

2017년도 제5차 해외전문교육 개요

1. 개요

- 교육명 : Petrel Property Modeling
- 교육기관/강사 : Schlumberger NExT(미국) / 김민기
- 교육일시/장소 : 2017. 11. 8(수) ~ 11. 10(금), 09:30~17:30 / 재단 컴퓨터실
- 개최 : 재단 단독 개최
- 교육분야/수준 : Software / 중급(Intermediate)
- 교육언어 : 한국어
- 교육정원 : 15명(KOLNG 특별기금 출연사 및 협회 회원사 직원 대상)

2. 교육 내용

- 주요 내용
 - 지구통계학, 지질 데이터 관찰 및 분석, 암석물리학적 모델링 등을 이용한 다양한 Property model의 생성 기법 활용
 - 응용모델을 현존 지질 모델과 secondary data에 적용할 수 있는 방법 학습 및 응용
 - Upscale Well logs data의 3D 이미지화를 통한 유정의 기본 구조 파악 및 이해 제고
 - 확률론적 방법과 불편선형추정치 계산 방법(Kriging)을 이용하여 지구 물리학적 모델링과 주변 구조의 특성 파악
- 교육 일정(안) (세부내용 「첨부1」 참조)

구분	1일차	2일차	3일차
내용	Basics of uni and bivariate Geostatistics · Basics of uni and bivariate Geostatistics · Facies Modeling · Data preparation, including well log edits and calculations as well as log upscaling for discrete and continuous data	Facies modeling · Data analysis, Sequential Indicator Simulation, Object Facies Modeling · Truncated Gaussian Simulation with and without trends, using secondary data to populate facies models	Petrophysical Modeling · Data analysis, Sequential Gaussian Simulation, Gaussian Random Function Simulation · Kriging, Using secondary data to populate petrophysical model

3. 강사 소개

- 강사명 : 김민기
- 선정 사유 : 본 강사는 지구물리학 분야(Geophysics & Petroleum Engineering)의 석사학위 소지자로서, 석유·가스개발 관련 소프트웨어 교육 분야에서 10년 이상의 경력이 있으며, Petrel 등 다수의 소프트웨어에 관한 전문지식과 경험을 갖추고 있어 이번 교육 강사로 선정함.

○ 강사등급 : B급

※ 「해외전문교육 강사 등급 기준」에 의거, 석사 학력 소유자이며 해당 분야 경력 10년 이상임.

〈강사 주요 학력 및 경력〉

주요 학력	<ul style="list-style-type: none"> - (2016) 한양대학교 응용지구물리학 석사 - (2006) 한양대학교 석유공학 학사
주요 경력	<ul style="list-style-type: none"> - (2012~2016) Schlumberger에서 Senior Geoscientist & Technical Sales for G&G Domain 등 역임 - (2009~2016) 베트남, 이라크, 호주 등에서 Field Geological Modeling Project 수행 · SK Innovation, KNOC, KOGAS R&D 등 - (2007~2016) Petrel Software 및 Petrophysics Fundamental 교육 강의 · 세종대학교, 충북대학교, KIGAM, KNOC 등 * '10년, '12~'13년 재단 해외전문교육 강의

4. 수강생 선정기준

- ① KOLNG 출연사 임직원에게 전체 교육 정원(15명) 중 8명을 우선 배정하고, 잔여 인원(7명)을 협회 회원사에게 무료 배정
- ② 협회 회원사는 정회원사 이상을 대상으로 하며, 회원사별로 교육인원이 고루 배정될 수 있도록 함(회원사당 1명씩 배정하는 것을 원칙으로 하나, 정원에 여유가 있을 경우 다수 배정 가능)
- ③ 협회 회원사의 신청인원이 전체 배정인원을 초과하는 경우, 재단에서 수강자를 결정하며 회장사-이사사-정회원사 순으로 우대

<첨부> 1. 강의 계획서(요약) 1부
2. 강사 이력서 1부. 끝.

<첨부1> 강의 계획서(요약)

□ Course Title: Petrel Property Modeling

- Training contents:

This course is intended for the user with fundamental Petrel modeling skills. The course covers basic geostatistics, data preparation, data analysis, facies and petrophysical modeling. You will learn different ways to create property models and how to condition models to existing models and secondary data. This course guides the user through concepts, algorithms and software functionalities in property modeling.

