



Education Subcommittee Update

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K&M Technology Group
Schlumberger



Mission Statement

- ISCWSA Education Subcommittee is an advisory body dedicated to raising awareness of wellbore positioning practices and challenges within the drilling industry through workshops, webinars, eBooks, public lectures, and other media.



Agenda

- SPE Live
- Special Session Updates
- Drillbotics Competition (DSATS)
- PetroBowl
- Distinguished Lecture
- eBook Updates
- ISCWSA Course update and certification handing over

SPE Live

- Held on September 19th
- 30 minutes on LinkedIn Channel and SPE stream
- David Gibson – Moderator
- John Hudson and Ross Lowdon – Speakers
- Around 80 attended online and with almost 400 views
- SPE live stream:

<https://streaming.spe.org/spe-live-pre-atce-how-to-drill-reservoir-sections-that-drive-life-cycle-value>



ATCE Special Session

- Joint with DSATS
- Tuesday 4 October 2022,
- **Title:** How can we define a holistic set of common industry well parameters for reservoir sections that drive life cycle value?
- **Moderators:**
 - John Hudson, Shell & Ross Lowdon, SLB
- **Speakers:** Key Industry leaders covering
 - Completion: Vicky Nielsen, HESS
 - Drilling: Katie Mills, CoP
 - Reservoir: Shaid Haq, SLB
 - Subsurface: Rocky Mottadeh, UOGC



SS11 How Can We Define a Holistic Set of Common Industry Well Parameters for Reservoir Sections that Drive Lifecycle Value?

372 B/E | 11545 – 1700

Reservoir well sections are critical to the value proposition of wells. The drilled form of wells have a significant impact on their cost and production, and thus is a direct driver of life cycle value ...

Session Chairperson(s)

Mahmoud Elgizawy, Drilling Survey Domain Manager - K&M TECHNOLOGY GROUP

Speaker(s)

Katie Mills, Well Support Center, Analytics and Performance Manager - ConocoPhillips Co

Vicky Jackson Nielsen, Director, Drilling and Completions - Bakken - Hess Corp.

Shahid Haq, Reservoir Engineering Advisor and Reservoir Domain Head - Schlumberger

Rocky Mottahedeh, CEO - United Oil & Gas Consulting Ltd.

Moderator(s)

Ross Lowdon, Domain Head - Schlumberger

John Hudson, Development Digital Advisor - Shell Exploration & Production Co



Student Awareness – How to Attract Young Generation

- Members to reach out to their universities (Tim Paton)
- How to raise awareness in high schools – even for geothermal
- Drillbotics
- PetroBowl
- SPE Student Chapters reach out (Benny Poedjono)

Drillbotics Competition

What is it?

- Drillbotics[®] is an international competition for universities to design and build a small drilling rig that uses sensors and control algorithms to autonomously drill a rock sample provided by SPE's Drilling Systems Automation Technical Section (DSATS).
 - Group A will not require any rig construction; it requires a model of the rig, the well, and a directional drilling technique.
 - Group B will build and operate a physical rig.
- In the 2022 competition, there is a directional component that will require steering and surveying to hit specified X/Y target coordinates. Drilling system must be able to switch between steering modes (slide/rotate) and survey mode (on/off bottom) autonomously.
 - Calculating survey intervals & trajectory be automated.
 - DLS required to hit targets & distance/direction to plan automatically calculated at each survey station & shown on rig floor display.





Drillbotics Volunteers for ISCWSA

- Competition Judges
 - Requirements:
 - Judge (remote or in-person) both Group A & B competition performances in Houston (May 21) or Celle (June TBD)
 - Primary contribution is expected to be in directional requirement & surveying practices
 - Time Commitment:
 - Read & familiarize self with Drillbotics Guidelines (~1 hr)
 - Competition judging (1 day)
- Volunteers
 - David Gutierrez
 - Robert Estes
 - Timothy Paton
 - Harald Bolt
- Documentary
 - David Gibson
- Requesting short videos on directional surveys
 - Steps to take the surveys
 - Why drilling has to stop
 - What is the magnetic surveys and magnetic interference



PetroBowl

PetroBowl[®] Competition

The PetroBowl[®] competition matches SPE student chapter teams against one another in a fast-paced quiz competition covering technical and nontechnical aspects of the oil and gas industry.

