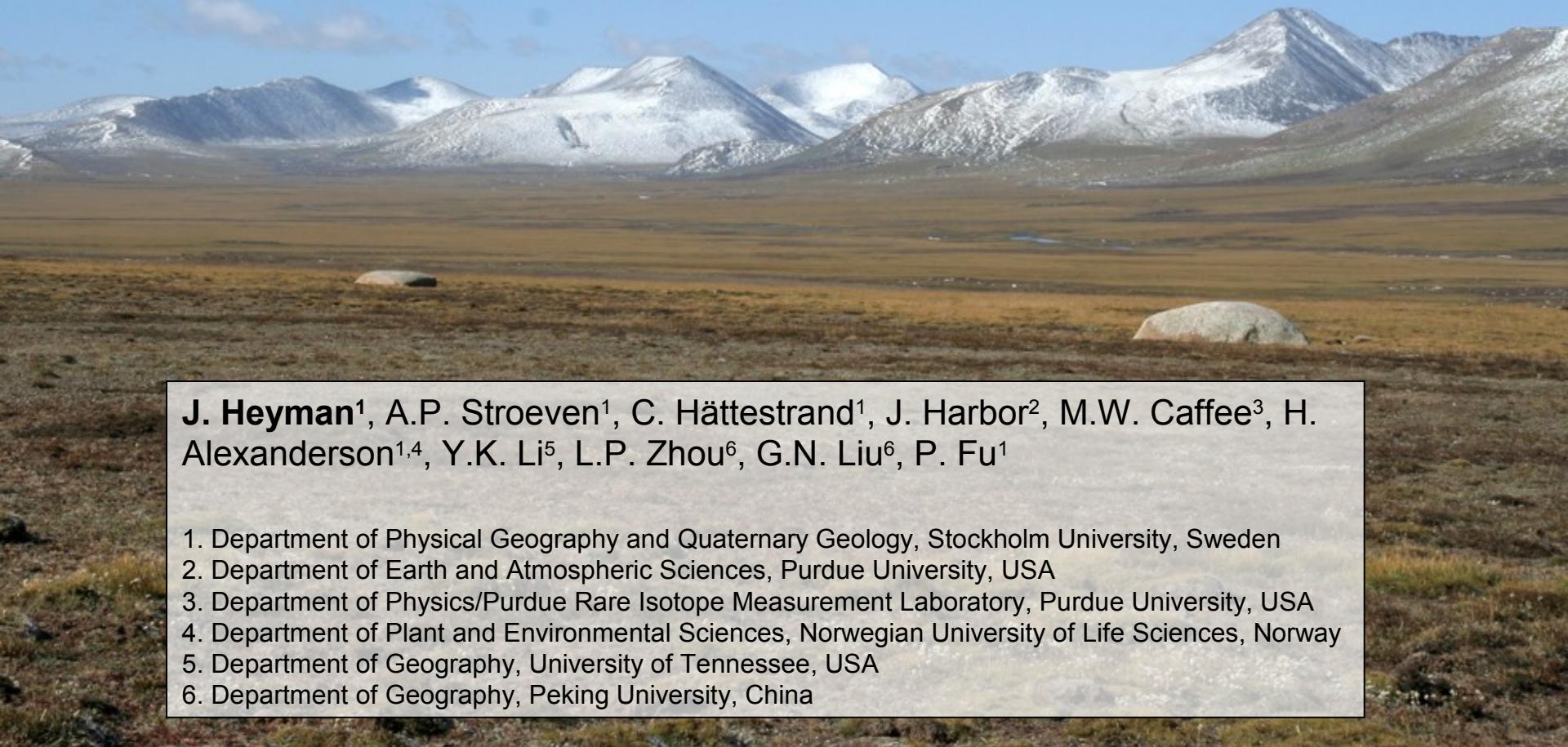


# A paleoglaciological reconstruction for Bayan Har Shan, NE Tibetan Plateau



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# Presentation outline

- Introduction

- Study area

- Previous reconstructions

- Motivation

- Methodology

- Results

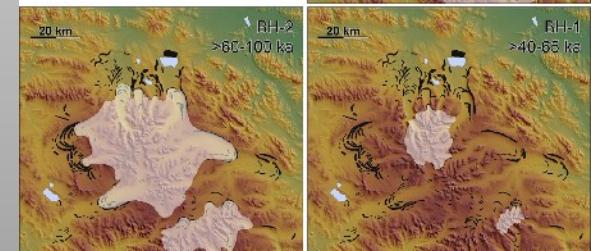
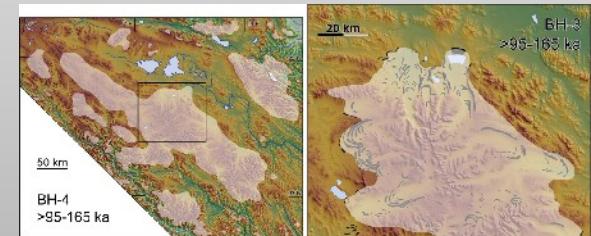
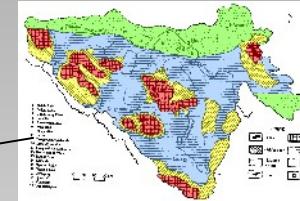
- Remote sensing

- Field investigations

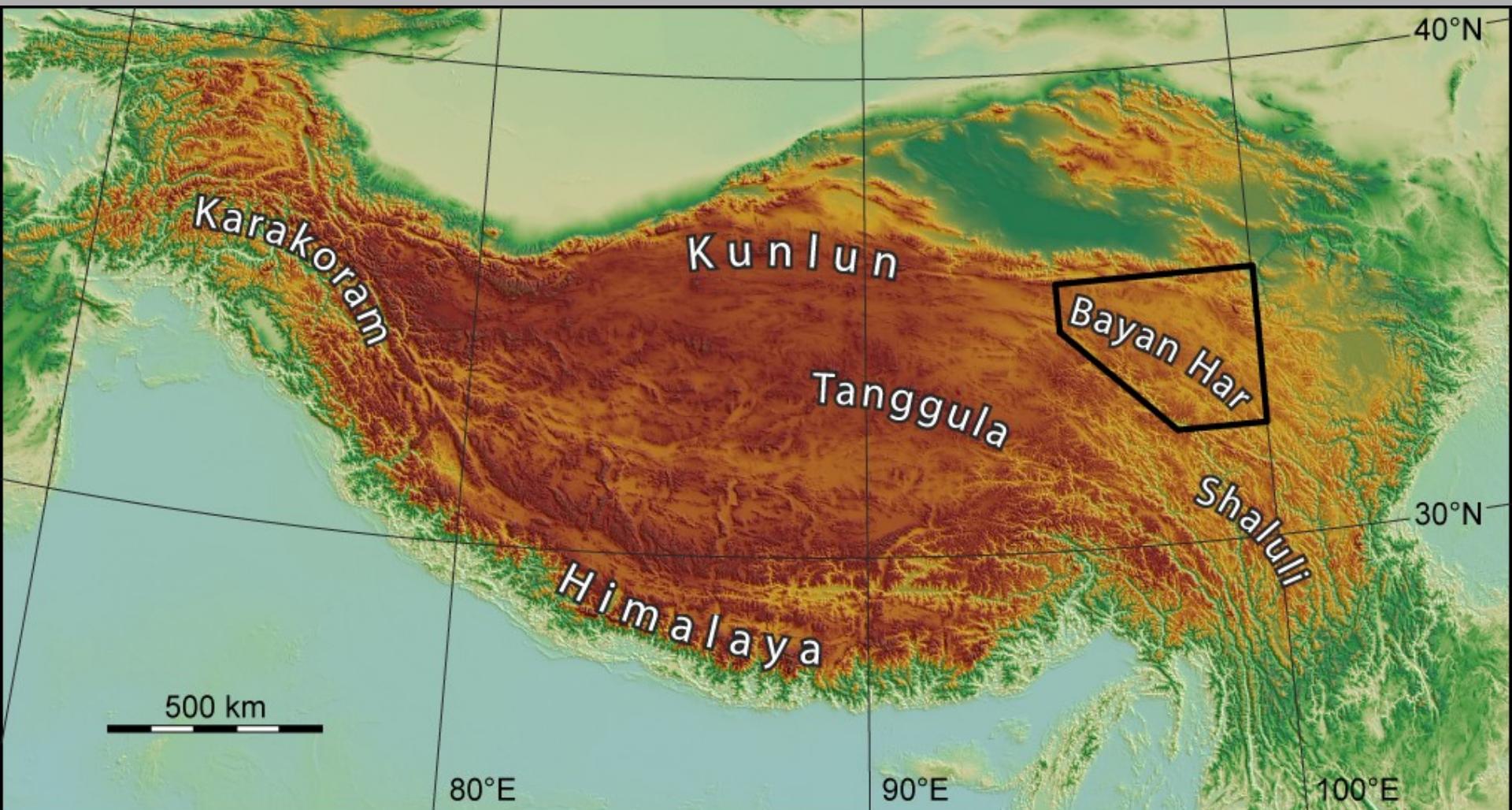
- Glacial chronology (TCN + OSL)

