PRODUCT UPDATE

2026 Latin America Wind Atlas

New high-resolution wind resource data for onshore and offshore prospecting in Windnavigator

The 2026 Latin America Wind Atlas is a major update to the original map released in 2012. Available through UL Solutions' Windnavigator Resource Data and Maps software, it covers South America, Central America, the Caribbean and Mexico at 200 m resolution, with offshore coverage extending across Exclusive Economic Zones.

Modeling approach

The 2026 atlas was developed using UL Solutions' coupled mesoscale and microscale modeling system. The Weather Research and Forecasting (WRF) model, driven by ERA5 reanalysis, captures regional atmospheric conditions, while microscale modeling resolves the influence of terrain and surface characteristics at 200 m resolution. The resulting long-term mean wind speeds were then refined using UL Solutions' observation database to reduce systematic bias and improve regional accuracy.

For calibration and independent validation, 1,177 wind observations were quality-controlled and aggregated into 365 representative met stations. Leave-one-out cross-validation shows a clear improvement over both the original UL Solutions map and the Global Wind Atlas, supporting more informed early-stage site screening and comparison of development opportunities.

200 m	10–300 m	365	200 NM
resolution	map heights	representative stations	offshore extent

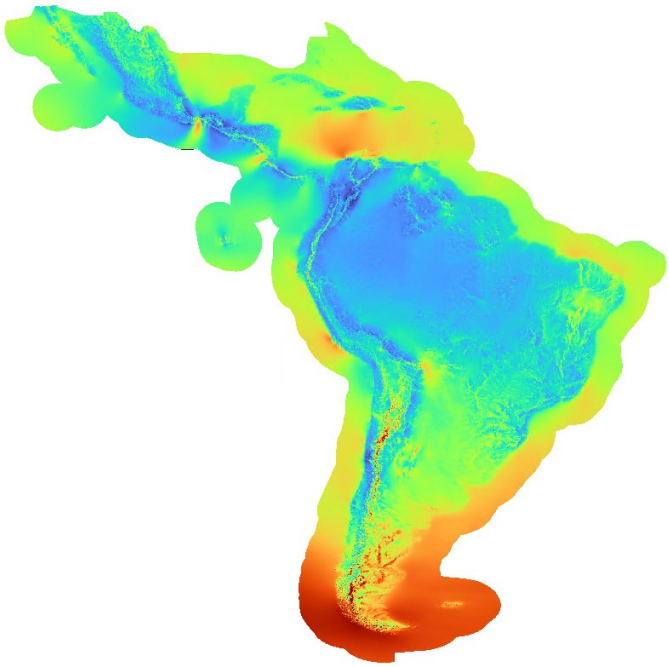


Figure 1. Latin America mean wind speed map at 100 m above ground level.

What is new in the 2026 atlas

Expanded offshore coverage	Coverage now extends across Latin American Exclusive Economic Zones, up to 200 nautical miles (370.4 km) offshore. Wind statistics in Windnavigator support early-stage screening of offshore wind opportunities.
Heights aligned with modern turbines	Mean wind speed maps are available from 10 m to 300 m above ground level, compared with a maximum height of 140 m in the original maps.
Improved modeling and accuracy	The upgraded modeling system uses the Weather Research and Forecasting (WRF) mesoscale model and ERA5 reanalysis, combined with UL Solutions' microscale modeling and observation-based map adjustment.
A practical tool for greenfield prospecting	The atlas helps developers compare broad areas, identify promising locations and prioritize where to invest in measurement campaigns and detailed resource assessment.

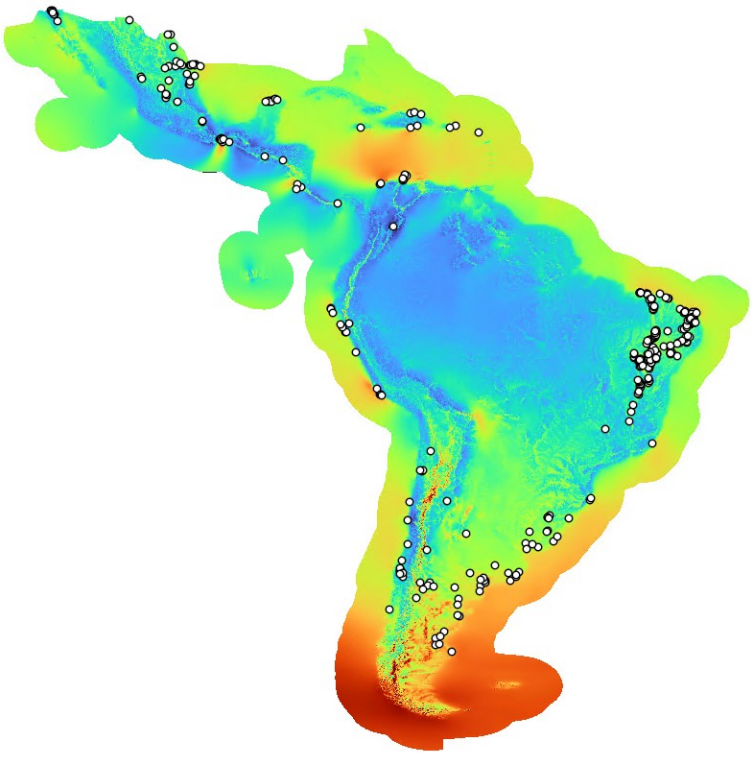


Figure 2. Mean wind speed map at 100 m with the 365 representative met stations used for cross-validation.

