

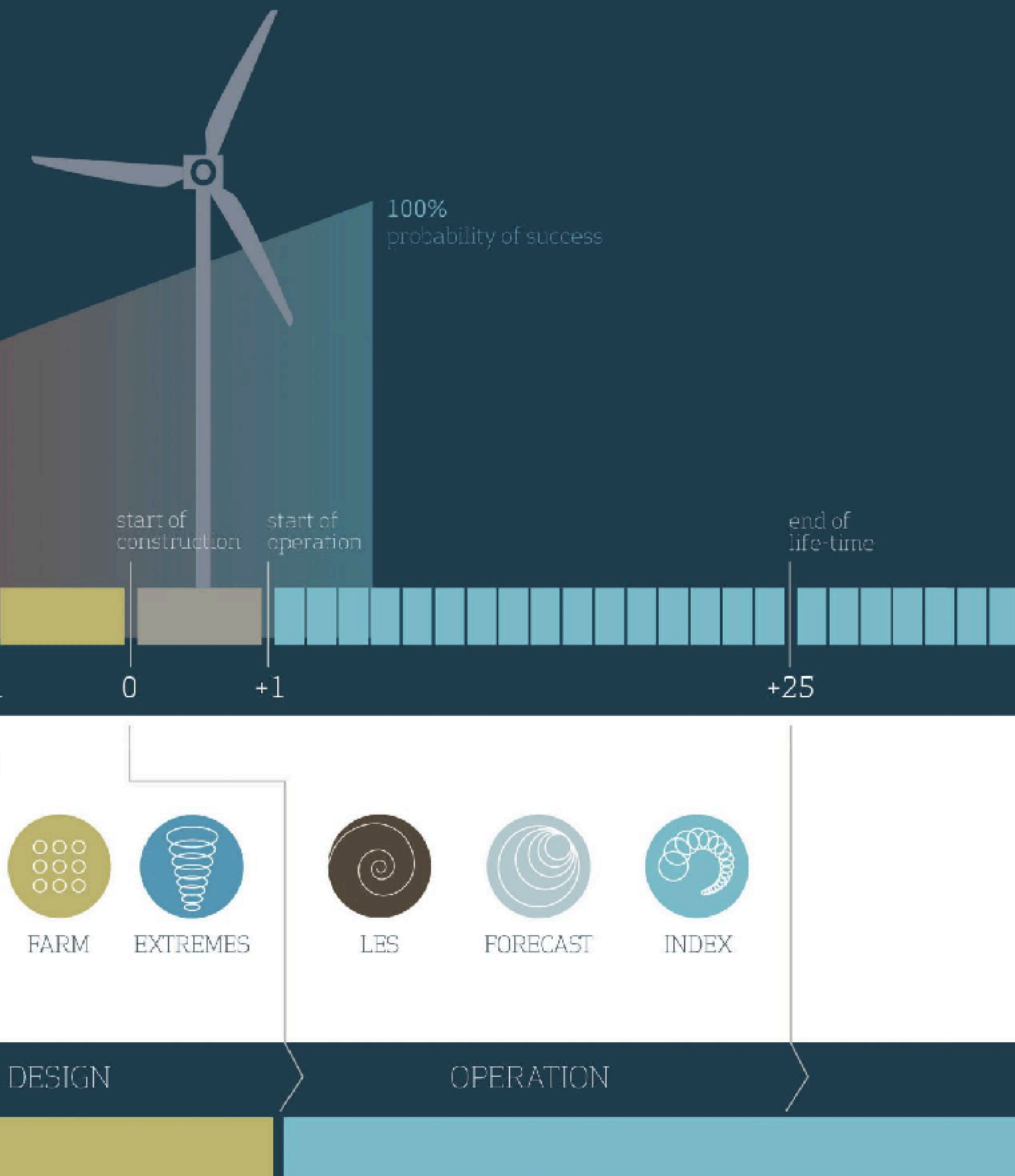


THE GAP

between MODELERS and END-USERS

Pep Moreno

vortexfdc.com



Est. 2005 (15 years)

Staff 20 (10 MODELERS)

