

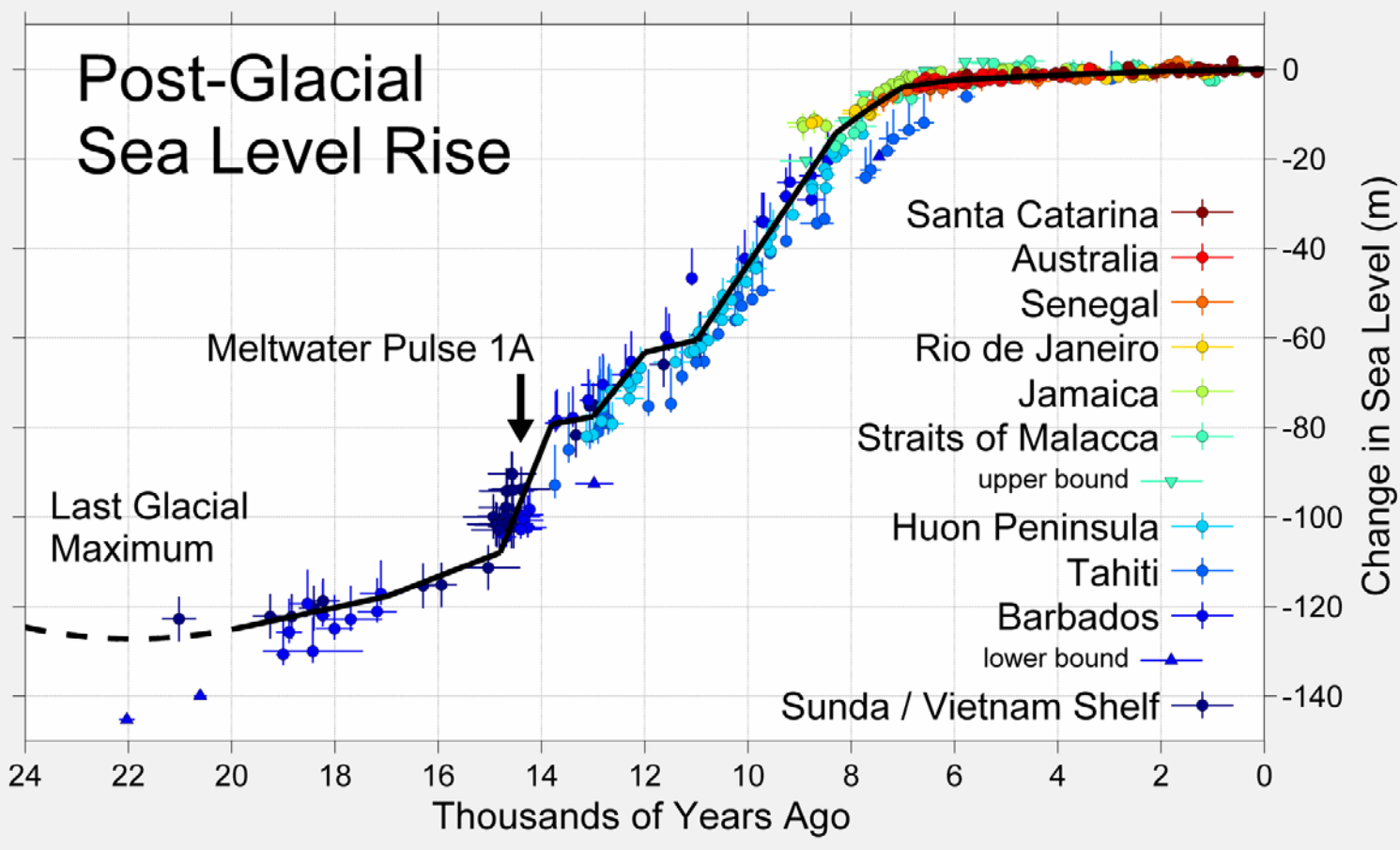
Supplementary Material
Redwood, S. D., 2020

Late Pleistocene to Holocene sea level rise in the Gulf of Panama, Panama,
and its influence of early human migration through the Isthmus.
Caribbean Journal of Earth Science, 51, 15-31.

The Isthmus of Panama was much wider during the Last Glacial period

- The farfield effects of the Last Glacial period caused a drop in sea level in Panama
- At the end of the Last Glacial period at about 21 ka, global relative sea level was about 120-130 m lower than present
- The isthmus of Panama was 250 km wide compared with 50-180 km today
- The land area was 68% larger at 127,207 km² (75,517 km² today)
- Extra land on the Pacific side was 42,240 km² including the Las Perlas Plain
- Extra land on the Caribbean side was 9,450 km²
- Total extra land was 51,690 km²
- Post-glacial eustatic sea level rise since ~21 ka flooded the continental shelves to form the present day isthmus

Post-Glacial Global Sea Level Rise

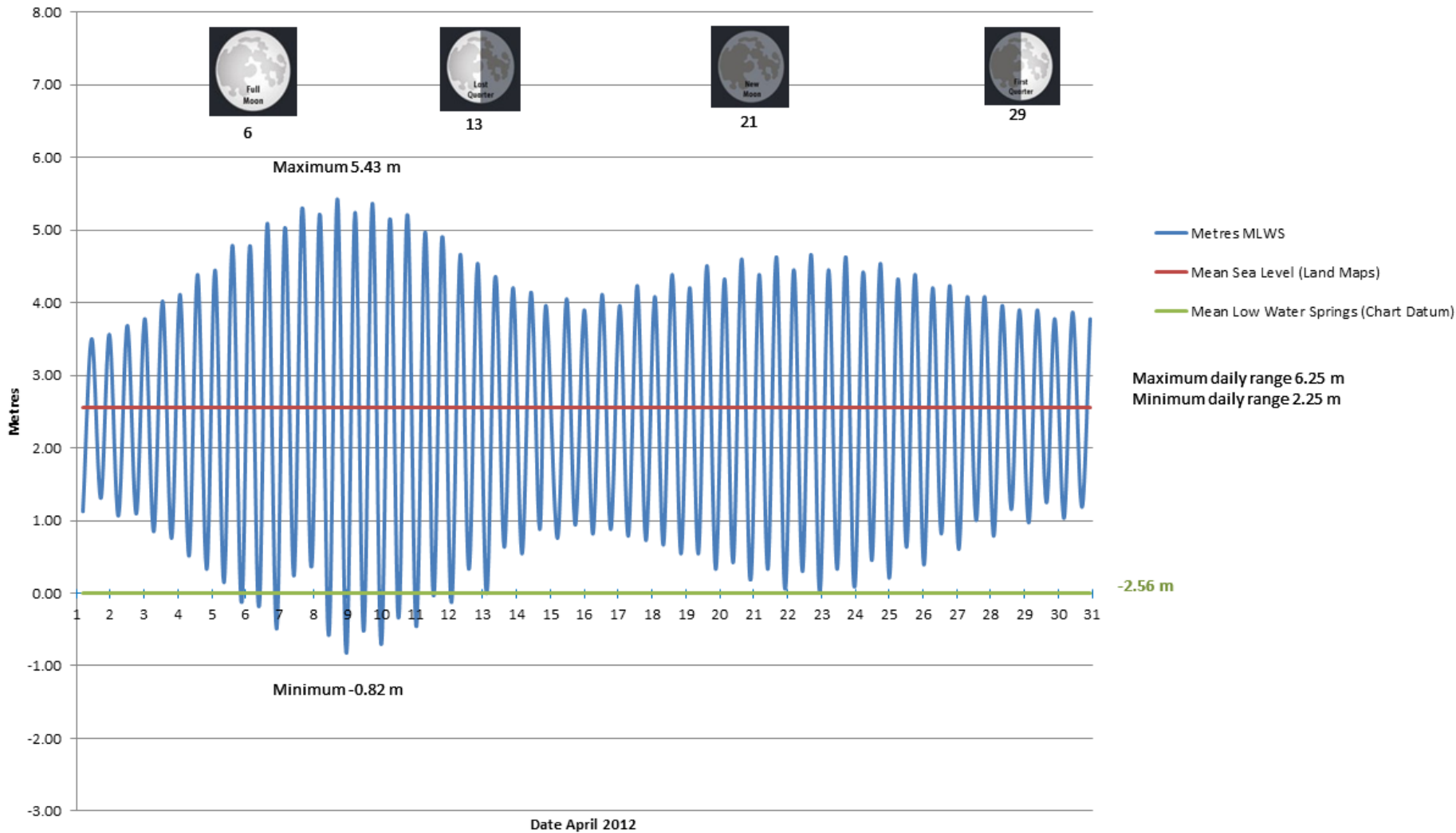


Rohde, 2005

Depth (m)	Time 1 (years BP)	Time 2 (years BP)	Geological Series/Epoch (age years BP)
0	0	0	Holocene (11,500 - 0)
-1.5		5,000	
-3	6,800		
-5	7,200	7,200	
-10	7,700	7,700	
-15	8,300	8,000	
-20	8,800	8,300	
-30	9,400	9,000	
-40	10,200	10,000	
-50	10,600	10,200	
-60	12,000	11,000	Upper Pleistocene (126,000 - 11,500)
-70	13,000	12,500	
-80	14,000	14,000	
-90	14,500	14,200	
-100	16,200	14,500	
-110	18,000	15,000	
-120	21,500	17,800	
-130		21,000	

1: Fleming et al., 1998. 2: Rohde, 2005.

The Pacific has a high tidal range and a significant difference between the datums for land maps (MSL) and bathymetric maps (MLWS)

