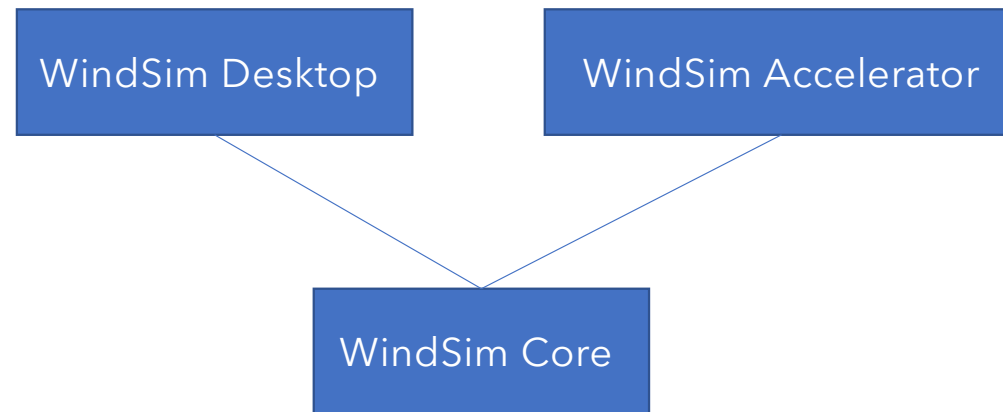


Product Roadmap & Updates

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Product roadmap and updates | Overview



Product roadmap and updates | Desktop vs Accelerator

WindSim Desktop (+ Core)

- Windows
- Local
- Yearly

WindSim Accelerator (+ Core)

- Web
- Cloud
- Monthly

Product roadmap and updates | WindSim Virtual Desktop

WindSim Virtual Desktop (+ Core)

- Windows
- Cloud
- Yearly

WindSim Accelerator (+ Core)

- Web
- Cloud
- Monthly

WindSim Desktop is installed on a Virtual Machine in Azure, from this machine you can access WindSim Accelerator

- Pre and postprocess on the Virtual Machine
- WindFields in WindSim Accelerator

All WindSim workflows in the Cloud, no need for a local installation.

Product roadmap and updates | WindSim Desktop 12

Terrain

- New settings enabling geometrical expansion and uniform grid
- New default settings (refinement with lower uniform grid and geo expansion)
- Postprocess only the inner part of the refinement area

WindFields

- Updated Phoenix solver to version 2020
- Enable boundary conditions "moving fixed pressure" (Diffusive link)
- New Hypre solver
- Add default values for convergency criteria (fast 0.05, balanced 0.005, accurate 0.0005), still enable manual definition
- Suggest number of iterations

Objects

- New Power curve info in the header, class related info

WindResources

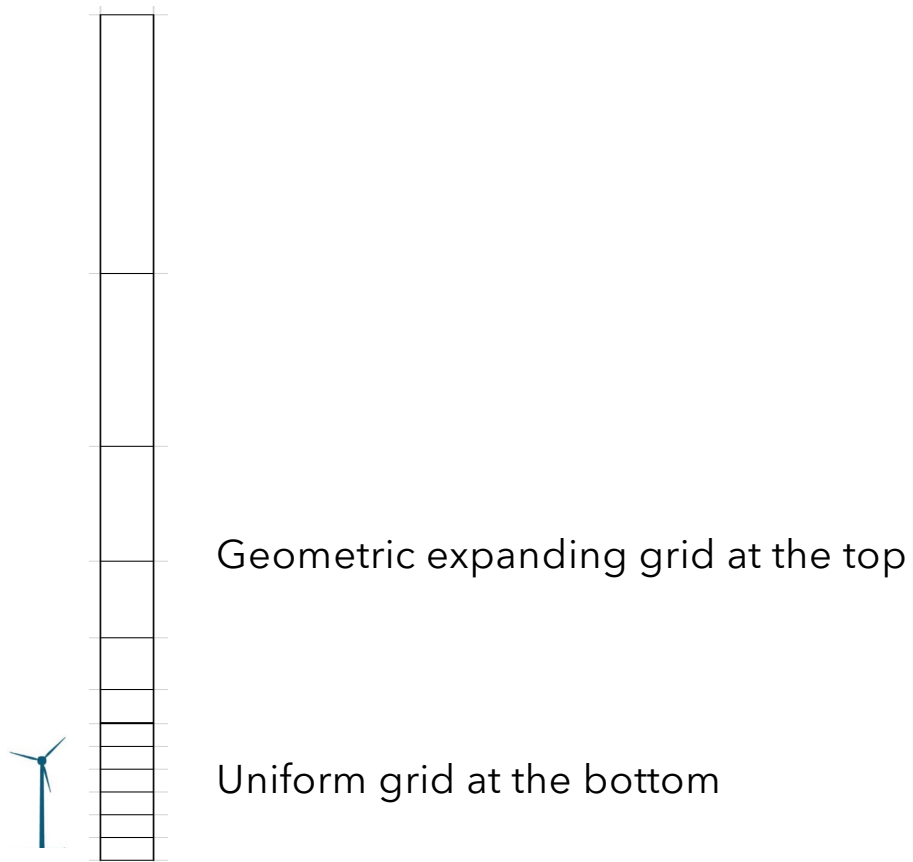
- New .grd export
- MMC postprocess, simplified version