2007: WRF remotely, on-demand

~10,000 END-USERS

2016: WRF-LES commercial

2019: MPAS wind



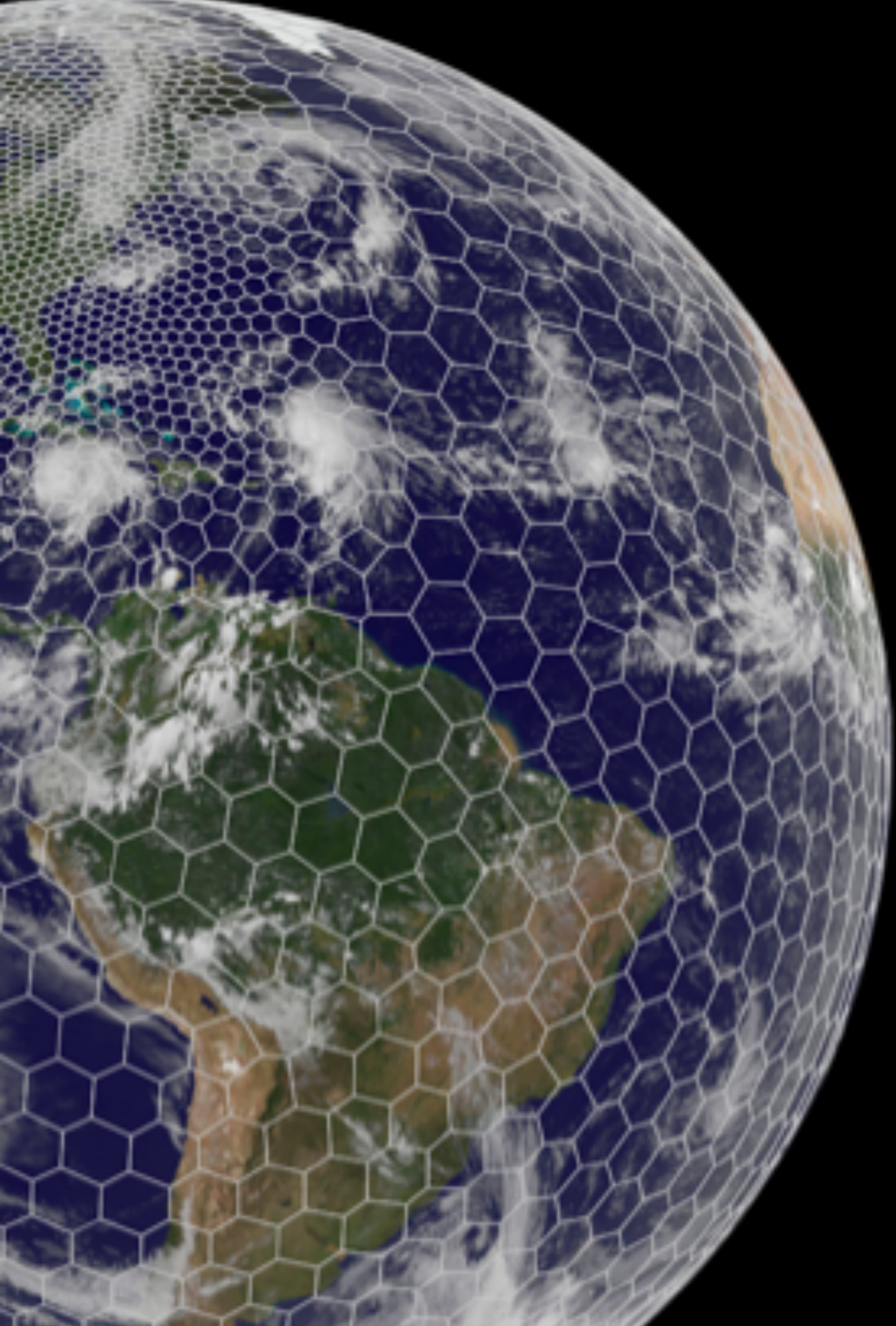
THE GAP between
MODELERS and END-USERS

HOW < WHAT

MPAS

WHAT < HOW

WRF-LES

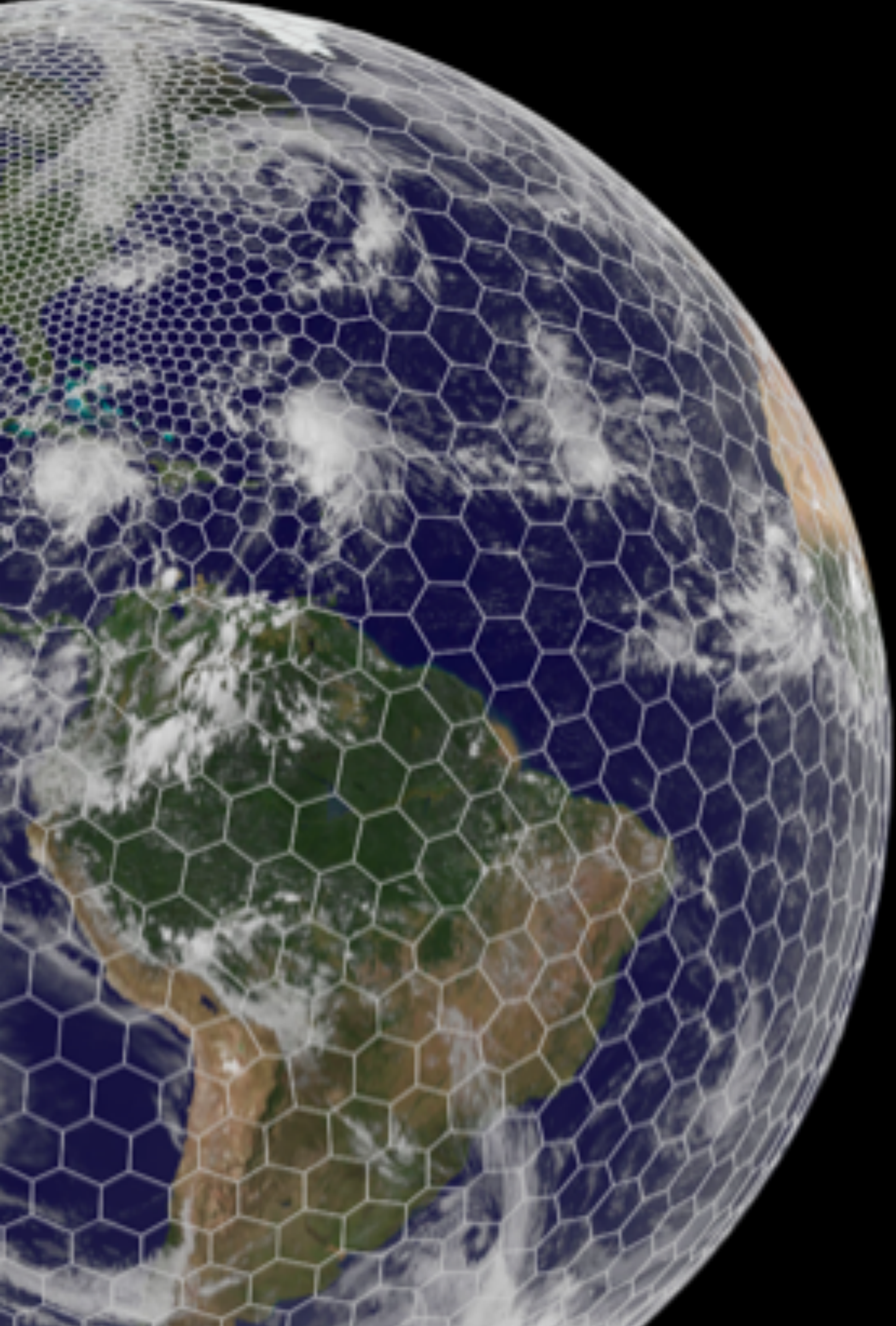


HOW < WHAT

MPAS

the new WRF?

