

SHORTWAVE BULLETIN

Issue no. 1633 Jan 20 2008.

Deadline e-mail next issue: 0900 SNT, Feb 3, 2008.

Dags igen för SWB.

Några stycken kommer att lämna SWB på grund av tappat intresse för kortvågslyssningen. Vi får väl ändå hoppas att några stycken väljer att fortsätta ett år till så att vi inte helt behöver begrava SWB.

Som det ser ut så går utvecklingen mot programlyssning mer och mer. Tom R. Vanuatu förbereder nu en DRM sändare för KV.

Det får bli annan typ av lyssning. Notera bla AHK:s bidrag på 6792,5 och fylliga kommentarer i slutet ang denna HAARP sändning.

Passar också på att slå ett slag för Guy Atkins mycket intressanta blogspot där han skriver om sina erfarenheter med Perseus SDR mottagare. Se <http://perseus-sdr.blogspot.com/>

Lyssna även in AHK:s inspelningar på <http://www.hultqvist.com/winradio>

Keep on

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R e d a k t i o n :

Thomas Nilsson
Mardalsv. 372
262 93 Ängelholm

Tel: 0431-27054

E-mail:
thomas.nilsson@ektv.nu

SWB-info

SWB online på HCDX: <http://www.hard-core-dx.com/swb>

Dateline Bogotá: <http://hem.ektv.nu/~ekt035221/Dateline.htm>

SWB hot stuff: <http://hem.ektv.nu/~ekt035221/> (på denna sajt ligger alltid senaste SWB).

SWB member information: <http://www.hard-core-dx.com/swb/member.htm>

Jubileumstidskriften: <http://hem.ektv.nu/~ekt035221/> (html- + pdf-version).

MEDLEMSAVGIFT 2008 (membership fee 2008):

Medlemsavgiften för 2008 är SEK 75:- för internetbulle och SEK 250:- för pappersbulle. För utländsk medlem, som betalar direkt via postgirot, tillkommer SEK 30:- för att täcka den avgift postgirot tar ut. Betalning till Bengt Dalhammar, postgirokonto 51 84 47 - 8. Medlemsavgifterna skall vara betalda senast 31/1 2008.

Membership fee 2008 is SEK 75:- Payment to postal account 51 84 47- 8. Add SEK 30:- to cover postal costs. Payment before Jan 31, 2008. (Foreign members please contact the editor regarding other ways to pay.) / Bengt Dalhammar.

QSL, kommentarer, mm.

Stig Adolfsson: Hej och ett något sent God Fortsättning på det nya året. Hörigheterna under helgerna var dåliga. Jag lyckades inte höra en enda PNG ens på nyårsafton när de brukar köra övertid. SIBC-5020 har jag inte hört en enda gång denna säsong. Bästa hälsningar från Vallentuna!

Björn Fransson: Riktigt bra konditioner på kortvåg noterades vid vår "lyssnarnatt" igår, fredag. Därför blir det några tips för hugade spekulanter. 73 från Björn

QSL: Voice of Kurdistan-6336 med email från v/s Alex Atroushi med placering på informationskontoret i Stockholm. Han inleder sitt standardmail med "Tack så mycket Björn" och berättar att stationen numera finns i Salah-Addin, norr om Erbil i Kurdistan/Irak. Ja, det var allt, trots många ivägskickade rapporter... Dyster statistik för 2007!

This day in radio history January 18 1903

Guglielmo Marconi, the Italian inventor of wireless telegraphy, arrived on Cape Cod hoping to make history. The night was cold but perfectly clear, and the first trans-Atlantic radio transmission, a message from President Theodore Roosevelt to King Edward VII, was carried directly from Wellfleet to England. The lifesaving value of this new technology was first evident on January 23, 1909, when the ocean liner Republic collided with another ship and began to sink. The radio operator sent out a distress signal. The station in Wellfleet received the call and alerted other ships in the area.

Almost all the passengers were rescued, and Marconi became a popular hero. He won the Nobel Prize for Physics in 1909.

By the 1890s, five decades after Samuel Morse invented the telegraph, the world had grown accustomed to near-instant long distance communication through overhead wires and underwater cables. Because wires and cables were expensive, telegraph rates remained high. A young Italian inventor and businessman thought he had a better idea - he would manipulate radio waves to send wireless transmissions. In London in 1896, the 22-year-old Guglielmo Marconi gave the first public demonstration of wireless technology and started a revolution that continues today.

Marconi's first equipment was crude. Competition from other inventors was intense. He knew he would have to work fast to perfect his system and raced to increase the distance he could transmit wireless messages. By 1899, he had succeeded in sending messages from ship to shore, over 20 miles away. Next, he sent a signal across the English Channel. But the race that really counted was the one for the first transmission across the Atlantic. On December 12,

1901, Marconi won that race when he transmitted the letter "S" from the southeast coast of England to Newfoundland.

