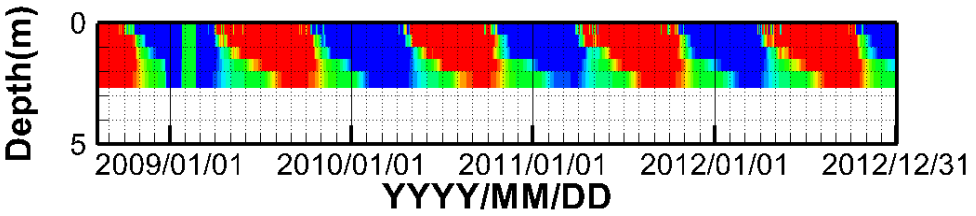


Tuul river basin and permafrost monitoring station

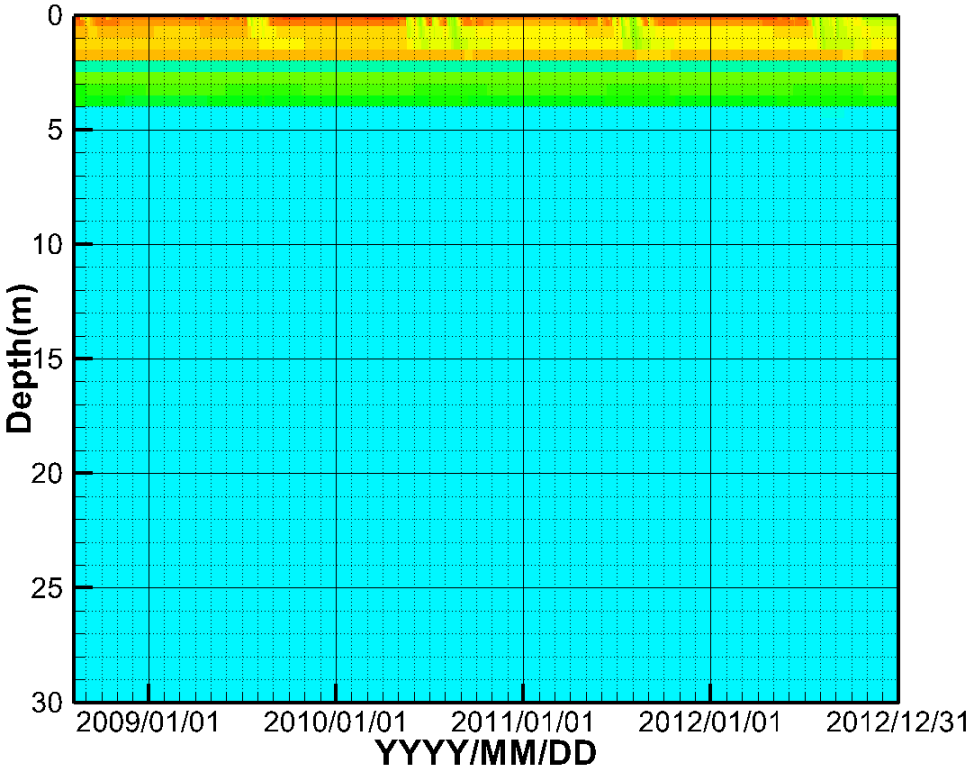
Nalaikh: steppe Daavat: forest and steppe

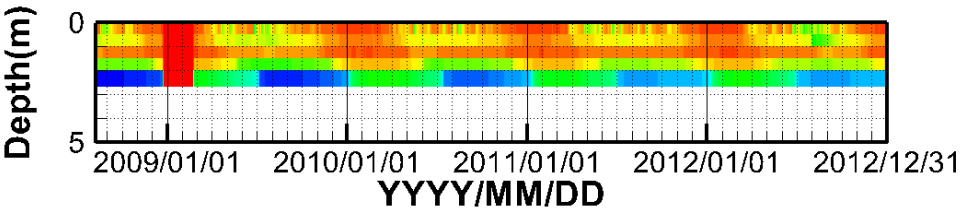
Verification of permafrost melting with SHAW(Simultaneous Heat and Water 1-D Model, Flerchinger, 2000) at Nalaikh st.