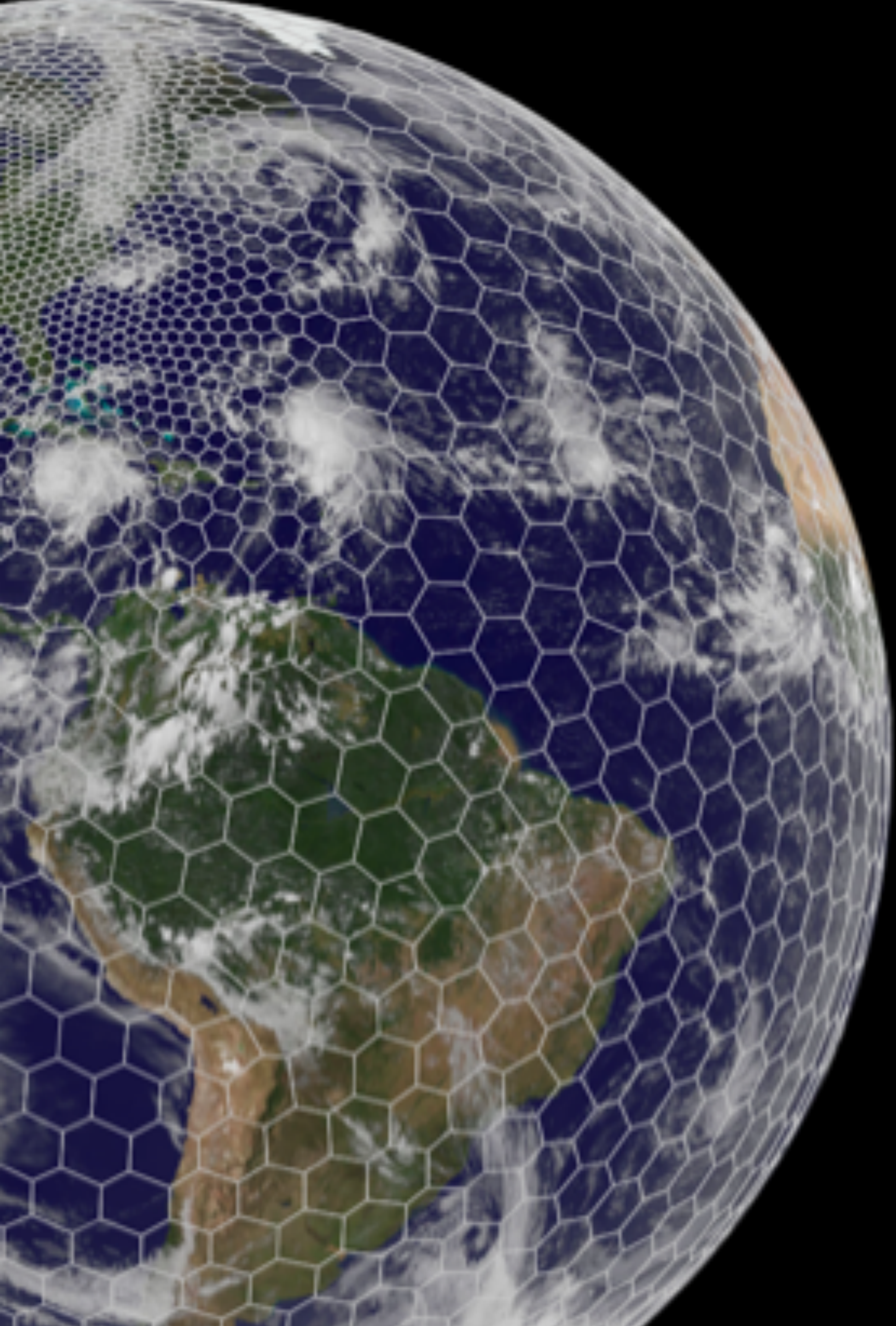
Acknowledgements: Alex Montornés, Marta Gil



HOW < WHAT

UNSTRUCTURED
VORONOI MESH

COOL!

