

# Error Model Sub-Committee Update

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# Speaker Bio

- Andy McGregor

- Technical Director, H&P UK.
- 25 years in navigation and positioning
- 15 years in wellbore survey
- Previously with Tech21, Weatherford, AJC
- Inverness, Scotland
- Specialised in survey management, algorithms, error modeling,



# EMM Meetings

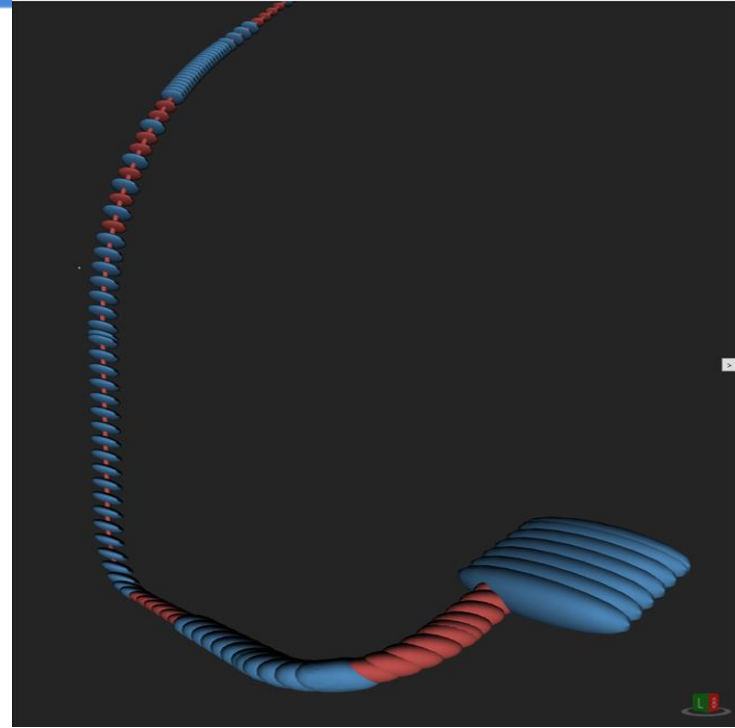
- Online Survey on Future Work
- Two virtual meetings on Zoom
  - ~25 attendees at each
- Thanks to those that took part.



- Changes were
  - Addition course length dependant terms (XCL)
  - Changes to misalignments and sag
  - Breakout of geo-mag terms for relative correlation
  - Defined handling of tie-on to surface

# Rev5 – XCL Terms

- ISCWSA#3 Test Well
- Red: regular 30m survey intervals
- Blue: Irregular surveys
- Long straight gap
- Long rising and turning gap.



# Revision 5 – Status

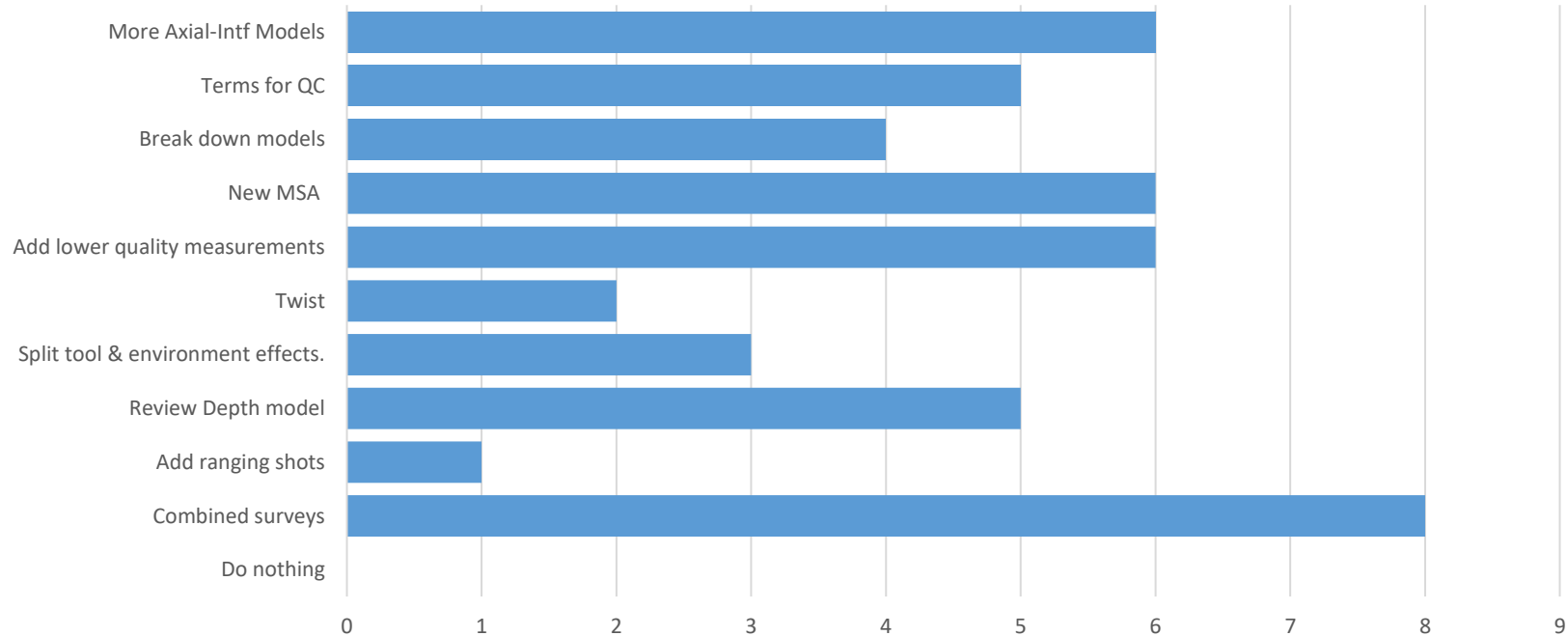
- Now agreed that Rev5 out of beta
  - Main changes have been available in Compass
- Documentation on website largely complete
  - <https://www.iscwsa.net/error-model-documentation/>
  - Release notes, tech supplements, diagnostic data
  - Small correction to be made to geomagnetic terms
- Slide to help explain rev5 to management