- Reconstruction

- Conclusions

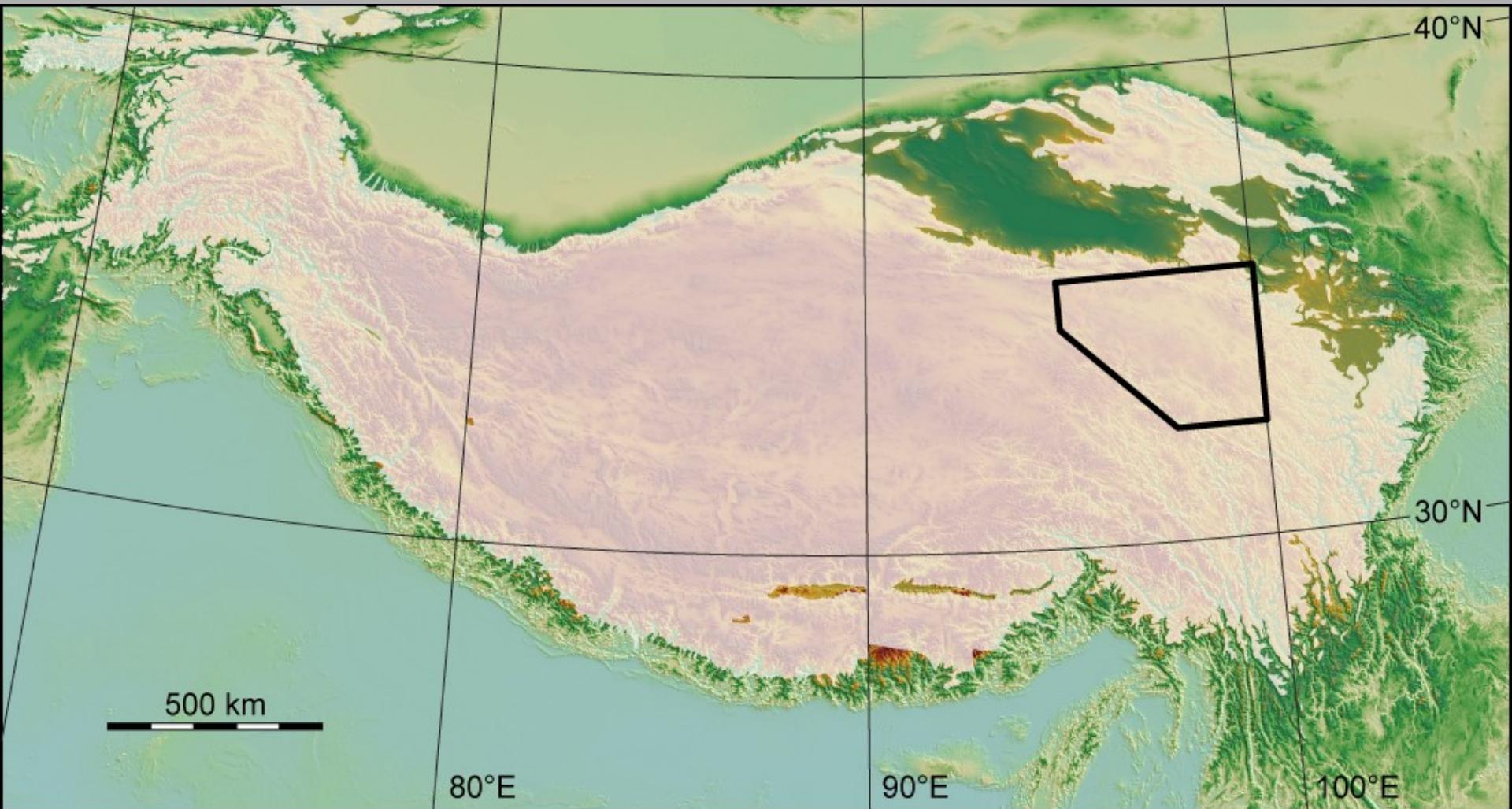


# Study area: Bayan Har Shan, NE Tibetan Plateau



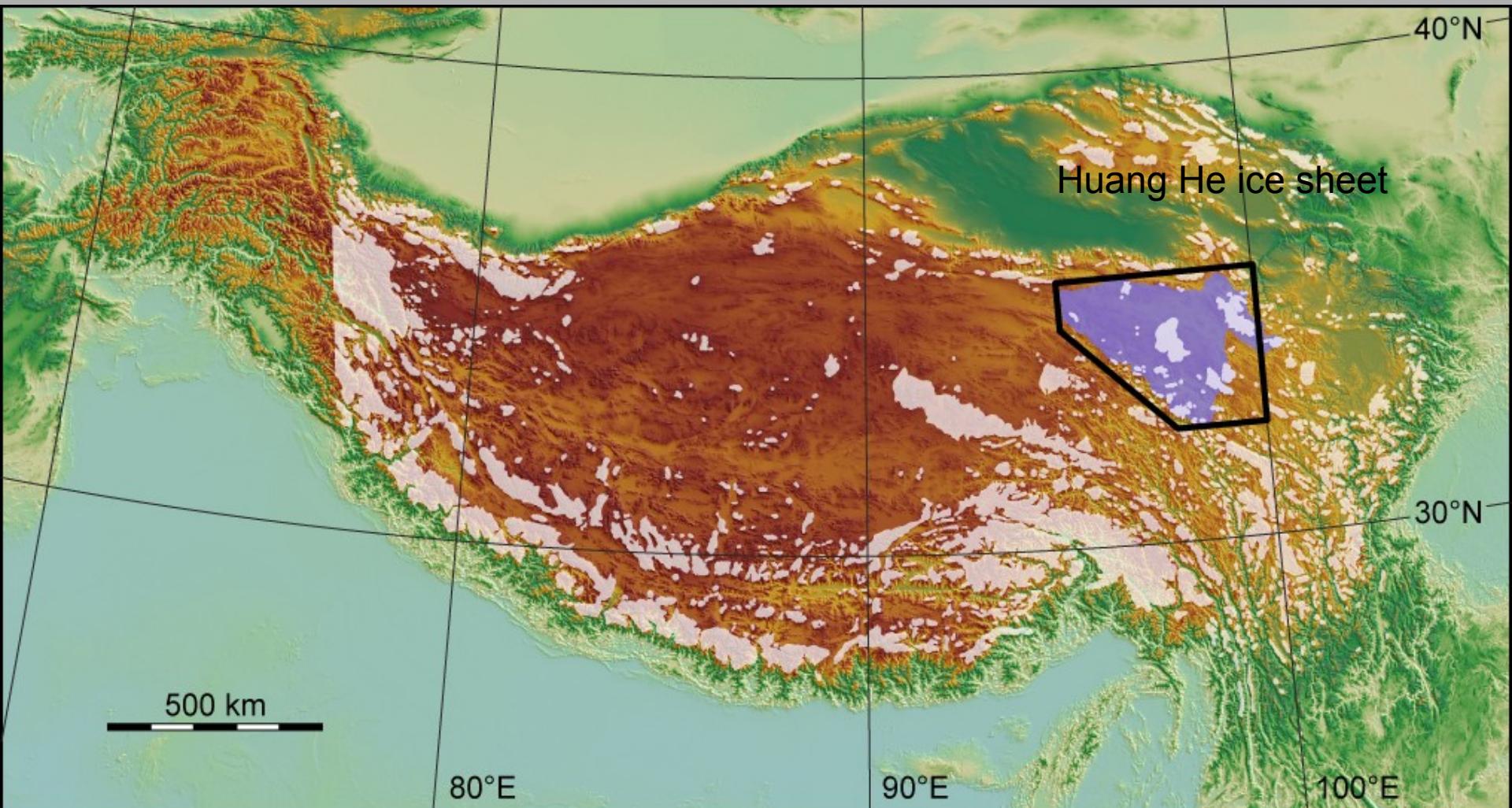


# Previous reconstructions

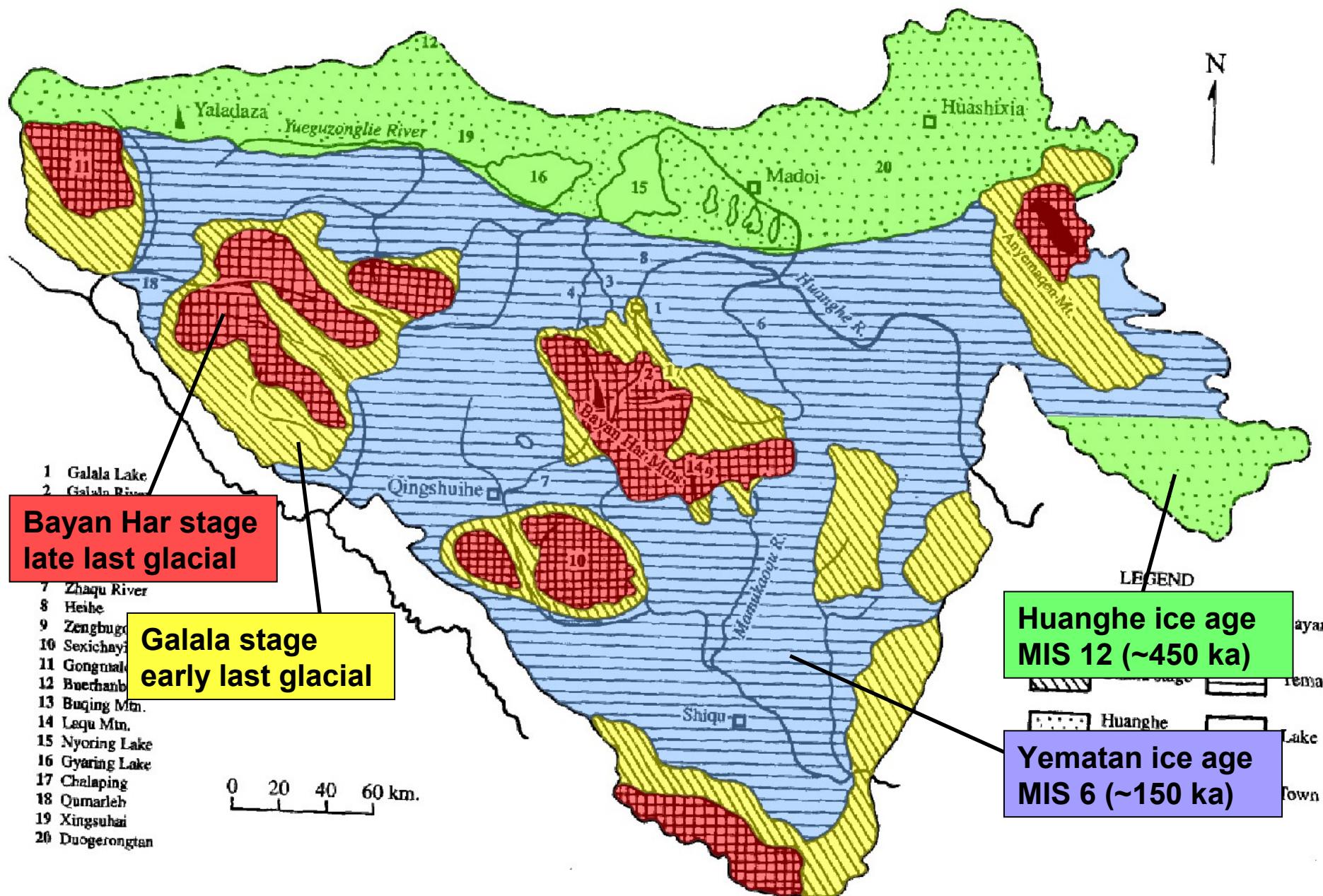


Kuhle (2004): *Quaternary Glaciations – Extent and Chronology*

# Previous reconstructions



Li et al. (1991): *Quaternary glacial distribution map of Qinghai-Xizang (Tibet) Plateau*



Previous reconstructions

Zhou and Li (1998): *Quaternary International*

# Previous reconstructions –

## 3 different models:

- Plateau-scale ice sheet:

