

## The Bottoms on Top – Exploring Lacustrine Deposits on the Tibetan Plateau

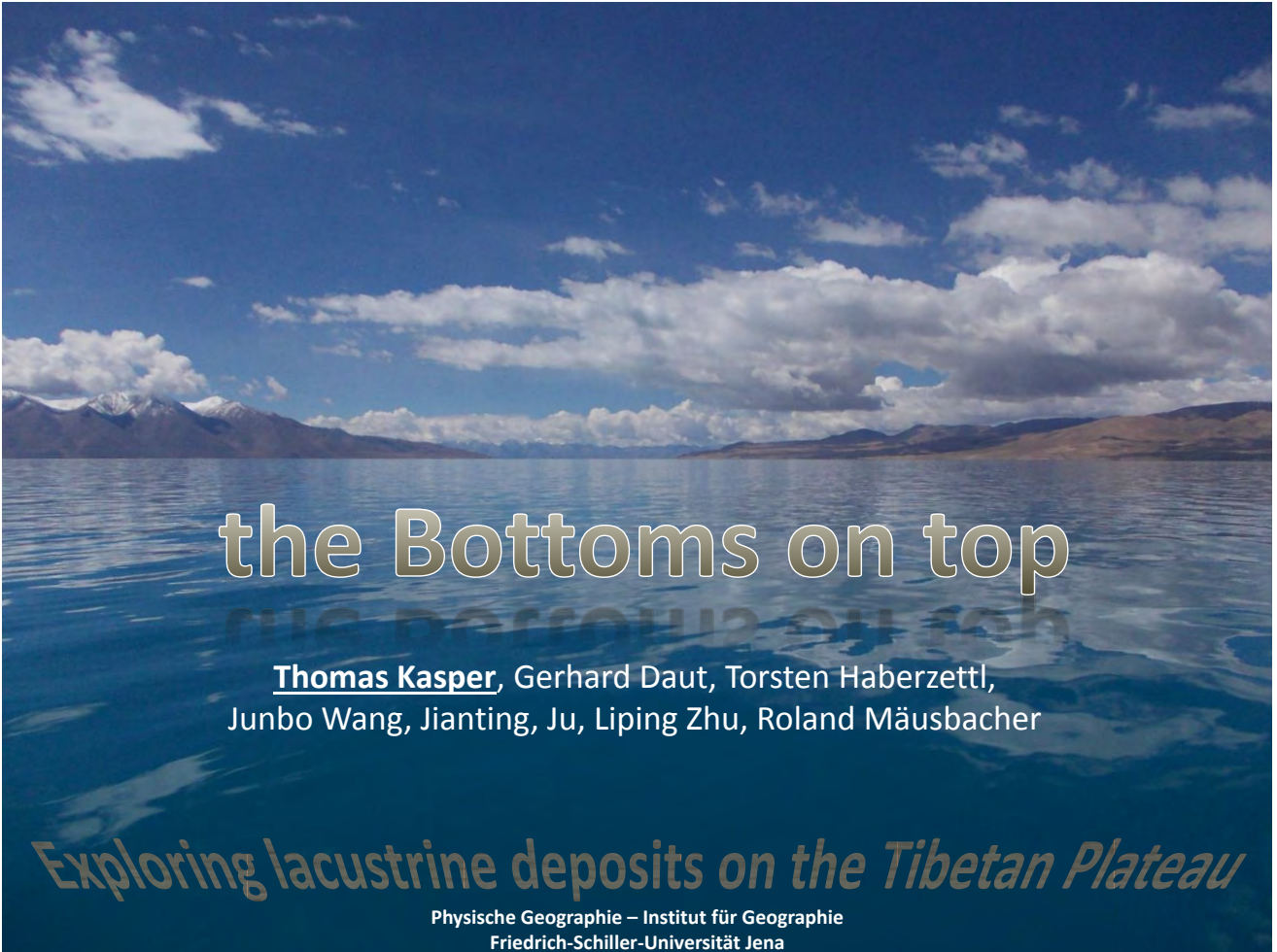
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Friedrich Schiller University Jena, Germany

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Website [www.geographie.uni-jena.de](http://www.geographie.uni-jena.de)



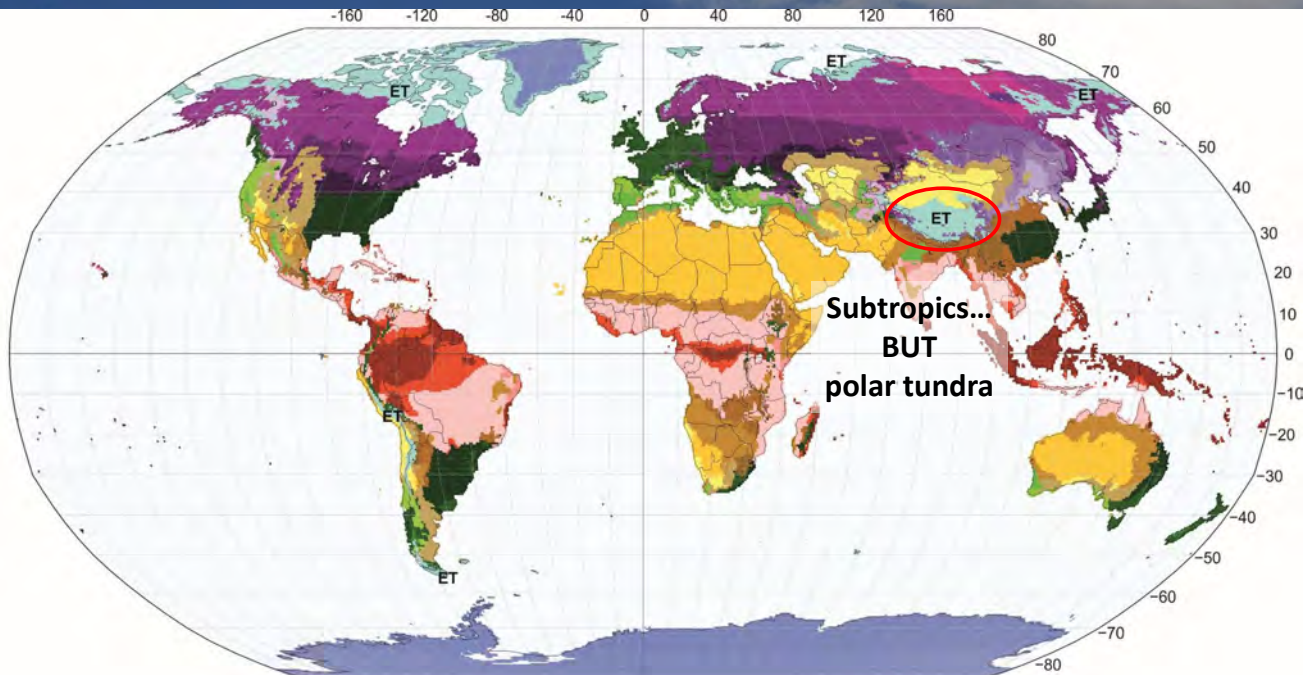
# the Bottoms on top

Thomas Kasper, Gerhard Daut, Torsten Habertzettl,  
Junbo Wang, Jianting, Ju, Liping Zhu, Roland Mäusbacher

