

SHORTWAVE BULLETIN

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Nu närmar sig julen med stormsteg. Igår kväll hade vi firmafest med uppvärmning av Skånes radarpar Br Lagerstahl från Genarp som stod för superb underhållning på bredaste skånska innan vi trossade av till Jonstorp och Tunneberga Gästis för att äta julbord och dricka en och annan snaps. Våldans trevligt.

I veckan ringde också den gamle bekantingen Nils Olsson som är på besök i Sverige fjärran från Uberlandia där han bott de senaste 34 åren. Våldigt trevligt att få höra hur livet farit fram och hur det går med ungar och allt annat.

Nils stannar nog kvar så pass länge att vi hinner avverka en "reunion" på Käringön till våren. Ser fram väldigt mot detta evenemang.

Keep on

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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).

QSL, kommentarer, mm.

Jan Edh: I stort sett fiasko, även om det var kul att lyssna på kortvåg en eftermiddag...

Onsdagseftermiddagen var riktigt positiv på kortvåg mot Indonesien och både CRN 4960 och Wantok Light 7120 gick med bra styrkor. Däremot inga andra Papua. Och inget nytt.

Mellanvägen gav inget. Hade möjligen Filippinerna på gång på 1530 men annars bara kineser. Kota Kinabalu 1475 men den splattrades bort av thailändaren. Troligen för sent på året nu - européerna hinner bli för starka innan asiaternas signal hinner ta sig.

När jag kom tillbaka till Fredriksfors strax före 20 överraskades jag av att Kahuzi var igång.

Övertid för att vara med och lugna vågorna sedan presidentvalet blivit klart? Svårt att få till något eftersom det var en till station strax över i frekvens (närlöstligt?) och det var väldig fading på Kahuzi...

ARDS jobbade jag länge med. Hörde den men absolut inte så det duger till rapport. Knappt tilllogg... Vid 21.30 var det hyfsad fart mot östra Canada/NA och jag tänkte det här blir lovande. En dryg halvtimme senare var det mesta borta...

Kollade runt 23.30, 01.30, 02.30, 04.30, 06.30. I princip ingenting vare sig på KV eller MV. CIWW/CHLW 1310 enda idade NA. Framåt 07.30 började det gå något svagt på de vanliga frekvenserna som 1510, 1470, 1410, 1320, 1000, 710 på västkustantennen men det var så svagt så det fanns inte en chans. Några enstaka Venezuela/Colombia/Puerto Rico men också de dåligt. Mycket sprak, svaga signaler, korta stunder. Inte ens RNV 1310 och RPC 1290 gick anständigt.

Efter 08 blev det ännu sämre.

Ingen natto, ingen morgontopp.

"Voffor är det på detta viset?"

Så här dåligt ska det väl inte vara? Är det för att det är november, eller...?

En störning ska inte bara komma oanmäld och vara så kraftig (K5).

Christer Brunström: Radio Habana Cuba 6060 nytt kort med anledning av stationens 45-årsjubileum.

Dan Olsson: Hej! Här kommer ett livstecken ifrån DO i Kävlunge. Jag har i höst inte varit så aktiv då vi (=frugan och jag) har jobbat nästan varje helg med huset. Vi har sorterat flyttlådor sedan vi flyttade ihop för 3 år sedan och vi kan konstatera att det är mycket saker som vi har som vi inte har någon nytta av.

Vi har också lagt ned en hel del tid på släktoforskning på frugans sida. Vi har hittat en del danska kändisar. De mest berömda är Viggo Hörup som startade partierna Venstre och Radikale Venstre, han startade också tidningarna Morgonavisen och Politikken. Hur det är med Morgonavisen vet jag inte men Politikken kommer ju fortfarande ut. Hans dotter Ellen var en känd dansk författarinna.

QSL har kommit ifrån **R Bonofox** med e-mail. Tipsen denna gång ifrån Saxtorp där jag och Jan Thörnblom lyssnade. Dåliga konds på MV men rätt så trevliga på kortvågen.

