

2nd Joint ICG-IOAG Multilateral Cislunar PNT Workshop Agenda Draft

10–13 February 2026, Vienna, Austria
(As of 19 December 2025)

AGENDA DRAFT

All times are in Vienna local time.

Date	Session	Agenda
Tue, 10 Feb	9:00– 12:30	09:00 - 09:10 Welcome from Workshop Co-chairs 09:10 - 10:00 Keynotes: Session Co-chairs: Xinuo CHANG (CAST), Ye TIAN (CAST), Floor MELMAN (ESA) 9:10 - 9:35 “Enabling Lunar Exploration: ESA's PNT Roadmap and User Benefits”, Javier Ventura-Traveset (ESA) 9:35 - 10:00 “Lunar PNT Activities of ICG and IOAG”, ICG WG-L Co-Chairs and IOAG WG Co-Chairs 10:00 - 10:30 Coffee Break 10:30 - 12:30 Lunar PNT Frameworks & Systems: Session Co-chairs: Matt COSBY (UKSA), Ashish SHUKLA (ISRO) 10:30 - 10:45 “LunaNet Interoperability Update”, Cheryl Gramling (NASA) 10:45 - 11:00 “Enabling Cislunar Exploration Through NASA’s LCRNS System PNT Services”, Jason Soloff (Intuitive Machines) 11:00 - 11:15 “Moonlight Programme Development Status”, TBD (ESA/Telespazio) 11:15 - 11:30 “Japan Lunar Navigation Satellite System Update”, Masaya Murata (JAXA) 11:30 - 11:45 “China (TBD)” 11:45 - 12:00 “Indian Lunar PNT System Development”, Ashish K Shukla (ISRO) 12:00 - 12:15 “Lunar activities by the Italian Space Agency”, Mauro Cardone (ASI) 12:15 - 12:30 TBD
	14:00– 17:30	14:00 - 17:30 Standardization and Governance: 14:00 - 15:30 Sub-session: Standardization Session Co-chairs: Jörg HAHN (ESA), Cheryl GRAMLING (NASA) 14:00 - 14:10 Session Scope and Introduction by session co-chairs 14:10 - 14:25 “From the Earth to the Moon: LUNEX – Lunar Unified Navigation Exchange Format”, F. Gini (Chair IGS RINEX Committee) and A. Hauschild (Vice Chair IGS RINEX Committee) 14:25 - 14:40 “Standardisation for Lunar PNT receivers”, Samuele Fantinato (Qascom) 14:40 - 14:55 “Standards: The good, the bad, and the applicability”, S. Lightman (NIST) (virtual)

		14:55 - 15:10 “Progress on Cislunar CCSDS Standards as a Foundation for Interoperability”, Daniel Fischer (ESA-ESOC) 15:10 - 15:25 “Interoperability, the key to Network of Networks”, Mehran Sarkarati (ESA-ESOC) 15:25 - 15:30 Conclusions 15:30 - 16:00 Coffee Break 16:00 - 17:30 Sub-session: Governance Session Co-chairs: Masaya MURATA (JAXA), Ruihong YANG (CNSA) 16:00 - 16:20 “ATLAC Framework: Principles, and Pathways for International Consultation on Lunar Activities”, Ulpia Elena Botezatu (UN COPUOS ATLAC Co-Chair) 16:20 - 16:40 “IOAG Committee to Study LunaNet Governance (CSLG)”, Masaya Murata (IOAG CSLG Co-Chair) 16:40 - 17:00 “International Framework of Lunar PNT Governance (tentative title)”, Guoyu Wang (Beijing Institute of Technology) 17:00 - 17:20 “Principles and Practices of Lunar Information Sharing”, Antonino Salmeri (Lunar Policy Platform) 17:20 - 17:30 Wrap-up by session co-chairs
Wed, 11 Feb	09:00–12:30	09:00 - 12:30 Lunar Reference Frame and Time: 09:00 - 12:30 Sub-session: Lunar Reference Frame Session Co-chairs: Susan STEWART (IAU), Agnes FIENGA (IAG) 9:00 - 9:10 “Introduction to lunar reference frames”, Susan Stewart (US Naval Observatory) 9:10 - 9:30 “Roadmap for Conventions”, Agnes Fienga (Observatoire de la Côte d'Azur) 9:30 - 9:50 “NASA Implementation Plans”, Cheryl Gramling (NASA) 9:50 - 10:10 “Mission Implementation Case Study (TBD)” 10:10 - 10:30 “LLR Realization of Reference Frame”, Vishnu Viswanathan (NASA/GSFC) 10:30 - 11:00 Coffee Break 11:00 - 11:20 “Ephemerides & Dynamical Models”, Nicolas Rambaux (IMCCE) (TBD) 11:20 - 11:40 “IAG/IERS Perspective”, Krzysztof Sośnica (Univ. Wrocław) 11:40 - 12:00 “Lunar Geoid (TBD)”, Nick Makley (IAG) 12:00 - 12:20 “LRS Next Steps, Looking Forward (TBD)”, Stephen Merkowitz (NASA) (TBD) 12:20 - 12:30 Wrap-up by session co-chairs
	14:00–17:30	14:00 - 17:30 Lunar Reference Frame and Time: 14:00 - 17:30 Sub-session: Lunar Time Session Co-chairs: Patrizia TAVELLA (BIPM), Mamoru SEKIDO (NICT) 14:00 - 14:05 “Introduction and Roadmap to CGPM Resolution”, Patrizia Tavalla (BIPM)

