Utility of SPoRT VIIRS Imagery to Detect Small-Scale Blowing Dust

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October 29, 2013 Localized Wind Blown Dust Event

A chain reaction accident occurred just after Noon MST on Interstate 10 between Phoenix and Tucson

- 19 vehicles involved
- 3 fatalities
- 12 injuries
- I-10 closed for 10 hours

Photo: Ron Medvescek AZ Daily Star
Accident Site
10/29/2013

MM 214 Crash Site
Proximity of Barren Desert to Interstate 10
Meteorological Conditions

- Southwest flow aloft south of 500 mb Great Basin low pressure
- Cold front approaching from the northwest
Surface Winds

Wind observations from 11 am to 1 pm MST from Casa Grande Airport (KCGZ) approximately 25 miles NW of accident site:

- SW - 210-230 degrees (perpendicular to I-10)
- Sustained 11-17 kts/13-20 mph/6-9 m/s
- Highest gust 23 kts/26 mph/12 m/s
Visible Satellite

Visible satellite indicated a clear sky over the accident site until 2015 UTC when cumulus clouds were observed near an approaching cold front.
MODIS VIIRS Satellite Imagery

Visibility in this area of blowing dust was zero at this time. I-10 traffic was already stopped.

60-70 min after accident occurred
Summary

• Moderate SW winds created a localized area of blowing dust that channeled across I-10 in southern Arizona, causing a multi-vehicle fatal accident.

• The blowing dust was detected by MODIS VIIRS satellite imagery.

• The only available image was approximately 1 hour after the blowing dust initiated.

• More frequent MODIS VIIRS satellite data is desired to enhance NWS dust storm warning capabilities.