AMSAT-OZ

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Indhold

Redaktionelt

SOMMER – det er en god ting. Denne sommer kan blive helt ekstraordinær for os satellitfolk. SSETI-Express kommer forhåbentlig op her den 25. august fra Plesetsk i den nordlige ende af Europæisk Rusland. Det er der en hel del om i det her nummer.
Ude på skolen er vi i gang med at lave en ekstra jordstation til den, så der er større sikkerhed for at vi kan høre den.

Amerikanerne starter opsendelserne af rumfærgerne igen om ganske få dage. Lad os krydse fingre for at det går godt og at de allesammen kommer ned igen i god behold. De har eventuelt PCSAT-2 med op.
Jeg har ikke haft tid til at skrive noget om den – men lav en Goggle søgning, så kommer der masser af information om den satellit.

Igen i år har vi et sommerkursus kørende. Det handler denne gang om satellitkommunikation og mobile services. Jeg har være med her i den første uge – men så er jeg også færdig med det. Ligesom sidste sommer er det mexicanske studerende, som bl.a. får en kraftig indsprøjtning om radioamatører og radioamatørsatellitter. Hvem ved, måske de får lyst til at lave satellitter selv.

Det her nummer kommer lidt sent. Det er der mange grunde til. En af dem er, at AO-51 har haft et software crach, så det tog lang tid før der kom en juli køreplan.

Der er som sædvanlig et stort satellitentusiasttræf i Guildford på University of Surrey i den sidste weekend af juli. Der er tilmeldingsskema med dette nummer.
God sommer alle sammen.

Informationssider

AMSAT-OZ:
Kontakt AMSAT-OZ på adressen:
AMSAT-OZ
Ingeniørhøjskolen i København.
EIT-sektoren
Lautrupvang 15
2750 Ballerup,
telf: 4480 5133
Ib Christoffersen.
e-mail: oz1my@privat.dk

AMSAT-OZ hjemmeside
Gå ind via: www.eit.ihk.dk
Der er henvisning til AMSAT-OZ ordbogen.
Eller brug www.amsat.dk

Vores mail server.
Send følgende e-brev:
From: Dit Navn
<oz9xyz@udbyder.dk>
To: <majordomo@amsat.dk>
Subject: hvad som helst
Date: 5. juni 2001 09:26
I teksten:
Subscribe amsat-oz-bb

Indlæg til månedsbrevet.
Inden sidste fredag i måneden til Erik.

Styregruppe:
Formand, sekretær: Ib Christoffersen, OZ1MY,
e-mail:oz1my@privat.dk
Arrangementsansvarlig: Henning Hansen, OZ1KYM
e-mail: oz1kym@image.dk
Redaktør:Erik Clausen, OZ9VQ,
erik.clausen@postkasse.org
Internetansvarlig: Lars Jensen, OZ1FFR,
e-mail: lmjhe@get2net.dk

Indmeldelse
Til adr. ovenfor. 100 kr pr år.
Giro 6 14 18 70
Alle indmeldelser gælder for et kalenderår.

Ældre månedsbreve.
Tidligere årgange af bladene kan købes for 100kr pr årgang. Vi har 92, 93, 94, 95, 96, 97, 98, 99, 00, 01,02,03 og 04.
Henvendelse til OZ1MY.

Software
Fra år 2000 kun ved at downloade de efterfølgende.

For **faxdiskenes** vedkommende fra Michaels hjemmeside:
http://www.kappe.dk

STATION trackeprogrammet kan hentes på AMSAT-NA's hjemmeside under downloadable software. Hvis du selv vil registrere, skal du også downloade registreringsprogrammet.

Trackeprogrammer:
InstantTrak V1.5 registrering, 150 kr. Bestilles hos OZ1MY – sendes på disk.
STATION registrering er nu gratis, hvis man gør det selv.
Der er to gode startsteder, AMSAT-NA og CelesTrack.
"Station" ligger på AMSAT-NA nu. Det kører under Windows 3xx, 9X, XP.

Programmer og litteratur fås i større udvalg hos AMSAT-UK OG AMSAT-NA og AMSAT-DL.

OZ6BBS
Der ligger meget god info på 6BBS, 144,625MHz, 433,675 MHz.
Man kan sende P-mail til OZ1-DMR @ OZ6BBS med ønsker: Interesse for følgende data: F.e-ks. Spacenews. Opgiv hjemme BBS: OZxxx@HjemmeBBS
Temaserver: Brug den til at finde ting om satellitter. Det står under AMSAT (16 og 17)

OBS
Lokalfrekvenser med satellitsnak i Københavnsområdet.
Vi bruger 144,775MHz. Husk det er ikke vores frekvens.

Satellit DX-info
Udsendes på amsat-oz-bb.

425 DX News
Italiensk DX nyheder og bl.a. også QTH lister, der kan søges på. Kendes også fra Packet.
www.425dxn.org/

Hamradio-online
www.hamradio-online.com/index.html

AMSAT-SM
c/o Lars Tunberg
Läckövägen 20, 2tr
121 50 Johanneshov
Sverige
e-mail: amsat-sm@amsat.org
Vores svenske venner har et net: AMSAT-SM net SK0TX på 80m 3740kHz om søndagen kl. 1000 dansk tid. Operatør normalt SM5BVF, Henry.
http://www.amsat.org/amsat-sm
De har også en mailliste, man kan melde sig til ved at skrive:
amsat-sm-subscribe@egroups.com

AMSAT-UK
Det nemmeste er at gå ind via deres heres hjemmeside:
www.uk.amsat.org

BLADE:
OSCAR NEWS, medlemsblad for AMSAT-UK.