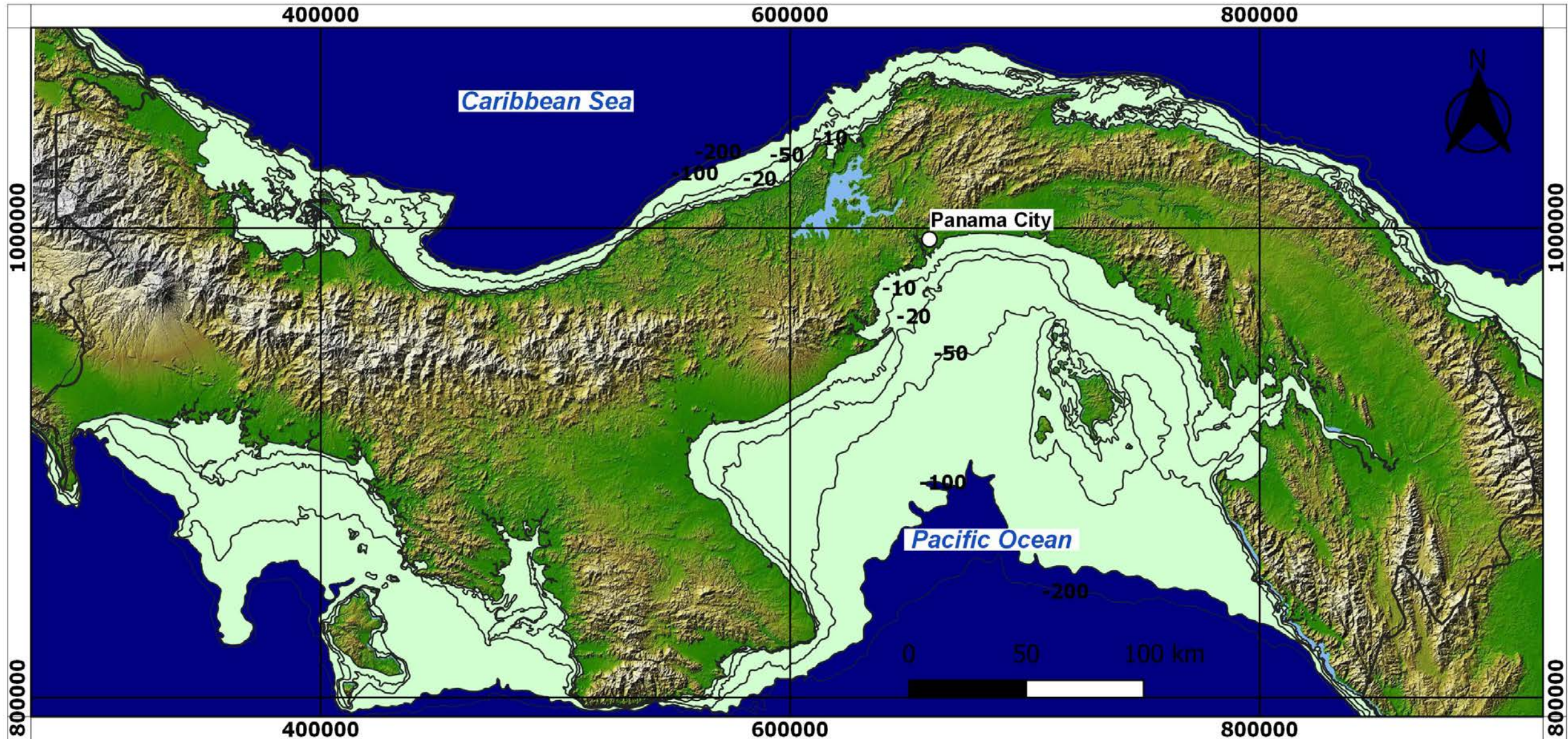


Tides at Balboa (Pacific) in one month

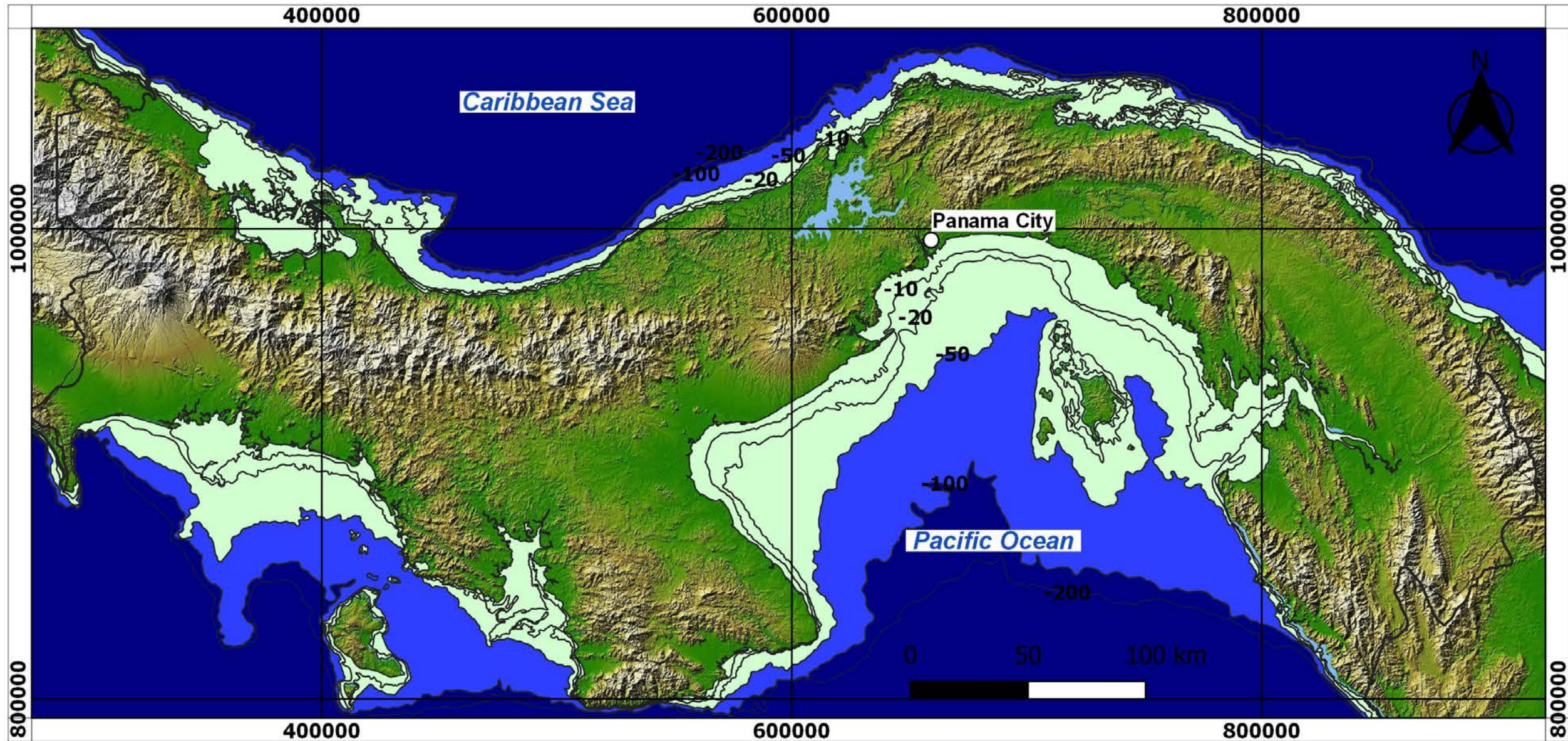
NOTES ON THE MAPS

- The bathymetric contours are in MLWS.
- MLWS is 2.56 m below MSL in the Pacific.
- MLWS is 0.12 m below MSL in the Caribbean.
- The dates are from the global sea level chart of Rohde (2005) and are for MSL.
- The dates on the maps are adjusted to MSL.
- The dates on the maps are approximate.

