



Devastating Data Discovery for Dusty December 15, 2021



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Motivation

On December 15th, 2021, there was a devastating weather event where most of Colorado was covered in a massive dust storm. We do not know the full implications of this storm.

Future Work

There was a barrage of destruction in this events' path. 6 semi-trucks were flipped. 131 flights were canceled and 465 were delayed. 60,000 people lost power. There was a lot of property damage. Last, but definitely not least agricultural lands were ravaged.

In this research project, we examined RGB (red-green-blue) satellite images to understand the storms full effects.

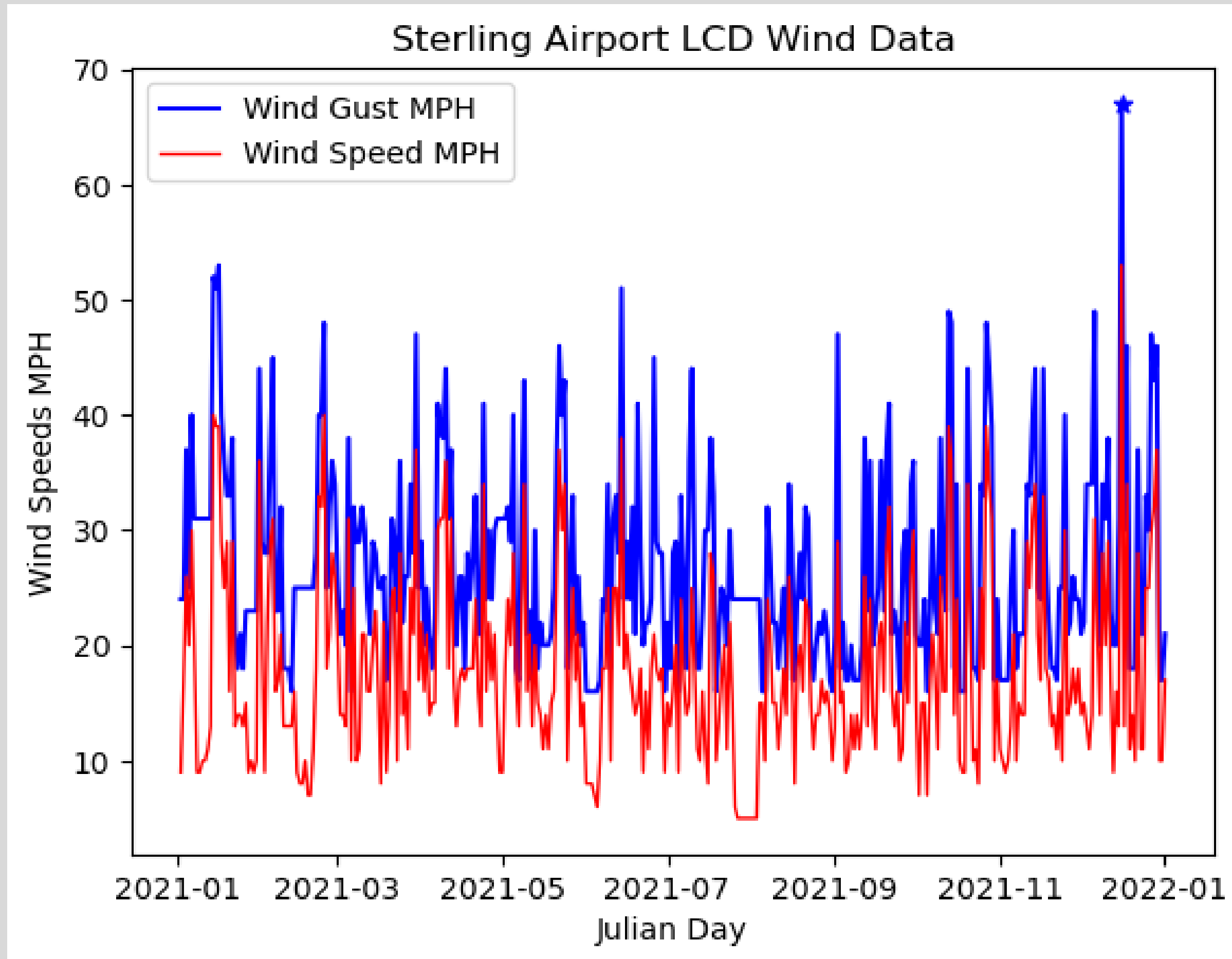


Figure 1: Data from the Sterling Airport. Max wind gusts compared to max wind speeds.