The AMSAT Journal,
AMSAT-NA medlemsblad.
AMSAT-NA. 850 Sligo Avenue, Silver Spring, MD 20910-4703, USA.

AMSAT-DL Journal
Medlemsblad for AMSAT-DL.
Ernst-Giller-Str. 20
D-35039 Marburg/Lahn
Germany
AMSAT-DL på internet:
http://www.amsat-dl.org

Programmer til download.

Gratis trackeprogrammer kan hentes fra AMSAT-NA, der også har enkelte betalingsprogrammer.

Northern Lights Software.
Her er hjemmesiden for NOVA. Kan hente nye udgaver, hvis man er registreret bruger.
http://www.nlsa.com
Nova f. Windows sælges også af AMSAT-NA. Pris cirka $ 60

CelesTrak
http://celestrak.com
Masser af Kepler elementer + historisk arkiv.
En del programmer findes også her.

AMSAT-NA postkasse m.m:
Send meddelelse til
majordomo@amsat.org
Det nemmeste er så at skrive: help nede i teksten. Derefter kommer information om de lister, man kan komme på. Det er automatiseret nu. Hvis man vil i kontakt med et levende menneske, skal man adressere til:
listmaint@amsat.org
De er også på WWW:
http//www.amsat.org

ARRL:
http://www.arrl.org/
Der er en afdeling, der viser videre til annoncører. Der kan man finde mange ting, man ikke kan undvære.

RSGB:
http://www.rsgb.org

DARC:
www.darc.de
Her kan man også finde deres EMC gruppe under
/referate/emv/emstart.html

Rumfærger.
Her ligger tonsvis af materiale om rumfærgerne og SAREX.
http://www.acs.ncsu.edu/
HamRadio/Sarex/index.html
Eller prøv:
http://www.nasa.gov
/sarex/sarex_mainpage.htlm
Mange henvisninger.
Eller:
http://shuttle.nasa.gov
Det kan også betale sig at starte på Dansk Forening for Rumfartsforskning's hjemmeside.

Michaels vejrsatellitside:
http://www.kappe.dk
Den er meget flot – og der kommer meget mere efterhånden.
Links til mange andre vejrsatellitsider.
Kan downloade faxdiske herfra.

RIG.
Remote Imaging Group
PO Box 142, Rickmansworth, Hearts
WD3 4RQ
England
£12 pr år
http://www.rig.org.uk/
index.html

ESA:
http://www.esrin.esa.it/

University of Surrey:
http://www.ee.surrey.ac.
uk/EE/CSER/UOSAT/
SSHP/sshp.htlm

TAPR:
http://www.tapr.org/
tapr/index.htlm

Dansk Selskab for Rumfartsforskning.
http://www.rumfart.dk
Der er virkelig mange henvisninger.

Dansk Rumside.
http://www.rummet.dk

Leverandører af radioamatørudstyr:
Danske
http://home4.inet.tele.dk/dmteknik
http://www.werner-radio.dk
http://www.betafon.dk
http://www.rf-connection.com
http://www.edr.dk
http://www.norad.dk
http://home6.inet.tele.dk/oz6fh/Brugtliste.htm
http://www.pulsair.dk

Udenlandske
http://www.ssb.de
http://downeastmicrowave.com
http://www.icomusa.com
http://www.icomuk.co.uk

http://www.yaesu.com
http://www.standard-comms.co.uk
http://www.wimo.com
http://web.aurecvideo.fr/infracom/db6nt.html
http://www.alinco.de
http://www.mirageamp.com
http://MlandS.co.uk
http://www.waters-and-stanton.co.uk
http://www.nevada.co.uk
http://www.db6nt.com

G3RUH's hjemmeside:
http://www.jrmiller.demon.co.uk
Henvisningsside hos ARRL:
http://www.arrl.org/ads/adlinks.html

Space Components:
http://flick.gsfc.nasa.gov
radhome.htm

Mange firmaer via:
ALUSOFT:
http://www.image.dk/~aksel/
Der er rigtig mange henvisninger, så man kan finde datablade og meget mere.

SSETI-Express opsendes

den 25. august.

Det her er sidste chance for at få nyheder i bladet om SSETI-Express inden opsendelsen, fordi vi jo aldrig har et august nummer.

Det ser ud til, at 25. august er den rigtige dato. Hvis I vil have en mulighed for at få nyheder løbende, skal I melde jer til amsat-oz-bb, hvor jeg vil udsende nyheder, som de kommer.

Frekvenserne er efter min mening ikke helt præcise – men de siger selv:

Communications details:

	UHF	**S-Band**
Frequency	437.250 MHz	2401.84 MHz
Antennas	Monopole whip	Three patch antennas facing –x, +x and +z
Power	Approx 3W	Approx 1.5W +z, and 0.7W +/- x
Modulation	FSK	FSK
Protocol	Unnumbered AX25	Unnumbered AX25
Baud rate	9600 bps	38400 bps
Polarisation	Linear	Right-hand circular

Regn med at de godt kan ligge lidt ved siden af. Uofficielle meldinger siger 437,252 MHz og 2401,835 MHz.

Hvis I lytter efter den, er det vigtigt at vide, at signalerne bare lyder som hvid støj. 70 cm downlinken kan kun køre 9k6 bps FSK. 2,4 GHz downlinken kan også stilles om, så den kan bruges som FM transponder (repeater) sammen med 70 cm modtageren.

Op og ned på 70 cm er på samme frekvens. Det er ikke særlig smart – men sådan har de lavet det.