The real challenge was to send and receive complete messages by radio across the Atlantic. For his U.S. site, Marconi chose a bluff high above the ocean in South Wellfleet, Massachusetts. There he built four towers, each 210 feet high. The towers were reinforced against the fierce Atlantic winds with 12 one-inch steel cables.

A transmitter building housed a condenser, an antenna tuning coil, and a huge sparkgap rotor. Next to the transmitter house stood the power station, which contained a 45-horsepower, kerosene-fired generator and an A/C powered battery. The sound of the spark from the rotor could be heard four miles downwind, and, much to the dismay of nearby residents, the best conditions for sending messages occurred between 10 PM and 2 AM.

On January 18, 1903, Marconi arrived in Wellfleet, planning to relay a historic message from Cape Cod to Canada, and from there on to England. The night was so perfectly clear that the station in England picked up the communiqué from President Theodore Roosevelt to King Edward VII directly and relayed the King's reply, both in international Morse code. Guglielmo Marconi had made possible the first two-way trans-Atlantic wireless message.

Marconi was of course pleased by this ceremonial exchange, but his real interest lay in using radio transmissions to allow ships to communicate with each other and with stations on shore. There was money to be made here - the cost of sending a message was 50 cents a word - but the lifesaving value of the technology was even more impressive.

On January 23, 1909, the ocean liner Republic collided with another ship and began to sink. The radio operator sent out a distress signal. The station in Wellfleet received the call and relayed the news to other ships in the area. By the next morning, "every liner and every cargo boat equipped with wireless that happened to be within a 300-mile radius" was on the scene. An even more famous case was the wireless-aided rescue in 1912 of over 700 survivors of the Titanic disaster. Marconi became a popular hero. In 1909 he won the Nobel Prize for Physics. He later worked on the development of shortwave wireless communication, which is the foundation of nearly all modern long-distance radio.

The South Wellfleet station operated until 1917, when it was shut down as part of the Navy's effort to control communications during World War I. Nature insured that the station did not return to active use. With the cliff eroding at the rate of three feet a year, the front towers were already on the verge of collapsing. In 1920, the buildings were dismantled and abandoned. The site is now part of the Cape Cod National Seashore.

Sources

Signor Marconi's Magic Box: The Most Remarkable Invention of the 19th Century and the Amateur Inventor Whose Genius Sparked a Revolution, by Gavin Weightman, (De Capo Press, 2003).

<http://www.massmoments.org/index.cfm?mid=22>

(Mike Teerry via HCDX)

LOGGEN - ALL TIMES ARE UTC

2959,965	13.1	1405	RPDT2 Manggari , Ruteng på ön Flores med stilla ballader. Har hörts ett par gånger fram till cd 15. 1-2 SA
3325	18.1	1935	RRI/Palankaraya borde det ha varit, men inget ID. Spelade musik av kinesisk typ, men språket lät som indonesiska. S 1-3. BEFF
3329.6	18.1	2315	Radio Ondas del Huallaga , Peru med nonstop musik. Inget ID! S 2-3. BEFF
3335	18.1	1930	Radio East Sepik , Wevak försvann snabbt, men återkom med nyheter på EE kl 2000. S 2. BEFF
3344,964 4732.02	15.1	1341	RRI Ternate spelade "I just called to say I love you". 2 SA Radio Universitaria , Cobija, Pando back noted weak 0030; 1030 and 2250 on Jan 15; Thanks to head up log by Lucio Otavio Bobrowiec . CODAR and rtty also present on signal at 2250 - 2300. If past performance is an indicator, Radio Universitaria will be on for a short period of time. [Wilkner-FL]
4746.85	18.1	2300	Radio Huanta 2000 , Peru kom in först av peruanerna, av vilka jag inte hann kolla så många innan midnattstoppen var över. S 3. BEFF
4775 4800	18.1	2300	Radio Tarma , Peru med stort ID och programmet "Antena Deportiva". S 3-4! BEFF XERTA and 4732 Radio Universitaria, Cobija, Pando both being received well at 2330 in Southeast Florida. [Wilkner-FL]
4869,931	ofta	1345	RRI Wamena har hörts nästan varje dag oberoende av A-index. Stänger med Rayuan Pulau Kelapa runt 14. 2 SA
4905	16.1	0545	Radiodiffusion Nationale Tchadienne hade bl a ett inslag där man berättade om sin nya kortvågssändare på 250 kW. Man nämnde också frekvenserna 4905, 6165, 9615 och 11760 kHz - jag är osäker på om jag uppfattade den sitstnämnda helt korrekt. Detta förklarar den goda mottagningen. 3 CB
5066,329	7.1	1600	Radio Candip , Bunia med franska och cd 1630. Något instabil bärvåg. 2 SA
6060	17.1	0645	Radio Habana Cuba med "Breaking the silence", om politiska kubanska fångar i USA. Kl 0700 startade ett musikprogram från Radio Musical Nacional. S 4. BEFF

