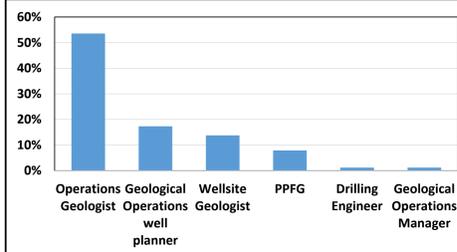


Results of the Wellsite Geology Survey 2017/18

Part 1



Tim Herrett Ltd

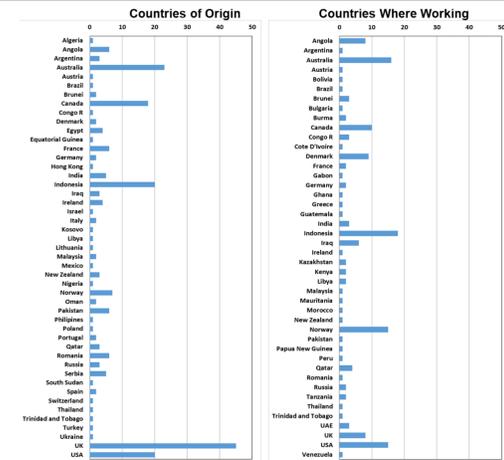


About the Survey

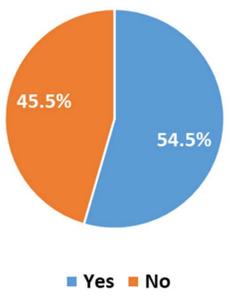
- Take a snapshot of wellsite geology in 2018 and help to raise its profile.
- Get some hard data about the discipline.
- Survey completed using SurveyMonkey, an online commercial service.
- Responses are anonymous. Survey URL distributed and forwarded via e-mail, LinkedIn and through the GS mailing list.
- Time frame 27th June 2017 to 19th February 2018 (237 days).
- 285 total responses, 165 complete responses, some partial.
- Average completion rate 58%, average completion time 28 minutes.
- Results are a 'good indication' at best, probably not statistically robust.

About the Respondents

- All wellsite geologists, 38% had worked as operations geologist previously
- 22% of respondents have had 1 or more times out of the industry
- 47 countries of origin.
- 55% working on a well in the same country as working.



Are you working on a well in the same country where you live?

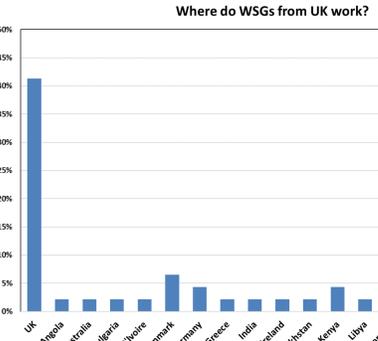


Thanks to:

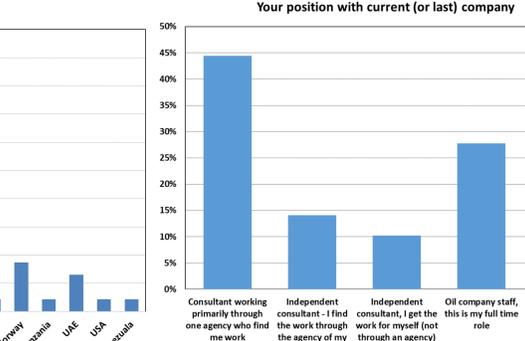
- Petroleum Group of the Geological Society for providing financial support for the use of SurveyMonkey.
- The rest of the convening committee for their suggestions and support.
- And chiefly yourselves for completing the survey.

Wellsite Geology

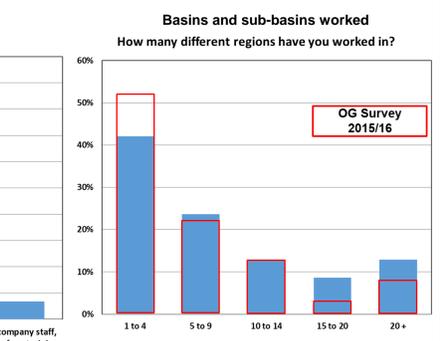
- Wellsite geology has been the traditional and important stepping stone between mudlogging and operations geology but that is starting to change.
- The role of the wellsite geologist has gradually evolved over the years. The advent of a range of downhole tools and rapid digital communications has resulted in:
 - Wellsite geologists are increasingly data managers with huge volumes of data which needs to be QC'd and distributed.
 - Faster drill rates and longer bit runs resulting in increased workloads.
 - Autonomy becoming less, decision making is moving to the office.
- Wellsite geology has some important specialisms, need to understand:
 - PPFG - Wellsite evaluation of formation pressures including trend line analysis and use of indirect indicators such as gas events, caving, hole conditions etc.
 - Geomechanics - Awareness of the signs and root causes of wellbore instability and hole problems.
 - HTHP - The special requirements and processes of HTHP wells.
 - Geosteering - The processes of steering a well using downhole tools.
 - ERD - The procedures, tools and wellbore management of extended reach wells.
 - The principles of tools and processes of mudlogging, MWD/LWD, wireline and other wellsite services. Specialist witnessing of tools being run.
- The future of wellsite geology may be in mastering specialisms.



