

## CARTOGRAMS

STORM SPACES

## **BY BENJAMIN HENNIG**

Tropical cyclonic systems are generally referred to as tropical storms. They are better known by their regional names, such as hurricanes in the Caribbean and North America, or typhoons in parts of Asia. They form near the equator over larger bodies of warm waters that evaporate from the ocean surface and fuel these emerging storm systems. Their strong winds and heavy rainfalls frequently become part of our news as they often put large numbers of human livelihoods at risk.

Recent studies show that the number of tropical cyclones (as well as tropical cyclone intensity) over the past decades has increased. Tracks of tropical storms collected over a longer period can indicate where such storms occur most frequently. The records used in this issue's visualisation covers data from 1945 to 2008. For this cartogram, the observed tracks of storms in that period were analysed and their frequency and intensity was plotted onto a grid which provided the basis for the map transformation.

In the larger of the above two images, the land area is resized according to its storm intensity, so that the most affected areas are emphasised in this reprojection. The colours distinguish the different regions and countries of the world.

Considerable populations live in those coastal regions where tropical storms make landfall. Populations at risk

are mostly to be found on the eastern coasts of the continents. Densely populated areas in the south-east of the United States, the Caribbean Islands, and large coastal populations in east China and the Bay of Bengal are therefore extremely vulnerable.

The small inset map (above left) shows how the world looks when the map transformation is applied to the whole surface of the planet, including the oceans in the actual gridded cartogram transformation.

While being even more abstract than the map over land, here it becomes visible just how concentrated the storm tracks are over sea. In general, tropical cyclonic systems slowly lose momentum after having made landfall, so that the land areas turn into much smaller proportions of this second cartogram.

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## CULTURES

## RIGHTS OF PASSAGE

A landmark ruling finally gives hope to indigenous peoples around the world fighting to reclaim their homelands

In the south of Belize lies the Sarstoon Temash National Park, home to 42,000 acres of broadleaf, wetland and mangrove forest. It was established by the government in 1994, which was a surprise to the indigenous Maya Q'eqchi' and Mopan populations, whose ancestors had occupied the land since the early 1800s. Furthermore, in 2001, concessions were granted to energy company US Capital Energy to start exploring the park for oil – all without any consultation with the local communities.

The ensuing legal wrangling between the Maya people, the government and US Capital Energy, as well as indigenous rights organisations such as Cultural Survival, finally came to a close last month when the Caribbean Court of Justice (the highest court in Belize) confirmed that the Maya people have the right to ownership of the land. This follows a similar 2010 ruling, in which the Supreme Court of Belize declared the government could not grant concessions on Maya land.

The Belize government is now required to demarcate and register Maya village lands, to not allow any future interference to the Maya people, and to compensate them for the environmental damage already done.

The landmark verdict could have significant implications for indigenous communities engaged in similar legal struggles around the world. James Anaya, former UN Special Rapporteur on the Rights of Indigenous Peoples, and co-chair of the Indigenous Peoples Law and Policy Program at the University of Arizona, said that the judgement 'reinforces the international standard that indigenous peoples have collective property rights based on their own customary land tenure systems, even when they do not have formal title or other official recognition of those rights, and that states are bound to recognise and protect those rights.'



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