		14:05 - 14:20 “Proposal by the Consultative Committee Time Frequency”, Pascale Defraigne/Mamoru Sekido (ORB/NICT) 14:20 - 14:30 Discussion 14:30 - 15:30 Space agencies timing needs and constraints (clock, time scale relationship (TL-TCG-TT-UTC), measurement from Earth, holdover in case of Earth connection loss, need of interoperability, traceability to UTC, involvement of UTC labs. Open questions for the timing community) NASA (USA) - Cheryl Gramling ESA - Erik Schoenemann JAXA (Japan) - Masaya Murata DSEL (China) - Yang Siliang 15:30 - 16:00 Coffee break 16:00 - 16:15 TBD 16:15 - 17:00 Discussion (Moderator Patrizia Tavella/Mamoru Sekido) 17:00 - 17:20 “Proposal of Final Statement, Open Questions, Way Forward”, Patrizia, Tavalla (BIPM) 17:20 - 17:30 Conclusion of the Session on Reference Frame and Time (All four co-chairs)
	18:00 – 20:00	Reception
	Thu, 12 Feb	
	09:00–12:30	9:00 - 12:30 Lunar PNT Spectrum: Session Co-chairs: Wei TAN (CNSA), Bruno ESPINOSA (SFCG) 9:00 - 9:15 “Update on the spectrum regulatory framework for Lunar PNT”, Cathy Sham (SFCG) 9:15 - 10:30 “Overview of lunar PNT services” 10:30 - 11:00 Coffee Break 11:00 - 11:30 “Potential compatibility issues” "Discussion on Compatibility Issues in the 2483.5-2500MHz Band from Lunar Orbit to the Lunar Surface“, Ge Xia (Beijing Satellite Navigation Center, BSNC) “Embedded PNT in 3GPP network, 2500-2690 MHz (TBD)”, Nokia (TBD) 11:30 - 12:15 Panel Questions + Q&A 12:15 - 12:30 Wrap up/key takeaways/actions & summary
	14:00–17:30	14:00 - 17:30 Lunar PNT User/Test Equipment & Technology – part 1: Session Co-chairs: Floor MELMAN (ESA), Evan ANZALONE (NASA) 13:30 - 13:40 Session Introduction by session co-chairs 13:40 - 14:00 “Flight Experience and Results of the Lunar GNSS Receiver Experiment (LuGRE)”, Joel Parker (NASA) 14:00 - 14:20 “Lunar Data Network PNT Systems Capability and Interfaces Status”, Jason Leonard (Intuitive Machines) 14:20 - 14:40 “Towards a Sustainable Lunar Ecosystem: Bridging Technical Developments to Policy Priorities in Lunar PNT”, Toshihiro Shibukawa (ArkEdge Space) 14:40 - 15:00 “Lunar S-band Pseudolite System Architecture & User Equipment”, Ashish Shukla (ISRO)

		15:00 - 15:20 “NovaMoon - First Results on LunaNet Differential Positioning Simulations”, Javier Ventura-Traveset (ESA) 15:20 - 15:45 Coffee Break 15:45 - 16:05 “PNT Moon Surface Station: Performance Analysis and First Demonstrations”, Luca Canzian (Qascom) 16:05 - 16:25 “Inter-satellite-link-aided Collaborative Navigation and Time Transfer of a Lunar PNT Constellation”, Pradipto Ghosh (JHU APL) 16:25 - 16:45 “Integrity monitoring strategies for LCNS users”, Heiko Engwerda (NLR) 16:45 - 17:05 “A simulator to compute interference from lunar surface wireless to lunar PNT; architecture and results”, Jean-Luc Issler (CNES) 17:05 - 17:25 “End-to-End Simulation Framework for LunaNet and Mars GPS-Like Signals for Software Receiver Assessment”, Ricardo Verdeguer Moreno (Spirent) 17:25 - 17:30 Day1 Wrap-up
Fri, 13 Feb	09:00– 12:30	09:00 - 10:30 Lunar PNT User/Test Equipment & Technology – part 2: Session Co-chairs: Floor MELMAN (ESA), Evan ANZALONE (NASA) 9:00 - 9:20 “GNSS Weak Signal-based Orbit Determination Practice and Cislunar Space Application Analysis”, Biao Jin (Space Star Technology Co., Ltd.) 9:20 - 9:40 “CesiumAstro 2026: Missions & Technologies”, Dylan Pfeifer (Cesium) 9:40 - 10:00 “An optical clock on the Moon? Some key figures”, Fabien Droz (Rolex Quantum) 10:00 - 10:20 “Miniature clocks for cislunar and lunar application - Upcoming Technologies and Roadmap”, Grégory Moura (Safran) 10:20 - 10:30 Session 6 Wrap-up 10:30 - 11:00 Coffee Break 11:00 - 12:30 Roundtable Discussion and Outcomes Moderators: Leadership Team Members