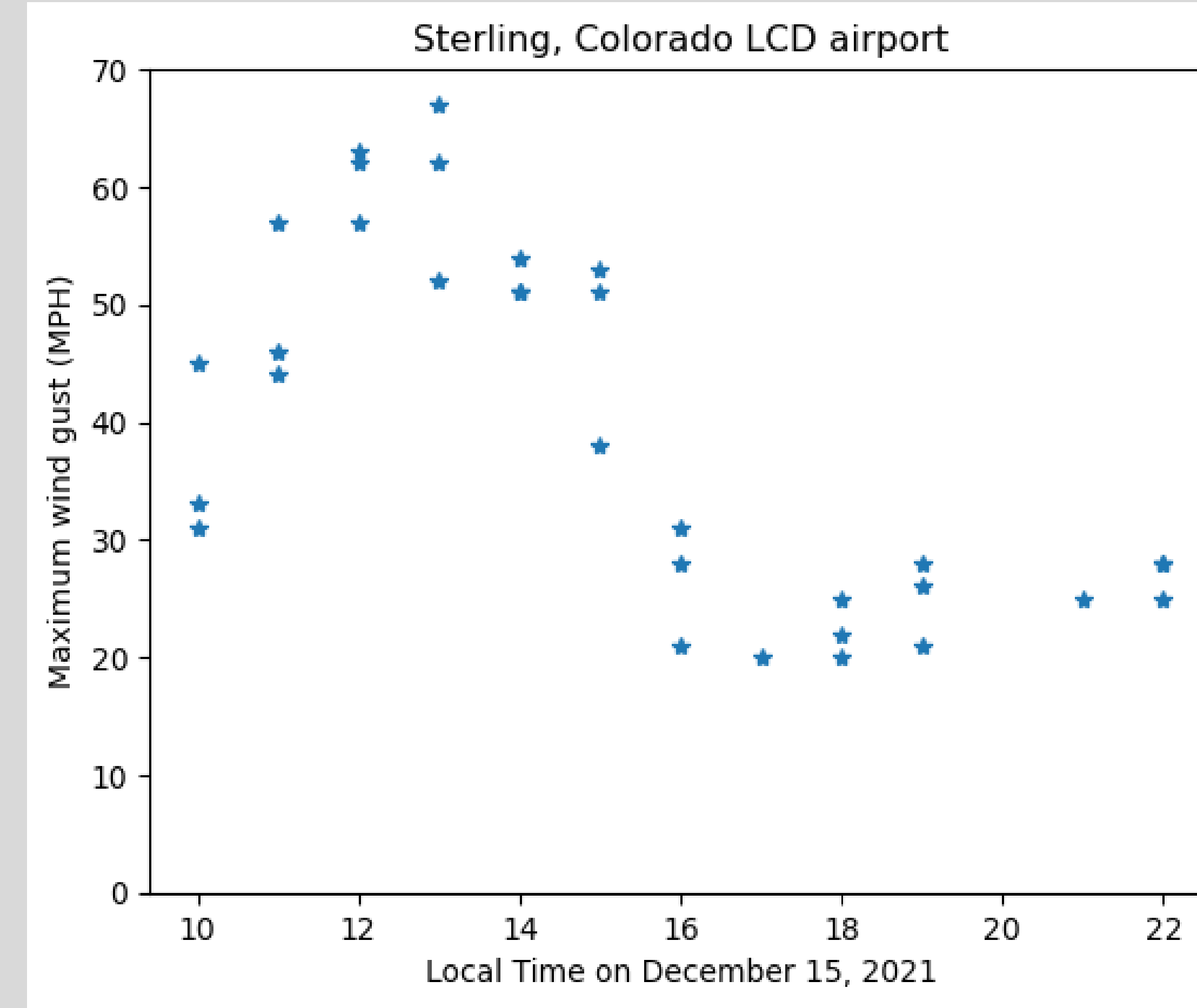


Figure 2: Data from the Sterling Airport. Highest wind gust occurred during 1:00 pm, 68 mph.

Sadly, there has not been much work done on the impacts of high wind dust storms.

Study the pros and the cons of dust storms.

Test to see the differences in composition of urban and rural dust.

Investigate to see if there is a "dust cycle" going on in America and other areas of the world.

Find the main cause of dust storms in America.

