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The Maximum Extent of the Saalian and Weichselian Glaciations in Eurasia

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The Maximum Extent of the Saalian & Weichselian Glaciations in Eurasia

Eurasian Ice Sheets Project Members
EU Environment Program, contract ENV4-C197-0563

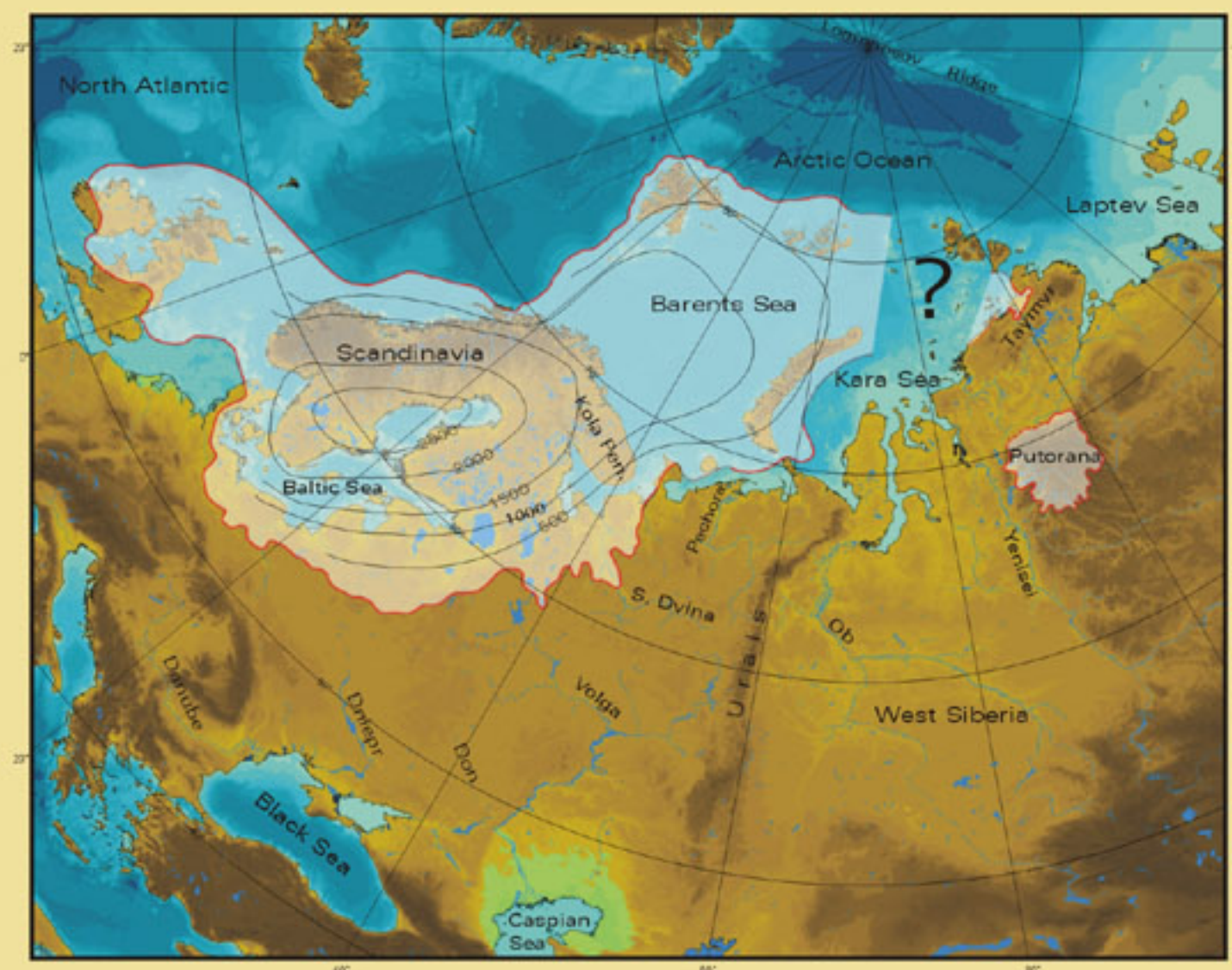
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Abstract

