

Cloud Image Report

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CU Flow Vis

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Project Description

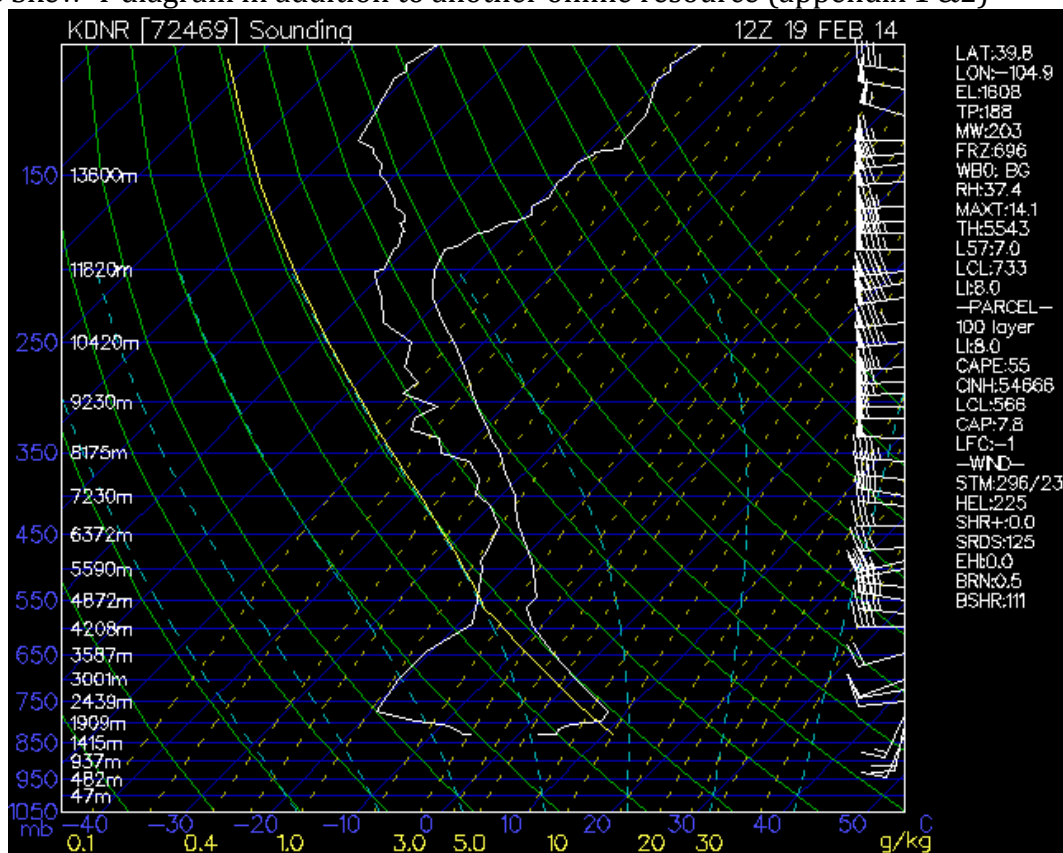
This photo was taken to satisfy the first Cloud Image assignment. The intent of the image was to capture the stratocumulus cloud formation that collected around the summit of the Flatirons. Approximately 50 images were taken from various angles, focal lengths, and apertures. The best photo was selected to undergo post-processing.

Photo Location and Details

The photo was taken in the parking lot of the National Renewable Energy Lab (aka the National Wind Technology Center) approximately 5 miles south of Boulder. The camera was facing approximately west/southwest. Elevation is unknown but I would estimate it to be ~500-1000 ft higher than Boulder. The image was taken on 2/19/2014 at 3:18pm. The camera was hand held and was roughly horizontal.

Cloud Description

The cloud formation was a stratocumulus. This was identified through the help of the Skew-T diagram in addition to another online resource (appendix 1 &2)



The CAPE # of 56 indicates a moderately instable atmosphere. In the above Skew-T diagram, the plot angle changes sharply at 2439 meters. This was the approximate height of the clouds I observed and photographed on that day. There was a moderate wind of approx. 15mph. No precipitation was observed that day, but darker storm clouds were observed to the north. Overall, there was a blue sky with minimal clouds.

Camera and Photographic Technique

The photos were taken during the day so there was sufficient light to use a fast shutter speed, which allowed the camera to be handheld. I would estimate the field of view to be ~3miles. I would estimate the distance to the center of the cloud to be 3-5 miles.

The lens used is a 50mm Olympus f/1.8-f/22. The photo was shot at f/5.6, ISO 200, and shutter speed of 800. The camera is a Panasonic G5. It is a micro 4/3, aka a mirror-less DSLR. The original image is 4608 x 3456 pixels. The edited image is 4608 x 2592 pixels.

In photoshop, the image was cropped and converted to black and white. To boost contrast, the blue and cyan values were reduced to zero.

Before:



Personal Opinion

I like the outcome of the final image. It doesn't show fluid movement terribly well, but I enjoy the contrast of the white clouds against darker mountains.

Appendix:

1. http://kiwi.atmos.colostate.edu/group/todd/Extras_files/Skew-T-Manual.pdf
2. <http://nenes.eas.gatech.edu/Cloud/Clouds.pdf>

Self -Assessment

Assignment:

Date:

Scale: +, ! = excellent √ = meets expectations; good. ~ = Ok, could be better. X = needs work. NA = not applicable

Art	Your assessment	Comments
Intent was realized	√	
Effective	√	
Impact	√	
Interesting	√	
Beautiful	√	
Dramatic	√	
Feel/texture	√	
No distracting elements	√	
Framing/cropping enhances image	√	

Flow	Your assessment	Comments
Clearly illustrates phenomena	~	
Flow is understandable	√	
Physics revealed	√	
Details visible	~	
Flow is reproducible	√	It's difficult to reproduce nature
Flow is controlled	√	
Creative flow or technique	√	
Publishable quality	√	

Photographic/video technique	Your assessment	Comments
Exposure: highlights detailed	√	
Exposure: shadows detailed	√	
Full contrast range	√	
Focus	√	Image is in focus
Depth of field	√	Very little DOF with infinite focus

Time resolved	√	
Spatially resolved	√	
Photoshop/ post-processing enhances intent	√	
Photoshop/ post-processing does not decrease important information	√	

Report		Your assessment	Comments
Collaborators acknowledged		√	No collaborators
Describes intent	Artistic		
	Scientific		
Describes fluid phenomena			
Estimates appropriate scales	Reynolds number etc.		
Calculation of time resolution etc.	How far did flow move during exposure?		
References:	Web level		
	Refereed journal level		
Clearly written		√	
Information is organized		√	
Good spelling and grammar		√	
Professional language (publishable)		√	
Provides information needed for reproducing flow	Fluid data, flow rates		
	geometry		
	timing		
Provides information needed for reproducing vis technique	Method		
	dilution		
	injection speed		
	settings		
lighting type	(strobe/tungsten, watts, number)		
	light position, distance		
Provides information for reproducing image	Camera type and model	√	
	Camera-subject distance	√	
	Field of view	√	
	Focal length	√	
	aperture	√	
	shutter speed	√	
	Frame rate, playback	√	

	rate		
	ISO setting	√	
	# pixels (width X ht)	√	
	Photoshop and post-processing techniques	√	
	"before" Photoshop image	√	