6185	12.1	0802	Radio Educaci3n med blandad musik. Gick riktigt bra en stund. 2 CB
6210	18.1	1725	Radio Kahuzi , Bukavu var kvällens roligaste loggning, efter många många försök. Hade religiöst på engelska först, men övergick sedan till lokalt språk och franska. Stora problem med stationer som inte borde vara där, t ex VOR med finska senare. Det verkar som om den fuktiga luften gör att vissa jättestarka sändare även hörs på en mängd andra frekvenser än de nominella – eller är det bara sändarna som läcker? Kl 1800 var det adjö för Kahuzi, som möjligen stängde och lämnade plats för farsi! S 1-3. BEFF
6265	18.1	2222	KBC Radio , The Mighty KBC, med "Turkish march". Vilken sändare använder dom för denna frekvens. Fortfarande Litauen? I så fall hördes de riktigt dåligt. BEFF
6311.1			R. Barretina , Catalonia seems on with respectable signal at 2350 received well in Florida. [Robert Wilkner, FL]
6335	17.1	1625	Voice of Kurdistan med engelsk och spansk pop! Kort nyhetsbulletin och ID på engelska kl 1630 och mera pop efter detta. Lade av med engelskan kl 1700. S 3-4, men en heterodyn ligger och stör. BEFF
6792,5	19.1	0500	Moonbounce . Hördes ganska skapligt hela tiden dom sände, dvs till 0600. Mot slutet hördes dock bara sändningen riktad till månen, inte tillbakastudsen. <i>Moonrise 09:41 on preceding day (Friday). *Moonset 05:42 Saturday*. Moonrise 10:14. Moon transit 20:32. Moonset 06:53 Sunday.</i> Detta förklarar ju varför jag inte hörde något "från månen" den sista kvarten. Månen gick ju ner över horisonten hos mig ca 05:42. AHK (<i>HAARP Moonbounce experiment: http://www.arrl.org/?artid=7958</i>)
7324,956	ibl	1120	Radio Wantok Light hörs ibland med engelska religiösa program. 2 SA
9745	12.1	1100	Radio Armonia är ett TWR-program på rumänska, producerat i Iasi. Kanske via Monaco? S 3-4. BEFF
9885	8.1	1455	Radio Svitle ID-ade också Radio Emmanuel har address I Kiev, Ukriana och är tydligen en FM-station, vars program återutsänds här. S 3-4. BEFF
11905	9.1	1515	Sri Lanka Bc Corp med telefonprogram på hindi. En hel del fin musik. ID: "Ye Sri Lanka Broadcasting Corporation He". 3-4 CB
15110	19.1	0755	Radio Kuwait med engelska. Sänds 05-08. 4 CB

Mosquito Coast ~ Jan 19th 2008 ~

3172.36			Radio Municipal , Pnao seems off the air 1000 to 1130 and 2300 to 0200 monitoring times. [Wilkner-FL]
3254.87 t.			Radio Educadora 6 de Agosto , Xapuri seemingly the Portuguese language station 0950 to 1010 19 Jan. [Wilkner-FL]
3340			Radio Misiones Internacionales , Comayagüela seems irregular although Latin Harmonic is omnipresent [Wilkner-FL]
4045 usb			Belize 1205 Motor vessel checking weather conditions. 14 Jan. [Wilkner-FL]
4045 usb			Turks and Caicos Islands 1125 sailing vessel [Wilkner-FL]
4545.396t.			Radio Virgen de Remedios , Tupiza 1030 to 1040 weak audio 15 Jan. [Wilkner-FL]
4699.41			Radio San Miguel , Riberalta 0950 to 1000 all week long with drifting frequency. Good signal with local announcements [Wilkner-FL]
4716.594			Radio Yura , Yura *1017 sudden on with instrumental music, not typical of Bolivia till 1036 with no announcements. 19 Jan. [Wilkner-FL]
4732.			Radio Universitaria , Cobija, Pando 1050 to 1105 tremendous signal, slow male ballads no ID 18 Jan., 2330 noted on same day, under rtyt"RYRYRYRYRYRYRYRY...". 1055 Excellent signal , flauta andina lenta but no ID on hour, faded by 1107 on 16 Jan.. Nothing noted 1055 on 19 Jan.. [Wilkner-FL]
4800			XERTA 1120 to 1130 strong signal dominating CODAR on 14 Jan. [Wilkner-FL]
4857.384			Radio La Hora Cusco "en la patria....la Hora..." 2322 on 17 Jan. [Wilkner-FL]
4900			Continuous time pips 1120 to 1135 18 Jan. [Wilkner-FL]
5486.646			Radio Reyna de la Selva , Chachapoyas 1125 noted with lively music and excellent signal 15 Jan. [Wilkner-FL]
6079.97			Radio San Gabriel , La Paz 1040 to 1055 flauta andina and indigenous music 15 Jan. [Wilkner-FL]

