RISKS AND RESOURCES ASSESSMENT IN EXPLORATION

General:

Discipline: Geology
Level: Basic to Intermediate
Duration: 3 days
Teacher: Roger Baudino

Purpose:

The "RISKS AND RESOURCES ASSESSMENT IN EXPLORATION" course consists of lectures and exercises illustrated by real cases examples to provide participants with in-depth knowledge of best practices in prospect assessment, and methods that are used for pre-drill risking and the calculation of prospective resources. It also introduces to prospect economics and performance tracking. The course is not software-specific.

Designed for:

Geoscientists, engineers, portfolio analysts, or anyone involved in calculations of prospective resources and risks of prospects.

You will learn:

How to:
- Approach a prospect assessment in the frame of the Petroleum System Analysis Concept
- Identify the main risk(s) in a prospect assessment and the possible ways to decrease uncertainty
- Apply different methods for the determination of volumetrics and risks of exploration prospects and leads
- Obtain realistic values of the variables used in the volumetric equations
- Calculate prospect volumetrics
- Carry out reality checks
- Estimate probability of success of an exploration prospect
- Approach complex and segmented prospects
- Consider economics in prospect assessment
- Apply performance tracking techniques to improve the prospect assessment

Contents:

1. Introduction

2. The Petroleum System concept for prospect assessment

3. Basic statistics

4. Resources calculation methods

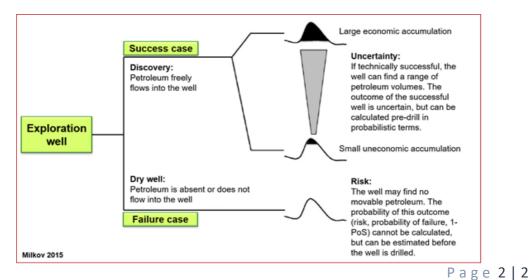5. Estimation of parameters and reality check

6. Estimation of trap size

7. Estimation of reservoir parameters

8. Estimation of yield parameters

9. Risking: Probability of Success estimation

10. Segmented prospects

11. Complex prospects

12. Prospect economics

13. Performance tracking

14. Uncertainty and Bias

15. Real case examples

Software applications:

- Microsoft Suite

Bibliography:

- Bailey, W., Couët, B., Lamb, F., Simpson, G. and Rose, P., 2000. Taking a calculated risk. Oilfield Review, autumn 2000, 20-35.
- Milkov, A., 2015. Risk tables for less biased and more consistent estimation of probability of geological success (PoS) for segments with conventional oil and gas prospective resources. Earth-Science Reviews, 150, 453-476.
- Murtha, J., 2001. A guide to risk analysis. In: Risk analysis for the oil industry. Supplement to Hart's E&P.
- Otis, R.M. and Schneidermann, N., 1997. A process for evaluating exploration prospects. AAPG Bulletin, 81 (7), 1087-1109.
- Rose, P.R., 2001. Risk analysis and management of petroleum exploration ventures. AAPG Methods in Exploration Series, 12.
- Rudolph, K.W. and Goulding, F.J., 2017. Benchmarking exploration predictions and performance using 20+ yr of drilling results: One company's experience. AAPG Bulletin, 101 (2), 161-176.
- Singh, V., Izaguirre, E., Yemez, I. and Stigliano, H., 2016. Establishing Minimum Economic Field Size and analysing its role in exploration project risks assessment: three examples. Search and Discovery, Article #41827.