



## **International Terrestrial Reference Frame for Global Change Monitoring**

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Most geodetic and many geophysical quantities measured and used depend on the definition, realization and stability of the International Terrestrial Reference Frame (ITRF). These include geocentric site coordinates and motions, satellite orbits, geocenter motion, Earth orientation and its variations, mean sea level rise, and polar ice mass changes. In some cases, the dependences may be implicit and not obvious. As we are approaching the stage of millimeter-precision geodesy and near real time global change monitoring with a multitude of space and time scales, it is critical to have a modern and stable infrastructure for the maintenance and improvement of the ITRF. It is also essential to improve the concepts, understanding, methodology, and products of ITRF to be consistent with the higher precision and ever-changing nature of the Earth. With these in mind and from the viewpoint of users interested in studying surface mass load, we will review and discuss certain limitations and difficulties of the current ITRF status and approach, including the sparseness of data, linear motion model, and multi-yearly updates. New perspectives on reference frame research and progress on our new experimental approach to a weekly ITRF realization will also be reported.