Stationsnyheter

BENIN. TWR BENIN TO LAUNCH ON 1 FEBRUARY
(MNN 17 January 2008 <http://www.mnnonline.org/article/10799>)

After four years of spiritual battle, a new transmitting station will broadcast for the first time in Benin on February 1. Trans World Radio hopes the station will be automated within three months. They will be broadcasting programs from local churches and ministries.

With at least 15 languages reaching into 9 countries, they will be able to reach areas that are difficult to reach, such as northern Nigeria. There is a specific group that they hope they will be able to impact. "We'll broadcast on a regular basis, every night, and Islam is growing there. They need to hear the Gospel, a clear presentation of the Gospel, so programs like 'Through the Bible' will get in very clearly to those area now," said TWR's Ray Alary.

The potential listening audience is 63 million. Though the date is approaching for the first broadcast, there are still needs. "We are looking for at least one more staff member. We've got a builder there and an engineer there right now. We really need some support there for them. It's a tough place to be. We are a pioneering missionary there," said Alary. They are 35 miles out of town, and the nearest town has no electricity.

"Even though we're ready to go on the air, I think in some ways we need to be bathed in prayer even more now than in the building process," said Alary. They still need funding, as well, to cover costs.

Trans World Radio, Phone: 800-456-7TWR, 300 Gregson Drive/ Box 8700 Cary, NC 27512.

(Mission Network News via Mike Terry, dxldyg via DXLD)

The transmitter is on 1566 kHz. Protestant evangelical Trans World Radio has its headquarters in Cary, North Carolina. Previous reports about the Benin facility have mentioned that it has room to add shortwave transmitters. Posted: 19 Jan 2008 (Kim Andrew Elliott, kimandrewelliott.com via DXLD)

BRAZIL. 3235 seems reactivated with good reception in Porto Alegre, Brazil at 2325 UT 18Jan2008. Fed with "Guarujá FM" audio, parallel with 5045 KHz (this one hard to hear). Lots of local ads, musical station ID 'Guarujá FM', followed by Brazilian popular song hits. 33423.

(Huelbe A. Garcia, Icom R75, 1-turn loop, Porto Alegre, RS, Brazil (30S, 51W), Jan 18, DX LISTENING DIGEST)

COSTA RICA. Found the 5954 mystery station on the air before 2300, their usual sign on time, again playing Mexican group Maná, but they were off by 2315. Might be they started testings earlier this Friday 18. What is not a mystery is that the station is Costa Rica soil, most likely Central Valley. I phoned again today an executive friend at Control Nacional de Radio, but he wasn't around, reason why I don't have late minute info.

(Raúl Saavedra, Costa Rica, Jan 18, dxldyg via DX LISTENING DIGEST)

GUATEMALA: The SW Station Radio Verdad (Radio Truth) from Guatemala, 4.0525 MHz, will feast its 8th anniversary next month of February, or such a motive it will grant a new card commemorative QSL. For more information visit your web page: www.radioverdad.org Regards and very good dx!!! Please communicate this to all dxers!!! (SWL. Magdiel Cruz Rodríguez México, via HCDX)

MYANMAR

It seems that a new service of **Myanmar Radio** has recently begun on 594 kHz, and is relayed on 5986v in the local early morning. I've traced the new service on 5986v kHz from around 0000-0130 UTC daily, but it probably operates for longer than that.

594 kHz is also heard with the new service in the local evening. However, in the local evening 5986v is still in parallel with 576 kHz, as has been the case for many years, rather than in parallel with the new service on 594 kHz.

The new service is in parallel on 576 and 594 kHz around 2230 UTC, so presumably 576 kHz breaks away to carry separate programming from 0030 UTC in parallel with 7185 kHz.

I haven't yet found any other shortwave frequencies for the new service apart from 5986v kHz in the local morning. 594 kHz is quite a strong signal in Malaysia after dark and for a couple of hours after sunrise. It gives much better reception than Myanma Radio's longstanding MW frequency of 576 kHz.

I don't know the official name for the new service, but it sounds like it's aimed at young adults. It carries a lot of pop music, especially covers of Western and Chinese pop songs sung with Burmese lyrics, interspersed with short announcements and occasional drama sketches all in Burmese. (the above mostly based on listening in Penang, Malaysia, 3-6 Jan 2008).