Energy / Loads

- Run Loads when IEC is active.
- New exports file: IEC and AEP reports, "Matrix" tables: speed, turbulence, energy etc..
- New IEC .log "all" weighted over all clims, plot line extrapolation and new excel plots
- MMC postprocess, simplified version

WindSim Desktop 12 | Terrain

New settings enabling geometrical expansion and uniform grid in the vertical direction



WindSim Desktop 12 | Terrain

Postprocess only the inner part of the refinement area

- To speed up the postprocessing
- Uses about 50% of the cells in this example

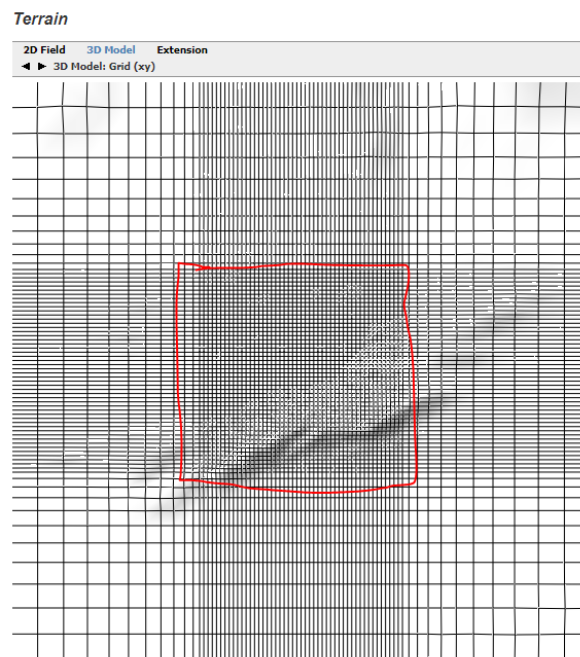


Fig 1. Digital terrain model - Grid (xy).

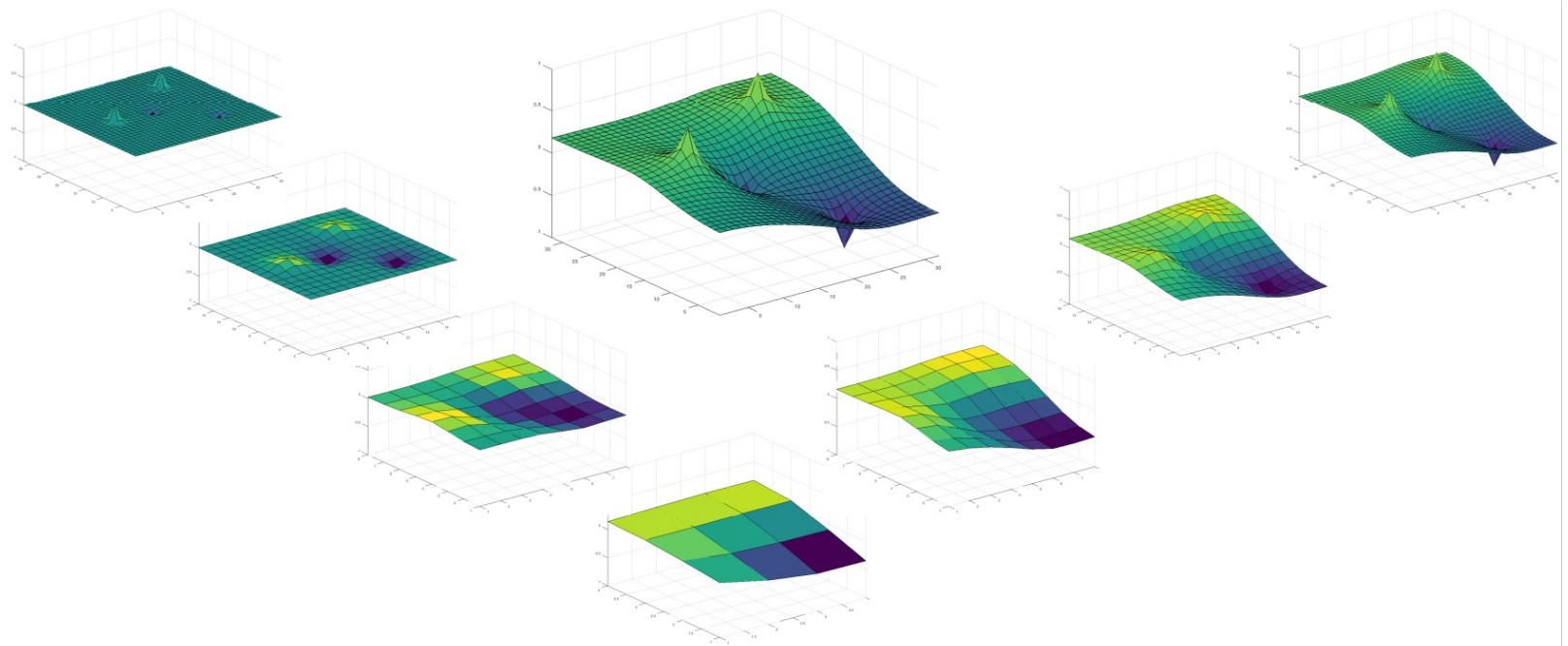
WindSim Core | WindFields – Phoenix 2020

