

# Just the right age:

well-clustered exposure ages from a global glacial  $^{10}\text{Be}$  compilation

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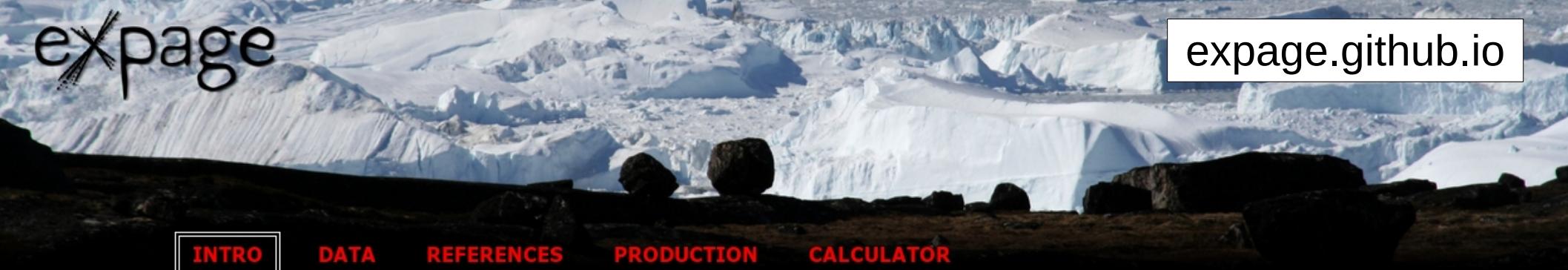
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# Background / aim

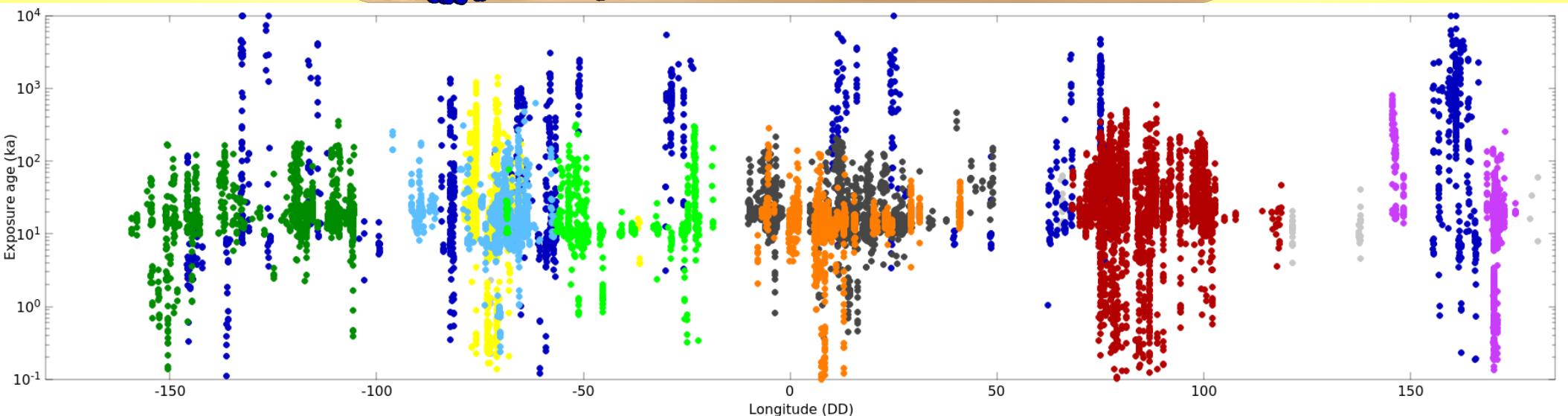
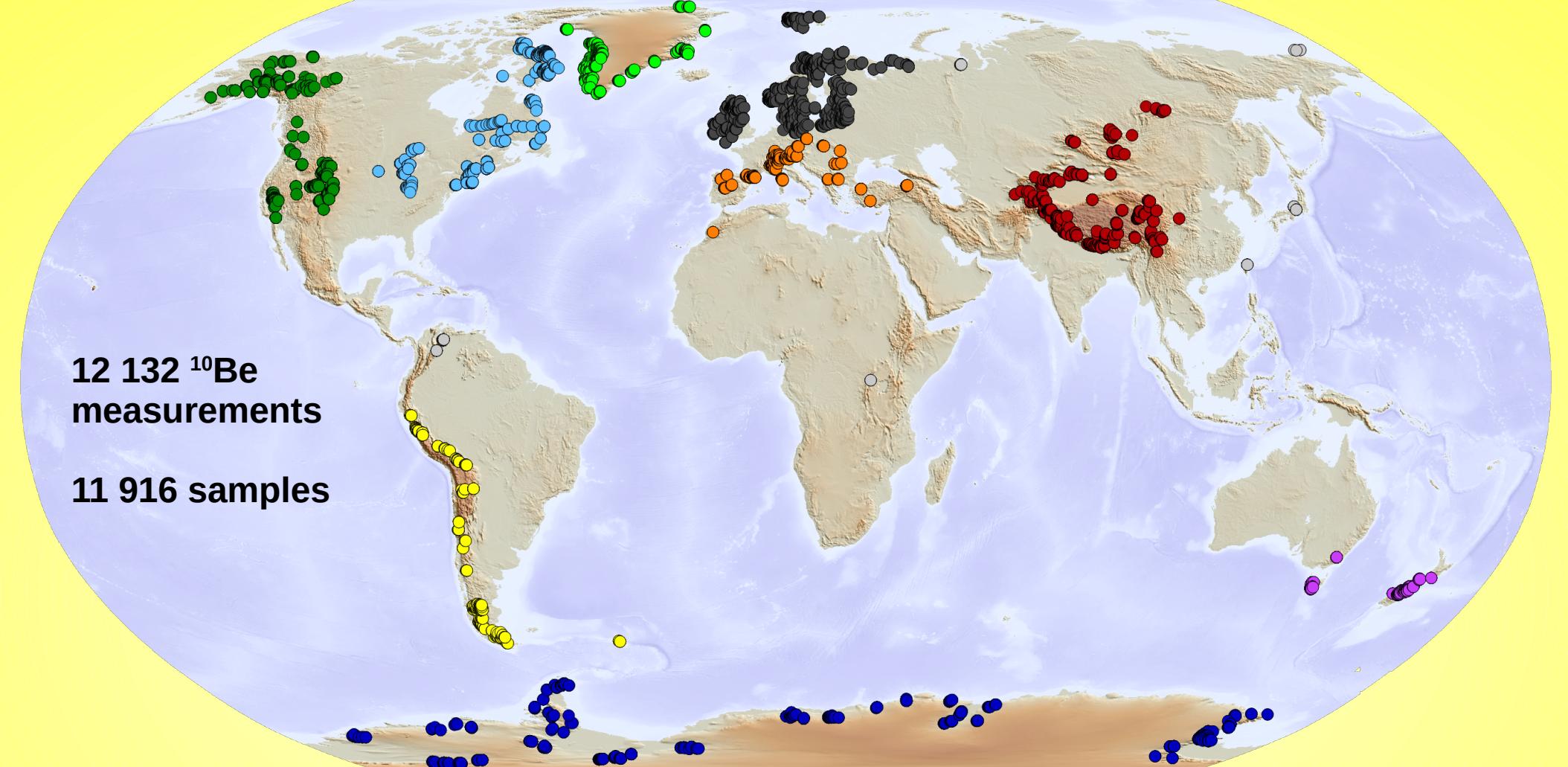
There is a lot of published glacial  $^{10}\text{Be}$  data

