



Project Recommendations

TF1: Universities & Research

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2013

Astronomy at the Huairou Solar Station

It is thought to be essential that our present visit continue to research visit for 6 months next year because we have not yet been acquainted with data processing technique treating high resolution data including SDO/AIA, Hinode. Especially to get updated observational data with large capacity, regular visit is needed.

Astronomy Workshop Ghana

The participants reported that the course was very valuable and felt it should be expanded for teachers and also JHS/SHS students.

For a course for the teachers we could include material to help them teach astronomy in a more practical way --- and get them all to do that during the course. For students we would want to inspire them, teach them critical thinking and how to do research, find out information for themselves, etc.

Guatemalan School of Astrophysics

We strongly recommend that if possible, institutions such as the IAU, should give advice to the heads of scientific funding institutions of developing countries in order to show them how to work and develop projects keeping bureaucracy to the minimum and showing them that with low budgets (~14000,00 EUR) and a good organization it is possible to achieve events of extremely good quality.

We recommend to keep the support towards this kind of events and scrutinize well the background and motivations of the organizers in order to maximize its impact in developing countries. Events such as GUASA2013 can be organized by a small number of motivated people and with relatively low budgets. We are glad to give any advice for similar events in other parts of the globe.

Nepal Workshop (NWAA)

In the concluding session, project leader Prof. Dr. Binil Aryal strongly recommended to organize similar event in the western and eastern region of Nepal. In addition, lecture series on A&A should be conducted in the colleges of small cities (e.g., Biratnagar, Bharatpur, Pokhara, etc) of Nepal. Dr. Aryal highlighted the importance of IAU office of development for Astronomy for offering proposals for 'Astronomy for Universities and Research'.

Optical Data Reduction and Analysis in Rwanda

Learning how to use astronomical softwares is crucial for Research in astronomy/astrophysics in developing countries. In fact, Telescopes are no longer a priority in starting research in Astronomy/astrophysics since online data from satellites ground-based telescopes are becoming available. What have to be emphasized on is the development in research capacity building to ensure that data are reduced and handled and interpreted in the correct way.

2015

Guatemalan School of Astrophysics

- We strongly recommend that if possible, institutions such as the IAU, should give advice to the heads of scientific funding institutions of developing countries in order to show them how to work and develop projects keeping bureaucracy to the minimum and showing them that with low budgets (~14000,00 EUR) and a good organization it is possible to achieve events of extremely good quality.
- We recommend to keep the support towards this kind of events and scrutinize well the background and motivations of the organizers in order to maximize its impact in developing countries. Events such as GUASA2015 can be organized by a small number of motivated people and with relatively low budgets. ***We are glad to give any advice for similar events in other parts of the globe.***

Introducing Data Analysis in the University System

- This is a long-term project which will require relatively long stays in Zambia. Fortunately, my hotel in Kitwe was quite comfortable; however, the Commonwealth Guest House in UNZA was not. Personally, I had a difficult time in Kitwe because it is a small town where one needs a vehicle to go outside. Food was a problem because I am a vegetarian. Thus, although the referees rightly said that Copperbelt University should have given me local hospitality, which may have made my stay uncomfortable. The Kwacha had halved in value from the time was award was given to my arrival – otherwise, I would not have been able to manage within the allotted budget.
- One month is a long to stay but if I hadn't stayed that long, I would not have been able to accomplish much, particularly in meeting people. Many of the meetings happened at the last moment and could only happen because of my flexibility. It would have been very useful if the OAD could have facilitated those meetings.
- Much of the progress was only because Prosperity Simpemba, my local contact, was proactive despite his own busy schedule. I was unaware of the local conditions, which are significantly poorer than the colleges I normally work with in Bangalore. It would again have helped if the OAD had someone with expertise in

arranging these visits to maximize the output and, even more so, local living conditions.

- Copperbelt University is a node for the OAD and is involved in the SKA. I did not see much effective interaction between any of the three bodies in my time at Kitwe. SKA is coming and they are not ready, either in Copperbelt or in UNZA.

Time Variability in Modern Astrophysics

- **The LOC was the key to success of this workshop**, especially with the work of Ms Supaluck and Ms Sulisa. They took care of all paperwork relative to invitations, visas, travels, insurance, finance, refunds, accommodation in town and at the observatory site, meals including special dietary requirements, transportation. A big thanks goes also to the NARIT OPD who organized the logistics at the observatory and classrooms, and especially to Mr. Mod and Ms. Phupee for the Basecamp arrangements.
- **Internet access is a crucial need that must be properly checked and ensured.** One unsatisfactory aspect was the organization of the internet access at the mountain. This was a key requirement for the workshop, and yet it gave rise to many complaints. Different access networks with complicated and mysterious access rules resulted in many disruptions. For example, in the Basecamp offices and Astrolodge some people could connect by WiFi but not by LAN on a given day, then the opposite on the next day. Some could connect with Android but not with Windows, then others had the opposite experience.
- **Two blackouts were experienced at the Basecamp.** The one in the afternoon of March 31 lasted a good part of the day and, apart from the discomfort of not having facilities such as running water or internet, resulted in the cancellation of one data reduction session (this was later accommodated during the night).
- **The program was possibly a bit too dense** (see question B4 above). In retrospect, one of the classroom sessions in Chiang Mai should have been eliminated, for example Session F – the only non-stellar subject. With 6-7 extra hours in the first two days, all of the preparatory lectures given on the mountain could have been accommodated, releasing more free/rest time in the following 5 days.
- **Software.** Some participants lamented that they were **not properly equipped with the required software** or data reduction packages on their computers. This was not a show-stopper, because the plan was that the data reduction sessions would be carried out from the personal machines of each lecturer. Also, there was a wide range of platforms among the participants, e.g., Windows or Mac or Linux, with a laptop or a tablet, etc. For example, data reduction for sessions A & D could only be executed under Linux, while for sessions B & C only under Windows. All data reduction sessions could take place as planned, however for a future event it

might be useful to plan in advance either for specific instructions given to the participants before their arrival, or to provide workstations (this last option was considered for NIATW but found impossible to implement).

- **The number of participants was restricted to 15** (later extended to 16/17), and this was a key factor for the efficiency of the interactions especially during observations. A larger number would have been very difficult to manage in the Control Room of the telescope, and would not have ensured a proper experience with the instruments for all participants.
- **Knowledge and evaluation forms should be made available online.** However, for this first NIATW they were finalized only few days before the start and time was not enough. For the future, this would be a strong requirement.