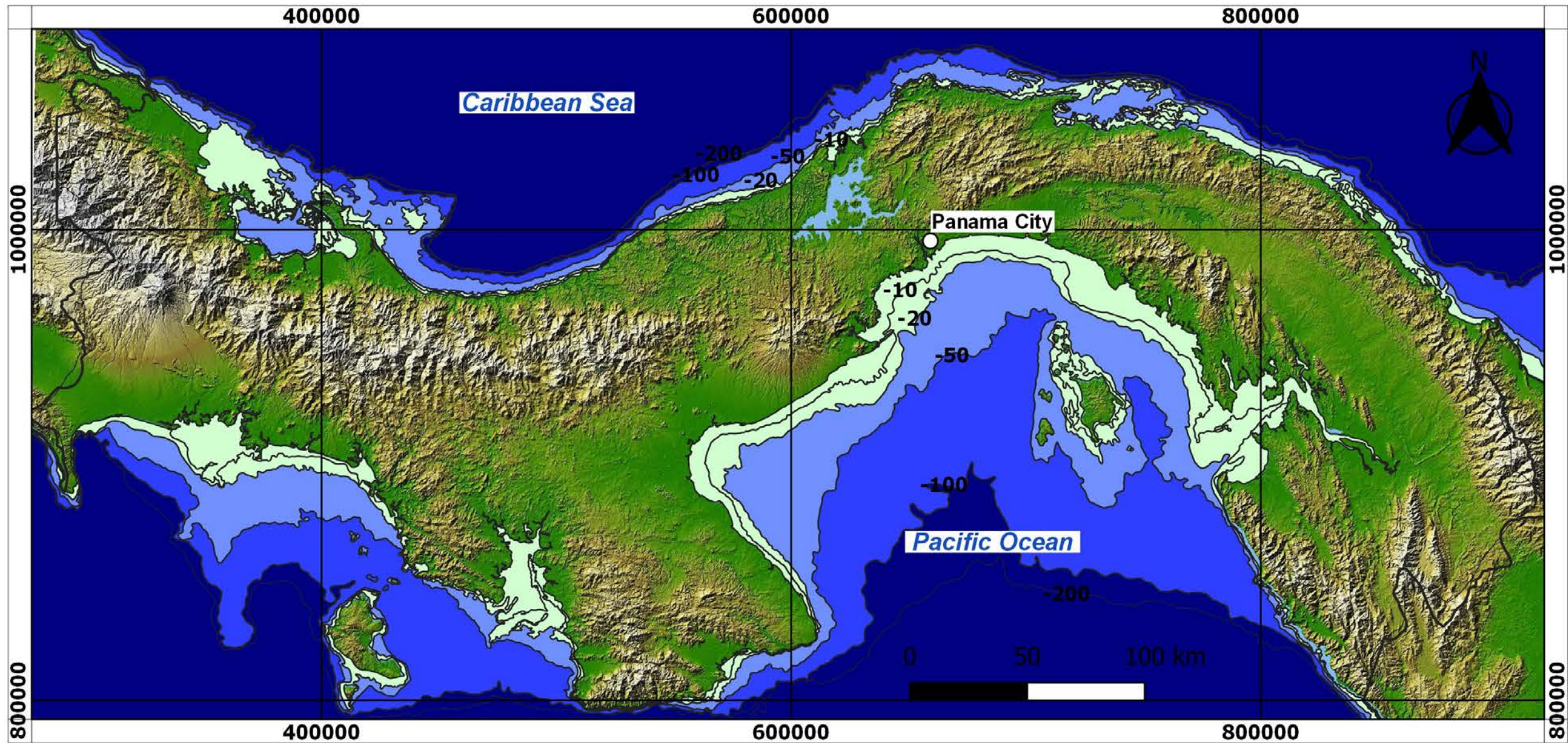
14.5 ka. -100 m MLWS



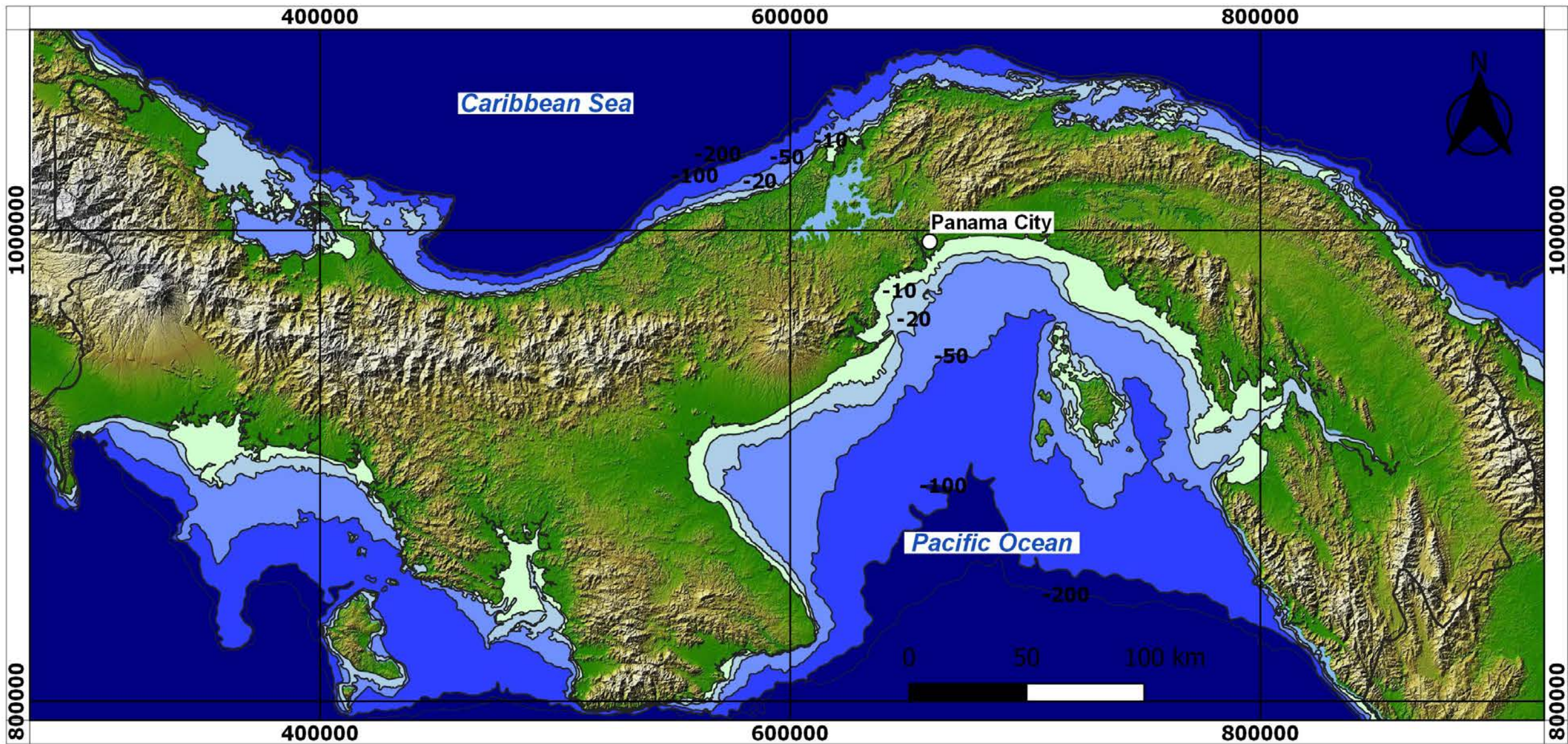
10.2 ka. -50 m MLWS



8.3 ka. -20 m MLWS

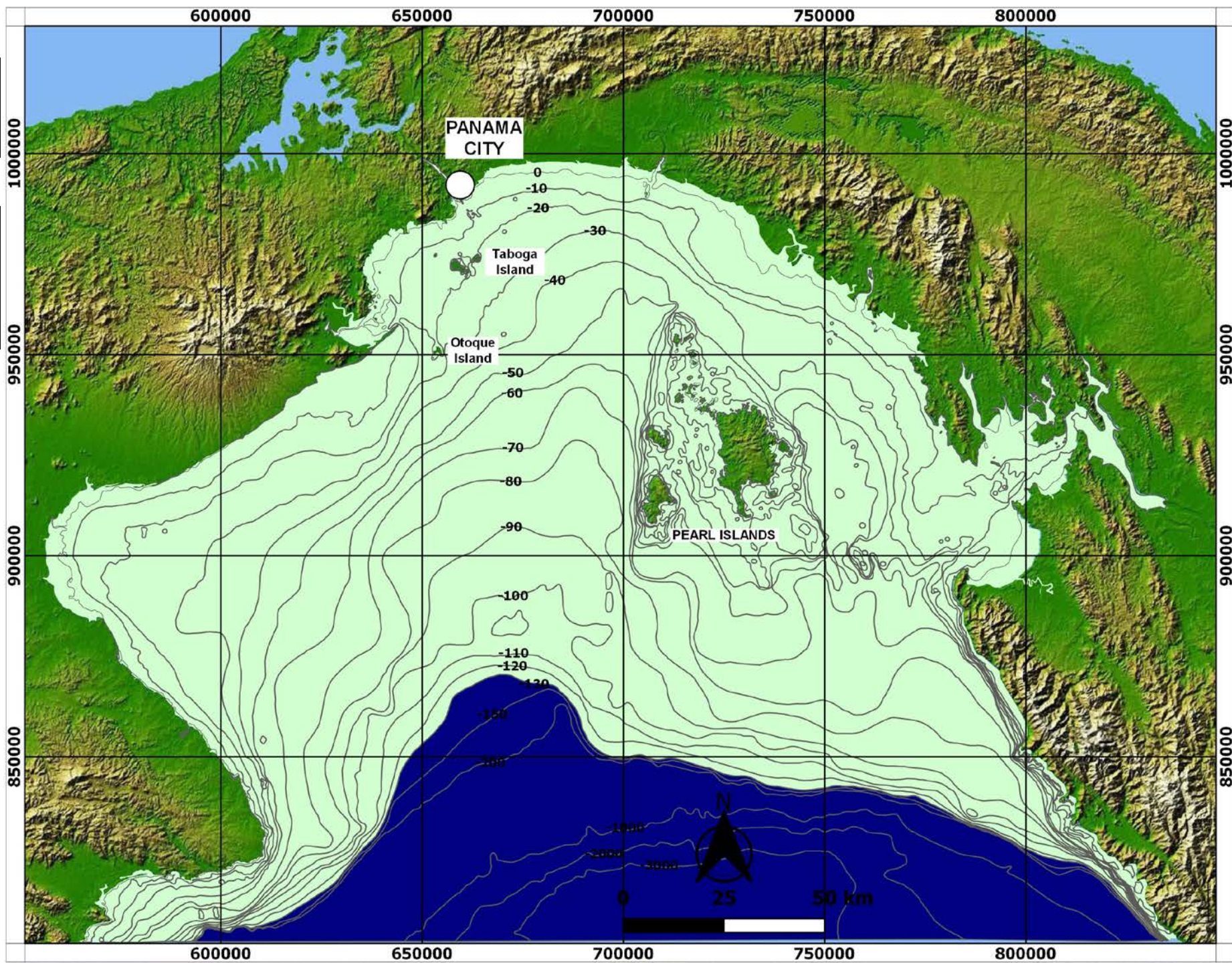


7.7 ka. -10 m MLWS

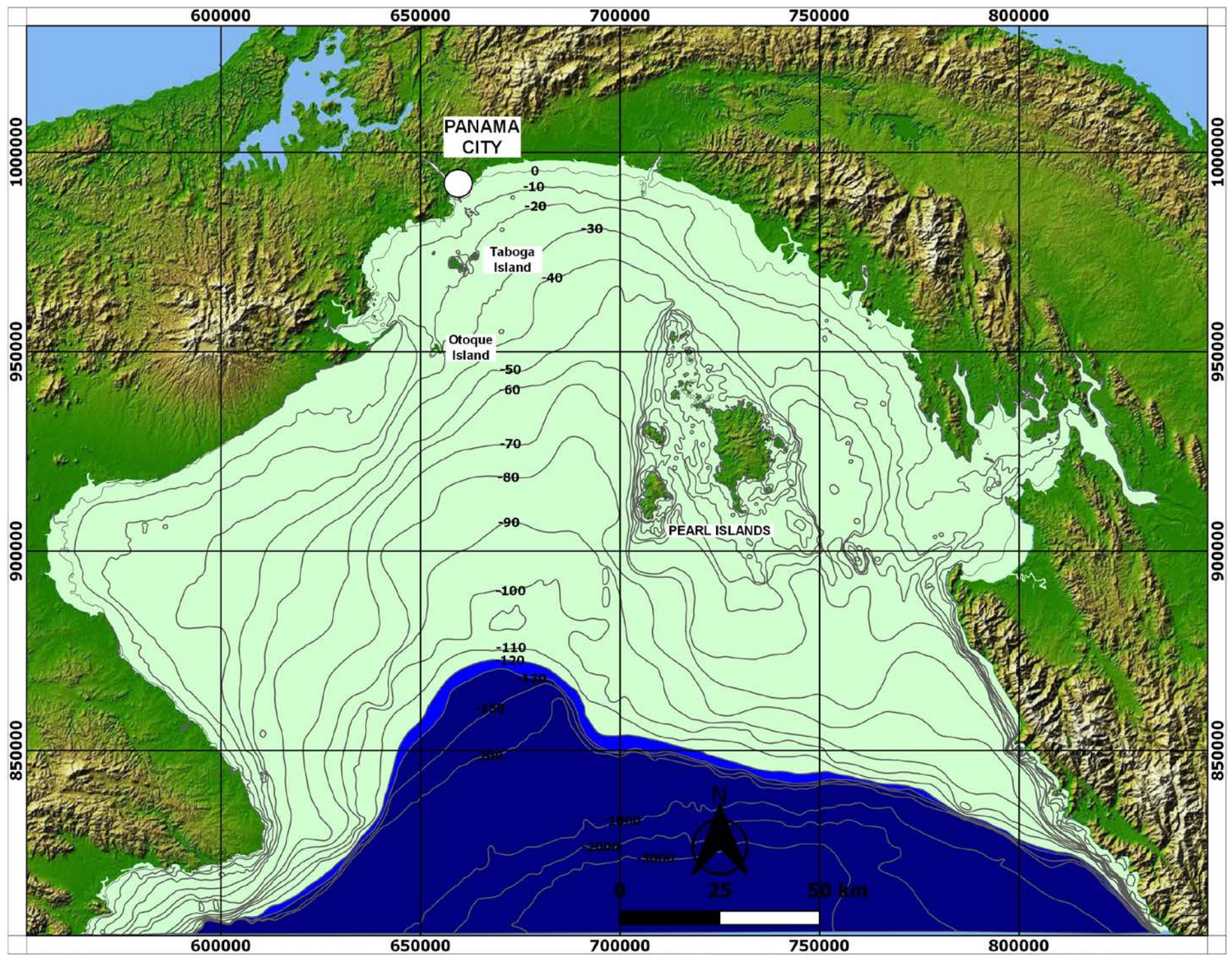


