

Investigation of the airflow speed in the X-direction (Vx)

A driving salt spreader pushes air forward, to the sides, up and down. The wind eddies alongside the roof, sides and bottom of the truck. The airflow and whirls are attracted by an area of vacuum, which appears behind the truck, because the truck is moving forward. Figure 1.

The airflow, which is most interesting when spreading salt, is the air speed in the X-direction (Vx). That is across the direction of driving, because it effects the spreading width – airflow across the direction of driving will be leveled out from the truck’s movement forward.

In present study, 3 areas are especially interesting, because of different Vx-levels in these areas. The Vx- level was low in area A and high in area B. Figure 4,5 and 6. This means that the areas are handled differently in 3S-simulation.

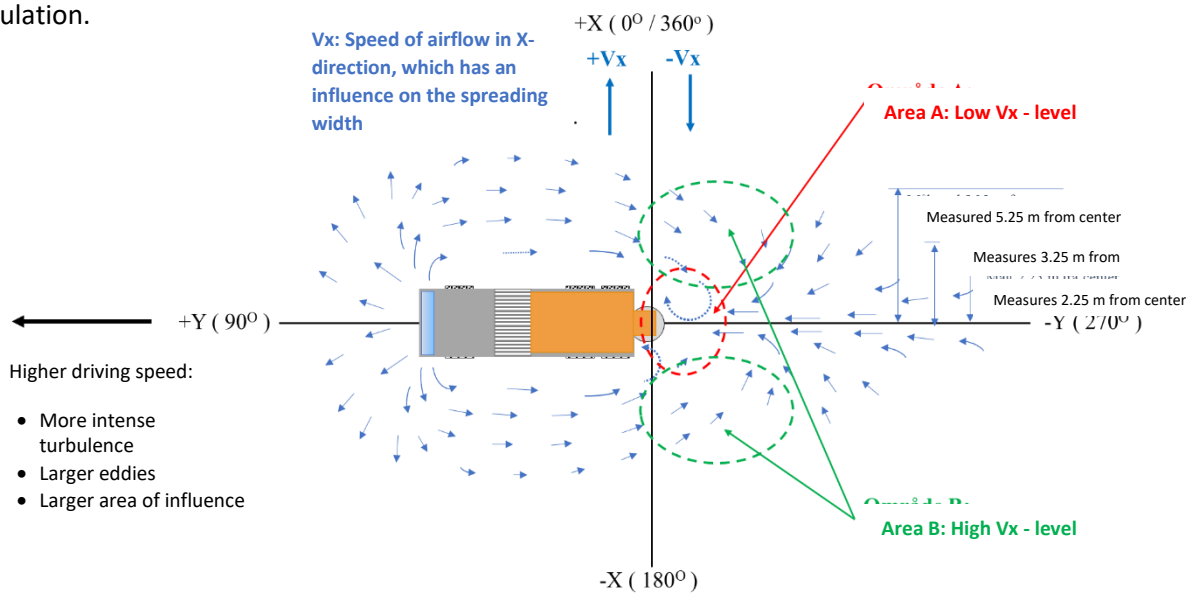


Figure 1: Airflow around a salt spreader



Censor position: 0 m from the center



Censor position: 1.25 m from the center

Figure 2: Alignment of measure in area A



Sensor position: 0.2 m from the road surface, 3.25 m from the center



Wind speed and direction measurement

Figure 3: Alignment of measure in area B

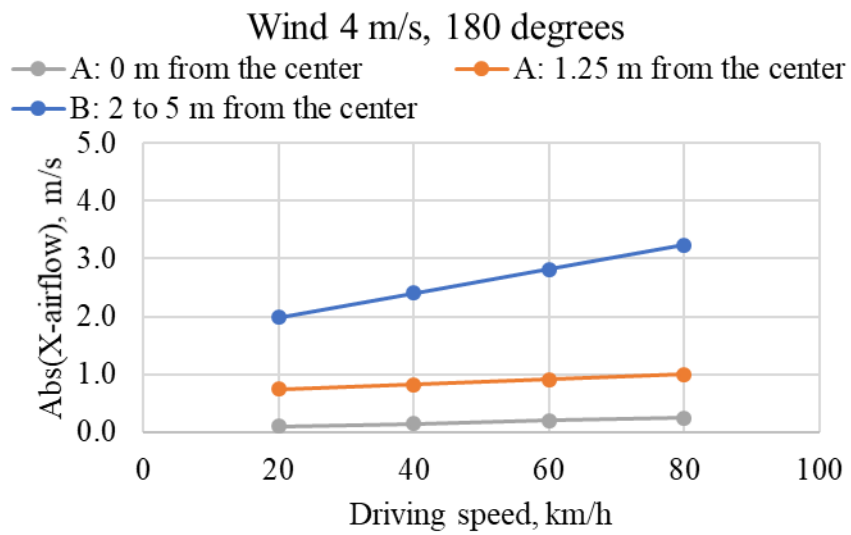


Figure 4: Driving speeds influence on airflow speed in X – direction (V_x)

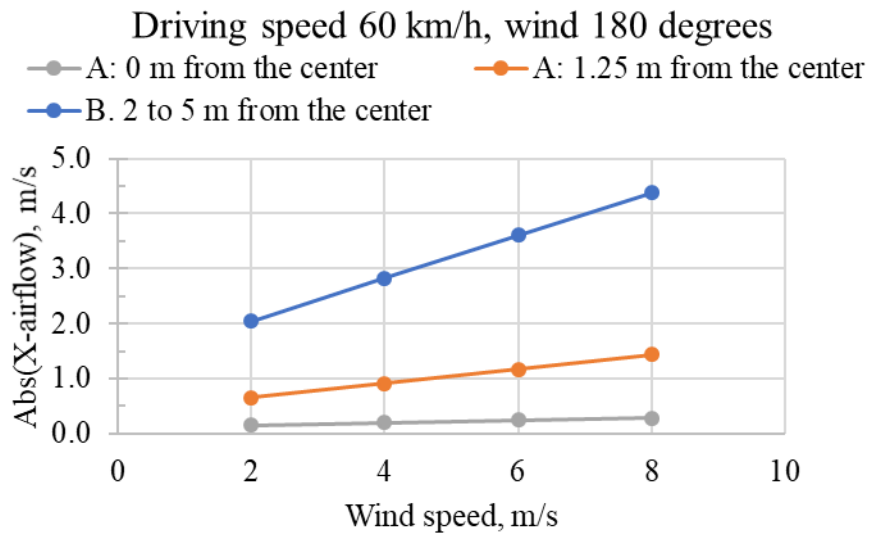


Figure 5: Wind speeds Influence on airflow speed in X – direction (V_x)

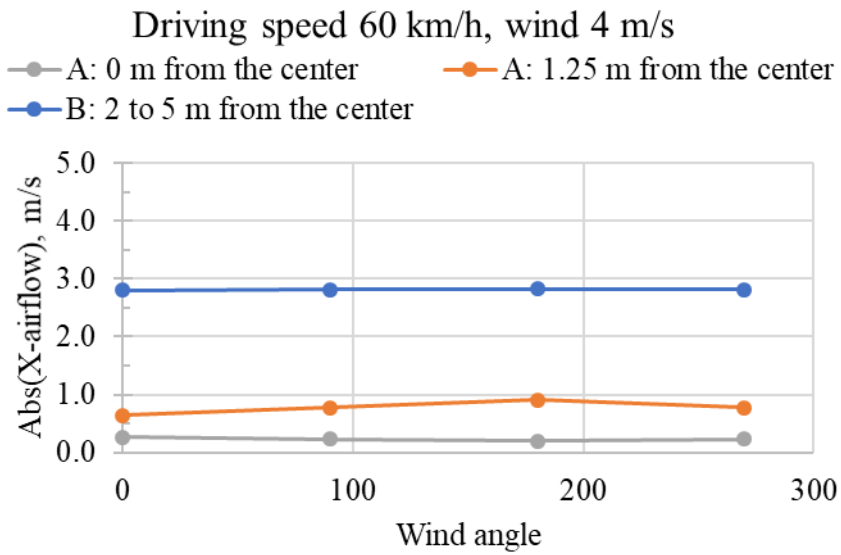


Figure 6: Wind directions influence on airflow speed in X – direction (V_x)