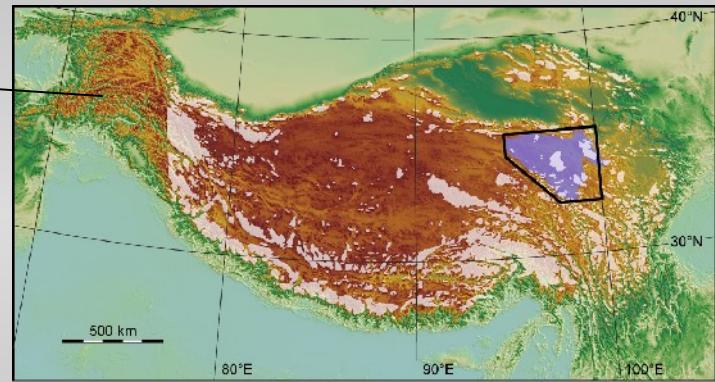
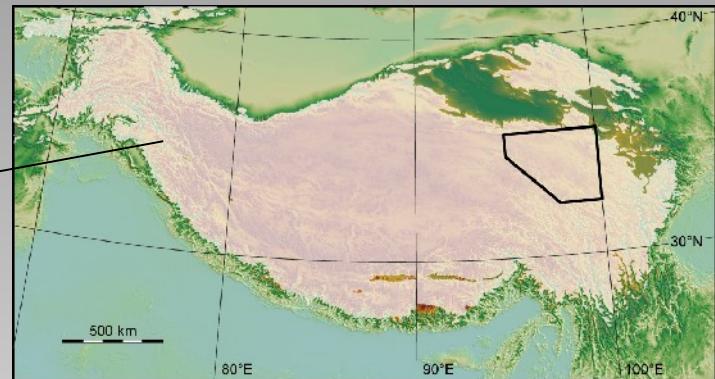
Kuhle (2004)

- Regional ice sheet:

Li et al. (1991), Zhou and Li (1998)

- Restricted mountain glaciation:

Lehmkuhl et al. (1998), Zheng and Rutter (1998)



## Motivation

Has Bayan Har ever been covered by an ice sheet?

Pattern and Chronology of paleo-glaciations?

Remote sensing

# Methodology

Remote sensing (extensive mapping)

Field investigations (detailed point data)

