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Performances of Kinematic GPS Precise Point Positioning using the CNES-CLS IGS Analysis Center Products

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The GPS is currently used to track mobiles like planes, boats, and cars. When a precise trajectory is needed, differential processing is used with the help of a reference station. This method provides good results under the assumption of short baselines (shorter than a few hundreds kilometres). This condition reduces the field of application of differential based GPS techniques and imposes the use of a reference station network.
Precise Point Positioning does not use reference station and is more and more considered as an alternative to differential processing. Theoretically, this method can be applied to any case. However, this technique is constraint by the accuracy of the modelling of the GPS signal. PPP using phase observations also needs to deal with the ambiguity resolution problem. Nowadays, several authors indicate strategies to recover zero-difference integer ambiguities.
In this poster we used the Wide-Lane Satellite biases and integer satellite clocks estimated by the IGS-CNES Analysis Center in order to compute "integer kinematic PPP" solutions. W.e present various PPP applications and evaluate the impact of fixing ambiguities. We review the performances of PPP with respect to the dynamic of the GPS receiver: LEO satellites, planes, boats, and Earth deformations induced by loading and earthquakes. In each case we quantify the benefits of fixing ambiguities to integer values and discuss the pros and cons of PPP.