UK nationals work in a wide variety of countries around the world. Majority work outside the UK.

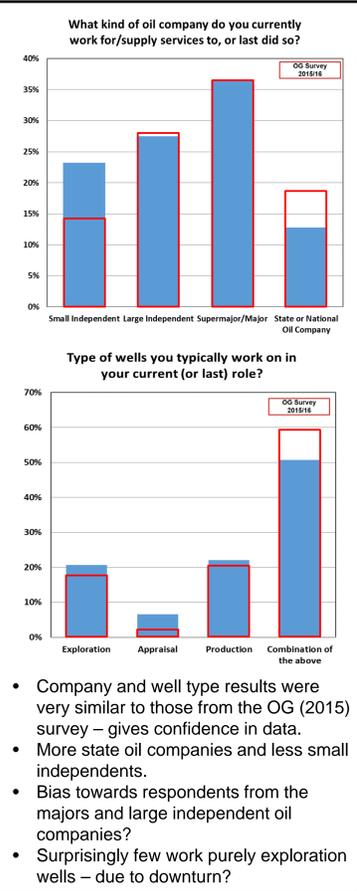
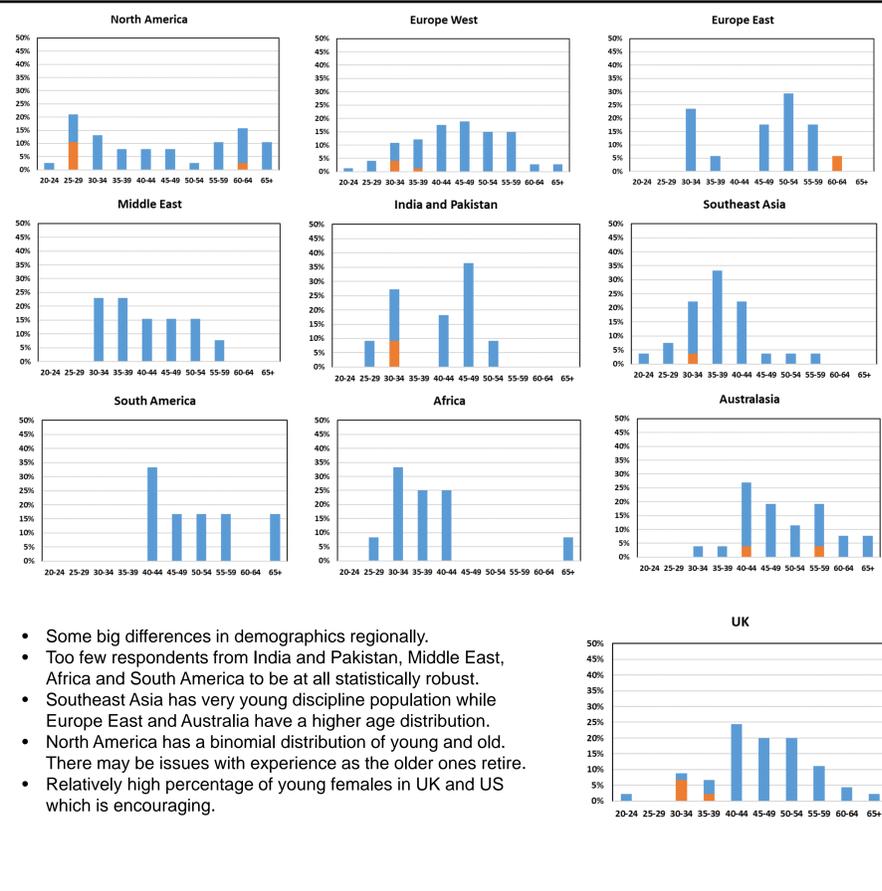
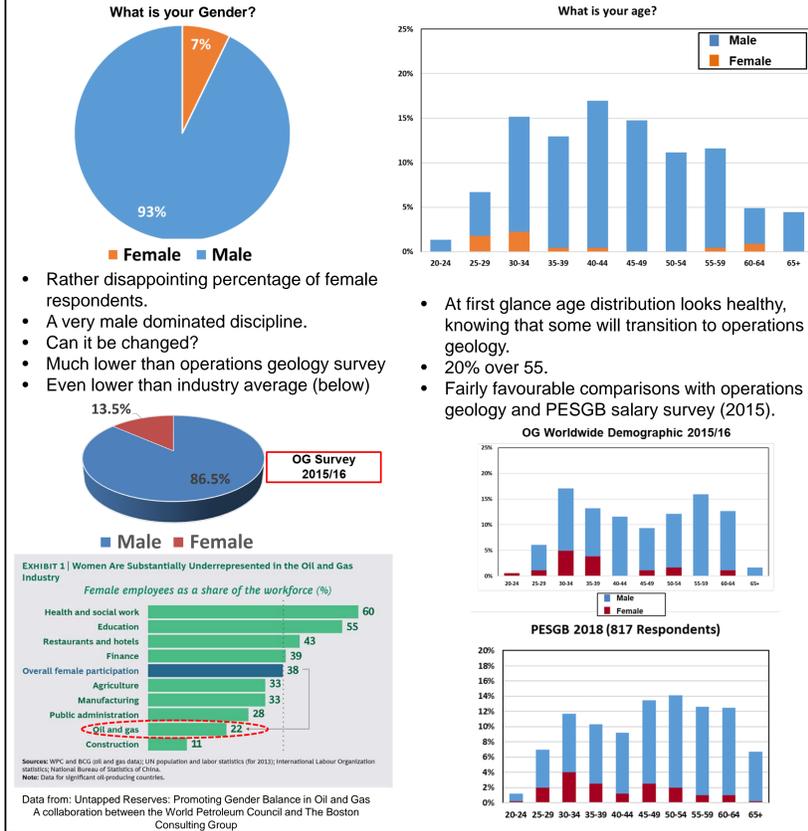