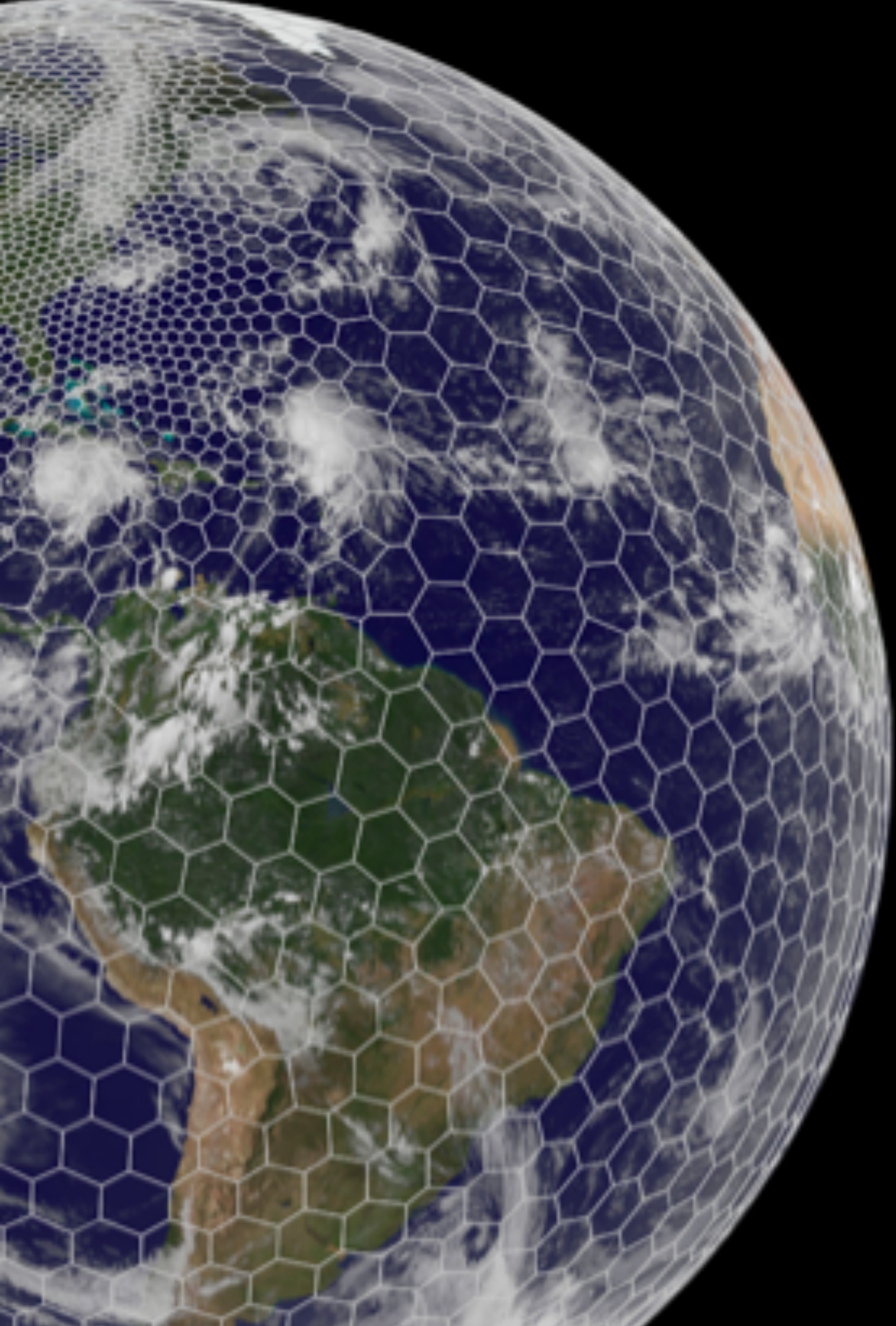


HOW < WHAT

SEAMLESS

MODELING CHAIN

COOL?



HOW < WHAT

10 km-res.

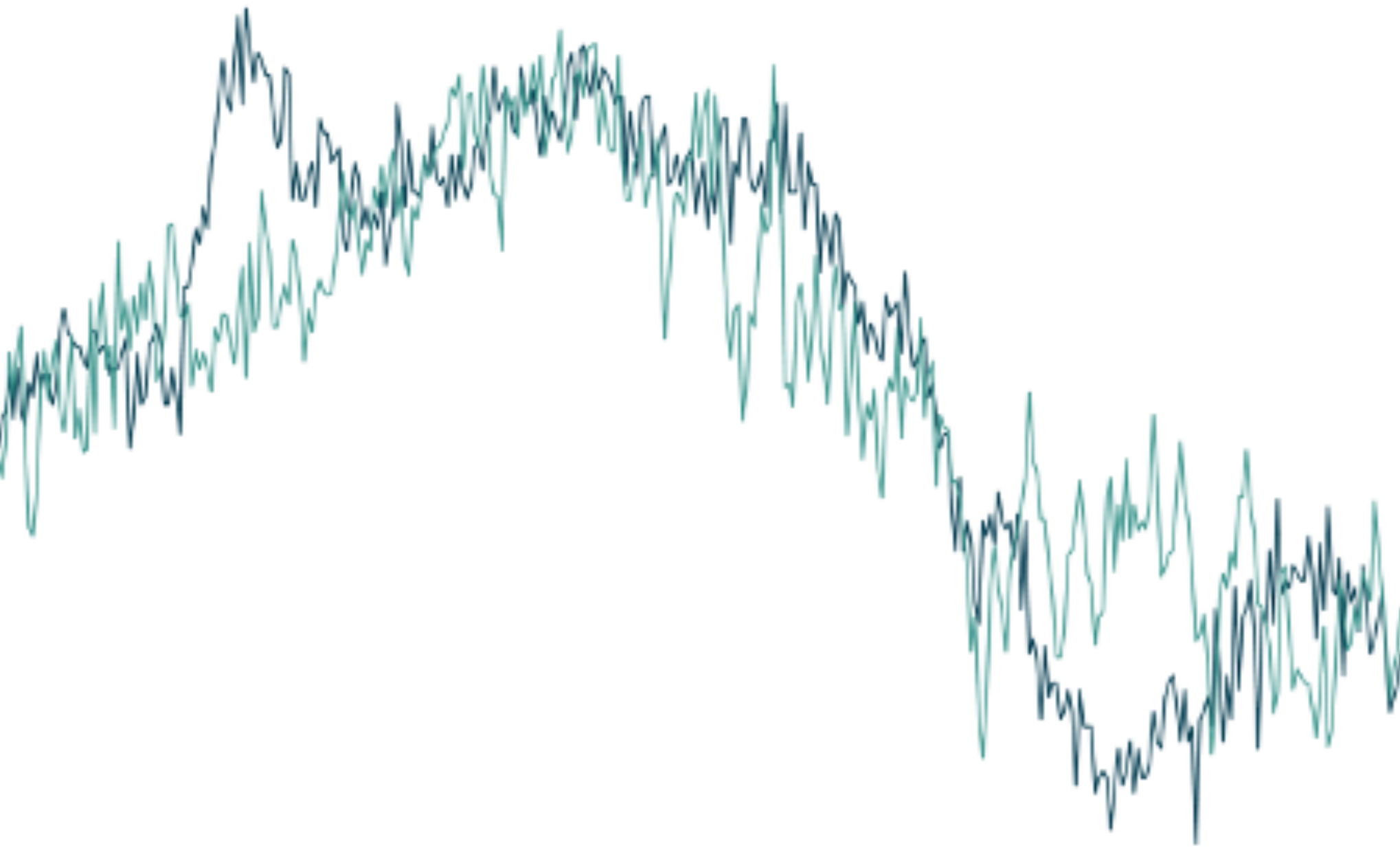
Validated at 20 sites

0 end-users

COOL

LES* IS MORE!

