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Mean flow stability wave models for coherent structures in open shear flows: experimental assessment of potentials and limitations[1] KILIAN OBERLEITHNER, LOTHAR RUKES, OLIVER PASCHEREIT, Technical University Berlin, JULIO SORIA, Monash University, Melbourne — We report on a number of experimental and theoretical investigations of shear flow instabilities in jet flows. In these studies, linear stability analysis is employed to the time-averaged flow taken from experiments, contrasting the "classic" stability approach that is based on a stationary base flow. The eigenmodes of the time-averaged flow are considered as models for the nonlinearly saturated state of the instability waves. The accuracy of these models is validated through a detailed comparison with experiments. In this talk we outline the potential and limitation of these flow models for convectively and globally unstable jet flows.

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