21.0 ka
-130 m MLWS

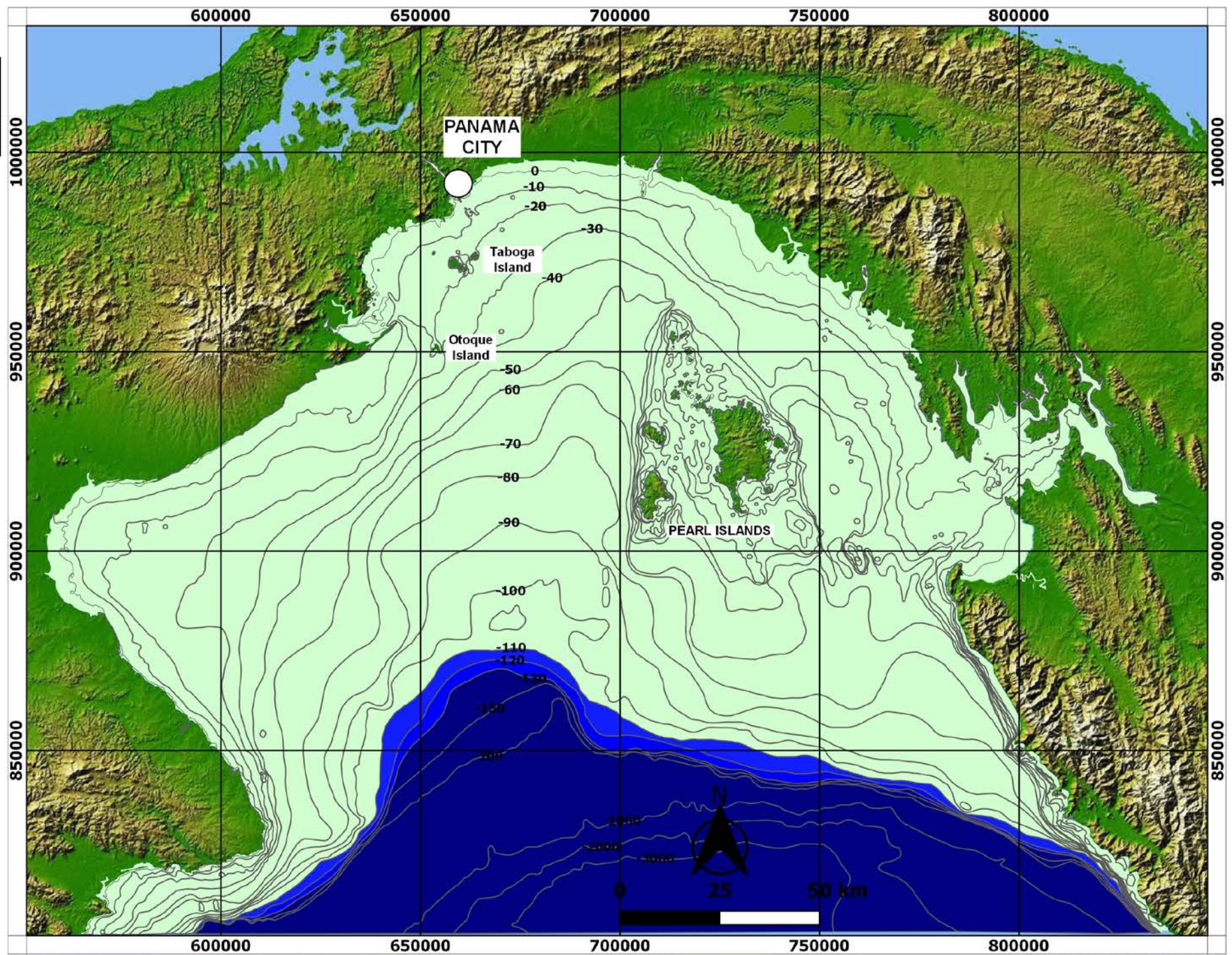
Las Perlas
Plain
maximum



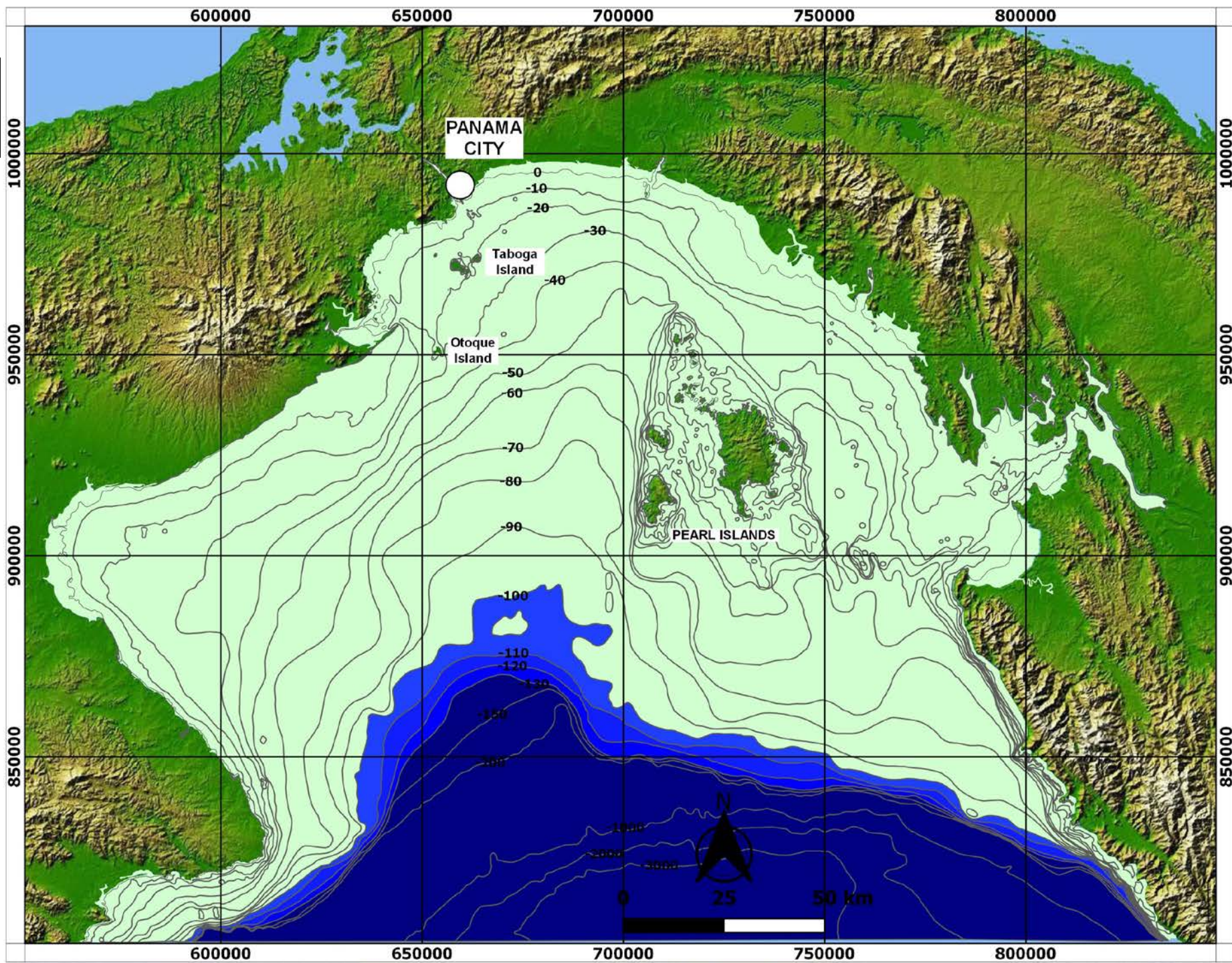
18.6 ka
-120 m MLWS



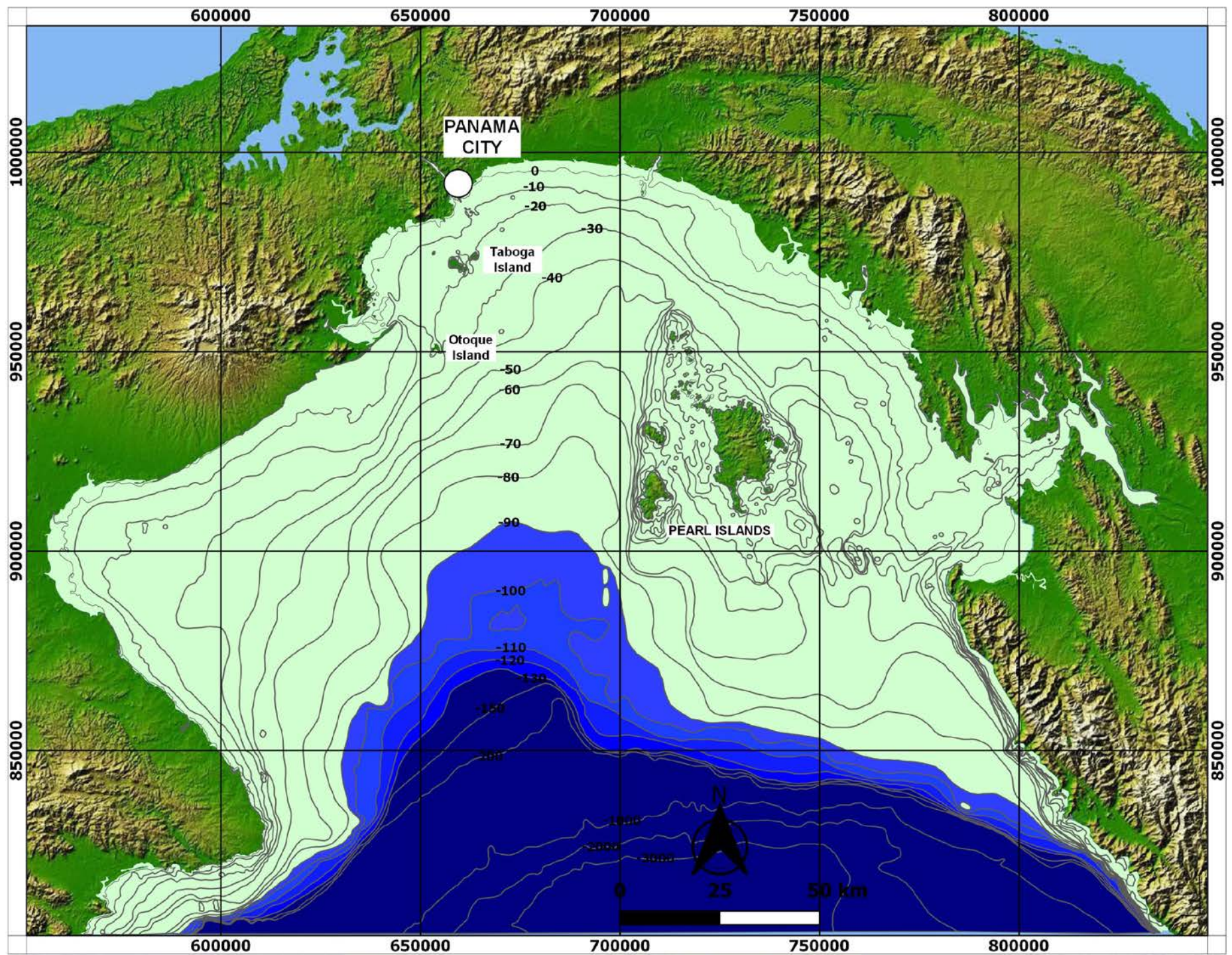
15.7 ka
-110 m MLWS