*LARGE EDDY SIMULATIONS BY VORTEX



WindEnergy Hamburg 2016

23

24

Days

WHAT < HOW

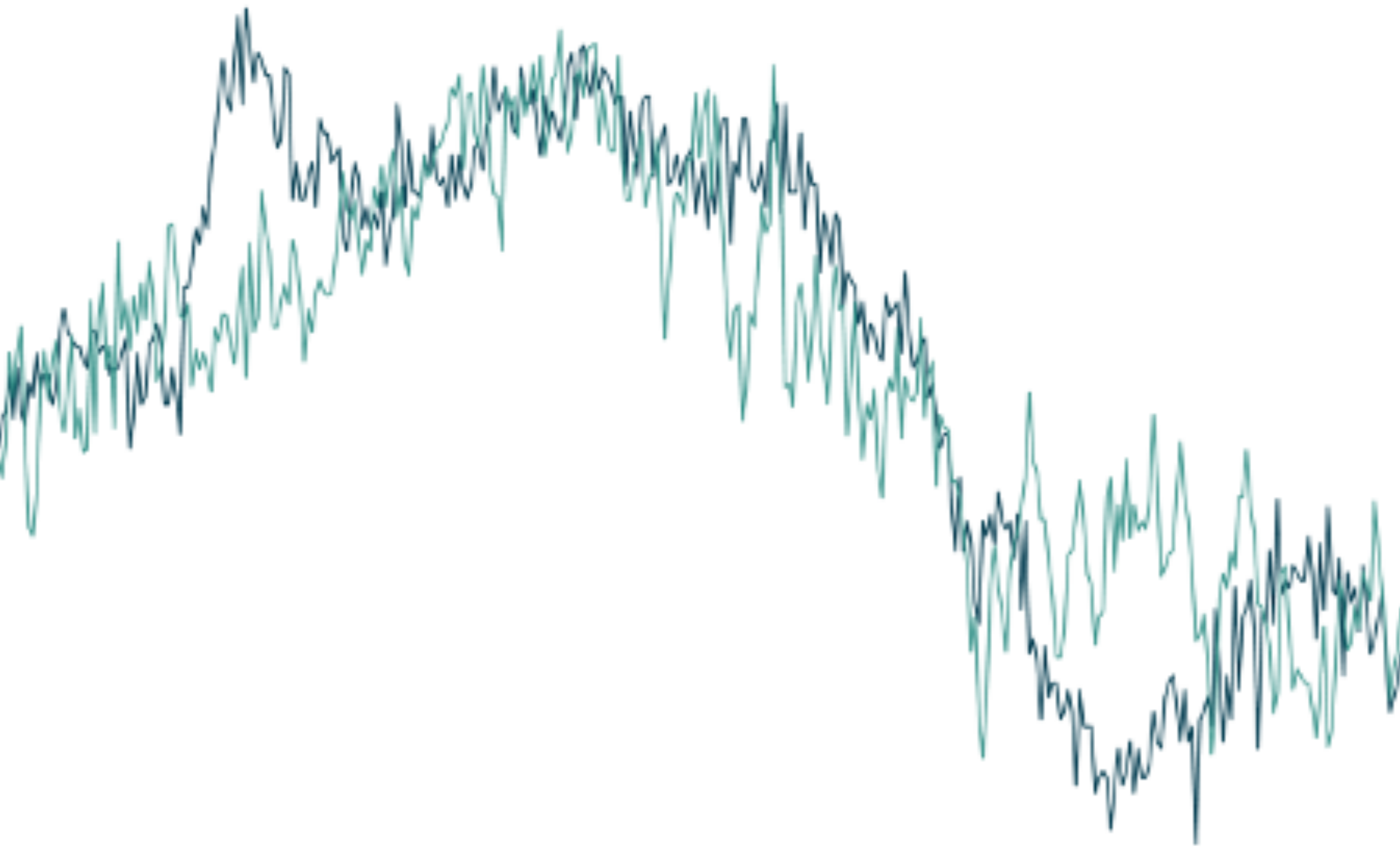
WRF-LES

“probably the most measurement-like set of synthetic wind time series that atmospheric modeling can achieve today”

Acknowledgements: Alex Montornés, Domingo Muñoz-Esparza

LES* IS MORE!

*LARGE EDDY SIMULATIONS BY VORTEX



WindEnergy Hamburg 2016

23

24

Days

WHAT < HOW

1 full-year delivered in 5 days

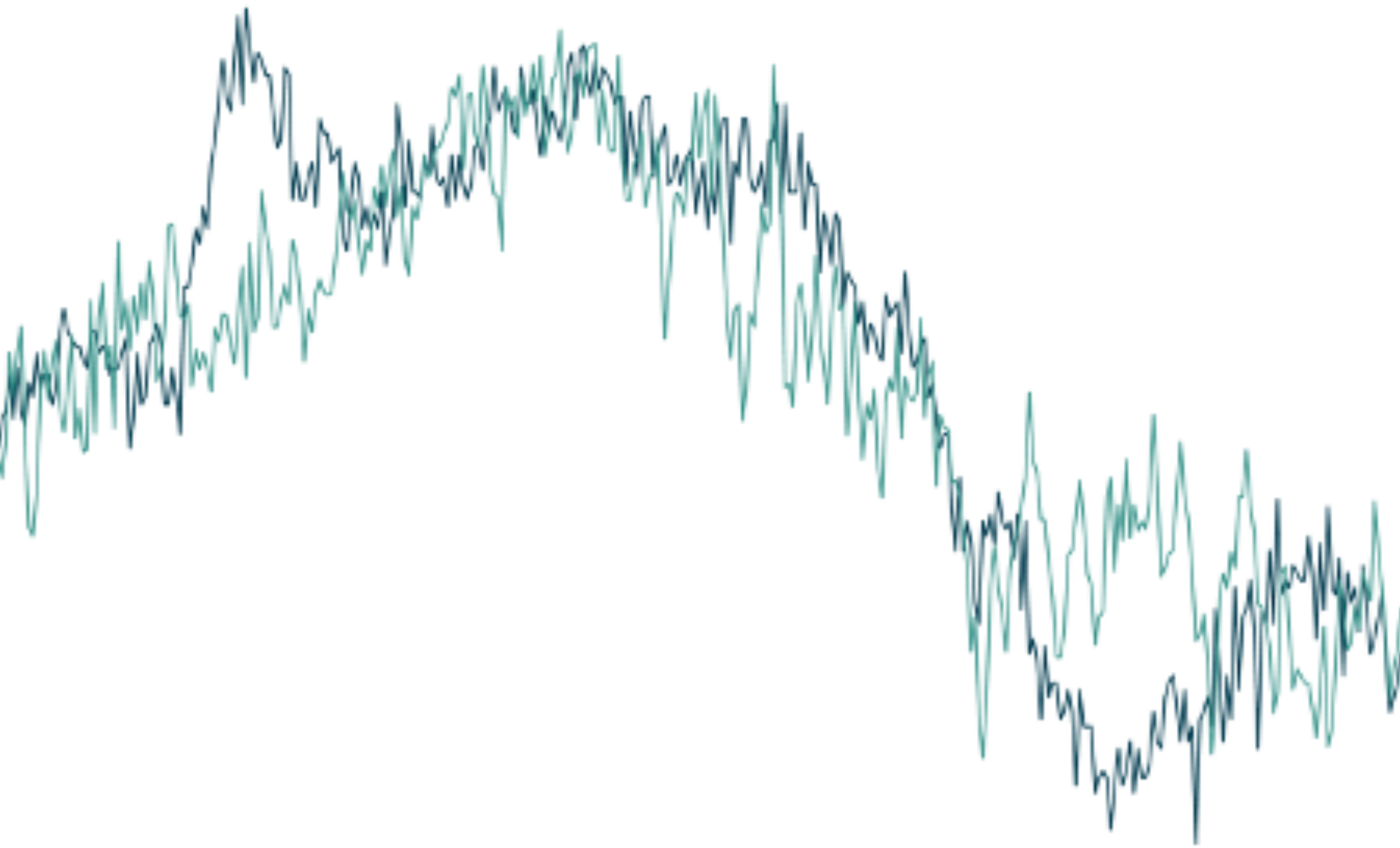
4 Hz samples, 3" gusts, 10' means + STD (TI)