(Regards, Alan Davies, Indonesia via DXLD)

ETHIOPIA DWL Amharic sce. Two BROADBAND jammer from ETH with annoying hiss audio noted on two QRGs only today 1400-1457 UT Jan 8th: 11645 and 15640. No interfering signals on Kigali channels either 15620 or 15660 kHz. Jamming covered 11635.5 - 11653.8, 15633.8 - 15648.8 slots, measured on Eton E1 with 2.3 kHz filter.

(73 Wolfgang Bueschel via HCDX)

This is sad news and historical irony. Asa Briggs writes in his famous BBC history that Italy was the first country to start radio jamming. This happened in 1936 when Italy occupied Ethiopia. Ethiopian radio began to broadcast messages to get help when Italian forces started their invasion. These broadcasts were jammed by the Italians.

http://en.wikipedia.org/wiki/Asa_Briggs. Now the Ethiopian government is jamming foreign broadcasts to Ethiopia.

(Jorma Mantyla, Kangasala, Finland via HCDX)

VANUATU. R. Vanuatu --- Olá Glenn, Fiz uma pergunta sobre aquela queda muito forte na qualidade do sinal da R. Vanuatu entre 2006 e 2007 para o David Ricquish, e ele gentilmente respondeu o seguinte:

Hello Lucio, Sorry for the delay responding but I had to find out more information. The SW towers and other facilities are in good condition, but the transmitters are not, thus the problems you have hearing RadioVanuatu on SW at present.

As part of an international aid program, the MW and SW transmitters are being replaced. The two NZ funded new MW transmitters are on air and operating well on 1125 and 1179 and providing excellent MW coverage. However, the new Australian government seems to be reviewing its part of the aid program, and, as a result, the new DRM capable SW transmitters have still not arrived in Vanuatu. A technician was due to fly out about now to install them but his visit is postponed until the project resumes. Just when that will be is currently uncertain. Thanks for your kind words about our projects. 73 David Ricquish, Radio Heritage Foundation <http://www.radioheritage.net> (via Lucio Otavio Bobrowiec, Brasil, Jan 19, DX LISTENING DIGEST)

Övriga radionyheter

Post about Perseus receiver

I just posted some notes on <http://radiodxinfo.blogspot.com/> about Perseus SDR receiver. It's in Italian, but some links (at the end of the post) are in English.

(Giampiero Bernardini, Milano, Italy)

Wellbrook Phased Array

(Item below copied from Guy Atkins excellent blogspot at <http://perseus-sdr.blogspot.com/>)

Most yurts in this state park are within a few hundred feet of the Pacific Ocean. Although the setting is not suitable for erecting lengthy Beverage antennas, I had ample room for the Wellbrook Phased Array. It requires just 132 feet between the masts that support two 20 x 20 x 20 ft. delta loop elements. For those unfamiliar with the Wellbrook array, it is still in development but it's clearly the best-performing alternative to the traditional Beverage antenna that I and other MW DXers have ever used. Check out <http://www.wellbrook.uk.com/phasedarray.html> for details.

Audio samples from the Wellbrook Phased Array. As an example of the excellent directivity of this antenna, listen to the following MP3 files. Each starts out with approx. 10 seconds of audio from the station in the northwest "beam", and then 10 seconds later the beam is reversed to the southeast via the reversal switch on the control box. The remainder of the files then alternate NW-SE every 10 seconds:

[690 kHz, CBU Vancouver, British Columbia, Canada](#)

[774 kHz, JOUB Akita, Japan](#)

(copied from Guy Atkins eminent blogspot at <http://perseus-sdr.blogspot.com/>)

Om ni inte har besökt Guy Atkins blogspot redan, så gör det omgående. Lyssna på de 2 inspelningarna ovan och njut av vad en fantastisk antenn kan göra med mottagningen. /SWB-editor

About the Wellbrook Phased Array (Product under development)

(copied from the Wellbrook site at <http://www.wellbrook.uk.com/phasedarray.html>)

The **Wellbrook Phased Array** is a totally new receiving antenna designed for optimum MW reception. This Antenna system is only Broadband Phased Array to offer a uni-directional pattern similar to the Beverage, over 360 degrees with electronic Null Steering. The design is the result of several years research by Wellbrook's owner and chief design engineer Andrew H. Ikin. Trials of this new array have been performed in the US by experienced MW Dxers using the phasing system with high performance Active Vertical and Active Loop antennas.

These trials demonstrated that the Phased Array equipped with elements made from ALA 100 Large Aperture triangular Loop Antennas (one of the world's best active antennas) provided much lower noise and improved side rejection than an identical array equipped with Active Vertical antenna elements. This finding was particularly important for DXers living in urban areas. Moreover, comparative listening tests indicated that the Phased Array was equally as sensitive and directional as a 1000-1500ft Beverage, with the added advantage of deep null steering!

