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Comparison of a spectral method with volume penalization and a finite volume method with body fitted grids for turbulent flows

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Highlights

- Volume penalization pseudo-spectral code is applied to a flow over a periodic hill.
- Penalization and finite volume methods reproduce well turbulent flow statistics.
- Penalization is a powerful and flexible technique to consider complex geometries.
- Scale-dependent statistics are analyzed using orthogonal wavelets.
- The influence of the Reynolds number is investigated for the Fourier pseudo-spectral scheme.

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