

SECONDARY FLOW AND DISPERSE PHASE SEGREGATION IN CURVED CHANNELS

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Abstract. Many engineering problems, such as sediment transport in rivers and submarine channels or the transport of bubbles in helical steam generators, involve multiphase flow transport in complex geometry domains. In particular, the radius of curvature of the domains cause large centrifugal forces that generate segregation of the phases and estratification which interacts with the turbulence achieving, in some cases, its complete suppression. This work presents the analysis of phase segregation in curved channels and the effect of turbulence through Direct Numeric Simulations (DNS). To this end, the equations that describe the multiphase flow transport are implemented in a pseudospectral multidomain code to simulate curved channels. Results report mainly on secondary flow and disperse phase segregation.