100 m-res. heights: 50-300 m

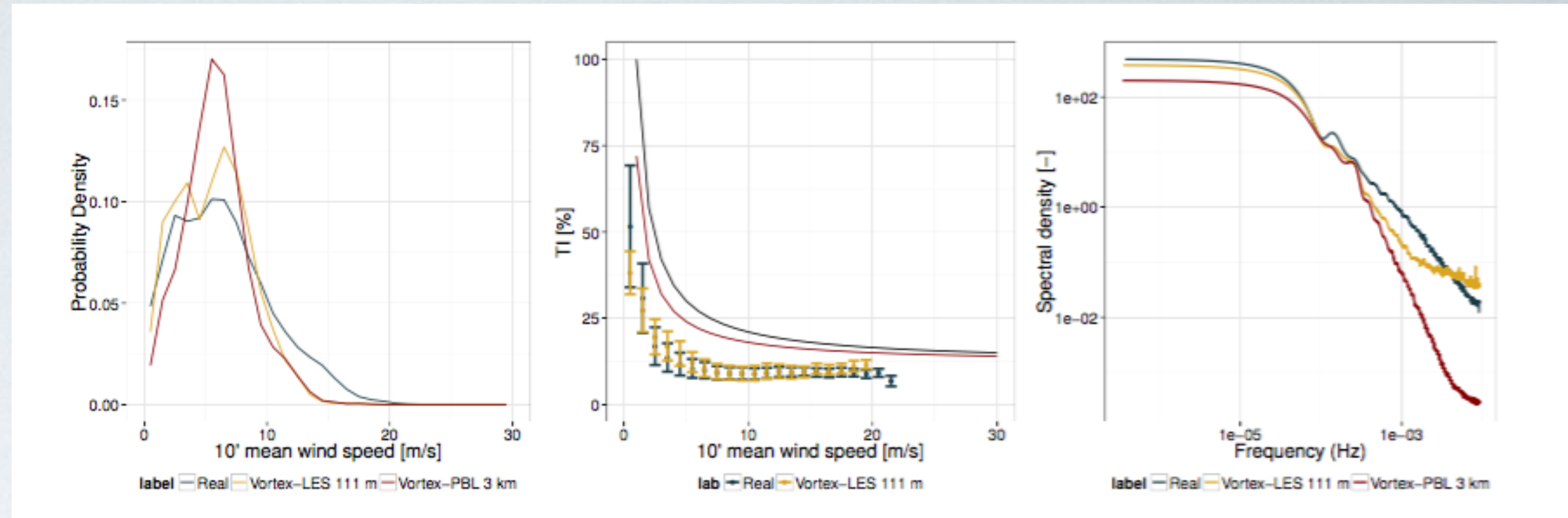
COOL?

LES* IS MORE!

