

	EUROPEAN NAVIGATION CONFERENCE 2020 ENC 2020
Time CET	23 - 24 November 2020 Virtual Programme
	Monday, 23 November 2020
	Conference Opening
13:00 - 14:15	Key note speakers: Prof. Carlos Jahn, Chairman of the DGON Board Prof. Jan Wörner, ESA Director General Prof. Hansjörg Dittus, DLR Executive Board Member Prof. Christoph Günther, Program Chair ENC
	Plenary Day I
14:30 - 15:00	P1 Is the Future of Satnav Evolutionary or Revolutionary? John Betz, MITRE
15:00 - 15:30	P2 Galileo Second Generation - Users at the centre of the European GNSS Systems future Miguel Manteiga Bautista, ESA
15:30 - 16:00	P3 Providing Alternative Position Navigation AND Timing (APNT) Sherman Lo, Stanford University
16:00 - 16:15	Q&A - Plenary Day I

	Live Presentations Day I
	Track I
16:45 - 17:10	A1 System Evolution Chairs: <i>Javier Benedicto, Michael Meurer</i>
	GNSS Evolution: Challenges, Threats, Solutions <i>Sergey Revnivykh</i>
17:10 - 17:35	A2 Signal Design and Analysis Chairs: <i>Gabriele Giorgi, Christoph Günther</i>
	Novel Concepts on GNSS Signal Design serving Emerging GNSS User Categories: Quasi-Pilot Signal <i>Stefan Wallner and Jose Antonio Garcia Molina</i>
17:35 - 18:00	A3 Kepler Chairs: <i>Christoph Günther, Gabriele Giorgi</i>
	Precise Point Positioning for next-generation GNSS <i>Patrick Henkel</i>
18:00 - 18:30	Q&A - Live Presentations
	Live Presentations Day I
	Track II
16:45 - 17:10	B1 PNT Security and Robustness Chairs: <i>Oscar Pozzobon, Dennis Akos</i>
	Robust Satellite Navigation in the Android Operating System using the Android Raw GNSS Measurements Engine and Location Providers <i>Damian Miralles, Dong-Kyeong Lee, Filip Nedelkov, Andriy Konovaltsev, Lothar Kurz, Sherman Lo and Dennis Akos</i>
17:10 - 17:35	B2 Signal Processing for Resilient Navigation / Receiver Signal Processing Chairs: <i>Thomas Pany, Fabio Dovis</i>
	Efficient tracking of joint Galileo OS data and pilot components <i>Johannes Rossouw van der Merwe, Fabio Garzia, Alexander Rügamer, Muhammad Saad, Matthias Overbeck and Wolfgang Felber</i>
17:35 - 18:00	B3 Signal Processing for Resilient Navigation / Receiver Signal Processing Chairs: <i>Fabio Dovis, Thomas Pany</i>
	Impact of Robust Interference Mitigation on GNSS Timing <i>Daniele Borio and <u>Ciro Gioia</u></i>
18:00 - 18:30	Q&A - Live Presentations

	Live Presentations Day I
	Track III
16:45 - 17:10	C1 Autonomous Systems / Inertial Sensing Chairs: <i>Mathieu Joerger, Jan Wendel, Andrey Soloviev</i>
	Radar Inertial Odometry with Online Calibration <i>Christopher Doer and Gert F. Trommer</i>
17:10 - 17:35	C2 Aeronautical Chairs: <i>Dirk Kügler, Maarten Uijt de Haag</i>
	Using Code Based GPS Double Differences for UAV Guidance to Moving Platforms <i>Thomas Dautermann and Bianca I. Schuchardt</i>
17:35 - 18:00	C3 Aeronautical Chairs: <i>Maarten Uijt de Haag, Dirk Kügler</i>
	Multipath Location Methodology for Ground Based Augmentation Systems <i>Osman Kalden, Petra Pisova, Nicolas Douchin, Bertrand Carreras and Ajay Vemuru</i>
18:00 - 18:30	Q&A - Live Presentations
	Live Presentations Day I
	Track IV
16:45 - 17:10	D1 Rail Chairs: <i>Oliver Michler, Eckehard Schnieder</i>
	European GNSS in ERTMS – State of the art and next steps <i>Daniel Lopour and Christian Wullems</i>
17:10 - 17:35	D2 Rail Chairs: <i>Eckehard Schnieder, Oliver Michler</i>
	Framework to Classify Railway Track Areas According to Local GNSS Threats <i>Daniel Gerbeth, Omar García Crespillo, Fabio Pognante, Alessia Vennarini and Andrea Coluccia</i>
17:35 - 18:00	D3 Rail Chairs: <i>Oliver Michler, Eckehard Schnieder</i>
	Using the Ferromagnetic Fingerprint of Rails for Velocity Estimation and absolute Localization of Railway Vehicles <i>Bernd Kröper, Martin Lauer and Max Spindler</i>
18:00 - 18:30	Q&A - Live Presentations

