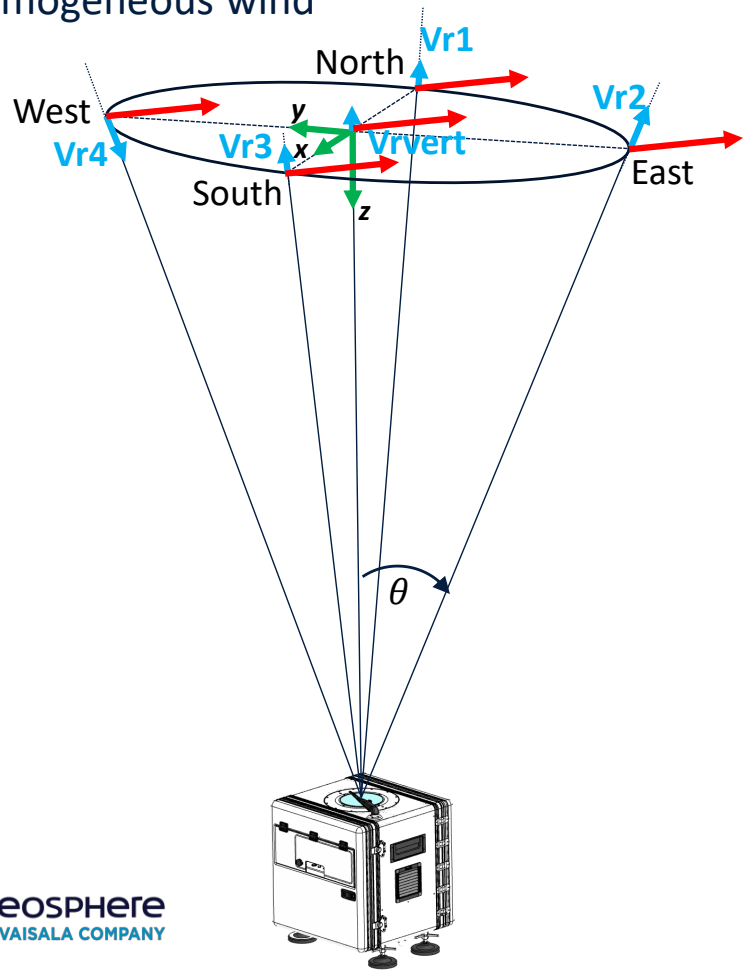
Wind Reconstruction

Homogeneous wind



$$V_x = \frac{V_{r1} - V_{r3}}{2 \sin \theta}$$

$$V_y = \frac{V_{r2} - V_{r4}}{2 \sin \theta}$$

$$V_z = V_{rvert}$$

$$\text{Horizontal Wind Speed} = \sqrt{{V_x}^2 + {V_y}^2}$$

$$\text{Wind Direction} = \text{atan}\left(\frac{V_y}{V_x}\right)$$

This reconstruction is performed independently at each height for each new radial wind speed measurement using the three previous radial measurements in the equation.

Measurement hypothesis:

- Homogeneous wind
- Constant wind speed during the different lines of sight measurements