



A G E N D A

Version 0.8.: May 17, 2019

~~~ Real-Time-IRI Task Force Meeting ~~~

20 May 2019, Monday (8:30AM – 5:00PM)

- 0830 Real-time IRI Task Force Meeting Registration at UMass Lowell Inn & Conference Center
- 0845 Welcome remarks by Prof. Julie Chen,
Vice Provost for Research, UMass Lowell
- 0850 Opening remarks by Prof. Bodo Reinisch
- 0900 **IRI: Standard and Real-Time Solutions**
Dieter Bilitza and IRI Consortium
- 0930 **Global and local ionosphere as modeled by IRTAM**
Ivan Galkin, Bodo Reinisch, Artem Vesnin, and Dieter Bilitza
- 0950 **GAMBIT Database and Explorer of IRTAM maps**
Ivan Galkin

- 1000 Break

- Chair Bodo Reinisch**
- 1030 **Analytic and Experimentation Capabilities for Arctic HF Communications**
Jennifer Forsyth
- 1100 **Ionospheric modeling using Empirical Orthogonal Function: TEC and incoherent scatter radar data scenarios**
Shunrong Zhang
- 1130 **A forecasting IRI based on Deep Learning: feasibility study**
Ivan Galkin, Artem Vesnin, Paul Song, Bodo Reinisch, and Dieter Bilitza

- 1200 Lunch

- Chair Ivan Galkin**
- 1300 **Symbiosis of Ionosonde & IRI Electron Density Profile**
Bodo Reinisch, Dieter Bilitza, and Ivan Galkin
- 1330 **Enhance GNSS data for global ionospheric mapping: absolute TEC, variability indices, irregularities detection**
Artem Vesnin
- 1400 **Storm-time low thermosphere temperature enhancement and TAD: TIMED GUVI observations**
Yongliang Zhang, Larry J. Paxton, and Robert K. Schaefer

1430 Break

Chair Dieter Bilitza

1500 **Inter-comparison of ionospheric models during extremely quiet condition**

Sean Elvidge

1530 **A Parameterized Model of X-ray Solar Flare Effects on the Lower Ionosphere and HF Propagation**

Edlyn V. Levine, Peter J. Sultan, Lucien J. Teig

1600 **Ionosphere nowcast using collaboration of GIRO and COSMIC**

Iurii Cherniak, Ivan Galkin, Irina Zakharenkova, Bodo Reinisch, William Schreiner, and Dieter Bilitza

1615 **Correlation of IRTAM and FPMU Data Confirming the Application of IRTAM to Support ISS Program Safety and Review of Bottomside FPMU data**

William "Drew" Hartman

1645 **Final discussions**

~ ~ ~ DAY TWO: International GIRO Forum ~ ~ ~

21 May 2019 Tuesday (8:30AM – 3:00PM); UML Inn and Conference Center

SECTION 1 FORUM REGISTRATION AND OPENING PRESENTATIONS

0830 GIRO Forum Registration at UMass Lowell Inn & Conference Center

Time Topic

0845 Opening: 50 years of Digisonde realm

0900 Global Ionospheric Radio Observatory -- GIRO

0910 GIRO member roundtable

Presenter

Bodo Reinisch

Bodo Reinisch

Attendees

SECTION 2 SCIENCE PROJECTS WITH GIRO

Chair Bodo Reinisch

Time Topic

0930 GIRO science data products and associated services: Review

1000 OI Trace Extraction: Improvement of Automation with Propagation Modeling

1030 Break

1100 Empirical ionospheric modeling with GIRO data and science applications

1130 TechTIDE: multi-instrument TID detection, evaluation, and mitigation

1200 Lunch

Chair TBA

1300 IDI: Ionosonde-derived Ionospheric Disturbance Index

1330 Science and engineering of sensing TIDs with Digisondes

1400 Multi-mode signal tracking using Intelligent Early Vision system