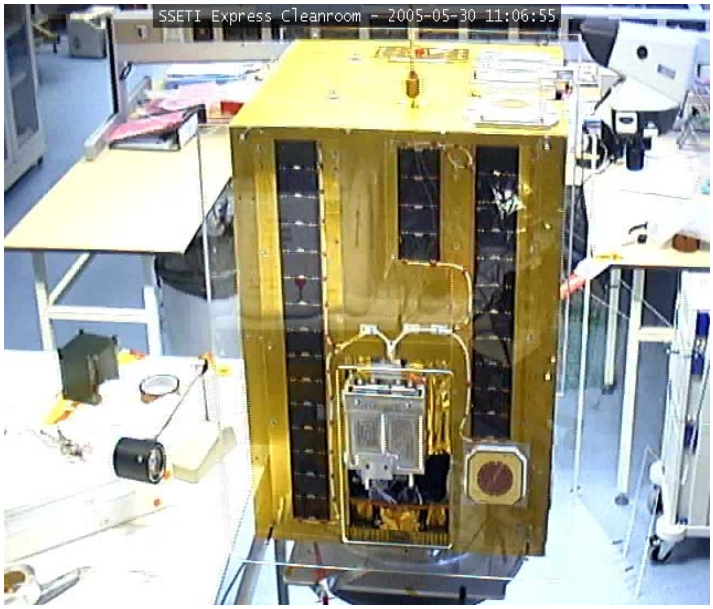
Lad være med at sende på den frekvens, før satellitten er frigivet til det.

Back-up jordstation på IHK.
Efter aftale med både ESA og Aalborg Universitets folkene laver vi en back-up jordstation ude på Ingeniørhøjskolen i København (Ballerup).
Vi vil sætte vores 7 meter parabol i sving, så vi har cirka 10 gange så meget antenneforstærkning på 70 cm, som jordstationerne i Aalborg og på Svalbard.
Det er OZ7SAT gruppen, der kommer til at trække det store læs i den sammenhæng. Scott, OZ2ABA, Bent, OZ6BL, Erik, OZ9VQ, Lars, OZ1FFR, Jørgen, OZ7JWP, er aktive i den sammenhæng.
Jeg har sikret mig, at vi har opbakning fra afdelingen, så vi vil bruge en nyindkøbt IC-910H sammen med et modem, der kan køre både 9k6 og 38k4. Ud over det skal vi bruge en bred mellemfrekvens til 2 meter delen af IC-910H'eren, så 38k4 kan modtages. Det er i øvrigt bil-

leder fra kameraet ombord på SSETI-Express, der kører data ned på 38k4 via 2,4 GHz downlinken. Der kan også komme telemetri ned den vej.

I midten af juli tager vi en tur op til Aalborg, for at få deres software og finde ud af, hvad de har planlagt. Softwaren er LINUX baseret, så det passer Bent og Scott ganske godt. De er ikke Windows fans ☺

Ud over udstyr, som bliver finansieret af afdelingen på IHK, vil vi bruge AMSAT-OZ's WIMO X-QUAD som føde antenne på 70 cm. Der skal tager 2 – 3 elementer af, for at den passer som føde antenne til parabolen, som er meget flad (F/D cirka 0,57).
Vi lægger også en 70 cm forforstærker til sammen med vores 2,4 GHz til 144 MHz downkonverter. Begge dele har vi, så det koster ikke ekstra penge for os.



Lige nu er det ikke helt klart, hvilken 2,4 MHz fødeantenne, vi skal bruge – men det løser sig forhåbentlig i løbet af kort tid.

2,4 GHz lidt af en udfordring med så stor en antenne.
Med en antenne på 7 meters diameter er halv effekts bredden på den noget i retning af
1 grad, så vi skal være i stand til at styre antennen meget præcis.
Det var nogenlunde det samme med ØRSTED satellitten, så det er til at have med at gøre.
Vi har til gengæld en antenneforstærkning på cirka 40 dB, så vi kan nok høre den, hvis vi bare kan få stillet antennen rigtig ind. På AAU har de en antenne på 1,2 meter, så vi har en "fordel" på noget i retning af 10 – 11 dB også på 2,4 GHz.

Frekvenser.
Her er frekvenserne for SSETI-Express og de tre Cube satellitter, som den skal sende ud i egen bane fra SSETI-Express. Det er fra Graham Shireville:

Hi Ib,
The info I have is this. I believe that each cubesat has its own website, which gives more details about the data format etc.

SSETI Express :	437.250 up/down and 2401.835 down
UWE1 :	437.505 downlink
Ncube2 :	437.305 & 2407.250 downlinks
XI-V :	437.345 & 437.465 downlinks

Graham

Opsendelsen er fra Plesetsk, og banen er polær. Her kommer foreløbige kepler elementer:

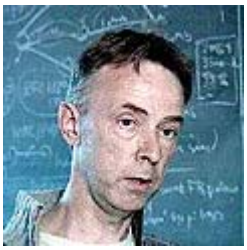
```
SSETI1
1 33001U 05066C   05237.44790000 -.00000001  00000-0  10000-4 0    16
2 33001  98.1900 134.5000 0000001   0.0000   0.0000 14.60830000 00013
```

Til min store overraskelse virkede de i NOVA, som ellers er noget kritisk med hensyn til kepler elementer.
Jeg har fiskede dem ud af et Word dokument og gemte dem som txt only. Det gik helt fint.

Der kommer sikkert nyere udgaver på SSETI-Express hjemmesiden:
Cubesatterne skulle efter sigende blive udløst 74 minutter efter SSETI-Express bliver sluppet løs.

Her er noget fra ESA's hjemmeside:

Students wait to launch their dream baby
17 June 2005
Many university students spend their time in books, others manage to combine their formal studies with hands-on experience. That is the case of some 300 European students who, next August, hope to see the launch of their dream: a 60-kilogramme satellite.



