

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

Pacific Ocean

Equator

Atlantic Ocean

Arctic Ocean

ASIA

Indian Ocean

Pacific Ocean

ANTARCTICA

NORTH AMERICA

EUROPE

AFRICA

SOUTH AMERICA

AUSTRALIA

High-level clouds have significantly increased in the west of North America

Middle-level clouds have decreased close to the poles

High-level clouds have decreased in the east of North America

Cloud cover has shown a strong increase around the Arabian Peninsula

High-level clouds have shown a strong decline over China

Clear sky has increased in the tropics but reduced in the sub-tropics and poles

Fewer middle-level clouds are seen over South America and the Caribbean

African monsoon cloud movement

Cloud cover over equatorial Africa has increased

South American monsoon cloud movement

Significant increase in middle-level clouds over South America and Africa

Precipitating clouds have shown a strong decline over the Indian Ocean

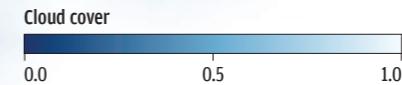
More precipitating clouds are seen over southern India but fewer over north-east India

Asian monsoons cloud movement

Precipitating clouds have increased over East Asia and South East Asia

Low-level clouds have shown a strong increase over the equatorial Pacific Ocean

More clouds over Antarctica landmass but fewer over water



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

Prepared by DTE/CSE Data Centre
 Infographics: Raj Kumar Singh
 Analysis: Shreeshan Venkatesh
 Data source: NASA earth observatory data; Climatic Atlas of Clouds over Land and Ocean by Eastman, Warren and Hahn
 For more such infographics visit: www.downtoearth.org.in/infographics