



A G E N D A

PRE-FORUM SCIENCE DAY

📅 22 September 2025 Monday 🕒 8:30 AM – 4:45 PM;
📍 UML Wannalancit Building Room 305, 600 Suffolk St, Lowell, MA 01854, USA

08:30 Science Day participant registrations

**09:00 100 Years of Imaging the Ionosphere with Ionosondes:
Historical perspective and prospective insight**

Ivan Galkin et al.

09:25 Radio-quiet ionosonde observations for HF absorption monitoring

Tobias Verhulst et al.

09:50 Research activities in Cyprus relevant to the Digisonde community

Haris Haralambous et al.

10:15 ☕ Coffee Break ☕

10:30 AI-powered Forecast of TID Activity

Claudio Cesaroni et al.

10:55 Ionosphere nowcast in collaboration of GIRO and COSMIC GNSS RO sensor networks

Lurii Cherniak et al. ([online presenter](#))

11:20 F2 layer Peak Density Thickness Measurements via Incoherent Scatter Radars

Mohamed Osman et al. ([online presenter](#))

12:00 🍴 Lunch Break 🍴

14:00 Investigation of the relationship between earthquakes and ionosonde data - a framework and workflow for analysis

Karl Kappler et al. ([online presenter](#))

14:25 Modeling ionospheric peak density NmF2 with science applications

Dupinder Singh, Larisa Goncharenko, et al.

14:50 Storm-Time Dynamics of Equatorial Plasma Bubbles During the January 2025 Geomagnetic Storms over the American Sector

Giorgio Picanço et al.

15:15 ☕ Coffee Break 15 min ☕

15:30 Global sporadic-E observations from ionosondes and GNSS radio occultation

Daniel Emmons et al.

15:55 Reconstruction of the D-region from ionosonde traces using GPSII assimilative model

Sergey Fridman et al.

16:20 Deep Learning the Ionospheric Weather

Maria Graciela Molina et al. ([online presenter](#))

DAY TWO: 2025 International GIRO Forum

 **23 September 2025 Tuesday** ( **8:30 AM – 3:45 PM**);

 **UML Wannalancit Building Room 305, 600 Suffolk St, Lowell, MA 01854, USA**

SECTION 1 FORUM REGISTRATION & OPENING PRESENTATIONS

08:30	GIRO Forum Registration	Attendees
08:45	Digisonde then and now: Announcing Digisonde 25	Ryan Hamel
09:15	Global Ionosonde Observation/Operation Network (GION), a United Nations multi-agency advisory committee	Ivan Galkin
09:30	GIRO member roundtable	Attendees
09:45	Realistic Ionosphere (RION): review of science data products & associated services	Ivan Galkin

10:15  Coffee Break 

SECTION 2 UNDER THE HOOD OF DIGISONDE

10:30	Troubleshooting Digisonde: where to look	Ryan Hamel
11:00	Built-in Test capability in 4D and 25	Ryan Hamel
11:20	Common mistakes of Digisonde programming	Ryan Hamel
11:40	Protecting your Digi from harm: grounding and lightning fuses	Ryan Hamel

12:00  Lunch 

13:00	System security, use of Containers, software configurations	Ryan Hamel
13:20	Tools for manual and automated monitoring of digisonde data quality	Ivan Galkin
13:40	Scheduling Digisonde Operations	Ryan Hamel
14:00	Synchronizing DPS4D for oblique-incidence (IO) sounding, including OI ionograms and “D2D for TID”	Ryan Hamel
14:15	Enabling ADRES in SAO Explorer	Ivan Galkin

SECTION 3 INTELLIGENT SYSTEMS SOFTWARE

14:30	ARTIST 5 and plans for 6	Ivan Galkin
14:45	Let's welcome LOIA to the family!	Ivan Galkin

15:15  Coffee break 

15:30	HF signal raytracing on GPU: RayTRIX-CQP for LOIA and beyond	Matthew Petrin
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18:30-21:30 Social Event at  LaBelle Winery  14 NH-111, Derry, NH 03038