Glacial dating

Spatial pattern

Glacial chronology



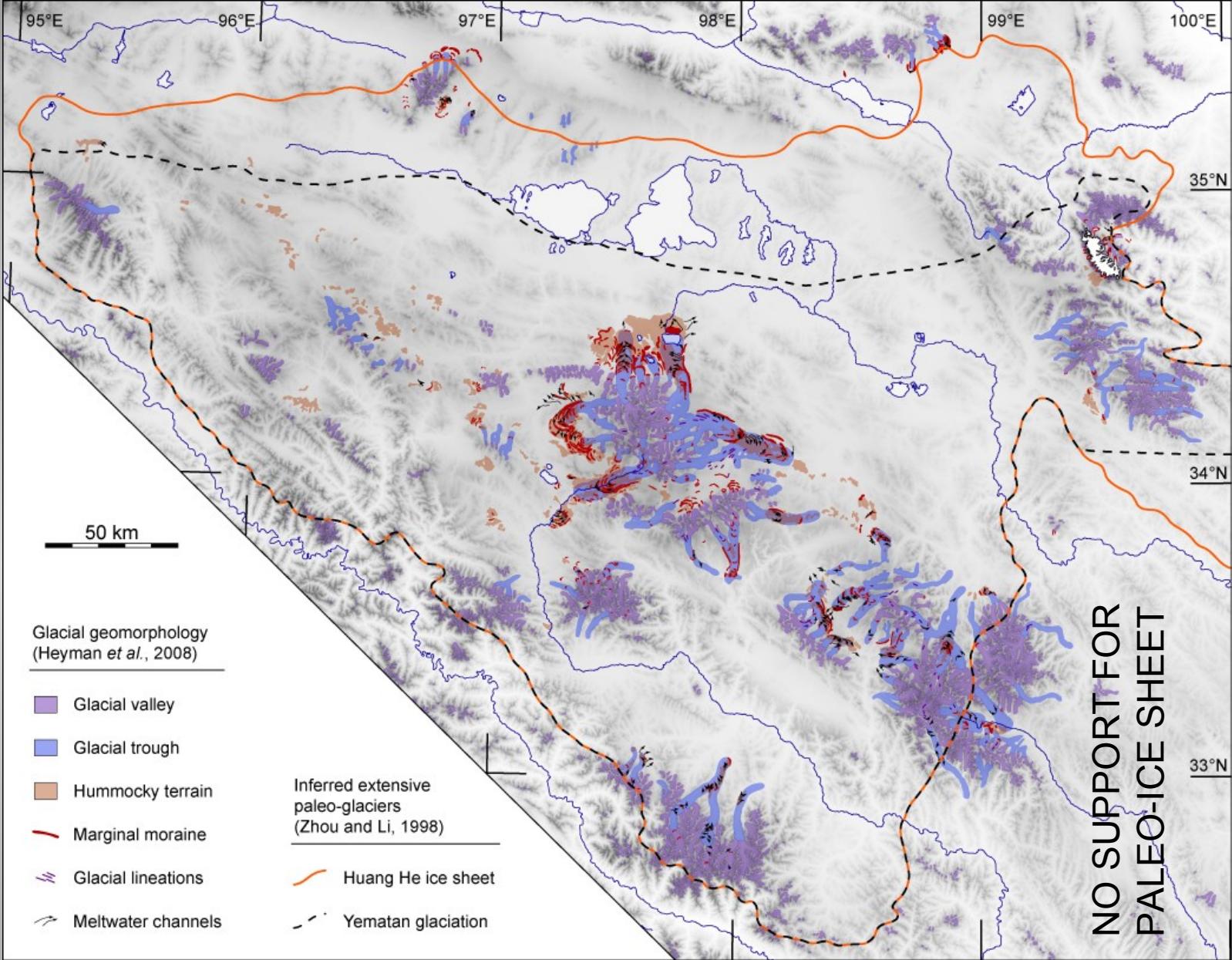
Glacial dating



Field investigations

# Remote sensing

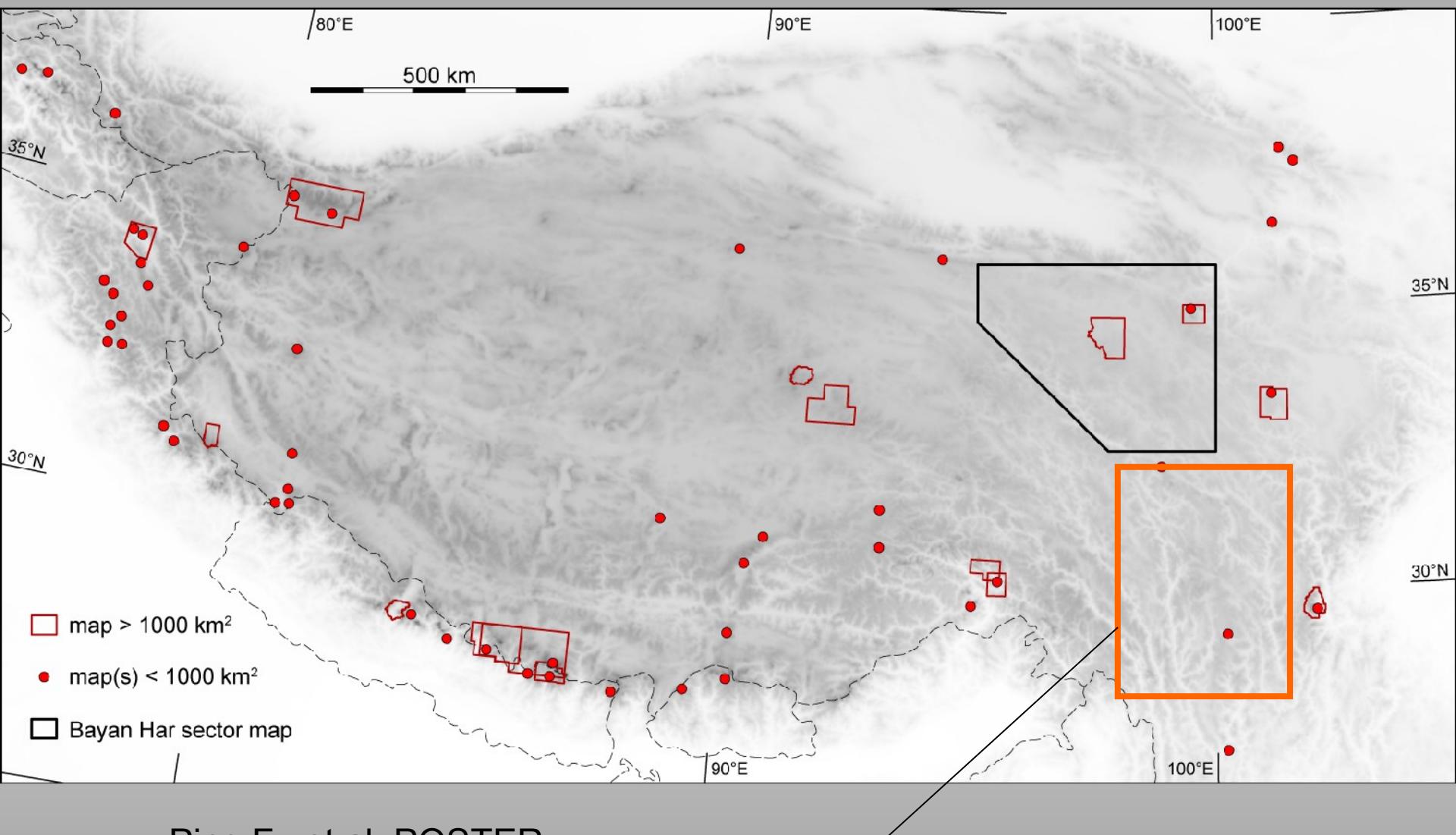
(SRTM DEM, Landsat ETM+, Google Earth)



Ample landform record of alpine style glaciations

Absence of paleo-ice sheet landforms (drumlin swarms, eskers, ribbed moraines)