## Exploring lacustrine deposits on the Tibetan Plateau

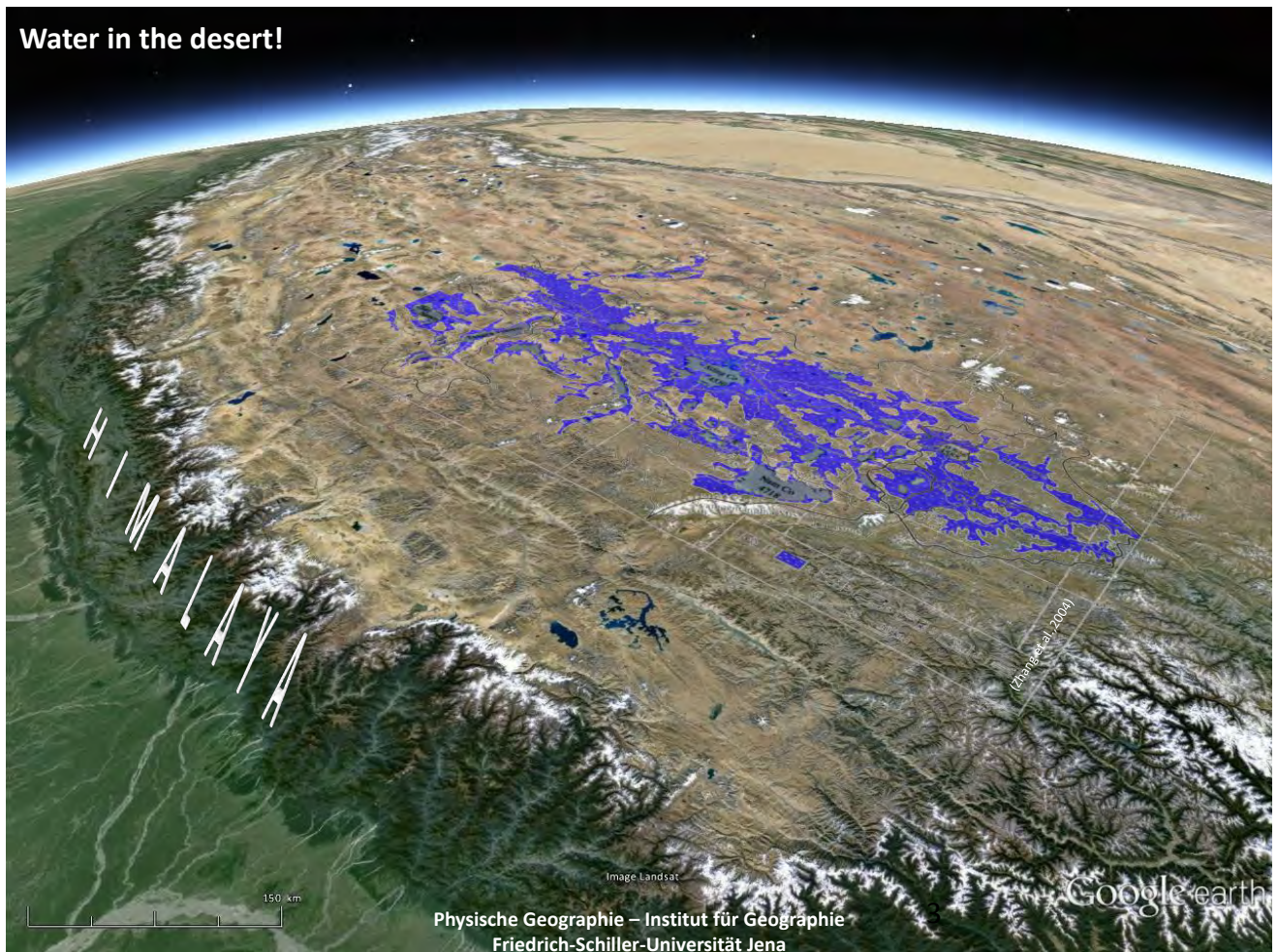
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# Tibetan Plateau = desert?





## Water in the desert!



## Why do we look...

- map certain features
  - tectonics
  - mass wasting deposits, etc.
- map submerged lake level terraces
- find most suitable/promising coring positions

→ obtain continuous paleoenvironmental records,  
which date as far back in time as possible





# How do we look...

- SBP SES 96 light (until 2014)
- SBP SES 2000 light



+

- Reserch vessel



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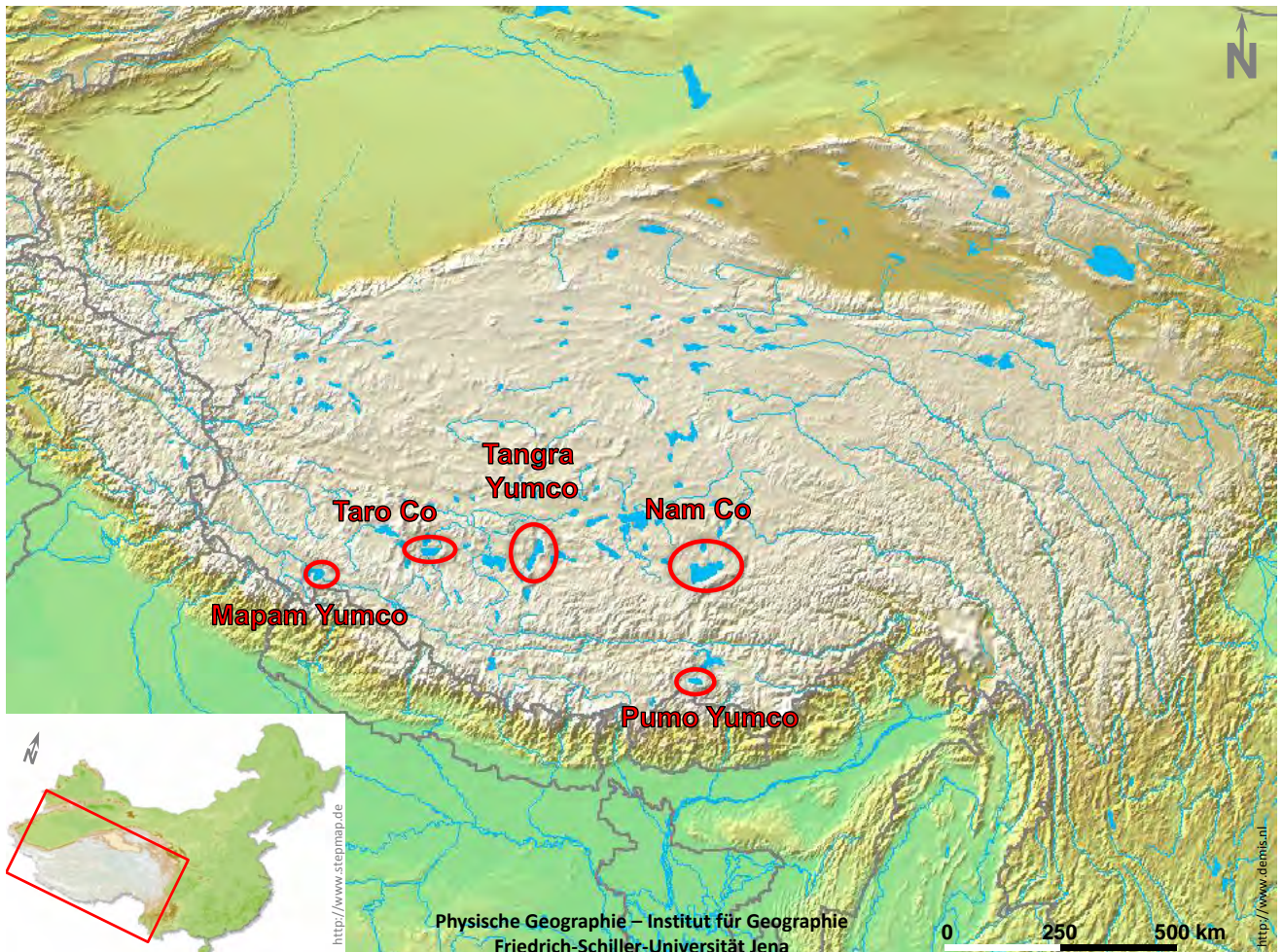
# Size matters!



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# Size matters!

