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autumnal 2005 Autumnal equinox

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**Protecting Radio
Astronomy**

An ALMA Update

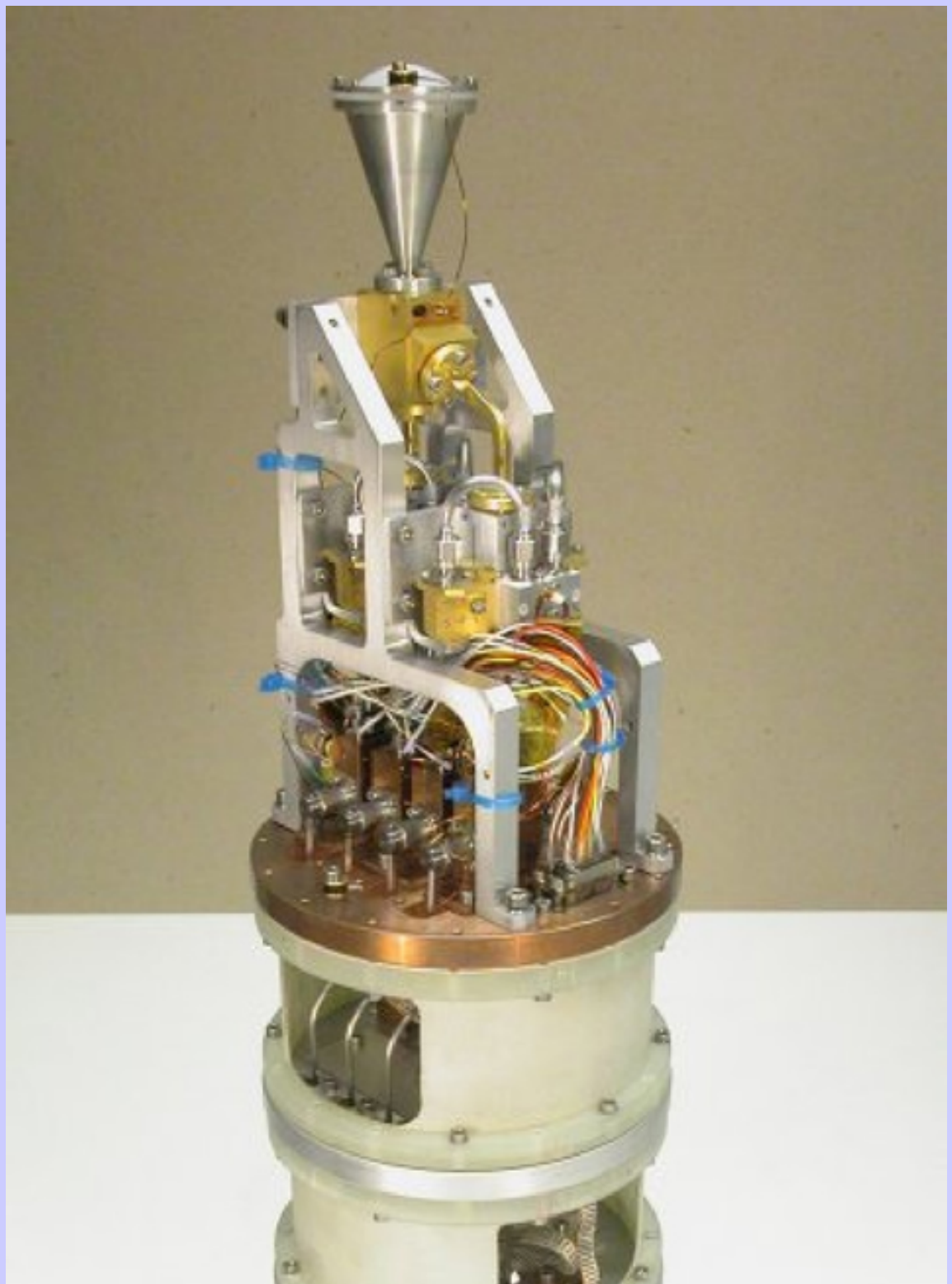
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**Report from the
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E-Cass Soap Box

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Better late than never? For a myriad of reasons, E-Cass is very late in coming this time. By the time of the autumnal equinox only a scant 3 articles had appeared in my E-Cass mailbox! Over the next week a few more trickled in but still barely enough to mount an issue. By then the time I normally allocate to producing E-Cass had slipped away and I was forced to "re-schedule". It normally takes me about 2 days to mount E-Cass so, as you all know, finding two days this time of the year can be a problem.

So, with apologies here is the Autumnal Equinox 2005 issue. Many thanks to the faithful authors for getting their contributions to me.