Detailed glacial geomorphological maps lacking for the Tibetan Plateau  
(although plateau-scale reconstructions exist)



Ping Fu et al. POSTER:  
Glacial geomorphology of the Haizi Shan area, SE Tibetan Plateau

# Field investigations



## Totally 3 fieldworks (2005-2007)

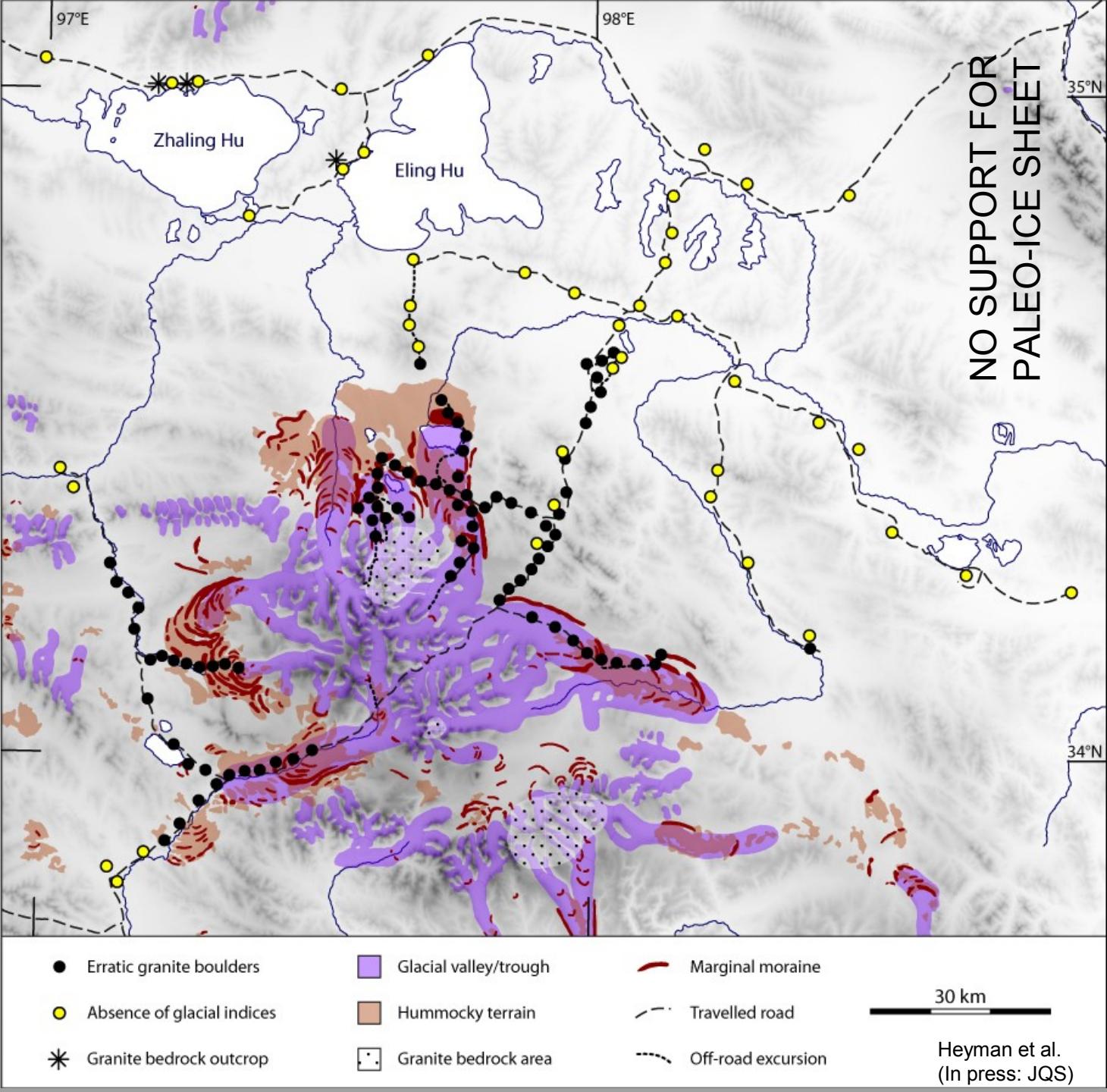
- Detailed studies of key locations
- Mapping of glacial deposits and areas lacking all glacial evidence



