Contribution ID: **17** Type: **not specified**

Numerical simulations of slurry pipeline for water-slurry-water

Thursday, August 30, 2018 11:45 AM (35 minutes)

Numerous slurry transportation pipeline systems have been built in the past 10 years. At the same time, T. Chakkour & F. Benkhaldoun study in [2, 3] the hydraulic transport of particles in tubes. We investigated in [1] the hydraulic transport of slurry system in horizontal tubes (The Khouribga mines). This mineral pipeline has often been referred to as one of the most challenging projects in terms of operating complexity and system configuration in Morocco. This physical model features a mass and momentum balance for three-fluid model in 1D. It allows to predict the pressure drop and flow patterns. The originality of this work is to present in simplified form a homogeneous single-phase model. The most important advantage of this model is the considerably smaller number of variables to be solved compared to the multiphase model. In this presentation, we give the asymptotic behavior of friction-disharge term fQ2 that is involved in the last term of motions equation, taking into account the Reynolds number. This allows to understand how the elevation varies, when the flow is very laminar.

References

[1] T. Chakkour, F. Benkhaldoun and M. Boubekeur, Slurry Pipeline for fluid transients in pressurized conduits, submitted

[2] T. Chakkour, Simulations numériques des tubes avec contraction brusque sur openfoam, Thermodynamique des interfaces et mécanique des fluides 17 (2017).

Presenter: Dr CHAKKOUR, Tarik (LAGA - Paris 13)