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A Short History of the **Geodetic Corrections Subcommittee** of the SPE Wellbore Positioning Technical Section (TS, formerly ... and still ... known as ISCWSA, Industry Steering Committee for Wellbore Survey Accuracy).

Several times in recent years I have been asked for the "**SPE test dataset for wellbore survey calculations**". As chair of the short-lived Geodetic Corrections Subcommittee of the SPE Wellbore Positioning Technical Section I did provide a test dataset for wellbore survey calculations to the members of that subcommittee, some of whom used it and reported back to me. The Technical Section never voted this dataset as "official" in any way (possibly embarrassing for those whose software failed the calculation, but more probably due to lack of follow through on my part). Nevertheless, the dataset is still there for those who wish to use it.

This short history provides a context for the dataset and serves as a list of subcommittee material available on this website.

- The history begins in 1999 with the publication of "**Directional Drilling and Earth Curvature**" (SPE 56013) by Hugh Williamson (BP Amaco) and Harry Wilson (Baker Hughes INTEQ). Williamson and Wilson identify seven common errors related to earth curvature in directional drilling calculations. I've never been able to find this paper on the SPE website, so I provide it here.
- In October 2005 Noel Zinn (ExxonMobil at the time) delivers "**Accounting for Earth Curvature in Directional Drilling**" (SPE 96813) to Wellbore Positioning Technical Section and as a poster in the SPE annual technical meeting. Williamson and Wilson suggest cartographic corrections for the seven errors. I provide a geodetic algorithm (called LMP) that eliminates cartography (map projections) altogether and gets the same answer as the corrections proposed by W&W. Much simpler. The problem with map projections is that there are so many of them. The copyrighted paper is available here: <https://www.onepetro.org/conference-paper/SPE-96813-MS> On this FTP site I provide the PowerPoint presentation with and without speaker's notes and the poster, none of which are copyrighted.
- In February 2007 Noel Zinn delivered "**ExxonMobil Well Surveying Procedure**" at the semi-annual of the SPE Wellbore Positioning Technical Section held at Shell in Rijswijk, the Netherlands. The paper describes ExxonMobil's new requirement for true north (TN) azimuths in well reports and the internal use of LMP. It also quantifies the positioning error of an extended reach North Sea well as 21% of the semi-major axis and 38% of the semi-minor axis of the ISCWSA error ellipse if the Williamson & Wilson corrections are ignored. During the discussion of this paper the **Geodetic Corrections Subcommittee** was formed. Several people were nominated to join. On this FTP site I provide the PowerPoint presentation with and without speaker's notes.
- In March 2007 I sent an invitation email to those nominated to attend. The invitation is enclosed. The **test dataset for wellbore survey calculations** was included as a zip

file with the invitation. The dataset is confusing, so the following explanations are offered:

- The survey data (MD in meters, true azimuth and inclination) are included in the files **Welle.dat** and **WellF.dat** (also **Welle.csv** and **WellF.csv**).
- The LMP (geodetic) answers are in the files **Welle.xls** and **WellF.xls**. In these files you will find the WGS84 coordinates (lat/lon) for the well heads and the cartographic information (Transverse Mercator).
- The cartographic answers (W&W corrections) are provided HydroProjects WellDev, commercial software owned by ExxonMobil, in the files **Welle P7.txt** and **WellF P7.txt**. Both LMP and WellDev (two very different methods of computation) agree at the centimeter level at colliding TD.
- The two wells are shown graphically in "**SPE Test Colliding Wells v2.pdf**"
- The **Geodetic Corrections Subcommittee** met in April 2007 at ExxonMobil. Deliverables from that meeting included on this FTP site are the following:
 - The "final" report of the meeting, "**Notes from Geodetics Corrections Subcommittee.pdf**"
 - A presentation from Total "**(TOTAL) April 20 Meeting of SPE Wellbore Positioning TS.pdf**".
- A summary PowerPoint of the April subcommittee meeting was prepared for the November 2007 Technical Section meeting, "**Geodetic Corrections Summary.pdf**".

I hope that this repository is helpful. It is located at:

ftp://www.hydrometronics.com

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