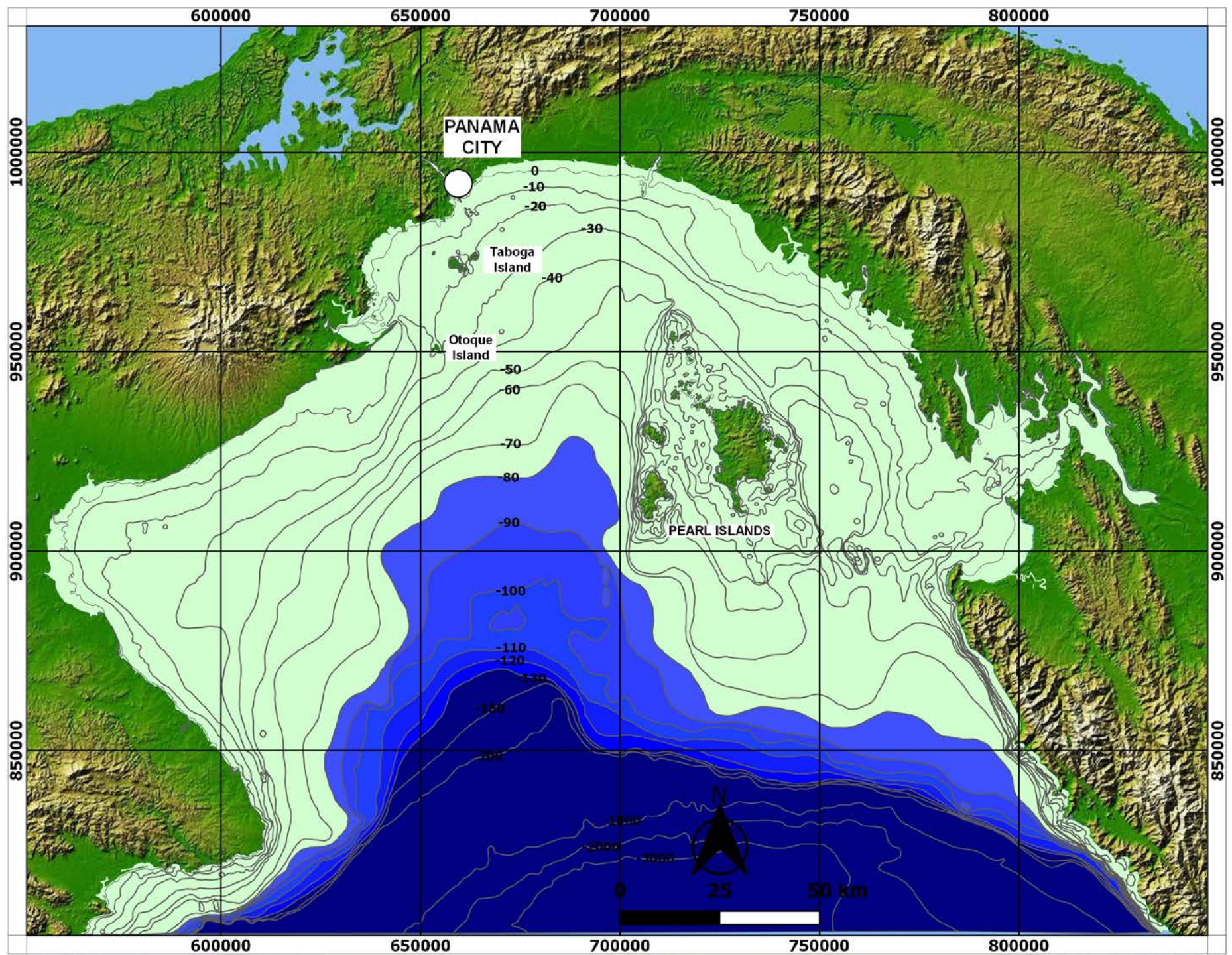
14.6 ka
-100 m MLWS



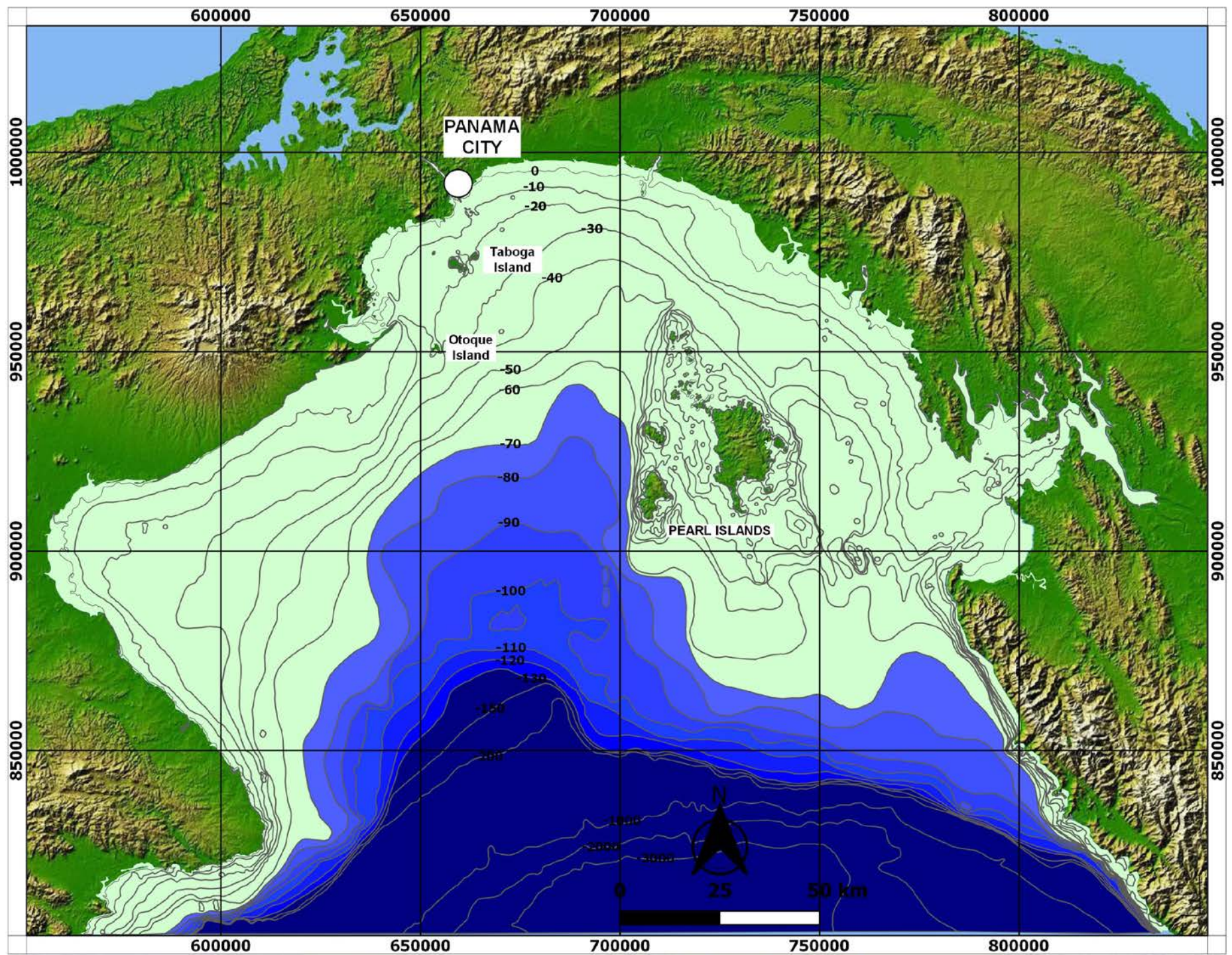
14.3 ka
-90 m MLWS



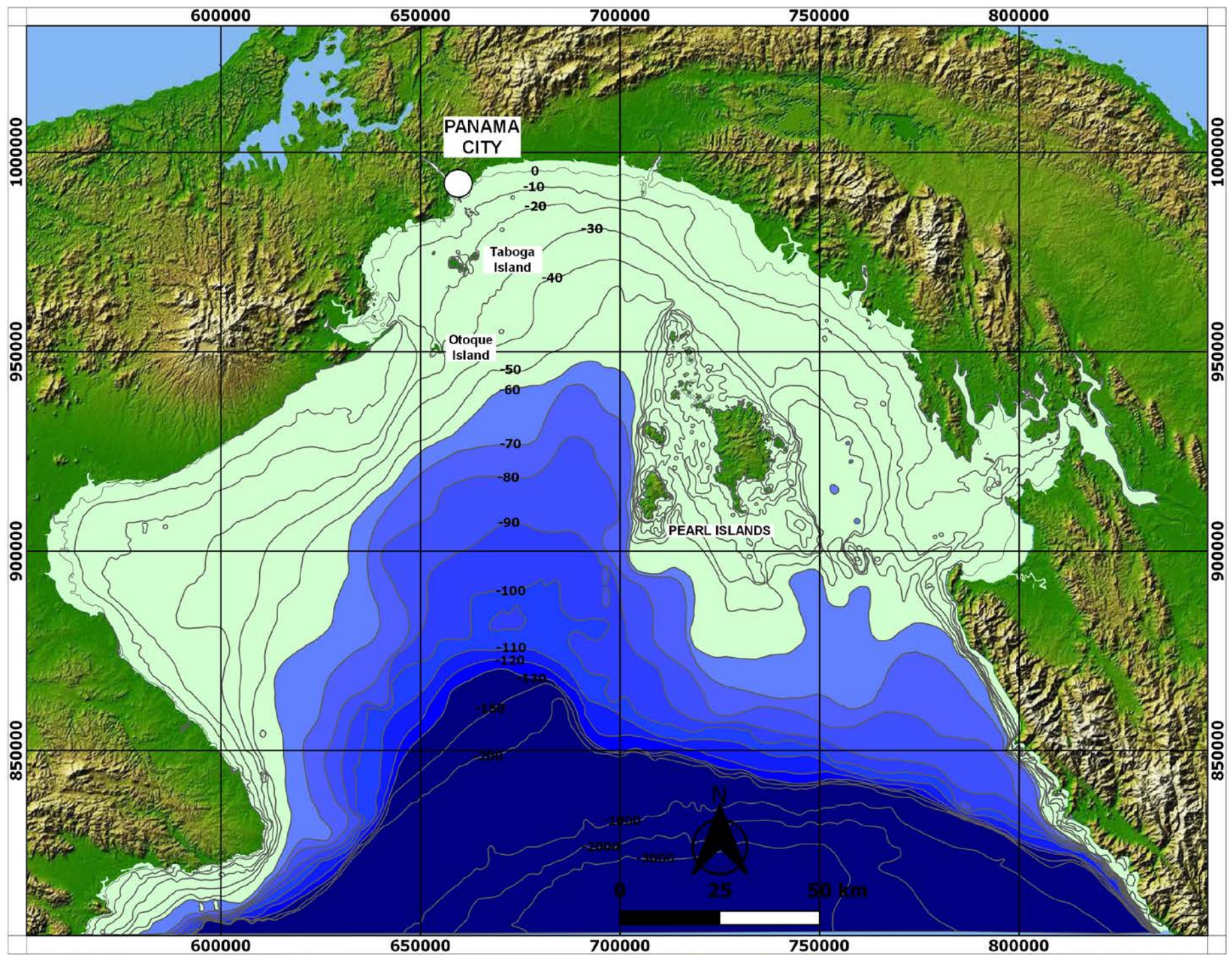
14.0 ka
-80 m MLWS



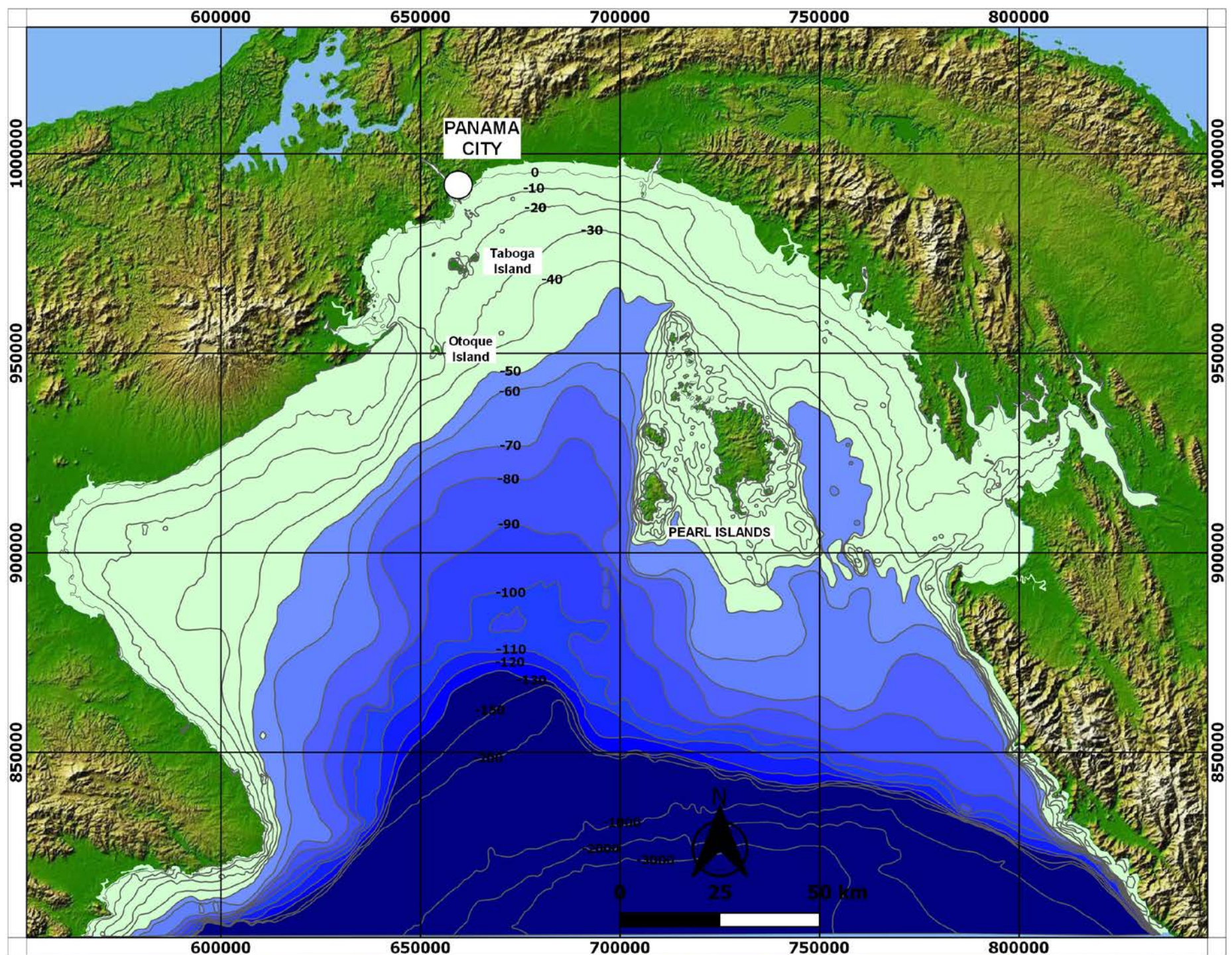
12.9 ka
-70 m MLWS



