Cloud I Report

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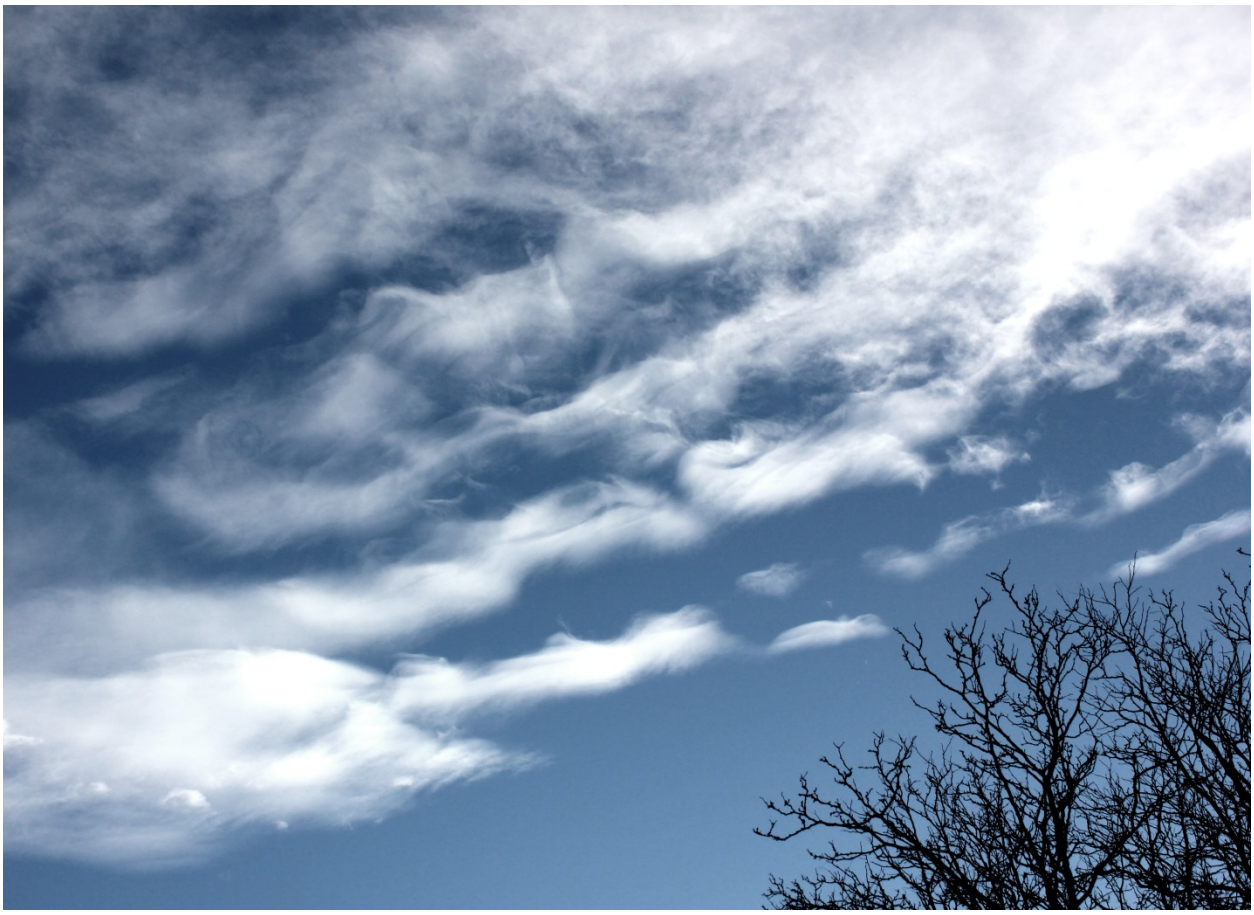


Clouds are arguably the most overlooked example of complex fluid dynamics that are experienced by society. This project motivated the class to pay closer attention to the flow interactions that take place above our heads every day. The image that I selected for this project shows uncommon cloud shapes that are contrasted by a sharp silhouette of a tree.

This image is facing WSW in Boulder from the University of Colorado campus with the camera around 25 degrees from horizontal. It was taken in the evening, just after an exceptionally windy night and day (50+ mph winds).

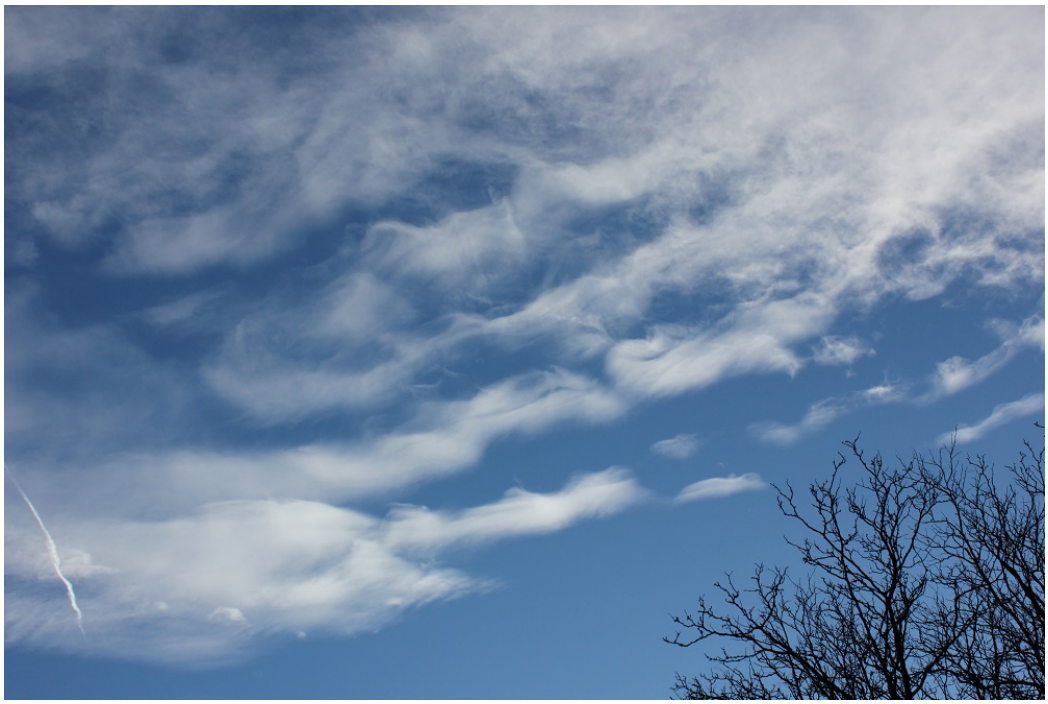
Based on the appearance of the clouds and the weather conditions, the majority of these clouds are classified as altocumulus clouds. They appear to be flat bottomed, higher altitude, and have an interesting whispy texture. The clouds weren't moving with a high velocity at the moment of the image, but had recently slowed to their present speed. This change in speed combined with interacting boundary layers produced the swirling effects that were captured.

Post processing was used to desaturate the image and enhance the contrast in order to bring out the white and allow the faint flow in the clouds to brighten up. A contrail was cropped out, as I felt it was a distracting element to the fluid dynamics that I wanted to focus on. The exposure for the photo was $1/250^{th}$ of a second with an ISO of 250 and an f-stop of f/10 on a Canon Rebel T2i digital camera. These were all results of the "autofocus" option on the camera, because manual adjustments produced inferior quality.

I believe this image shows a very intriguing example of a rare formation of clouds. In retrospect, it would have been insightful to produce a time lapse of this to analyze the development and disintegration of the water vapor.

Appendix:

Unedited image:



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