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Nordic HF Conference

17 - 19 August 2010
 Fårö Kursgård, Fårö

Programme



Union Radio
 Scientifique Internationale

SNRV

Svenska Nationalkommittén
 för RadioVetenskap



Nordic Radio Society

HF 10 – HF systems for the future

I wish you a very welcome to the 9th Nordic HF conference on Fårö.

The first Nordic Shortwave Symposium HF 86 was sponsored by FMV, the Swedish Defence Materiel Administration, and initiated by Carl-Henrik Walde, head of its Radio Division.

After some years, the conference was taken over by NRS, the Nordic Radio Society, a foundation co-operating with SNRV, the Swedish National Committee of URSI (Union Radio-Scientifique Internationale). The Nordic Radio Society promotes exchange of knowledge between different technical disciplines and between universities and the radio industry. The members of NRS represent SNRV, the radio industry, the defence, telecom operators and universities.

VLF, LF and HF communications technology has advanced significantly over the last few years, with significant trends towards a higher degree of automation and signal processing that now can be cost-effectively implemented to achieve affordable performance even in small systems. Mobile Internet is pervasive, however the radio environment and especially HF does not provide the distortion-free high bandwidth channel of an optical fibre. There is a significant challenge to meet users' expectations of affordable communications anywhere, anytime. High capacity multi-media networks carry not only analogue voice and data messages in a store-and-forward manner, but also digitised high quality voice, streaming data and even streaming video. Integration with VLF, LF and HF with these networks requires developments in modulation and coding, link management and network management to be able to provide a service level acceptable by the network users. Automatic networking aspects and information transparency play an increasing role to achieve full subscriber connectivity, area coverage and highly reliable communications with longwave and shortwave systems possibly being only one of several available communications alternatives.

TAKE YOUR TIME

Plenty of time has been set aside outside the conference theatre to enable you to keep in touch in informal discussions and mutual exchanges of views. Please, make good use of these opportunities - the exhibition area is suitable. We hope you will get good value in spite of the somewhat primitive lodging.

Family members are welcome to all activities after 15.00.

Finally, I extend a warm thank you to our sponsors.



Mats Nilson, Chairman of NRS

RECEPTION DESK

The HF 10 reception is open:
15:00 – 22:00 on Monday,
07:30 – 17:00 Tuesday to Thursday,
07:30 – 11:00 on Friday.

MEALS

All meals are served in the restaurant building.

Morning and afternoon coffee/tea are served in the exhibition area (for family members in the pub).

For excursions, family members may make a lunch package at breakfast.

Breakfast	07:00 – 09:00 (Friday from 05:30)	Coffee/tea	Tue 10:00 – 10:30 Wed, Thu 09:30 – 10:00
Lunch	11:30 – 13:00	Coffee/tea	15:00 – 15:30

Dinner	17:00 – 18:30	On Wednesday the conference dinner will begin at 19:00. Gotland drinks will be served from 18:00.	
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Note that conference participants will take lunch and coffee breaks at times according to the session programme. Family members, please use other times.

AMATEUR RADIO STATION

SL1HF is situated behind Lambgiftet lodge.

Carl-Henrik Walde (SM5BF), Olov Carlsson (SM7EXE), Karl-Arne Markström (SM0AOM) and Håkan Bergzén (SM7OKI) act as station managers.

INTERNET ACCESS

E-mail and browsing facilities are available in the anterooms of the conference theatre and in the exhibition area. For your personal computers, ethernet outlets and wireless networks are available.

MONDAY

18:00 – HF 10 welcoming buffet served in the restaurant.

19:00 – The pub is open.

TUESDAY

07:30 Assembly music on the parade grounds

08:00 Flag Ceremony (please be in time!)

08:15 Conference Introduction (conference theatre)

08:20 – 10:00 SYSTEMS AND NETWORKS

Arnie Johansen

Marko Saarela

Stephan Bolli

10:00 – 10:30 Coffee, tea

10:30 – 11:30 SOFTWARE-DEFINED RADIO

John Wilson, Peter R Green and Ben Allen

Pradeep M. Naagaraju, Eric Koski and Tommaso Melodia

11:30 – 13:00 Lunch

Täby brunnsoktett (Täby Spa Octet)

Bishop Lennart Koskinen, Visby Diocese

NRS Representative

Jorma Ahonen

Page

The architecture of the new HF communications system for the Australian defence force 1.1

COTS based HF system for the voluntary defence training association (MPK) of Finland 1.2

OPAL, A simple operation analysis tool for the Swiss embassy network 1.3

Håkan Bergzén

Rapid prototyping with GNU software defined radio 2.1

A software-defined radio ionospheric chirpsounder for HF propagation analysis 2.2

TUESDAY

13:00 – 15:00 USER REQUIREMENTS AND EXPERIENCES

	Walter Reck	<u>Page</u>
Rickard Berg	Introducing HF 2000 in the Swedish armed forces	3.1
Rune Wandé	Applications of advanced VLF/LF/HF-digital signal processing in the amateur radio service	3.2
Torbjörn Carlsson	Practical experiences from deployment and usage of HF systems in Africa (Democratic Republic of Congo)	3.3
Marko Saarela	Interoperability testing in multinational exercise Combined Endeavor – Trends and results from the radio tests 2000 - 2010	3.5
15:00 – 15:30 Coffee, Tea		
15:30 – 17:00 Wednesday foxhunt introduction	Gather in the conference theatre, please.	
17:00 – 18:30 Dinner		
19.00 HF 10 Concert in Fårö Church	Agneta Söderdahl, Mathias Kjellgren, Sten Wahlund	
20:00 – 22:00 Exhibition party	Wine, beer and snacks inside and outside the exhibition halls.	