Validation results

Validation was performed using leave-one-out cross-validation across the 365 representative met stations. The 2026 map achieves the lowest root mean square error and the highest coefficient of determination for Latin America overall and for Latin America excluding Mexico. Results for Mexico also show a substantial reduction in RMSE compared with both reference datasets.

Region	Map	MBE (m/s)	STDEV (m/s)	RMSE (m/s)	R^2	Sample
Latin America	Global Wind Atlas	-0.05	0.97	0.97	0.48	365
	UL Solutions original map	0.24	0.93	0.96	0.51	
	UL Solutions 2026 map	**-0.03**	**0.59**	**0.59**	**0.72**	
Latin America without Mexico	Global Wind Atlas	0.09	1.13	1.05	0.45	310
	UL Solutions original map	0.25	0.92	0.96	0.49	
	UL Solutions 2026 map	**-0.03**	**0.58**	**0.58**	**0.73**	
Mexico	Global Wind Atlas	0.08	0.99	0.99	0.54	55
	UL Solutions original map	0.16	1.03	1.04	0.38	
	UL Solutions 2026 map	**-0.01**	**0.71**	**0.70**	**0.52**	

Table 1. Comparison of the 2026 Latin America wind map with the original UL Solutions map and the Global Wind Atlas.

Key result: for Latin America overall, RMSE decreases to 0.59 m/s and R^2 increases to 0.72, compared with 0.96 m/s and 0.51 for the original UL Solutions map.

These regional statistics support the use of the atlas for prospecting and preliminary screening. Site-specific measurements and detailed energy assessment remain necessary before major project investment decisions.

Why 200 m maps and WRG200 grids matter

The 200 m atlas and WRG200 grids are designed for prospecting: they help development teams compare large territories consistently, identify stronger opportunities and focus measurement budgets before onsite data are available.

The map provides the regional resource view in Windnavigator; the downloadable WRG200 and WRB files carry the same calibrated resource intelligence into established desktop workflows. Each large grid covers approximately 1,000 km × 1,000 km.

PROSPECTING	**Faster screening before measurements, with a consistent basis for portfolio comparison and preliminary energy assessment.**
Screen portfolios	Compare markets, regions and candidate areas using one consistent 200 m dataset, rather than disconnected sources with different assumptions.
Prioritize investment	Direct land, grid, permitting and measurement activity toward the most promising areas before committing to site-specific campaigns.
Continue the workflow	Use the atlas directly in Windnavigator, then bring WRG200/WRB files into established wind-resource workflows for more focused project analysis.

Fit for purpose: 200 m maps and WRG200 grids support regional prospecting and preliminary assessment. Once measurements and detailed site data are available, project design should progress to higher-resolution micrositing, terrain and roughness modeling, wake analysis and a bankable energy assessment.

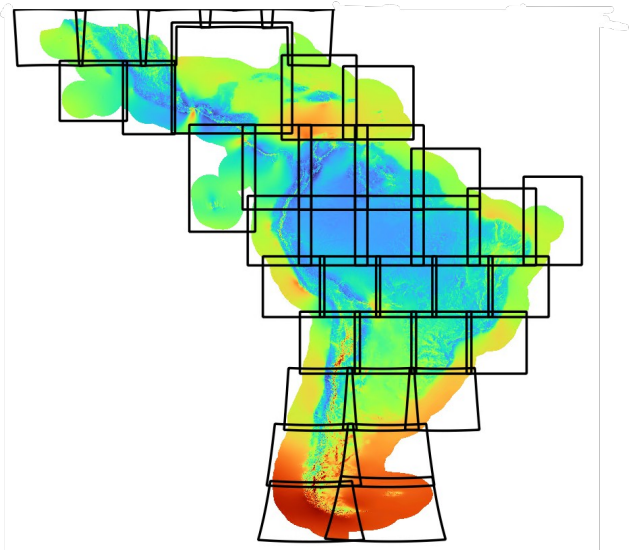


Figure 3. Coverage of the large WRG200 grids across the 2026 Latin America Wind Atlas.

Use the atlas in Windnavigator

The updated atlas provides a consistent basis for comparing opportunities across onshore and offshore areas, selecting appropriate turbine heights and prioritizing sites for further investigation.

Access Windnavigator: https://wn.ul-renewables.com/dashboard

References

1. UL Solutions, Windnavigator Resource Data and Maps software.

2. Davis, N.N., et al. (2023). “The Global Wind Atlas: A high-resolution dataset of climatologies and associated web-based application.” Bulletin of the American Meteorological Society, 104, E1507–E1525.