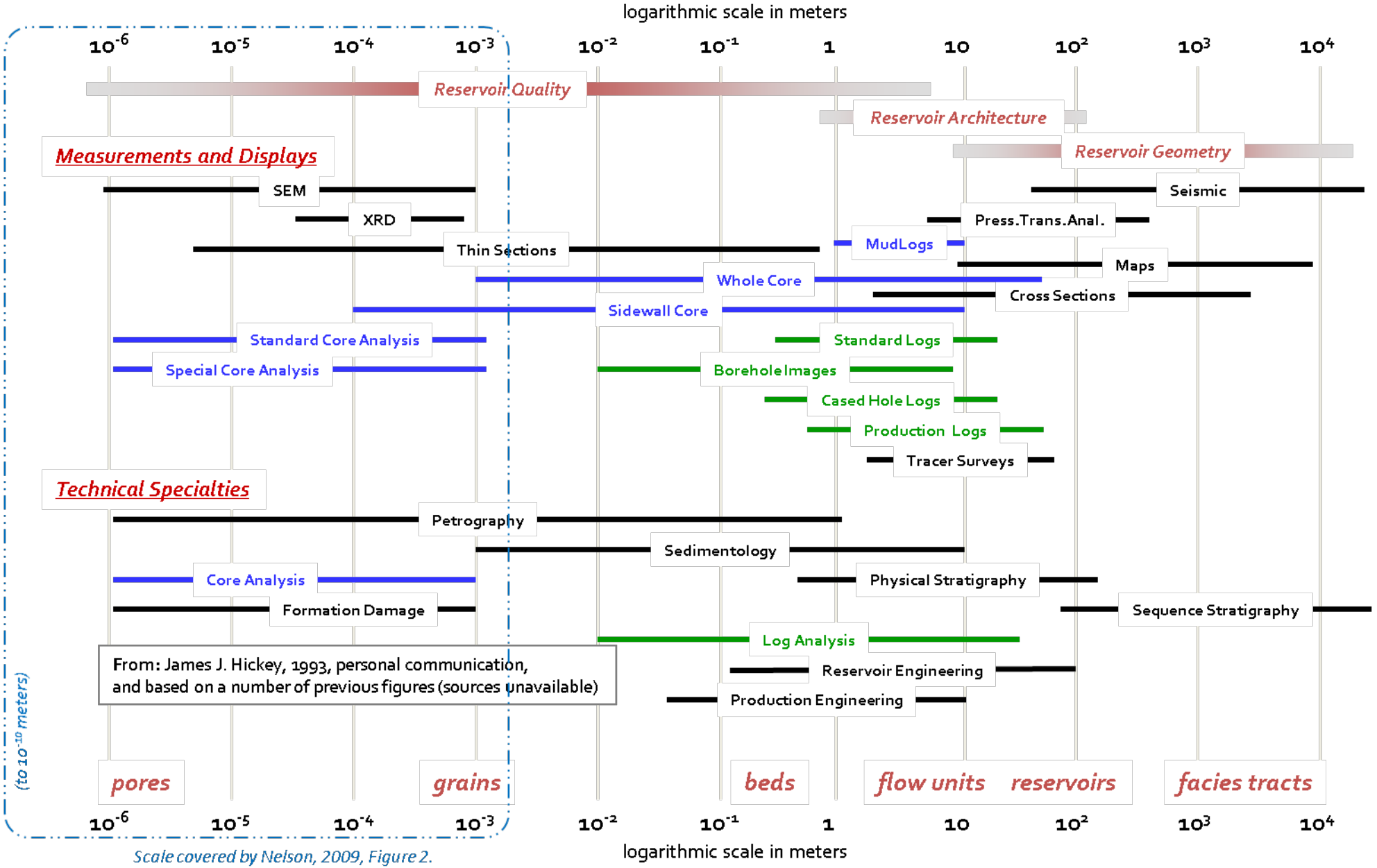
Geoscience Scale of Investigation

2017.10 Dak



Scale covered by Nelson, 2009, Figure 2.

The Discovery Group, Inc.
www.Discovery-Group.com

Geoscience Scale of Investigation

Comments:

This graphic illustrates the scales involved in the geoscience and engineering measurements that are routinely made, and the technical specialties that use those measurements. One can see that differences in interpretation of the subsurface can arise based on those scale differences alone, as well as on the experience and viewpoint of each interpreter.

Note that each specialty covers several orders of investigative magnitude.

In the specialty of Petrophysics/Well Log Analysis one must consider the scale of investigation of each measurement through the following components:

- The axial resolution; that is, the resolution of the measurement along the long axis of the logging tool (formerly the "vertical resolution);
- The depth of investigation; that is, the distance into the formation which the tool senses;
- Whether the measurement is
    - Omnidirectional (the tool sensing completely around the borehole), or
    - Azimuthal (the tool sensing in one direction from the borehole),
- If the measurement is more sensitive at a specific distance from the borehole, and less sensitive at other distances.

The outlined box at the left side of the illustration shows the overlap between this illustration and Figure 2 from Philip H. Nelson, 2009, Pore-throat sizes in sandstones, tight sandstones, and shales: AAPG Bulletin, (**93**) 3 (March), pp.329-340.

This document is intended to be updated periodically as necessary to include new and corrected information.

Questions and comments about this document are welcomed and encouraged. Please contact Dan Krygowski at The Discovery Group; DanKrygowski@Discovery-Group.com.