Phased Array Design: The Phased Array provides a reversible uni-directional reception pattern similar to a 1 wavelength Beverage with the added ability for the user to steer up to 50dB nulls around the back of the array.

The Phased Array consists of a **Control Unit** and **two ALA100 Loop antennas**. Each loop is **triangular** with just one support pole. The Phased Array can be expanded to use four ALA100 loop antennas to provide 360 degree coverage.

The Control Unit combines the output of the two antennas using a technique known as "Delay line Anti-phasing" i.e. the antennas are combined in anti-phase plus a **Variable Delay-line** equal to between 50% and 100% of the spacing of the antennas. This phasing technique provides a uni-directional reception pattern over a very wide bandwidth with only a minor adjustment to the controls.

This has a considerable advantage over the majority other phasing and noise cancelling systems which require constant adjustment even with small frequency changes.

PHASED ARRAY KEY FEATURES

- Uni-directional pattern similar to the Beverage
- Simple to erect (no control Lines)
- High Front to Back ratio and side rejection
- Up to 50dB null steering
- High dynamic range amplifiers IOP3 +42dBm; IOP2 +75dBm
- Very low noise ALA100 loop antennas
- Lower noise than Active Whip arrays
- 360° with 4 Loops
- 12Volt DC power, ideal for Dxpeditons
- Only requires 40m antenna spacing

Wellbrook Communications, The Farthings, Beulah, Llanwrtyd Wells, Powys LD5 4YD, UK, Phone 01591 620316
(copy by SWB editor from the info at the Wellbrook site)

INTERNATIONAL VACUUM [and non]. HAARP Moonbounce experiment came thru well here, rather to my surprise. Jan 19 at 0510 UT tune-in, 6792.5 had 2-second carriers as promised from Gakona, but the echoes were almost as strong, making me think at first that something went awry. Further monitoring showed that the strength of the echoes varied greatly, sometimes not audible for several minutes, usually quite a bit weaker than the originals, but still audible. This was on the FRG-7 with usual mostly E-W longwire of 30 meters or so. S-meter was pretty constant at S9+20 at the local noise level, with HAARP barely deflecting it further.

At 0523 I went outside with the DX-398 portable with whip only to see if I could at least get Gakona and confirm the frequency. Not only did I hear that, but the echoes too --- standing there under the bright gibbous Moon. Hello, Moon! I have rarely felt so close to you. The reduced noise level made up for the reduced antenna. Yes, 6792.5 kHz.

Back inside, Gakona was not heard around 0528-0530, pause in transmission or propagation? Again heard at 0530, but some other pulse QRM was especially bad at 0531-0533. Thruout, there was occasional QRM from other utility noises, and SSB on the low side.

At 0548 was hearing Gakona only, not the echoes; by 0552 the echoes again became just barely audible. I wonder if the wide variation in echo strength was solely a function of terrestrial ionospheric factors, or were the signals focused tightly on the Lunar surface so that different parts of it reflected differently. What is the Lunar albedo, anyway at 7 MHz? What was the ERP of these transmissions? Did it vary during the hour?

Transmission ceased at 0559:30, no doubt to switch frequency to 7407.5. I listened there for two minutes in the skirts of the Dentre Cuban Jamming Command and Radio Martí, but did not hear Gakona or echoes. Checked again at 0658, and maybe heard the tail end of one Gakona, no echo. This was certainly an enjoyable exercise; otherwise listening to beeps every 5 seconds would have quickly become boring.

This proves that the Moon would be a feasible SW relay site. Just wait till the Chicoms land there. Covering an entire Earthly hemisphere from one location, with CRI, and, why not? JAMMING!!! Of course, for best reception under the ionosphere, higher frequencies passing thru it would be preferable, like 25 MHz band (Glenn Hauser, Enid OK, DX LISTENING DIGEST)

Glenn, The fading of lunar echoes is primarily due to two causes. The first cause is Faraday rotation of the signal arriving at your linearly polarized receive antenna as the waves transit the ionosphere. I do not know if the uplink is circularly polarized but if not, there would also be rotation of the uplink polarization. This rotation depends on the amount of ionized gas and the frequency used. For a given ionization level, the rotation becomes greater as the wavelength gets longer. This effect can be measured at microwave frequencies and is a concern when designing satellite communications links.

