Susceptibility of the Scintrex CG-5 relative gravimeters to tilts

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We report about a serious susceptibility of the Scintrex CG-5 relative gravity meter to a tilt of the instrument if the tilt lasted for a while, e.g., when in transit between sites. Based on a series of experiments with different instruments, we demonstrate that the readings may be offset by tens of microGal and that it may take hours before the first reliable reading can be taken, depending on how long the instrument stayed tilted before measurements started. This sensitivity to a tilt has not been reported yet in the literature. It can't be detected during operation by checking the readings during recording or by reviewing the final data before leaving a site, a pre-caution suggested by Scintrex Ltd. It's impact on the instrument readings renders the measurements useless in high-accuracy (< 10 microGal) applications. In order to avoid the degradation, the instrument has to be kept horizontal during transits within a few degrees. This may become problematic in the field, e.g., when operating in hilly terrain or when walking with the instrument in a backpack.