

# TEASISTEMI

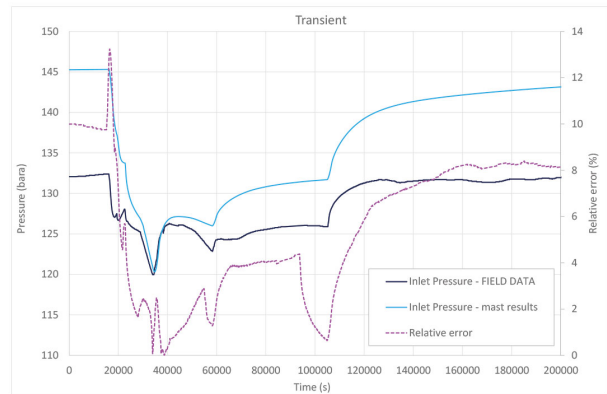
ENERGY AND ENVIRONMENT TECHNOLOGIES

MAST

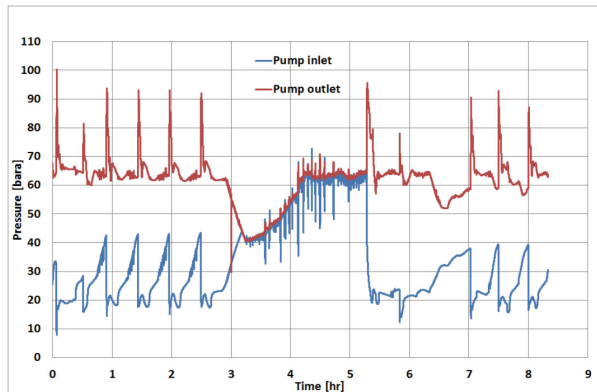


# Description

- MAST is a one dimensional code that applies the multi-field approach combined with a high spatial resolution to simulate gas-liquid-liquid flow and flow pattern transitions in hydrocarbon transportation lines
- The unsteady description of the slug flow allows the code to compute slug length distribution and frequency at any position along a pipeline, with no closure equations required for the slug bubble velocity and void fraction



# Capabilities

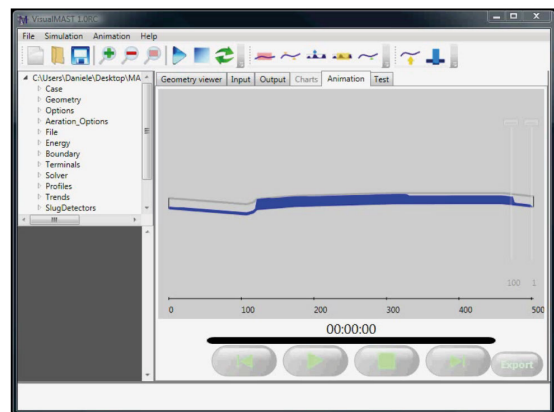


- Fully three phase flow model (oil/gas/water) including oil/water flow map to describe liquid/liquid systems
- Single branch well/pipeline model including external mass sources (to simulate incoming branches)
- Full network simulation capabilities
- Valves models with PID controllers
- Oil/gas reservoir simulation
- Multiphase Pump and Separator models available for process system simulation
- Chemical Inhibitors /particle tracking model

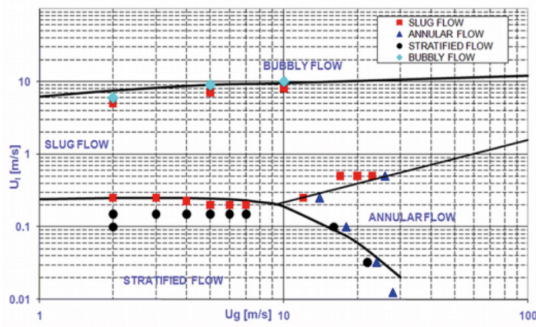
# Modules

At present the following modules are available:

- Valve/Flow Conditioner/Separator
- Multi/Single Pigging
- Complex Fluids
- Multiphase Pump
- Network
- Tracers/Inhibitors



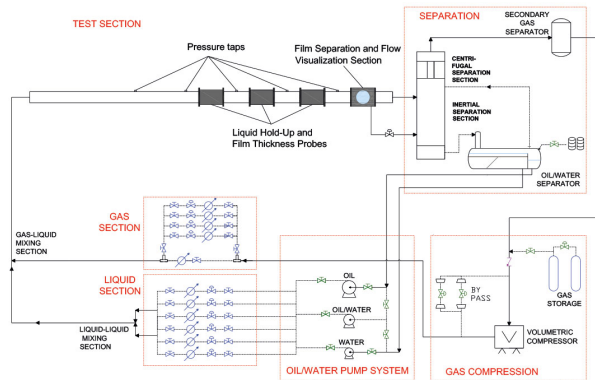
# Closure equations



MAST solver that allows to:

- adopt a set of default closure equations;
- select closures from a library;
- introduce customized closures;

# Support laboratory tests

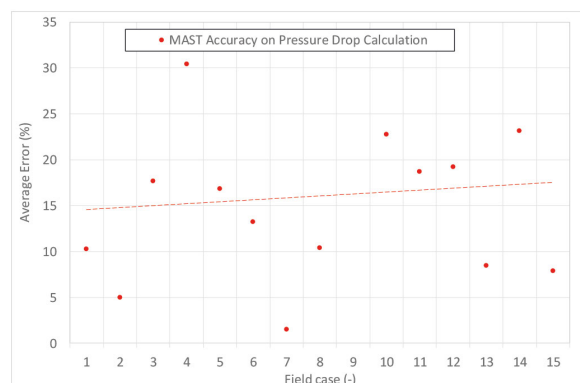


Specific research activities (SESAME for Stratified Annular Flow, HOP for Highly Viscous Liquids) have been carried out to improve MAST capabilities in selected sectors

# Current development

Two projects are under way at TEASistemi to improve MAST performances:

- PowerMAST, to parallelize MAST for distributed computing implementation
- MAST VALIDATION, to characterize code accuracy against field data





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## CONTACTS

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