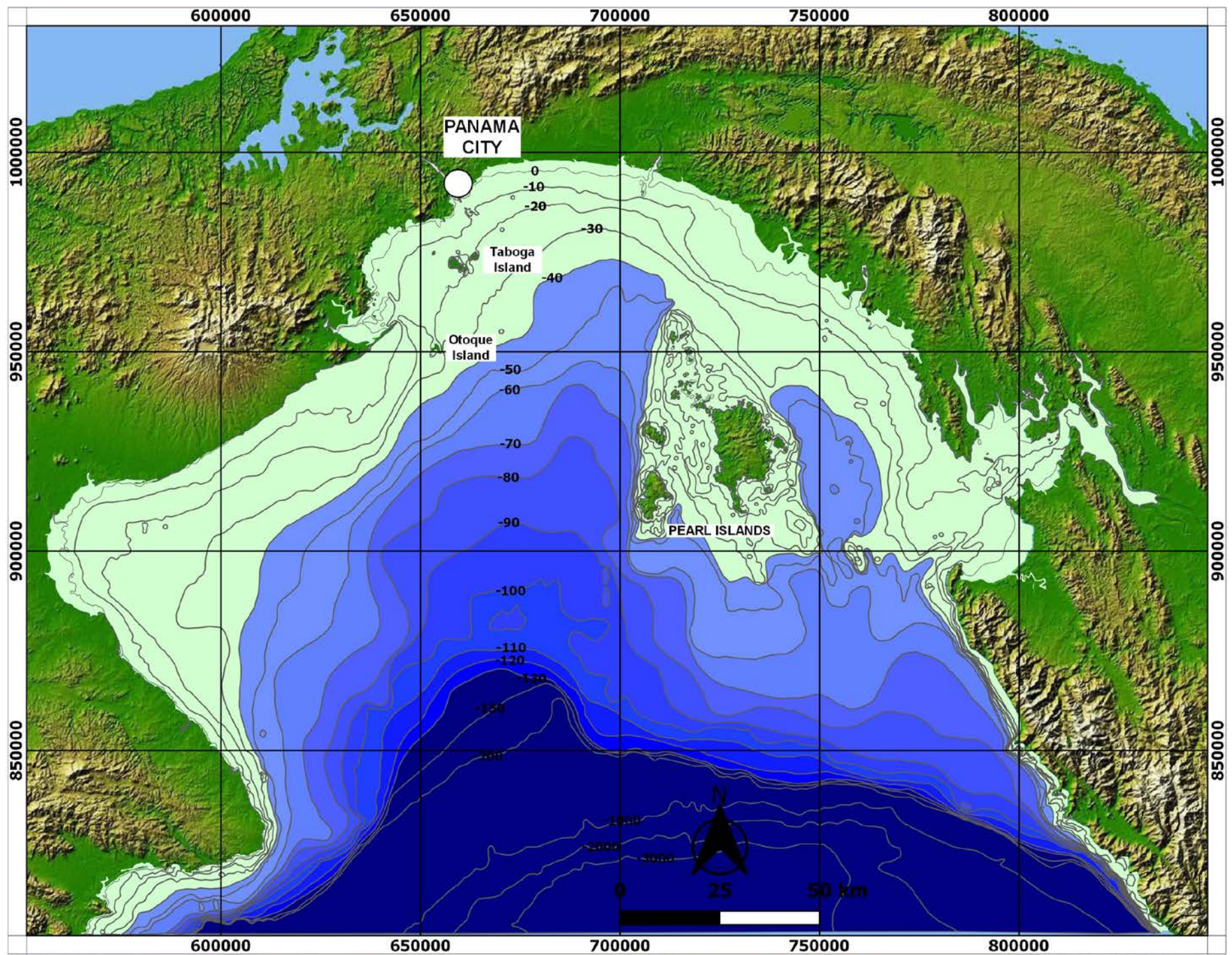
11.4 ka
-60 m MLWS



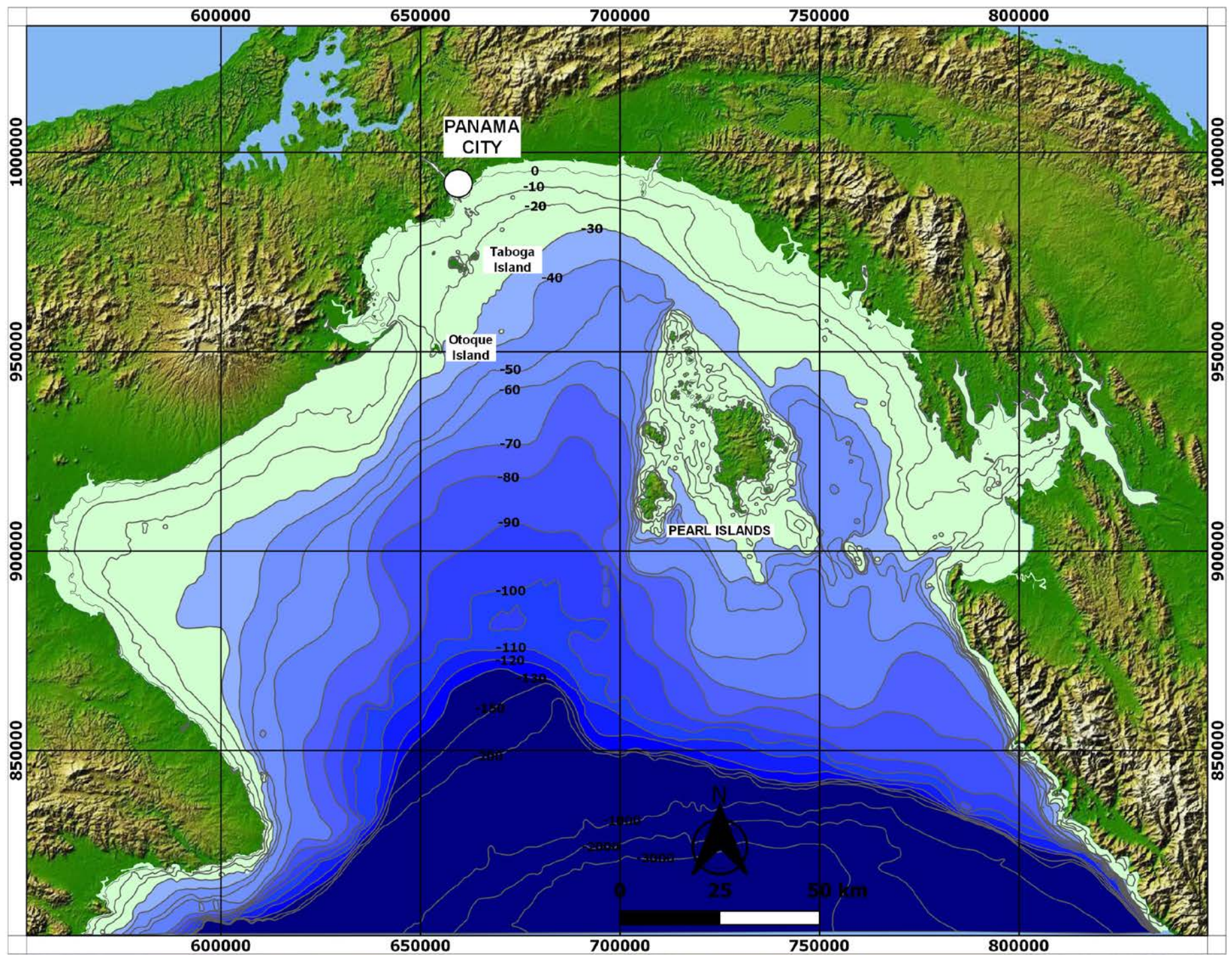
10.4 ka
-50 m MLWS



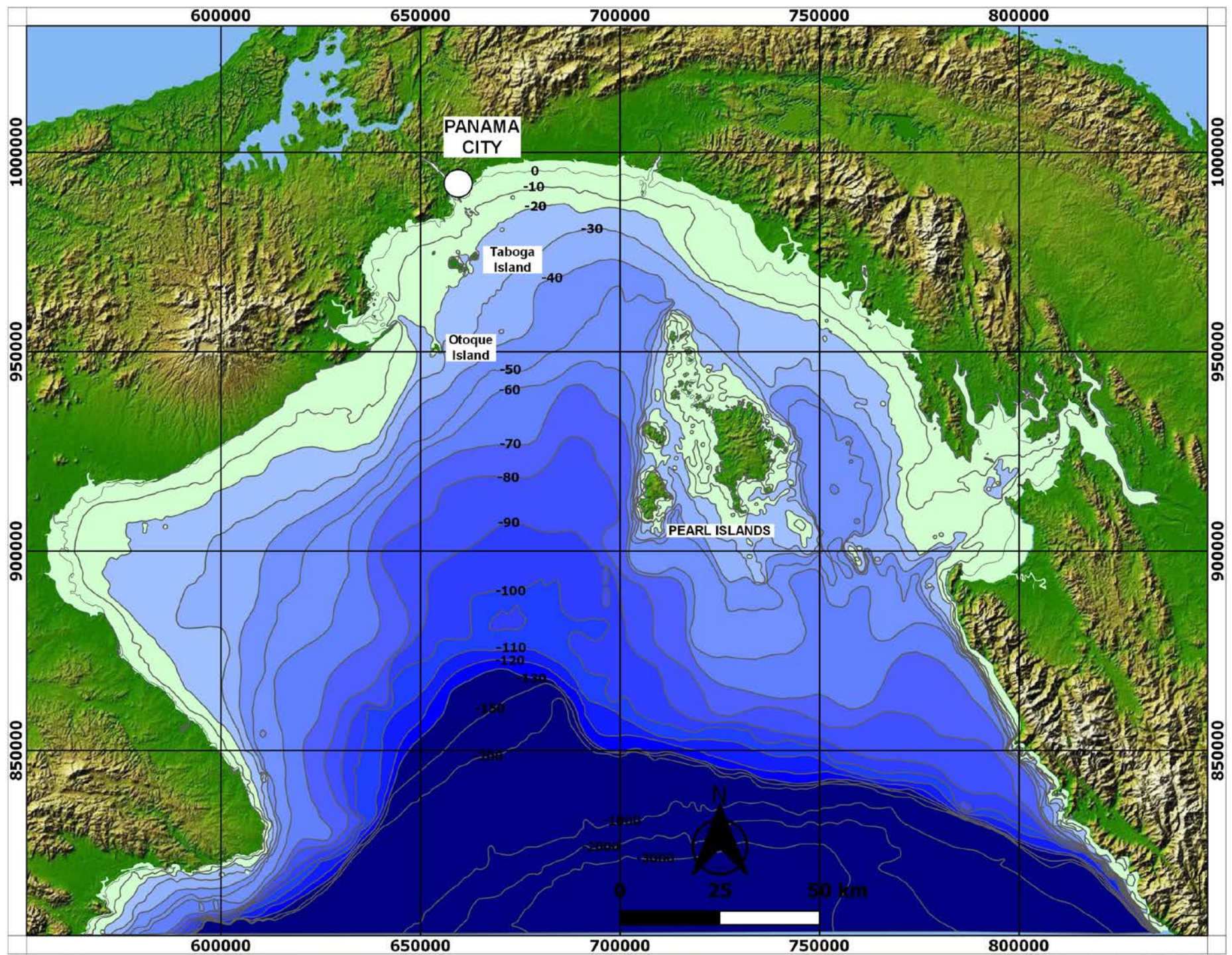
10.0 ka
-40 m MLWS



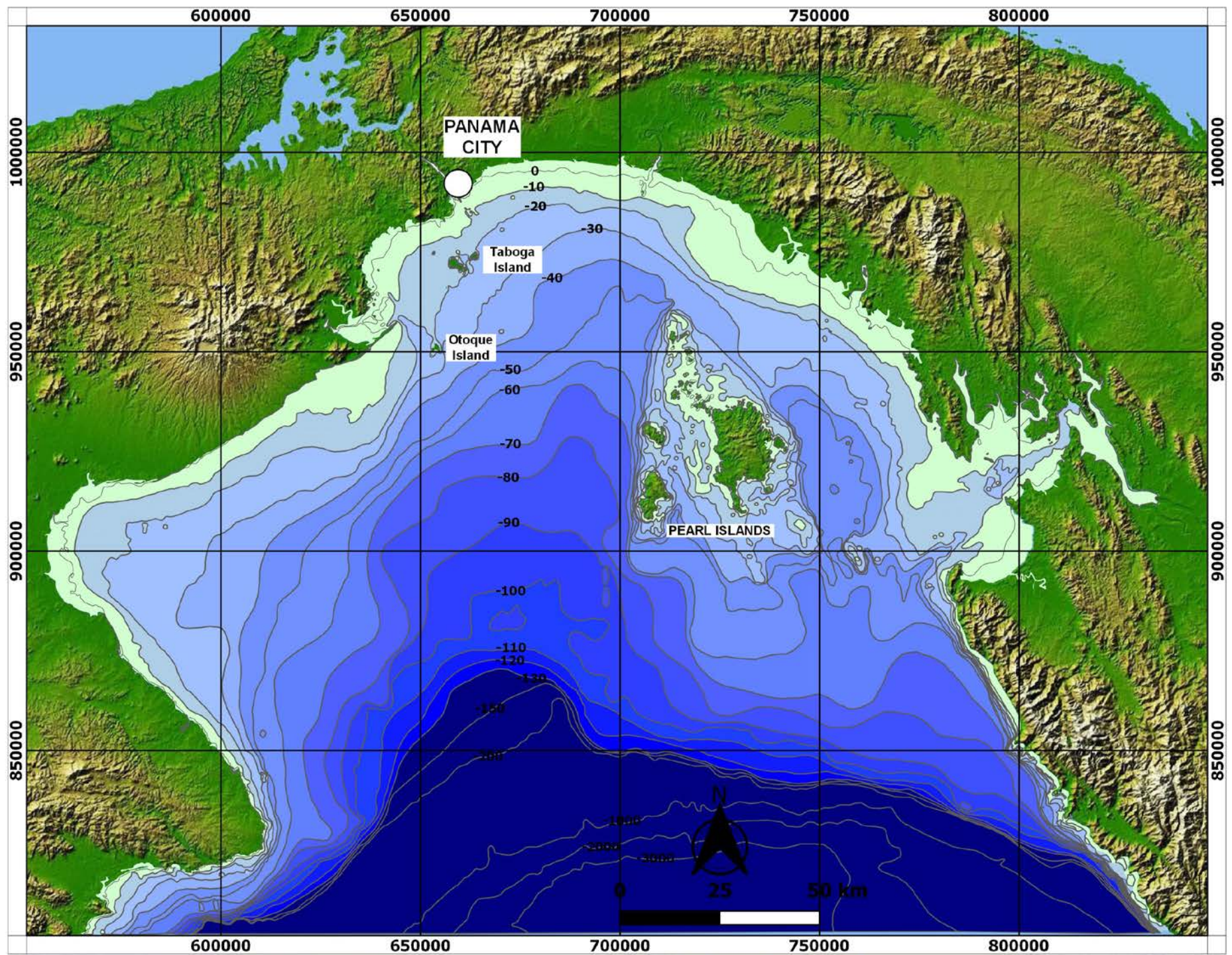
9.3 ka
-30 m MLWS