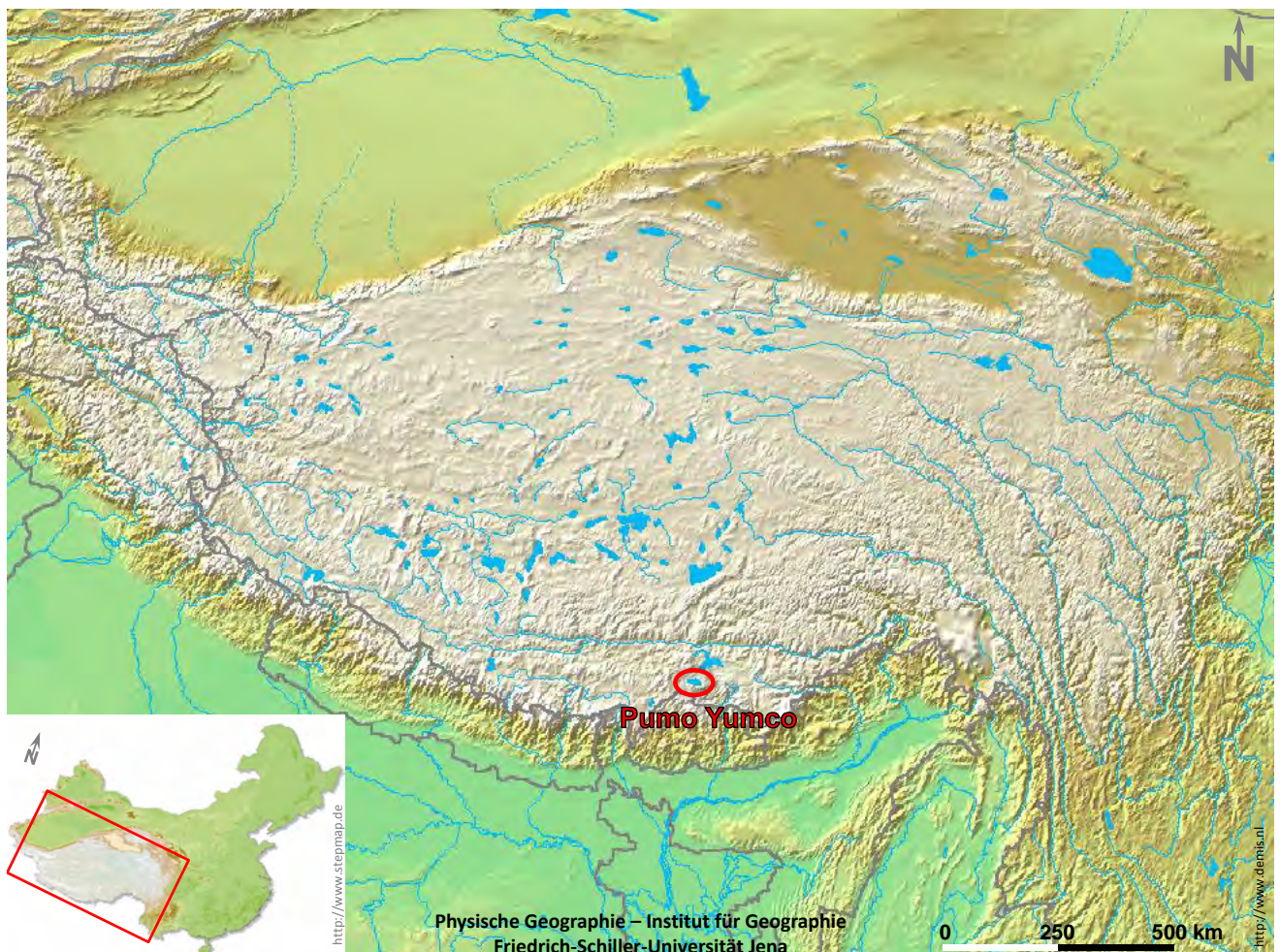




# MAPPING CERTAIN FEATURES (TECTONICS, MASS WASTING DEPOSITS, ETC.)

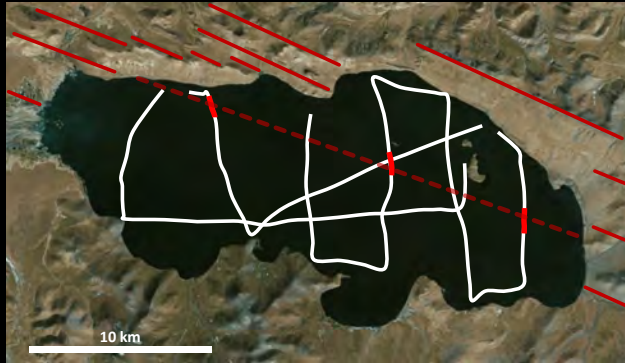


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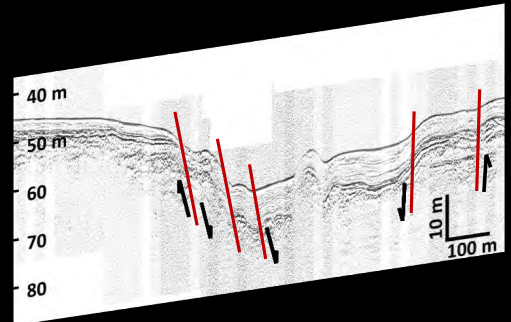
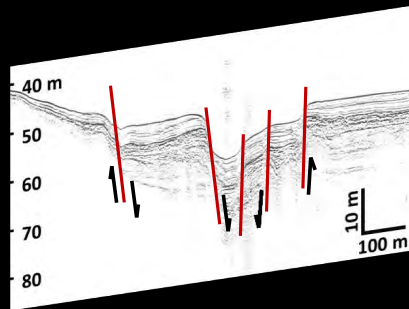
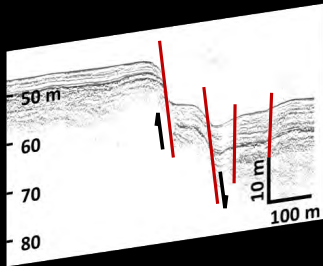




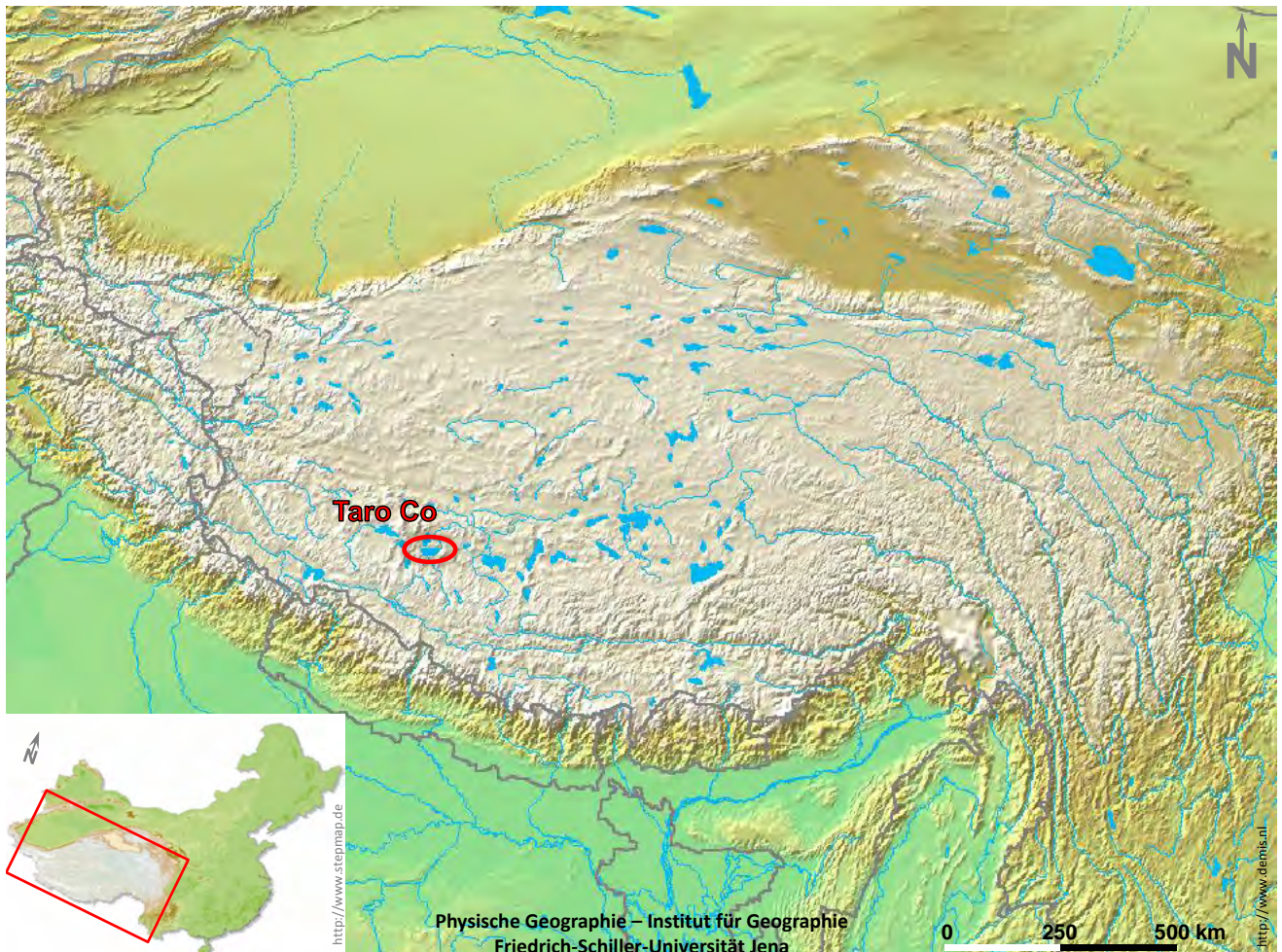
# Pumo Yumco



- Altitude: 5,060 m a.s.l.
- Water depth: max. 65 m
- System: closed basin
- ~105 km hydro acoustic profiles



