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Galileo satellites measurement biases and orbit determination : preliminary results

Felix Perosanz (1), Sylvain Loyer (2), Flavien Mercier (1), Cyrille Boulanger (1), Hugues Capdeville (2), and Adrien Mezerette (2)

(1) CNES, Toulouse, France (felix.perosanz@cnes.fr, 33 5 61 25 30 98), (2) CLS, Parc Technologique du Canal, Ramonville, France

Thanks to the IGS Multi-GNSS Experiment (M-GEX), signals from new GNSS satellites like Galileo are now available. CNES and IGN joined their efforts to contribute to the densification of this multi-GNSS global network through the REGINA project. However this network includes geodetic receivers from several manufacturers. For this reason we realized a dedicated test campaign to characterize the different receivers available in order to be able to process in a consistent way the data from the MGEX network. The test consisted in zero baseline measurements between receivers. Pseudo range as well as phase and wide-lane biases have been identified between Trimble, Leica, Javad and Septentrio receivers. Then the data from the global M-GEX tracking network have been processed for the Precise Orbit determination (POD) of the Galileo satellite. The strategy followed the one that the CNES-CLS IGS Analysis Center uses to compute hybrid GPS-GLONASS products.
Since July 2012, Galileo data are processed and orbit solutions are routinely produced and evaluated. Pseudo-range and phase biases between receiver as well as inter-system biases have been quantified. We also demonstrated that a sub-decimeter 3D-WRMS orbit accuracy of Galileo satellite orbit can be achieved even during the constellation deployment.