	Q&A - Presentations Day I
	Track I
18:40 - 19:00	Q&A Session A1 System Evolution Chairs: <i>Javier Benedicto, Michael Meurer</i>
No 1	A European Satellite-based High Accuracy Service Concept <i>Daniel Blonski, Rene Zandbergen, Ignacio Fernandez-Hernandez and Francisco Javier de Blas Fernandez</i>
No 2	European GNSS Service Centre (GSC): Current Status and Future Evolutions to Deliver Added Value Services <i>Pedro Gómez, Emilio González, Ana Senado, Ignacio Fernández-Hernández, Jesús David Calle Calle and Aitor Álvarez Rodríguez</i>
No 3	Promising directions of orbital group GLONASS development using CDMA - new signal's type <i>Iurii Vygonkii, Iurii Voloshko and Nikolay Leonidov</i>
No 4	Japanese GNSS Future System Evolution in the 2020-2030 Perspective <i>Takeyasu Sakai</i>
19:00 - 19:20	Q&A Session A2 Signal Design and Analysis Chairs: <i>Gabriele Giorgi, Christoph Günther</i>
No 1	Universal ranging code generator of GNSS signals <i>Olga K. Mikhaylova, Ilya V. Korogodin and Ivan V. Lipa</i>
No 2	Ziv-Zakai Bound and Multicorrelator Compression for a Galileo E1 Meta-Signal <i>Carolin Schwalm, Christoph Enneking and Steffen Thölert</i>
No 3	The CHIMERA solution: performance assessment <i>Mario Nicola, Micaela Troglia Gamba and Beatrice Motella</i>
No 4	GNSS Signal Quality Monitoring Based on a Reference Station Network <i>Sergey Nikolskiy, Anton Bredenbeck, Topi Rikkinen, José Vallet, Michelle Koivisto, Salomon Honkala, Zahidul Bhuiyan and Sarang Thombre</i>
No 5	Considerations for message design of new satellite navigation signal <i>Jae Hee Noh, Deok Won Lim, Gwang Hee Jo, Jin Hyuk Lee and Sang Jeong Lee</i>
No 6	A study on new secondary codes for GNSS <i>Gwanghee Jo, Jaehee Noh, Jinhyuk Lee, Deokwon Lim and Sangjeong Lee</i>
19:20 - 19:40	Q&A Session A3 Kepler Chairs: <i>Christoph Günther, Gabriele Giorgi</i>
No 1	Precise Orbit Determination of the Kepler Navigation System -- a Simulation Study <i>Grzegorz Michalak, Karl Hans Neumayer and Rolf Koenig</i>
No 2	Evaluation of optical ranging and frequency transfer for the Kepler system : preliminary laboratory tests <i>Ramon Mata Calvo, Janis Surof, Juraj Poliak and Raphael Wolf</i>
No 3	Optical Clock Technologies Enabling Advanced GNSS <i>Thilo Schuldt, Martin Gohlke, Markus Oswald, Josep Sanjuan, Timm Wegehaupt, Tim Blomberg, Jan Wüst, Ludwig Bluemel, Vivek Gualani, Klaus Abich and Claus Braxmaier</i>

19:40 - 20:00	Q&A Session A4 Future Systems Chairs: <i>John Betz, Gabriele Giorgi</i>
No 1	Navigation Technology Satellite – 3: A Vanguard for Space-based Position, Navigation, and Timing <i>Joanna Hinks, David Chapman and Jon Anderson</i>
No 2	Augmenting the Time and Frequency Transfer Capabilities of Galileo <i>Pacome Delva, Clément Courde, Etienne Samain and Uros Kostic</i>
	Q&A - Presentations Day I
	Track II
18:40 - 19:00	Q&A Session B1 PNT Security and Robustness Chairs: <i>Oscar Pozzobon, Dennis Akos</i>
No 1	Interference Mitigation and Miniaturized Antenna Array Spatial Pattern Compensation with STAP <i>Emilio Perez Marcos</i>
No 2	A Frequency Agile Dual-Band GNSS Receiver Front End with Anti-Jamming Capabilities <i>Faisal Ilyas, Safwat Irteza, Noshewan Shoaib and Hammad M. Cheema</i>
No 3	A Multi-Site Quad-Band Radio Frequency Interference Monitoring Alerting and Reporting System <i>Aiden Morrison, Nadezda Sokolova, Jan Erik Håkegard and Torleiv Håland Bryne</i>
No 4	Detection of GNSS Spoofing using NMEA Messages <i>Dong-Kyeong Lee, Damian Miralles, Dennis Akos, Andriy Konovaltsev, Lothar Kurz, Sherman Lo and Filip Nedelkov</i>
19:00 - 19:20	Q&A Session B2 Signal Processing for Resilient Navigation / Receiver Signal Processing Chairs: <i>Thomas Pany, Fabio Dovis</i>
No 1	Impact of non-idealities on GNSS meta-signals processing <i>Andrea Nardin, Fabio Dovis and Beatrice Motella</i>
No 2	Doppler As A Quality Indicator For GNSS-based Urban Navigation - An Evaluation With Different Receivers And Clocks <i>Lucy Icking, Fabian Ruwisch and Steffen Schön</i>
No 3	Simulation-based Analysis of Multipath Delay Distributions in Urban Canyons <i>Simon Ollander, Friedrich-Wilhelm Bode and Marcus Baum</i>
No 4	Multipath and NLOS detection based on the combination of CN0 values and a fish-eye camera <i>Juliette Marais, Syed Ali Kazim, Yann Cocheril and Cyril Meurie</i>

