Hindawi Publishing Corporation
International Journal of Navigation and Observation
Volume 2008, Article ID 683242, 1 page
doi:10.1155/2008/683242

Editorial

Future GNSS Signals

Olivier Julien,[1] Gérard Lachapelle,[2] and Letizia Lo Presti[3]

[1] *Signal Processing and Telecommunications Laboratory, École National de L'Aviation Civile (ENAC), 31055 Toulouse, France*
[2] *Department of Geomatics Engineering, University of Calgary, Calgary, AB, Canada T2N 1N4*
[3] *Dipartimento di Elettronica, Politecnico di Torino, 10129 Torino, Italy*

Correspondence should be addressed to Gérard Lachapelle, gerard.lachapelle@ucalgary.ca

Received 15 April 2008; Accepted 20 April 2008

This special issue of the International Journal of Navigation and Observation deals with future global navigation satellite system (GNSS) signals. It is a timely issue in view of the current US GPS modernization efforts, the deployment of the EU's Galileo, the replenishment of Russia's GLONASS, and China's plan to launch COMPASS. These systems, either individually or as a group, will provide tremendous availability, accuracy, and reliability enhancements to a consumer's market that is growing at an annual double-digit rate. Research is taking place not only to enhance the methods and algorithms to process the signals already in place but also to propose and optimize future signals and combinations thereof.

The seven papers presented in this issue cover a variety of topics, ranging from Galileo signal testing to signal multipath reduction, and represent a good cross-section of current activities in this area. A study of multipath performance of the initial Galileo signals transmitted by the GIOVE-A satellite using actual data is described by Simsky et al., and a new generic approach called multiple gate delay tracking structures to reduce GNSS signal multipath is proposed and evaluated with different software approaches by Heikki Hurskainen et al. Also, Borio et al. discuss two strategies for the joint acquisition of data and pilot channels that are available on emerging signals. Shanmugam et al. present a short synchronization code design for future GNSS based on the optimization of specific performance criteria. Joint L/C-band code and carrier phase linear combination methods for Galileo are discussed by Henkel et al. Moreover, Lentmaier et al. discuss Bayesian time delay estimation based on particle filters for use in dynamic multipath environments. Finally, a comparison between Galileo CBOC candidates and BOC(1,1) signals in terms of detection performance is presented by Dovis et al.

Olivier Julien
Gérard Lachapelle
Letizia Lo Presti