The spacecraft is called SSETI Express, the Student Space Exploration and Technology Initiative. Express because the small spacecraft has been built in a record time of hardly two years.
EuroNews has met some of these students and their teachers at Denmark's Aalborg University where Professor Jens Dalsgaard Nielsen described his role.

"In fact, the students do all the work. I just sit in to say: 'Well, if you have a problem, look at it in a different way'. It is no secret that we are not doing the work for the students. They do it all, learn in the process, and we also learn a lot."
The challenge has been for the 23 university groups, spread across Europe from very different backgrounds, to work together to jointly build the satellite. ESA has provided support, drawing up the specifications, harmonizing the efforts, supervising the construction and testing, and organizing the launch.
Otherwise the students have entirely managed the project from A to Z: getting the hardware built, choosing the electronic components. "We have done just about everything in house," says student Morten Bisgaard. "It is a completely student-built project, with no professionals involved in any way."

The distances between the different groups has been a bit of an obstacle. "When people meet, they look each other in the eye, and know what they mean," explains Bisgaard. "It is much more difficult to solve problems over the Internet, waiting for each other to type their message, then reply and decide things."
Conscious of this difficulty, ESA has brought everyone together for seminars every six months at the Agency's Technology and Research Centre (ESTEC) in the Netherlands, where the spacecraft has been assembled and tested.

Next month SSETI Express will be flown to Russia. In August it is scheduled to be launched by a Cosmos rocket from the Plesetsk cosmodrome.

The students have prepared the mission like professionals. At the Svalsat tracking station on Spitzberg they have set up a small control centre.
"The students have the ability to control and monitor all the spacecraft's instruments, and do so at a distance via the Internet," explains Kim Olsen, one of the station's engineers.
2500 kilometres to the south, in the projects mission control centre at Aalborg University, students are watching the webcam pictures from Spitzberg. When the satellite is in its polar orbit, it will be providing images, freely available on the Internet. It will also be serving as an amateur-radio relay.

One of the older students reflects on the true significance of this study project. "The main benefit, I think, is not technical, but in the human relationships, in the confidence we have built up to cooperate with other people, across borders and cultures, and under different conditions," says Kresten Sorensen.
All the students involved have an immense feeling of satisfaction at getting this far: building a satellite for less than 100.000 euros in less than two years.
As their spacecraft waits for its launch, like professionals, they remain very prudent, and refer jokingly to the famous 'Murphy's Law' that haunts the space business: "Everything that can go wrong, will go wrong… it's fundamental, almost like Newton!"

EuroNews
EuroNews is a key medium for delivering international information with a European point of view. Broadcast in 79 countries, EuroNews reaches 144 million households in Europe, the Middle East, Africa, Central Asia and North and Latin America via cable, digital satellite and through terrestrial channels. This Space Magazine is produced and broadcast every two weeks, with a new programme starting every second Friday. Each magazine is four minutes long and broadcast 21 times in one week, including evening prime time on Fridays and Saturdays, in order to reach a maximum audience.

Mere fra Graham:

SB SAT @ AMSAT $ANS-170.06
SSETI Announcement

AMSAT News Service Bulletin 170.06
June 19, 2005

The preliminary pre-launch keps for the Cosmos launch scheduled for August 25th have been announced.

This launch includes the SSETI Express spacecraft that will be carrying an amateur U/S FM transponder.

SSETI1
1 33001U 05066C 05237.44790000 -.00000001 00000-0 10000-4 0 16
2 33001 98.1900 134.5000 0000001 0.0000 0.0000 14.60830000 00013

These are only provisional and maybe refined nearer the launch date!

This satellite is sponsored by the Education Office of the European Space Agency and is the first in a series of student built satellite projects that are underway. Their next project "ESEO" is scheduled for 2007/8 launch into a GTO orbit.

For the SSETI Express programme ESA are very keen to have as many amateurs contributing received downlinked telemetry on 437MHz and 2.4GHz to a central database. They recognise that our "worldwide" network is a unique facility that is not otherwise available to them.
A new website giving full details of the telemetry, how to decode it and how to forward it to the SSETI database is being currently being developed and initial information should be made available within the next four weeks.

In the meantime we can further report that the launch is expected to be broadcast live on this "free to air" satellite downlink.

Astra 1 G at 19.2 degrees east:

Transponder: 1.108
Reception frequency: 12551.50 MHz
Polarization: Vertical
Symbolrate: 22Msymb/s
FEC: 5/6
TS_ID: 1108
ON_ID: 1
Service Name: ESA
Service provider: ASTRA
Service_ID: 12140
TXT: none

As this only covers Europe we are also hoping to be able to stream the sound and video over the internet - more news will follow on this nearer the time.
best wishes
Graham

Lidt mere om Pinsestævnet

De, der har læst sidste nummer, kan ikke være i tvivl om, at Erik og jeg havde en rigtig god tid på Pinsestævnet. Det gjorde, at vi var enige om, at vi gerne ville komme tilbage næste år.

Når det så samtidig var meget billigere for AMSAT-OZ end de andre sommerarrangementer, vi har lavet, kan der ikke være tvivl om det.
Læg mærke til at det er solskin på billedet. Det vil vi gerne have mere af næste gang.

Det her skal ses som en opfordring til at I skal sætte et kryds i kalenderen i Pinsen 2006, så I kan komme med næste år.

Ib ved siden af Eriks trailer. Dåsen i hånden er obligatorisk for deltagere i Pinsestævnet.

I skal huske, at man skal have sin egen campingvogn med – eller et telt.

Hvis vi er rigtig heldige, kan vi køre over SSETI-Express ud over de satellitter, vi kunne bruge denne gang.

Der er masser af billeder på Pinsestævnets hjemmeside:

www.pinsestaevne.dk

Erik og jeg håber, at vi kan blive mange flere næste år.