What can it tell us about global glaciations?

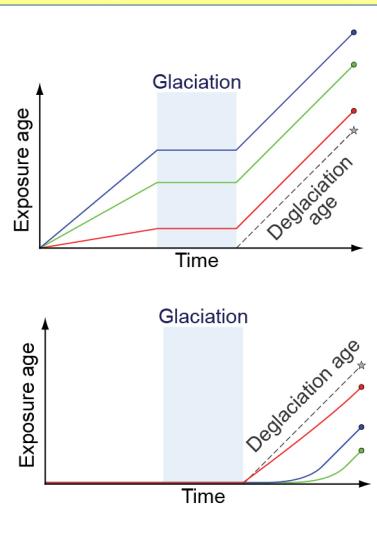
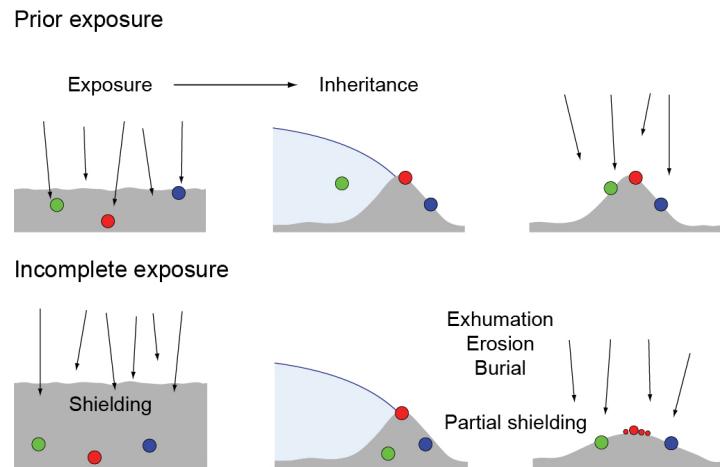


## A global compilation of glacial $^{10}\text{Be}$ and $^{26}\text{Al}$ data

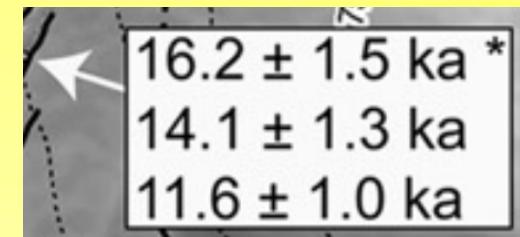
These pages host a global compilation of published  $^{10}\text{Be}$  and  $^{26}\text{Al}$  data from glacial samples, with the aim of allowing easy access to data enabling recalculation of exposure ages and cosmogenic data meta-analysis. Data has been compiled from published sources and additional data sources (data directly from the authors, data from another paper, assumptions etc) are recorded.