# Field investigations

Glacial deposits distributed up to 25 km outside mapped glacial landforms

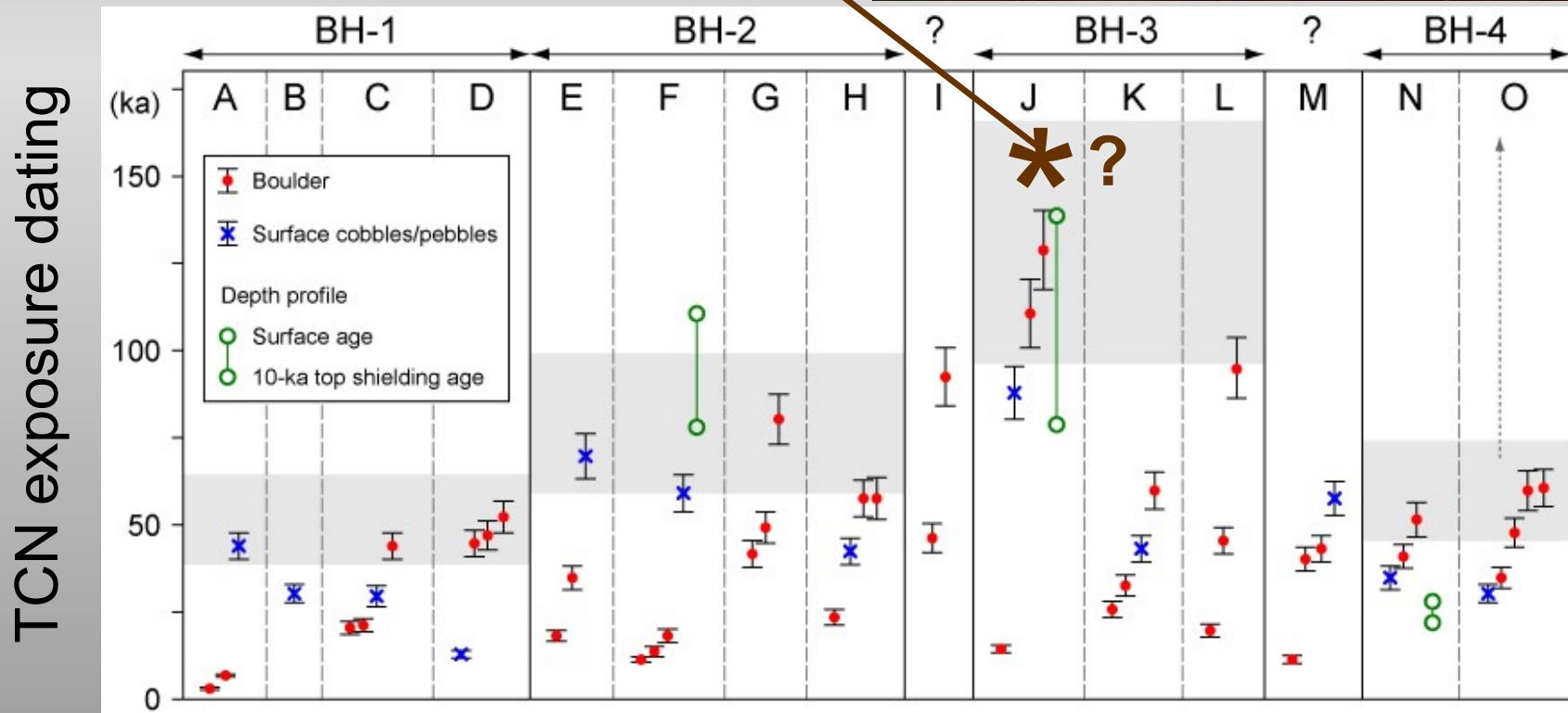
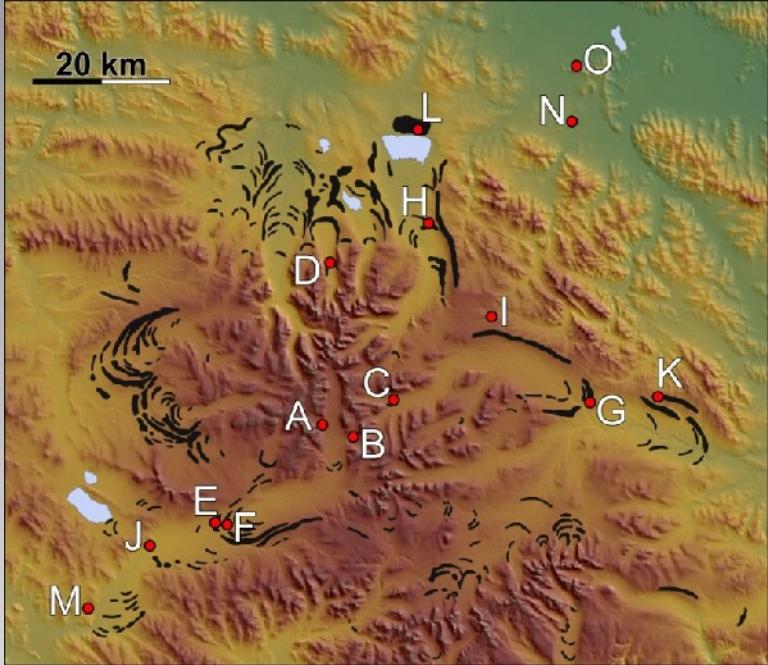
However, complete absence of glacial indications in extensive lower-lying plateau areas



# Glacial chronology

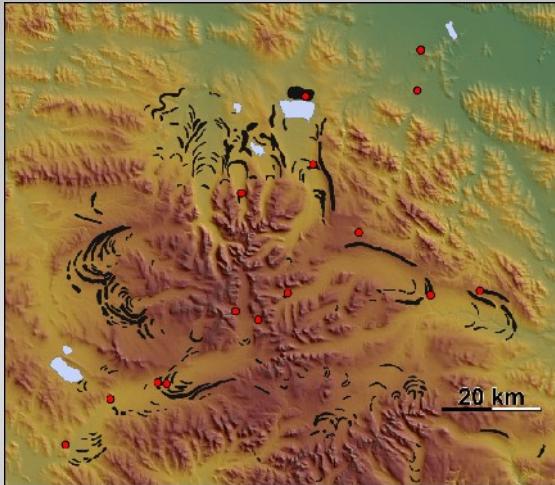


OSL dating

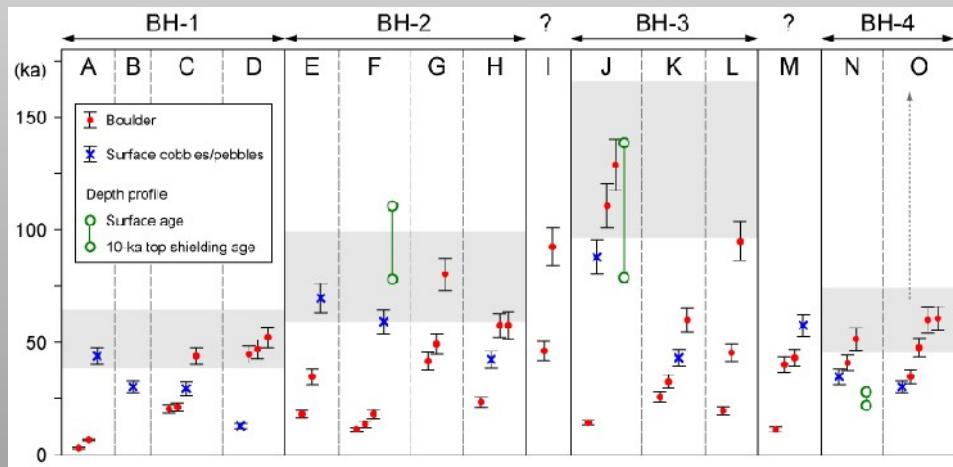
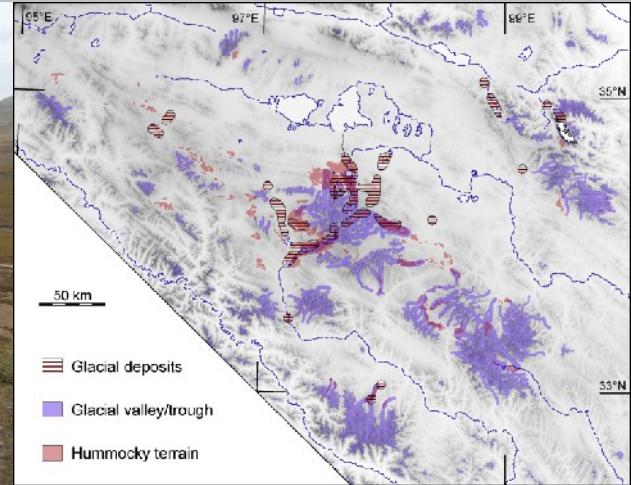