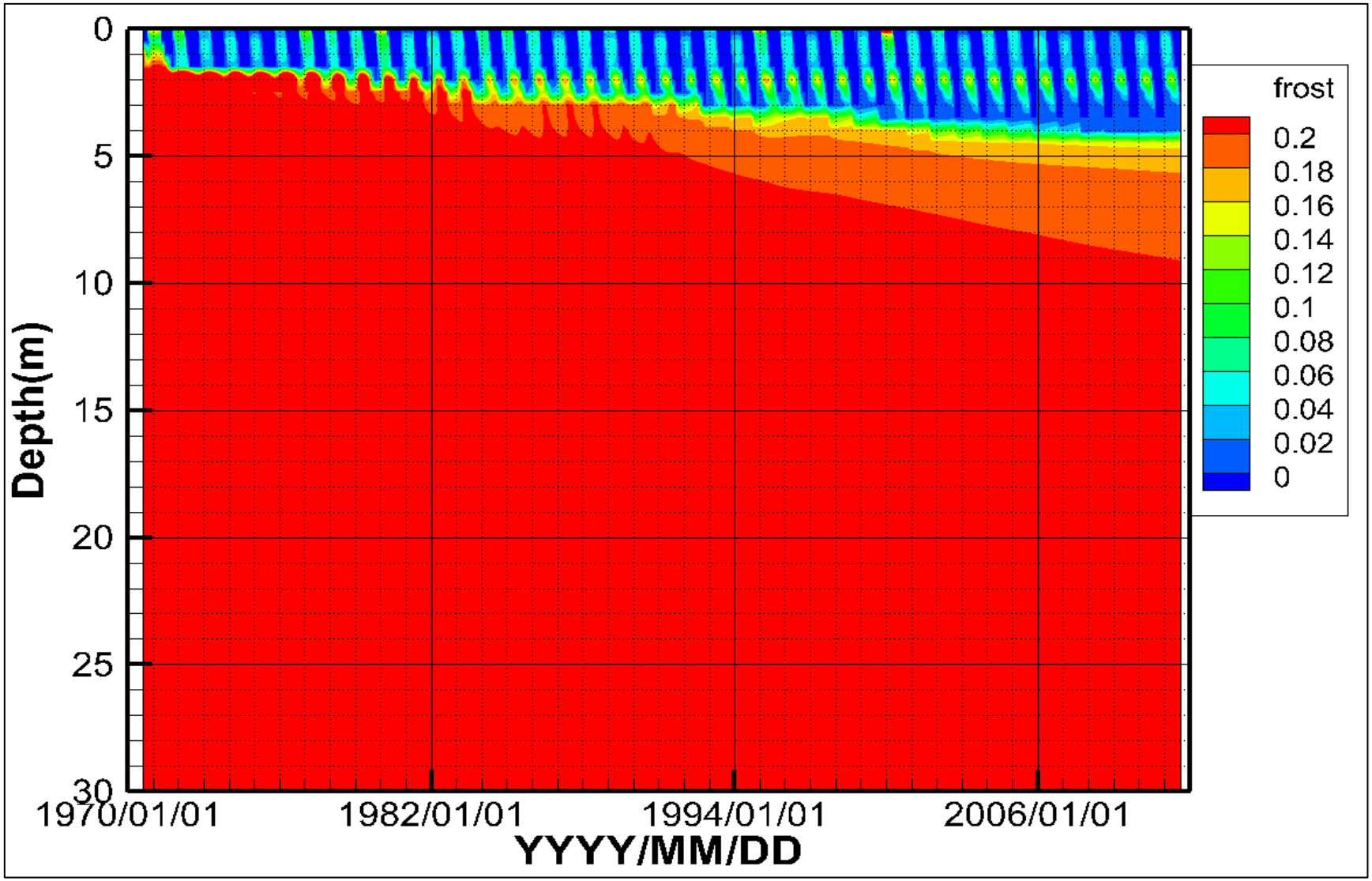


Comparison of computed and observed underground temperature (℃)