# Scattered exposure ages are very common!



TAR2
85.0 ± 4.0
81.6 ± 3.8
74.7 ± 3.5
69.8 ± 3.2
48.8 ± 2.3

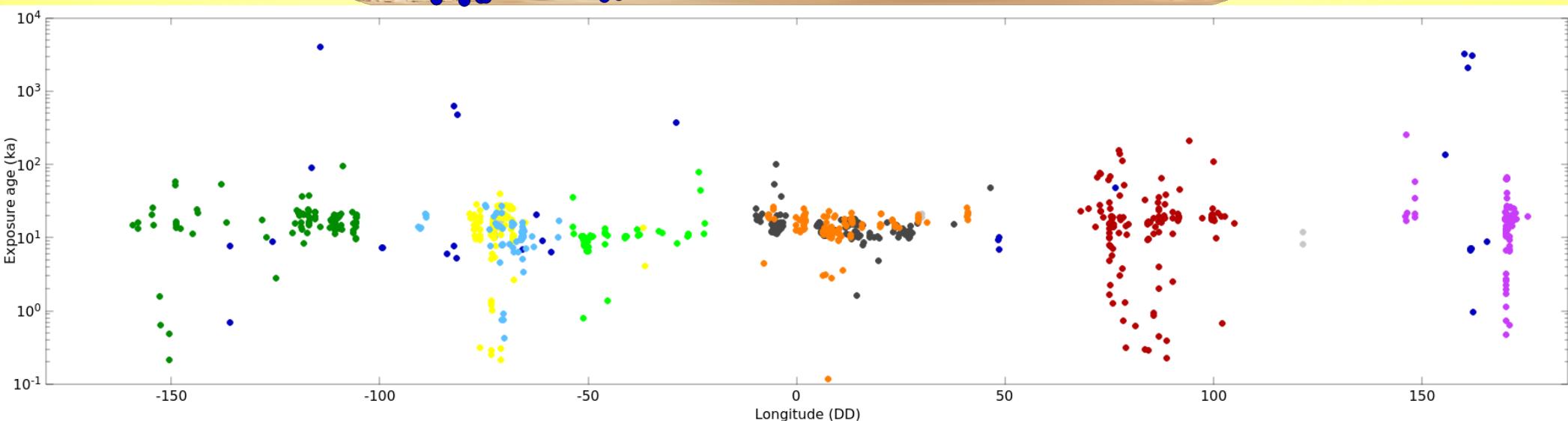
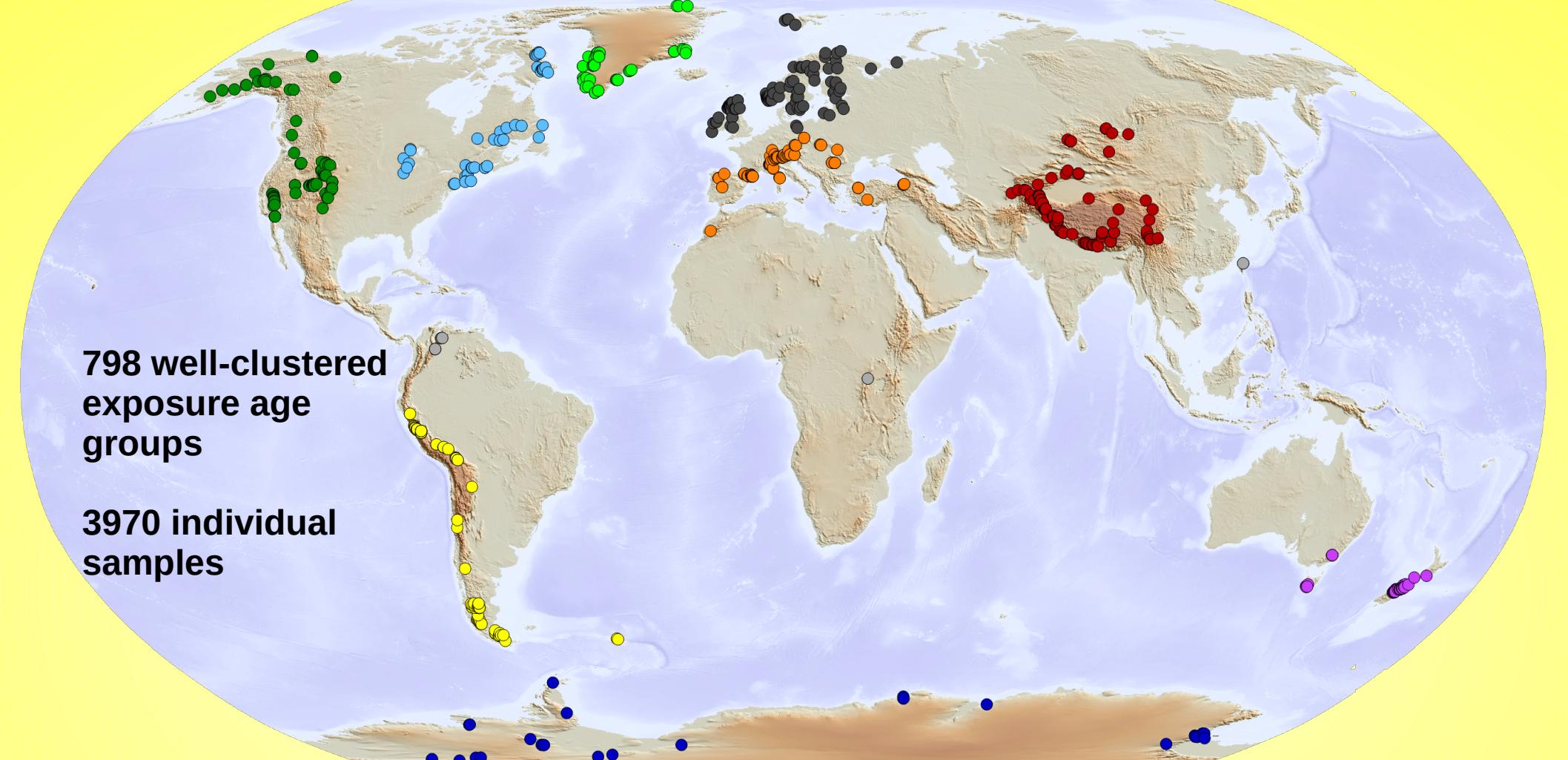