Stig Adolfsson: Hej Thomas och alla övriga i SWB. – Efter en uppgift att Humpty Doo, 5050 kHz skulle ha hörts i Finland så har jag dagligen lyssnat på frekvensen i mer än en vecka. Allt jag hör är Voice of Strait i Kina som stänger 170003 med tidsignal som är tre sekunder senare än DCF 77. Någon annan som hört 400 watt-stationen i Australien??? 73 från Stig i Vallentuna

(Se tips från Jan Edh som också legat på frekvensen dock utan att lyckats få ut något. Vi får väl vänta lite längre fram mot jul innan det bli möjligt att logga denna. Framgår ej om GN lyckats logga den. /red)

LOGGEN - ALL TIMES ARE UTC

3172.63			PERU Radio Municipal , Panao 0915 om with partial ID asMarginal... en las musica..." 13 November. High noise level cleared up by the amplified elliptic low pass audio filters [AELPAF] which both reduced noise and adjacent spatter from other signals on 5039.v. [Wilkner-FL]
3220	20.10	2005	Radio Morobe med tjugig söderhavsmusik och lite prat 2 LRH
3291	17.11	2230	Voice of Guyana intervjuade en tjej som hade spelat in en ny skiva. Vid heltimmen nyheter med Brian. Ny i loggen för mig och jag hoppas att de svarar. Q 4. DO
3291.13			Guyana. "Voice of Guyana" GBC Sparendam 2345 to 0000 with subcontinental Indian music mixed with pop music. "this is number one selection, now on to number two. 1 November [Wilkner-FL]
3329.53			PERU Ondas del Huallaga , Huánuco 0950 to 0955 seemingly religious music, sung by group, 13 November [Wilkner-FL]
3335	22.10	1955	OID med pop mx, 2000 tal, lät so nx .East Sepik ? 1-2 LRH
3905	15.11	1450	RRI Merauke (mycket tent!). Station som låg något lågt i frekvens med "typisk" indonesisk musik. Mycket språk här och dålig styrka (QSA 1-2). Var vanlig förr men har varit inaktiv länge och finns inte längre ens i DBS och liknande. Men vad annars? JE
3905	20.10	1940	Radio New Ireland med pop mx bl.a " Hotell California " 2 LRH
3950	20.10	1250	Xinjiang kom ovanligt tidigt här 2 LRH
3976,1	15.11	1440	RRI Pontianak med indonesisk musik. QSA 3. JE
3995	15.11	1300	RRI Kendari , musik, anrop och nyheter. QSA 2-3. Går inte att höra på kvällarna då DRM blockerar frekvensen. JE
4409.7			Bolivia. Radio Eco , Reyes 0020 yl /en espanol/ with several yl's talking at once, religious? 0025 into music. 3 November. [Wilkner-FL]
4545,38t.			Bolivia. Radio Virgen de Remedios , Tupiza, 0000 to 0020 om /en espanol/ mixing with CODAR dominant. 3 November [Wilkner-FL]
4604,96	14.10	1455	RRI Serui med fin schlagermusik 3 LRH
4605	15.11	1245	RRI Serui blandar västerländsk och inhemsk populärmusik. QSA 2 men strålände och QSA 4 halvannan timme senare. JE
4750.000	Ibl	1400	Dhaka med anrop och div. px. Störd av andra BC-stns. SA
4760	17.11	1700	OID AIR-station som stängde. Fick ej ID så jag vet inte om det var Leh eller Port Blair? Någon som vet bättre än jag? DO
4790	15.11	1250	RRI FakFak med en inhemsk version av Beatles. QSA 3. JE
4790	18.11	0410	R Vision Chiclayo pratade om Perus president. DO
4870			Hi, for your info, my message to DXLD 14 Nov 2006 " Re DXLD 6-169 UNIDENTIFIED 4870 (text below). This is (or was) a mixing product of Voice of Russia 12065 minus 7195 with two audios, French strongest. Heard here almost daily at the end of A06 season. Haven't checked it during B06. (73, Jari Savolainen, Kuusankoski, Finland) <i>4870"UNIDENTIFIED., 24.10 1845, with strong fading. Language probably Hindi. S 0-2. In the background another station in French, most likely Benin. OB (Olle Bjurström, Sweden, SW Bulletin Nov 12, translated by editor Thomas Nilsson for DX LISTENING DIGEST)" (Jari, Thanks for the inf, much appreciated! /ed)</i>
4870	15.11	1335	RRI Wanema aktiv igen, men tydligen bara på eftermiddagarna. Brukade gå bra på kvällarna med sitt morgonprogram förr, men inget spår (inte ens under Ramadan). QSA 2-3 JE
4870	23.10	2055	RRI Wamena med musl. Mx ,fin styrka 3 LRH
4874,6	15.11	2111	RRI Sorong avslutade nyheterna och annonserade. Gick inte på eftermiddagen!. QSA 3. JE
4890	17.11	2205	Papua Nya Guinea med nyheter på engelska. DO
4895	20.10	1459	Mongolian Nat.Radio slutade med marschmusik 3 LRH
4910			Australia. VL8T Tennant Creek, NT. 0805 Jazz programme followed by interview, this parallel with 4835 VL8A, Alice Springs, NT. Excellent signal 1 November [Wilkner-FL]
4919	16.11	0730	HCQR1 Radio Quito annonserade mexikansk musik. Bra styrka (QSA 4) men ganska dåligt ljud. JE
4919	18.11	0455	R Quito med musik. Gick som i fornstora dagar. DO
4960	15.11	1330	Catholic Radio Network , Vanimu. Musik, enstaka anrop/annonseringar på engelska så här mitt i natten. Överraskande bra. QSA 3. JE
4990			Suriname. Radio Apintie , Paramaribo 0630 "Your are my shining star..." with om commentary between songs in Dutch 0635 lyrics "I want to Know..." 3 November [Wilkner-FL]
5005	17.11	2110	EkvatorialGuinea med riktig ösig musik. Q 4 DO
5005.93			Peru. Radio LTC, Juliaca seems the one with weak audio /en espanol/ 1100 to 1120. 3 November [Wilkner-FL]
5039.24			PERU Radio Libertad , Junin 1050 to 1055 "...en las semana...oficial...la vista..." slow conversational Spanish. 13 November.... Was able to use a wide radio filters by using the [AELPAF].
5040,40	20.10	1425	Yangon bara pratade 2 LRH
5049,9	15.11	1930	ARDS Radio (tent. förutsätter jag? /red), Humpty Doe efter tips från GN, men alldeles för svag (QSA 1-2) för att jag skulle få ut något. JE
5460.1			Peru. Radio Bolivar Cd. Bolivar 0030 music with om /en espanol/, decent signal for once. [Wilkner-FL]
5770	15.11	1255	Defence Forces B.C.. Taunggi. melodisk burmesisk musik. Fattade ingenting sedan när jag återkom vid 14.45. Västerländskt med country, vispop ("Susannah") och annat och QSA 4. JE
5985,8	15.11	1455	Myanmar Radio . Engelska. QSA 3. JE
6209.654	22.11	1605	OID på franska med cd 1610 borde väl vara Kahuzi, Svag, QSA 1-2 SA
6209,7	15.11	1846	Radio Kahuzi anrop på franska. Övertid p g a att presidentvalet var färdigräknat. Rapporter utifrån landet. Illa störd av en (östlig?) station. QSA 2-3. JE

