

Washington DC sinking fast, threat looms of sea-level rise: Study

29/07/2015 13:43 by admin

Washington: The land under the Chesapeake Bay - the largest estuary in the US - is sinking rapidly and Washington DC could drop by six or more inches in the next century, adding to the problems of sea-level rise, researchers from University of Vermont have warned.

The first-ever detailed estimate from geological drilling in the coastal plain of Maryland shows that the US capital faces half-foot drop by 2100.

This falling land will exacerbate the flooding that the nation's capital faces from rising ocean waters due to a warming climate and melting ice sheets - accelerating the threat to the region's monuments, roads, wildlife refuges and military installations.

"It is a bit like sitting on one side of a water bed filled with very thick honey," said lead researcher Ben DeJong.

For sixty years, tide gauges have shown that sea level in the Chesapeake is rising at twice the global average rate and faster than elsewhere on the East Coast.

Geologists have hypothesised for several decades that land in this area, pushed up by the weight of a pre-historic ice sheet to the north, has been settling back down since the ice melted.

The new study confirms this hypothesis and provides a firm estimate of how quickly this drop is happening.

The data make clear that the land sinking around Washington is not primarily driven by human influence such as groundwater withdrawals.

Instead, it is a long-term geological process that will continue unabated for tens of thousands of years, independent from human land use or climate change.

"Right now is the time to start making preparations. Six extra inches of water really matters in this part of the world," DeJong noted.

Washington's woes come from what geologists call "forebulge collapse". During the last ice age, a mile-high North American ice sheet, that stretched as far south as Long Island in New York, piled so much weight on the Earth that underlying mantle rock flowed slowly outward, away from the ice.

In response, the land surface to the south, under the Chesapeake Bay region, bulged up. Then, about 20,000 years ago, the ice sheet began melting away, allowing the forebulge to sink again.

"It is ironic that the nation's capital - the place least responsive to the dangers of climate change - is sitting in one of the worst spots it could be in terms of this land subsidence," informed Paul Bierman, geologist and the senior author on the new paper.

"Will the Congress just sit there with their feet getting ever wetter? What's next, forebulge denial?" he asked.

The paper, conducted by University of Vermont, the US Geological Survey and other institutions, appeared in the journal GSA Today.

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