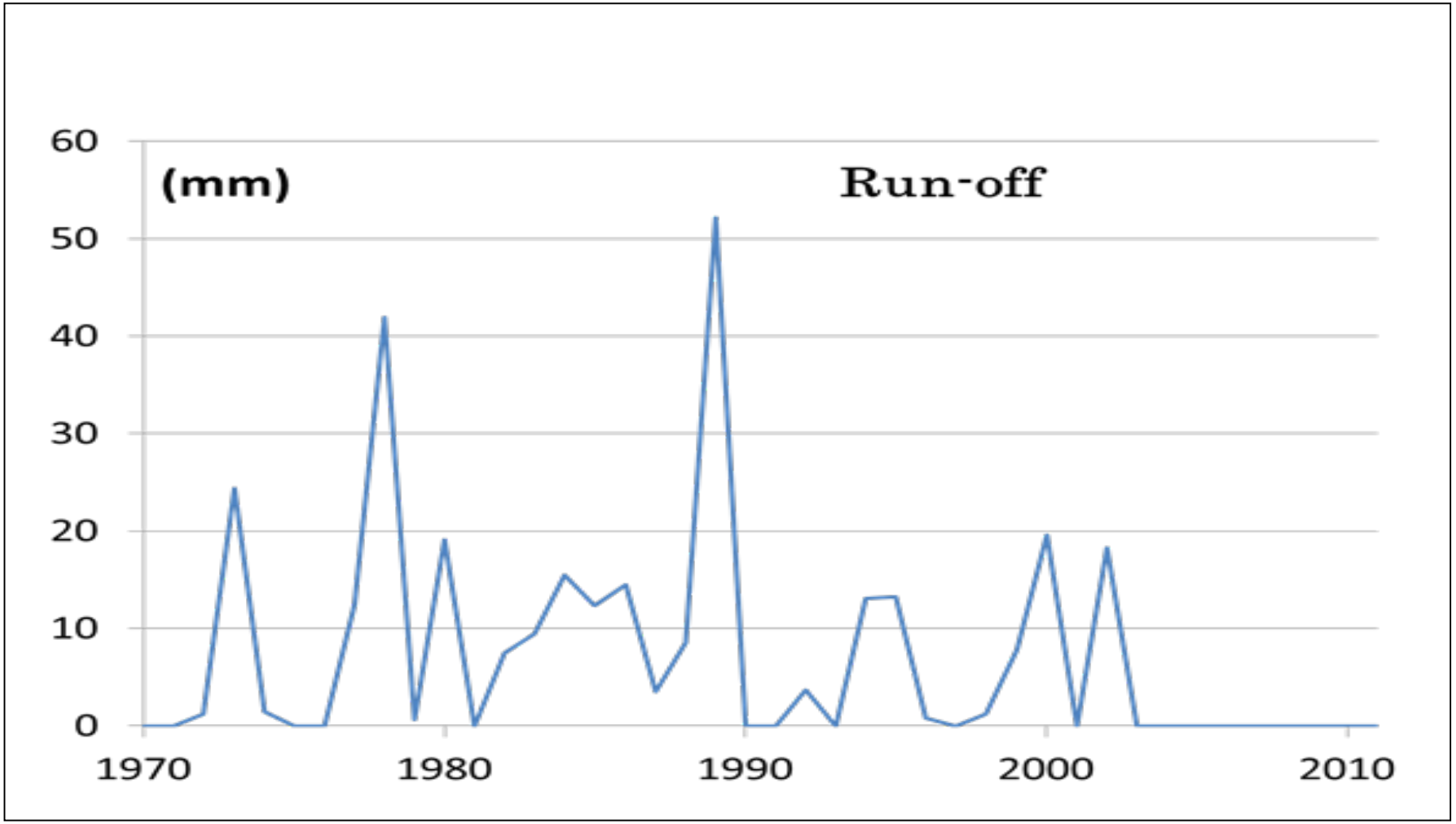




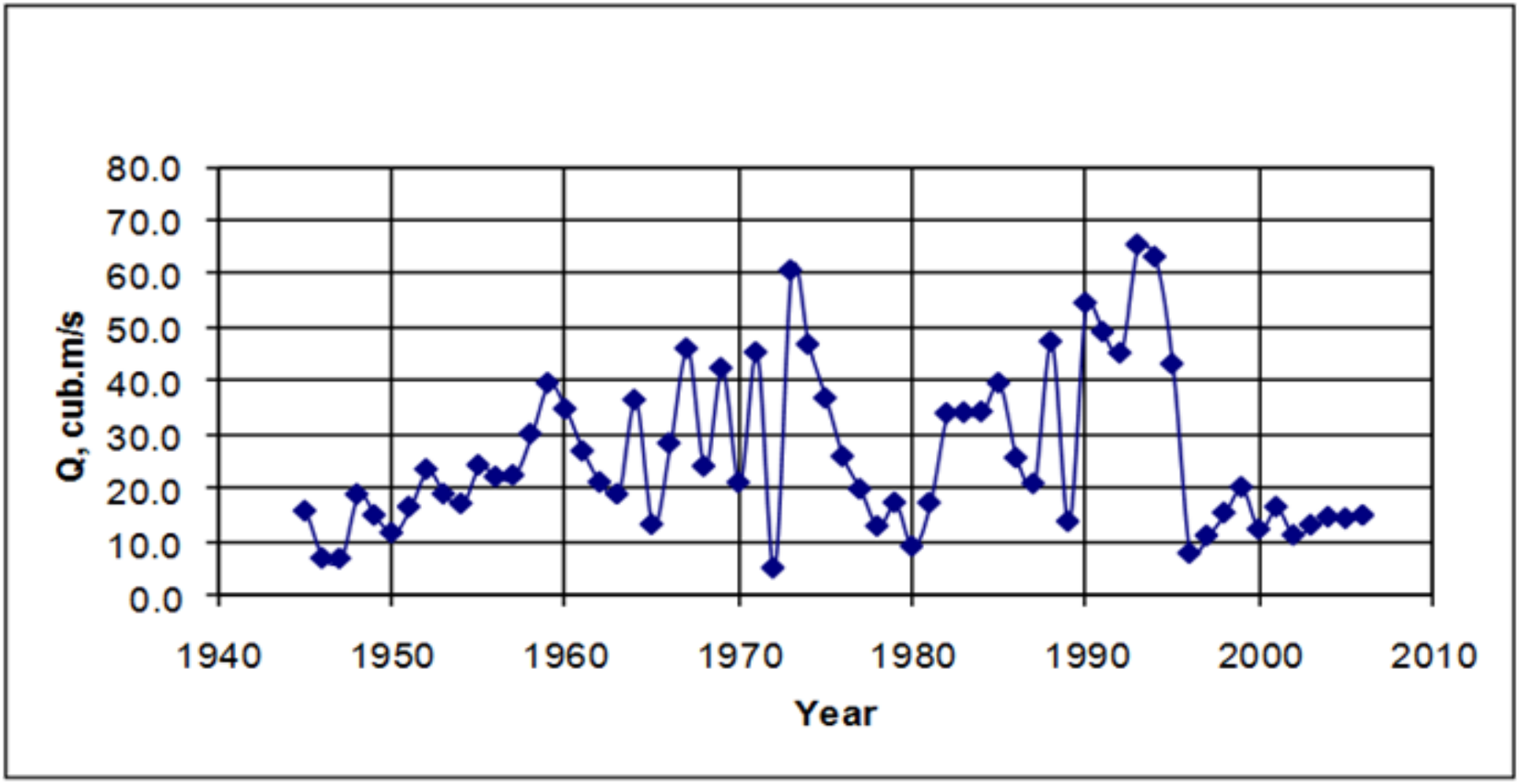
Comparison of computed and observed soil moisture(m^3/m^3)



