

Dear IGS PPP-AR WG,

Members of the WG attended a virtual meeting yesterday (2021-09-16) to discuss the application of phase center offset (PCO) corrections to the computation of geometry-free biases such as widelane (Melbourne-Wubben) biases and differential code biases (DCB).

Here are the main takeaways from the meeting:

- It was recognized that the lack of convention for the application of PCO corrections can lead to inconsistencies between network and user solutions.
- It is, in theory, possible for users to apply a correction to the biases to make them compatible with their software implementation. However, this approach can quickly become overwhelming considering the different implementations on the network side and processing of multiple frequencies.
- A preferable solution would be for all analysis centers to apply PCO corrections when computing geometry-free biases. With users following the same convention, applying observable-specific biases as defined in the Bias SINEX format remains a simple and consistent approach to bias handling.
- In the future, improved antenna calibrations may become available, including different calibrations for code and phase signals, and different PCO values on L1 and L2 for the GPS II satellites. Applying PCO corrections is a flexible approach that allows obtaining the most precise solution.
- Adopting the convention of applying PCO corrections to geometry-free biases should occur at a defined date. The switch to ITRF 2020 would be a good time to introduce this change.
- The application of PCO corrections to biases should be indicated as a comment in the Bias SINEX file.
- Coordination with other IGS working groups is essential:
 - o The IGS real-time working group would need to make sure that the same convention is applied to the RTCM SSR messages.
 - o The Ionosphere working group would need to make sure that analysis centers providing DCB also apply the convention.