Brian Martin (brian.martin@kingsu.ca)

Dear CASCA Members, Chers(ères) membres de la CASCA,

I hope your summer was astronomically stimulating and productive following our meeting at U. de Montreal in May. Sharing our results and successes with the public is a pleasure as well as a responsibility arising from the research support they provide. I was (very) pleased to see additional articles about Canadian astronomy appearing over the summer months, including the Maclean's feature, "Why Canadian astronomers are masters of the universe" (5 Sept.). Many of the articles seem to be the fruit of seeds planted during our 2005 meeting.

To assist with getting the messages out over the long term, John Percy and Jayanne English led the development of CASCA's recently submitted Promo Science proposal to NSERC to create Virtual Outreach for Canadian Astronomy. Its goals are to make available to all Canadians – including the media - astronomical images, graphics and supporting information highlighting Canada's leading role in astronomical research and discovery. The proposal was formulated to continue addressing the LRP recommendation regarding multi-tiered outreach that began with CASCA's education web site. Supporting letters, some including significant offers of in-kind support, were received from ACURA, CSA, industry (AMEC), NRC-HIA, and the Telus World of Science (Calgary). The CASCA Board committed \$10K/year over three years from the WESTAR funds as testimony to the importance that CASCA directly attaches to

J'espère que votre été a été stimulant et productif après notre réunion à l'Université de Montréal au mois de mai. C'est plaisant de partager nos résultats et réussites avec le public, mais cette activité est également une responsabilité en raison du soutien à la recherche qui en découle. J'ai été (très) heureux de voir les articles additionnels sur l'astronomie au Canada qui ont été publiés au cours de l'été, incluant le reportage dans Maclean's intitulé « Why Canadian astronomers are masters of the universe » (5 septembre). Plusieurs des articles semblaient avoir été rédigés par suite de notre réunion de 2005.

Afin d'aider à transmettre les messages à long terme, John Percy et Jayanne English ont dirigé l'élaboration de la proposition Promo Science soumise récemment par la CASCA au CRSNG, visant à créer un programme de diffusion virtuel pour l'astronomie canadienne. Ses buts sont de mettre des images astronomiques, des graphiques et des renseignements de base soulignant le rôle de meneur du Canada en recherche et en découverte astronomique, à la disposition de tous les Canadiens – y compris les médias. La proposition a été formulée de façon à pouvoir continuer à aborder les recommandations du plan à long terme concernant la diffusion à multiples paliers qui avait débutée par le site Web éducatif de la CASCA. Des lettres de

this initiative. We wish John and Jayanne great success with their proposal.

LRP related activities remain an intense focal point across our community. As reported by their Project Scientists elsewhere in this issue, the top-ranked new starts for the Long Range Plan, the JWST and ALMA, are being actively reviewed to establish revised baselines consistent with available budget allocations. Intense activity with substantial progress was made on TMT, SKA and CVO, as well as many other projects in the LRP or complementary to it. ACURA's increasing proactivity under the leadership of its first Executive Director, Rene Racine, is a positive new force in our community. If we can sustain the funding and effective relationships between the various organizations supporting Canadian astronomical excellence, our collective futures will continue to be very bright indeed.

Very recently National Science Advisor Arthur Carty provided the next version of his proposal regarding future handling of major science initiatives to the professional organizations and universities that provided comments last May on version one. The present process does not envision a protracted national consultation period like the previous version enjoyed, but rather targeted consultations designed to reach closure during October. On 3 October Russ Taylor and I are participating in a one-day discussion organized by Dr. Carty in Ottawa. We will keep you informed, and I encourage you to visit their web site regularly, as I anticipate that the document

soutien, quelques-unes offrant du soutien non financier considérable, ont été reçues de l'ACURA, de l'ASC, de l'industrie (AMEC), de l'IHA-CNRC, et de Telus World of Science (Calgary). Le Conseil de la CASCA s'est engagé à contribuer la somme de 10 000 \$ par année pendant trois ans provenant du fonds WESTAR pour attester l'importance que la CASCA accorde à cette initiative. Nous souhaitons beaucoup de succès à John et à Jayanne avec leur proposition.

Les activités liées au plan à long terme demeurent un point focal important dans toute notre communauté. Comme le signalent leurs responsables de projet ailleurs dans ce numéro, les nouveaux projets les mieux cotés pour le plan à long terme, le télescope JWST et l'observatoire ALMA, font l'objet d'examen afin d'établir des lignes de base révisées qui sont compatibles avec les budgets disponibles. Des activités intenses se sont déroulées et d'importants progrès ont été réalisés dans les projets des TMT, SKA et CVO, ainsi que dans plusieurs autres projets du plan à long terme, ou des projets complémentaires à ce plan. Le caractère proactif de plus en plus évident de l'ACURA, sous la direction de son directeur exécutif, René Racine, est une nouvelle force positive dans notre communauté. Si nous pouvons maintenir le financement et les relations efficaces entre les différentes organisations soutenant l'excellence en astronomie au Canada, notre avenir collectif continuera à être très prometteur.

will be posted there soon.

