



Localized and global motions observed at the UK Space Geodesy Facility

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It is very important to monitor and quantify the local stability of space geodetic observatories that contribute observations that are used to maintain the ITRF. Full geophysical utilization of the data requires separating complicating effects such as highly localized motions from truly global, seasonal effects, for instance. The UK Natural Environment Research Council Space Geodesy Facility (SGF) at Herstmonceux, UK, operates a highly accurate and prolific ILRS satellite laser ranging station, two IGS GNSS receivers (GPS and GLONASS) as well as associated environmental monitors including an automatic ground-water-level measurement system. During Spring 2005 an absolute gravimeter will be added to the permanent on-site geodetic equipment. In this poster we report results of laser ranging analyses and global and differential GPS analyses, carried out primarily to investigate on site vertical stability and local loading effects. Present in the results are strong correlations between local hydrological variations and vertical seasonal signals whose magnitudes suggest that they are driven by a combination of local loading and global Earth mass-centre variations. We further look forward to including absolute gravimetry into the analyses in future, by reviewing a short span of historical data obtained on site using a visiting absolute gravimeter from the UK Proudman Oceanographic Laboratory.