



## Flow Development Length and Inlet Effect in Vertical Two-phase Flow

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### Abstract:

The aim of this work was to analyze inlet effect and patterns development length of the vertical gas-liquid flow experimentally. The study was conducted in multiphase rig with a test section of 18m long pipeline and 60 mm internal diameter. Two types of inlets were considered. Four conductivity probe rings were installed at four different positions along the test section. Water flow rate was kept at 0.07 m/s by adjusting pump frequencies and water inlet valve. Air was varied from 4 m/s to 22 m/s at atmospheric pressure and temperature so that to attain different types of flow pattern. Recognition of flow patterns was done by considering four methods; observation with aid of high-speed camera, time series of conductance signals, signals probability density functions and distribution moments about mean. Conductance signals were collected for about two minutes for each test after attaining steady state flow. The results show that with steady state flow, patterns transition can occur within a test section while the inlet effect is very small for slug propagation within a test section

### Biography:

Adela Syikilili is a PhD candidate under a sandwich program between University of Dar es Salaam, Tanzania and Norwegian University of Science and Technology (NTNU). She has a bachelor's degree in Chemical and Process Engineering, a Master of Science in Petroleum Engineering and now she is doing her PhD in Multiphase flow issues. Apart from being a PhD candidate Adela is an Employee at the University of Dar es Salaam as an assistant lecturer where she acquired a study leave.

### Recent Publications:

1. Vicki Niesen, . "Detailed Design of Electrically Heat Traced Flowline", ITP InTerpipe Inc. 16350 Park Ten Place, Suite 100-21, Houston, TX 77084.Moses



2. Adela Musa Syikilili. "Heat loss In Subsea Pipelines", Department for Petroleum Engineering and Applied Geophysics, 06/05/2013.
3. A.B.Hansen, . "Direct Impedance Heating of Deepwater Flowlines", Offshore Technology Conference, Houston, Texas, May,1999.
4. A.Bhatia. "Heat Tracing System", Course No: E04-019, Continuing Education and Development, Inc, Stony Point, NY.
5. Rebecca Fisher Roth, "Direct electrical heating of Flowline: Guide to Uses and Benefits", INTECSEA, 4-6 OCTOBER 2011

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