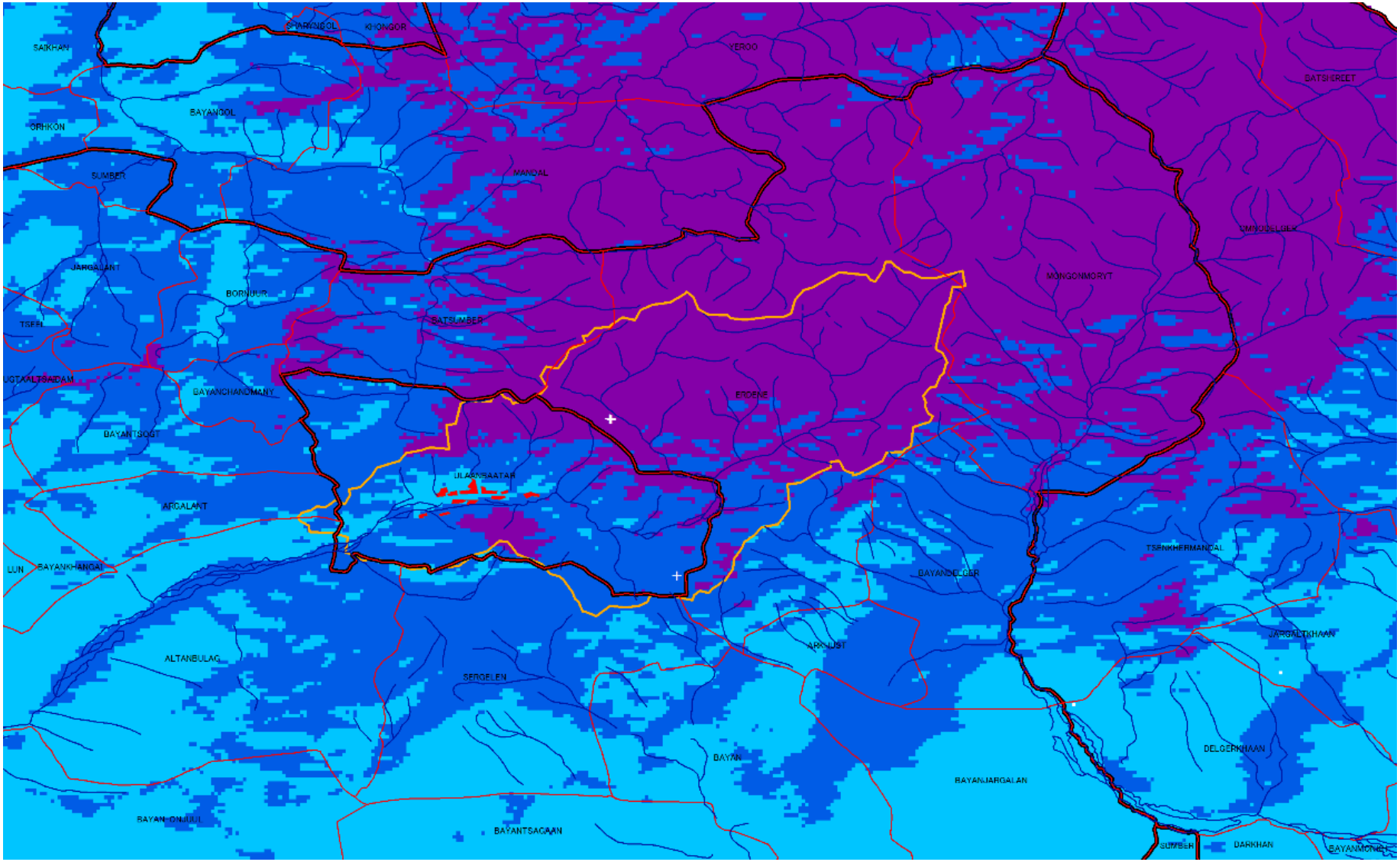
According with temperature increase, active layer depth increase but reach toward some equilibrium depth after year of 2000.



Computed run-off due to permafrost melting at Nalaikh.
Run-off depleted after year of 2002.

