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Scientists say cold air rises – 9th May, 2020

## Level 4

We learn that warm air rises and cool air sinks. This is basic science. A new study found circumstances in which cool air rises in tropical areas. Cold air rises because of the lightness of water vapour. In humid climates, water particles become lighter and help cool air rise. A researcher said: "Water vapour has a buoyancy effect which helps release the heat of the atmosphere to space and reduce the degree of warming."

Scientists say humid air is lighter than dry air at the same temperature. Cooler air with water droplets rises to make clouds and storms. Rain cools tropical areas. More research is needed to find out how rising cool air affects global warming. A researcher said: "Now that we understand how the lightness of water regulates tropical climate, we plan to study whether global climate models accurately represent this effect."

## Level 5

We learn at school that warm air rises and cool air sinks. This is a basic principle of science. A study from the University of California found there are circumstances in which cool air rises. Researchers found that in tropical areas, cold air rises because of the lightness of water vapour. In warm, humid climates, water particles become more buoyant and can help cool air rise. The lead researcher said: "Water vapour has a buoyancy effect which helps release the heat of the atmosphere to space and reduce the degree of warming. Without this lightness...climate warming would be even worse."

Scientists say humid air is lighter than dry air at the same temperature and pressure. This is called the vapour buoyancy effect. Cooler air containing water droplets rises to form clouds and thunderstorms. Rain has a cooling effect in tropical areas. More research is needed to find out the effects rising cool air has on limiting global warming. A researcher said: "Now that we understand how the lightness of water regulates tropical climate, we plan to study whether global climate models accurately represent this effect."

## Level 6

Most of us learn at school that warm air rises and cool air sinks. This has always appeared to be a fundamental principle of science. However, a study from the University of California, Davis found that there are circumstances in which cool air rises. Researchers discovered that in tropical atmospheres, cold air rises because of the lightness of water vapour. Apparently, in warmer and more humid climates, water particles become more buoyant and can help cooler air rise. Lead researcher Dr Da Yang said: "Water vapour has a buoyancy effect which helps release the heat of the atmosphere to space and reduce the degree of warming. Without this lightness of water vapour, the climate warming would be even worse."

The scientists said humid air is lighter than dry air at the same temperatures and pressure. This is called the vapour buoyancy effect. It allows cooler air containing water droplets to rise, which then forms clouds and thunderstorms. The resulting rain has a cooling effect in tropical areas. Another researcher, Seth Seidel, said more research is needed to find out the effects rising cool air has on climate change, and on its impact on curbing the effects of global warming. Seth Seidel said: "Now that we understand how the lightness of water regulates tropical climate, we plan to study whether global climate models accurately represent this effect." The study is published in the journal "Science Advances".