OZ1MY/Ib

Et billede mere af antennerne. Dem kan man ikke få nok af.

WX FAX NYT

Michael Pedersen....OZ1HEJ E-mail: sne@kappe.dk WX hjemmeside: www.kappe.dk

Vejrsatellit rapport

(Author :Douglas S Deans.)

SECTION 1: POLAR APT RAPPORT -- 27th Juni 2005

Satellite	Frequency (MHz)	Status	Image Quality
NOAA 12	137.500	on	god
NOAA 14	137.620	off	
NOAA 15	137.500	on	god
NOAA 17	137.620	on	god
NOAA 18	137.9125	on	god

NOAA 9 blev permanent deaktiveret for nogle år siden, men uheldigvis kan den ind imellem sende sporadisk på 137.500 Mhz, som så i visse tilfælde kan forstyrre den PT. aktive satellit på frekvensen.
NOAA 6 sender også bærebølge ud, som også kan forstyrre på 137.500 Mhz.

Keplerfiler er tilgængelige på:

http://www.space-track.org
http://celestrak.com/NORAD/elements/

Næste NOAA opsendelse forventes december 2007

SECTION 2: POLAR DIGITAL RAPPORT -- 27th Juni 2005

Satellite	Frequency (MHZ)	Mode	Remarks
NOAA 12	1698.0	HRPT	Godt signal.
NOAA 14	1707.0	HRPT	Ingen data.
NOAA 15	1702.5	HRPT*	Backup kanal, svagt signal.
NOAA 16	1698.0	HRPT*	Godt signal(se note 6)
NOAA 17	1707.0	HRPT*	Se note 5.
NOAA 18	1698.0	HRPT*	Godt signal.
Feng Yun 1C	1700.4	CHRPT	Ingen data.
Feng Yun 1D	1700.4	CHRPT	Godt signal.

NOTES.
5. På grund af problemer med STX-3 (1707 MHZ). Er udgangs effekten faldet fra omkring 8 W, ned til 2,4 W.

6. Fredag 19 September 2003, fik NOAA 16 problemer med AVHRR synch. Så kvaliteten af dataérne skifter fra meget ringe og til ”mellemgode”.

NOAA INFO.
Der ligger mange nyttige informationer på goes-poes hjemmeside.

Der findes masser af tekniske oplysninger og både fotografier og video sekvenser af højde-punkter i forbindelse med NOAA satellitterne.
Du kan finde siden på denne link:
http://goespoes.gsfc.nasa.gov/poes/index.html

OZ1HEJ/Michael

Fælles bånd for satellit og almindelig kørsel.

af OZ7IS, Ivan

Sidste år på mødet i England talte vi om at få samme bånd for både satellittrafik og for almindelig trafik på de høje bånd, så vi kunne tale sammen og bruge det samme udstyr.
Ivan, OZ7IS, har lavet et forslag til IARU konferencen i efteråret. Det følger nedenfor.

COMMON NARROWBAND-SEGMENTS, IN THE SECONDARY MICROWAVE BANDS.

For a number of years the commercial use of the microwave bands between 1 and 11 GHz has been steadily and rapidly increasing.
At the same time the amateur use of the rather wide secondary microwave amateur bands between 1 and 11 GHz have not changed significantly!

As a consequence of the increased commercial use, the (terrestrial) amateur radio activities are facing more and more problems, due to the "non-harmonized" national usage of the bands.
(Example: In Region 1 we are forced to use at least three narrowband segments on 2,3 GHz: 2004, 2308 and 2320 MHz! This due to differing national limitations/usage.)

For decades the amateur microwave community have been divided in two philosophies:

a) Keep access to all we have got at present. Lets make no changes!
b) Lets work towards common (semi-) exclusive narrowband segments and give up access to parts of the (quite wide) secondary segments!

At present we have access to hundreds of MHz in the following bands:

1,3 GHz:	60 MHz
2,3 GHz:	150 MHz
3,4 GHz	10 (+) MHz
5,7 GHz	200 MHz
10 GHz	450 MHz

These figures indicates amateur access to over 8,6% of the available spectrum from 1 to 11 GHz!

Consider why national authorities shuffle around with the radio amateurs when commercial interests occur? (*Numerous examples can be mentioned!*)
Consider why the Amateur Radio Satellite Service has had better luck keeping access to the satellite segments? (*They had a plan! A known worldwide scheme!*)

At the Annual International Amateur Radio Satellite Forum during the AMSAT UK Colloquium 2004 this problem was discussed. There was a general feeling that if we fail to establish common worldwide narrowband segments (common to the terrestrial as well as the satellite operators) within the next few years, - it will never happen. Most of the spectrum will be occupied by commercial services!

(***One additional benefit to this plan will be that the satellite and terrestrial operators will be able to use the same equipment for both activities. That is in general not possible today. Example: On 2,3 GHz terrestrial = 2304/2320 MHz. Satellite above 2400 MHz!***)

We therefore propose to produce a plan with the primary aim to establish common worldwide narrow band segments in the lower secondary microwave bands. (Exclusive or "semi-exclusive".)
A secondary aim would be to retain access to bandwidth enough to conduct experiments with real wideband modes. These segments do not need to be coordinated worldwide.

This plan will be the best possible future development to both the Amateur Radio Service as well as the Amateur Satellite Service in the lower secondary microwave bands.

OZ7IS/Ivan

Analog satellitstatus

og meget andet

juni/juli/august

Den Nordamerikanske Field Day har virkelig fået interessen for 2,4 GHz op at stå, fordi AO-51 er sat til at køre med 145,920 MHz op og 2401,200 MHz ned. Mens jeg skriver det her, er den i gang i godt og vel en uge fra den 17. juni til den 27. juni.