- Better performance due to improvements by CHAM
- Unification of boundary conditions for the parallel and non-parallel version (files for boundary conditions bc_*.dat can now correctly be distributed to slave nodes)
- Save a lot of memory in Phoenix allocated arrays and thus gain performance for the parallel solver
- HYPRE
- Possibility for semi-unstructured grid in the future

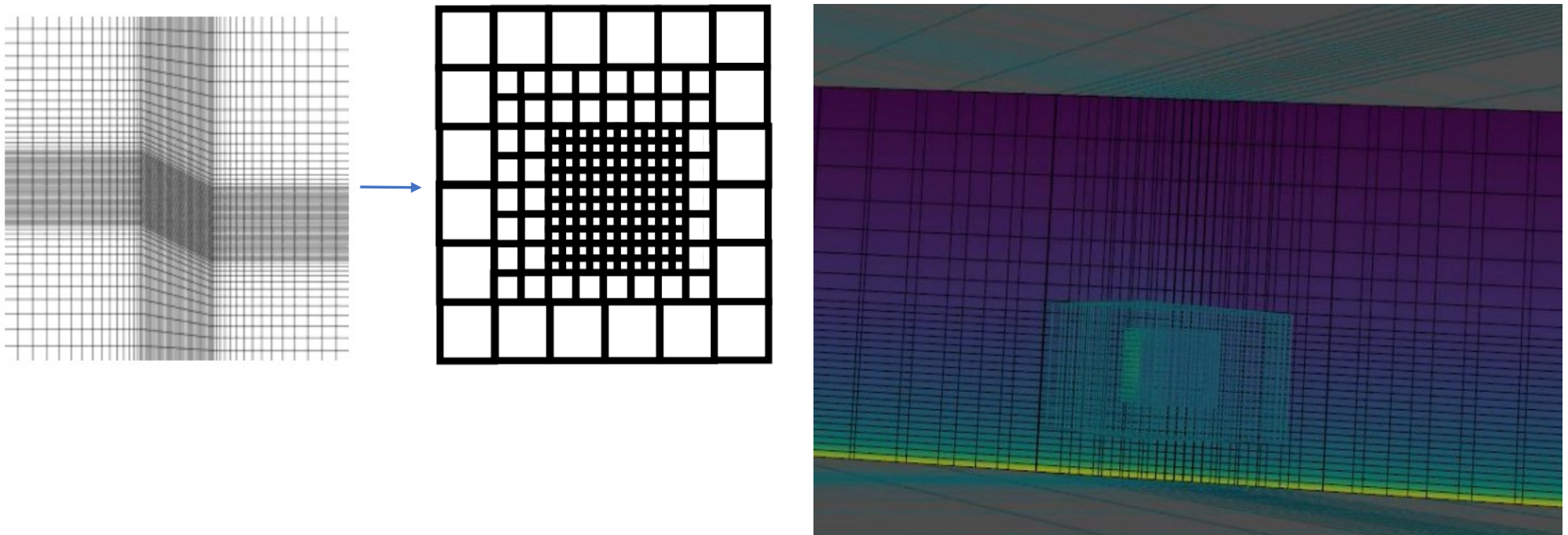
WindSim Core | WindFields - HYPRE

HYPRE - Multigrid Solver (AMGBoomer)

- Goal: Accelerate the solution procedure by a multigrid approach
- Test results: 2x improvements in speed for larger models with multiple cores
 - Very promising for cloud computing



WindSim Core | WindFields – Semi-Unstructured Grid (future)



WindSim | Accuracy and Performance

- We at WindSim think Accuracy is very important
 - We are constantly improving and adding more advanced models like
 - Meso-Micro Coupling
 - Actuator Disc
 - Atmospheric Stability
- But Accuracy comes at a cost: it takes longer time to calculate
 - That is why we also have a big focus on speed
 - Cloud Computing - more hardware
 - HYPRE - solving faster
 - Gridding - optimize grids to use less cells

Wrapping it up | Thank you!

Thank you & let's stay in touch!

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