Staff wellsite geologists mainly India and Pakistan, Southeast Asia, Africa and Middle East. Generally staff WSGs 25% or less

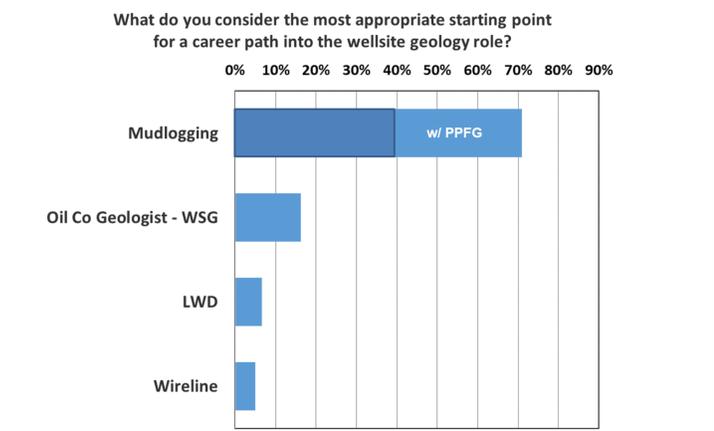
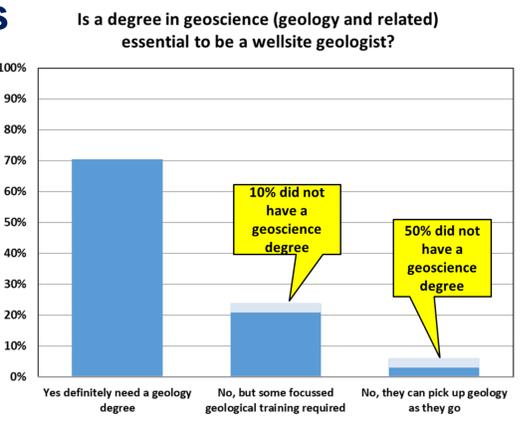
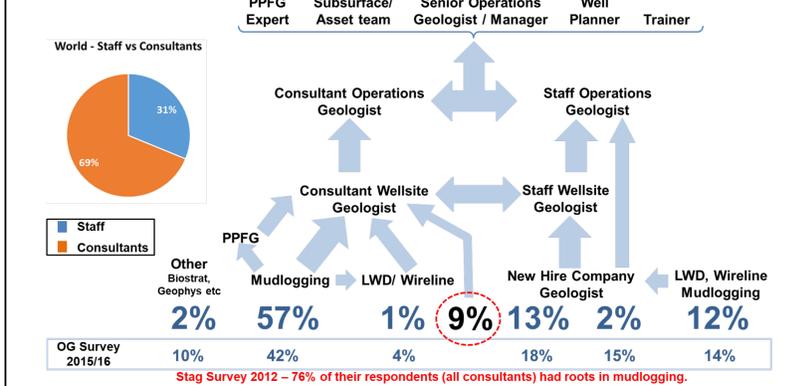


WSGs seem to have wider spread of experience than OGs (red outline).