19:20 - 19:40	Q&A Session B3 Signal Processing for Resilient Navigation / Receiver Signal Processing Chairs: <i>Fabio Dovis, Thomas Pany</i>
No 1	A Linear Regression Model of the Phase Double Differences to Improve the D3 Spoofing Detection Algorithm <i>Gianluca Falco, Mario Nicola, Emanuela Falletti, Hien Van Nguyen and The Vinh La</i>
No 2	Adaptive notch filtering against complex interference scenarios <i>Johannes Rossouw van der Merwe, Fabio Garzia, Alexander Rügamer, Inigo Cortes Vidal and Wolfgang Felber</i>
No 3	Multi Sensor Fusion and Integration Approach for Safe and Secure Navigation of Autonomous Vehicle <i>Rajesh Tiwari, Tom Stacey and Felix Toran</i>
No 4	An Approach To Estimate The Absolute Geographical Coordinates Of A Pixel Within A Single Image <i>Alexandre Vervisch-Picois and Nel Samama</i>
19:40 - 20:00	Q&A Session B4 High Accuracy Chairs: <i>Patrick Henkel, Peter Teunissen</i>
No 1	First Results of GLONASS-Only CDMA+FDMA Integer Ambiguity Resolution <i>Peter Teunissen, Safoora Zaminpardaz and Amir Khodabandeh</i>
No 2	Performance Evaluation Of Geodetic Real Time Kinematic Units Under Various Signal Reception Conditions <i>Rebekka Handirk, Andreas Piter and Steffen Schön</i>
No 3	Improving reliability and efficiency of RTK ambiguity resolution using multiple rover receivers connected to the same antenna <i>Xiao Hu, Paul Thevenon and Christophe Macabiau</i>
No 4	VALIDATION OF NEW METHOD FOR NETWORK RTK DATA SCREENING BY MULTIVARIATE ANALYSIS <i>Mohammed Ouassou and Anne B.O. Jensen</i>

Q&A - Presentations Day I	
Track III	
18:40 - 19:00	Q&A Session C1 Autonomous Systems / Inertial Sensing Chairs: <i>Mathieu Joerger, Jan Wendel, Andrey Soloviev</i>
No 1	Environmentally Dependent Adaptive Parameterization of a GNSS-aided Tightly-Coupled Navigation Filter <i>Jan-Jöran Gehrt, Wenyi Liu, David Stenger and Dirk Abel</i>
No 2	Towards a new GNSS observation weighting strategy for terrestrial applications <i>Nourdine Ait Tmazirte, Syed Ali Kazim and Juliette Marais</i>
No 3	A Promising Distributed Position and Orientation System with Flexible Baseline for Array SAR Applications <i>Yanhong Liu, Xiaolin Ning, Jianli Li, Chunyu Qu and Wen Ye</i>
No 4	On Kalman Filter Design for Quaternion-Based GNSS/Inertial Attitude Determination <i>Daniel Medina, Ralf Ziebold and Jesús García</i>
No 5	Adaptive Localization Configuration for Autonomous Scouting Robot in a Harsh Environment <i>David Obregon, Raúl Arnaú, María Campo-Cossio, Michael Pattinson, Smita Tiwari, Alejandro Nicolas, Ander Ansuategui, Carlos Tubio and Joaquin Reyes</i>
No 6	Comparison Between Adaptive Extended Kalman Filters for Accurate Fine Alignment Process <i>Itzik Klein, Ilan Rusnak and Yaakov Bar-Shalom</i>
No 7	Development of an error-state Kalman Filter for Emergency Maneuvering of Trucks <i>Martin Wachsmuth, Axel Koppert, Li Zhang and Volker Schwieger</i>
19:00 - 19:20	Q&A Session C2 Aeronautical Chairs: <i>Dirk Kügler, Maarten Uijt de Haag</i>
No 1	On-Board GPS Augmentation through RADAR Altimeter Aiding for Precision Approach and Landing of UAS <i>Andrew Videmsek and Maarten Uijt de Haag</i>
No 2	SINS/GNSS Aided by Autonomous AHRS for a Small UAV <i>Veronika Kulakova, Aleksandr Markov and Artem Sokharev</i>
No 3	Comparison and Evaluation of Clock-aided and Classical Multi-GNSS Flight Navigation <i>Ankit Jain and Steffen Schön</i>
19:20 - 19:40	Q&A Session C3 Aeronautical Chairs: <i>Maarten Uijt de Haag, Dirk Kügler</i>
No 1	Effects Of Equatorial Ionospheric Scintillation For GNSS Based Positioning In Aviation <i>Jens Berdermann, Hiroatsu Sato, Martin Kriegel, Takeshi Fujiwara and Toshiaki Tsujii</i>
No 2	Changing from Magnetic to True Tracks in Aviation <i>Bart Banning, Anthony MacKay and Paul Hickley</i>