<https://www.spe.org/en/students/petrobowl/>

- Connect with PetroBowl competition team to include questions on WBS (David Gutierrez)
- Questions are needed. Please submit your questions via the link

[ISCWSA - PetroBowl Q&A Submittal](#)

ISCWSA - PetroBowl Q&A Submittal

The PetroBowl is an international competition hosted by the SPE that pits student chapter teams against each other in a series of quick-fire Q&A rounds related to the Oil & Gas industry. This is a great opportunity for the ISCWSA to continue spreading the message of the importance of wellbore positioning.



Distinguished Lecturer Program



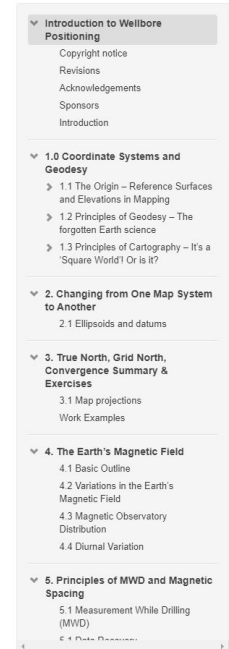
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Benny Poedjono

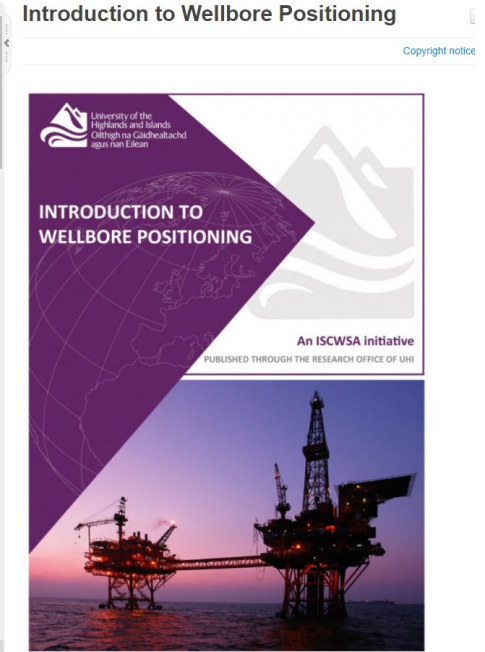
Good Practice in Well Control
Intervention via Relief Well Subsurface
Interception

eBooks Update

- ISCWSA hosting/copy right of eBooks
 - Introduction to WBP
 - Well Interception
 - Survey QC (Work-On-Progress)
- **WBP eBook cover update (remove UHI)**
- WBP eBook Web version is available
 - Online searchable
 - Easy access by any device
 - Allow readers to provide feedback
 - Track topic views, rating and searches
- eBook Well Interception possible transition to the web version



