



PVTp Workshop

Target Audience:

This course is targeted to those engineers that have (i) attended the **Standard IPM** course previously, and (ii) have consolidated their familiarity of **MBAL**, **PROSPER** and **GAP** through consistent use over time in a real field context, with working knowledge with fluid PVT and lab reports. This course will assume a base level of familiarity of the tools, and is intended promote the analytical features available in creating physics based fluid behaviours in the **IPM** tools.

Overall Objectives:

1. Understand the fundamentals of PVT
 2. Discuss and review PVT modelling approaches: Equation of State (EOS) and Black Oil (BO)
 3. Understand how to validate lab reports and characterise a fluid EOS that reproduces them
 4. Understand how to obtain a BO PVT definition from the EOS
 5. Apply the above in addressing common and practical problems using case studies
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Course Agenda

Day 1

- **Introduction**
 - Review the importance of PVT in integrated modelling
 - Review the assumptions of the Black Oil model and dependency on the path to surface
 - Review the fundamentals of Equation of State model (EOS)
- **Procedure for Creating an EOS for use in an Integrated Model - Fluid Characterization (Oil)**
 - Hands-on exercise and technical discussions covering the following subjects:
 - Validating a PVT Report
 - Characterizing an EOS in PVTP
- **Creating an Equivalent Black Oil Model**
 - Hands-on exercises and technical discussions covering the following subjects:
 - Comparing and validating different PVT models in a well model (PROSPER)
 - Comparing and validating different PVT models in a reservoir model (MBAL)

Day 2

- **Fluid Characterization (Oil) - Revision Workshop**
 - Hands-on exercises and technical discussions reviewing the PVTP core modelling techniques
 - Validating a PVT Report
 - Characterizing an EOS in PVTP
- **Creating an Equivalent Black Oil Model - Revision Workshop**
 - Hands-on exercises and technical discussions covering the following subjects:
 - Comparing and validating different PVT models in a well model (PROSPER)
 - Comparing and validating different PVT models in a reservoir model (MBAL)
- **Procedure for Creating an EOS for use in an Integrated Model - Fluid Characterization (Condensate)**
 - Hands-on exercise and technical discussions covering the following subjects:
 - Validating a PVT Report
 - Characterizing an EOS in PVT
 - Flow Assurance Analysis (Hydrates)



Day 3

- **Managing an Inconsistent Fluid Sample - Case Study 1**
 - *Hands-on exercise and technical discussions reviewing the following subjects:*
 - *Creating a representative fluid model from an inconsistent fluid sample*
- **Correcting a Well Test Measurement in the Field - Case Study 2**
 - *Hands-on exercise and technical discussions reviewing the following subjects:*
 - *Correcting well test record for use in IPM using Data Objects (RESOLVE)*
- **Using an EOS to Challenge MPFM Readings - Case Study 3**
 - *Hands-on exercise and technical discussions reviewing the following subjects:*
 - *Converting in situ multi-phase flow meter (MPFM) measurements to standard conditions*
 - *Validating the MPFM measurements*
- **The importance of PVT in Material Balance - Case Study 4**
 - *Hands-on exercise and technical discussions reviewing the following subjects:*
 - *History matching a reservoir using the material balance technique (MBAL)*

Day 4

- **Compositional Modelling in an Integrated Model - Case Study 5**
 - *Hands-on exercises and technical discussions regarding Integrated Modelling*
 - *Field Development Example*

Day 5

- **Compositional Modelling in an Integrated Model - Case Study 6**
 - *Hands-on exercises and technical discussions regarding Integrated Modelling*
 - *Handling PVT requirements in an integrated model*
 - *Lumping/delumping*