Gender & Demographics



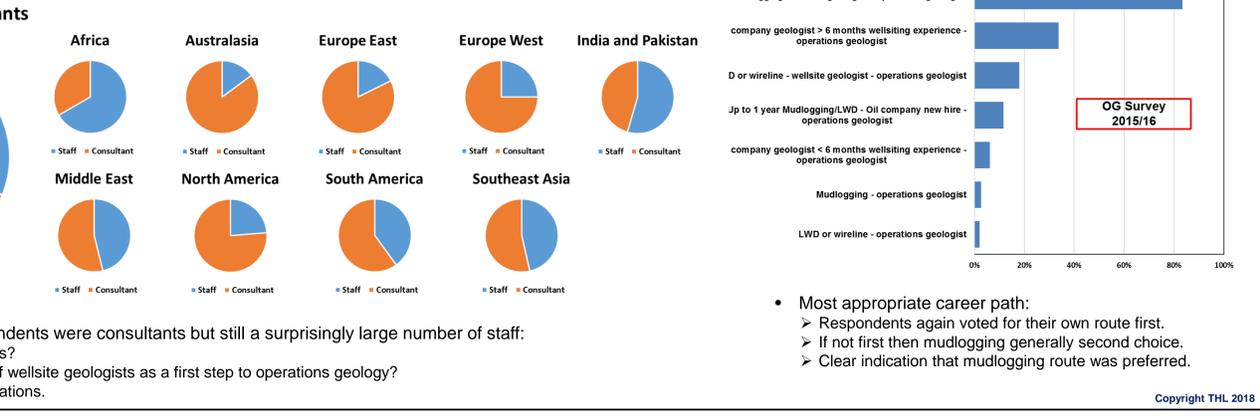
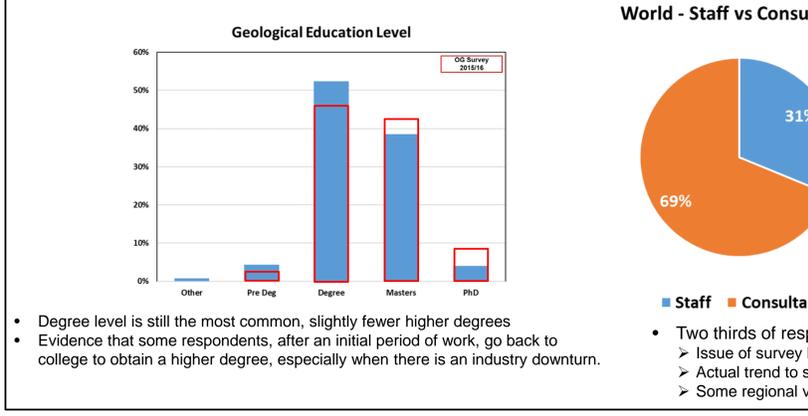
Wellsite Geology Career Paths and Roles



- Around 60% went via mudlogging to wellsite geology so it is still an important route.
- Percentage on each route are similar to the operations geology survey apart from the 9% who became wellsite geologists direct from other jobs or straight from college (not necessarily with a geology degree).
- Career origin in mudlogging much more common in Europe and Australia (70%).
- Rest of world less so (30-50%)

- Majority of respondents stated that a degree in geoscience was essential:
 - Not an overwhelming majority.
 - Half of those who said it was not essential did not have a degree in geoscience themselves.
 - Most of those saying 'no' were in the age range 20-35, and 55-59.

- Majority of respondents still believe that mudlogging (especially with PPFG experience) is by far the best way into wellsite geology.
- Ties in with findings of the operations geology survey (although a slightly different question was asked).



- Degree level is still the most common, slightly fewer higher degrees
- Evidence that some respondents, after an initial period of work, go back to college to obtain a higher degree, especially when there is an industry downturn.

- Two thirds of respondents were consultants but still a surprisingly large number of staff:
 - Issue of survey bias?
 - Actual trend to staff wellsite geologists as a first step to operations geology?
 - Some regional variations.
- Most appropriate career path:
 - Respondents again voted for their own route first.
 - If not first then mudlogging generally second choice.
 - Clear indication that mudlogging route was preferred.

