



ELSEVIER

Contents lists available at ScienceDirect

Data in Brief

journal homepage: www.elsevier.com/locate/dib

Data Article

Q1 Experimental data for the slug two-phase flow characteristics in horizontal pipeline

Abdallellah O. Mohmmmed ^{a,*}, Mohammad S. Nasif ^b, Hussain H. Al-Kayie ^b^a Department of Mechatronics Engineering, Future University, 10553 Africa St, Khartoum, Sudan^b Department of Mechanical Engineering, Universiti Teknologi PETRONAS, 32610 Bandar Seri Iskandar, Perak, Malaysia

ARTICLE INFO

Article history:

Received 23 October 2017

Received in revised form

2 November 2017

Accepted 8 November 2017

ABSTRACT

The data presented in this article were the basis for the study reported in the research articles entitled “Statistical assessment of experimental observation on the slug body length and slug translational velocity in a horizontal pipe” (Al-Kayiem et al., 2017) [1] which presents an experimental investigation of the slug velocity and slug body length for air-water two phase flow in horizontal pipe. Here, in this article, the experimental set-up and the major instruments used for obtaining the computed data were explained in details. This data will be presented in the form of tables and videos.

© 2017 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY license

(<http://creativecommons.org/licenses/by/4.0/>).

Specifications Table

Subject area	<i>Fluid Mechanics</i>
More specific subject area	<i>Multiphase Flow</i>
Type of data	<i>Table, Video</i>
How data was acquired	<i>Phantom 9.2 High Speed Camera</i>

* Corresponding author.

E-mail addresses: ganawa1988@gmail.com (A.O. Mohmmmed), mohammad.nasif@utp.edu.my (M.S. Nasif), hussain_kayiem@utp.edu.my (H.H. Al-Kayie).

<https://doi.org/10.1016/j.dib.2017.11.026>

2352-3409/© 2017 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

55	Data format	<i>analyzed</i>
56	Experimental factors	<i>Before conducting any experimental test, the water tank was ensured to be fully filled and the electrical wires connections were checked. Also, the air pressure in the compressor was ensured to be up to 0.85 MPa. In addition, the high speed camera was installed in front of the test section after checking the illumination system and capturing pre-video to check the picture quality</i>
57		
58		
59		
60		
61	Experimental features	<i>The experimental tests were conducted in a horizontal Plexiglas transparent test section. The water and air velocities were measured at the inlet of the test section. The measurements of the slug characteristics were performed along two sections located at 58D and 81D from the pipe inlet. The measurements were recorded when the multiphase flow became stabilized at the room temperature of 24 °C.</i>
62		
63		
64		
65		
66	Data source location	<i>Seri Iskandar, Malaysia</i>
67		
68	Data accessibility	<i>Data is with this article</i>

Value of the data

- A detailed database for the technical slug two-phase flow characteristics in a horizontal 3 in. pipe diameter.
- The significance of this data that it can be used to verify the results of other researcher's models by providing a common benchmark.
- This data can be used for validating the numerical CFD results of the slug characteristics and improving the accuracy of different CFD models in the prediction of slug characteristics.
- The data can be used by other researchers to develop different image processing techniques from the utilized technique in the analysis of this paper. The utilized image process technique is explained in details by (Mohammed et al. 2016) [2].

1. Data

The data presented in this article is based on the experimental investigation of the slug two-phase flow in a horizontal circular pipeline (Fig. 1) which was conducted using a close-loop test rig system

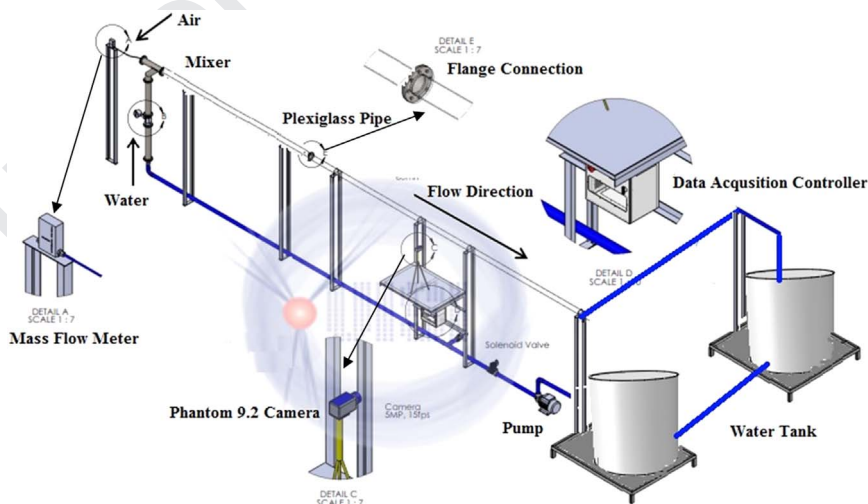


Fig. 1. Close loop test rig facilities at Universiti Teknologi PETRONAS Malaysia [1].

Download English Version:

<https://daneshyari.com/en/article/6597254>

Download Persian Version:

<https://daneshyari.com/article/6597254>

[Daneshyari.com](https://daneshyari.com)