On the ITRS datum specifications (Theme 3)

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The ITRS is defined as a geocentric system with orientation according to the BIH1984, and metric scale. The realization of the reference frame (ITRF) has to follow this definition, i.e., the origin of the coordinate system has to be fixed in the Earth's centre of mass (geocenter); the orientation must be identical with BIH1984 in the reference epoch and have no net rotation w.r.t. the global Earth surface in its time evolution; the scale has to be fixed to the metre definition. These datum specifications cannot be derived from observations, but they are given by external standards. A problem in the realization is to separate the deformations of the reference network reflected by the time-dependent station coordinates, and the datum parameters. In the presentation we discuss, how the datum specifications can be fixed in time without contamination by network effects.