BACKGROUND NOTE ON GLD360 - V4 (February 2021)

On December 8, 2020, Vaisala updated its GLD360 lightning detection systems all over the world.

This update reanalyzes the data collected by the network and corrects the propagation time of the electromagnetic wave for each sensor. An algorithm processes the direct ground wave and the first ionospheric reflection received by the sensors to calculate correction parameters. This process takes into account the direction of the signal propagation and the day/night variation in the altitude of the ionosphere, then the corrections are applied to the real time data feed.

This process allows for a more precise localisation of cloud-to-ground flashes (CGs), a better grouping of flashes belonging to the same storm cell and a 10% more efficient detection of CGs.

The values provided by the GLD360 network monitoring officials confirm that overall performance is thus significantly improved.

Comparing the GLD data with the high-precision data of the NLDN network covering the United States shows a particularly significant improvement in overnight localisation (see adjacent table).

Location Accuracy Metric	v3.0 (km)	v4.0 (km)
Daytime: median	1.25	1.0
Daytime: 90th pctl	4.5	3.2
Nighttime: median	2.5	1.2
Nighttime: 90th pctl	7.8	4.9

Events are now grouped more effectively, as can be seen from the two comparisons below.
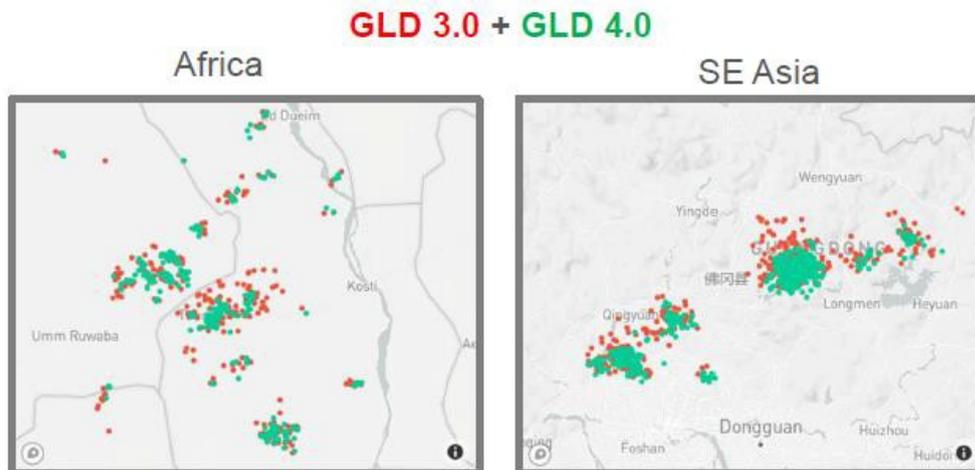
With Météorage, you can now benefit from this new version of the GDL360, which has been integrated into all our services. Feel free to get in touch with any questions.

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