*LARGE EDDY SIMULATIONS BY VORTEX



WindEnergy Hamburg 2016



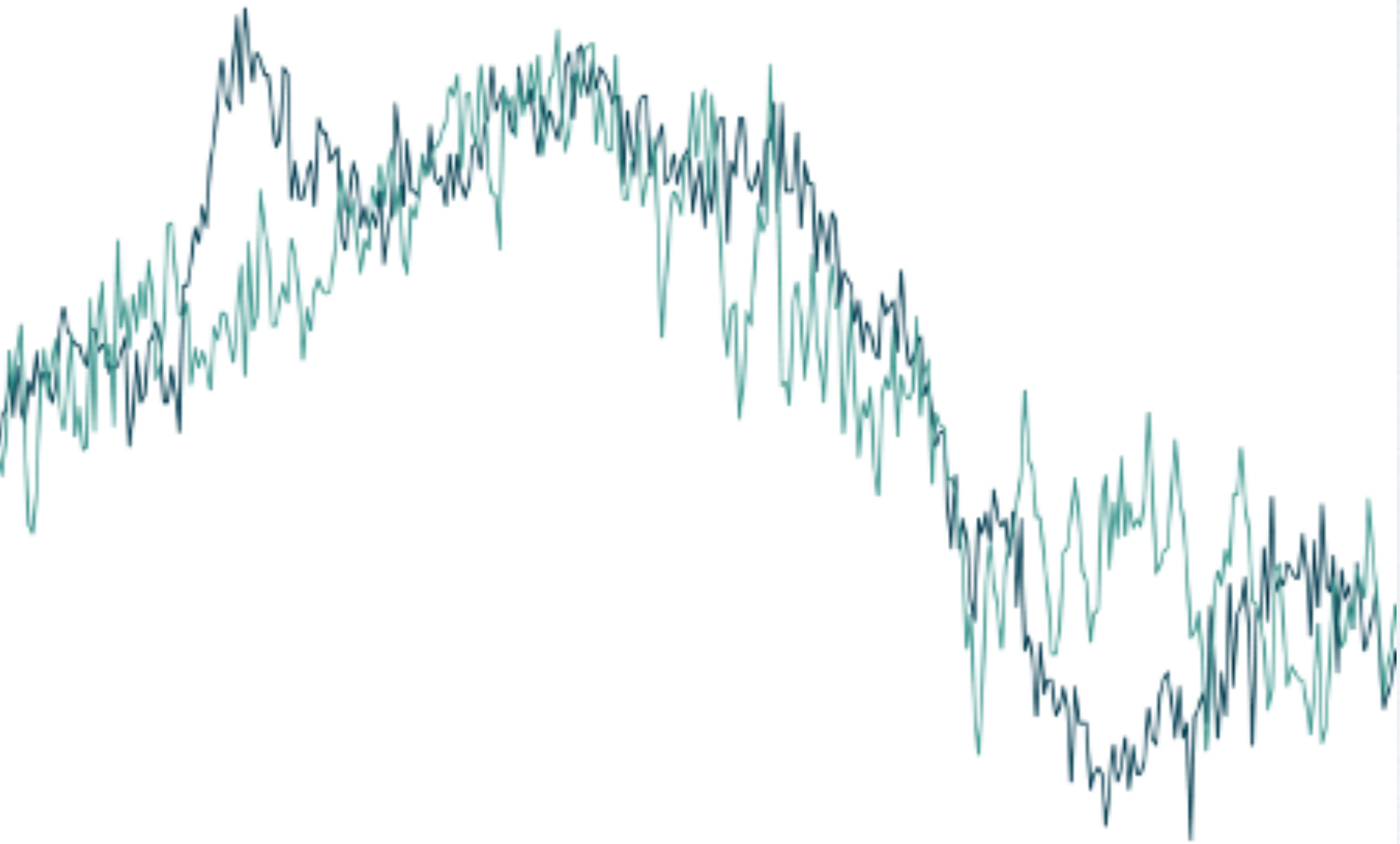
Validated at 200+ sites

1200+ 'end-users'

COOL!

LES* IS MORE!

*LARGE EDDY SIMULATIONS BY VORTEX



WindEnergy Hamburg 2016

23

24

Days

WHAT < HOW

NetCDF n-D BLOCK

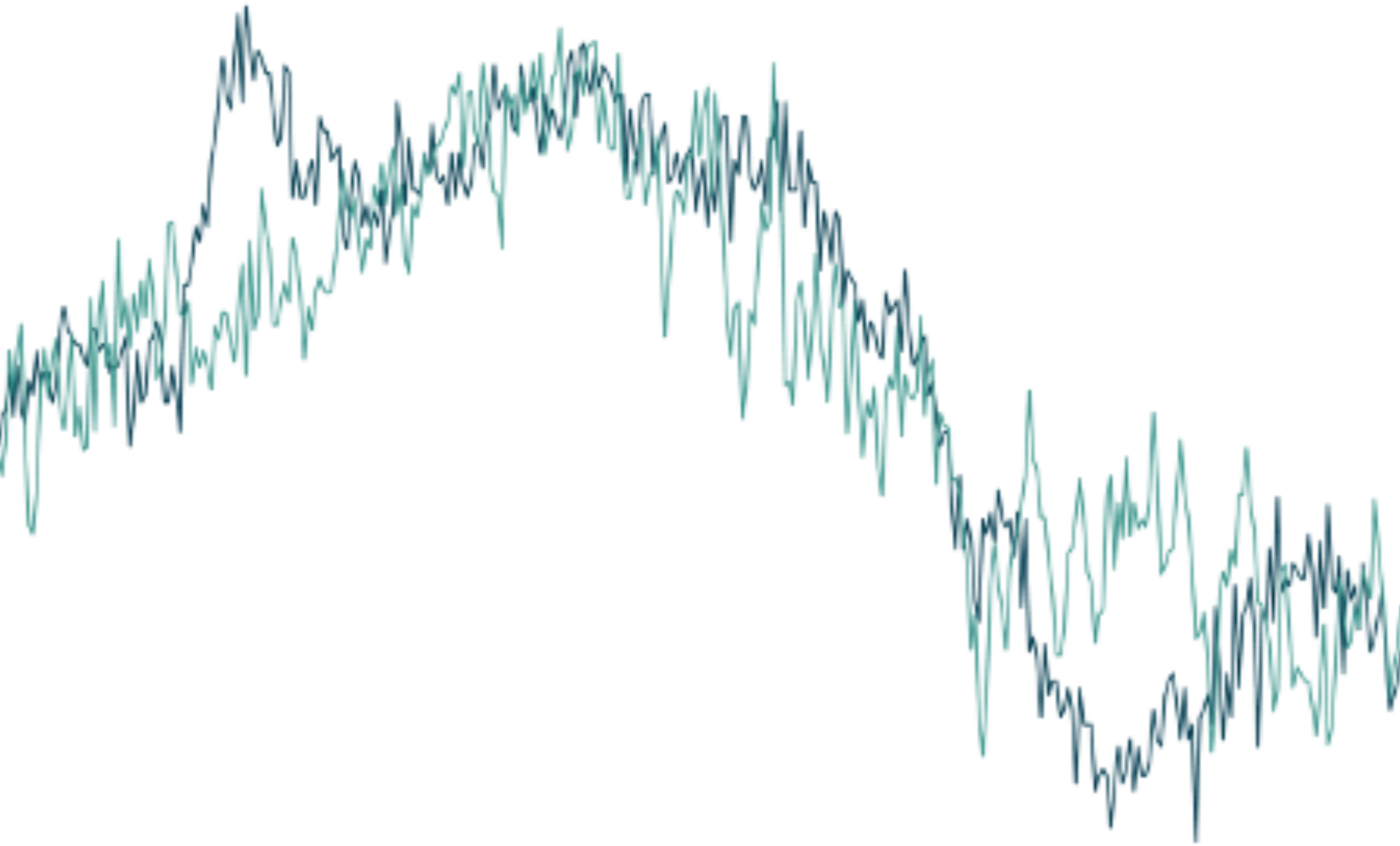
5,000 wind+ time-series

~10 Gb

HOW TO USE IT?