6210.002		kväll	OID. Här hörs ibland en stn med bl.a. arabiska px. Måste vara en blandprodukt?? SA
7120	15.11	1235	Wantok Radio Light , Port Morseby. Religiösa sånger på Pidgin. Lite murrigt ljud. Efter 14 är det kört här. QSA 3-4 JE
9705	18.11	0625	La Voix du Sahel med ett program på franska om lokala musikartister. Denna dag exakt på 9705 kHz. 3 CB
11815	16.11	0815	Rádio Brasil Central med trevlig sertanejamusik och i stort sett ostörd vid denna tid. 3 CB

Stationsnyheter

INDONESIA. UnID RRI heard on 3214.84 kHz at 1101-1329+ on Nov 21 (S. Hasegawa, NDXC via DXLD) This station signed off at 1436 on Nov 21. Nov 22 on 3215.16, Jakarta news relay at 1200-1224. Reactivated Manado? (last check in May 2000). (A. Ishida via NDXC-HQ, controler: S. Hasegawa, Nov 22, DX LISTENING DIGEST)

[Later:] The RRI-Manado reactivated on 3215V kHz. Nov 21 on 3214.83 kHz, Nov 22 on 3215.16 kHz, Nov 23 on 3215.07 kHz. At 1432 on Nov 23 as ID "Pro satu RRI Manado" sign-off at 1504 with NA. <http://www.max.hi-ho.ne.jp/a-ishida/manado.mp3> (A. Ishida, DX LISTENING DIGEST)

