

InsideGNSS

GPS | GALILEO | GLONASS | BEIDOU

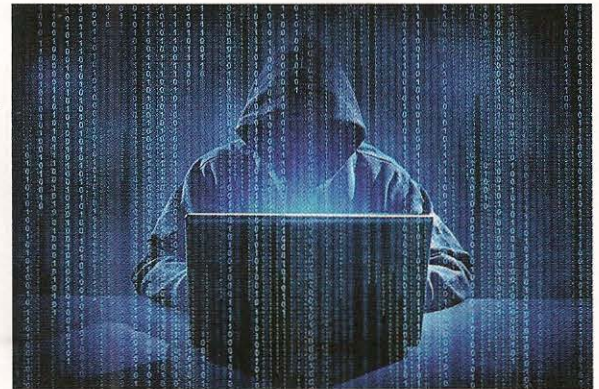
ON THE COVER

55 Real World Spoofing Trials and Mitigation

Via Direction of Arrival Discrimination

Jürgen Dampf, Dr. Thomas Pany, Wolfgang Bär, Jón Winkel, Leoš Mervart, José-Ángel Ávila-Rodríguez, and Rigas Ioannides

This article demonstrates that a synthetic aperture antenna can reliably detect and mitigate even sophisticated spoofing attacks rendered against Global Navigation Satellite Systems.



Cover photo from Shutterstock

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TECHNICAL ARTICLES

42 NRC Clock

Secure Dissemination of Traceable Time
Marina Gertsvolf, John Bernard, Andre Charbonneau, Bill Hoyer, and Hai Pham

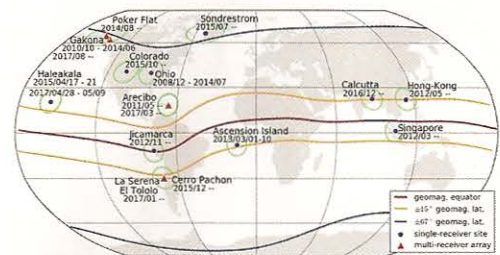
The demand for secure and accurate time has been growing in recent years in telecommunications, infrastructure, navigation and finance. The requirements are for traceable time with sub microsecond precision. Currently available methods have technical or reliability limitations in achieving this goal.



48 Automatic GPS Ionospheric Amplitude and Phase Scintillation Detectors

Using a Machine Learning Algorithm
Yu Jiao, John J. Hall, and Yu T. Morton

Ionospheric scintillation can cause errors or outage in GNSS services. Timely detection of ionospheric scintillation will enable adaptive processing to mitigate its effects on navigation solutions. This article presents a machine learning algorithm to autonomously detect ionospheric amplitude and phase scintillation.



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EU eLoran Efforts Sharpen while U.S. Requirements Study Continues

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Galileo in the Here and Now

Peter Gutierrez

36 GNSS & the Law

A look at the Legal Frameworks for "Outer Space"

Prof. Dr. Frans G. Von Der Dunk

Global Navigation Satellite Systems (GNSS), obviously, make crucial use of satellites operating in an area commonly known as "outer space", raising issues regarding which specific body of law might rule the operation of such satellite systems.

DEPARTMENTS

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Get Galileo on Board

Glen Gibbons

12 360 Degrees

News from the world of GNSS

Door Open to New Bidders as Air Force Moves Closer to GPS III Buy

OCX Passes Deep Dive Review; GAO Says Program Risk Remains High

Outlook for Civil GNSS Budget: Overcast with a Chance of Cuts

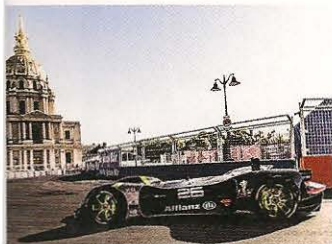
Galileo Search and Rescue System Officially Launched; Helping Save Lives

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Calendar of Events



VEHICLE CAPTURE
(AIRCRAFT AND GROUND VEHICLE)

UNMANNED AIRCRAFT

HANDHELD IMAGES
(SMARTPHONE, COMPACT CAMERA AND DSLR)

OPTONAV

HIGH PRECISION OPTICAL SURVEY SYSTEM

Real-Time and Post-Processed Operation

Scalable Point of Interest Accuracy: 0.3m at 500m range / 3m at 5km Range

99% Relative Point-to-Point Measurement Accuracy

Multi Platform Data Collection: Vehicle, UAV, Smartphone, DSLR, Aircraft

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