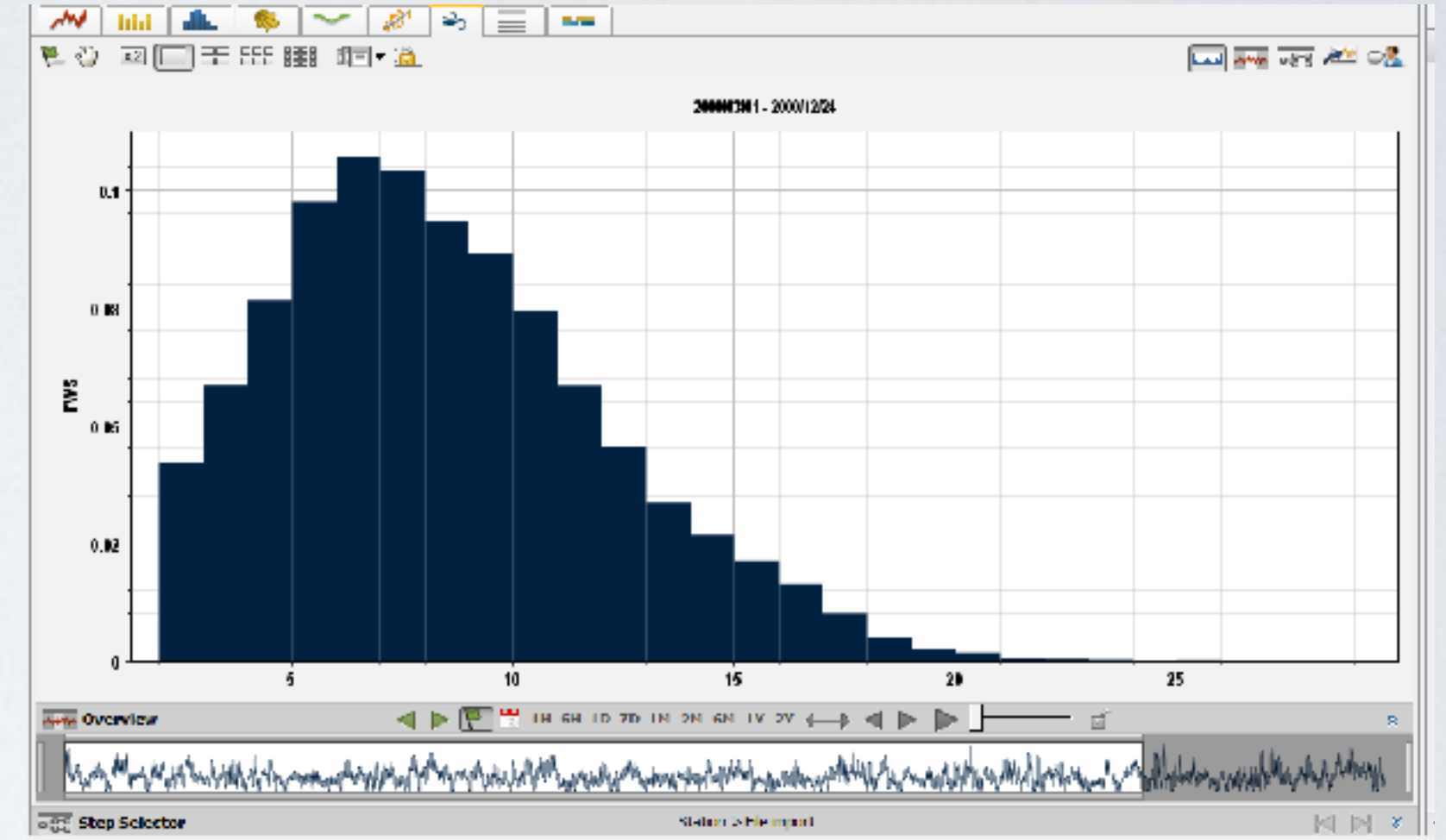
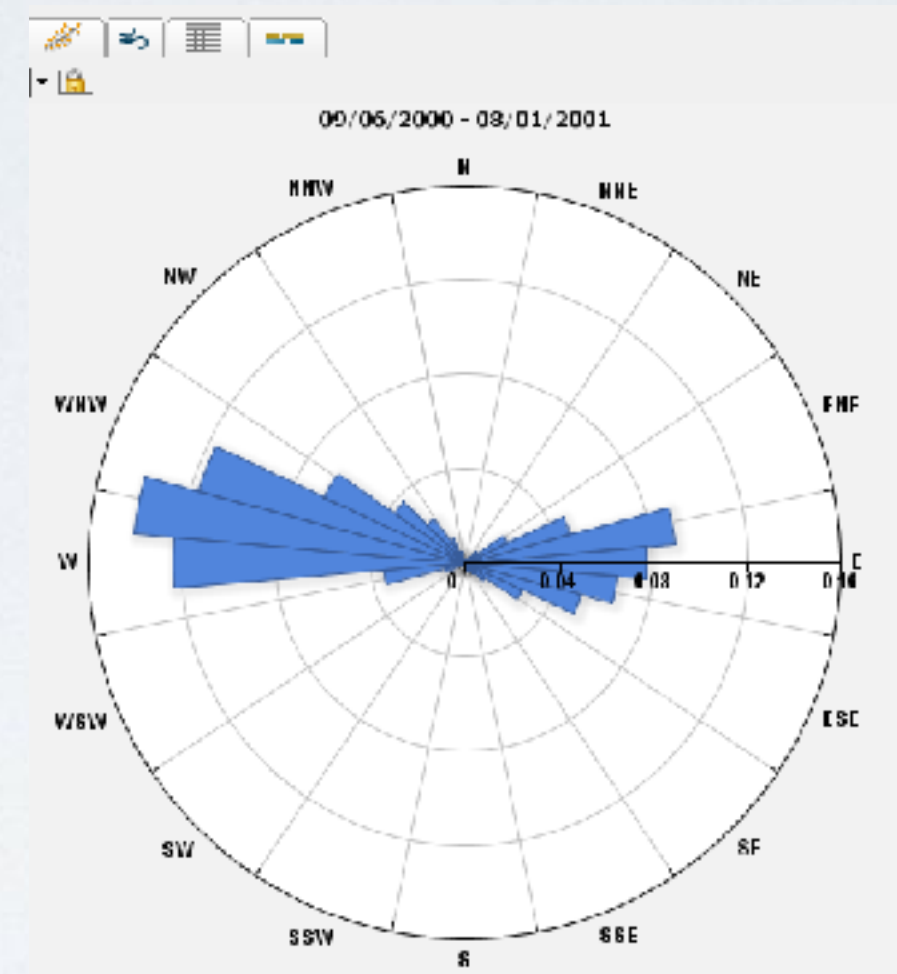
LES* IS MORE!

*LARGE EDDY SIMULATIONS BY VORTEX



WindEnergy Hamburg 2016

WHAT < HOW



COOL



CONCLUSIONS

WHAT we, modelers, offer to end-users is more relevant than how we produce it.

Even relevant model results become useless if end-users don't know HOW to process them.