Visual analytics of combustion on time-varying turbulent-flow

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Abstract

Visualization is crucial for analyzing the turbulent combustion simulation. Time-varying data allows us to investigate the evolution process of the turbulent flow field. To study the combustion effects, we calculated the enstrophy of the flow field since high enstrophy region can display valuable features, and extract components based on these features. We isolated large components to track their behaviors and characterized them using volume and spatial locations, which helps scientists to explore the dynamics and temporal changes of intense events individually. We analyzed the components' structures and visualized them in contouring and statistical charts.

Full Text

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