



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

Karl Kappler et al. (online)

09:50 Characterizing Es Layer dynamics with Ionosondes

Haris Haralambous et al.

Coffee Break 15 min

10:30 Deep Learning the Ionospheric Weather

Maria Graciela Molina et al. (online)

10:55 AI-powered Forecast of TID Activity

Claudio Cesaroni et al.

11:20 Ionosphere nowcast in collaboration of GIRO and COSMIC sensor networks

Iurii Cherniak et al. (online)

Lunch Break

14:00 Transmitting low-frequency radiowaves in plasma: theory, practice, and lessons learned

Jiannan Tu et al.

14:25 Modeling ionospheric peak density NmF2 with science applications

Larisa Goncharenko, Dupinter Singh, 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.

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 F2 layer Peak Density Thickness Measurements via Incoherent Scatter Radars

Mohamed Osman et al.

DAY TWO: International GIRO Forum (1)

**23 September 2025 Tuesday (8:30 AM – 3:00 PM);
UML Wannalancit Building Room 305, 600 Suffolk St, Lowell, MA 01854, USA**

SECTION 1 FORUM REGISTRATION AND OPENING PRESENTATIONS

Time	Topic	Presenter
0830	GIRO Forum Registration at UML Wannalancit Building, 600 Suffolk Street, Room 305	Attendees
0845	Digisonde then and now: Announcing Digisonde 25	Ryan Hamel
0915	Global Ionosonde Observation/Operation Network (GION), a United Nations multi-agency advisory committee	Ivan Galkin
0930	GIRO member roundtable	Attendees
0945	Realistic Ionosphere (RION): review of science data products and associated services	Ivan Galkin
1015	Break	

SECTION 2 UNDER THE HOOD OF DIGISONDE

Time	Topic	Presenter
1030	Oblique-incidence sounding: “D2D for TID” and OI ionogramming with LOIA autoscaling	Ryan Hamel
1100	Built-in Test capability in 4D and 25	Ryan Hamel
1120	Advanced data analysis: Fleet of Explorer Workstations	Ivan Galkin

Lunch

SECTION 3

DIGISONDE BEST PRACTICES OF OPERATION

Time	Topic	Presenter
1300	Common mistakes of Digisonde programming	Ryan Hamel
1320	Protecting your Digi from harm: grounding and lightning fuses	Ryan Hamel
1330	Troubleshooting Digisonde: where to look	Ryan Hamel
1400	Scheduling Digisonde Operations	Ryan Hamel
1415	Use of Digisonde as a Riometer	Ivan Galkin
1430	System security, use of Containers, software configurations	Ryan Hamel
1500	Tools for manual and automated monitoring of digisonde data quality	Ivan Galkin
1515	Enabling ADRES in SAO Explorer	Ivan Galkin
1530	Data Dissemination: Rules of the Road	Ivan Galkin

Social Event from 1900 at LaBelle Winery

DAY THREE: International GIRO Forum (2)

**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
0830	TechTIDE: multi-instrument TID detection, evaluation, and mitigation	Ivan Galkin
0845	T-FORS: using Deep Learning to forecast TID activity	Ivan Galkin
0900	DISPEC: high-quality ionosonde data products	Ivan Galkin
0915	PITHIA-NRF: mega-scale data infrastructure at EGI	Ivan Galkin
0930	GI-FORS: Forecasting the Ionosphere by Historical Analogy	Ivan Galkin

SECTION 5

IONOGRAM INTERPRETATION WITH AI

Time	Topic	Presenter
0945	Let's welcome LOIA to the family!	Ivan Galkin
1015	Signal raytracing on GPU: RayTRIX-CQP for LOIA and beyond	Matthew Petrin
1030	Coffee break	

SECTION 5

LOWELL GIRO DATA CENTER

1100 Maximizing “Experience Index” of GIRO repositories and their front

Ivan Galkin

1120 GIRO Cloud and *Globus*: what does it take?

Ivan Galkin

1140 Ionosonde Data Rescue (IDR): Expanding DIDBase with other ionosonde data

Ivan Galkin

1200 Lunch

*Change of location to Lowell Digisonde International,
Wannalancit Building, 175 Cabot Street, Suite 200*

1330	Site visit to Lowell Digisonde International (Wannalancit building on 175 Cabot Street) Including wine and cheese reception	Lowell Digisonde International
1400	Working Group Session 1 (see Appendix A)	Lowell Digisonde International
1500	Working Group Session 2	Lowell Digisonde International
1600	Working Group Session 3	Lowell Digisonde International

1700 Adjourn

DAY FOUR: International GIRO Forum (3)

**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**

Time	Topic	Presenter
0830	Upgrade Path to Digisonde 25	Ryan Hamel
0845	SAO 6 format for data dissemination	Ivan Galkin
0900	Ionospheric Disturbance Indicator (IDI) from ionograms and skymaps	Ivan Galkin
0915	Reserved for additional topics TBD	
1015	Path Forward: What additional features/products/services would you like to get from Digisonde and GIRO?	Participants
1100	Closing Remarks and Certificates of Completion	Ivan Galkin

1300	Working Group Session 4	Lowell Digisonde International
1400	Working Group Session 5	Lowell Digisonde International
1500	Working Group Session 6	Lowell Digisonde International
1600	Working Group Session 7	Lowell Digisonde International

DAY FIVE: International GIRO Forum (4)

**26 September 2025 Friday (8:30 AM – 12:00 PM);
LDI, 175 Cabot St (Suite 200) Lowell, MA 01854, USA**

0900	Working Group Session 8	Lowell Digisonde International
1000	Working Group Session 9	Lowell Digisonde International
1100	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