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# Taro Co

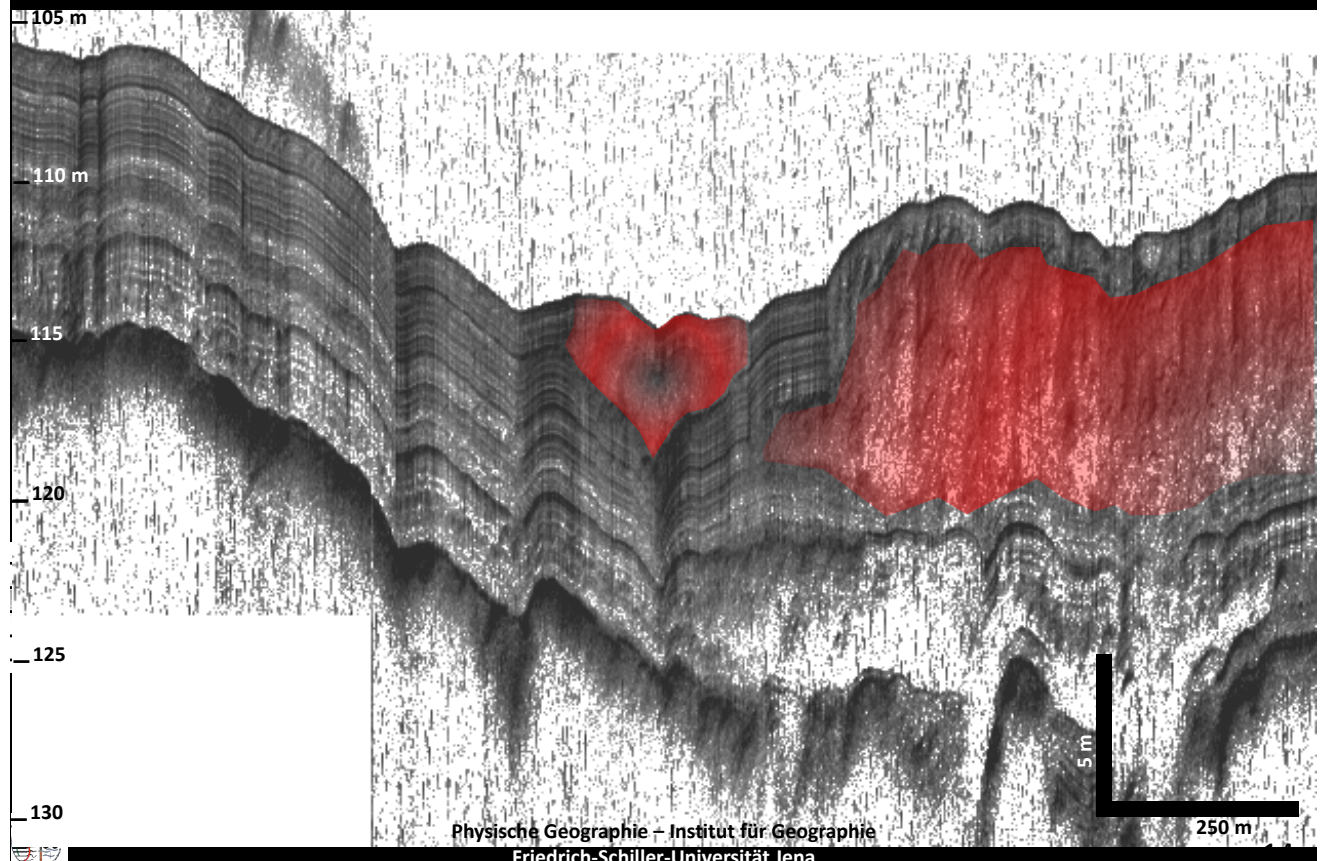


- Altitude: 4,570 m a.s.l.
- Water depth: max. 125 m
- System: open basin
- ~70 km hydro acoustic profiles



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# Taro Co



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# Taro Co

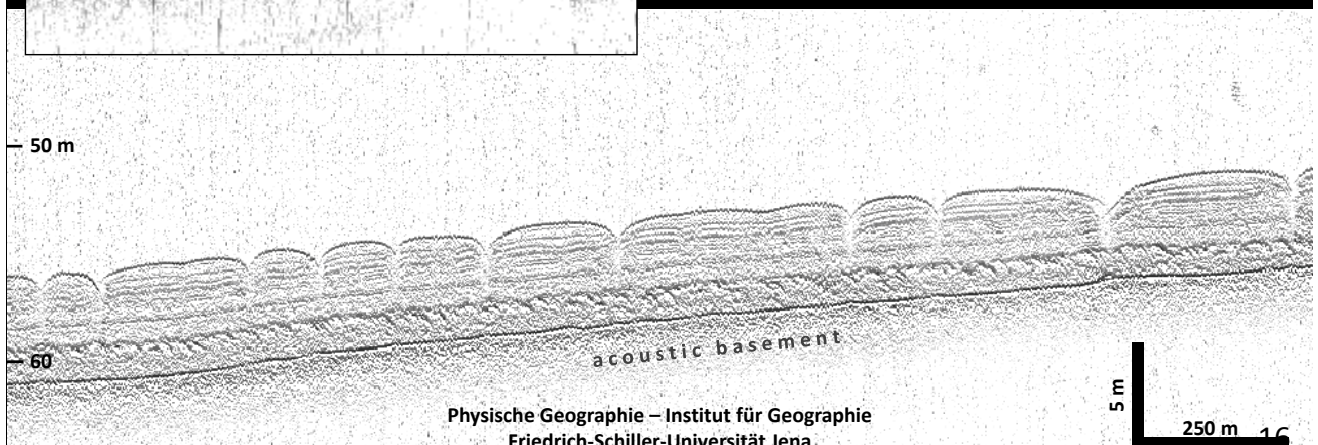
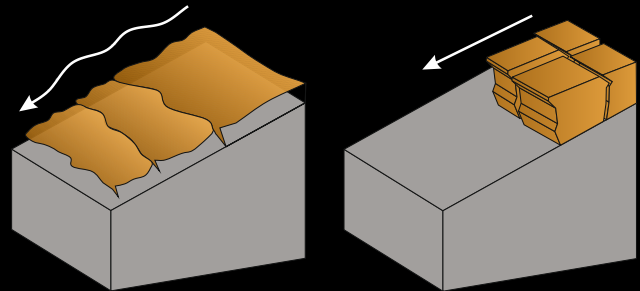
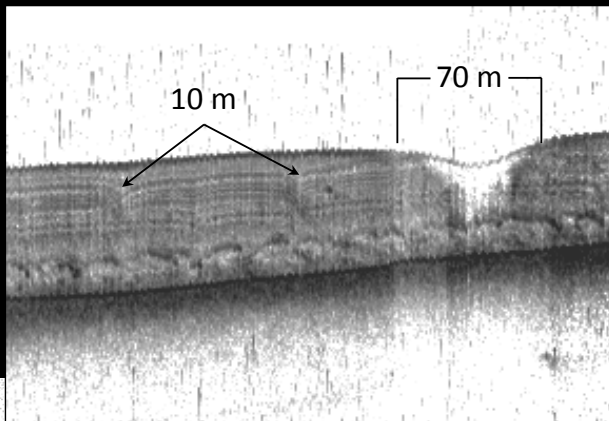


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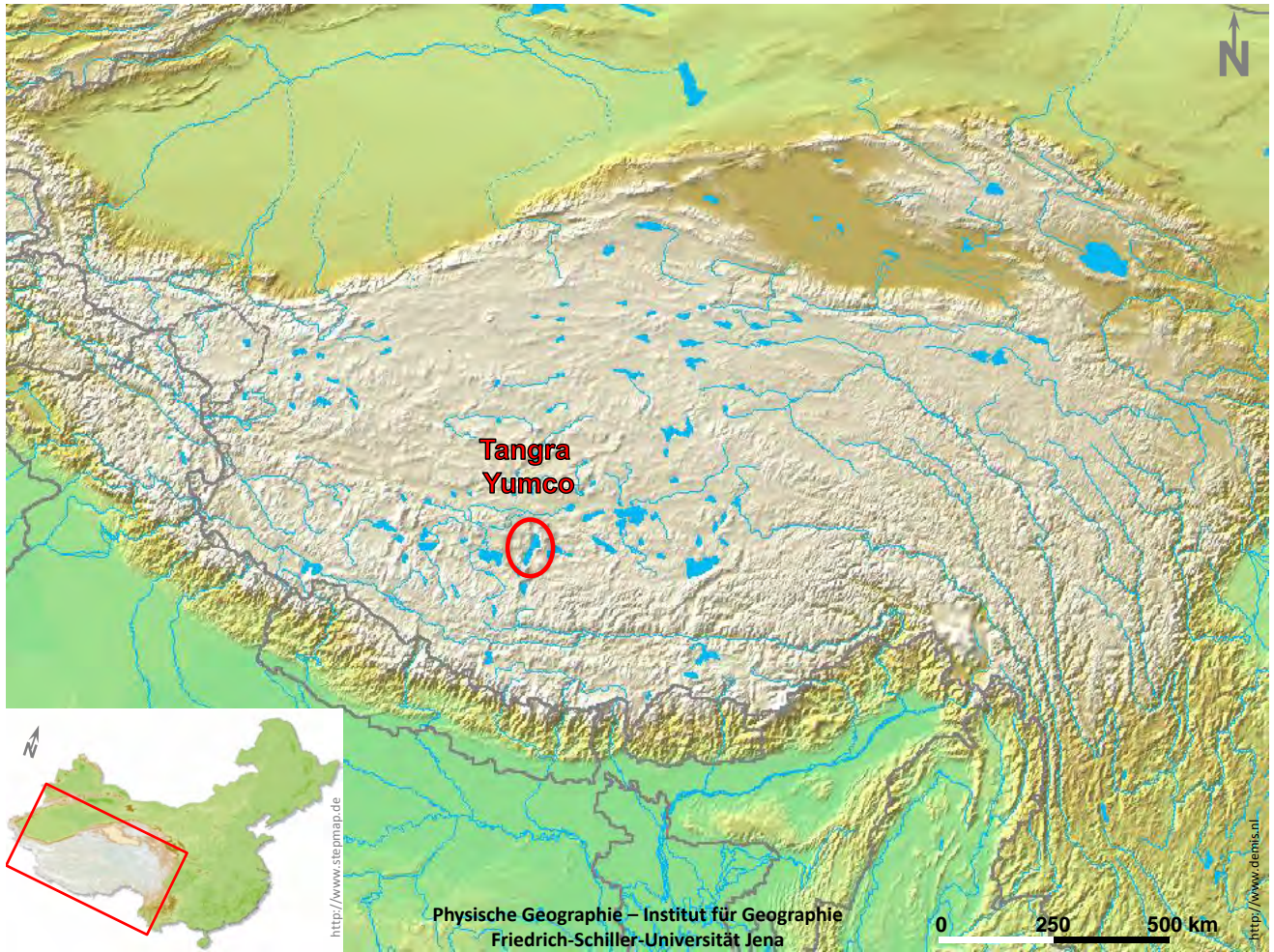
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# Taro Co