DAY THREE: 2025 International GIRO Forum

 **24 September 2025 Wednesday** ( **8:30AM – 5:00PM**);

 **UML WAN Room 305, 600 Suffolk St, Lowell, MA 01854, USA and**

 **LDI 175 Cabot St (Suite 200) Lowell, MA 01854, USA**

SECTION 4 SCIENCE MEGA-PROJECTS WITH DIGISONDE

Time	Topic	Presenter
08:30	TechTIDE: multi-instrument TID detection, evaluation, and mitigation	Ivan Galkin
08:45	T-FORS: using Deep Learning to forecast TID activity	Ivan Galkin
09:00	DISPEC: high-quality ionosonde data products	Ivan Galkin
09:15	PITHIA-NRF: mega-scale data infrastructure at EGI	Ivan Galkin
09:30	GI-FORS: Forecasting the Ionosphere by Historical Analogy	Ivan Galkin
09:45	 Coffee break	

SECTION 5 LOWELL GIRO DATA CENTER

10:00	Advanced data analysis: Fleet of Explorer Workstations	Ivan Galkin
10:30	Maximizing “Experience Index” of GIRO services, web pages, and APIs	Ivan Galkin
10:45	Facilitating OI sounding by automated scheduling of Digisonde operations	Ryan Hamel
11:00	Data Dissemination: Rules of the Road	Ivan Galkin
11:15	Next Generation DIDBase	Ivan Galkin
11:30	Ionosonde Data Acquisition for Rescue (IDAR) to AWS cloud	Ivan Galkin
12:00	 Lunch 	

SECTION 6 VISIT LDI & WORKING GROUPS @ LDI

13:30	Site visit to Lowell Digisonde International (Wannalancit building on 175 Cabot Street) including wine and cheese reception	Lowell Digisonde International
14:00	Working Group Session 1 (see Appendix A)	Lowell Digisonde International
15:00	Working Group Session 2	Lowell Digisonde International
16:00	Working Group Session 3	Lowell Digisonde International

DAY FOUR: 2025 International GIRO Forum

 25 September 2025 Thursday (8:30 AM – 5:00 PM);

📍 UML WAN Room 305, 600 Suffolk St, Lowell, MA 01854, USA and

📍 LDI 175 Cabot St (Suite 200) Lowell, MA 01854, USA

SECTION 7 PATH FORWARD

Time	Topic	Presenter
08:30	Upgrade Path to Digisonde 25	Ryan Hamel
08:35	Receive-only Digisonde 25R	Ryan Hamel
08:45	SAO 6 standard for ionosonde data dissemination	Ivan Galkin
09:00	Ionospheric Disturbance Indicator (IDI) from ionograms and skymaps	Ivan Galkin
09:15	Reserved for additional topics TBD	
10:15	Path Forward: What additional features/products/services would you like to get from Digisonde and GIRO?	Participants
11:00	Closing Remarks and Certificates of Completion	Ivan Galkin
12:00	 Lunch 	

SECTION 8 WORKING GROUPS @ LDI

13:00	Working Group Session 4	Lowell Digisonde International
14:00	Working Group Session 5	Lowell Digisonde International
15:00	Working Group Session 6	Lowell Digisonde International
16:00	Working Group Session 7	Lowell Digisonde International

DAY FIVE: 2025 International GIRO Forum

 26 September 2025 Friday ( 8:30 AM – 12:00 PM);

 LDI, 175 Cabot St (Suite 200) Lowell, MA 01854, USA

SECTION 9 WORKING GROUPS @ LDI

09:00	Working Group Session 8	Lowell Digisonde International
10:00	Working Group Session 9	Lowell Digisonde International
11:00	Working Group Session 10	Lowell Digisonde International

Appendix A: Working Group Offerings

TOPIC	CURATOR
Digisonde 25	Ryan Hamel
Observatory Site Preparation	Ryan Hamel
DPS Troubleshooting and Maintenance	Ryan Hamel
Signal Processing	Ryan Hamel
Digisonde 25 Feature Request 1	Ryan Hamel
Digisonde 25 Feature Request 2	Matthew Petrin
Use of GPU for HF signal propagation modeling	Matthew Petrin
SAO Explorer 1	Ivan Galkin
SAO Explorer 2	Steve Mendonca
ARTIST 5	Ivan Galkin
VI+OI ionogramming with ARTIST and LOIA	Ivan Galkin
DIDBase with ADRES	Ivan Galkin
Drift Explorer	Ivan Galkin
LGDC Data Services via Web Portal	Ivan Galkin
GAMBIT Explorer	Ivan Galkin
DCART Operation	Ryan Hamel
Oblique sounding setup	Ryan Hamel
Oscillator Tuning Demo	Ryan Hamel