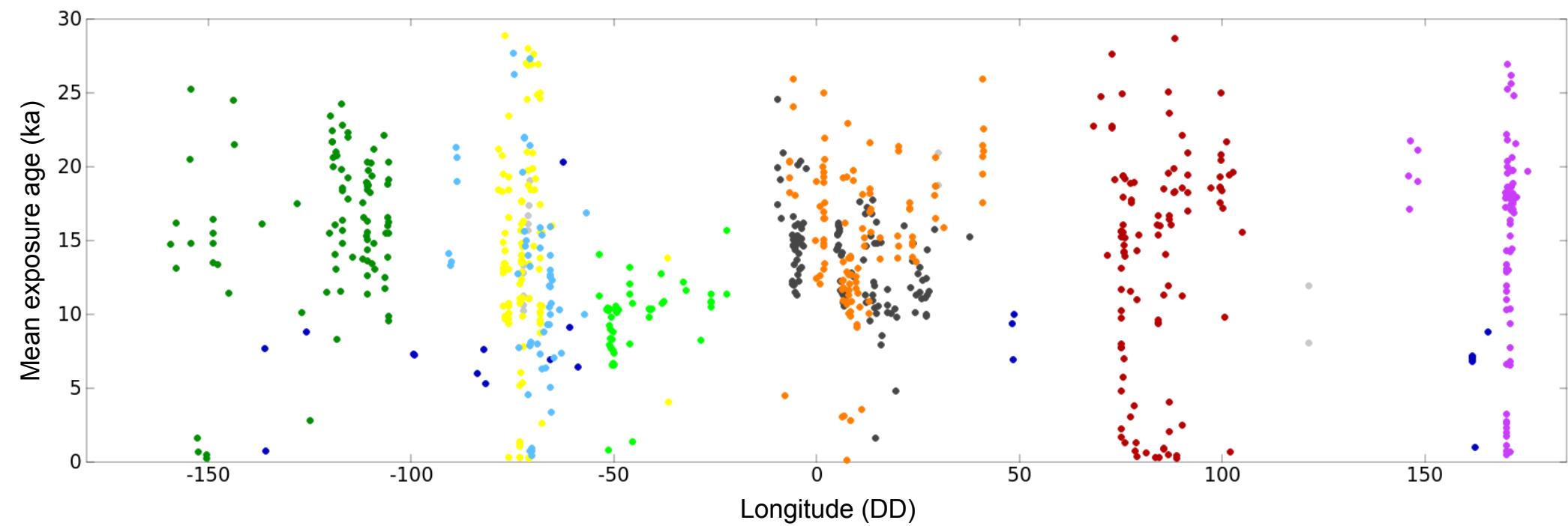
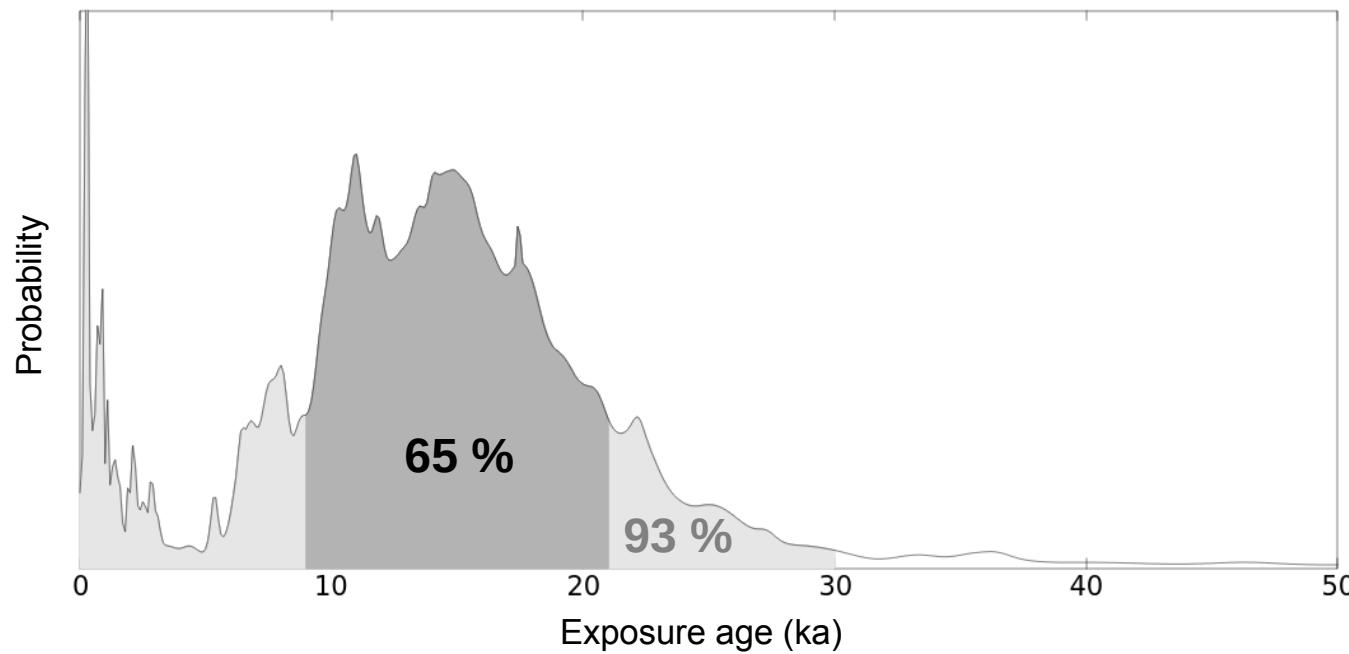
## We address this issue by...