The first part of the course focuses on the usage of basic geostatistical tools, through data analysis. Also pre-modeling processes concerning well data preparation will be covered. Also here we will look into the first step of the property modeling workflow: upscale well logs to create single property values at well location for each cell. This will create hard data that will be used to populate the 3D grid with either deterministic or stochastic algorithms.

The second half of the course focuses on facies and petrophysical modeling workflows using stochastic methods as well as covering the usage of Kriging for continuous properties. Implementing Data analysis results and using secondary data to constrain the result will also be shown.

- Training schedule (summary)

Date	Program	Note
Day 1	Basics of uni and bivariate Geostatistics	
Day 2	Facies modeling	
Day 3	Petrophysical Modeling	

- Daily lesson plan

- Day 1: Geostatistics

09:30~13:00: Basics of uni and bivariate Geostatistics

13:00~14:00: Lunch

14:00~17:30: Data preparation, including well log edits and calculations as well as well log upscaling for discrete and continuous data

Day 2: Facies modeling

09:30~13:00: Data analysis, Sequential Indicator Simulation, Object Facies Modeling

13:00~14:00: Lunch

14:00~17:30: Truncated Gaussian Simulation with and without trends, Using secondary data to populate facies models

Day 3: Petrophysical modeling

09:30~13:00: Data analysis, Sequential Gaussian Simulation, Gaussian Random Function Simulation

13:00~14:00: Lunch

14:00~17:30: Kriging, Using secondary data to populate petrophysical models



Instructor

Minki Kim

Job title: Senior Geoscientist
Organization: Schlumberger Integrated Solutions
Email: MKim@slb.com

1. Experience

Jan 2017 - present	Senior Geoscientist SIS (<i>Seoul, South Korea</i>) Operations PTEs, Engineers & Specialists G&G Domain Technical Consultant and Training Instructor G&G Domain Pre-sales and Business Development
Jun 2012 – Dec 2016	Senior Geoscientist & Technical Sales for G&G Domain SIS (<i>Seoul, South Korea</i>) Operations PTEs, Engineers & Specialists G&G Domain Technical Consultant G&G Domain Technical Sales in Korea Petrel and Techlog Training Instructor
Jun 2010 - May 2012	Geoscientist & Technical Sales for G&G Domain SIS (<i>Seoul, South Korea</i>) Operations PTEs, Engineers & Specialists G&G Domain Technical Support Engineer G&G Domain Technical Workflow Consultant G&G Domain Technical Sales in Korea Petrel Training Instructor
Oct 2006 - May 2010	Support Geoscientist SIS (<i>Tokyo, Japan</i>) Operations PTEs, Engineers & Specialists

2. Education

2006 Bachelors , Petroleum Engineering Hanyang University (<i>Korea Republic</i>)
2016 Master , Applied Geophysics Hanyang University (<i>Korea Republic</i>) Thesis: Estimation of chimney type gas hydrates resources through seismic attribute analysis

3. Professional Experience

[Customer Training: Public and Exclusive Training]

#01 07-23-2007 ~ 07-25-2007, Exclusive, KIGAM, Interactive Petrophysics Fundamental Training

#02 08-20-2007 ~ 08-24-2007, Exclusive, KOGAS, Interactive Petrophysics Fundamental Training



