

ORGANISING COMMITTEE HF 07:

Carl-Henrik Walde	SNRV and NRS (Chairman)
Gunnar Eklund	Försvarsutbildarna
Karl-Arne Markström	Telemar Scandinavia AB
Olov Carlsson	WRAP International AB (Secretary general)
Winnie Svensson	Saab Communication (Secretariat)

PROGRAMME COMMITTEE:

Karl-Arne Markström	Telemar Scandinavia AB (Chairman)
Håkan Bergzén	Saab Communication (Secretary)
Jorma Ahonen	Swedish Defence Materiel Administration
Jan Bergman	Swedish Institute for Space Physics
Peter Nagy	Swedish Defence Research Agency
Dag Stranneby	University of Örebro
Sven Åkerlund	Swedish Defence Materiel Administration
Pekka Eskelinen	Helsinki University of Technology
Vivianne Jodalén	Norwegian Defence Research Establishment

CONFERENCE HOSTESSES:

Marie Lindersjö	Swedish Defence Research Agency (FOI)
Therese Nilsson	Saab Communication
Suzanne Rehn	Swedish Defence Research Agency (FOI)
Winnie Svensson	Saab Communication

CONFERENCE HOSTS:

Anders Hertzman	Camp commander
Eva Frykler	Camp paymaster
Jan Garefelt	Network administrator

HF 07 ADDRESS AND TELECOMMUNICATIONS (during the conference):

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14-16 AUGUST 2007

FÅRÖ

Nordic HF Conference

14-16 August 2007
Fårö Kursgård, Fårö

Programme



Nordic Radio Society

HF 07 – HF systems for the future

I wish you a very welcome to the 8th 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.

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 of 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 HF 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.



Åke Blomquist
Chairman of NRS

RECEPTION DESK

The HF 07 reception is open:
15.00 - 22.00 on Monday,
07.30 - 17.00 Tuesday to Thursday.

MEALS

All regular meals are served in the restaurant building.

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

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

Breakfast	07.00 - 09.00	Coffee/tea	09.45 - 10.15
Lunch	11.00 - 13.00	Coffee/tea	15.15 - 15.45 (15.00 - 15.30 Wednesday)
Dinner	17.00 - 18.30	On Wednesday the conference dinner will begin at 19.00. Gotland drinks will be served from 18.00.	

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 CAFE

E-mail (webmail) 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

19.00 - HF 07 welcoming buffet served in the mess hall.
The mess hall and bar are open.

TUESDAY

08.00 Flag Ceremony (parade grounds, please be in time!)

Carl-Henrik Walde

08.15 Conference Introduction (conference theatre)

Åke Blomquist et al

08.30 - 09.45 **PROPAGATION AND MODELLING**

Jan Bergman

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Roald Otnes

* Predicting the increase in HF noise floor due to cumulative effects from power line telecommunications (PLT)

1.1

Roald Otnes and Jens Hjelmstad

* Measurements and modelling of scattering effects from wind farms at HF frequencies

1.2

E Michael Warrington, A J Stocker,
Nikolay Y Zaalov and D R Siddle

* Observations of HF propagation on a path aligned along the mid-latitude trough

1.3

09.45 - 10.15 Coffee, tea

10.15 - 10.40 **PROPAGATION AND MODELLING**

Jan Bergman

Nikolay Y Zaalov, E Michael Warrington and
A J Stocker

* Effect of geomagnetic activity on HF channel scattering functions for signals propagating in the northerly ionosphere

1.4

10.45 - 11.30 **SOFTWARE-DEFINED RADIO**

Vivianne Jodalen

Eric Koski (Invited speaker)

* Software-defined radio, the JTRS initiative, and their implications for HF communications

2.1

11.30 - 13.00 Lunch

TUESDAY

13.00 - 15.15 SIGNAL ANALYSIS

Stefan Hawlitschka

William M Batts Jr, William N Furman
and Eric Koski

Bertalan Eged and B Babják

Roger Karlsson, Wolfgang Macher,
Ulrich Taubenschuss, Helmut O Rucker and
the Cassini/RPWS team

15.15 - 15.45 Coffee, Tea

15.30 – 17.00 Wednesday foxhunt introduction

17.00 - 18.30 Dinner

19.00 Concert in the Church of Fårö

20.00 - 22.00 Exhibition party

The mess hall and bar are open

Vivianne Jodalén

- * The use of a super-resolution DF system for gathering information about ionospheric waves 3.1
- * Empirically characterizing channel quality variation on HF ionospheric channels 3.2
- * Receiver system components for reconnaissance and monitoring operations 3.3
- * In-flight calibration of the Cassini radio and plasma wave science (RPWS) antennas after the Huygens probe release 3.4

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Gather in the conference theatre, please.

Sten Wahlund, Royal Opera House, Stockholm

Wine, beer and snacks inside and outside the exhibition halls.