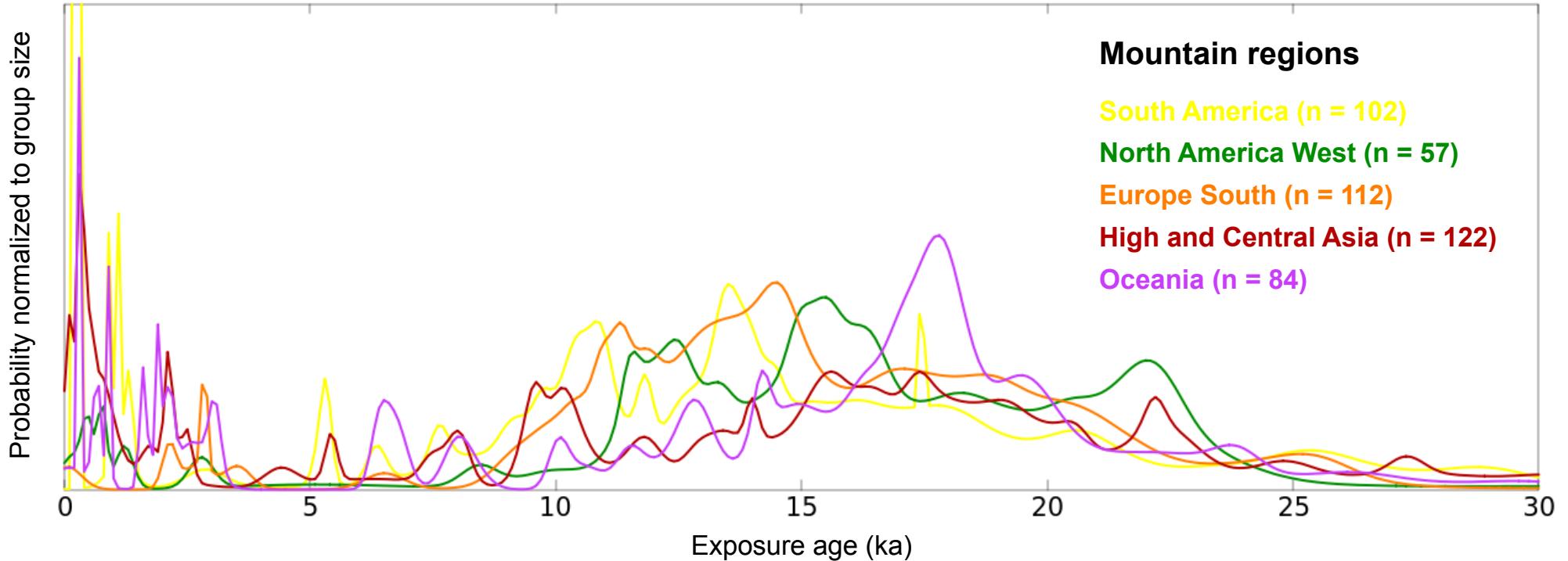
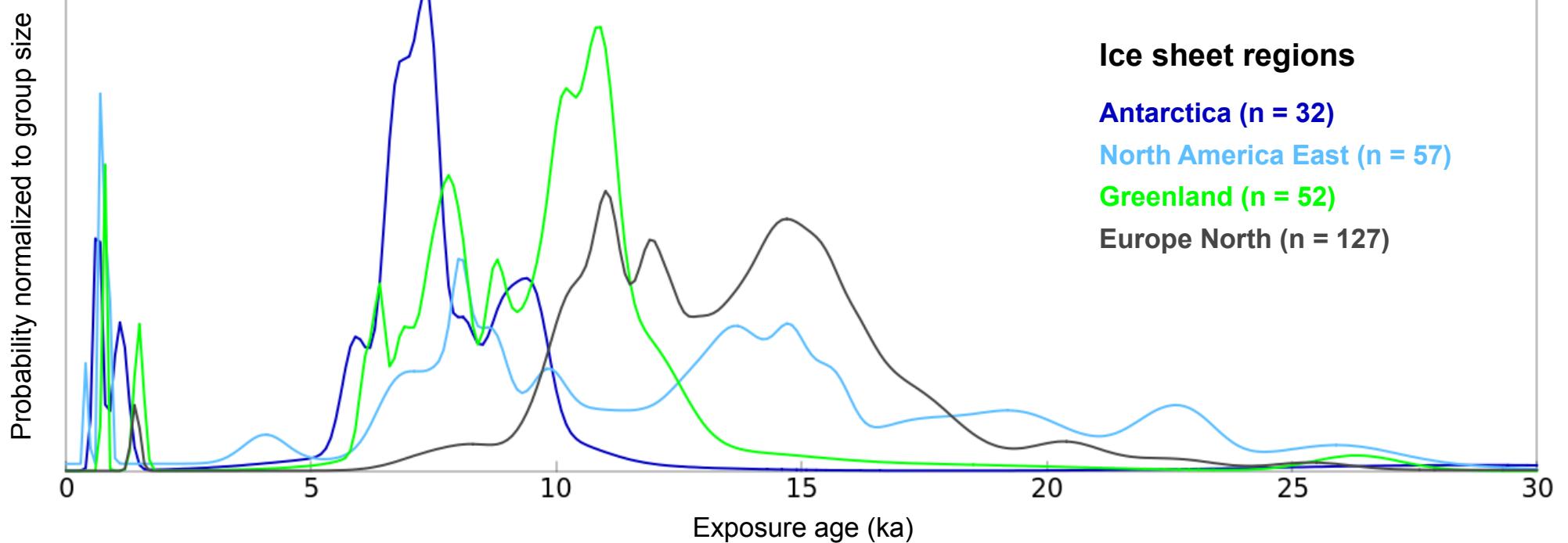
- Grouping all samples (one group = one deglaciation age)
- Picking out only groups with well-clustered exposure ages:
  - Minimum 3 well-clustered samples
  - Well-clustered based on chi-square analysis and P-value > 0.05
  - Max 1/3 samples excluded as outliers
- Groups with scattered exposure ages are thrown out