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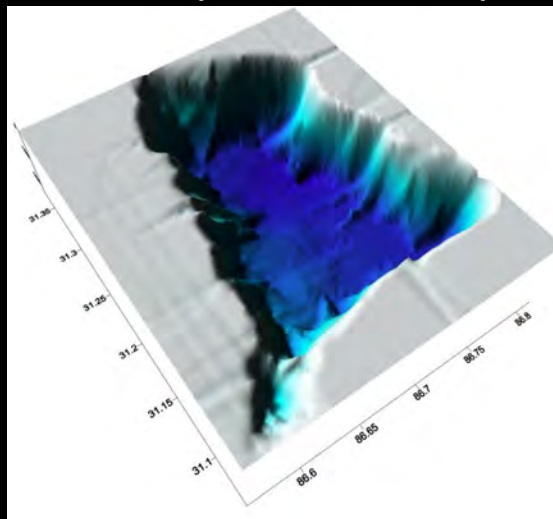




## Tangra Yumco

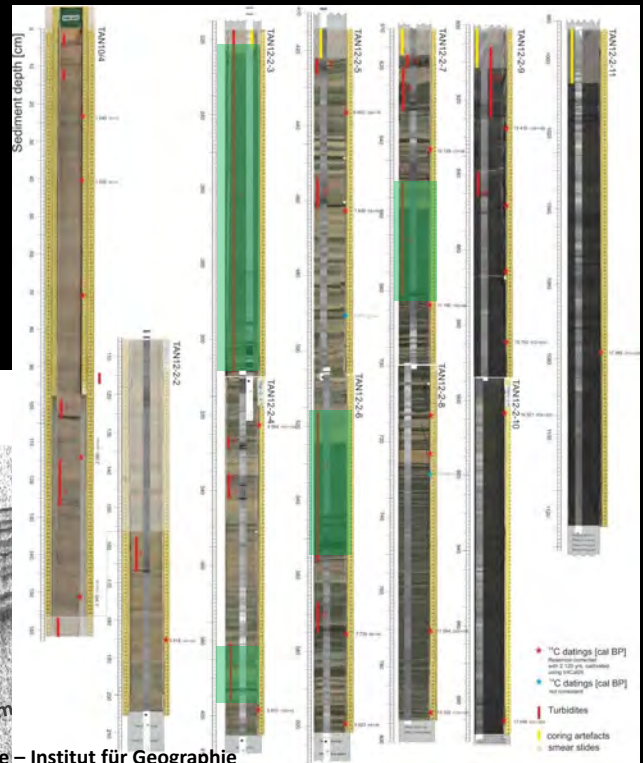
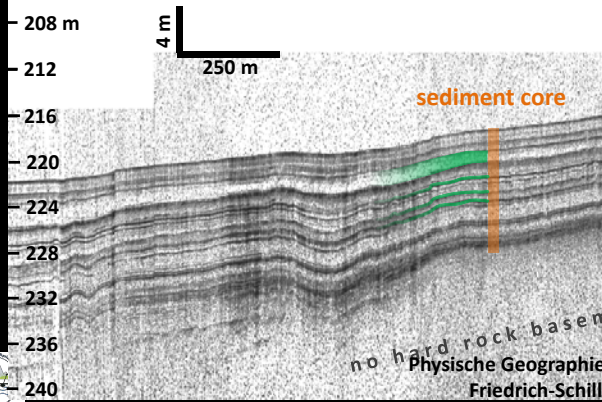
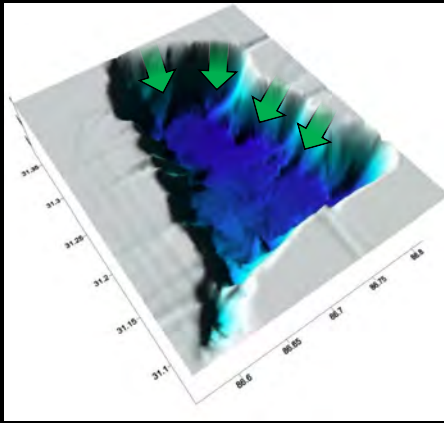


- Altitude: 4,540 m a.s.l.
- Water depth: max. 230 m
- System: closed basin
- ~164 km hydro acoustic profiles





# Tangra Yumco

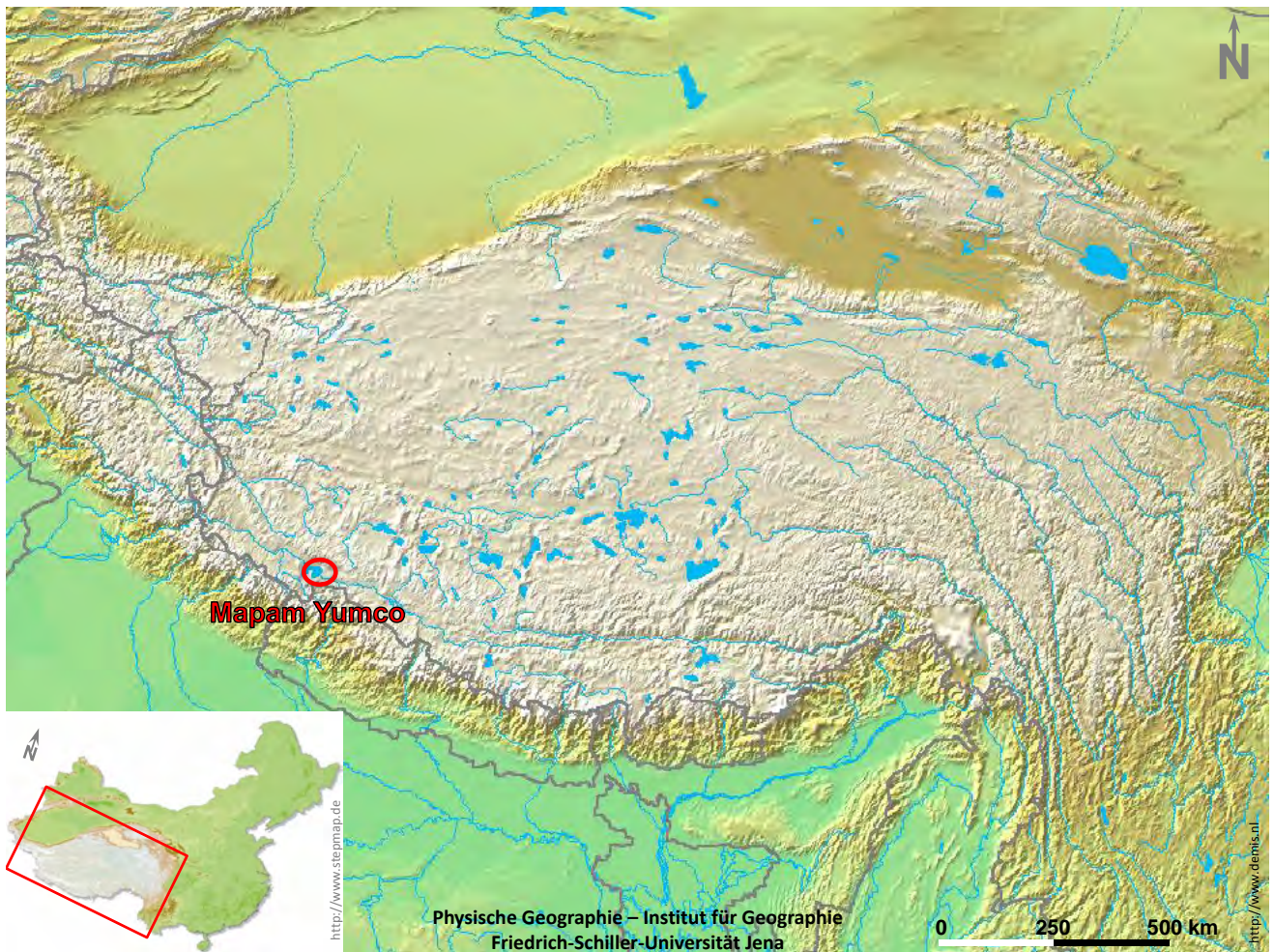


(Henkel et al., subm.; Ahlborn...Kasper et al., subm., modified)