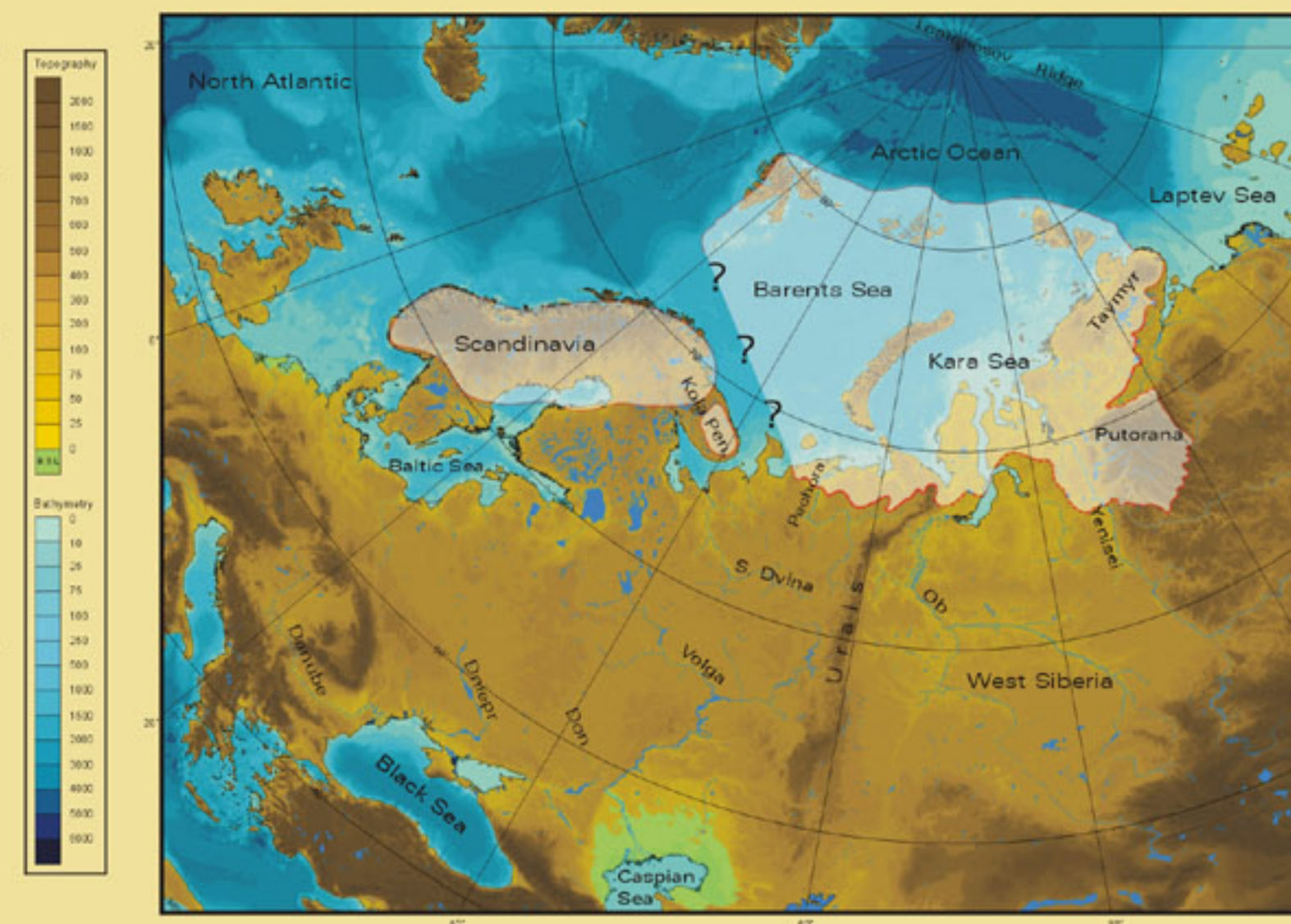
The maximum extent of the Weichselian glaciations in the Russian Arctic occurred around 90,000 years ago (Early Weichselian), when the Barents-Kara Ice Sheet expanded onto the Russian continent and blocked the northbound drainage towards the Arctic Ocean. During the Middle Weichselian, about 50-60,000 years ago, the Barents and Kara Sea region was affected by another major glaciation. At this time also the Scandinavian Ice Sheet grew to a considerable size over the Baltic region. During the Last Glacial Maximum (LGM), about 20,000 years ago, the Scandinavian Ice Sheet attained its maximum position. At this time our results indicates that the Barents-Kara Ice Sheet embraced a much smaller area over the Russian Arctic than shown by most earlier reconstructions. According to our compilation the southern margin was located on the continental shelf in the South East Barents Sea and in the Kara Sea to

the east of Novaya Zemlya. The ice sheet probably reached the North West coast of the Taymyr Peninsula, but Severnaya Zemlya remained ice free.