PERU. Re 6-172, **4790:** I'm sure it was Atlántida - (and the announcers pronounced it as you have it phonetically [aht-LAHN-tee-dah]). The male announcer ID'ed several times at the ToH. Never any mention of Radio Visión (Mark Taylor, WI, DX LISTENING DIGEST)

Glenn, Maybe there isn't any Radio Visión? I've never heard an ID from Radio Visión. I've heard the format reported and assumed whoever heard the station ID'd as Visión were correct? The audio is so bad, it's difficult to hear details beyond the babel they do there. Maybe one of our SAM DXers can give that frequency another listen? (Chuck Bolland, FL, DXLD)

Looks like R. Visión exists on 4790: a QSL letter: <http://www.mail-archive.com/hard-core-dx@hard-core-dx.com/msg13029.html> (Glenn Hauser, DXLD)

4790.14, Radio Visión, 1044-1120 Nov 24. Noted a continuous broadcast of religious programming. All of the religious programming seemed to be originating in a church or some other poor acoustical area, judging from the echo effect heard. At intervals a man would come on live with TC's. Noted a canned ID by a woman which was very weak. No sign of Radio Atlántida on this frequency during the listening period. Radio Visión was at fair strength (Chuck Bolland, Clewiston FL, DXLD)

Övriga radionyheter

From Sputnik to Satnav. November 23, 2006, The Guardian

The first man-made satellite was a spiky metal sphere that orbited the Earth for less than three months, doing little more than beeping over the radio. And yet the launch of Sputnik in 1957 caused huge excitement. The USSR gloated about winning the race into space; the US was shocked and humiliated at being overtaken. America launched Explorer the year after, and space became just another front in the cold war.

No one cares much about satellites any more. But our lives are increasingly dependent on them - for business, entertainment and communications, as well as war and espionage. Chris Bowlby tells their story in *From Sputnik to Satnav* (9pm, Radio 4). This first instalment features an interview with Sergei Khrushchev, rocket scientist and son of the former Soviet leader.

Now available on Listen Again at

http://www.bbc.co.uk/radio/aod/mainframe.shtml?http://www.bbc.co.uk/radio/aod/radio4_aod.shtml?pm

This is the first of three programmes tracing the history of the man-made satellite, from Sputnik's Cold War launch to the present day.

Satellites in space are crucial to much of life on Earth today.

(Mie Terry via HCDX)

Passport receiver reviews (from rec.radio.shortwave)

Passport does some nice reviews of serious radio's, better than I read in most mags that seem too keen not to upset their advertisers who supply them with loan radio's.

I had some e-mails from Larry Magne and he explained that market research had shown that the main interest for readers was in the \$50 to \$150 portable radio range, and that there was only a handful of those like myself interested in the more expensive tabletops.

With only a few top end radio's now available now that Drake has gone off the scene, here's my comment on what's left:

Eton E1 - a couple of my DX pals own this new offering and rave about it's abilities to do serious DX, even connected to a big antenna which will not overload it.

Icom RC-75 - for the price really good value for money. Many of my serious DX contacts use this radio with excellent results.

AOR 7030+ is probably the top analogue DX machine, but not everyone can get used to it's difficult and quirky operating system, small limited display and tiny cramped remote keypad. Those who got used to it's limitations love it.

JRC NRD545 - every serious DXer I know had one sold it on. It's early 16 bit digital processor limits it's performance. Here's what one serious DXer says about the one he sold: "I will never advise anyone to buy a 545".

Ten Tec RX340 and WJ 1000 - these expensive radio's have only 16 bit processors which limits them. However owners in this newsgroup defend them to the hilt. Two of my DX friends had RX340's and sold them for better options. SDR computer radio's - some of my pals have moved onto these radio's and love them. I don't like computer radio's at all though - prefer to have a large radio in front of me with full functions and a nice tuning knob. So, that's not a very wide choice left anymore, but there is another set of radio's that represent good value for money and offer the listener outstanding performance, and that is the ham transceivers. I asked Larry Magne why he doesn't include some selected ones in Passport like WRTH sometimes do, and he replied again that the interest was too limited to a very few diehard DXer's and he could not therefore devote the limited space and resources of Passport to this small market.

