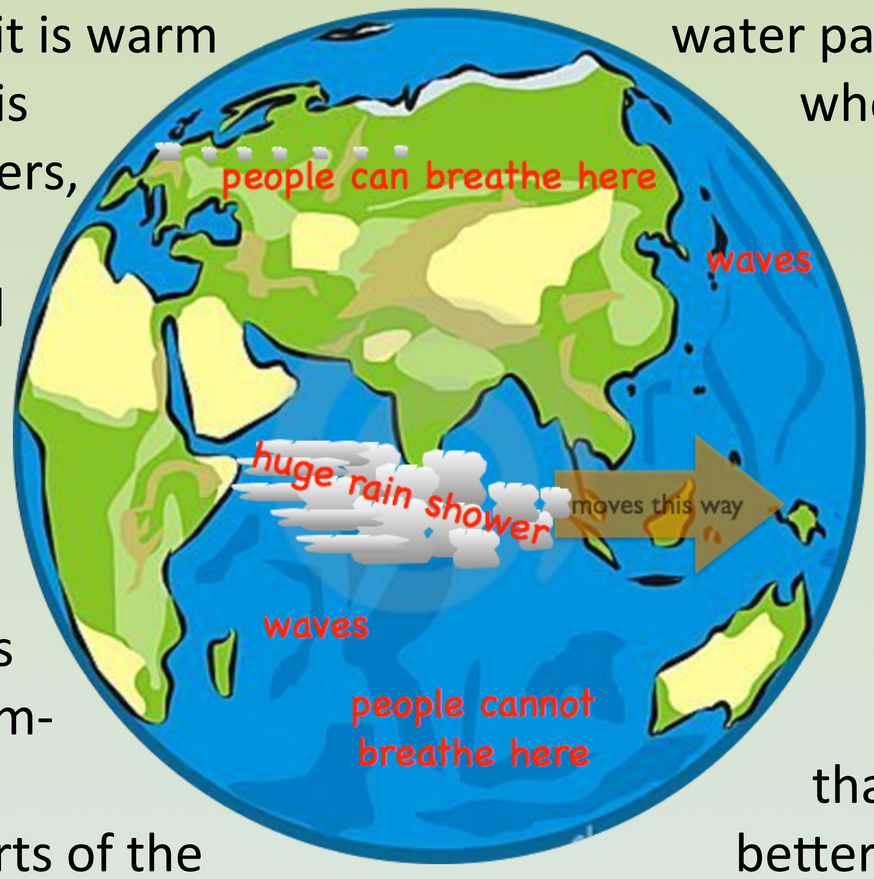
The huge, slow rain shower[1].

An exercise in science communication by Charlotte DeMott, using the Up-Goer Five text editor

I study a kind of huge rain shower that forms in the warmest parts of our world (where it is warm year round). The huge rain shower is made up of many smaller rain showers, but all of them together are almost as big as the place in the song called "This Land is Your Land." This huge warm-place rain shower comes and goes about every 45 days as it moves slowly across the warmest parts of our world. Even though this kind of rain shower stays in the warmest parts of our world, it can force changes in the wind in almost all parts of the world, which can lead to a lot of rain, strong winds, or even ice far from where the warm-place rain falls.



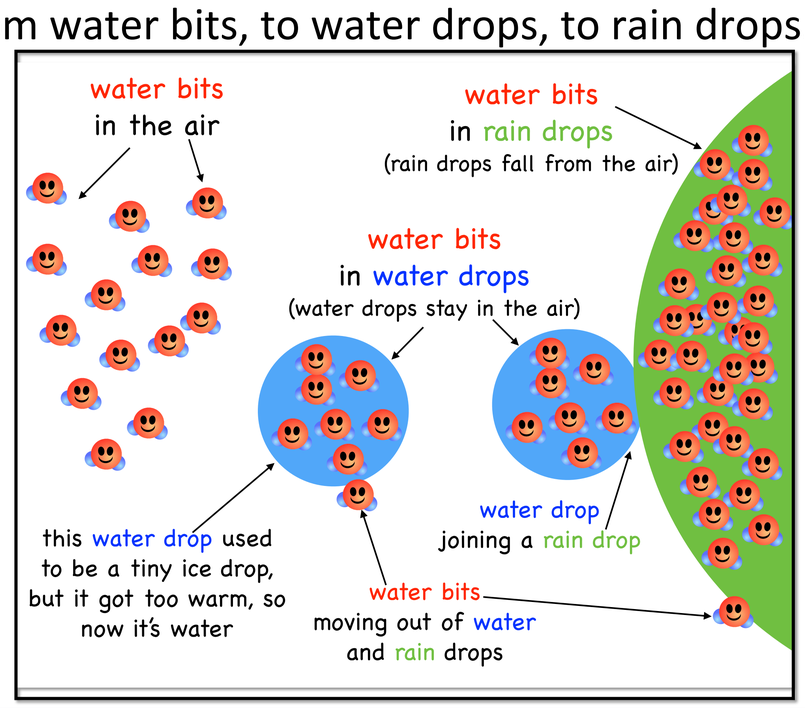
People have tried to understand this huge warm-place rain for a long time (going on 45 years now), but it's hard to figure out. Computer studies of this kind of rain usually can't make the rain showers big and slow enough, so they don't make the rain and wind and ice in other parts of the world, which are really important to the people and animals who live in those parts. If we can figure out why the rain shower gets big and slow, we can do a better of job letting people know ahead of time if it's going to rain a lot, or be very hot, or be very cold. This is important for the people who grow our food and for the people who work to keep all of us safe.

Computers studies have helped us understand that how water bits* in the air move around is important for making the huge, slow rain shower, but this seems to explain only part of the problem. Another thing that might help explain this warm-place rain is how it responds to water in the wettest parts of the world (the parts with waves and where people can't breath). We think the wave-water parts of our world—especially when they get very warm—help to make the rain shower bigger and slower, and we would really like to figure out exactly how this happens.

Computer studies that try to say when these huge rain showers will form probably need to do at least two things better than they do now: 1) they need be better at moving water bits between water drops and the surrounding air, and 2) they need to do a better job of warming and cooling the wave-water parts of our world.

* a water bit is a tiny bit of stuff that makes up water. If you get a whole lot of water bits to stick together, you get a water drop. Rain drops are bigger than water drops and form in several ways: more water bits can join the water drop until it grows into a rain drop (not the easiest way to make rain); many water drops can run into each other to form a rain drop (an easier way to make rain); and ice drops can get too warm, turning them into water drops or rain drops (another easier way to make rain). Water bits escape from the wave-water part of our world and move around in the air, where they go in and out of water drops and rain drops. This is one of the hard things get right in computer studies of the huge, slow warm-place rain shower. We don't try to track every single water bit in our computer studies (there are way too many!), but we do need to get them in the right places at the right times, which turns out to be kind of hard.

*from water bits, to water drops, to rain drops…



[1]**A description of the Madden-Julian Oscillation using only the 1000 most common words in the English language, using the Up-Goer Five text editor. You can try it yourself and read many other examples at splasho.com/upgoer5. This exercise would be much easier if we would all find more ways to use the following words in our day-to-day writing: cloud, ocean, and energy.**