- Formerly OWSG models
- Steve Grindrod created definition spreadsheets and diagnostic files
- ISCWSA funding still not available
  - Steve has agreed to provide this info gratis.

# Survey Monkey - Next Tasks

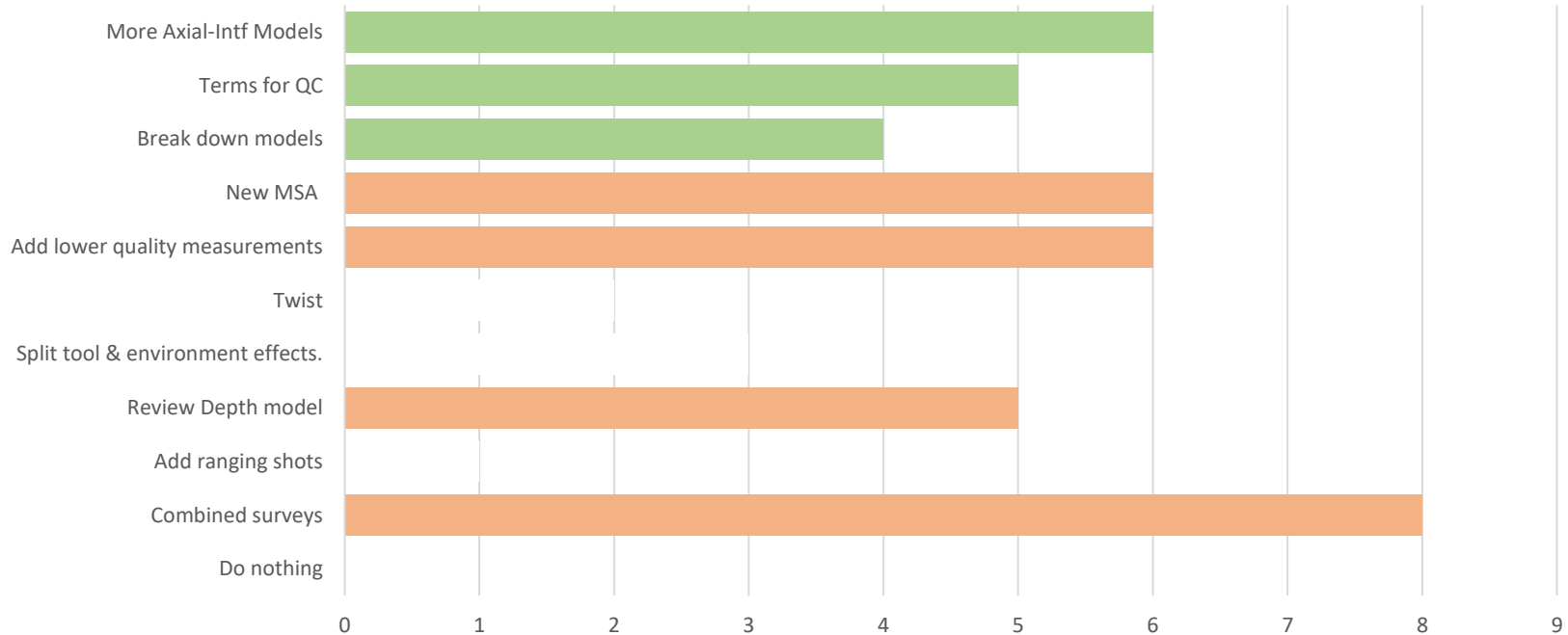
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# Next Tasks

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# Handling Errors in Side-tracks

- Different handling of collision avoidance side-track test
- Relative errors - zero tool, subtract covariances or consider correlations
- Depth stretch and scale terms
  - Md counted from side-track depth?
- Case where side-track doubles back and might collide with parent above side-track depth

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# Drill String Interference - History

- MWD paper had angular terms for DSI.
- Rev4 changed to constant magnetic interference
- Based on different approach to non-mag spacing
- Current 220nT magnitude - compromise
- Selection 75 / 150 / 300 nT ??
- Evidence of 700nT+ in US land

# Additional Axial Interference Models

- If companies aren't doing spacing calcs would it make any difference?
- Tie-in with QC
- Clear guidance / process
- Provide spacing calculator?
- Clear naming models
- Liaise with QC + Education committees.

# Questions

