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MCEN 4151
April 18th, 2013

The Phoenix

This image was taken for the 2nd cloud assignment in the class titled Flow Visualization. The purpose of this image was to realize in picture form the beautiful visualization affects that clouds have to offer. Clouds don't only offer something pretty to look at, they can also inform us on the weather, relative humidity, wind, and stability of the surrounding time frame. The specific intent of this image was to capture a typical Costa Rican sunset as the sun sets to the west, behind the Pacific Ocean and illuminates; with a fiery hue, the clouds in the sky. When there are no weather fronts present, stratocumulus clouds are quite common to see in the sky, at a relatively low elevation. Since this image was captured on a Costa Rican summer day; the dry season, the prevalent clouds are stratocumulus.



Figure 1: Photoshop Enhanced Image

This image was captured on March 24th, 2013 in Manuel Antonio, Costa Rica from inside the Manuel Antonio National Park (9.4° N 84.1° W)[1]. The direction of the image was west and was taken at essentially 0° from the horizontal in an effort to maximize the depth of field. It was taken at 4:34 pm.

This image shows exactly the elevation above sea level. Knowing that the picture was taken from the balcony of a structure that was placed on a hillside and that the National Park is 50 meters above sea level, we can approximate that we are at about 150 meters above the sea level. We notice that the clouds in the foreground are only about twice the elevation of the vantage point of the image. This is to say that they are at an elevation of approximately 300 meters. Noting the elevation of these clouds and that the fact that we had no fronts following this image for several days, it becomes immediately prevalent that the clouds featured in this image are stratocumulus. This is designated by the stable atmosphere, the fluffy nature of the clouds and most importantly, their low elevation.

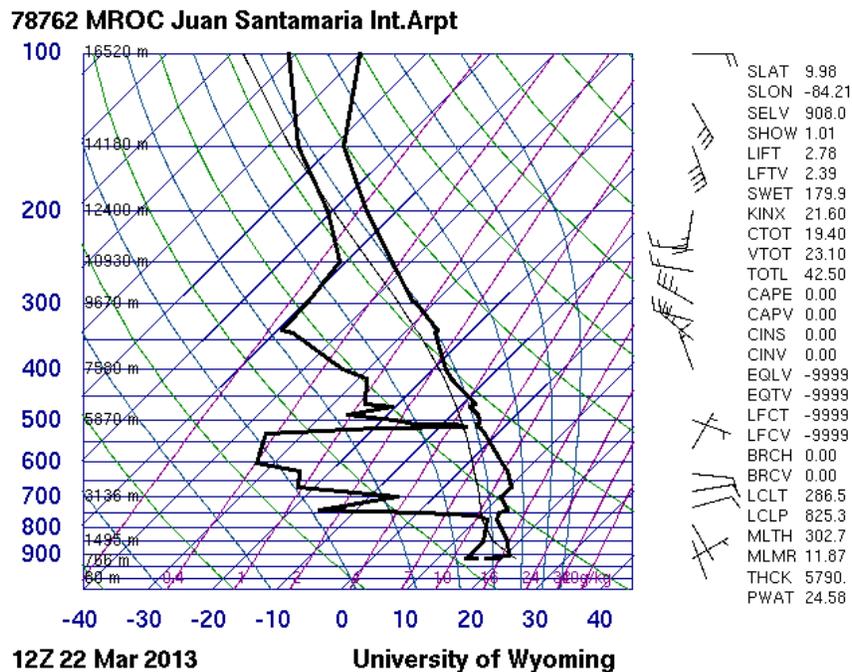


Figure 2: Skew T from March 22nd, 2013 [2]

The Skew T (figure 2) helps to shed a little more light on this image. The Skew T obtained was two days prior to the capturing of this image but due to the fact that it was summertime in Costa Rica, the days are all relatively similar in both type and formation. The left (dew point) line is very close to the right (temperature) line from approximately 786 m-2000 m and again at around 5500 m. These two instances show the elevations at which cloud formations are possible. The 786 m-2000 m range supports the fact that the clouds shown in this image are stratocumulus. Since the image was taken at 0° from the horizontal, we are unable to see clearly if there are upper level clouds forming at 5500 meters. We can however see parts of the sky towards the top-middle section of the picture that refracts none of the orange from the sun. Perhaps these are upper level clouds that were not fully captured by the image.