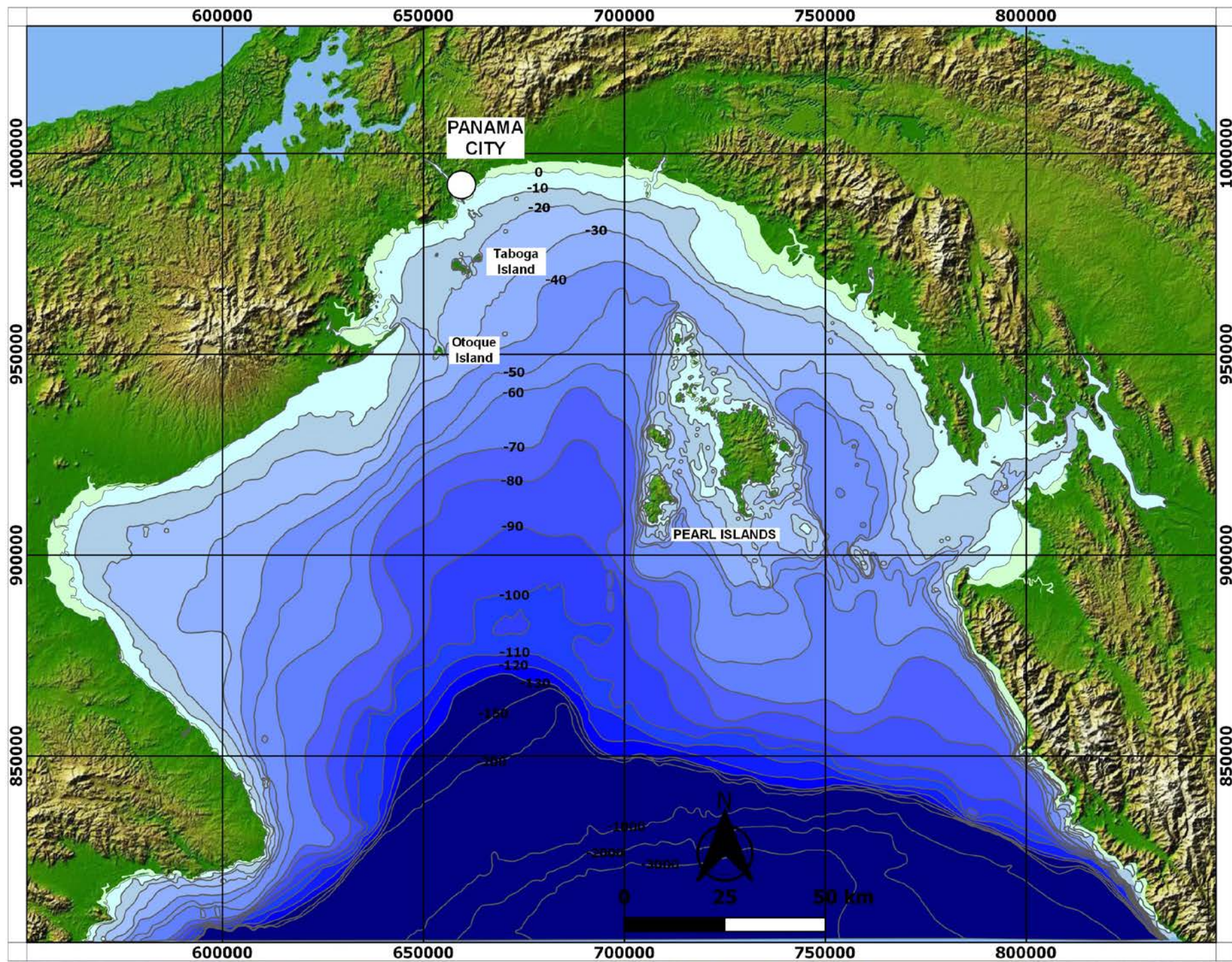
8.5 ka
-20 m MLWS



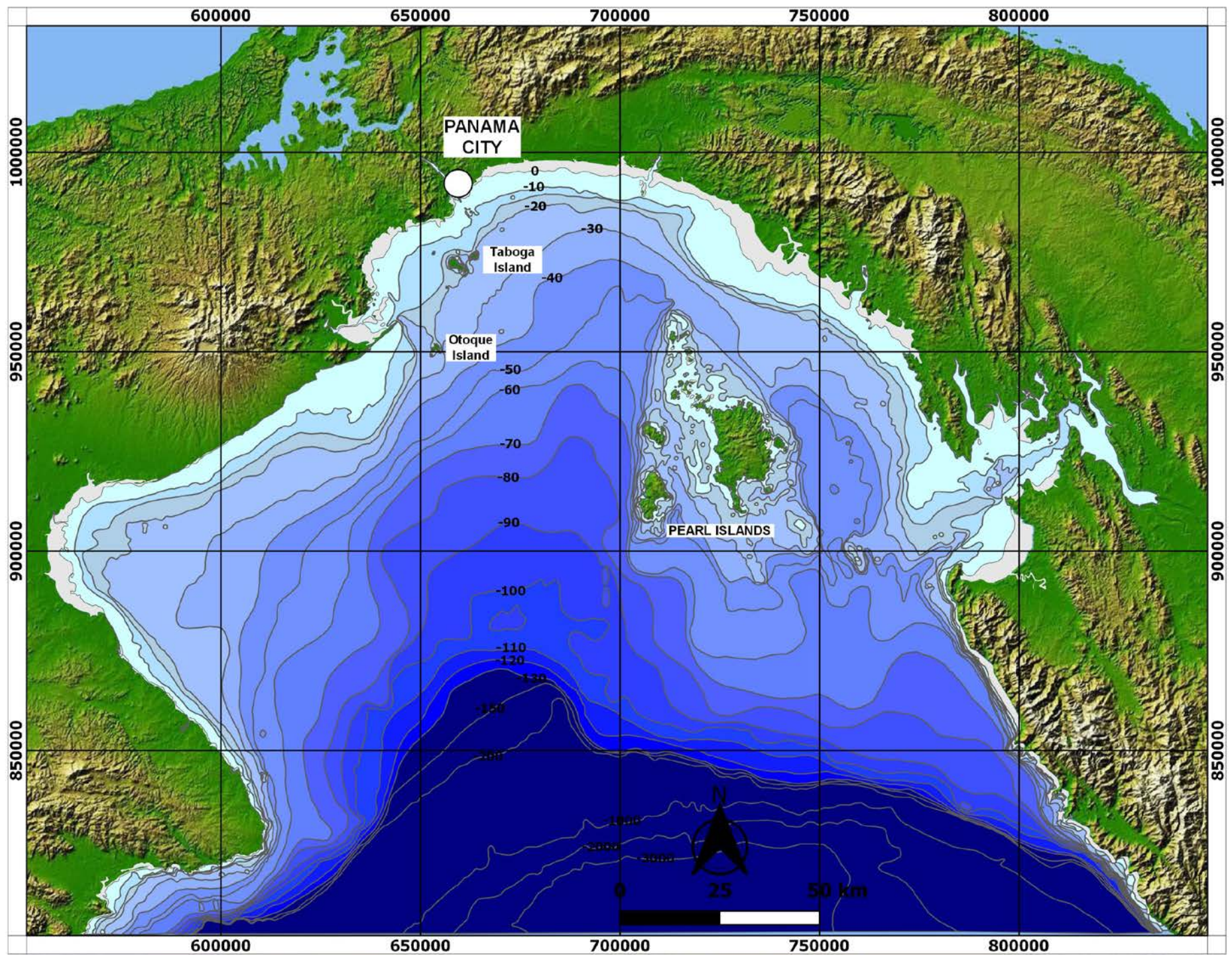
7.8 ka
-10 m MLWS



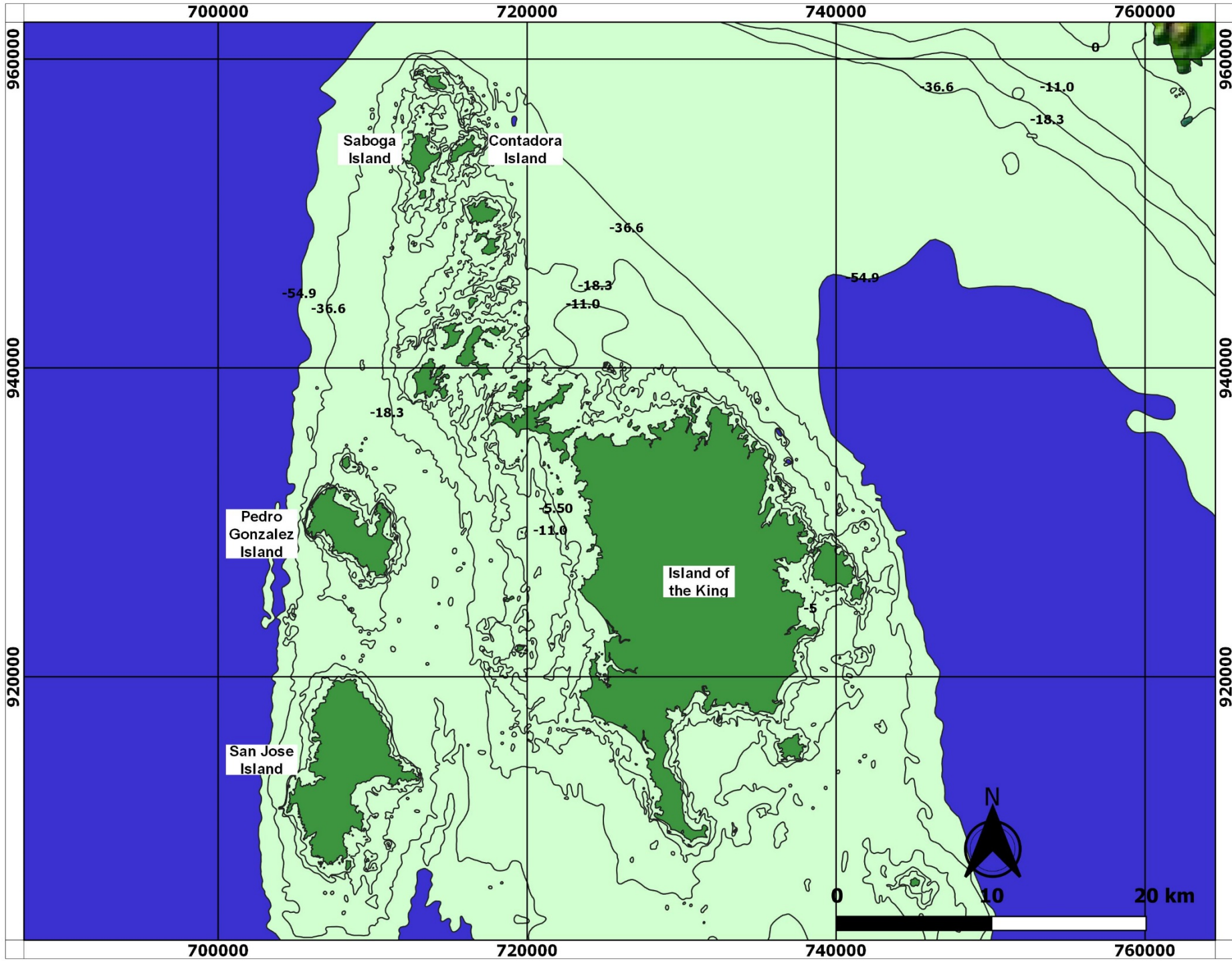
Today
0 m MLWS



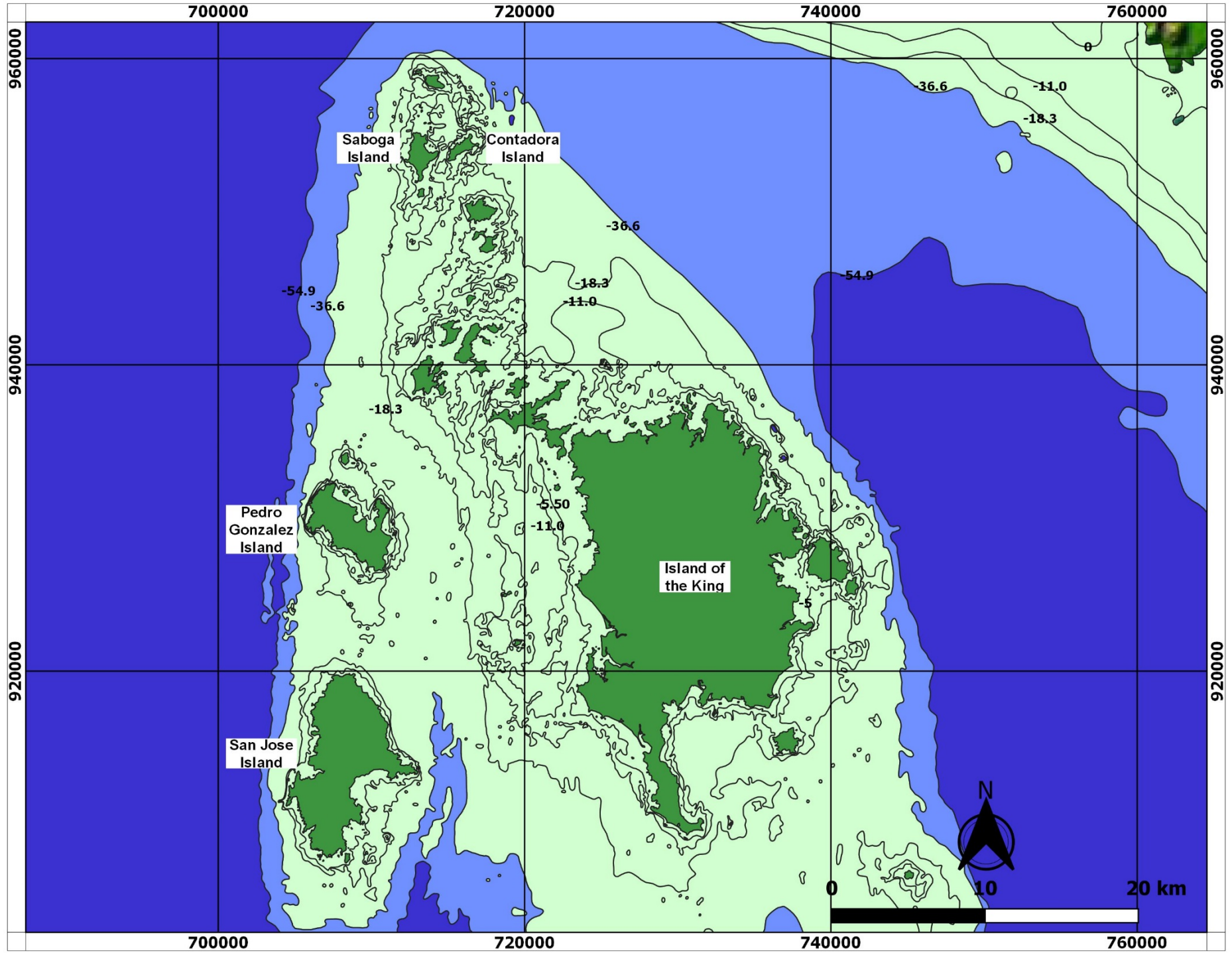
Today
0 m MSL