As noted elsewhere in this edition, the Coalition is preparing a renewed effort to secure the funding recommended by the Mid Term Review. CASCA's energetic and effective Coalition Co-chair has been Past President Gretchen Harris. At her recommendation (unanimously endorsed by the Board), First Vice President Peter Martin has agreed to ramp up over the Fall to represent CASCA as a Coalition Co-chair. This will ensure a smooth transition in our representation while Peter is on sabbatical this Fall and when Gretchen begins hers in January. She has agreed to complete her task as the Coalition Chair of the Working Group on interagency issues, who plan a report by February. Gretchen has been an effective advocate, and has offered to continue to support the Coalition into the future, thus allowing us all to benefit from her extensive experience. Thanks, Gretchen!

Some members of the community will be aware that the National Research Council is mid-way through a year-long process to look at major renewal of its programmes and focus. Ralph Pudritz has been invited to some of the national consultations with the diverse communities with whom NRC currently interacts. What the outcome of this complex endeavour will be for NRC as a whole, or for HIA in particular, is a work very much in progress and no doubt subject to external input regarding future S&T needs for Canadian government science. In an independent, but potentially related, effort, Walter Davidson (currently the CAP

Très récemment, le Conseiller national des sciences, M. Arthur Carty, a fourni la prochaine version de sa proposition concernant le traitement des initiatives scientifiques majeures aux organisations professionnelles et universités qui avaient fait des commentaires sur la première version, en mai de cette année. Le procédé actuel ne prévoit pas une période de consultation nationale aussi longue que celle dont on a profiter auparavant mais il s'agira plutôt de consultations spécifiques dans le but de conclure le tout en octobre. Russ Taylor et moi participerons à une discussion d'un jour organisée par M. Carty, le 3 octobre prochain, à Ottawa. Je vous encourage a consulté le site web régulièrement pour obtenir de plus amples renseignements et prévoit que le document y sera affiché très bientôt.

Comme on l'a signalé ailleurs dans ce numéro, la Coalition se prépare encore une fois à obtenir le financement recommandé dans l'examen à mi-période du mandat. La coprésidente énergique et efficace de la Coalition de la CASCA est l'ancienne présidente Gretchen Harris. Selon sa recommandation (appuyée unanimement par le Conseil), le premier vice-président Peter Martin a accepté de se préparer au cours de l'automne à représenter la CASCA à titre de coprésident de la Coalition. Cette situation assurera une transition efficace dans notre représentation pendant que Peter est en congé sabbatique cet automne et lorsque Gretchen débutera le sien en janvier. Elle a accepté de compléter son mandat comme présidente du Groupe de travail sur les questions interorganismes de la Coalition, qui prévoit soumettre un rapport

President) and I were two of the four representatives selected by NRC to participate in a just-concluded two-week government-wide workshop for science-based departments and agencies. The workshop was charged with considering future priorities for S&T that would benefit from integration across government SBDA's and to addressing potential barriers to their implementation. This provided an opportunity to share the lessons learned from the major facilities investments common in physics and astronomy, as well as principles that underpin the demonstrated excellence of these fields in Canada.

The CASCA Board will meet in Hamilton on 25-26 November. Members with concerns or issues for discussion at that meeting are urged to contact me or any member of the Board.

Best regards,

Jim Hesser

d'ici février. Gretchen a été une partisane efficace et a offert de continuer à appuyer la Coalition à l'avenir, ce qui nous permettra tous de bénéficier de son expérience considérable. Merci Gretchen!

Certains membres de la communauté sont conscients du fait que le Conseil national de recherches du Canada se trouve à mi-parcours d'un processus (d'une durée d'un an) de renouvellement majeur de ses programmes et de ses buts. On a invité Ralph Pudritz à assister à quelques-unes des consultations nationales auprès des diverses communautés avec lesquelles le CNRC a des échanges actuellement. Nous ne savons pas trop quel sera le résultat de cette entreprise complexe pour l'ensemble du CNRC, ni pour l'IHA en particulier, il s'agit d'un projet en cours qui sera sans doute sujet aux apports externes au sujet des futurs besoins en sciences et technologie pour la science au gouvernement du Canada. Dans un projet indépendant, mais potentiellement connexe, Walter Davidson (actuellement le président de l'ACP) et moi faisons partie du groupe de quatre représentants choisis par le CNRC pour participer à un atelier de deux semaines qui vient de se terminer pour les ministères et organismes scientifiques partout dans le gouvernement. L'atelier était chargé de considérer les futures priorités pour la S-T qui bénéficieraient de l'intégration des associations de développement de petites entreprises du gouvernement, et d'aborder la question des obstacles potentiels à leur mise en oeuvre. Cet atelier nous a permis de partager les leçons apprises des investissements majeurs en installations que l'on voit couramment en physique et en



astronomie, ainsi que des principes qui étayent l'excellence manifeste de ces domaines au Canada.