19:40 - 20:00	Q&A Session C4 Alternative Position, Navigation and Time Chairs: <i>Martin Bransby, Sherman Lo</i>
No 1	Message Design for a Robust Time Signal using Distance Measuring Equipment (DME) Pulse Pair Position Modulated (PPPM) Pseudo lite <i>Sherman Lo and Yu Hsuan Chen</i>
No 2	Mode N – A new Navigation System Concept & A-PNT for Aviation <i>Steffen Marquard and Franz Madritsch</i>
No 3	Equivalent circuit for phase delay estimation for a medium frequency antenna <i>Lars Grundhöfer and Stefan Gewies</i>
No 4	Cooperative Environment Recognition Utilizing UWB Waveforms and CNNs <i>Maija Mäkelä, Jesperi Rantanen, Julian Ilinca, Martti Kirkko-Jaakkola, Sanna Kaasalainen and Laura Ruotsalainen</i>
No 5	Ranging Based Wireless Positioning with Accurate Estimation of Bias Errors <i>Mohamed Khalaf-Allah and Oliver Michler</i>
	Q&A - Presentations Day I
	Track IV
18:40 - 19:00	Q&A Session D1 Rail Navigation Chairs: <i>Oliver Michler, Eckehard Schnieder</i>
No 1	Train Localization Safety Boundary Estimation Method Using Multi-Hypothesis Error Distribution <i>Debiao Lu, Baigen Cai, Dezhang Tang and Jiang Liu</i>
No 2	Impact of Digital Map Errors on Satellite based Navigation in Railway Track Maps <i>Anja Grosch and Omar Garcia Crespillo</i>
No 3	Need and Approaches for Norm-Compliant Qualification for Satellite Based Train Localization - Evaluation - Assessment- Certification - Approval <i>Eckehard Schnieder</i>
No 4	Highly Accurate Video-Based Train Localization - replacing Balises with Natural Reference Points <i>Darius Burschka and Christian Robl</i>
19:00 - 19:20	Q&A Session D2 Rail Navigation Chairs: <i>Eckehard Schnieder, Oliver Michler</i>
No 1	Measurement Methods for Train Localization with Onboard Sensors <i>Oliver Heirich, Benjamin Siebler, Stephan Sand, Andreas Lehner and Omar Garcia Crespillo</i>
No 2	Positioning Approach for Train-Infrastructure Interaction Assets Health Status Monitoring <i>Ramin Moradi, Michael Hutchinson, Yuheng Zheng and Michael Roth</i>

19:20 - 19:40	Q&A Session D3 Rail Navigation Chairs: <i>Oliver Michler, Eckehard Schnieder</i>
No 1	Geo-Distributed Simulation and Verification Infrastructure for safe train Galileo-based positioning <i>Cosimo Stallo, Alessandro Neri, Pietro Salvatori, Francesco Rispoli, Olivier Desenfans, Juliette Marais, Antonio Aguila, Beatriz Sierra, Ricardo Campo, Daniel Molina, Susana Herranz, Xavier Leblan and Giuseppe Rotondo</i>
No 2	Towards an Integrity-Based GNSS Measurement Quality Model for an In-Depth Understanding of Localization Dependability <i>Arne Geffert, Andreas Dodinoiu, Tianxiang Lan and Uwe Becker</i>
No 3	Realistic position error models for GNSS simulation in railway environments. <i>Syed Ali Kazim, Nouridine Ait Tmazirte and Juliette Marais</i>
No 4	Detection of GNSS Multipath with Time-Differenced Code-Minus-Carrier for Land-based Applications <i>Maria Caamano, Omar Garcia Crespillo, Daniel Gerbeth and Anja Grosch</i>
19:40 - 20:00	Q&A Session D4 doesn't exist
Social Event ENC 2020	
20:00 - 22:00	The social event of the ENC 2020 takes place in the Gather.town App . You can find the entry link in the lobby of the online conference.
Tuesday, 24 November 2020	
Plenary Day II	
13:00 - 13:30	P4 Quantum Systems in μ-g and on Earth - New Horizons for Quantum Sensors - Wolfgang Ertmer, Leibniz Univ. Hannover
13:30 - 13:45	Q&A - Plenary Day II