## MAPPING SUBMERGED LAKE LEVEL TERRACES



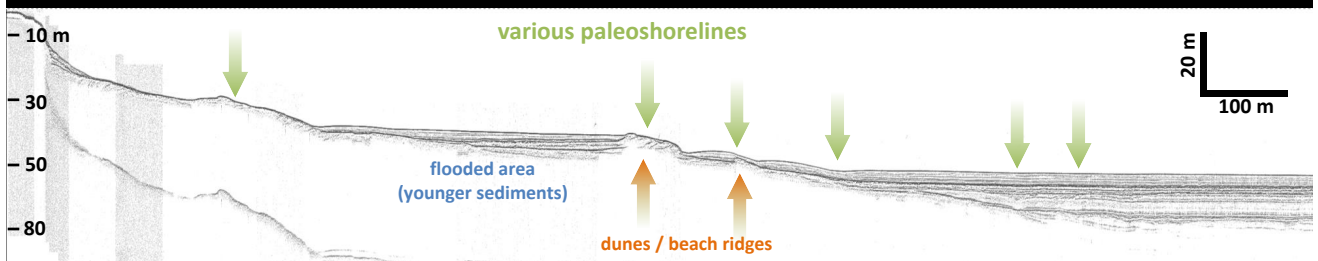




# Mapam Yumco

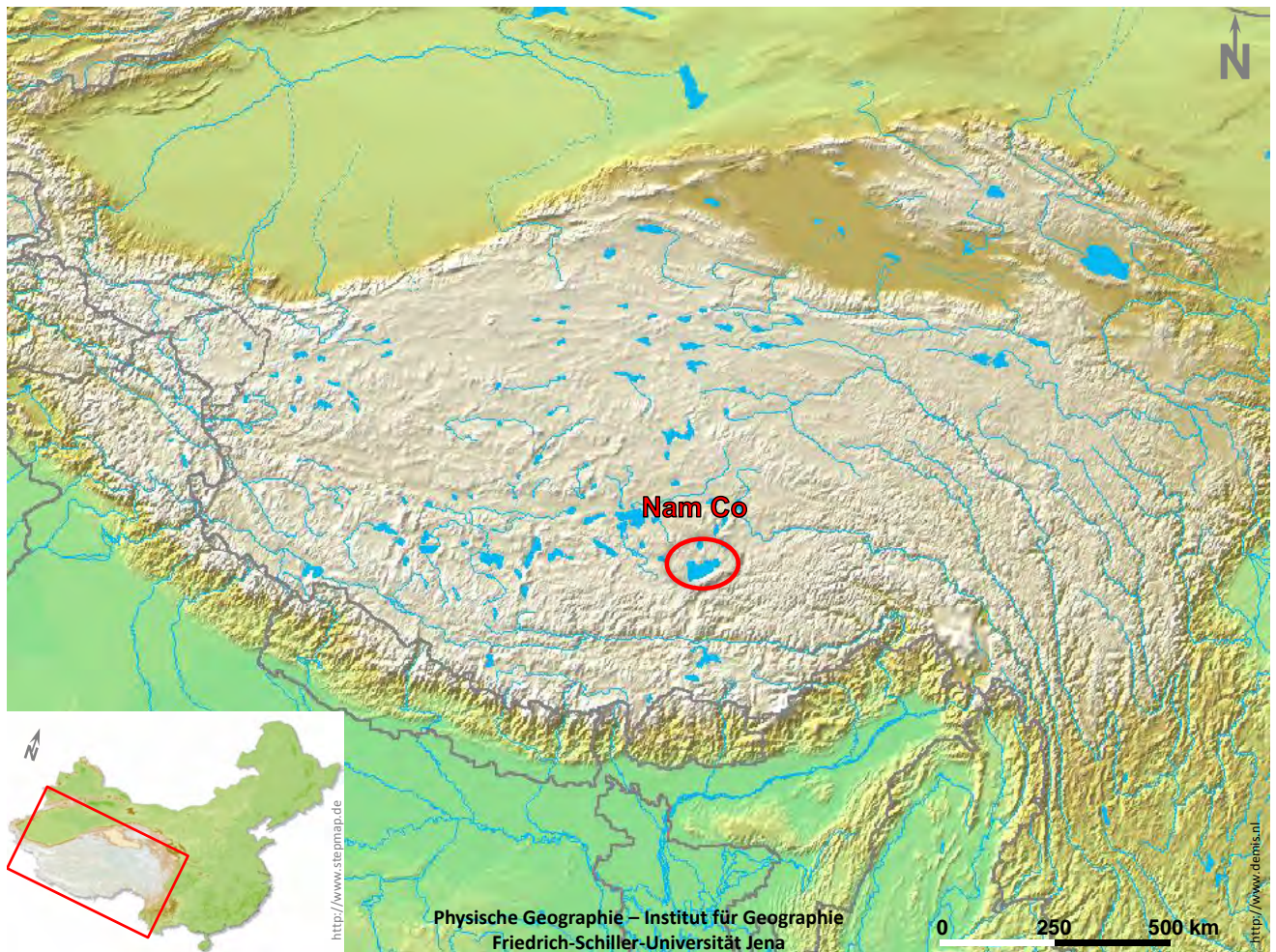


- Altitude: 4,590 m a.s.l.
- Water depth: max. 70 m
- System: closed basin
- ~85 km hydro acoustic profiles



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## Nam Co

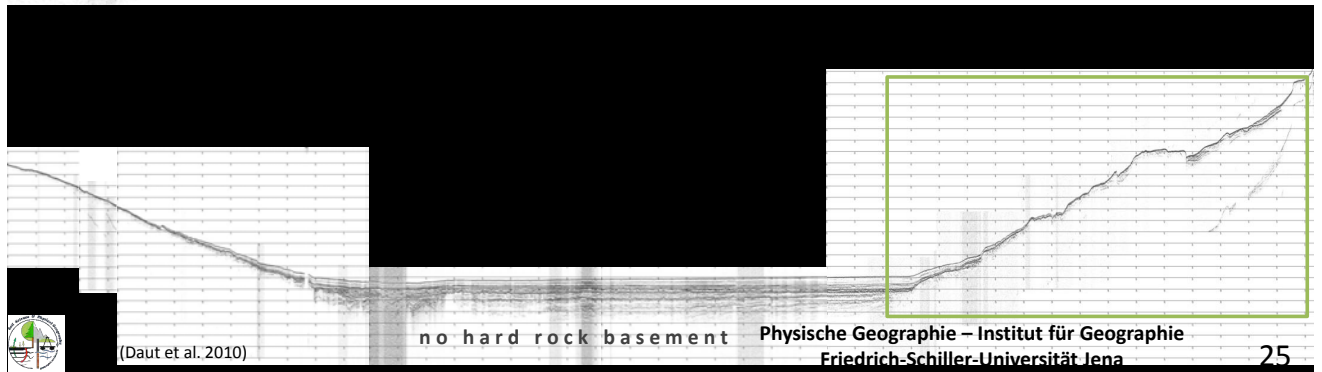
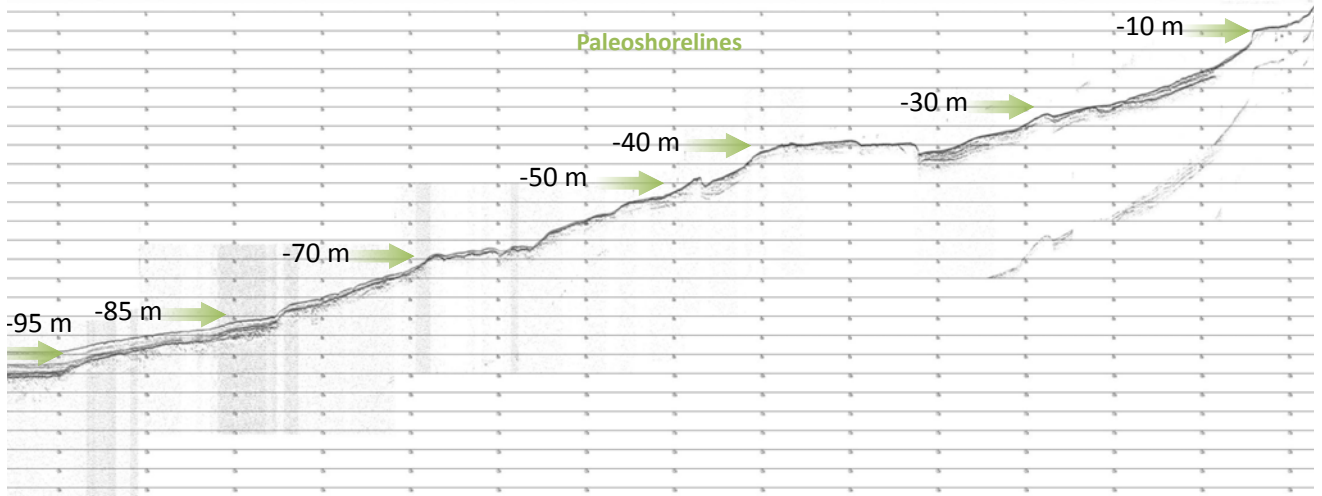