Exhibitors

- Amtele AB / Rockwell Collins
- Drumgrange Ltd.
- Harris Corporation
- Radixon UK
- Saab Communication
- Sagax Communications Ltd
- SELEX Communications Ltd
- Swedish Defence Materiel Administration
- Telefunken Racoms
- World Heritage Grimeton
- WRAP International AB

WEDNESDAY

08.00 - 09.45 SPECTRUM MANAGEMENT

Samuel Ritchie (Invited speaker)

Olov Carlsson

Nigel P Arthur, Ian D Taylor and Ken D Eddie

Karl-Arne Markström

* Status and trends in HF spectrum management and use

* Frequency management for geographically dispersed HF networks

* Advanced HF spectrum management techniques

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4.1

4.2

4.3

09.45 - 10.15 Coffee, Tea

10.15 - 10.40 SPECTRUM MANAGEMENT

Haris Haralambous and Harris Papadopoulos

Karl-Arne Markström

* Neural network prediction of HF spectral occupancy

4.4

10.45 - 11.30 MODULATION AND CODING

Sharadha R Kariyawasam, B Honary and G Vongas

John W Nieto

Dag Stranneby

* Internet for HF with link layer error control coding

* A performance comparison of uncoded and coded OFDM and OFDM-CDMA waveforms on HF multipath fading channels

5.1

5.2

11.30 - 13.00 Lunch

WEDNESDAY

13.00 - 14.00 **SYSTEM AND NETWORKS**

Arnstein Johansen

Jürgen Escher and Wolfgang Mack

Sven Åkerlund

* An extended ALE protocol for higher-density traffic requirements

* Upgrade of existing HF equipment to a third generation HF system (3G HF) with automatic and optimized frequency management

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6.1

6.2

14.10 - 15.00 **LINK PROTOCOL**

Vivianne Jodalen and Bjørn Solberg

Siegfried Grob and Andre Kotlowski

Klaus Würde

Sven Åkerlund

* A protocol comparison between STANAG 5066/
STANAG 4539 and HDL+

* Potential of the fixed frequency HF communication medium in the upgrading NATO tactical data link 22

* STANAG 4444 – NATO's HF-EPM communication standard (now ready to leverage the forces)

7.1

7.2

7.3

15.00 - 15.30 Coffee, Tea

15.30 - 17.30 Leave for fox hunt

Fox hunt participants: Please make the coffee break short, change wear and collect gear.

18.00 Before-dinner entertainment outside the restaurant

Täby Brunnsoktett; drinks (Gotland scent and taste) served in the restaurant area. Musical entertainment sponsored by Rockwell Collins

19.00 Conference dinner

Wine and drinks are sponsored by VT Communications Ltd.

The mess hall and bar are open

THURSDAY

08.00 - 09.45 **VLF/LF**

Robert G Nash (Invited speaker)

Arne Lindblad

Kia Wiklundh

09.45 - 10.15 Coffee, Tea

10.15 -10.40 **VLF/LF**

Risto Mutanen

10.45 - 11.30 **SYSTEM INTEGRATION**

Dave Kelleher

R E H Spalding and I Corner

11.30 - 13.00 Lunch

Jorma Ahonen

- * LF transmitter applications – Management of energy, power, bandwidth, stresses and materials
- * Some practical aspects on LF submarine communications
- * A study on some modulation methods and forward error-correction codes in an interference environment typical for the LF band and communication with submarines

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8.1

8.2

8.3

Jorma Ahonen

- * Utilisation of low radio frequencies

8.4

William (Bill) Furman

- * Provisions of new LF standard time and frequency service
- * Modern HF communications for a modern military delivered through the defence high frequency communications service

9.1

9.2

THURSDAY

13.00 - 14.45 SYSTEM COMPONENTS

Pierluigi Poponi

Håkan Bergzén and Sven Åkerlund

Arnstein Johansen

Jan E S Bergman, Kiran K Kovi, Bo Thidé,
Walter Puccio, Sven-Erik Jansson and Fredrik Bruhn

15.15 - 15.45 Coffee, Tea

15.30 – 17.30 Guided bus tour around Fårö. Departure from
the garage yard.

17.00 - 18.30 Dinner

20.00 The mess hall and bar are open

FRIDAY

06.00 - 09.00 Breakfast

06.25 First departure to Visby Harbour and Airport

Subsequent transportation will be organised by
agreement and displayed.

Walter Reck

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|--|-------------|
| * Single rack 400W/1kW HF multi-transceiver system | 10.1 |
| * Results and experiences from using the HF 2000 system over-air | 10.2 |
| * Advanced receive chain dynamic range management | 10.3 |
| * Radio receiver on a chip for space applications | 10.4 |

The HF 07 Organising Committee gratefully recognises the valuable contributions provided by the following sponsoring organisations:

Amtele



Harris



Rockwell Collins

Saab Communication



SELEX Communications



VT Communications



WRAP International