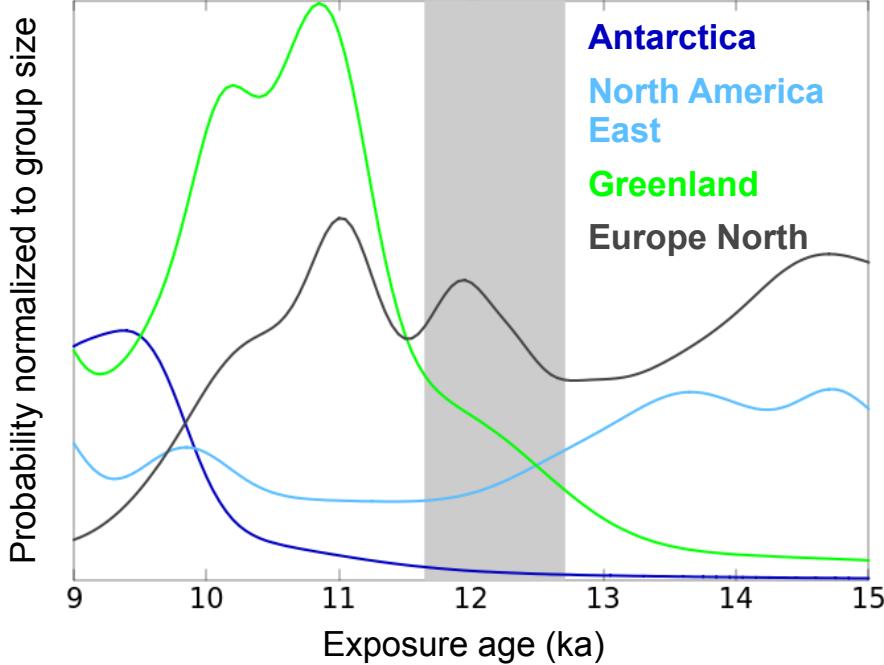
**798 well-clustered  
exposure age  
groups**

