

# Surface Drifters and SPURS Transcription

Surface drifters. Eric talked a little bit about these. Surface drifters are objects that float at the surface. You can see here at the right, one of these surface drifters. Right here at the bottom right hand side is the salinity sensor. The thing that was unique about SPURS is—we released about 40 of these drifters, that's a lot—that all of these drifters that we released had salinity sensors on them. This is really unusual. Most drifters do not have salinity sensors, largely because of calibration issues. The people who are releasing them think that we can get a handle on the calibration, and use the drifters to get some really interesting data. On the left hand side you can see what's called a drogue. In this picture it's all folded up.

Its real position looks more like this. You have your surface float here floating around at the surface, communicating with the outside world. Then you have this thing called the drogue or the sail floating around underneath. The drogue helps the drifter grab onto the water. If the drogue were not there, the drifter would largely drift with the wind; the wind would push it around. Here with these drogues the drifter tends to drift around with the water.

This is a picture of some of the drifters that were released in the SPURS experiment in September. The drifters were released at the positions marked with the red dots. You can kind of get a sense of what strange paths they take. They take these meandering random paths almost as if they are drunk and don't really know quite where they are going. Statisticians have a word for this, it's called a 'drunkards walk.' That's what drifter tracks really look like. You can see that some of the drifters went around and peeled off to the northwest, some of them peeled off to the southwest, and some of them just basically hung around where they started.

Here is a picture of some of the results from the salinity sensors on the drifters, which is what I said is sort of unique and interesting about this experiment. So this is just a picture of the salinity of all the drifters as a function of time wherever they were released, starting in September when we released them, and going into January which is right about now. The interesting thing here is that you can see that the salinity is going down; salinity is decreasing as a function of time over the 4 months since the experiment.

You can also see really interesting short term events, like here you have very very fast increases in salinity, and you also have these big downward spikes, decreases in salinity. The downward spikes are likely rain events, and the little upward spikes are likely evaporation events. So when the ocean was very calm and very still, and the atmosphere above it was relatively dry, then you would get evaporation and a sudden increase in the salinity in the surface layer.

Part of what we're trying to figure out with this is what happens as the salinity goes down? What's causing the salinity changes like this? Is it these sorts of rain events that are going on like this, or is it mixing with the water below, or what? What's the issue? Is it maybe a lack of these high events? We really don't know. That's what we're trying to find out.