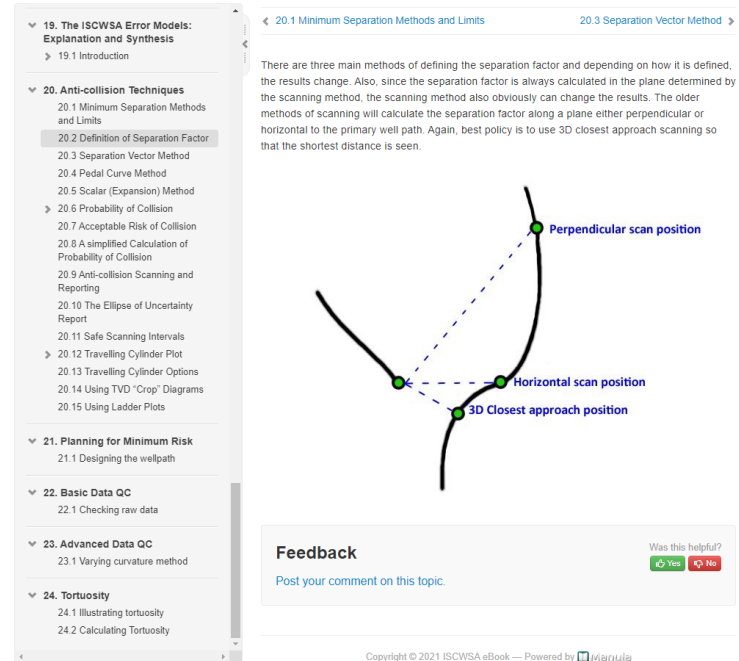
Introduction to Wellbore Positioning
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Revisions
Acknowledgements
Sponsors
Introduction
1.0 Coordinate Systems and Geodesy
1.1 The Origin – Reference Surfaces and Elevations in Mapping
1.2 Principles of Geodesy – The forgotten Earth science
1.3 Principles of Cartography – It's a Square World! Or is it?
2. Changing from One Map System to Another
2.1 Ellipsoids and datums
3. True North, Grid North, Convergence Summary & Exercises
3.1 Map projections
Work Examples
4. The Earth's Magnetic Field
4.1 Basic Outline
4.2 Variations in the Earth's Magnetic Field
4.3 Magnetic Observatory Distribution
4.4 Diurnal Variation
5. Principles of MWD and Magnetic Spacing
5.1 Measurement While Drilling (MWD)
5.4 Data Processing



<https://www.manula.com/manuals/iscwsa-ebook/iscwsa-ebook-introduction>

eBooks Update

- Call for content updates eBook Introduction to WBS
 - Please contact:
 - Prof. Angus at Angus.Jamieson@hptech.com
 - or
 - Mahmoud at Melgizawy@slb.com
- Possible to provide feedback directly on the web version



The screenshot shows the eBook's table of contents on the left and a diagram on the right. The table of contents includes sections 19 through 24, with '20.2 Definition of Separation Factor' highlighted. The diagram illustrates three methods of defining the separation factor between two wellbores: Perpendicular scan position, Horizontal scan position, and 3D Closest approach position. A feedback box at the bottom asks 'Was this helpful?' with 'Yes' and 'No' buttons.

<https://www.manula.com/manuals/iscwsa-ebook/iscwsa-ebook-introduction>



Acknowledgement

- Education SC members are acknowledged for their participation and contribution to the SC activities
- 17 Participants in last meeting
- Carol Mann
- David Gibson
- Tim Paton
- Nancy Kenmogne
- Ryan Kirby
- David Gutierrez
- Mike Long
- Mark Fraser
- Will Lanigan
- Robert Estes
- Barry Smart
- Benny Peodjono
- John Hernandez
- Ben Hawkinson
- Nicholas Zachman
- Robert Wylie



ISCWSA Course Presentation



Update :

ISCWSA Online Training Course

“Introduction to Wellbore Positioning”

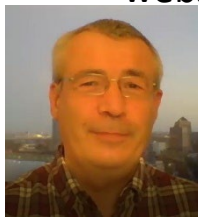
Robert Wylie

6th October, 2022

xⁿDrilling, Inc



- ISCWSA took over the ISCWSA eBook based “Introduction to Wellbore Positioning” training course from the UHI, and converted the course to run under a modern Learning Management System (edX) through the ISCWSA website.
- It now includes a series of videos lectures, readings, problems, exercises, and simulation examples, with Continuous Assessment grading.
- Registration for the course is through the iscwsa.net website, and it runs on an iscwsa.net Training Server



