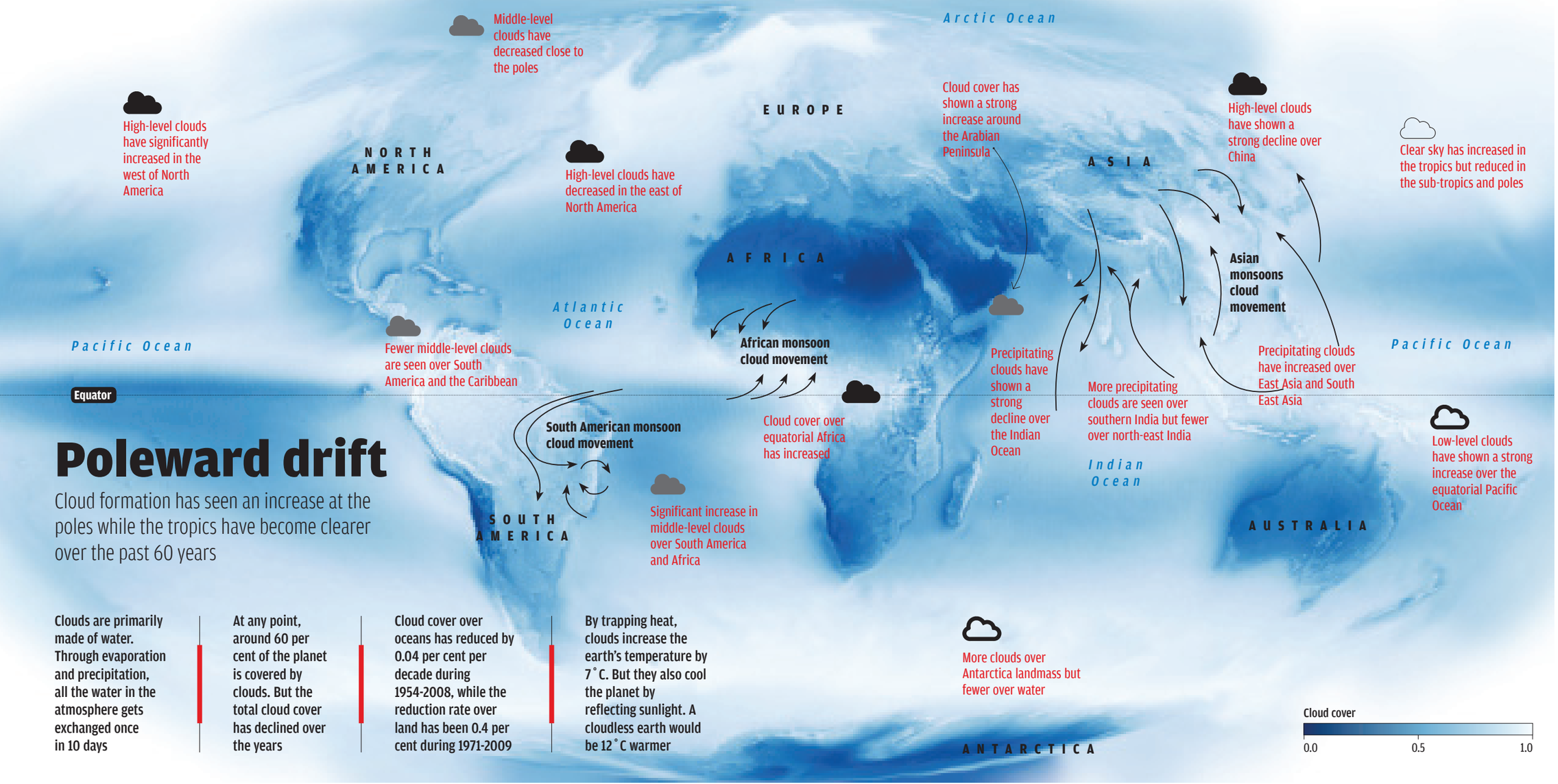

Poleward drift

Cloud formation has seen an increase at the poles while the tropics have become clearer over the past 60 years

Clouds are primarily made of water. Through evaporation and precipitation, all the water in the atmosphere gets exchanged once in 10 days

At any point, around 60 per cent of the planet is covered by clouds. But the total cloud cover has declined over the years

Cloud cover over oceans has reduced by 0.04 per cent per decade during 1954-2008, while the reduction rate over land has been 0.4 per cent during 1971-2009

By trapping heat, clouds increase the earth's temperature by 7°C. But they also cool the planet by reflecting sunlight. A cloudless earth would be 12°C warmer

The impact

The change in cloud cover is likely to heat up the planet

High level clouds have a net warming effect on the planet. These have reduced over land and increased over the oceans

Middle level clouds both warm and cool the earth. These have reduced over land and water

Low level clouds have a net cooling effect. These have reduced over land and water

Clear sky allows direct passage of sunlight and causes most heating. This has increased over both land and water

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Analysis: Shreeshan Venkatesh
Data source: NASA earth observatory data; Climatic Atlas of Clouds over Land and Ocean by Eastman, Warren and Hahn
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