	Live Presentations Day II
	Track I
13:45 - 14:10	A5 Space Geodesy Chairs: <i>Lambert Wanninger, Harald Schuh</i>
	Future GNSS Infrastructure for Improved Geodetic Reference Frames <i>Susanne Glaser, Grzegorz Michalak, Rolf Koenig, Benjamin Maennel and Harald Schuh</i>
14:10 - 14:35	A6 Navigation in Space / Explorer Initiatives Chairs: <i>Jens Wickert, Oliver Montenbruck</i>
	GNSS-Based Navigation to the Moon: Experiences and Potential <i>Ben Ashman</i>
14:35 - 15:00	A7 High Accuracy Chairs: <i>Peter Teunissen, Patrick Henkel</i>
	Rapid Initialization for Long Baseline RTK Positioning: Combined GPS+BDS+Galileo+QZSS+GLONASS with Partial Ambiguity Resolution <i>Andreas Brack</i>
15:00 - 15:25	A8 Clock Technologies Chairs: <i>Demetrios Matsakis, Patrick Gill, Fritz Riehle</i>
	High performance pulsed laser-pumped Rb clock for GNSS <i>Etienne Batori, Nil Almat, Christoph Affolderbach, Florian Gruet and <u>Gaetano Mileti</u></i>
15:25 - 16:05	Q&A - Live Presentations

	Live Presentations Day II
	Track II
13:45 - 14:10	B5 Navigation for Authorized Users Chairs: <i>Hendrik Osenberg, Michael Meurer</i>
	Enhanced Robustness and Spoofing Resistance by Galileo PRS Processing <i>Alexander Rügamer, Fabio Garzia, Daniel Meister, Johannes Rossouw van der Merwe, Simon Taschke, Xabier Zubizarreta, Florian Kunzi, Ricardo Monroy Gonzalez Plata, Santiago Urquijo, Christoph Miksovsky, Wolfgang Felber and Jan Wendel</i>
14:10 - 14:35	B6 Atmospheric Research Chairs: <i>Patricia Doherty, Norbert Jakowski</i>
	Tropospheric delays derived from ground meteorological parameters: comparison between machine learning and empirical model approaches <i>Luca Miotti, Endrit Shehaj, Stefano D'Aronco, Jan Dirk Wegner, Gregor Moeller, Alain Geiger and Markus Rothacher</i>
14:35 - 15:00	B7 Atmospheric Research Chairs: <i>Norbert Jakowski, Patricia Doherty</i>
	Fast Ionospheric Correction Algorithm for Galileo Single Frequency Users <i>Mainul Hoque and Norbert Jakowski</i>
15:00 - 15:25	B8 Atmospheric Research Chairs: <i>Patricia Doherty, Norbert Jakowski</i>
	Expected and Unexpected Findings in Mining Massive GNSS Data for Ionospheric Effects <i>Yu Jade Morton, Yuanxiang Liu, Zhe Yang, Yang Wang, Brian Breitsch, Harrison Bourne and Steve Taylor</i>
15:25 - 16:05	Q&A - Live Presentations

	Live Presentations Day II
	Track III
13:45 - 14:10	C5 Augmentation Chairs: <i>Todd Walter, Iliaria Martini</i>
	EGNOS System Evolutions in Europe and within the International Multi-SBAS <i>Didier Flament, Carlos Lopez, David Thomas, Xavier Derambure, Katarzyna Urbanska, Jean-Manuel Melinotte and Arnaud Boisseau</i>
14:10 - 14:35	C6 Augmentation Chairs: <i>Iliaria Martini, Todd Walter</i>
	Global ARAIM for Dual Constellation - Design, Development and Experimentation <i>David Hagan, Joseph Griggs, Urielle Houssou, Alessandra Calabrese, Fernando Llano, <u>Guillermo Serrano</u>, Josep Montolio, Alex Ramonjoan and Mercedes Reche</i>
14:35 - 15:00	C7 Crowd Systems Chairs: <i>Terry Moore, Dennis Akos</i>
	Opportunistic Positioning Using Unsynchronized References <i>Matija Rezar, Erik Štrumbelj, Giacomo Pojani and Chris Marshall</i>
15:00 - 15:25	C8 Digital Farming Chairs: <i>John Lewis, Steve Rounds</i>
	GNSS Positioning and Navigation – A Foundational Element of Digital Farming <i>Hieu Tran, Wei Cao, Marcus Reutemann, Liwen Dai, Ralph Ostermeier and Georg Kormann</i>
15:25 - 16:05	Q&A - Live Presentations

