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MCEN 4151

## Clouds Report 2

This image of stratocumulus undulatus was taken over spring break for my second clouds image assignment. The goal of this assignment was to continue to observe clouds and the ever-changing landscape that they create. Along with observing the clouds, observing the fluid property behind them is important in understanding why they appear the way they do. After learning a great deal from the first clouds image and report, it was fun to continue to observe clouds and capture images of them. Although I captured many other clouds images, I chose to submit this image because capturing clouds from above provided a great prospective.

On March 26<sup>th</sup> I was flying from Belize City, Belize to Houston, TX and saw these clouds out the window of the plane as I was looking east. I was facing east and the plane was at an altitude of about 30,000ft. The image was shot looking outward and downward on the horizon and the Gulf of Mexico. The light from the came from the west and the time was about 5:00PM.

After learning about cloud types, I concluded that the clouds in my image are stratocumulus. The sky was partially covered with linear puffy clouds. The weather that day had been stable as it was clear that morning and throughout the day. There were slight winds from the west but they were also calm and steady all day. These altostratus clouds seemed to form in mid to late afternoon. The clouds did not appear to be moving at all but it was difficult to tell for sure as I was in a plane. The complete classification of this cloud would be stratocumulus undulates. This variety of cloud appears as parallel rolls or waves but without significant vertical development. They commonly cover vast areas of subtropical ocean and are caused by the weak convective currents that create the peaks and troughs of these waves.

The genus of stratocumulus is puffy, cloud groups that are mid-level in the atmosphere usually below 2,400 m. As seen in the attached skew-t plot, the atmosphere was stable at the time of this image. The air temperature and dew point are closest around 1,500 m on the skew t plot suggesting there are clouds at that level. The stable flow of air over the ocean can be seen in the relative stability suggested by the uniform rows of clouds in my image.

The clouds are at an elevation around 1500-2000 meters and the width of the image spans several kilometers. The camera used was a Canon PowerShot DS 1200 IS, which has a 10

megapixel sensor. The focal was 6.2mm and the ISO speed was recorded as 220. The f-stop value was f/2.8 and the shutter speed was 1/200 sec. No flash or extra lighting was used for this image. The image size is 3648 x 2736 pixels. To enhance this image I slightly improved the contrast in Photoshop and also deepened the blues.

The image clearly shows these long puffy clouds reaching out and covering a huge portion of the sky. I like how well this image captures the wave looking clouds over the ocean. After seeing the atmospheric sounding, it makes sense that these clouds are a common sign of fair weather. I wish I could have captured this image later in the day with different lighting on the clouds. The lighting seemed to change throughout our flight but these clouds were out of sight by the sunset was occurring. The sounding is from Belize City International Airport.

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