Le Conseil de la CASCA tiendra une réunion les 25 et 26 novembre, à Hamilton. Les membres ayant des préoccupations ou des questions à discuter à cette réunion sont priés de communiquer avec moi ou avec n'importe quel membre du Conseil.

Salutations distinguées,

Jim Hesser

Feature Articles

[Excitement and Fireworks in Protecting Radio Astronomy](#) by Ken Tapping

Excitement and Fireworks in Protecting Radio Astronomy

Ken Tapping

As we work on the next generation of radio telescopes, we often forget that the most important national facility for radio astronomy is clear spectrum in which to do it. These days, with the frequency bands allocated for radio astronomy being surrounded for and often right next to radio services using airborne and space borne transmitters, we have to get into the bear pit with everyone else, and fight to keep our spectrum.

I have just got back from a meeting in Geneva of the rather opaquely named UN/ITU Task Group 1-9. This committee is tasked to identify what are the radio services most likely to cause problems for radio astronomy and to see what can be done by the service causing the interference and what radio astronomers can do to minimize its impact. We cannot argue that our bands are our bands, and keep out, because the problem international spectrum management is faced with is squeezing more and more radio services into a spectrum that cannot be made bigger, so everyone gets compressed a bit. It means we have to solidly justify our position over and over again, band by band. Radio Astronomy is recognized as a radio service like all the others, but no more or less important than those others. This work in Geneva is therefore unavoidable, but we have done reasonably well so far.

The biggest fireworks in Geneva came from a problem that has been around for some time. At the time satellite navigation systems were being implemented, the Soviet Union set up a system called GLONASS, which transmits at frequencies just below the 1610.3-1613.8 MHz radio astronomy band -- the most important band used for observations of OH. This system uses a modulation system that splatters a lot of signal into that radio astronomy band. The appearance of this interference caused a major furor and led to the Soviet Union entering into an agreement to reduce that interference level by implementing filters and changes in the way the system is used. Between then and now the Soviet Union ceased to exist and the agreement was inherited by Russia. Unfortunately, with slimmer resources, Russia has not really been able to meet the agreed timetable.

This would have been reluctantly acceptable in Geneva if Russia would have simply stated that, and asked for more time. However, this is not what happened. Russia essentially proposed that no more could be done and that the agreement should be deemed satisfied. This caused a major "extensive, far-reaching and candid discussion". Condemnation was unanimous. The result of these interchanges was that Russia accepted the timetable of starting to place the new, improved satellites in service by the beginning of 2006. However, the old satellites will remain in service until they fail and are replaced, so the improvement in the

interference situation will be take years.

In the previous agreement, the targets for suppression of the interference were quoted in terms of emission per satellite; at that time the tools for modeling the total interference from several satellites above the horizon did not exist. Now they do. Current assessments are that the total GLONASS interference at a radio telescope will be more than 100 times the level at which data degradation becomes significant. As pointed out at the meeting, this is tantamount to having observations unacceptably degraded for 98.8% (sic) of the time. This situation will take a while to deal with. A major concern is not to imply any form of acquiescence with this, because it could be used to undermine our ability to protect other radio astronomy bands. At this point it is not clear what the future will bring for this band. If nothing else it underlines the need for radio astronomers to keep their eyes on the ball with protecting radio spectrum. We are committing major resources to the next generation of radio telescopes, and we would like to know they have a good chance of being usable.

Another major issue at the moment is the proposal to transmit data over electrical power lines. A feasibility study has been under way for some time in Sault Ste. Marie. The results have been inconclusive. Because these systems could be widespread, our position as radio astronomers is that it must be demonstrated beforehand that our radio astronomy operations won't be affected. However, the US is deploying these systems, and Canada will probably, as is fairly usual, have to "harmonize with the US". This same thing will probably happen with the deployment of Ultra-Wideband technologies. Discussions are still under way here, but US deployment is going ahead. Because these devices will be used on cars and in homes, diffusion across the border will be inevitable.

Boeing is implementing high-speed internet capabilities on new airliners. These will operate at about 14 GHz, communicating via satellite links. Boeing has agreed to build into the system the facility for changing or ceasing operation when within specified distances from radio observatories.

Allocation of frequencies to 1000 GHz is now under study, and will probably be finalized for the next World Radio Conference in 2007. We are working on our claims for slices of this valuable chunk of new spectrum.

A big plus at the moment is our excellent working relationship with Industry Canada. We don't always get IC to agree with us, but we do have good lines of communication and in general radio astronomy protection issues are being taken seriously and properly discussed. In addition, there are always at least six radio astronomers present at the meetings in Geneva, scattered around various national delegations. Given the current vigorous competition for space in the radio spectrum, this is not too many.