Exhibitors

- ÅF Infrastruktur AB
- Amtele AB
- Communications Audit Ltd
- FRO, Swedish Voluntary Radio Organisation
- Grimeton radio station, UNESCO World Heritage
- IDG Europe AB
- Saab AB
- SSA, Swedish Amateur Radio League
- Swedish Defence Materiel Administration
- WRAP International AB

WEDNESDAY

08:00 – 09:30 SPECTRUM MANAGEMENT

L. W. (Les) Barclay, OBE (Keynote speaker)

Mari-Anne Meister, Eerik Lossmann
and Urve Madar

Nigel Arthur, Ian Taylor and Ken Eddie

09:30 – 10:00 Coffee, Tea

10:00 – 11:30 LINK PROTOCOLS

Ken Eddie and Trevor Groves

William N. Furman and Eric N. Koski

Håkan Bergzén

11:30 – 13:00 Lunch

13:00 – 15:00 MODULATION AND CODING

John W. Nieto

John Wilson, Peter R. Green and Ben Allen

William N. Furman and John W. Nieto

Mark B. Jorgenson, Rod Blocksome,
Robert W. Johnson, Randy W. Nelson,
Dwayne Harris and Gary Boesdorfer

Krister Björnsjö

Ionospheric communication – Opportunities and barriers

Results of the practical research for
HF communications in Estonia

The use of dynamic frequency selection in an
advanced HF communication system

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4.1

4.2

4.3

Kjell Brethack

Enhanced HF link capacity

Cognitive wideband ALE concepts

Security, services and capacity considerations when
connecting HF networks to other IP networks

5.1

5.2

3.4

Dag Stranneby

Coding and interleaving options for
wideband HF waveforms

An asymmetric low-power HF modem link

On-air test results of a wideband HF data modem

Results from a new wideband HF waveform design

6.1

6.2

6.3

6.4

WEDNESDAY

15:00 – 15:30 Coffee, Tea

15:30 – 17:30 Fox hunt

Fox hunt participants: Please make the coffee break short, change wear and collect gear. Assemble in the field at Mor Lisa's cottage. We will leave just after 15:30 for a short walk to the starting point.

18:00 Before-dinner entertainment outside the restaurant

Täby Brunnsoktett (Täby Spa Octet); drinks (Gotland scent and taste) served outside the restaurant.

19:00 Conference dinner

19:00 – The pub is open

THURSDAY

08:00 – 09:30 **VLF/LF**

Arne Lindblad

John Nieto

Arne Lindblad

Rickard Berg

Experiences from field-strength measurements at VLF and LF

Coded and interleaved CPM waveforms for use on LF links

Bandwidth versus efficiency in VLF transmitting antennas

Page

7.1

7.2

7.3

09:30 – 10:00 Coffee, Tea

10:00 – 11:30 **PROPAGATION AND MODELLING**

Olga Maltseva and Natalya Mozhaeva

Marcus Walden

Nick Danilkin and Nadezhda Kotonaeva

Olov Carlsson

Comparison of HF propagation conditions for the European mid-latitudinal and subauroral paths

A comparison of measurements and propagation simulations for mid-latitude HF NVIS links at 5 MHz during sunspot minima

Results of research of the loop trajectories of satellite SW-radio waves at heights below an ionosphere maximum

8.1

8.2

8.3

11:30 – 13:00 Lunch

THURSDAY

13:00 – 15:00 SYSTEM COMPONENTS

Ronald Davidson, Jo Eide, Malcolm Packer
and Pablo Diez

Iain Scott

Bruce Johnson

15:00 – 15:30 Coffee, Tea

15:30 – 17:30 Guided bus tour around Fårö. Departure from
the garage yard.

15:50 (prel.) Bus for departures from Visby airport (mainly for HFIA
meeting participants – please tell the HF 10 secretariat if you
want to go with this bus)

17:00 – 18:30 Dinner

19:00 – The pub is open

FRIDAY

05:30 – 09:00 Breakfast

05:50 First departure to Visby Harbour and Airport

Subsequent transportation will be organised by
agreement and displayed.

Karl-Arne Markström

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Compatibility of magnetic antennas (loop)
with modern HF systems

9.1

A high performance HF narrow-band tuner-digitiser

9.2

Low-pass geometric progression filter set for HF

9.3

SPONSORS

The HF 10 Organising Committee gratefully recognises the valuable
contributions provided by the following sponsoring organisations:

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