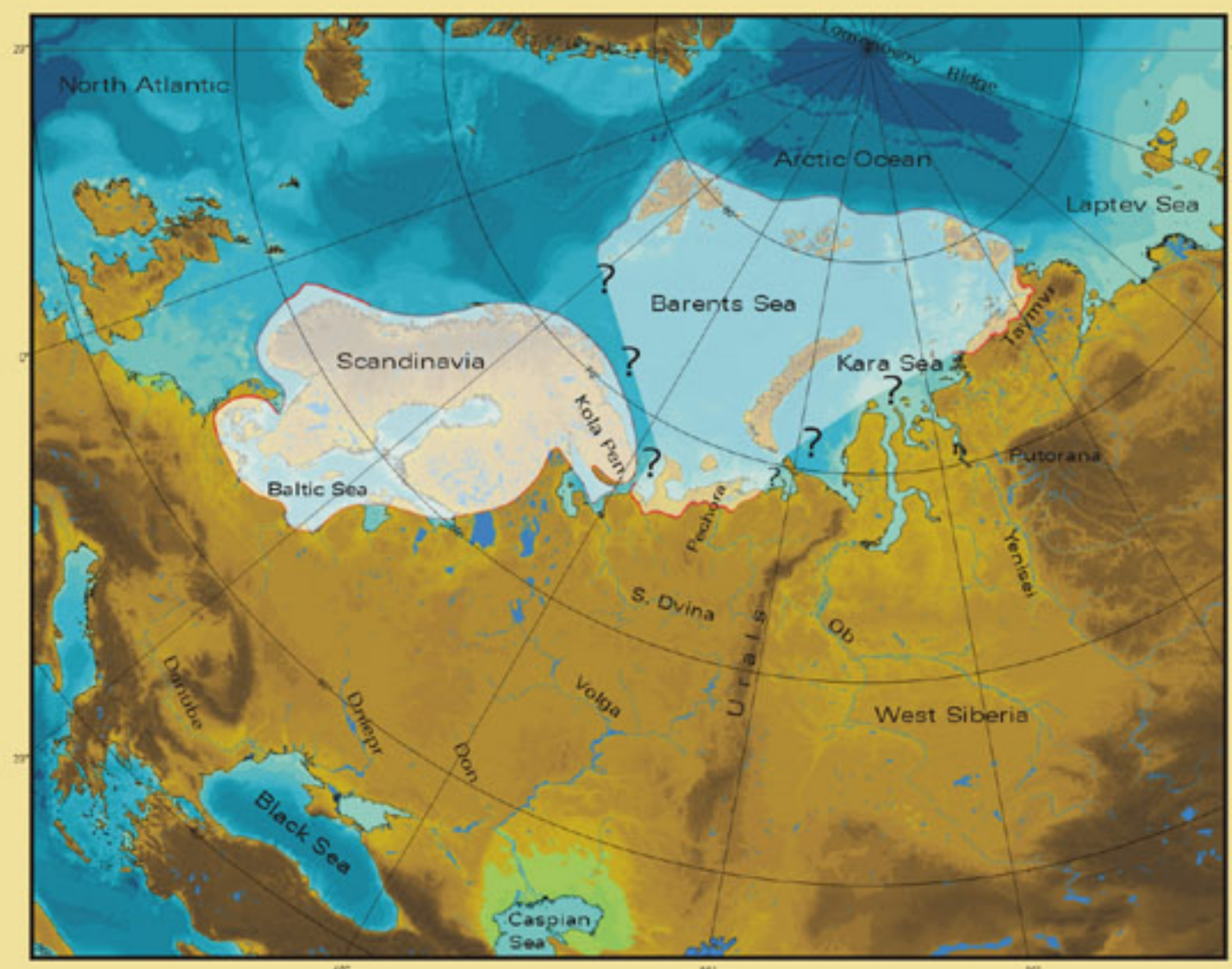
We present a map showing a three-dimensional reconstruction of the Eurasian ice sheets for the Last Glacial Maximum (20 ka). In addition we present maps where the maximum ice sheet limits have been inferred for the Middle Weichselian (50-60 ka), Early Weichselian (90-100 ka) and Saalian glaciations. The map reconstructions are results obtained by the European Community project Eurasian Ice Sheets (Contr. No. ENV4-CT97-0563). The inferred ice sheet extensions in the Eurasian Arctic are based on field investigations in northern Russia and geomorphological mapping. The estimated ice thickness during the LGM is based on glaciological modeling.