	Live Presentations Day II
	Track IV
13:45 - 14:10	D5 Road Navigation Chairs: <i>Uwe Plank-Wiedenbeck, Frank Zimmermann</i>
	Integrity Concept for Sensor Fusion Algorithms used in a Prototype Vehicle for Automated Driving <i>Grischa Gottschalg, Matthias Becker and Stefan Leinen</i>
14:10 - 14:35	D6 Road Navigation Chairs: <i>Frank Zimmermann, Uwe Plank-Wiedenbeck</i>
	GNSS Probabilistic Single Differencing For Non-Parametric State Estimation Based On Spatial Map Data <i>Paul Schwarzbach and Oliver Michler</i>
14:35 - 15:00	D7 Maritime Navigation Chairs: <i>Carlos Jahn, Adam Weintrit</i>
	Online Estimation of Near-Surface Water Current Fields Using Horizontally Mounted ADCPs on Inland Vessels <i>Martin Kosch, René Zweigel and Dirk Abel</i>
15:00 - 15:25	D8 Maritime Navigation Chairs: <i>Adam Weintrit, Carlos Jahn</i>
	Robotic service concepts for the port of tomorrow: Developed via a small-scale demonstration testbed <i>Vincent E. Schneider, Cosmin Delea, Johannes Oeffner, Benjamin Sarpong, Hans-Christoph Burmeister and Carlos Jahn</i>
15:25 - 16:05	Q&A - Live Presentations
	Q&A - Presentations Day II
	Track I
16:20 - 16:40	Q&A Session A5 Space Geodesy Chairs: <i>Lambert Wanninger, Harald Schuh</i>
No 1	A prototype for a Multi-GNSS orbit combination <i>Pierre Sakic, Gustavo Mansur and Benjamin Männel</i>

16:40 - 17:00	Q&A Session A6 Navigation in Space / Explorer Initiatives Chairs: <i>Jens Wickert, Oliver Montenbruck</i>
No 1	A System Study about a Lunar Navigation Satellite Transmitter System <i>Miriam Schönfeldt, Antoine Grenier, Anaïs Delépaut, <u>Daniel Blonski</u>, Jörg Hahn, Pietro Giordano, Javier Ventura-Traveset and Richard Swinden</i>
No 2	Spaceborne GNSS-Receiver Heritage Leveraged on New Space <i>Markus Schütz, Franz Zangerl and Manfred Sust</i>
No 3	A Spaceborne GPS Receiver for Electric Propulsion Driven Geosynchronous Satellites <i>Yu Nakajima, Toru Yamamoto, Ryo Harada, Satoko Kawakami and Susumu Kumagai</i>
No 4	Error analysis of typical starlight refraction model <i>Zhang Shaoxiong and Wang Kedong</i>
17:00 - 17:20	Q&A Session A7 High Accuracy Chairs: <i>Peter Teunissen, Patrick Henkel</i>
No 1	Towards centimeter accurate positioning with smartphones <i>Anja Heßelbarth and Lambert Wanninger</i>
No 2	Influence of Multipath on the RTK Positioning Performance using Raw Measurements from the Smartphone and its Mitigation <i>Himanshu Sharma, Mohamed Bochkati and Christian Lichtenberger</i>
No 3	Evaluation of Network Real Time Kinematics contribution to the accuracy/productivity ratio for UAS-SfM Photogrammetry. <i>Stamatia Panagiotopoulou, Athanasia Erkeki, Emmanuel Vassilakis, Antonios Antonakakis, Panagiotis Grigorakakis, Vasiliki Protopapa, Georgios Tsiostas and Konstantina Vlachou</i>
No 4	Allystar low power/small chip size dual-frequency RTK solution <i>Altti Jokinen, Ryan Yang, Yi-Fen Tseng, Hongtao Yu, Mingo Tsai, Gary Hau, Ali Pirsiavash and Marco Mendonca</i>
No 5	Filter De-Noising Method Using Long Short Term Memory <i>Truong Ngoc Tan, Ali Khenchaf and Fabrice Comblet</i>
No 6	PPP Performance with Large TEC Gradient and Mitigation Methods <i>Yan Xiang and Wei Wang</i>

17:20 - 17:40	Q&A Session A8 Clock Technologies Chairs: <i>Demetrios Matsakis, Patrick Gill, Fritz Riehle</i>
No 1	Compact atomic clock technologies for applications requiring GNSS-free timing <i>Guilong Huang, Hugh Klein, Martin Knapp, Julian Robinson-Tait, Conor Robinson, Dimitrios Zaouris, Pravin Patel, Laurence Nicholls, Jean Morris, Folly Ayi-Yovo, Soliman Edris, <u>Mohsin Haji</u> and Patrick Gill</i>
No 2	Towards space deployable laser stabilisation systems based on 5 cm vibration insensitive cubic cavities <i>Geoffrey Barwood, Paul Gaynor, Ian Hill, Rich Hendricks, <u>Patrick Gill</u>, Christian Stenzel, Christian Greve, Silvio Koller, Roland Le Goff, Kai Voss, Anton Zhukov, Katrin Dahl, Christoph Deutsch, Stefan Kundermann, Stéfane Schilt, Mher Ghulinyan, Uwe Sterr and Claus Braxmaier</i>
No 3	Improved precise timing for GNSS based high accuracy navigation in autonomous vehicles and precise synchronisation of radio navigation base stations in alternative PNT <i>Werner Lange and <u>Karen von Huenerbein</u></i>
	Q&A - Presentations Day II
	Track II
16:20 - 16:40	Q&A Session B5 doesn't exist
16:40 - 17:00	Q&A Session B6 Atmospheric Research Chairs: <i>Patricia Doherty, Norbert Jakowski</i>
No 1	Ionosphere Monitoring and Prediction Center <i><u>Martin Kriegel</u> and Jens Berdermann</i>
No 2	LOCAL KERNEL REGRESSION METHOD AS A ROBUST AND RELIABLE SCINTILLATION INDICES ESTIMATION <i><u>Mohammed Ouassou</u>, Knut Stanley Jacokbsen and Yngvild Linnea Andalsvik</i>
No 3	Modeling Of The Delayed Ionospheric Response With The TIE-GCM Model <i><u>Erik Schmölder</u>, Jens Berdermann, Christoph Jacobi and Norbert Jakowski</i>
No 4	Spatial Analysis of the Correlation between Scintillation Parameters and MP&ROTI <i><u>Chendong Li</u>, Craig Matthew Hancock, Sreeja V. Veetil and Chong You</i>

