Turbulence at the exascale: application to wind energy, green aviation, air quality and net-zero combustion

- **Prepare four high-order finite-difference solvers for exascale systems**
- **Exascale-ready multi-physics coupling interfaces, UQ, I/O & AI tools**
- **KE: training days, hackathons, Industry-Academia days**
- **4 user cases for a greener UK society**

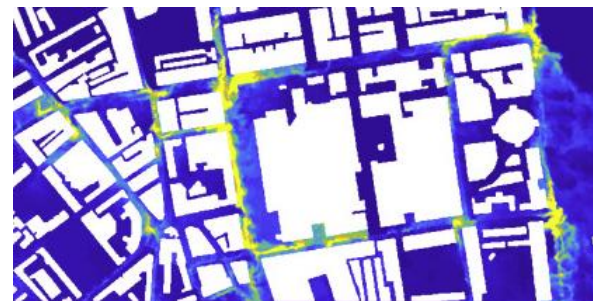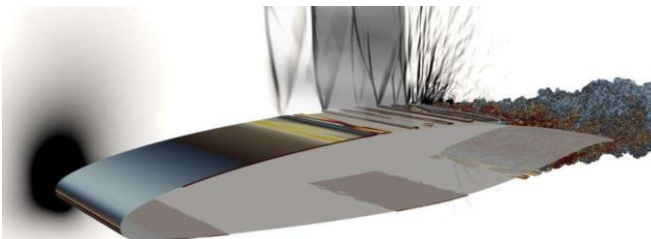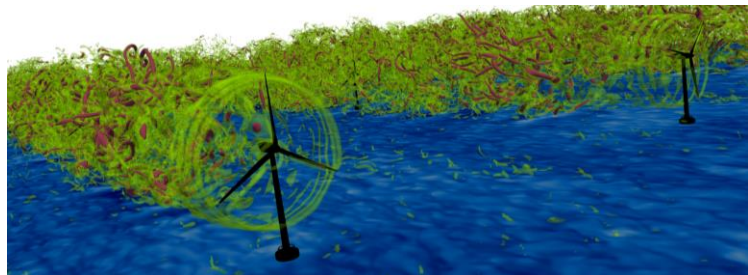**(wind energy, greener aircraft, air quality & net zero combustion)**

Project status

-The project is going very well!

-Regular new releases for our open-source libraries and software (2DECOMP&FFT, OPS, Xcompact3d, OpenSBLI, uDALES,SENGA+)

-Training sessions (OPS & OpenSBLI), hackathons (Xcompact3d)

-New funding secured (AI for net zero project, ARCHER2 pioneer awards)

-Collaborations with a few cross-cutting projects (UQ & coupling)

-Invited talks, publications and conferences

Current challenges

-Difficulties to interact with other ExCALIBUR projects

-Difficulties to access systems with many GPUs (~100/~1000)

-No clarity about a potential follow-up initiative (ExCALIBUR2?)

-No clarity about the future UK exascale system (as it could impact software development strategies)