# Reconstructing the paleo-glaciation

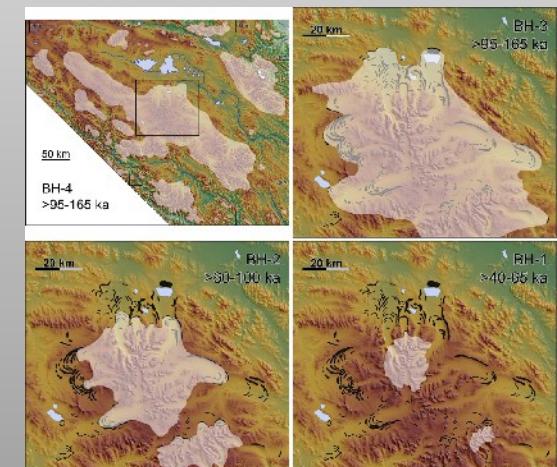
geomorphology + field data + chronology = reconstruction



+



+



95°E

97°E

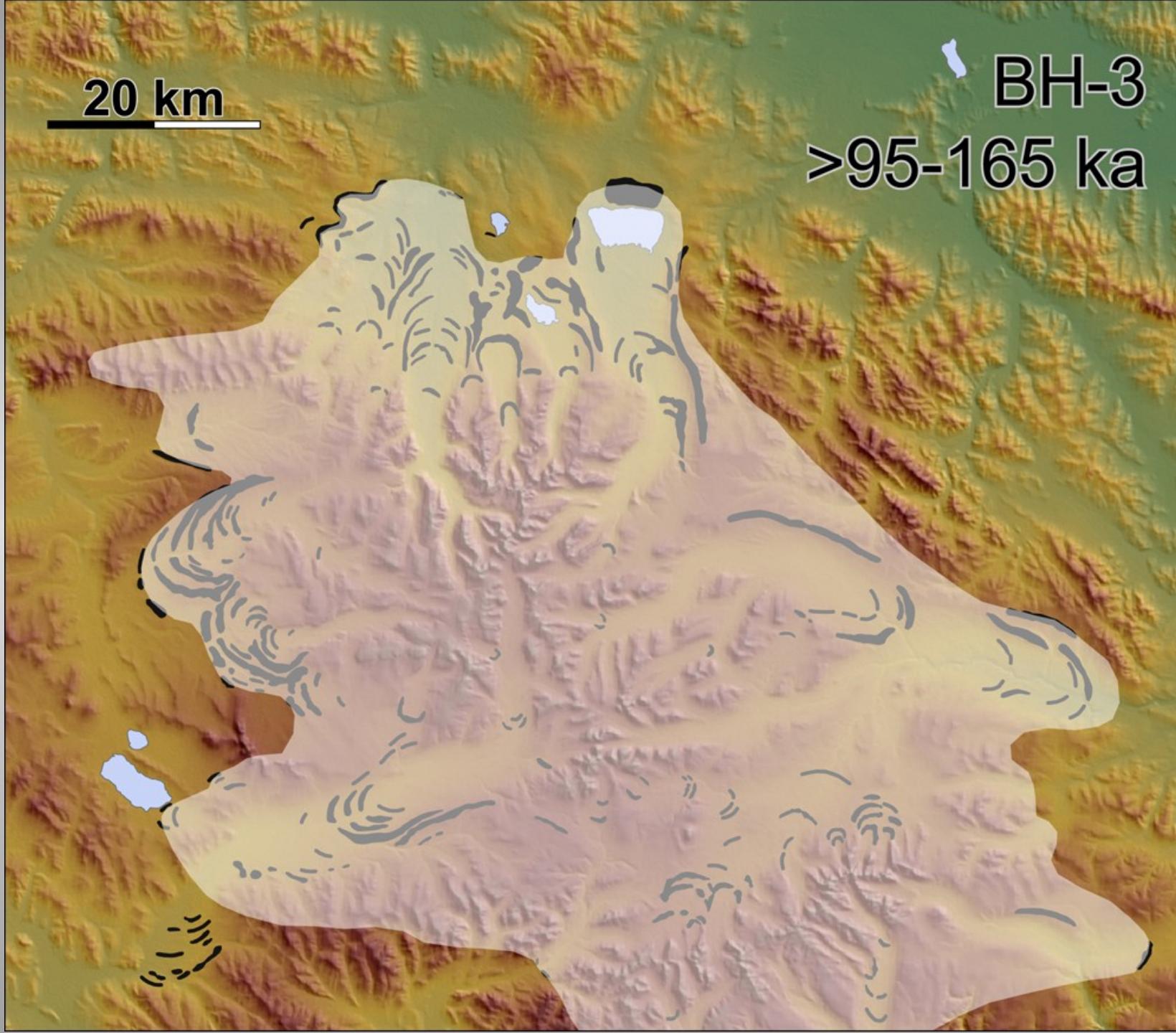
99°E

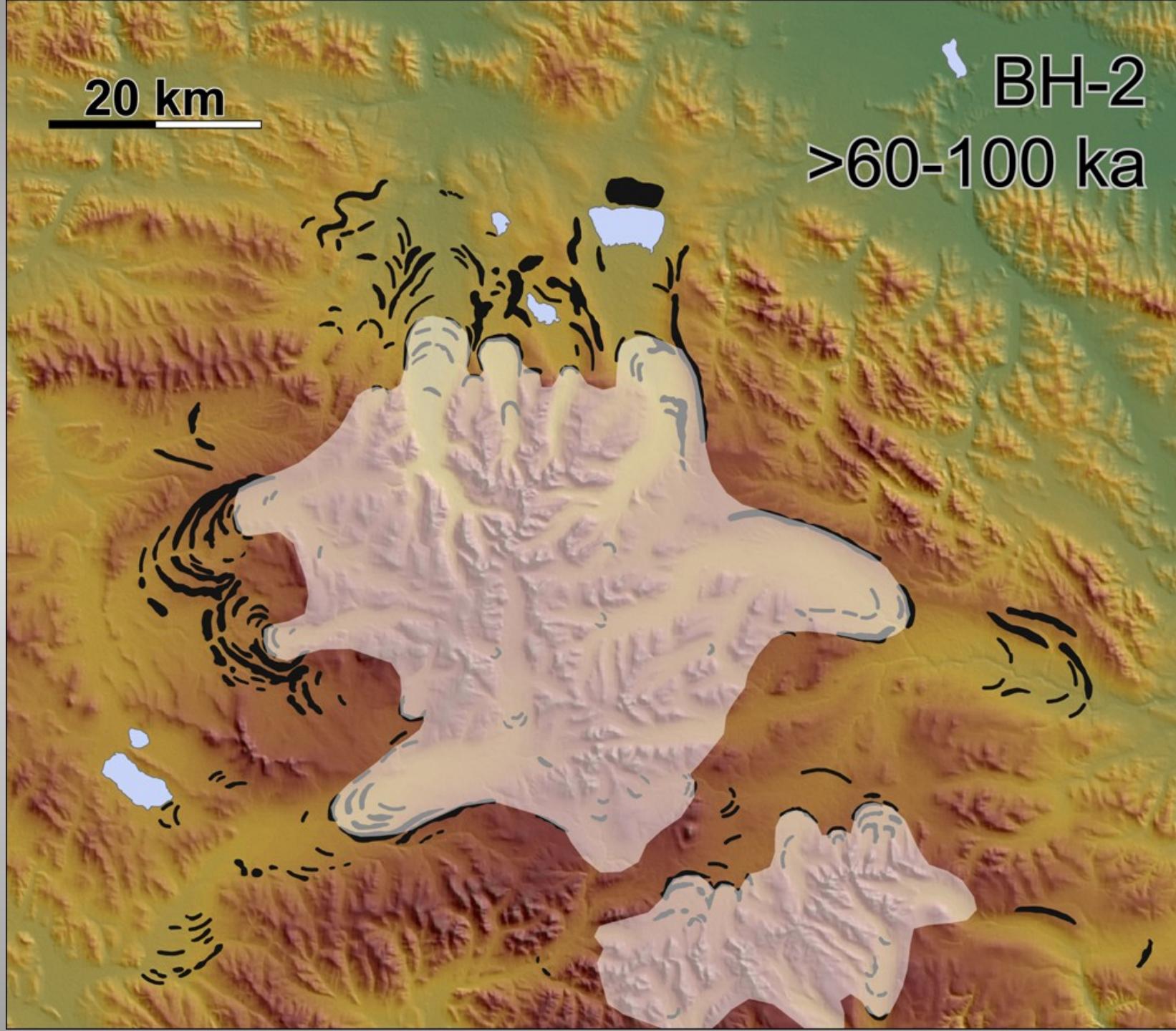
35°N

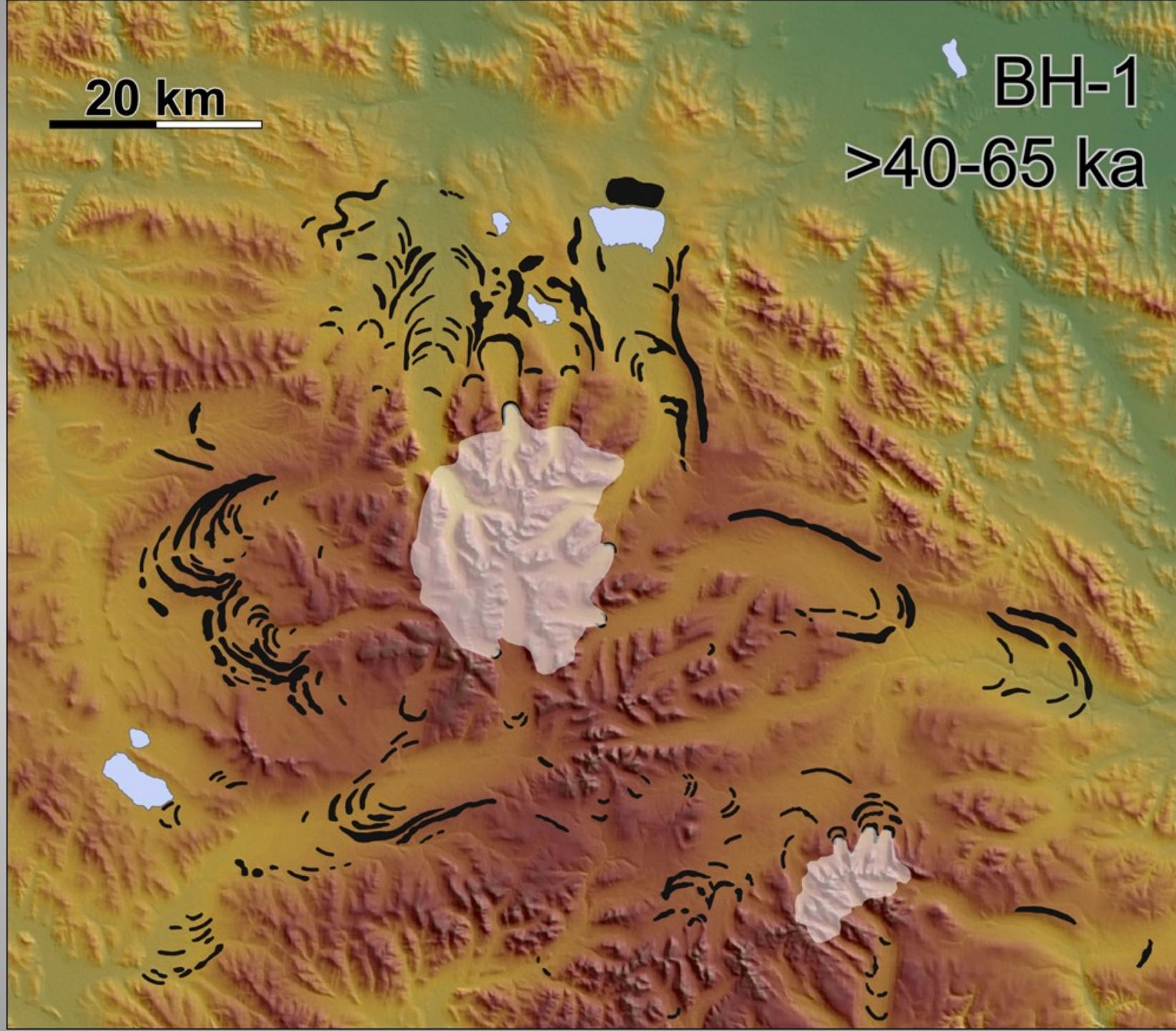
50 km

BH-4  
>95-165 ka

33°N







# Conclusions

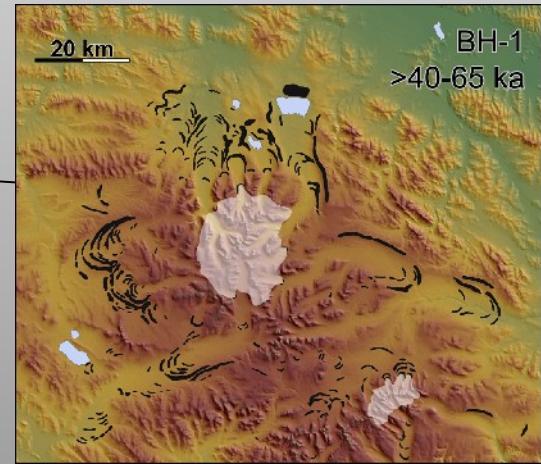
- Multiple glaciations in the form of ice-fields/ice caps and alpine mountain glaciers



- No support for paleo-ice sheet (plateau-scale as well as regional ice sheet)



- **Very restricted glaciation over at least the last 40-65 ka**



# Thank you!