17:00 - 17:20	Q&A Session B7 Atmospheric Research Chairs: <i>Norbert Jakowski, Patricia Doherty</i>
No 1	NeQuick model: review of recent uses and validations <i>Sandro M. Radicella and Bruno Nava</i>
No 2	Space Weather Induced Impacts on PNT Systems at Low Latitudes <i>Endawoke Yizengaw, Rezy Rezy Pradipta and Patricia Doherty</i>
No 3	Space Weather Bulletins as part of a User Test Campaign for GNSS service users <i>Corentin Liber, Erwin De Donder, Antoine Calegaro, Sophie Chabanski, Robbe Vansintjan, Jennifer O'Hara and Alexi Glover</i>
17:20 - 17:40	Q&A B8 Atmospheric Research Chairs: <i>Patricia Doherty, Norbert Jakowski</i>
No 1	Differential Code Biases and plasmaspheric total electron content from multi-LEO GPS observations <i>Shuanggen Jin, Chao Gao and Liangliang Yuan</i>
No 2	Current Status and Perspectives to Detect Natural Hazards Using GNSS-Based Ionospheric Measurements <i>Attila Komjathy, Siddharth Krishnamoorthy, Xing Meng, Panagiotis Vergados and Olga Verkhoglyadova</i>
No 3	Global Navigation Satellite Systems Contributing To Space Weather Services For Civil Aviation <i>Kirsti Kauristie and Pegasus Team</i>
	Q&A - Presentations Day II
	Track III
16:20 - 16:40	Q&A Session C5 Augmentation Chairs: <i>Todd Walter, Ilaria Martini</i>
No 1	gmvBRAVE as engineering, analysis and validation platform for SBAS Systems <i>Oriol Escrigas, Carlos F. Cuesta-Martínez, Julián Barrios, Javier Arenas, Begoña Ochoa and Eric Arnal</i>
No 2	End-to-End ARAIM demonstrator: magicARAIM suite <i>Guillermo Fernández Serrano, Julián Barrios Lerma and José Gabriel Pericacho Bustos</i>

16:40 - 17:00	Q&A Session C6 Augmentation Chairs: <i>Ilaria Martini, Todd Walter</i>
No 1	Multi-Constellation DGNS - A Time to Revise Definitions <i>Sergey Averin, Andrey Gapon and Pavel Ignatev</i>
No 2	Satellite Integrity Autonomous Monitoring (SAIM) of BDS and Performance Evaluation Onboard <i>Lang Bian, Yizhe Jia, Wenshan Liu, Xiao Liu, Ying Wang, Tao Yan and Yansong Meng</i>
No 3	Research on Signal Structure of Satellite Based Navigation Augmentation Service <i>Tao Yan, Ying Wang, Yansong Meng and Lang Bian</i>
17:00 - 17:20	Q&A Session C7 Crowd Systems Chairs: <i>Terry Moore, Dennis Akos</i>
No 1	Galileo Open Service Navigation Message Authentication: Exploitation in the Frame of an E-Security Infrastructure <i>Gianluca Marucco, Michele Ligios, Sisay A. Chala and Peter Rosengren</i>
No 2	New Opportunities for Mass-Market Applications of Real-Time Variometric Velocity Estimated Using Android GNSS Raw Measurements <i>Marco Fortunato and Augusto Mazzoni</i>
No 3	An Innovative Way to Promote Walking via a Smartphone Pedestrian Navigation Application <i>George Papageorgiou</i>
No 4	High Accuracy Navigation for the Mass Market – the FLAMINGO Initiative <i>William Roberts, Joshua Critchley-Marrows, Maria Ivanovici, Malgorzata Siutkowska, Valentin Barreau, Laurent Arzel, Soufian Ayachi, Alex Lopez, Xavier Banque-Casanovas, Miquel Garcia, Thiago Tavares, Maria Kirova, Patrisia Costenco, Krzysztof Kanawka and Adam Piech</i>
17:20 - 17:40	Q&A Session C8 Digital Farming Chairs: <i>John Lewis, Steve Rounds</i>
No 1	In Field Agriculture GNSS Assessment Showing EGNOS Benefits <i>Jimmy Bruzual Franka, Elisabet Lacarra, Joaquin Reyes and Clayton Ross Post</i>
No 2	Galileo Enhanced Solution for Pest Detection and Control in Greenhouses with Autonomous Service Robots <i>Michael Pattinson, Smita Tiwari, Yuheng Zheng, Dimitrios Fryganiotis, Maria Campo-Cossio, Raul Arnau, David Obregon, Ander Ansuategui, Carlos Tubio, Iker Lluvia, Oscar Rey, Jeroen Verschoor, Libor Lenza and Joaquin Reyes Gonzalez</i>
No 3	Autonomous Navigation Module for Tracked Compost Turners <i>Eva Reitbauer, Christoph Schmied and Manfred Wieser</i>
No 4	A Single Image Based Method To Assess The Accuracy Of A RTK Based Horse Tracking System <i>Thierry Taillandier-Loize, Alexandre Vervisch-Picois and Nel Samama</i>