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News

[An Alma Update](#) by Chris Wilson

[Events at NRC's HIA \(2004 July - Sept.\) / Du neuf à l'IHA du CNRC \(Juillet - Septembre 2005\)](#)
by Jacques P. Vallée

[JWST News](#) by John Hutchings

ALMA Update

1 Recent news

The major news in the international ALMA project was the signing of the North American contract for their share of the 12 m antennas for ALMA. The contract with Vertex Communications Corporation was signed on July 11, 2005 by Associate Universities, Incorporated (AUI), which operates NRAO for the NSF. The contract is to purchase at least 25 and up to 32 antennas. Anyone wanting to know more about it can check out the press release in the recent ALMA news section at www.alma.nrao.edu/almanews/. It was originally hoped that ESO would be able to sign the contract for their half of the antennas on the same schedule. However, a decision on the ESO antenna contract has been delayed until the complete cost of ALMA has been re-estimated. We now hope that the contract for the European half of the antennas for ALMA can be signed in late October.

The major focus of activity in the international ALMA project over the summer continued to be the rebaselining of the project to bring it up to date since the definition of its schedule and budget in October 2002. This activity is now largely completed and a list of possible changes to the baseline ALMA project has been sent to the ALMA Board. Those changes which would have an impact on ALMA's scientific capabilities have also been sent to the ASAC for review (see next section). There will be a high-level international review of the cost of ALMA held in mid-October in Garching. The committee is chaired by Steve Beckwith and co-chaired by Thijs de Graauw.

In other ALMA news, the contracts for the foundation and shell of the technical building on the Array Operations Site in Chile were signed on August 2. This work marks the beginning of construction for ALMA on the high-site and is scheduled to be finished by March 2006. A new configuration design has been completed; this design is optimized for a 50 antenna ALMA, but can be expanded to give good performance with 64 antennas with a few additional pads. In science news, the new North American ALMA Science Center at NRAO is sponsoring a workshop in Charlottesville on (sub)millimeter spectroscopy of high-redshift galaxies. More information is available at <http://www.cv.nrao.edu/naasc/zmachines/> and students are especially encouraged to attend.

2 ALMA Science Advisory Committee

The ASAC will be meeting October 1-2, 2005 in Santiago, Chile and so our major work over the summer has been preparing for that meeting. We have also been following the work on the rebaselining process and providing scientific input to the Board. The ASAC has four charges from the ALMA Board for this meeting: review the scientific impact of possible changes to the baseline ALMA coming from the rebaselining exercise; review the Scientific Specifications and

Requirements document; continue our discussion from the previous two meetings on large projects, joint projects, and legacy projects; and discuss the scope and schedule of demonstration science with ALMA.

Since the information on the possible changes from the rebaselining process only became available this week, I will report on the results of the ASAC discussion of that charge in my next update. The ASAC set up two subcommittees to prepare discussion material on the last two charges in advance of the Santiago meeting. The need for an International TAC to deal with joint proposals and overlap between proposals submitted to the TACs of the different partners is again emerging from the discussion of the third charge. For demonstration science, we are considering explicitly separating the two functions (scientific commissioning using new projects; publicity images) that were linked together as demonstration science in the 2003-2004 ASAC reports. For anyone interested in more detail on the history of any of these charges, let me point out that all the ASAC reports, including the February 2005 meeting, are available on the NRAO ALMA web site at <http://www.alma.nrao.edu/committees/ASAC/>.

3 ALMA Developments in Canada

3.1 Canadian ALMA Science Steering Committee

The Canadian ALMA Science Steering Committee (CASSC) met Sept 6-7, 2005 at the University of Calgary. The primary focus of the meeting was to discuss the charges given to the ASAC for their October 2005 meeting and also to consider how to position Canada to participate to maximum advantage in ALMA Operations. Since the committee was meeting in Calgary, we also heard reports from all of the Canadian software developers (Dave Fugate, Gary Li, and Raymond Rusk) and discussed issues and future directions for the Canadian ALMA software effort. We also heard a report on the Band 3 development effort, which is going extremely well (see next section).

Since the report from the meeting is not yet available, I want to highlight just a couple of key results here. While regretting the need to potentially reduce the number of antennas in ALMA from 64 to 50, the CASSC members voiced strong support for a 50 antenna ALMA and noted that it would still be a superb instrument capable of achieving the main science goals. For the operations era, the possibility of designing and operating the North American science

archive for ALMA is a very attractive one which is both high profile and builds on existing archive expertise in Canada at the CADC.

Finally, it is clear that securing the remaining funding for the Long Range Plan is vital to completing our commitments to ALMA, since the funds remaining from the initial 5-year allocation will run out in 2007.

