



Integer ambiguity resolved orbits for Sentinel and the benefits of combined Sentinel and GPS processing

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In this presentation we will present our Sentinel and GPS orbits generated at the European Space Operation Centre (ESOC) as part of our Copernicus activities. We will highlight the improvements that have been made in our software (NAPEOS) as well as in our satellite modelling in recent times.

The main focus of this presentation will be on the integer ambiguity resolved orbits for the Sentinel missions as well as the benefits of a fully combined processing (i.e. combining Sentinel together with the GPS satellites). In NAPEOS we are able to either resolve the integer ambiguities in a network approach in which the satellites are included in an IGS like setup or we can resolve the integer ambiguities using the GFZ/CNES method.

In addition, we will address the possibilities generated by the Sentinel-3A/B close tandem phase to resolve the ambiguities in a more formation-flying like approach, using the space-baseline between the satellites flying in tandem or the baseline between two antennas on the same satellites when both nominal and redundant antenna-receiver chains were on. The results and benefits of these methods will be presented and compared.

We evaluate the orbit accuracy by analysing post-fit residuals, orbit overlap errors, and orbit differences between our orbits and external orbits generated by other analysis centres.