Q&A - Presentations Day II	
Track IV	
16:20 - 16:40	Q&A Session D5 Road Navigation Chairs: <i>Uwe Plank-Wiedenbeck, Frank Zimmermann</i>
No 1	Kalman Filtering Versus Voting: Which Strategy is Best for Multi-Sensor Localization? <i>Tianxiang Lan, Arne Geffert, Andreas Dodinoiu and Uwe Becker</i>
No 2	Performance Analysis of Low-Cost Receiver in an Urban Environment – Test Results of a Tram in Oslo <i>Christian Rost, Mohammed Ouassou, Rune Hanssen, Anders Solberg, Kenneth Bahr, Marius Sommerseth and Michael Erneland</i>
16:40 - 17:00	Q&A Session D6 Road Navigation Chairs: <i>Frank Zimmermann, Uwe Plank-Wiedenbeck</i>
No 1	Jamming an Uncalibrated GNSS Array Receiver of Distributed Antenna Elements for Concealed Installation in Passenger Cars <i>Marius Brachvogel, Michael Niestroj, Sören Zorn, Michael Meurer, Syed N. Hasnain, Ralf Stephan and Matthias A. Hein</i>
No 2	Requirements for sensor networks as part of the digital road <i>Raimo Harder and Uwe Plank-Wiedenbeck</i>
No 3	BIM-based simulation of intelligent transportation systems <i>Kay Smarsly and <u>Mahsa Mirboland</u></i>
17:00 - 17:20	Q&A Session D7 Maritime Navigation Chairs: <i>Carlos Jahn, Adam Weintrit</i>
No 1	First Steps towards Automatic Entering of Inland Waterway Locks using Precise Point Positioning and Nearfield Sensors <i>Ralf Ziebold, Anja Hesselbarth, Christoph Lass, Alexander Lutz, Axel Lachmayer, Martin Sandler, Michael Hoppe, Joerg Zimmermann, Maik Uhlemann, Juergen Alberding, Tobias Hoefler, Juergen Zimmermann, Ronald Raulefs and Markus Wirsing</i>
No 2	EGNOS performance navigation on board oceanographic Hespérides vessel <i>Elisabet Lacarra Arcos, Rodrigo Gonzalez, Teodoro Seoane and Manuel Lopez Martinez</i>
No 3	Increasing Quality of Maritime Communication through intelligent Speech Recognition and Radio Direction Finding <i>Maximilian Reimann</i>
No 4	Collision Risk Model for Encounter Situation Assessment Based on Empirical Observations <i>Arne Lamm, Julius Möller and Axel Hahn</i>

17:20 - 17:40	Q&A Session D8 Maritime Navigation Chairs: <i>Adam Weintrit, Carlos Jahn</i>
No 1	Innovative Assistance for e-Navigation oriented Voyage Planning and Ship Collision Avoidance <i>Knud Benedict, Michael Baldauf, Michael Gluch and Sandro Fischer</i>
No 2	Ship Traffic Organization with Moving Havens: Ship and Shore Perspective <i>Thomas Porathe</i>
No 3	Estimation of worldwide ship emissions using AIS signals <i>Constance Ugé, Tina Scheidweiler and Carlos Jahn</i>
	Closing Plenary
18:00 - 18:45	P5 Prof. Bradford Parkinson Ten Critical Hingefactors for GPS
18:45 - 19:00	Q&A
19:00 - 19:15	Conference Closing - Goodbye and Outlook Prof. Terry Moore, Program Chair ENC 2021 + INC 2021 Prof. Christoph Günther, Program Chair ENC 2020