

Singin' of the Rain: Program Notes (cont'd.)

Cloud, Mist, Fog and Smog – What's the difference between cloud, mist, fog and smog? "I guess that clouds near the ground are always called fog, and a chimney was billowing smoke, making smog..."

My Lucky Day – It's amazing how many calamities 4th graders can imagine befalling them in a single day.

Story of a Molecule – Most of the water molecules on Earth have been water for billions of years.

Climate Zones (world premiere) – There are many ways to classify the Earth's many climates. They generally fall into three main categories: tropical (near the equator), polar (near the poles) and temperate (between these two).

Currents of the Ocean – Wind, rotation of the Earth, gravitational pull of the moon and sun, and thermal, density and salinity gradients drive the complex movement of water in the oceans, with dramatic effects on coastal climates.

Big Ice – Most of the world's fresh water is locked in the Antarctic ice sheet. Greenland's ice sheet is so massive (2.7 quintillion kg) that its gravity raises sea level at nearby Iceland by more than 7 meters. Melting of polar ice is accelerating due to global warming.

The Pilgrims' Problem (world premiere) – The Mayflower sailed more than 580 miles south on its journey from Plymouth, England to Plymouth, Massachusetts. So it was quite a surprise when the Pilgrims discovered the winters in their new home were much colder because the climates are different.

The Tale of Joe, Svanti and Charlie (world premiere) – Joseph Fourier, Svante Arrhenius and Charles Keeling made the key discoveries that led to our understanding of anthropogenic global warming.

Drip, Drip – A slightly sarcastic look at how rising oceans, melting ice-caps and changing climates affect many habitats, including human coastal communities.

Vibrio Bacteria (world premiere) – Global warming increases the temperature of the ocean surface, which in turn causes blooms of *Vibrio vulnificus*, skin infections of which are 50% fatal. Eating raw shellfish contaminated with *Vibrio vulnificus* can also be fatal.