- Altitude: 4,718 m a.s.l.
- Water depth: max. 97 m
- System: closed basin
- ~250 km hydro acoustic profiles

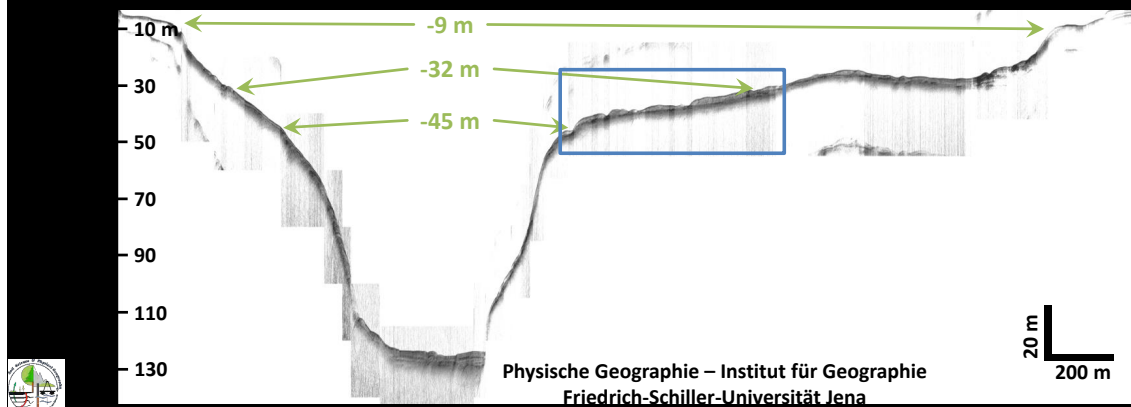
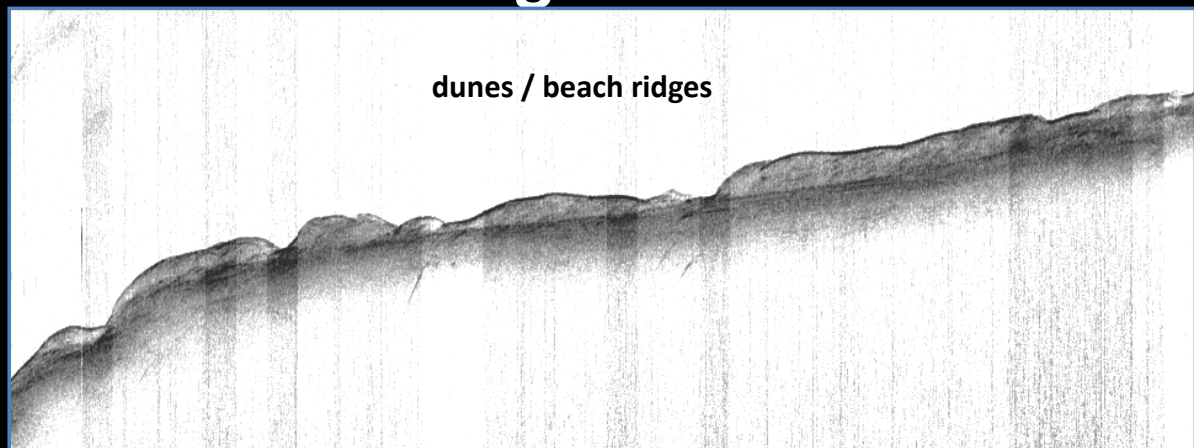