- #03 08-27-2007 ~ 08-31-2007, Exclusive, KOGAS, Petrel Introduction Training
 - #04 12-10-2007 ~ 12-12-2007, Exclusive, Sejong University, Interactive Petrophysics Training
 - #05 05-26-2008 ~ 05-30-2008, Exclusive, Chung-buk National University, Petrel Geophysics Training
 - #06 11-06-2008 ~ 11-11-2008, Exclusive, JGI, Petrel Seismic Visualization and Interpretation Training
 - #07 11-12-2008 ~ 11-14-2008, Exclusive, JGI, Petrel Structural Modeling Training
 - #08 11-17-2008 ~ 11-18-2008, Exclusive, JGI, Petrel Property Modeling Training
 - #09 11-19-2008 ~ 11-20-2008, Exclusive, JGI, Petrel Mentoring
 - #10 11-24-2008 ~ 11-28-2008, Exclusive, KIGAM, Petrel Introduction Training
 - #11 12-08-2008 ~ 12-10-2008, Public, Interactive Petrophysics Fundamental Training
 - #12 12-17-2008 ~ 12-19-2008, Public, Interactive Petrophysics Fundamental Training
 - #13 03-23-2009 ~ 03-25-2009, Exclusive, KIGAM, Interactive Petrophysics Training
 - #14 04-07-2009 ~ 04-09-2009, Exclusive, KNOC, Interactive Petrophysics Fundamental Training
 - #15 07-08-2009 ~ 07-10-2009, Exclusive, Chung-buk National University, IP Fundamental Training
 - #16 08-03-2009 ~ 08-07-2009, Exclusive, Korean Universities, Petrel Introduction Training
 - #17 02-08-2010 ~ 02-09-2010, Public, Petrel Advanced Property Modeling Training
 - #18 03-15-2010 ~ 03-17-2010, Exclusive, JAPEX, Petrel Property Modeling Training
 - #19 03-25-2010 ~ 03-26-2010, Exclusive, ITOCHU, Workflow Editor and Uncertainty Analysis
 - #20 06-07-2010 ~ 06-11-2010, Public in FORED, Petrel Introduction Training
 - #21 09-16-2010 ~ 09-17-2010, Exclusive, LG International, Petrel Property Modeling Training
 - #22 04-11-2011 ~ 04-17-2010, Exclusive, KNOC, Seismic Interpretation & Mapping Training
 - #23 05-23-2011 ~ 05-27-2011, Public in FORED, Petrel Introduction Training
 - #24 04-30-2012 ~ 05-04-2012, Exclusive, KNOC, Petrel Geophysics Training
 - #25 07-09-2012 ~ 07-13-2012, Exclusive, FORED, Geophysics & Well Correlation Training
 - #26 11-12-2012 ~ 11-16-2012, Public, Techlog Fundamental Training in Seoul
 - #27 11-26-2012 ~ 11-30-2012, Public, Techlog Fundamental Training in Tokyo
 - #28 01-21-2013 ~ 01-25-2013, Exclusive, KNOC, Property Modeling Training
 - #28 02-25-2013 ~ 02-27-2013, Exclusive, Dong-A University, Property Modeling Training
 - #30 03-04-2013 ~ 03-08-2013, Exclusive, KIGAM, Well Correlation & Seismic Well Tie
 - #31 06-09-2014 ~ 06-13-2014, Exclusive, KOGAS, Geological Modeling Training
 - #32 06-23-2014 ~ 06-27-2014, Exclusive, KNOC, Seismic Interpretation to Geological Mapping
 - #33 12-01-2015 ~ 16-01-2015, Exclusive, University Training for Geological Modeling
 - #34 23-02-2015 ~ 27-02-2015, Exclusive, University Training for Basic Formation Evaluation
 - #35 05-09-2016 ~ 09-09-2016, Exclusive, KNOC, Geological Modeling Training
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[EXTERNAL CLIENT PROJECTS]

- #01 May 2009, KNOC: Formation Evaluation, Natuna & Sumatra Field in Indonesia
- #02 August 2009, KNOC: Geological Modeling, Natuna & Sumatra Field in Indonesia #03 November



- 2009, KNOC: Vietnam 11-2 Field (RDM) Property Modeling
 - #04 December 2009, KNOC: Vietnam 11-2 Field (RDVV) Property Modeling
 - #05 June 2010, KNOC: Canadian Heavy Oil Field Geo-Modeling including Velocity Modeling
 - #06 August 2010, KNOC: Yemen Block 4 - Data Loading, Mapping and Domain Conversion
 - #07 September 2010, LG International: Kazakhstan Field Modeling
 - #08 November 2010, KOGAS: Iraqi Field Modeling
 - #09 April 2011, KOGAS: Australia Field Modeling
 - #10 May 2011, KNOC: Canadian Heavy Oil Field Geo-Modeling (Updating Model in Canada)
 - #11 November 2011, KOGAS R&D: Iraqi Zubair Field Geo-Modeling for Simulation
 - #12 March 2013, KOGAS R&D: Dong-hae Field UGS Project, Reservoir Characterization
 - #13 March 2013, KNOC Vietnam Branch: RDM Field Geological Modeling Project
 - #14 August 2015, SK Innovation: Vietnam 15-1 Field Geological Modeling Project
 - #15 March 2016, KNOC CCS Team: East Sea CCS Candidate Field Geological Modeling Project
 - #16 July ~ September 2016, SK Innovation: Vietnam 15-1-05 Field Geological Modeling Project
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