**3970 individual  
samples**



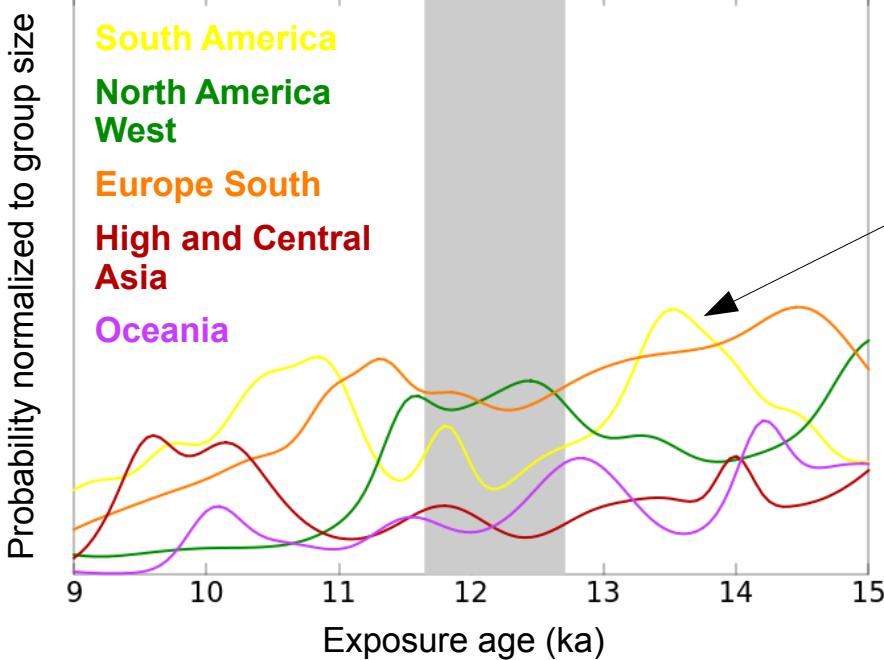






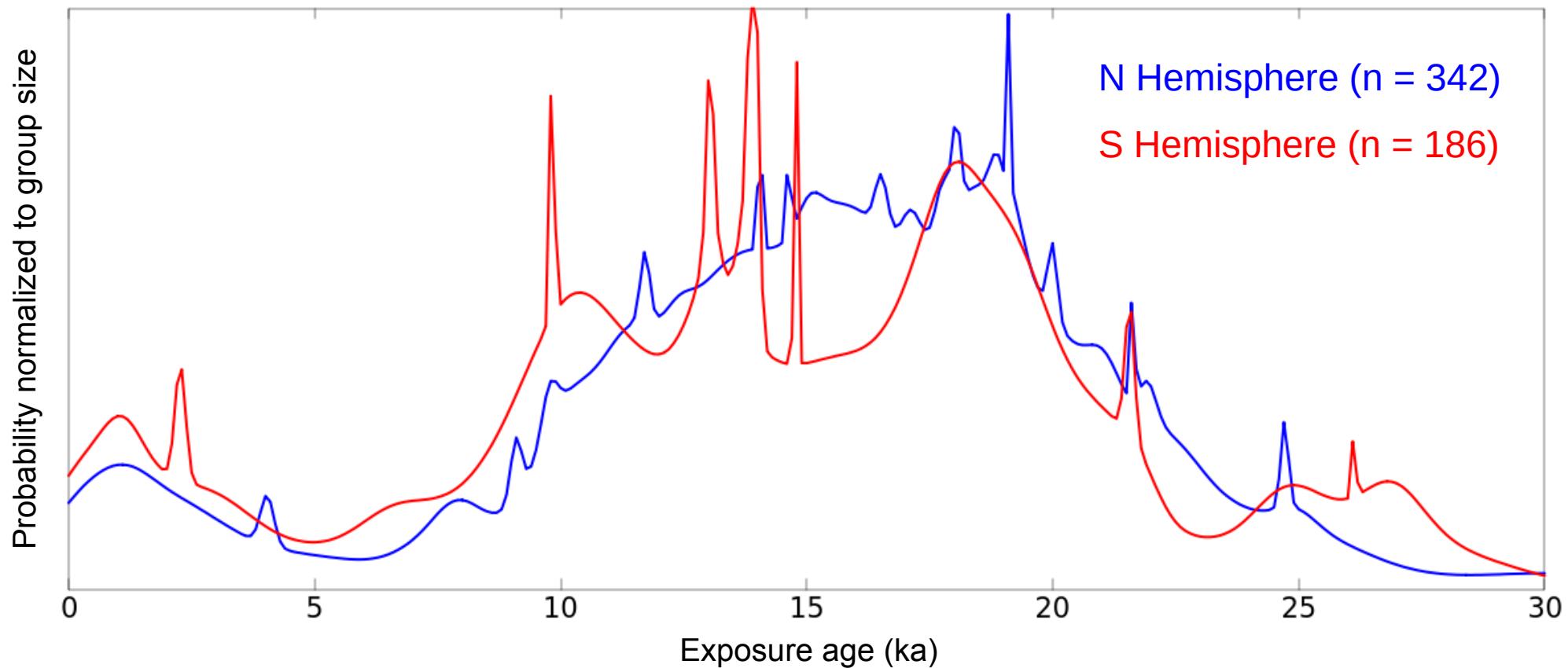
## Can we pick out the Younger Dryas?