1430 RayTRIX: raytracing through disturbed ionosphere

1500 Adjourn

Presenter

Ivan Galkin

Shawn Kraut

Larisa Goncharenko

Ivan Galkin

Bodo Reinisch

Tobias Verhulst

Ivan Galkin

Bodo Reinisch

1800 Social Event: Dinner Cruise on Boston Harbor on the "Odyssey"

~ ~ ~ **DAY THREE: International GIRO Forum** ~ ~ ~
22 May 2019 Wednesday (8:30AM – 5:00PM) : UML ICC (am) and LDI (pm)

SECTION 3 PROGRESS IN DIGISONDE HARDWARE

Time	Topic	Presenter
	Chair Ivan Galkin	
0830	Digisonde 4D overview and upgrade kits	Ryan Hamel
0900	FPGA solutions for next generation of Digisondes	Chris Granz
0930	Near future plans for Digisonde development	Ryan Hamel
1000	Break	

SECTION 4 LOWELL GIRO DATA CENTER

	Chair Bodo Reinisch	
1100	Maximizing “Experience Index” of GIRO repositories and their front	Ivan Galkin
1120	GIRO Cloud and <i>Globus</i> : what does it take?	Ivan Galkin
1140	Expanding GIRO to include other ionosonde resources	Ivan Galkin
1200	Lunch	

Change of location to Lowell Digisonde International, Wannalancit Business Center, 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 ~ ~ ~
23 May 2019 Thursday (9:00AM – 5:00PM): UML ICC (am) and LDI (pm)

SECTION 5 PROGRESS IN DIGISONDE SOFTWARE

Location: UML Inn and Conference Center

Chair Bodo Reinisch

0900	ARTIST: an intelligent system <i>Figurine</i>	Ivan Galkin
0930	Going GPU: parallel implementation of CQP raytracing	Chris Granz
0945	Progress in interactive data analysis software designs	Ivan Galkin
1000	Digisonde ESC going Real-Time Linux: a set of characters	Ivan Galkin
1030	Break	
1100	Advanced techniques of SAO Exploring	Ivan Galkin
1115	Advanced techniques of Drift Exploring	Ivan Galkin
1130	Advanced techniques of TID Exploring	Ryan Hamel
1145	Advanced techniques of DUX and Sky6-ploring	Ivan Galkin
1200	Lunch	

SECTION 6 DIGISONDE FIELD OPERATIONS

Location: Lowell Digisonde International, 175 Cabot Street, Suite 200

Time	Topic	Presenter
1330	Concept of DCART operations with remote commanding demo	Ryan Hamel
1400	System fault isolation with BIT hands on	Ryan Hamel
1415	Common errors in DPS-4D measurement programming	Ivan Galkin
1430	Tools for manual and automated monitoring of digisonde data quality	Ivan Galkin
1445	Closing remarks and Certificate of Completion	Prof. B. Reinisch

1500	Working Group Session 4	Lowell Digisonde International
1600	Working Group Session 5	Lowell Digisonde International

~::~ DAY FIVE: International GIRO Forum ~::~
24 May 2019 Friday (9:00AM – 12:00PM) : LDI

0900	Working Group Session 6	Lowell Digisonde International
1000	Working Group Session 7	Lowell Digisonde International
1100	Working Group Session 8	Lowell Digisonde International

Appendix A: Working Group Offerings

TOPIC	CURATOR
Observatory Site Preparation 1	Ryan Hamel , David Kitrosser
DPS Troubleshooting and Maintenance	Ryan Hamel
Signal Processing	Ryan Hamel
GPU setup and operation	Chris Granz
SAO Explorer 1	Ivan Galkin
SAO Explorer 2	Steve Mendonca, Ryan Hamel
ARTIST 5	Ivan Galkin
DIDBase with ADRES	Ivan Galkin
Drift Explorer	Ivan Galkin
LGDC Data Services via Web Portal	Ivan Galkin
GAMBIT Explorer Installation	Ivan Galkin
DCART Operation, Oblique sounding setup	Ryan Hamel