Der har været tonsvis af mails om det på amsat-bb. Her er et enkelt eksempel:

```
From: "Jerry Clement" <stormchaser@shaw.ca>
To: <amsat-bb@amsat.org>
Subject: [amsat-bb]
Downconverters for field
day
Date: 19. June 2005 02:46

I also am enjoying great
success with the Transystem
and corner reflector from
Bob, K5GNA. I have photos
of this set being used from
my mobile on my web
page.

www.stormchaser.cjb.net
```

Jeg har sakset et enkelt billede.

```
click on new mobile and
scroll down.
This system is simple to
use held out the window of
```

my truck. Bob K5GNA , was super to deal with. I also got a 2.4 Ghz signal generator from Bob.
Jerry VE6AB

Det er oftest downkonvertere fra Transsystems og California Amplifiers, der er i brug til det. Sådan som jeg har forstået det, er de fra TV modtagere til det gamle system af GEO satellitter.

Her er mere om Jan Kings regneark. De ligger nu et andet sted.

IARU Speadsheets on Small Satellites Available
June 19, 2005

One of the biggest challenges any satellite communications engineer has is to develop a link budget that shows what might work and what wont!
At the STEC 2005 Conference held in Aalborg in April, and previously reported on ANS, Jan King briefly showed his suite of graphic spreadsheets which help satisfy this need.

It is fully annotated with guidance notes and includes graphical representations of orbit data, antenna radiation patterns etc.

As an added benefit he has also produced an on-board power budget spreadsheet and one covering the mass budget.

All of these are now available for download from the link at

http://www.amsat.org.uk/iaru

It is anticipated that a short presentation of these exciting tools will be given during the AMSAT-UK Colloquium which will be taking place at the University of Surrey between July 29-31st

http://www.uk.amsat.org/Colloquium/

cheers, Graham

AO-51 køreplan.
AO-51 har haft et program nedbrud som satte den ud af normal funktion her i starten af juli måned.
Det skulle være klaret her omkring den 6. juli, så vi kan bruge den igen:

Updated 8 July 2005

All dates are UTC. The mode change occurs normally between 0100 and 0400 utc on the date shown. The mode will be active from the date shown until the next Mode Change date listed. Mode Configurations are listed below the schedule. If for some unplanned reason we need to work with Echo and deviate from the plan I will post a note to the this Echo page on AMSAT.ORG.

If a specific transmitter or mode is not listed on a given day then it will be off. For example, if

TXB (435.300) is not listed during a 38k4 digital mode period then the FM repeater will be off.

4 July
FM Repeater, V/U
Uplink: 145.920 mhz FM, 67 hz PL Tone
Downlink 435.300 mhz FM
9k6 Digital, V/U, PBP BBS (Pacsat Broadcast Protocol BBS)
Uplink: 145.860 mhz FM, 9k6 PBP Digital
Downlink: 435.150 mhz FM, 9k6 PBP Digital

11 July
Dual FM Repeaters
FM Repeater, V/U
Uplink: 145.920 mhz FM, 67 hz PL Tone
Downlink 435.300 mhz FM
FM Repeater, V/U
Uplink: 145.880 mhz FM
Downlink 435.150 mhz FM

18 July
FM Repeater, V/U
Uplink: 145.920 mhz FM, 67 hz PL Tone
Downlink 435.300 mhz FM
9k6 Digital, V/U, PBP BBS (Pacsat Broadcast Protocol BBS)
Uplink: 145.860 mhz FM, 9k6 PBP Digital
Downlink: 435.150 mhz FM, 9k6 PBP Digital

21 July
38k4 Digital on S Band in support of SSETI Satellite
38k4 Digital Downlink, V/S, PBP BBS (Pacsat Broadcast Protocol BBS)
Uplink: 145.860 mhz FM, 9k6 PBP Digital
Downlink: 2401.200 mhz FM, 38k4 PBP Digital

23 July
FM Repeater, V/S
Uplink: 145.920 mhz FM, 67hz PL Tone
Downlink 2401.200 mhz FM

July Schedule Team Leader: KE4AZN
73 KE4AZN
for Echo Operations Group

www.amsat.org

for at følge med i dens køreplaner.

FO-29.
virker som sædvanlig ganske fortræffeligt og der er plads til mange flere ☺

AO-27.
Den tænder stadig på passager mod nord sidst på eftermiddagen/først på aftenen – men den virker noget ustabil. I stedet for at være tændt i cirka 6 minutter, er det ofte kun 3 minutter. Telemetrien lyder også underlig.
Har ikke nogen ide om, hvad der er galt med den.

VO-52 – HAMSAT.
Virker fint med en hel del stationer på i de fleste passager.

AO-7.
Den bruger jeg kun i mode-B (70 cm op med 2 meter ned). Det er tilsyneladende ikke så ofte, den kører sådan – men det er jo helt tilfældigt.

SO-50.
Den er helt fin. Den virker, hver gang den kommer forbi. Den kommer på manerlige tider nu.