Week 0: Introduction – Connections

Week 1: Mapping and Geodesy

Week 1-1 : Mapping, Projections, and Datums

Week 1-2 : North References and Scale Factor

Week 2: MWD, Earth's magnetic field, QC, and Corrections

Week 2-1 : MWD and Earths Magnetic Field

Week 2-2 :Basic QC and Survey Corrections

Week 3: Drilling Rigs, Well Planning, and BHA design

Week 3-1 : The Drilling Rig

Week 3-2 : Introduction to Well Planning

Week 3-3 : Introduction to BHA Design

Week 3-4 : Directional Drilling Simulator

Week 4: Data Management, Quality Control, and Depth

Week 4-1 : Data Management and Data Audits

Week 4-2 : Depth Measurement, Uncertainty, and Corrections

Week 5: Survey Tools and Survey Calculations

Week 5-1 : Survey Tool Types

Week 5-2 : Survey Calculations

Week 6: Survey Uncertainty and Collision Avoidance

Week 6-1 : Uncertainties and how they propagate

Week 6-2 : Survey Uncertainties and Error Models

Week 6-3 : Anti-collision terminology, planning and operations

Week 7: High Accuracy Drilling

Week 7-1 : Survey Corrections for High Accuracy Drilling

Week 7-2 : Introduction to Ranging Technologies

Week 7-3 : Exercise - Drill Relief Well

Week 8: Revision Time and Examinations



The Industry Steering Committee on
Wellbore Survey Accuracy (ISCWSA)

Wellbore Positioning Technical Section

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Find the resources you need for better wellbore survey accuracy.

Industry Steering Committee on Wellbore Survey Accuracy (ISCWSA) produces, maintains, and publishes standards for the industry, promoting a collaborative understanding of issues associated with wellbore surveying.

[LEARN MORE](#)

ISCWSA ONLINE TRAINING COURSE

The ISCWSA is pleased to announce that the next "Introduction to Wellbore Positioning" online course is scheduled to start in **March of 2022**. Applications for enrollment are now being accepted.

[ABOUT THE
COURSE](#)[APPLY
NOW](#)[GET
UPDATES](#)



Wellbore Positioning Technical Section



The Industry Steering Committee on
Wellbore Survey Accuracy (ISCWSA)

THE ISCWSA WELLBORE POSITIONING COURSE

📅 STARTS SEP 2022 ✂ APPLICATIONS ARE NOW BEING ACCEPTED.

This course is based on the ISCWSA free eBook "Introduction to Wellbore Positioning".

Using a mixture of videos, training exercises, and self-study material, it covers subjects such as Mapping, directional drilling, surveying, survey uncertainties, and high accuracy...

📄 APPLY NOW

About the ISCWSA Wellbore Positioning Course

This course is based on the ISCWSA free eBook "Introduction to Wellbore Positioning".

Using a mixture of videos, training exercises, and self-study material, it covers subjects such as mapping and geodesy, directional drilling, surveying, survey uncertainties, and high accuracy directional drilling.

The screenshot shows a web browser interface for the course. The page title is "1.1.1 Mapping History" with a "Bookmark this page" link. Below the title is a video player titled "Mapping History video" with a thumbnail showing a globe and the text "Project: from the centre of the Earth". To the right of the video player is a text block explaining the Mercator projection and its distortions. The text includes: "And when we do that, we've projected every point on the Earth's surface, with the exception of the North Pole, onto the cylinder. Now, clearly, if we were to continue to go to higher and higher latitudes there would be an enormous vertical stretch, and so the Mercator projection is only published to maybe 85 degrees of latitude, practically. What this does mathematically is it creates the same amount of stretch north south as we have east west. And so in general the shapes of the countries are about right. But the sizes of the countries are enormously distorted. Take a look at Greenland now, if I told you that you could fit the whole of Greenland 10 times into the continent of Africa you now get an idea of how much scale distortion we're talking about. I'm sure that people in Greenland love this map. I believe there's only 55 thousand people live there, but according to the map they have one of the..."

What's in this course?

The course has 7 main teaching modules, in addition to introductions and reviews. It is expected that 2 modules will be completed every three weeks. Click on each "Week" Module to for an overview of what is included.

📅 STARTS SEP 2022

✂ APPLICATIONS ARE NOW BEING ACCEPTED.