Here's my take on a few ham transceivers that I think you could have a look at: Icom IC-7000 has a 32 bit processor and every bell and whistle you could want, plus FM up to 450 Mhz. See Bjarne Mjelde's review at: <http://www.kongsfjord.no/bm/ic-7000%20review.pdf> Very small and highly portable, also does not need to have the MW band enhanced. \$1500

Also at \$1500 is the more heavy weight Icom 746Pro with a 32 bit processor. See the Dallas Lankford review: <http://www.kongsfjord.no/dl/Icom/IC-746Pro%20Impressions%20&%20Mods.pdf> It's only drawback is like most Icom's, the MW band has been attenuated and you are going to have to get a skilled techie to remove that. Otherwise great value for money and a great DX machine. Friends who own them rave about their performance. Finally, if you want to spend big bucks on the ultimate with every bell and whistle you could hope for, then take a look at the: Icom 756 PRO III and the Yaesu FT2000.

At a price of \$3000 they will outperform the 16 bit processor's in the TT RX340 & WJ1000 with their 32 bit processors. See my review of the 756 at <http://www.dxing.info/equipment/> The ham transceivers do not have a sideband selectable sync detector in AM, except for the Icom 746Pro. If you just like listening comfortably to AM broadcasts then a ham transceiver will not suit you. Rather look on eBay for a good used Drake R8B with it's superb sync detector. And if you are squeamish about having a transmitter around, just get a techie to disable the transmit function, a simple and inexpensive mod that can be reversed later if you want to again sell the radio. good DX and don't forget to have fun.....

(John Plimmer, Montagu, Western Cape Province, South Africa via rec.radio.shortwave)

John, Thanks for the excellent assessment of current receivers available to DXers!
The fact that we are not seeing new, traditional communications receivers come along once or twice a year as we used to is a sad commentary on the hobby decline. I believe that more and more, DXers will need to content themselves with quality used gear (in the traditional sense of radios with knobs), unless they go the route of transceivers as you mentioned. I used to own a Yaesu FT-900 and an ICOM IC-756Pro for receive-only use, and they are fine performers. I had various reasons for selling them, but now am resigned to operating computer-driven SDR radios for the foreseeable future if I want cutting-edge performance. The advances in communications equipment will be in the SDR devices, not labor- and parts-intensive analog receivers bristling with knobs. Like you and most others, I prefer knobs to tweak, but the unique features and hotrod performance of radios like my SDR-1000 make up for the lack of the tactile feel of quality knobs, buttons, etc. when operating a receiver. I do use a Contour Shuttle Pro and a Griffin Powermate knob when controlling the SDR-1000, but they are a token nod to traditional receiver controls. You mentioned the E1's usefulness with long antennas. I've been very impressed with this ability, too, but only when keeping the "DX" preamplifier turned OFF. My E1 is more prone to overload and spurious images with big antennas if the preamp is enabled. If extra gain is needed (usually it isn't), I found that a quality external preamp works better, something like a Wellbrook preamp or Kiwa, which use the very stout "negative-feedback" design. When I owned AR7030s, they had the same trouble with the stock, internal preamp. Performance was always better with a good external preamp, one that had better dynamic range & IP3.

Bjarne Mjelde's review of the Eton E1 is very thorough in this regard. He describes his experiences hooking up long antennas to it, along with other comments and information about the E1. His review is here: <http://www.kongsfjord.no/bm/The%20Eton%20E1%20Story.pdf> (73! Guy Atkins Puyallup, WA www.sdr-1000.blogspot.com)

Excellent observations and comments John! I started in this hobby when I was in elementary school with a Hallicrafters S-38E. At that time tabletops were abundant beyond belief because they all used valves! It's sad to see the demise of good tabletop receivers, however, there's always a good supply in the used market for reasonable prices if you shop a bit. That's where I've shopped for the last 15 years. I have tried almost all of the solid state receivers and still use two of my favorites, an old Icom R70 and a Kenwood R-5000. I really liked the R75, but there just wasn't enough knobs to twiddle!!
(Frank K3YAZ Tucson, AZ)