3.2 Band 3 Receiver Development

Tests on Band 3 cartridge #1 (see picture) are now nearly complete. NRAO has decided to re-schedule delivery of cartridge #1 to December 2005 in order to fit into their work plans at the Front End Integration Centre in Charlottesville. A few additional cartridge tests are proposed in the new cartridge test plan NRAO has proposed, and this re-scheduling will give us more time to complete those tests. It will also give us time to complete shake and vibration tests before shipping the first cartridge to NRAO. A completely functional prototype cartridge has been built for this purpose, and we will use it to qualify the cartridge design and the shipping container we have developed.

Cartridge #2 has been completely assembled and its mechanical alignment tested and found to be well within specifications. Full testing will begin soon. The 2SB mixer assemblies for cartridge #2 have been assembled using SIS devices from the latest wafer produced by the University of Virginia. Testing indicates the new mixers noise



temperatures are even better than those of cartridge #1, between 28 and 35 K.

The Band 3 Critical Design Review is currently scheduled to take place in March 2006, although this is still to be confirmed. The low-noise cryogenic IF amplifiers developed at HIA continue to attract attention from other receiver groups and low-temperature physics instrumentation groups.

For more information on the ALMA Band 3 Receiver Project contact Keith Yeung (Project Manager - keith.yeung@nrc-cnrc.gc.ca), Stephane Claude (Project Engineer - stephane.claude@nrc-cnrc.gc.ca), or Doug Johnstone (Project Scientist - doug.johnstone@nrc-cnrc.gc.ca).

3.3 Software

Canada contributes some effort towards the design of the central ALMA archive in co-operation with the European archive team. This work is done by the CADC in Victoria. Canadian work on the archive is set to accelerate with a revised agreement with the ALMA Computing team assigning an important component of the archive system to CADC, and we expect to fulfill our commitment in this area by 2007.

Raymond Rusk recently assumed primary responsibility for the Images module in AIPS++. This is an exciting opportunity because all ALMA Offline image analysis functionality lies within this module. This is also an area of development and maintenance that will remain important during the ALMA Operations phase. Chris Wilson attended a face-to-face meeting of the pipeline heuristics team in Socorro in July where one of the major topics of discussion was the scope and preparation for the next user test. The next pipeline software test will take place in late fall and will focus on flagging and calibration of single field interferometric data.

3.4 Personnel

Charles Cunningham from HIA has moved from Front-End IPT leader to a role in which he is the liaison between the North American half of ALMA B and the Japanese groups at the NAOJ in Tokyo. The primary objective of this role is to ensure that the Japanese contribution to ALMA is integrated efficiently, thereby minimizing the cost and schedule impact. This work started by advising and assisting the Japanese Band 4 and Band 8 teams in preparation for their preliminary design reviews, which were passed with flying colours in June 2005. In addition to providing instrumentation for the bilateral project, ALMA J will be procuring large quantities of equipment from ALMA B. The next major liaison task will be to ensure that the specification, interface, and procurement documentation are defined in a timely manner.

Chris Wilson wilson@physics.mcmaster.ca

Canadian ALMA Project Scientist

(with input from Charles Cunningham, Lewis Knee, and Raymond Rusk)

File translated from T_EX by [T_TH](#), version 3.40.

On 03 Oct 2005, 20:36.

Events at NRC's [HIA](#) (2005 July-Sept.)

edited by:

[Dr. Jacques P. Vallée](#)

In 2005, HIA celebrates 10 years of success for the [Canadian Galactic Plane Survey](#) [CGPS] using the DRAO Synthesis Telescope in Penticton. In these 10 years, the CGPS data yielded a total of 111 refereed astronomical papers, 14 MSc and 10 PhD degrees in Canadian universities, 19 postdoctoral researchers, and the Plaskett Medal in 2004 to **Jo-Anne Brown** (U. Calgary).

In mid-June, on the Gemini North telescope in Hawaii, the Adaptive Optics loop was closed with Altair on the laser guide star for the first time. A big achievement and a big thank you for all those who worked on the AO, some of which at HIA in Victoria under the guidance of **Jean-Pierre Véran**.

This summer 2005, space camps were held at the Centre of the Universe, for 66 kids aged 6 to 10 and looking for fun and education, hands-on activities, astronomical crafts, and 'aliens'. T'was a roaring success, under the guidance of **Sonia Lesage** and **Mike Shepard**.

In June, **David Crampton** has agreed to serve as the Instrumentation Manager for the Thirty-Meter-Telescope project.

In mid-September, **Christopher Onken** has accepted a 2-year position as a Research Associate in Victoria. Among his many interests, one finds optical and UV emission from globular clusters, galaxies, and cosmic reionization.

Early September, three new members were appointed by HIA to the [Canadian Time Allocation Committee](#) for Gemini & CFHT: **René Doyon** (U.Montreal), **Hendrik Hoekstra** (U.Victoria) and **Hugo Martel** (U.Laval). We thank outgoing members **George Mitchell**, **David Patton** and **Harvey Richer**.

