













Figure 7. Overall Performance of the SCS

the benefit of using SCS. Again, it should be mentioned that SCS is based on already known measurements and information at the receiver side, without additional hardware or complex calculation what increases the relevance of SCS in the authors opinion even more. Figure 7 also visualize the combination of the SCS with the GPS internal atmospheric correction, which shows again a slight performance increase, referring to the mean value. The higher peak values are caused by partially mis-compensations determined by the GPS internal atmospheric model.

## V. CONCLUSION

In this paper the authors described the development, functionalities and benefit of an *Advanced Software-Defined GNSS Receiver (ASDR)*. Based on the ASDR, a resource-aware Smart Constellation Selection (SCS) was introduced, which uses already available information at the receiver to identify potential performance enhancements of up to 13m when excluding certain satellites in some cases. The overall performance of SCS was analyzed using two reference points and estimated to more than 1.5m on average without any additional hardware or complex calculation. In addition, a freely available web-service was presented, to provide the recorded measurements and multiple analyzing tools to other scientists, so that they can analyze and estimate their positioning enhancements in the future.

## VI. ACKNOWLEDGMENT

The work on this paper has been partially founded by Deutsche Forschungsgemeinschaft (DFG) within the Collaborative Research Center SFB 876 "Providing Information by Resource-Constrained Analysis", project B4 and by the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement 261769.

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