Possibly for the (northern) European ice sheets and western North America



Antarctic Cold Reversal  
peak in South American  
exposure ages

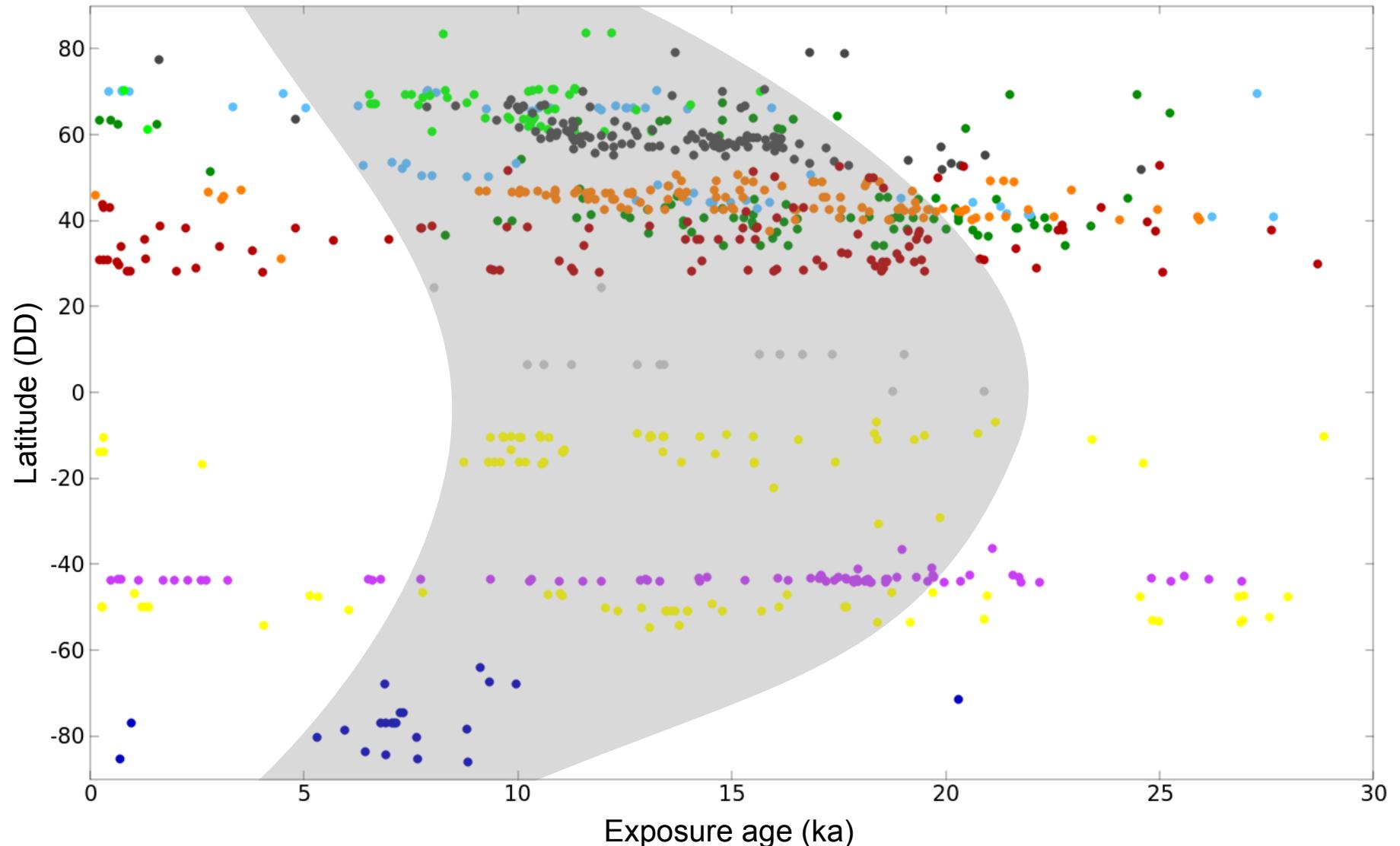
# Northern vs Southern Hemisphere mountain glaciers



Rather similar overall trends

# General correlation between latitude and deglaciation:

Low latitude glaciers disappear earlier and polar ice masses stays longer...



# Summary

- (Semi)**objective** method to get useful information out of a large but often badly scattered dataset
- Well-clustered data strongly confined to relatively young glaciations
- General global glaciation/deglaciation during the global LGM and the following deglaciation
- Earlier deglaciation in low latitude (mountain glacier) regions – later deglaciation in polar (ice sheet) regions

# Thank you!

A special thanks to all who has  
published complete datasets!