🕒 ENDS NOV 2022

💰 TUITION FEE \$1,200

📄 APPLY NOW

Course Benefits

- 🌟 Industry recognized certificate
- 🕒 Be more informed in your work
- 👨‍🏫 Expert instructors
- 🕒 Paced to fit working students

FAQs & Support Help

How do I earn this course's Certificate?

How long do I keep the course?

What daily hours are recommended?



Course Features

- Easy Navigation
- Full video transcripts
- Progress tracking
- Variety of learning techniques
- Student interactions and discussion boards
- Practical exercises on useful topics

A screenshot of a course page for 'Intro to Week 6'. The page has a navigation bar at the top with links for 'Course', 'Progress', 'Discussion', 'Wiki', and 'Instructor'. Below the navigation bar is a breadcrumb trail: 'Course > 6. Training Week 6 - Survey Uncertainty and Collision Avoidance > 6.0 Week 6 Introduction > Intro to Week 6'. The main content area has a 'Previous' button on the left and a 'Next' button on the right. The title 'Intro to Week 6' is followed by a 'Bookmark this page' link. The text describes the week's topic: 'Survey Uncertainty'. It explains that uncertainty envelopes are elliptical and discusses why they are elliptical. It also mentions an introduction to the ISCWSA error model for MWD and an overview of collision avoidance techniques. Below the text is a section for 'This week's readings', which includes a link to 'Read chapters 17-21 of the eBook Introduction to wellbore surveying for a more detailed understanding.' There is a 'STAFF DEBUG INFO' button. A video player is embedded, showing a man speaking. The video title is 'Video 6-0-A'. The video player has a progress bar at 0:00 / 0:43 and a speed control set to 1.0x. To the right of the video player is a transcript area with the text: 'Start of transcript. Skip to the end.' The transcript content reads: 'Welcome to week six of the course. In this week we're going to look at uncertainty. I'm going to try and take you through a basic understanding of why ellipses of uncertainty are formed - what is the basic principle that makes it elliptical in the first place? What typical size and orientation of these ellipses will we see? And from that I want to advance to how we use that information in real error models and then, to go on from that to look at anti-collision and various methods of presentation of anti-collision that we use in the field.' There is another 'STAFF DEBUG INFO' button at the bottom right of the transcript area. At the very bottom of the page, there are 'Previous' and 'Next' navigation buttons.



- Currently running the third group (cohort) of students through the course
- Cohort #1 ran from Sep 21 to Jan 22, with 11 of 17 graduating
 - A couple dropped back to cohort #2
- Cohort #2 ran from Feb 22 to June 22, with 10 of 14 graduating
- Cohort #3 starting in September and will run to December, with 23 students on 4 different continents
- Cohort #4 will start in January, and already has several students lining up



Cohort #1

RB010101	Abdelrahman Afify
RB010102	Teddy Chen
RB010103	Glenna Crookston
RB010104	David Gutierrez
RB010105	Saleel Kolakkodan
RB010106	Andrew Pare
RB010107	James Powell
RB010108	Georgy Rassadkin
RB010109	Nicholas Robertson
RB010110	Joseph Sanders
RB010111	Tyler Trammell

Cohort #2

RB010201	Josh Albright
RB010202	Alec Berarducci
RB010203	Andres Diaz
RB010204	Joel Dunn
RB010205	Timothy Gee
RB010206	Mike Long
RB010207	Paul Reynerson
RB010208	Sheldon Schmidt
RB010209	Kevin Sutherland
RB010210	zackary whitlow



Cohort #1

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RB010105	Saleel Kolakkodan
RB010106	Andrew Pare
RB010107	James Powell
RB010108	Georgy Rassadkin
RB010109	Nicholas Robertson
RB010110	Joseph Sanders
RB010111	Tyler Trammell

Cohort #2

RB010201	Josh Albright
RB010202	Alec Berarducci
RB010203	Andres Diaz
RB010204	Joel Dunn
RB010205	Timothy Gee
RB010206	Mike Long
RB010207	Paul Reynerson
RB010208	Sheldon Schmidt
RB010209	Kevin Sutherland
RB010210	zackary whitlow