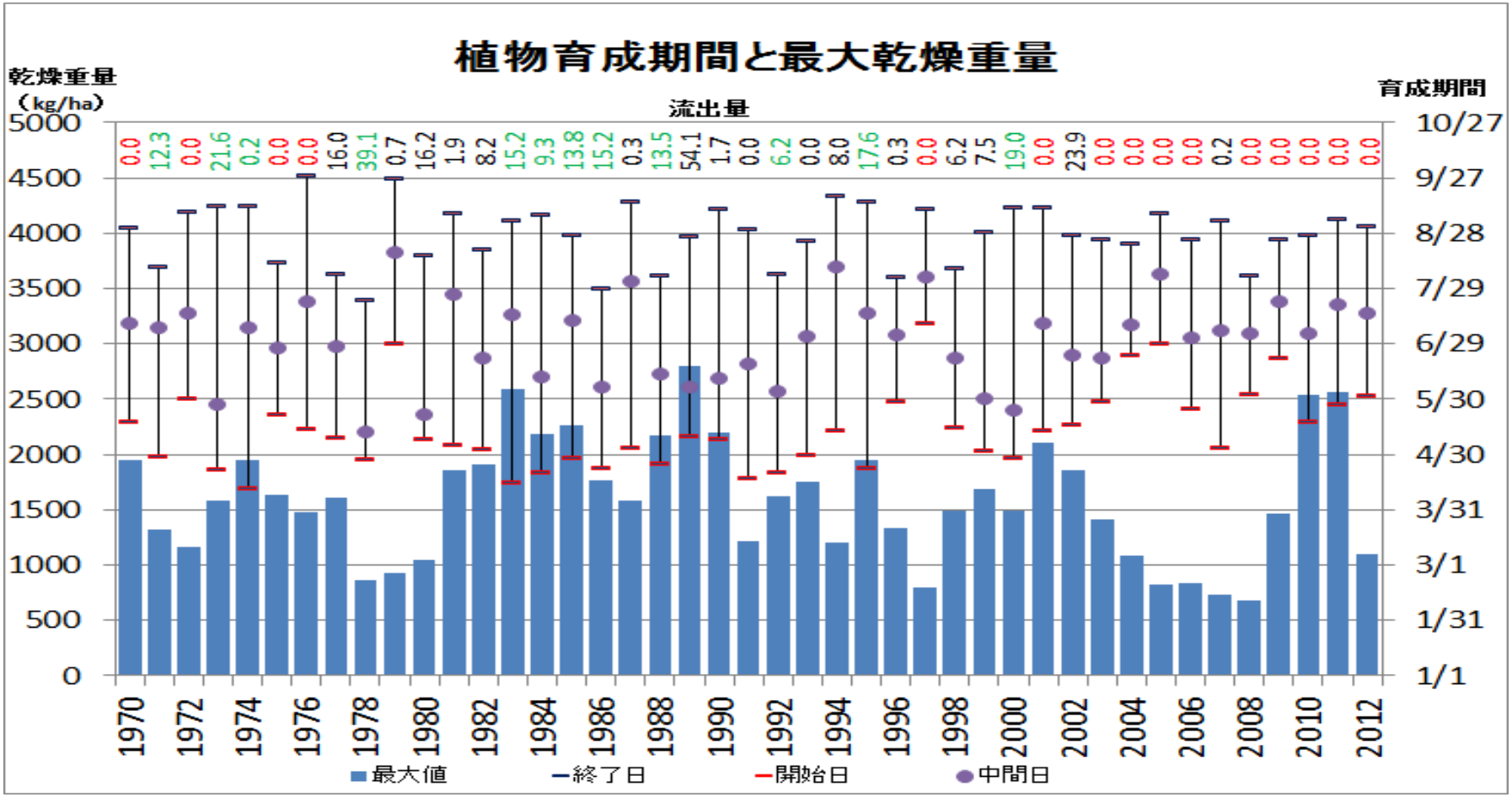


Observed run-off at UB station in the TUUL river.
Run-off decreased after year of 1996.



Current distribution of permafrost in the Tuul river basin. According with permafrost melting, water resources will be depleted soon.

Relation between run-off and green-up timing. Data from GLEWS (TV-0031) by Texas A & M was used.



- Green-up timing is regulated by run-off due to permafrost melting during May – April.
- Delay in green-up timing will cause decrease in biomass production and increase risk of zud.