Keplerelementer i UoSAT format

FILENAME : keps.txt DATE : 2005/07/09. TIME : 09:00:37

NAME	EPOCHE	INCL	RAAN	ECCY	ARGP	MA	MM	DECY	REVN
AO-40	5176.88688	7.76	296.30	0.7930	53.20	355.55	1.25584	-1.1E-06	2137
SO-33	5187.54907	31.43	283.15	0.0356	335.24	23.15	14.28019	1.1E-06	34959
AO-10	5187.56076	27.38	24.22	0.6029	202.95	111.54	2.05868	-3.4E-06	16593
FO-20	5187.56451	99.02	358.10	0.0540	195.59	162.79	12.83348	5.0E-08	72198
RS-12/13	5187.67905	82.92	256.42	0.0030	27.95	332.33	13.74451	-1.0E-07	72317
AO-07	5187.70453	101.62	233.49	0.0012	196.28	163.79	12.53571	-2.8E-07	40209
VO-52	5187.74086	97.91	261.20	0.0028	46.28	314.08	14.80871	3.4E-06	925
UO-11	5187.82531	98.20	185.79	0.0008	299.45	60.59	14.79265	2.3E-06	14470
RS-15	5187.91660	64.82	75.64	0.0165	312.94	45.78	11.27552	-3.9E-07	43361
FO-29	5188.02937	98.54	234.92	0.0351	124.81	238.67	13.52914	-3.8E-07	43887
RS-10/11	5188.21332	82.93	223.32	0.0011	340.20	19.87	13.72761	4.2E-07	90382
AO-51	5184.24338	98.21	246.17	0.0084	181.96	178.13	14.40465	-4.4E-07	5293
KO-25	5187.54092	98.24	183.49	0.0009	176.25	183.87	14.29688	1.6E-07	58228
WO-18	5187.63067	98.21	216.13	0.0012	139.92	220.29	14.31754	8.0E-08	80693
SO-41	5187.63779	64.56	238.05	0.0050	302.97	56.66	14.80118	8.6E-07	25781
SO-42	5187.64244	64.56	246.76	0.0052	306.79	52.85	14.78996	3.6E-07	25763
NO-44	5187.70084	67.05	177.53	0.0006	261.55	98.50	14.29390	6.8E-07	19655
KO-23	5187.73261	66.09	105.52	0.0015	252.12	107.81	12.86432	-3.7E-07	60610
UO-22	5187.80480	98.24	152.40	0.0008	38.37	321.80	14.39494	7.1E-07	73332
TO-31	5187.80758	98.53	254.47	0.0004	116.74	243.42	14.23675	-4.2E-07	36320
SO-50	5187.82043	64.56	81.38	0.0081	234.95	124.40	14.70985	9.0E-07	13662
GO-32	5187.82985	98.52	251.97	0.0002	127.77	232.37	14.23082	-8.5E-07	36312
IO-26	5188.03785	98.25	183.77	0.0008	196.20	163.89	14.29377	7.5E-07	61412
UO-14	5188.04543	98.19	196.66	0.0011	130.63	229.59	14.31418	3.3E-07	80687
MO-46	5188.08608	64.56	218.97	0.0047	295.18	64.44	14.82753	3.1E-06	25823
AO-16	5188.11622	98.20	212.18	0.0012	138.69	221.52	14.31682	3.0E-07	80694
LO-19	5188.13543	98.22	221.13	0.0012	138.29	221.92	14.31928	1.3E-07	80707
AO-27	5188.14959	98.25	182.59	0.0008	196.37	163.72	14.29136	2.1E-06	61407
AO-49	5188.16691	64.56	74.58	0.0080	236.33	123.02	14.72105	1.5E-06	13679
UO-36	5188.56279	64.56	221.14	0.0023	210.10	149.88	14.78518	2.3E-06	33483
NOAA-18	5184.37333	98.74	130.96	0.0015	127.44	232.82	14.10858	-4.0E-07	619
SICH-1	5185.86693	82.53	21.75	0.0026	65.77	294.62	14.81189	3.0E-06	53057
MET-2/21	5187.79582	82.55	245.42	0.0024	70.70	289.68	13.83592	1.5E-06	59828
FENGYUN1	5187.83797	98.61	188.84	0.0015	47.43	312.81	14.11798	2.5E-06	31728
RESURS	5187.88486	98.54	256.54	0.0002	99.89	260.25	14.24071	7.0E-08	36325
OKEAN-4	5188.06395	82.54	238.85	0.0024	72.14	288.24	14.82180	3.8E-06	57885
OKEAN-0	5188.06627	97.76	213.08	0.0002	108.91	251.23	14.73265	1.4E-06	32093
MET-3/5	5188.31020	82.56	144.45	0.0013	178.66	181.46	13.17000	5.1E-07	66796
NOAA-16	5188.33970	99.01	146.90	0.0011	16.22	343.93	14.12253	9.0E-08	24690
NOAA-15	5188.43939	98.51	196.16	0.0010	304.21	55.82	14.24523	1.0E-06	37163
NOAA-11	5188.45054	98.85	275.31	0.0011	247.61	112.40	14.14758	-2.0E-07	86579
NOAA-17	5188.45938	98.66	261.66	0.0012	1.44	358.68	14.23681	2.0E-06	15772
NOAA-14	5188.46172	99.09	237.12	0.0008	304.73	55.31	14.13579	3.4E-06	54236
NOAA-12	5188.46447	98.70	178.72	0.0013	15.10	345.06	14.25464	-1.2E-06	73513
NOAA-10	5188.51789	98.76	194.33	0.0013	76.02	284.25	14.27261	2.7E-07	97799
WO-39	3303.41062	100.19	47.30	0.0035	281.69	78.04	14.38083	2.3E-05	19701
NO-45	5187.52838	67.06	177.64	0.0006	243.38	116.66	14.29491	3.5E-07	19656
UARS	5187.87217	56.98	110.25	0.0006	80.95	279.22	15.03854	-8.4E-07	75645
PO-34	5188.18580	28.46	178.59	0.0006	86.75	273.38	15.16337	1.0E-05	36962
OO-38	5188.19753	100.22	51.90	0.0037	359.57	0.54	14.35725	4.9E-07	28516
HUBBLE	5188.22186	28.47	138.23	0.0004	122.92	237.18	14.99765	6.3E-06	63325
ISS	5188.62269	51.64	156.18	0.0003	93.84	251.17	15.71408	1.6E-04	37889

Total number of satellites : 52

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- **Hosts the AMSAT working group OZ7SAT.**
- **Runs the EME & contest station OZ7UHF with its 8-meter dish for 144, 432, 1296 and 2320 MHz.**
- **Employs a skilled and dedicated staff which includes several radio amateurs:**
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  OZ7IS (VHF manager EDR), OZ5LP, 6BL, 8QS, 8FG, 9KJ, 9OC ……

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Department of Electrical Engineering & Information Technology

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AMSAT-UK Colloquium "AMSAT Space 2005" and/or ARISS – International Meeting – Fri 29 Jul to Tue 2 Aug 2005

Booking Form

Please print clearly using BLOCK CAPITALS.