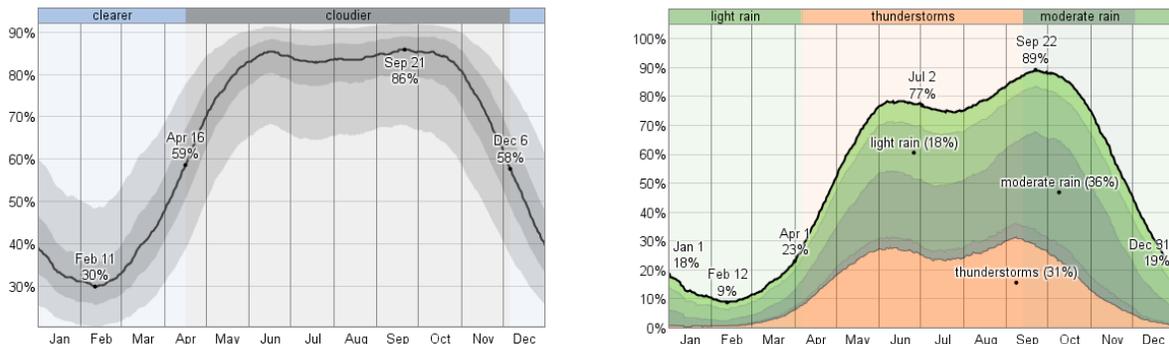


Figure 3: Cloud and Precipitation Data [3]

This picture was taken 10 days before the rainy season began, so the CAPE was 0 and the atmosphere was stable. You can see in figure 3 that during March, the sky is mostly clear with an average of 35% cloud cover. This can be compared to the precipitation data, since there are less clouds, there is less precipitation in the summer months. You can see that anytime it rains in the summer months, it is almost always going to be light or moderate rain. As April approaches, the cloud cover increases, bringing the cumulonimbus (rain) clouds and in turn bringing

thunderstorms, rain and precipitation. April marks the end of the summer and the start of their winter (rainy) season. This is why we see the clouds that we see.



Figure 4: Original Image

There wasn't necessarily a specific photographic technique used to capture this image, I just waited till around 4:30 pm when the sun started setting and ensured there were specific clouds to be analyzed. I made sure to have as high of a vantage point as possible to ensure that I could maximize the depth of field. It's hard to specifically define the depth of field of this image but it has to be at least a mile from the foreground to the background. The fiery sky reminded me of the fiery phoenix bird that rises from the ashes which is why I title the image *The Phoenix*. This picture was taken with a Canon PowerShot SD1200 IS with the following capture and image specifications:

Table 1: Camera Settings/Specifications

Lens focal length	8.3 mm
Aperture	f/3.2
Shutter Speed	1/320 sec
ISO	800

The image was 3648 x 2736 pixels before alteration and 3648x2009 after. The image was cropped in order to eliminate distracting objects. The only post-processing done was to increase the contrast so that the fiery colors popped as much as possible.

This image reveals a lot about the typical weather of a summer day in Costa Rica. It notes the atmospheric stability, the general cloud type and the wind speed at the time of the image. I specifically like the colors and textures of my final image; they really define the clouds in a drastic and interesting way. I always wish I had a better camera for capturing the image. My intent was very well realized in that I wanted to capture a nice Costa Rican Sunset and comment on the clouds prevalent. In the future, I would like to take a picture at the exact same time of the day from the exact same location but during the height of the winter (rainy) season. I could then comment on the different cloud formations prevalent in the different seasons.

References:

[1] itouchmap.com Website. Accessed April 18th, 2013
<http://itouchmap.com/latlong.html>

[2] "Weather". University of Wyoming – College of Engineering – Department of Atmospheric Science. Website. Accessed April 18th, 2013 <http://weather.uwyo.edu/cgi-bin/sounding>

[3] WeatherSpark.com. Website. Accessed April 18th, 2013.
<http://weatherspark.com/averages/32645/San-Jose-Alajuela-Costa-Rica>