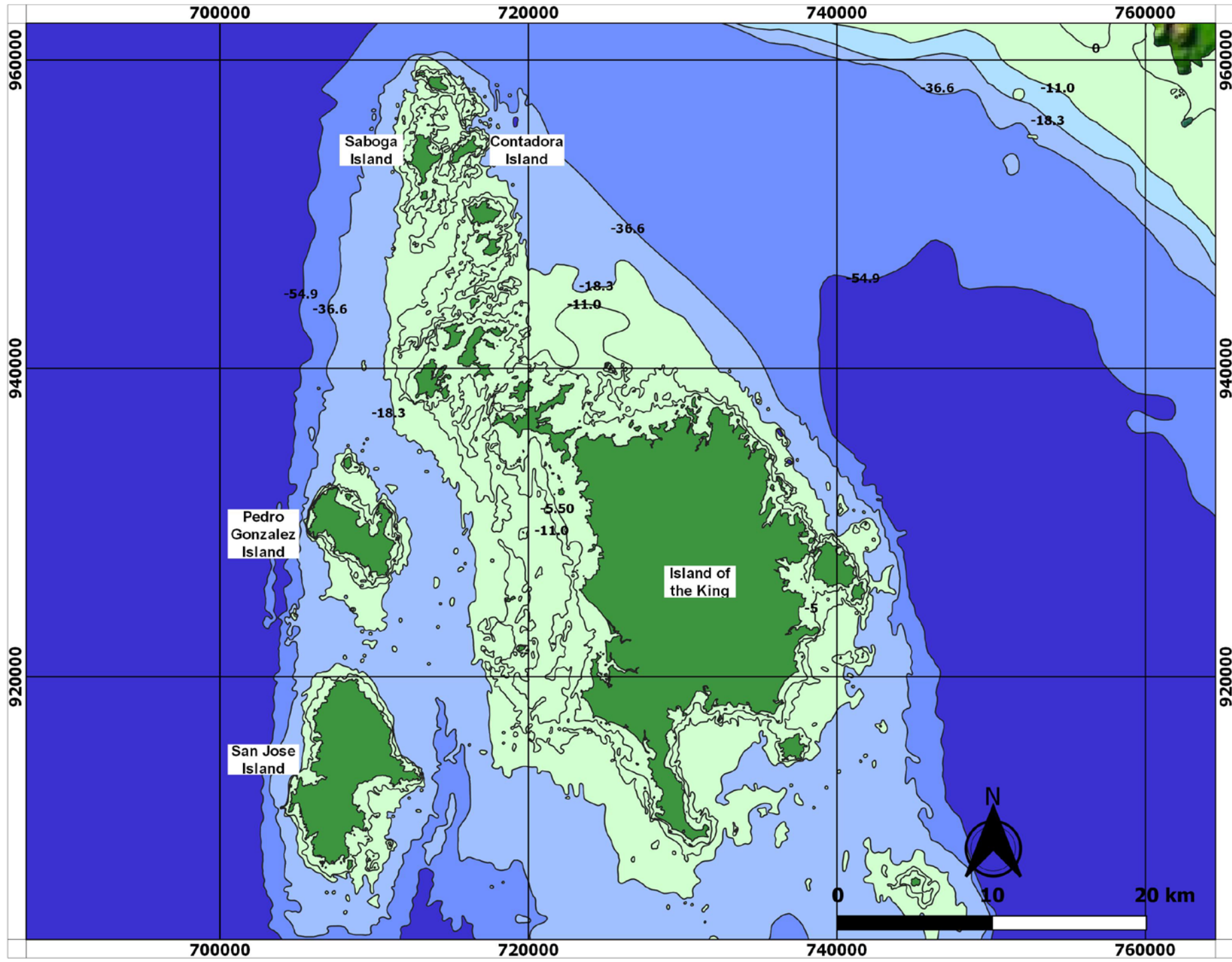
10.8 ka
-54.9 m
MLWS



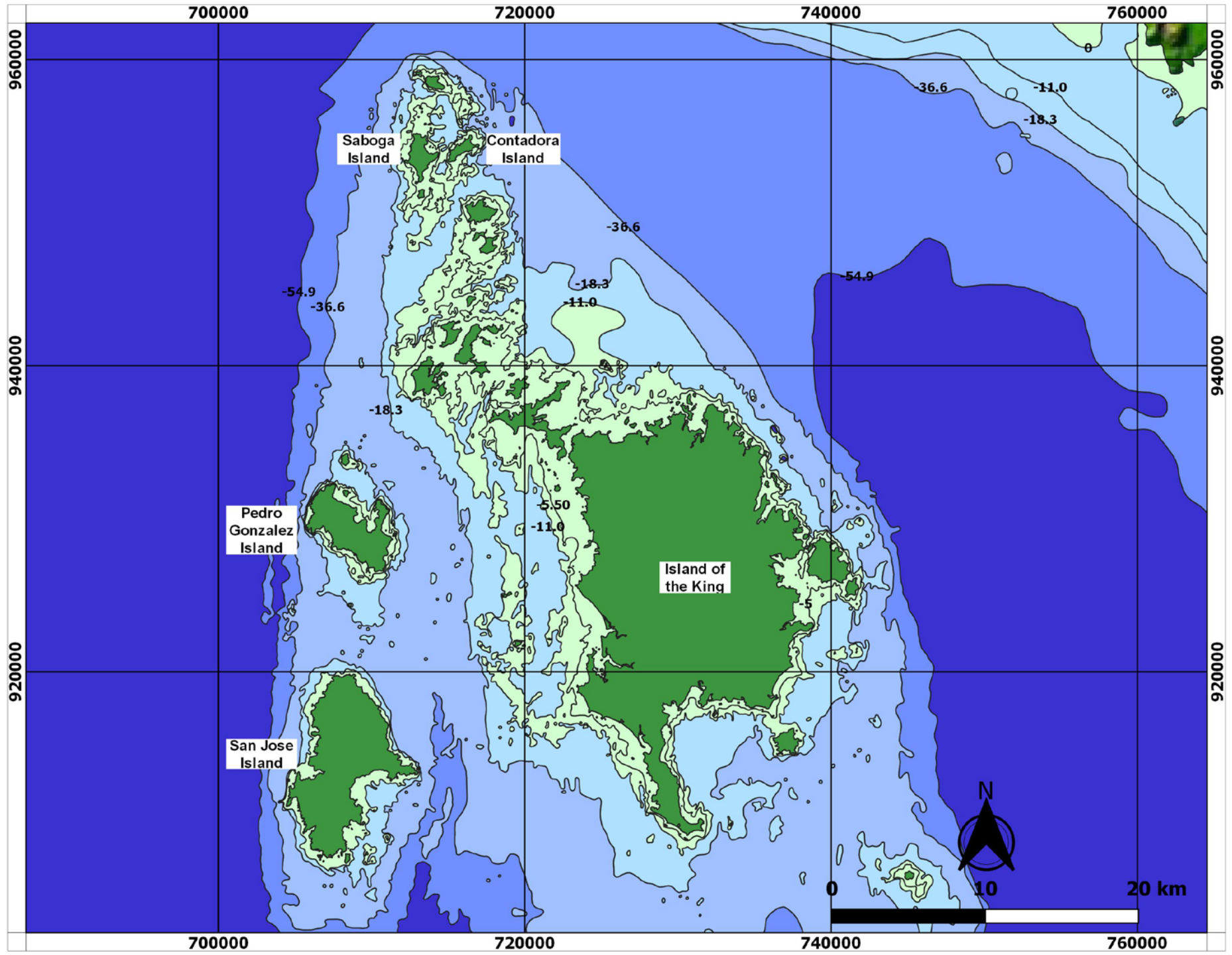
10.0 ka
-36.6 m
MLWS



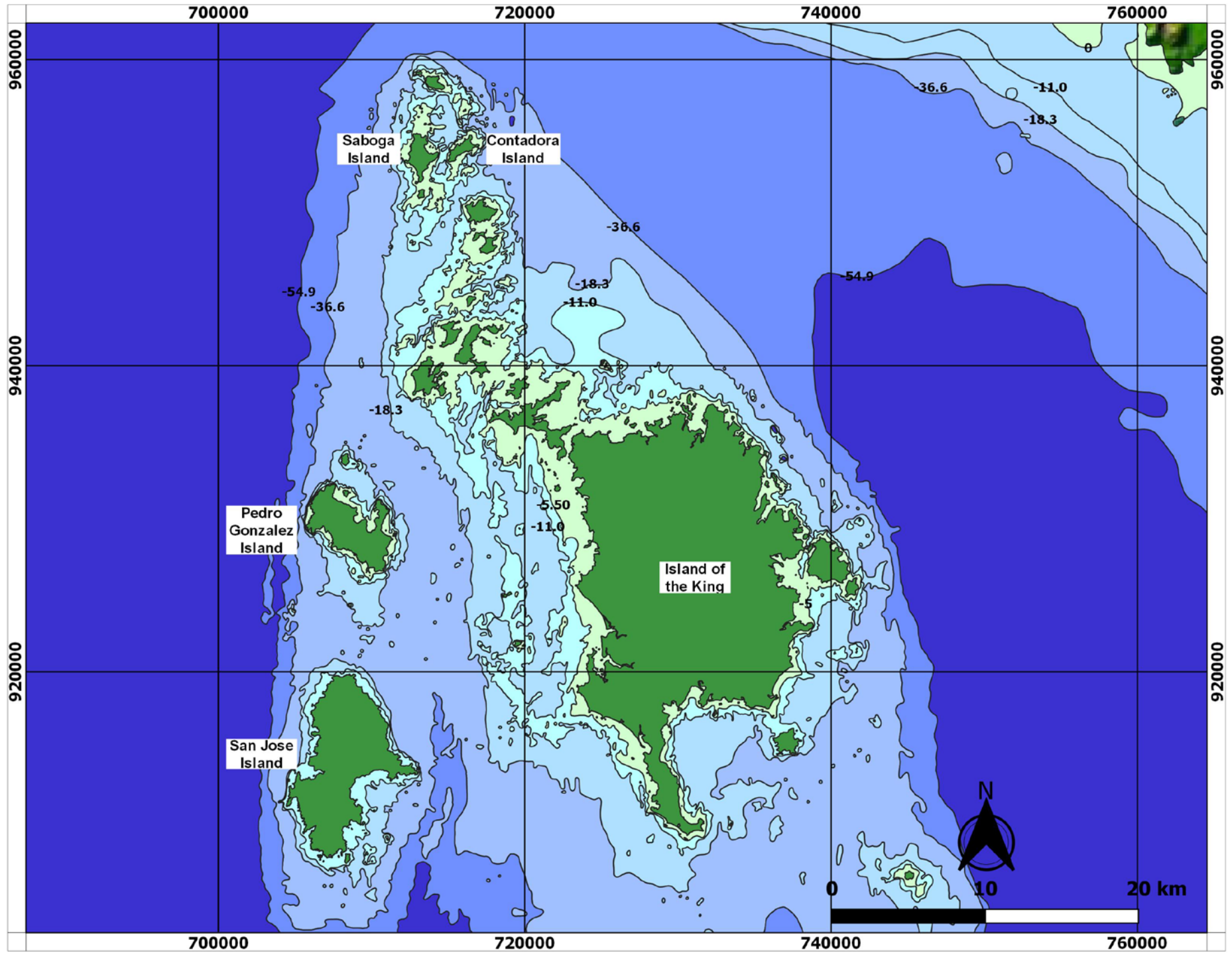
8.3 ka
-18.3 m
MLWS



7.9 ka
-11.0 m
MLWS



7.5 ka
-5.5 m
MLWS



Today
0 m
MLWS