Interest rising as sun cycle quickens

By Dan Sorenson, arizona daily star, Tucson, Arizona, 25 September.2006

The sun is entering a period of increased sunspot activity that could disrupt satellite and broadcast communications and will spur scientific scrutiny of the largest celestial body in our part of the universe. Solar-activity flare-ups - usually, but not always, near the middle of 11-year cycles - have produced beautiful nighttime light shows - the northern lights - and costly electromagnetic mayhem that caused power outages and turned multimillion-dollar communication satellites into mute orbiting space junk. Jack Harvey, a veteran solar scientist at the National Solar Observatory, said there is increasing commercial and government interest in predicting solar activity because of these potential costs and risks. The coming sunspot cycle, the 24th since scientists identified the fairly regular recurring pattern of peaks and valleys in solar activity, is expected to begin in early 2007. Harvey's speciality, helioseismology - studying pressure waves inside the sun - suggests that the "birthing cycle" of solar activity - sunspots and flares - is going on deep inside the sun. "These (magnetic) fields at the surface move up to the polar regions and then sink into the interior and they get down to this layer about 30 percent inside the sun and start moving toward the equator," says Harvey. Eventually, he says, they emerge, "float back up to the surface. So, we may be able to predict the next cycle by what we see happening." The National Solar Observatory, headquartered in Tucson on the University of Arizona campus, has solar telescopes at Kitt Peak, west

of Tucson, and on Sacramento Peak at Sunspot, N.M., and will view and record this cycle in more detail than in the past. Harvey says the newest solar observation device atop Kitt Peak, the Synoptic Optical Long-term Investigations of the Sun, or Solis, is in its shakedown period, gearing up for the coming cycle. Solis was designed and built by NSO scientists and technicians, at least in part, to gather information that can help improve solar-activity forecasting. Harvey says the first recorded observations of sunspot activity are in Chinese journals from about 800 B.C., with the first telescopic solar observations not coming until 2,400 years later, in 1610. "There were a lot of observations in the first 20 to 30 years of the telescopic era," says Harvey. And then, not much was made of the sun's activities, until 1840, when the sunspot cycle was discovered. "You've gone 240 years and nobody noticed the number of spots changed in the cycle," said Harvey, incredulous. But with the spread of the telegraph, and then electric power distribution and radio, the sun's behavior began attracting more and more attention. In 1848, solar-storm-induced electrical disturbances were first noted on telegraph lines in Italy. Later, solar activity was blamed for interrupting telegraph service, in some cases sending sparks from transmission lines and damaging equipment. As telegraph and electrical service and radio broadcasting spread around the world, there were accounts of increasingly dramatic events that coincided with solar activity. The greatest effect, in terms of communications, until recently was disruption of short-wave radio. Although he says it usually doesn't hurt cell-phone communications, solar activity has been known to cause cell phones here to pick up signals bounced off the atmosphere from as far away as the East Coast. It's far less amusing when it knocks out electrical transmission systems or fries multimillion-dollar communications satellites. Harvey says the power outages come about when the massive electromagnetic storms that sometimes coincide with intense sunspot activity interrupt Earth's upper atmosphere and induce electrical signals in the planet's crust. He said solar activity can affect the accuracy of Global Positioning System devices. The thickening of the ionosphere caused by solar storms delays time-critical signals from GPS satellites, throwing off location calculations. The costs associated with power outages and damage to satellites - as well as concerns about what would happen to astronauts outside Earth's protective layers during a solar radiation storm - have greatly increased business and government interest in predicting solar activity, says Harvey. Communications companies want to know when they should turn their satellites to shield them from radiation and engage protective circuitry. "That'll be the proof that we really understand what's happening, that we can predict," says Harvey. It's not likely, but not impossible, we'll see any major activity as we leave the low end of the current sunspot cycle and enter the slow climb to the peak of a new one. That's one of the mysteries of the solar cycle, that solar storms can pop up even during the current "solar minimum." In early 2005, less than two years from the so-called "solar minimum," an apparently calm sun cooked up a storm that caused disruptions in Earth's upper atmosphere that made the northern lights visible even in parts of Arizona. Solar activity isn't bad for all business. While the sun lacks the romance of the moon and distant stars, the flash of Mars or Saturn with its rings, Frank Lopez, owner of Stellar Vision, 1835 S. Alvernon Way, says there's growing interest in solar observing among amateur astronomers. <http://www.azstarnet.com/news/148167> (Mike Terry via HCDX)