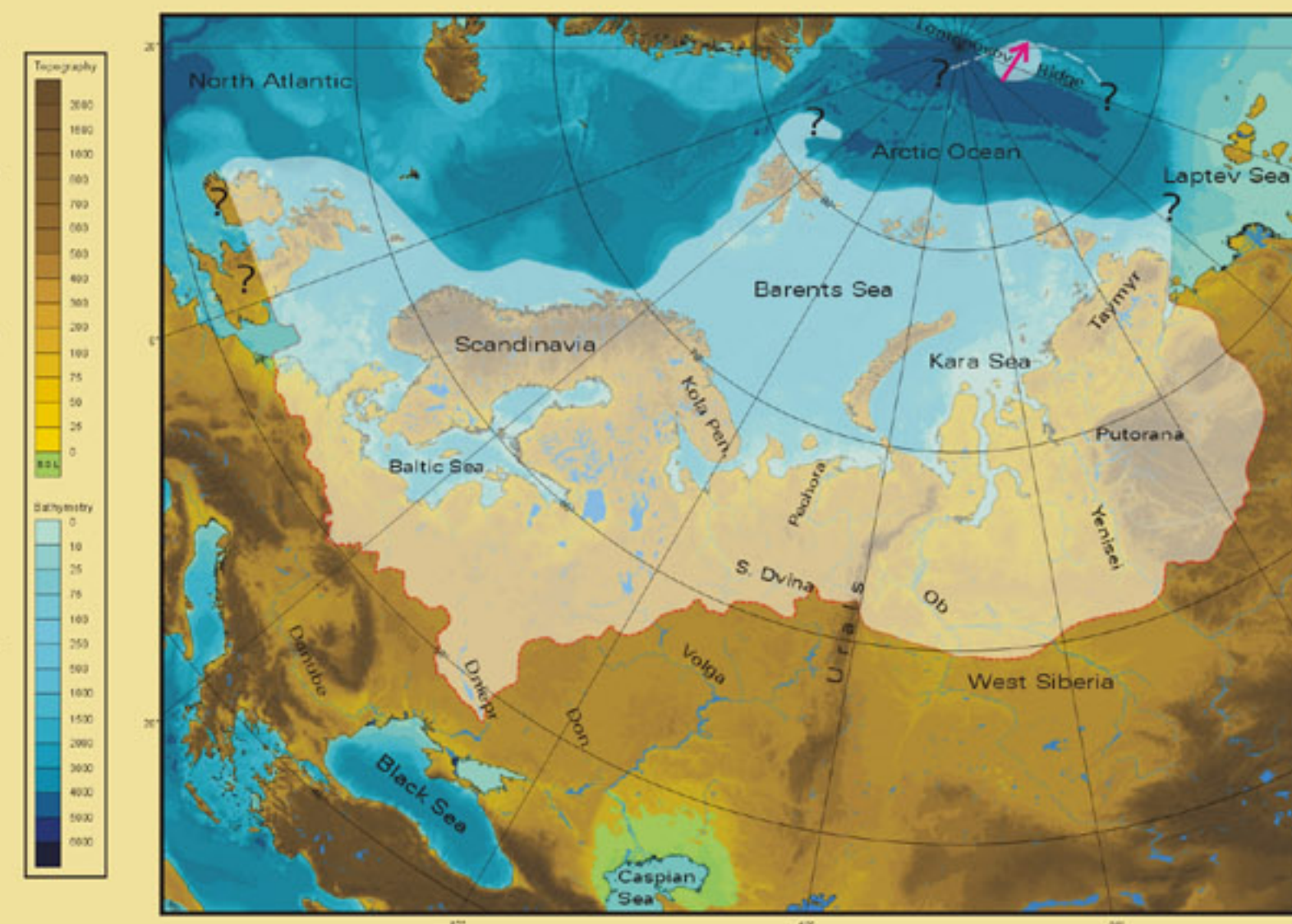
Last Glacial Maximum (20 ka)



Early Weichselian Glacial Maximum (90-100 ka)



Middle Weichselian Glacial Maximum (50-60 ka)



Saalian Glacial Maximum

- Legend**
- Mapped and dated ice sheet limit
 - - - Mapped ice sheet limit
 - · · Estimated ice sheet limit
 - ↗ Directions of grounded ice on the Lomonosov Ridge, down to 1000 m present water depth, inferred from glaciogenic bedforms



Map sources

The maps are compiled by Martin Jakobsson using the Intergraph GIS software Genioidea Professional and MGE.

Projection: Lambert's Equal Area
Datum: WGS 84
Bathymetry: International Bathymetric Chart of the Arctic Ocean (Jakobsson et al. 2003) and Predicted topography (Smith & Sandwell, 1992)
Outline: World Vector Shoreline
Land topog: US Geological Survey GTOPO30

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