

Tisserand Condition in ITRF2000 and Its Global Plate Motion Model

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Key words:

ABSTRACT

There are 54 sites employed by ITRF2000 for ITRF2000 orientation. The deficiencies of these sites are obvious. First, they cannot well represent the rotation rate of the earth crust because there are no selected sites in 5 out of 14 tectonic plates and three of fourteen plates only have one site respectively. Second, the total angular momentum of the crust is non-vanishing in ITRF2000, even though it is declared that No Net Rotation w.r.t. NNR-NUVEL1A is imposed on ITRF2000 construction according to the documentations of ITRF2000. So the NNR condition in CTRS realization cannot be satisfied in ITRF2000. In this paper, the criteria of site selection for estimating the Euler vectors are suggested; the Tisserand system constraint equation in ITRF construction is derived; and as a product, the global plate motions can be obtained from the ITRF2000 construction.

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