2nd Joint ICG-IOAG Multilateral Cislunar PNT Workshop Agenda

10–13 February 2026, Vienna, Austria
(As of 9 February 2026)

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), 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 - 10:40 Introduction by session co-chairs 10:40 - 10:55 “LunaNet Interoperability Update”, Cheryl Gramling (NASA) 10:55 - 11:10 “Enabling Cislunar Exploration Through NASA’s LCRNS System PNT Services”, Jason Soloff (Intuitive Machines) 11:10 - 11:25 “Moonlight Programme Development Status”, Monica Gotta (ESA), Carlo Albanese (TPZ) 11:25 - 11:40 “Japan Lunar Navigation Satellite System (LNSS) and Toward LunaNet LANS Interoperability Demonstration”, Masaya Murata (JAXA) 11:40 - 11:55 “Indian Lunar PNT System Development”, Ashish K Shukla (ISRO) 11:55 - 12:10 “Lunar activities by the Italian Space Agency”, Mauro Cardone (ASI) 12:10 - 12:30 Q&A
	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”, Erik Schoenemann (ESA) 15:10 - 15:25 TBD 15:25 - 15:30 Conclusions 15:30 - 16:00 Coffee Break 16:00 - 17:30 **Sub-session: Governance** Session Co-chairs: Masaya MURATA (JAXA), Guoyu Wang (Beijing Institute of Technology) 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 “The Expected Lunar Activity Coordination Principle and Mechanism”, 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 “Lunar Reference Frame Standards”, Susan Stewart (IAU) 9:10 - 9:30 “Roadmap for Conventions”, Agnes Fienga (IAG) 9:30 - 9:50 “Reference Frames for Interoperability Within LunaNet”, Cheryl Gramling (NASA) 9:50 - 10:10 “ESA Activities in Support of Lunar Reference Frame”, Sara Bruni (ESA) 10:10 – 10:30 “Lessons Learned from the Implementation of a Lunar Reference Frame for the KPLO Mission”, Moon-Jin Jeon (KARI) 10:30 - 11:00 Coffee Break 11:00 - 11:20 “LLR Realization of Reference Frame”, Vishnu Viswanathan (NASA/GSFC) 11:20 - 11:40 “Ephemerides & Dynamical Models”, Nicolas Rambaux (Observatoire de Paris) 11:40 - 12:00 “International Lunar Reference System and its realization - ILuRF: the IAG perspective”, Krzysztof Sośnica (Univ. Wrocław) 12:00 - 12:15 “The Need for a Lunar Geoid & Other Shape Models”, Nick Makley (NGA) 12:15 - 12:30 “ILuRFS Next Steps”, Stephen Merkowitz (NASA) (virtual), Agnes Fienga (IAG)
	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 - 14:10 “Introduction and the CGPM Draft Resolution”, Patrizia Tavella (BIPM)

		14:10 - 14:25 “Work of the Consultative Committee Time Frequency: FAQ and future work”, Pascale Defraigne/Mamoru Sekido (ORB/NICT) 14:25 - 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 15:30 - 16:00 Coffee break 16:00 - 17:00 Discussion: which are the open issue and the FAQ to be addressed by the timing community? (Moderator Patrizia Tavella/Mamoru Sekido) 17:00 - 17:20 “Proposal of Final Statement, Open Questions, Way Forward”, Patrizia, Tavella (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: Ye TIAN (CAST), 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” “Lunar PNT Spectrum Sharing Considerations: A Japanese Industry Perspective”, Toshihiro Shibukawa (ArkEdge Space) “Spectrum Use Enabling Lunar PNT Services”, Jason Soloff (Intuitive Machines) “Preliminary Design of Compatible and Interoperable Lunar Navigation Signals”, Junjie Ma (CAST) (virtual), Xinuo Chang (CAST) “ISRO pseudo lite in 2483.5-2500 MHz and/or in 2400-2480 MHz band”, Ashish K Shukla (ISRO) (virtual) “Lunar PNT Spectrum in Moonlight Context”, Cosimo Stallo (ESA), Pietro Salvatori (TASI) 10:30 - 11:00 Coffee Break 11:00 - 11:30 “Potential compatibility issues” “Augmenting PNT capabilities via 3GPP localization solutions”, Luis Maestro (Nokia) “Experience of Earth Based Use of S Band and Spectrum Compatibility”, Vijay Singh Bhadouria (ISRO) 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) (virtual) 15:00 - 15:20 “Enabling Future Lunar Operations through PNT: A GMV User Perspective”, Danilo Forte (GMV) 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) (virtual) 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 Day3 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.) (virtual) 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