

The kinematic reference frame for ITRF

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The kinematic reference frame underlying the recent ITRF realizations is based on the NNR NUVEL-1A geophysical plate model. This model has two major shortcomings for geodetic applications: 1. It reflects the average plate motions over the past 3 million years rather than present-day motions, 2. The model includes only a limited set of rigid plates and does not consider any crustal deformations. In order to overcome these shortcomings we have to derive a present-day plate motion and crustal deformation model from a combination of all geodetic observation techniques (VLBI, SLR, GPS, DORIS) and refer it to a no-net-rotation reference consistent with Earth rotation parameters. The new geophysical plate model PB2002 (Bird 2003) provides a good basis for such a model, because it includes a large set of rigid plates (52) and deformation zones (13). The procedure for combining the geodetically estimated kinematic parameters (linear velocities) and recommendations for the future procedure are presented.