The second cause is the rough surface of the moon providing multiple reflection points. Sometimes the reflections add in phase and sometimes they cancel. The moon's attitude oscillates slightly, a phenomenon called "libration". Libration causes the angles involved to all reflection points to shift slightly with time. The ERP of the transmitted beam was 3.6 megawatts maximum. You can read more about this experiment at: <http://www.sciencedaily.com/releases/2008/01/080108113605.htm> (Joe Buch, FL, swprograms via DXLD)

Really? I should think the original polarization would be randomized upon reflexion; nor should libration be a factor during this brief time period. I was also thinking that the distance between Earth and Moon is constantly changing due to elliptical orbit, but again in this brief period, should not be enough to cause a Doppler effect (Glenn Hauser, DX LISTENING DIGEST) Unless you can measure down to Hz – (gh)

I was happy to see the high level of interest in this test, and to see that so many folks across Europe and North America heard it. Please remember that the HAARP researchers up in Alaska would like to hear from you, and that they've also promised a special QSL card for the test (I've already e-mailed my report). Here is what they say on their Web page regarding the test and reports: "We are interested in receiving signal reports from radio amateurs (and SWLs) who may be able to detect, or not detect, the lunar echo or the transmitted skywave pulse from HAARP. It will be helpful if your report

includes your call sign and the type and location of your receiving equipment and antennas. Reports may be sent to the following address: mbreport @ haarp.alaska.edu". Additionally, Questions of a technical nature may be submitted via e-mail to: infohaarp @ haarp.alaska.edu
(73s, Jim Pogue KH2AR/WPE9HLJ/KG6DX1A, Memphis, Tennessee USA, NRC-AM via DXLD)

I'm hearing quite nice moon bounce best using USB tuned to 6791.8 USB. HAARP itself is very loud at S9+10 or more, whereas the moon bounce is quite weak, heard in that 3 second time frame after the 2 sec HAARP signal. CW seemed to work (exactly on 6792.5, but the bounce wasn't so obvious, nor was it very good on LSB for some reason. The bounce was well heard at 0513 UT, but seems to come and go (for instance nothing now at 0514:45). Time to play with my various antennae (Walt in Victoria BC Salmaniw, UT Jan 19, dxldyg via DX LISTENING DIGEST)

Same report here in Southern California. Incredibly loud HAARP signal, and reflected signal occasionally (Rick N6NKN Zolla, 0542 UT Jan 19, dxldyg via DX LISTENING DIGEST)

HAARP moonbounce experiment heard here at my QTH starting right at 0500 UT on 6792.5. Due to the elevated A index, surprised to hear HAARP as strong as I did. Even more surprised to hear the moon echoes.73 - (J. D. Stephens, Hampton Cove, AL, Drake R-8, randomwire, Jan 19, UDXF yg via DXLD)

I began hearing the HAARP signal promptly at 0500 UT, fairly well in CW mode right on 6792.5 kHz. Using the relative audio levels of Spectrogram software, the HAARP signal often rose 5-15 db above the noise. The echo was very occasional but could be seen to match the frequency and timing, just 2-3 db above the noise.

At 0524 HAARP changed frequency slightly, from 6792.5 to 6792.35 but continued to be heard for the remainder of the test until 0600.

There appeared to be some spoofing going on, but off frequency enough to see it wasn't the real signal. One carrier camped for a couple minutes precisely on the initial frequency but then quit. Several instances of strong interference from utility signals but only for brief periods.

Way too much interference and noise on 7407.5 to hear or see anything during the second part of the test (W. Curt Deegan, Boca Raton, (southeast) Florida, USA, udxfg via DXLD)

I first tuned in around 0510 and was amazed to be getting clear echoes, but they never lasted more than a half minute. The main signal ranged from 559 to 579 [RST] with fade, and the echoes were heard maybe 1 minute in every 4 or 5, and for no more than 20 to 30 seconds, running about 519 to 539. There was occasional other signals heard, a rapid sweeper very loud, and occasional CW interference such as "up". "7407" and "tu" at the end, weak. I think the 0510 was the best signal and never as good, shoulda been there on time.

The 7407 was useless here due to some loud interference. Rx a Kenwood TS430S (gen coverage rcvr) and a 20 meter longwire (Bob Foxworth, Tampa FL, UDXF yg via DXLD)

Copied HAARP and Moon Echo of HAARP well in South Bend, Indiana using a SDR-IQ on a 10-160 Carolina Windom Antenna on 6792.5. 73 from (Bill - WD8ARZ <http://hfink.net/qso/> ibid.)

I too heard both the source, and echo signals. Images at <http://www.nk7z.net> and select HAARP. Thanks, (Dave Cole, NK7Z/NNN0RDO <http://www.nk7z.net> UDXF yg via DXLD)

I'd make them to be about 11 Hz low on the HAARP transmitter. The echoes have come in a bit lower in freq, then above and now back to below the transmit frequency, in the first 40 minutes. The shift on the echo (Doppler I assume) was somewhere in the area of 1 Hz or less. I don't think it's on my end. Noticed a short gap at 0530 but then right back on. The frequency is very clear - HAARP is S9+20 and the echoes typically don't move the S meter but are easily heard. Antenna is a 4-30 log pointed west. My location is near Edmonton, Alberta CANADA. 73 (Don VE6JY Moman, ibid.)