SURNAME/FAMILY NAME _____FORENAME/HANDLE _____

Callsign/AUK No_____Address _____

ZIP/Post Code _____ Email_____

I wish to attend the Colloquium/ARISS – International Meeting/Both* Phone/Fax _____
* Please delete as necessary

		Price	Quantity	Total price
Thursday evening Dinner on the UoS Campus		£13.00		
Overnight stay in student accommodation Thursday evening to Friday morning, including breakfast on Friday*	Standard	£26.00		
	Ensuite	£39.00		
Friday 29 July Lectures		£12.50		
Friday 29 July Lunch		£11.00		
BBQ on Friday evening		£15.00		
Overnight stay in student accommodation Fri evening to Sat morning, including breakfast on Saturday*	Standard	£26.00		
	Ensuite	£39.00		
Saturday 30 July Lectures		£12.50		
Saturday 30 July Lunch		£11.00		
Gala Dinner Saturday evening		£23.00		
Overnight stay in student accommodation Sat evening to Sun morning, including breakfast on Sunday*	Standard	£26.00		
	Ensuite	£39.00		
Sunday 31 Jul Lectures		£12.50		
Sunday 31 Jul Lunch		£11.00		
Sunday Evening meal – please see note below		TBA		
Overnight stay in student accommodation Sun evening to Mon morning, including breakfast on Monday*	Standard	£26.00		
	Ensuite	£39.00		
Overnight stay in student accommodation Mon evening to Tue morning, including breakfast on Tuesday*	Standard	£26.00		
	Ensuite	£39.00		
Overnight stay in student accommodation Tue evening to Wed morning, including breakfast on Wednesday*	Standard	£26.00		
	Ensuite	£39.00		
* Prices for over night stay do not include lunch, evening meal, or lectures. They DO include breakfast.			Grand Total	

I will be arriving at Surrey University at approx _____(time)_____(day)
and departing approx _____(time)_____(day)

Special dietary or other requirements _____

Please tick here _____ if you DO NOT wish for your Name/Callsign published on our web site as attending the Colloquium
If booking more than one person, names of additional persons attending _____

Signature _____ Date _____

Please continue overleaf >>>>

PLEASE INCLUDE FULL PAYMENT WITH BOOKING FORM
Please make cheques payable to AMSAT-UK (Only cheques drawn on UK banks can be accepted)

Payment by Credit Card, MasterCard or VISA. Card Details – please PRINT VERY CLEARLY !

Name of card holder (as printed on card) _____ Card Type (eg VISA) _____

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Signature of Card Holder _____ Date _____

Please return this form, with payment, before 15 July 2005 to:

Sophie Haigh, Surrey Space Centre, University of Surrey, Guildford, GU2 7XH, Surrey, United Kingdom. Or you can FAX it to her on +44 (0) 1483 689503. Any queries on bookings, please email s.haigh@sstl.co.uk. Any queries on programme, contributions, etc, please email Jim Heck, G3WGM, g3wgm@amsat.org.

The ARISS – International Meeting. This will take place at the University on Monday and Tuesday 1 and 2 August, immediately following the Colloquium. Martin Sweeting, G3YJO, has generously offered a meeting room at the University Space Centre (SSTL). If delegates wish to use the University accommodation, please use this booking form for the nights on which you wish to stay. Note that the rates quoted are per person, anc for bed and breakfast only. The accommodation is within approx 5 mins walk of the meeting room. If you require more luxurious (and expensive!) accommodation, try contacting the nearby (25 mins walk) Holiday Inn on +44 (0) 870-4009036. If you wish to attend the meeting, but stay off campus, please email g3wgm@amsat.org, so we may expect you.

- You can Pay by Pay Pal to donations@amsat.org.uk - Please ensure you include your details (ie name and callsign) with your Payment, and let me know either by email or by using this form exactly what you want!
- If you are bringing a car, please tick here ____ and you will be sent a UoS car pass
- Please tick here if you are interested in the beginners sessions _____(Please enter preferred day, either Fri or Sat) _____
- Please tick here if you would like acknowledgement by email _____
- A receipt will not be sent unless requested.
- Please see the notice, which accompanies this booking form for important information.
- Dinner on Thursday evening will be in Seasons Restaurant on Campus between 18.00 and 19.30
- Dinner on Sunday evening will be 'off campus'. Arrangements have yet to be made. Please pay on the day. Cost will be approx £15.00. Please tick here if you require dinner on Sunday _____
- The prices quoted for a days lectures does not include any meals, but does include tea/coffee

Please consider contributing to this event. We are very keen to encourage contributions from our members. You don't have to be a guru to make a short presentation, demo, etc. Our visitors are just as keen to hear from 'ordinary' amateurs as well as satellite designers. Even if you can only speak for 10 minutes on your amateur satellite activities, please consider doing so! We don't even INSIST that you write a paper! Please indicate below if you are willing to contribute!
I would like to contribute to the Colloquium, by making a presentation/talk/demo/other_____ . I think my contribution will last approx _____ minutes, and the subject is _____