Du neuf à l'[IHA](#) du CNRC (juillet - sept. 2005)

édité par:

En 2005, l'IHA célèbre 10 ans de succès pour le [Relevé Canadien du Plan Galactique](#) [CGPS], utilisant le Télescope de Synthèse de l'OFRA à Penticton. Durant ces 10 ans, les données du CGPS ont récolté un total de 111 publications arbitrées en astronomie, 14 thèses de MSc et 10 thèses de PhD, 19 chercheurs postdoctoraux, et la Médaille Plaskett de 2004 à **Jo-Anne Brown** (U.Calgary).

Mi-juin, au télescope Gemini Nord à Hawaii, le circuit de l'optique adaptative fut complété pour la première fois avec Altair pointé sur l'étoile du guide laser. Un grand succès et un grand merci aux travailleurs, dont les gens de Victoria sous la direction de **Jean-Pierre Véran**.

A l'été 2005, le Centre de l'Univers a fait des camps spatiaux, rejoignant 66 enfants de 6 à 10 ans cherchant plaisir et éducation, des activités manuelles, ateliers d'astronomie, et des 'extraterrestres'. Très bon succès, sous la direction de **Sonia Lesage** et **Mike Shepard**.

En juin, **David Crampton** a accepté de devenir Gestionnaire de l'Instrumentation pour le projet du Télescope de 30 mètres [TMT].

Mi-septembre, **Christopher Onken** a accepté un contrat de 2 ans comme Attaché de recherche à Victoria. Parmi ses nombreux intérêts, on trouve l'émission optique et UV des amas globulaires, des galaxies, et la ré-ionisation cosmique.

Début septembre, l'IHA a nommé trois nouveaux membres au [Comité d'allocation de temps canadien](#) pour Gemini et TCFH: **René Doyon** (U.Montreal), **Hendrik Hoekstra** (U.Victoria) et **Hugo Martel** (U.Laval). Nous remercions ceux qui quittent le comité: **George Mitchell**, **David Patton** et **Harvey Richer**.

On July 11, renovations started on the 3rd floor in the previous library in Victoria, to convert it into a big computer area, new offices, a new roof, and a small library space. The anticipated completion date is in late November.

In late August, **Jean Archambeault** started as the new Head of the NRC Information Centre in Victoria. Jean brings with him a wealth of knowledge in management, collaboration with industries and universities, and patent information analysis.

In September, **Martin Houde** (UWO) was appointed on the [Canadian Time Allocation Group](#) for the JCMT. We thank outgoing member **Gary Welch**.

Prized figures: the selected colour illustration appearing on the cover of the [2005 August issue](#) of the *Astronomical Journal* was produced by HIA's **Jacques Vallée**. Elsewhere, among the 7 cover illustrations on the [web site](#) of the *Astrophysical Journal*, the one supplied by Jacques is still rotating there every 30 seconds (doing so since April 2002).

Le 11 juillet, les rénovations ont débuté au 3e étage de l'ancienne grande bibliothèque à Victoria, pour la transformer en une grande aire d'ordinateur, de nouveaux bureaux, un nouveau toit, et une petite bibliothèque. On espère que les travaux finiront en fin novembre 2005.

Fin août, **Jean Archambeault** a débuté à Victoria comme Chef du Centre d'Information du CNRC. Jean possède une grande connaissance en gérance, en collaboration avec les industries et les universités, et analyse des informations sur les brevets.

En septembre, **Martin Houde** (UWO) fut nommé sur le [Groupe d'allocation du temps canadien](#) pour le TJCM. Nous remercions **Gary Welch** qui quitte le comité.

Figures de Mérite: l'illustration en couleurs choisie sur la page couverture de [l'édition d'août 2005](#) de l'*Astronomical Journal* fut composée par **Jacques Vallée**. Ailleurs, parmi les 7 illustrations sur le [site web](#) de l'*Astrophysical Journal*, celle composée par Jacques apparaît tour-à-tour aux 30 secondes (depuis Avril 2002).

JWST News

Most people have heard that the JWST project has undergone major reviews this summer, following events that put its cost more than \$1B over budget. While significant savings have been identified, the telescope has emerged without major changes, and NASA has moved to keep the project going, with a launch delay to 2013. In addition to money, the project has had to save mass, and the Canadian Tunable Narrow-band filter camera (TFI) was targeted for deletion for its mass. Eventually, a compromise was reached whereby we have reduced the instrument to a single channel imager (from the planned double using a beam splitter), with the undertaking to reduce the allocated mass by 80Kg. We are now proceeding with the design changes necessary with the CSA contractors, EMS Technologies. CSA recently announced this contract in a press release.