I'm hearing it here too, also using USB. The HAARP skywave signal is not tremendously strong - more like S1-2, with considerable fading. The moon bounce echo is in and out of the noise, and was better near the beginning than now (0545 UT). It's easily seen on a spectrogram display, however, and it has quite a bit of Doppler shift - the echo is about 4 Hz lower than the skywave signal, and its trace is much less "fuzzy". Interesting stuff! (Barry McLarnon, VE3JF, Ottawa, ON, IRCA via DXLD) where this is very off-topic

Moon bounce is back again at 0546 after the bounce portion being absent for about 5 to 10 minutes. Dang, it's gone again at 0548. I'd say that the bounce was audible about 1/3 of the time here in Victoria. And there it is again at 0549:30, though weakly.

[Later] Hi, Barry (and Don). The 7407.5 is a lot weaker here in Victoria. The interesting thing is that the moon bounce portion, at times, is at the same strength as the HAARP signal itself! Again, I haven't fiddled with the SDR span to measure the exact moon bounce frequency, but they are obviously very close. I guess I wouldn't be able to differentiate a few Hz anyway. From the SDR, the HAARP signals are only 10 to 15 dB above the noise floor, and it's impossible to differentiate

the HAARP from the moon bounce. They kind of flow into one another, so sometimes it's sounding like a continuous tone. Yes, sure is interesting, but wouldn't a voice transmission be really awesome! (Walt Salmaniw, BC, IRCA via DXLD)

Using CW here at 0625 UT, and can certainly hear (but not always "see") the bounce on the SDR14, though the strength of both the initial signal and the bounce varies considerably fadey. Recorded the earlier portion as we were out at that time, so will have to play it back. There seemed to be a dead period around 0628, and am now only hearing the initial signal with no echo. Now, was this one of the BTC tests, hi? Best wishes, (Nick Hall-Patch, BC, ibid.)

I didn't mention that I heard some of the QRM as well. The occasional sweep, rapid CW, and related crud. Overall, they were far weaker than the HAARP, so I simply ignored them. Yes, 7407.5 was far weaker overall. HAARP paused for 30 seconds at the BOH, before continuing. 7407.5 didn't suffer from any interference otherwise here, although I could sure see signals on the SDR (especially 7405) (Walt Salmaniw, ibid.)

The test was copied in Seattle beginning at 0500. The transmitted signal was quite good at first on 6792.5, about 25-30 db above the noise floor, with a the echo almost as strong. As time went on, the echo became less noticeable, especially after 0530. The transmitted signal became gradually weaker after 0540, and was maybe 10 db above the noise by 0600. I could actually watch it get weaker on the SDR display. I switched to 7407.5 at 0600. The transmitted signal was there weakly, but the low signal strength was probably due to ionospheric conditions rather than anything done at the transmitter --- I think the Alaska-Seattle path was becoming less viable, judging from what I saw and heard on 6792.5. I didn't hear the echo at all on 7407.5. I found reception was best using the CW mode (Bruce in Seattle Portzer, SDR-IQ receiver, slightly broken K9AY antenna, IRCA via DXLD)

I listened for the full 2 hours of the lunar echo test, and heard the echoes the full period. I had to switch to the 6 Hz narrow audio filter after about 45 minutes in order to keep hearing them as they got weaker and weaker. Even the TX was barely heard the last 30 minutes or so. But Doppler effect had the echoes about 8 Hz away from the TX, making it easier to tell the TX from the echoes. Lots of fun! (Steve NE Oregon Ratzlaff, IRCA via DXLD)

The test was also copied here in Pennsylvania starting at 0500 on 6792.5 kHz. Setup was a Drake R-8 with 100' west-pointed sloper tuned to 6792.53 kHz. Transmitted signal was quite visible on Spectran display at ~30 Hz line when playing back recorded audio file, and most of the bounces were also visible, although some were not strong enough to show above the noise floor. Some joker tuned a carrier down onto the frequency for a few minutes near the start, but then lost interest I guess. I checked for about 20 minutes and signal was visible the entire time. Also set up for 7407.5 kHz with SDR-IQ but forgot to check the box for delayed start on Spectravue (doh!) so nothing was recorded (Brett Saylor, Central PA, IRCA via DXLD)

NOTE: all the above reports concern the first pair of tests on UT Jan 19, published before the UT Jan 20 reprise a sesquihour later, i.e.: 6792.5 at 0630-0730z and on 7407.5 at 0730-0830z (gh)
(All items above from comments in DXLD)