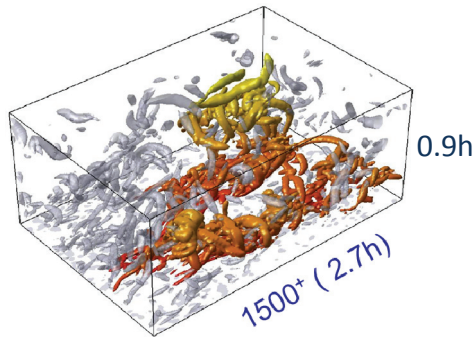


Research Opportunities in Madrid



The goal: of the **MULTIFLOW** project is to understand in detail the MULTISCALE transfer of energy and momentum in turbulent flows, with especial, but not exclusive attention to incompressible wall-bounded turbulence above the viscous layer. It is expected that the principal methodologies will be numerical simulation, postprocessing of existing numerical data, and theoretical analysis. Sample questions, hopefully to be answered within the next five years, are:

- Is there a direct (Kolmogorov) turbulent cascade? And how does it work?
- Is there an inverse (e.g. momentum) cascade? And how does it work?
- Is there a role for linearized dynamics in shear-driven turbulence?
- Can that knowledge be used in better LES models? Or in control?

Resources:

- In house parallel postprocessing and mass storage facilities.
- Access to existing and new simulation data bases (e.g. channels up to $Re_t=2000$, boundary layers up to $Re_\theta=6000$)
- Access to Spanish and European (Prace) supercomputing facilities.

Positions (from January 2011):

- **Postdoctoral researchers:** The successful candidates should have an excellent background in fluid mechanics and/or applied mathematics, and be willing to integrate in a multinational team, perform new simulations, develop new postprocessing techniques on TeraByte data bases, or provide new theoretical insights, and interact with other team members, students and visitors.
- **PhD scholarships**
- **Short-term visits:** From junior to senior level, generally from one to three months, for specific research projects within the program.

Contact: Interested researchers should contact either of the persons below, with personal details, references and detailed research program.

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