All this kept several of us quite busy this summer: Rene Doyon and myself for the science team, CSA management, the EMS team in investigating the design changes, and Bob Abraham, who served on the independent science review team. Great teamwork all round, and we hope for more measured progress in the coming year.

John Hutchings

Reports

[Report from the Coalition for Canadian Astronomy](#) by Gretchen Harris

Report from the Coalition for Canadian Astronomy

Since CASCA2005, Coalition activities have concentrated on several areas:

- continued communication with both politicians and ministry personnel in Ottawa
- examination of the current science funding scene in Canada as related to the LRP
- improved communication with CASCA members and the broader public
- funding the Coalition

Each of these is an ongoing effort.

The Political Front:

In May we were invited to appear before the House of Commons Standing Committee on Industry, Natural Resources, Science and Technology. Representing the Coalition were Gretchen Harris, Michael Jolliffe, Gilles Joncas and Rene Racine. We were among three presenters at this session and this meant the focus of attention for the MPs present was divided. However, there were good questions and real interest among some of the members. In the late summer the Coalition made a submission to the House Standing Committee on Finance detailing the current LRP funding issues, and we were pleased to have just received an invitation to appear before them in late October.

I continue to be pleasantly surprised at the visibility the Coalition is receiving, but it is important to recognize that we need to continue to maintain the presence we have established in Ottawa. Although it is not clear when the next budget or the next election will be, the Coalition has agreed that we will work to maintain strong visibility in the political realm. From time to time this will involve the broader CASCA membership and we will be in touch.

Funding the LRP:

We all know that our successes in increasing funding for astronomy have not been easy to come by, even for a community with a strong and coherent Long Range Plan and excellence recognized world-wide. In the past year the Coalition Co-Chairs have undertaken discussions with the major Canadian agencies which have supported and continue to support Canadian astronomy. In July we continued this dialogue in a meeting with representatives from CFI, CSA, NRC, and NSERC with the goal of examining funding issues in the existing Canadian science funding structure. This work is continuing and we hope to have a report from the Working Group by the time of CASCA2006.

Communication:

While the Coalition reports regularly to CASCA through articles like this and presentations at CASCA meetings, we believe this is insufficient. We are working to improve what is available through the CASCA website – for you and members of the

broader public. We also intend to provide materials which will make it easier for you to meet with your local politicians, much as was done after the release of the LRP report in 2000. This is a work in progress.

Funding:

It is clear that many of the successes we have had in the past five years are directly a result of the work of the Coalition. But this work comes at a price and in active years this price can be as high as \$100,000 or more. The Coalition is supported financially by CASCA, ACURA, and Industry and payments are managed through an account maintained by CASCA. In conjunction with CASCA Board, the Coalition is working to develop a secure and reliable funding base.

We will continue to keep you informed.

Gretchen Harris
Co-Chair
Coalition for Canadian Astronomy

In The Classroom

[Education Notes](#) by John Percy

A New Astronomy Outreach Initiative for CASCA

The long-range plan for Canadian astronomy, and its Mid-Term Review (see www.casca.ca) both strongly recommended that the Canadian astronomy community develop a major public outreach program, aimed at media and the public, as well as at educators and students. CASCA's education website www.cascaeducation.ca was an important first step. At the 2005 CASCA annual meeting, the Education and Outreach Committee, and the Board, discussed a proposal for an expanded outreach program, and approved a plan to begin fundraising for this initiative. As envisioned in the LRP, this would be a partnership between CASCA, NRC/HIA and the facilities which they support, the Canadian Space Agency, the Association of Canadian Universities for Research in Astronomy (ACURA), our corporate partners, the planetariums and science centres, and the many professional and amateur astronomers (including the RASC) who give presentations to the public. As a first step in fundraising, we are submitting an application to NSERC PromoScience for partial support. This is a very complicated application, and I am grateful to Jayanne English, who did much of the conceptualizing, to the Education and Outreach Committee, and to several other people -- notably Dennis Crabtree, Jim Hesser and Michael Jolliffe -- who provided essential advice.

For want of a better name, we have called the project "VOCA" -- Virtual Outreach for Canadian Astronomy. It will reach across the country, carried by electronic, print, and real human media. Here's the summary:

"Images are central to astronomy education, outreach, and communication. VOCA will provide (i) informative, inspiring, astronomical images, graphics, and supporting information, highlighting Canada's leading role in astronomical research and discovery, and (ii) an efficient, effective, high-impact process for bringing these to all Canadians, including pro-active dissemination of this material to mass media, to planetariums and science centres, and to the thousands of professional and amateur astronomers who voluntarily give face-to-face presentations to the public. VOCA will also make the material freely available through a well-designed, existing website. VOCA is a partnership project which is a key part of a comprehensive long-term plan for Canadian astronomical research, education, and outreach".

Stay tuned for more information about this initiative.

John R. Percy (University of Toronto)