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ITRF and seasonal station motions

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By definition, the International Terrestrial reference Frame (ITRF) is a secular frame providing station positions at a reference epoch and linear velocities. Considering the requirements of some scientific applications, such as precise orbit determination, it becomes however important to develop corrective models that can be added to the ITRF coordinates to account for non-linear station motions, with respect to the Earth Center of Mass (CM). It is in this perspective that post-seismic deformation models were, for instance, provided with the ITRF2014 solution. The next most important non-linear effect to be taken into account would be seasonal station motions. Seasonal station motions were estimated during the ITRF2014 construction, independently for each space geodetic technique. No attempt was made, however, to combine the seasonal signals estimated for the different techniques, and seasonal corrections were therefore not provided with the ITRF2014 solution.
We explore here the feasibility of deriving meaningful combined seasonal corrections in the CM frame using two possible approaches: (1) combining the seasonal signals estimated for the different techniques during the ITRF2014 construction, (2) accumulating the time series of input solutions from the four techniques all together, with properly weighted equality constraints on seasonal signals at co-location sites.
Results of the two approaches will be confronted and analyzed in order to evaluate the level of consistency of the technique seasonal signals at co-location sites. Conclusion will be drawn on the possible ways of providing seasonal corrections consistent with the next ITRF release.