

De: "Peter Willmore" <apw@star.sr.bham.ac.uk>  
À: "Zhang" <zhangsn@mail.tsinghua.edu.cn>; "Wim Hermsen" <W.Hermsen@sron.nl>;  
"vogt" <j.vogt@iu-bremen.de>; "sinha" <hsinha@prl.ernet.in>; "manchanda"  
<ravi@tifr.res.in>; "machado" <machado@conae.gov.ar>; "Kadri"  
<tmkadri@hotmail.com>; "Igor Ibragimov" <uzcosmos@naytov.com>; "haubold"  
<hans.haubold@oosa.un.or.at>; "harmsen" <cssteap@iirs.gov.in>; "dave"  
<hemant@prl.ernet.in>; "agrawal" <pagrawal@tifr.res.in>; "White, Nick"  
<nwhite@lheapop.gsfc.nasa.gov>  
Cc: "Rickman, Hans" <hans@astro.uu.se>; "kasturirangan" <krangan@isro.ernet.in>;  
"Jansen, Fred" <fjansen@astro.estec.esa.nl>; "gs agrawal" <sudhi@prl.ernet.in>;  
"Engvold, Oddbjorn" <oddbjorn.engvold@astro.uio.no>; "cospar"  
<cospar@cosparhq.org>  
Objet: Report on Udaipur X-ray Workshop  
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Dear Organising Committee member,  
The Udaipur workshop finished just over a week ago. I have just returned home  
and this is an informal  
account of it.

It was generally acknowledged by those present to have been highly successful.  
The time was, as on  
the previous occasion in Brazil, divided roughly equally between lectures and a  
project, and the  
achievements in the latter are a good monitor of the participants' progress. All  
of them presented a  
poster at the closing session. The best few had a modest research content and  
all of them showed that  
the basic elements of X-ray analysis at least had been mastered-- obtaining and  
analysing a spectrum, a  
light curve and an image. The "students'" motivation was tremendous-- almost  
from the first day the  
computer lab was occupied until late-- midnight, sometimes-- in the evenings.  
This demanded an equal  
level of dedication from the key "staff", who were required to give advice until  
the same time; this  
demand was willingly fulfilled. All this led to a great spirit and a hard-  
working but enjoyable time.  
This was assisted by the splendid surroundings provided by our Indian hosts--  
the hotel was a former  
Palace guesthouse and Udaipur is of course a historic city in a beautiful  
location. We had a little time  
off at the weekend, which included a visit to Chittorgarh fort, before Udaipur  
an ancient capital of the  
Mewar province of Rajasthan. The timetable and a list of lecturers is enclosed  
as a pdf file. In a few  
weeks, PRL will set up a website containing the lecture notes, all the project  
reports and some photos,  
which will be accessible via [www.prl.res.in](http://www.prl.res.in).

The total number of "students" was 28, 3 more than our target. Of these, 6 were  
from mainland China

and 1 from Taipei, 1 each from South Korea and South Africa, and the remainder from India. There were about 45 applications, including a few after the latest deadline, nearly all of good quality. They were graded by a selection committee including Prof P C Agrawal, Prof H S S Sinha, Prof S N Zhang and myself, and all those above a threshold were accepted. They ranged from post-graduate students to university faculty and experienced scientists. All had some astronomical background, but about half-a-dozen were from places which are seeking to develop activities in X-ray astronomy in preparation for the launch of the Indian X-ray astronomy satellite Astrosat; naturally the latter did not all have such a strong background. At the other extreme some already had X-ray publications based on an earlier generation of X-ray satellites, so there was quite a wide range of previous experience.

The core "staff" (those responsible for the project supervisions) were:

Dr. Keith Arnaud GSFC, NASA, USA  
Prof. Geoffrey Burbidge UCSD, San Diego, USA  
Dr. Carlos Gabriel Vilspa, ESA, Spain  
Dr. Matteo Guianazzi Vilspa, ESA, Spain  
Dr. Habib Khosroshahi Birmingham U., Birmingham, England  
Mr. Ben Maugham Birmingham U., Birmingham, England  
Dr. Mariano Mendez SRON, Utrecht, Netherlands  
Dr. B Paul TIFR, Mumbai, India  
Dr. Randall Smith CfA, Harvard, USA  
Prof. Peter Willmore Birmingham U., Birmingham, England

A full participants list, including the remaining lecturers (those who did not stay for the full period) is enclosed as a pdf file.

There was one serious hitch in the proceedings. The Physical Research Laboratory at Ahmedabad, which was responsible for the local arrangements, had arranged for good internet connections to be installed in the hotel, a necessity since early in the projects some Gbytes of archival data needed to be downloaded because of the open-ended nature of the projects. However tests just before the workshop opened showed the ftp rate to be very poor, due it is thought not to the local connection, but to a gateway at Delhi. The Director of PRL, Prof G S Agrawal, arranged for a satellite ground station to be shipped from Ahmedabad and installed, all within about 48 hours, so providing a 2 MB/s link to Bangalore. This saved the day, and by the second day of the projects, everyone had data to work on. We had learned from the slightly different problem we encountered in the Brazil workshop, and

installed local mirrors of the software, but a similar solution is not available for the archives because of their large size.

Funding for the workshop came from, besides COSPAR, ICSU, IAU, UN/OOSA, NASA and ESA.

The funding from Indian sources was particularly generous and was provided by the Indian Space Research Organisation (ISRO), the Physical Research Laboratory (PRL) and the Centre for Space Science and Technology Education, Asia-Pacific (CSSTEAP). We are grateful to all of these organisations, but especially and personally to Dr. Kasturirangan (Chairman of ISRO), Prof GS Agrawal (PRL) and Dr Carl Harmsen (CSSTEAP) for their support.

Key roles in obtaining this successful outcome were played by the lecturers and by Dr H S S Sinha of PRL and his team. The energy, dedication and commitment of the lecturers was not only important in its own right, but also played an important part in motivating the students. Dr Sinha led the local organisers (see below) but in addition devoted much time and energy personally to organising the workshop, and the fact that everything ran extremely smoothly in the event, our every need being met, is entirely due to them. The need for good computing and internet facilities at these workshops always imposes a good deal of work on the local organisers, increased on this occasion by the decision to hold it in a hotel rather than a research institute. The membership of the Local Organising Committee was:  
Prof. H S S Sinha (PRL)  
Dr. Hemant Dave (PRL)  
Prof. P Venkatkrishnan (Udaipur Solar Obs)  
Dr. A Ambastha (Udaipur Solar Obs)  
Mr. A D Bobra (PRL)  
Mr. G G Dholakia (PRL)  
Mr. K K Patel (PRL)  
Mr. Raju Koshy (PRL)  
Dr. K S Baliyan (PRL)

Finally, I would like to express my gratitude to you, the members of this committee, who have helped in many different ways-- by obtaining funding, maintaining our vital links with NASA and ESA, selecting students or advertising the workshop regionally-- for your assistance, and to Dr Isaac Revah and his colleagues at COSPAR itself, whose unfailing support can always be counted upon.

I am now about to begin considering the programme for 2004. If you have suggestions about locations or topics for future workshops, I would be glad to have them.

Yours sincerely,

Peter Willmore