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Real time PPP approach with troposphere estimation using ultra rapid predicted products. Applications to GNSS in seismology in ALERTES-RIM system.

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PPP approach has several advantages on other approaches focused on big precision real time applications. One of this advantages is, for instance, a less processing burden compared with double differences. Another particularity is the viability of working with one standalone receptor, without using a geodetic net nor reference stations. Nevertheless, the former has several disadvantages (e.g. several errors mitigated by double differences must be treated accordingly). Once working using the PPP approach for earthquake early warning systems, the troposfheric delay must be treated carefully, since it introduces errors in the final solution that make the accuracy decrease. In order to bring down this effect, we first work in a static way using ultra-rapid predicted IGS ephemerides to get a estimation of the troposphere we will use in a kinematic processing. This method if focused on improving the accuracy of the approach in near real time applications, and can be also combined with other strategies of filtering like sidereal filtering. It′s viability in ALERTES-RIM early warning system is under study. For this, GIPSY-OASIS software from JPL is used.