In order to compute inter-frequency Differential Code Biases (DCBs), the Geomagnetic Free combination of a GNSS signal pair needs to be corrected from the ionospheric refraction effect. Such information is obtained using either Global Ionospheric Maps (GIMs) or local models. In this work we investigate the influence of GIMs on the final value and precision of DCB solution. The paper addresses DCB computation based on a known method and assesses its general performance. Thanks to comparisons with much more unknowns than using ground network due to use of MGEX network providing « polar (68.6°) satellite observations ». Results show that DCBs are constant values assuming that DCBs are constant values and stability in September 2015 (related to disturbed geomagnetic conditions (such as JASON’s data). Such values are similar to that of other ACs, noting that between 0.1 and 0.4 ns)

The “true” DCB precision is therefore difficult to assess. However, as the variability of the solution clearly depends on the ionospheric model (ΔDCBtrue is always larger than ΔDCBmod). It is proposed to get rid of the ionospheric model by considering observations above the ionosphere using altitude satellites like JASON-2.

Methodology
- Measurement of MGS-C 2016: satellite/terrestrial, time series (see above).
- DCB computation algorithm modified w.r.t. ground network.
- Use of MGEX network providing "polar (68.6°) observations" (such as JASON’s data). Such values are similar to that of other ACs, noting that between 0.1 and 0.4 ns). Influence of GIM choice on DCBs:

Conclusions and future work
- The paper addresses DCB computation based on a known method and assesses its general performance. Thanks to comparisons with IGS analysis centers, we showed that our implementation of the method was correct. We can provide daily and monthly DCB values.
- Considering a ground network solution, precision limitation mainly concerns GIM precision so that "true" DCB precision is larger than the estimated parameter covariance matrix.
- The method has been adapted to JASON-2 satellite and provides similar solutions than using ground methods. However, its added value is limited as its performance is lower, in terms of both precision and stability. Nevertheless, it has the advantage to provide a "nearly ionosphere-dependent" solution, with a single receiver only.
- Future work may concern the use of a second satellite simultaneously, the study of the influence of the cut-off angle, the improvement of the mapping function, the study of the intra-daily variability of the receiver DCB, etc.