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Technical Letter 10563448-L-1-A, Data availability for WindCube V2.1 XP

DNV have conducted a trial with the new Vaisala WindCube V2.1 XP in parallel with two units of the current type WindCube V2.1. The WindCube V2.1 XP that encompasses a more powerful laser and an upgraded sensor, while the scan pattern and the wind field reconstruction remain the same. The trial has been conducted over a period of two months at DNV's Saihantala test site in central China, where the combination of high altitude, low temperatures and clear air make for challenging conditions for lidar measurements.

The results from this trial show, that the WindCube V2.1 XP has a significantly improved data availability with equal wind speed measurement accuracy. A summary of the key results is presented in the table below.

| | | WindCube V2.1 | | | WindCube V2.1XP | | |
|----------------------------|----------------|---------------|--------|--------|-----------------|--------|--------|
| Height (m) | | 120 | 150 | 200 | 120 | 150 | 200 |
| Data availability (%) | | 80.4 | 75.2 | 56.9 | 99.5 | 99.5 | 98.4 |
| Wind speed correlation | Slope | 0.995 | 0.987 | 0.991 | 0.998 | 0.988 | 0.992 |
| | Offset (m/s) | 0.085 | 0.219 | 0.100 | 0.037 | 0.194 | 0.087 |
| | R ² | 0.9992 | 0.9990 | 0.9993 | 0.9992 | 0.9991 | 0.9993 |
| Wind direction correlation | Slope | 1.008 | 1.010 | 1.002 | 1.009 | 1.010 | 1.002 |
| | Offset (°) | 2.431 | -2.471 | -3.208 | 2.387 | -2.532 | -2.238 |
| | R ² | 0.9998 | 0.9998 | 0.9998 | 0.9998 | 0.9998 | 0.9997 |

Sincerely
for DNV Energy Systems Germany GmbH

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