# Nam Co



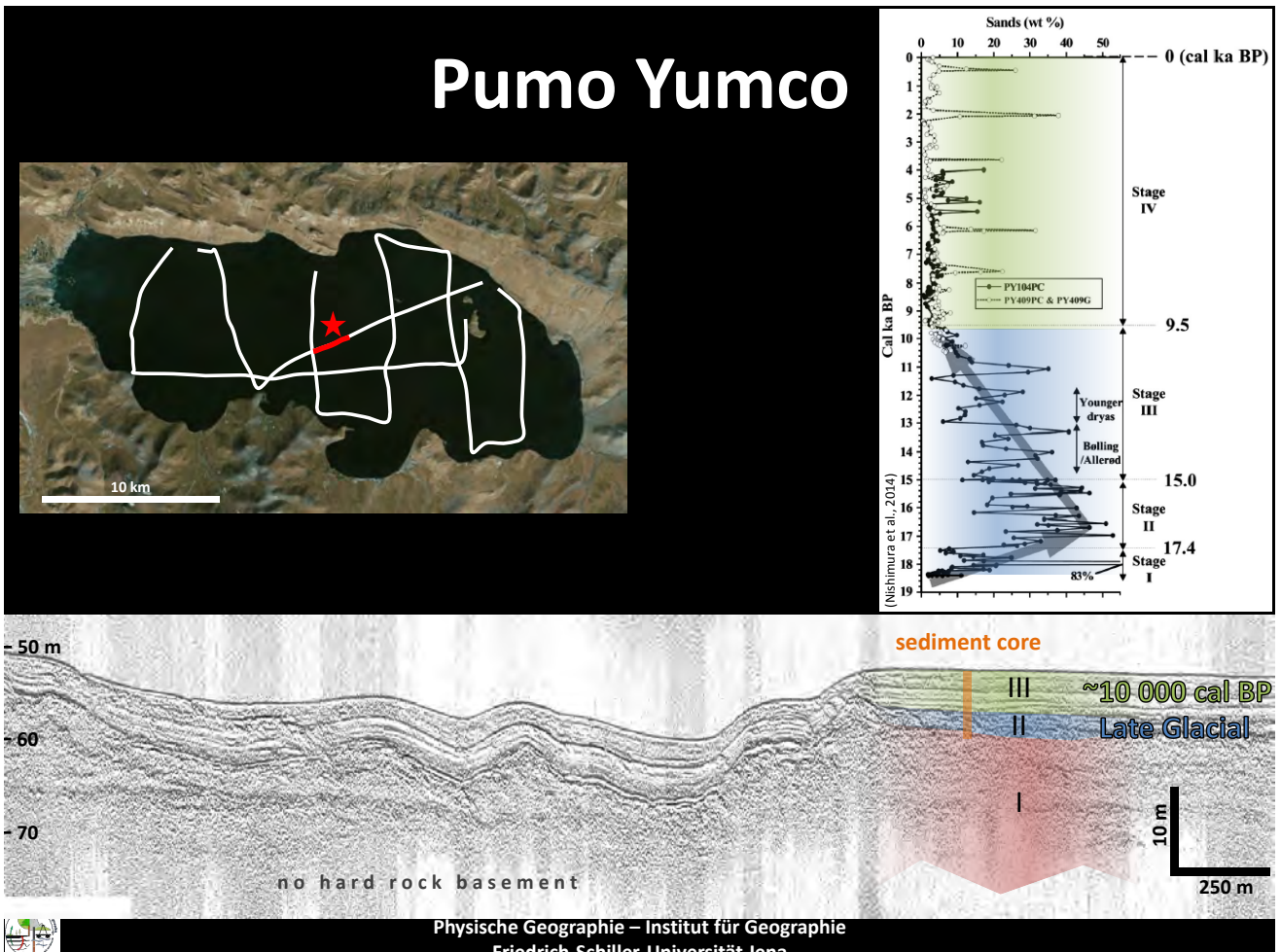
# Tangra Yumco



# FINDING MOST SUITABLE CORING POSITIONS

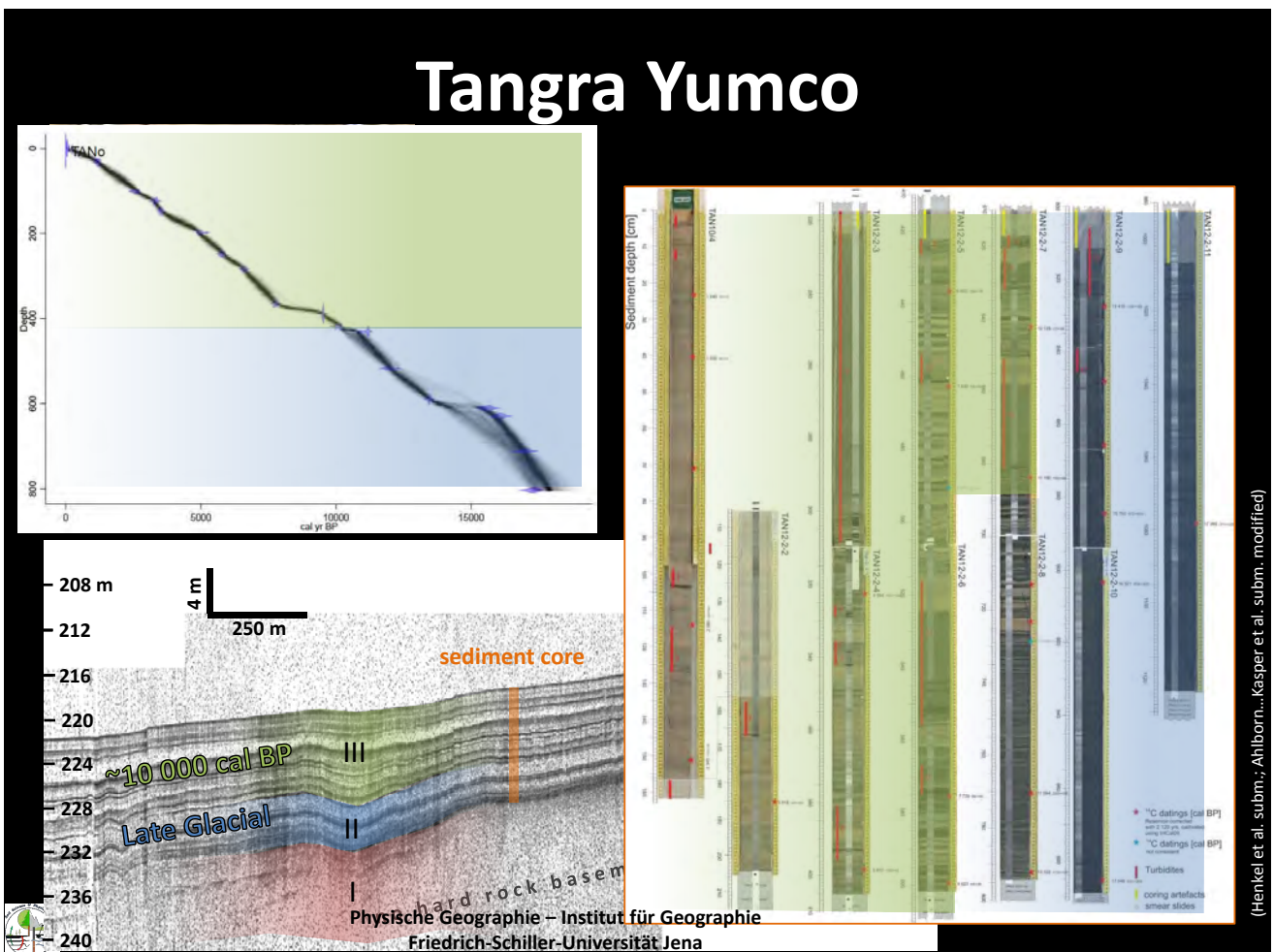
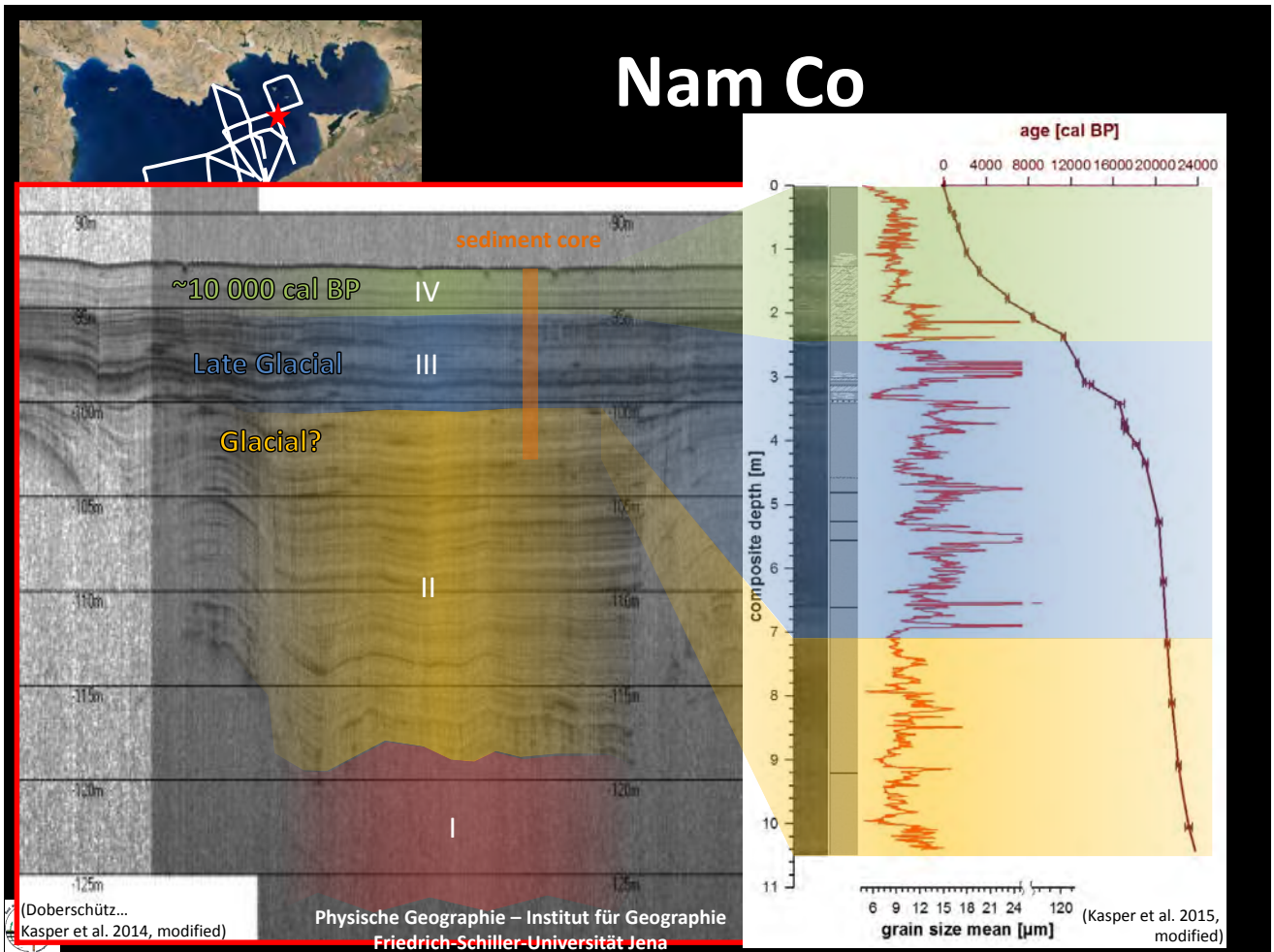


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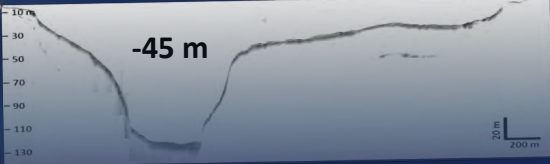




# Tangra Yumco



Total lake level variations = ca. **230 m**



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## Water in the desert!



Image Landsat

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Google earth



# Take home message...

- **certain features mapped** (tectonics, mass movements, etc.)
- **lake level low stands mapped**
- **found most suitable coring positions**
- **derived lake level/climatic information from acoustic reflectivity data**

reflectivity	grain size	lake level	climate
low	fine	high	interglacial (warm & wet)
high (chaotic)	coarse	low	glacial (cool & dry)



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Thank You!

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Tangra Yumco, September 2010 © Thomas Wiatr