Results

December 15th, was an anomaly for both dust and wind

Max wind gust: 68 mph

Max wind speed: 53 mph

Dust Composition: P, Cu, Zn, Pb, and Cd

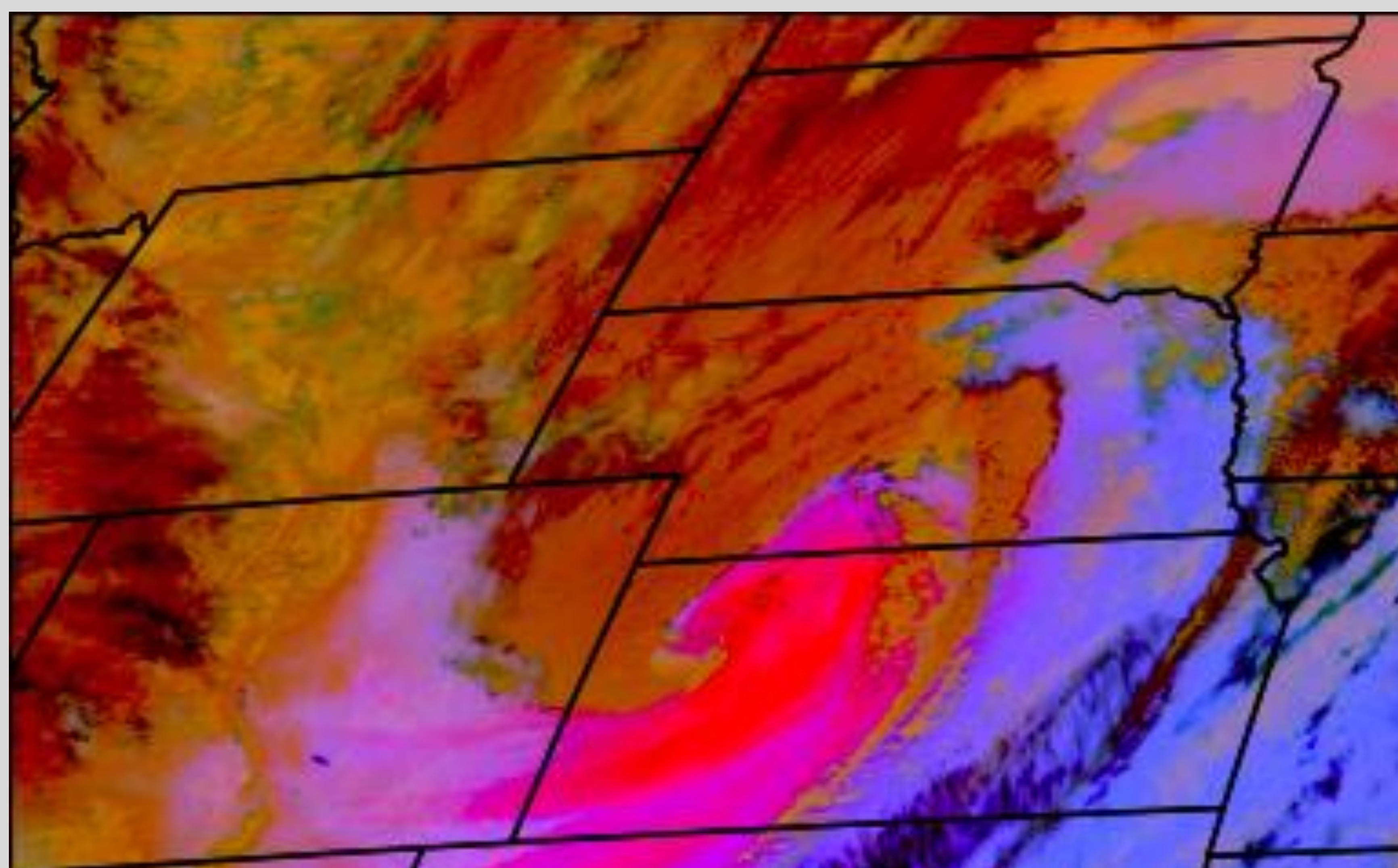


Figure 3: Satellite image from GOES-16. RGB Applied. Pink/Magenta is Dust. Time: 2:01 pm MST.

RGB Interpretation

- Dust Clouds
- Thick Clouds
- Thin Clouds
- Cold, Thick Clouds

Note: colors may vary diurnally, seasonally, and latitudinally

Scan Me



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