

## Global Astronomy Survey : Nepal

First submission: Jayanta Acharya [see human resources section] 25 April 2009

SPoC Approved: Yes

### 1. Professional (Research) Astronomy:

1. Number of universities offering Astronomy (and their names)

" Zero " There is no any university offering Astronomy

2. Number of universities offering Physics (and their names)

there is only one university offering Physics that is Tribhuvan University.

3. Number of academics who have been trained in Astronomy (ideally with their names and levels of qualification)

The number of Academics who have been trained in Astronomy include the underlisted, I

may have missed some out

1. Prof. Dr Samba raj Acharya PhD in Astronomy
2. keshavram joshi PhD in Astronomy (recently passed )
3. prof. U. khanal . (PhD in Astrophysics)
- 4 Jayanta Acharya (Master in Mathematics and Astronomy)
5. shambhu dhakal ( Master in Ancient Astronomy)
6. Shreekrishna adhikari (Master in Ancient Astronomy)
7. Rishi shah ( Engineer in Energy)

4. Number of astronomical facilities (observatories, telescopes, etc) and as much detail about each as possible (websites/contact details)

there is only observation facilities for public at Balmikee campus.

5. Self evaluation (according to the different phases above, how would you rate your country in terms of Professional Astronomy? Please include any other relevant information to motivate your choice.)

I think Nepal could be classified as a "Phase 3" country. I think we have nothing But we will

need help in setting up observational facilities.

## **2. Public Understanding of Astronomy:**

1. What governmental astronomy/science outreach programmes for the public take place (co-ordinated either by government departments or national facilities)

Balmikee Campus run popularization programmes. We have some other astronomical society in Nepal.

2. What non-governmental astronomy/science outreach programmes for the public take place (NGO activities or international programmes that your country is involved in)

NONE

3. Comment on the presence of astronomy in the media (TV, radio, newspapers). Is it very prominent? Are there specific programmes on astronomy? Is the media generally willing to publish news on astronomy?

A national daily has a weekly column dedicated to astronomy. The Media is generally very willing to run stories related to astronomy whenever they are informed, especially with interesting discoveries or big events.

4. Comment on the presence of astronomy/science in the general culture of the people. Are there any specific challenges or setbacks? Is astronomy a welcome subject of conversation?

Astronomy is mostly discussed among the astronomy community

5. Self evaluation (according to the different phases above, how would you rate your country in terms of Public Understanding of Astronomy? Please include any other relevant information to motivate your choice.)

Nepal can be considered a "Phase 2" country in terms of public engagement in science. National astronomical societies are publishing many astronomical stories in different news papers.

## **3. Astronomy in Schools:**

1. What governmental astronomy/science education and outreach programmes for schools take place (co-ordinated either by government departments or national facilities)

NONE

2. What non-governmental astronomy/science education and outreach programmes for schools take place (NGO activities or international programmes that your country is involved in)

astronepal is organizing many such activities in schools.

3. Comment on the presence of astronomy in the school curriculum. Is it part of the school curriculum? Is it very prominent? What age groups?

In Nepal there is only 15-20 % of the total course is included Astronomy in Science at School level it is also not compulsory so most of the students do not take Astronomy even if they have interest in the field, lacking is good teacher, most of the school do not get good teacher for the subject.

4. Comment on the status of astronomy/science in schools. Are there any specific challenges or setbacks? Sufficient number of students studying maths and science? General interest in maths/science/astronomy in schools?

We have introduced the following elements of Astronomy in the school Curriculum;

- \* Introduction to Space Science

- \* Introduction to Astronomy

- \* Introduction to Solid Earth Geophysics (ten percent of the total science education )

5. Self evaluation (according to the different phases above, how would you rate your country in terms of Astronomy in Schools? Please include any other relevant information to motivate your choice.)

With Astronomy well established in the School Curriculum, I think we can classify

Nepal as a "Phase 1" country

**Any other general comments or information that you feel would be useful for this survey?**

We need to train more people.

### Comments:

The following updates are pending SPoC Approval :

Update: Suresh Bhattarai [see human resources section] [Section1 ii,iii,iv] 22 May 2009

Update : Binil Aryal [see human resources section] [Section1 iii] 14 June 2009

i. [Suresh Bhattarai : There are altogether 8 Universities in Nepal. Tribhuvan University is the only University offering Masters Programs for Physics. So far. Also, It has offered Cosmology and Astrophysics for Desertation since 2005 A.D. By 2008 A.D. 19 Students have done their desertation on Astronomy and Astrophysics]

iii. [Suresh Bhattarai : 3 more. For the number of academics who have trained in astronomy, you have missed a great number of astronomers. You should not miss the name of Dr. Binil Aryal (Dr Binil Aryal, Nepal's First Astrophysist, is very impressive and inspiring personality among the National and International Students. There is another great personality who is Nepal's First Cosmologist, Prof. Dr. Uday Raj Khanal.) and those 19 Graduate students who have finished their M.Sc. thesis in A& A. One more Cosmologist of Nepal working in one of the University of New Zealand. His name is Ishwori Neupane ]

[Binil Aryal: About 22 MSC students completed their masters's thesis under my supervision since 2005. Few works are published in the Journals MNRAS, A&S and Ap&SS. Our latest publications can be found in the following url:

<http://adsabs.harvard.edu/abs/2008MNRAS.389..741A>  
<http://adsabs.harvard.edu/abs/2008Ap%26SS.314..177A>  
<http://adsabs.harvard.edu/abs/2008A%26A...479..397A>  
<http://adsabs.harvard.edu/abs/2007MNRAS.379.1011A>  
<http://adsabs.harvard.edu/abs/2007Ap%26SS.307..369A>

Some of my students are doing PHD in USA (4 students), Germany (3 students) and France (a student). The list of the Nepali students who completed their masters thesis in A&A are as follows:

1. Sunil Mani Kandel: Subcluster & Substructure Analysis of the Spatial Orientation of Galaxies in the Core of the Shapley Concentration (Viva on 23 March 2006)
2. Ajay Mishra: Multiwavelength Study of a Huge Extended Microwave Emission in the COBE Map at -69o Declination (Viva on 20 July 2006)
3. Shiva Raj Acharya: A Study of Chiral Properties of Spiral and barred Spiral Galaxies in the Local Supercluster (Viva on 25 June 2006)
4. Chandani Rajbahak: A giant dusty bipolar structure around the planetary nebula NGC 1514 (Viva on 20 July 2006)
5. Krishna Simkhada: A New Symmetrical Far Infrared Nebula at -33o Declination(Viva on 15 Dec 2006)
6. Bhim Chamlagain: A New Approach to Fix Physical Reference Plane of the Cluster (Viva on 21 March 2007)
7. Pramod Lamichane: Study of Chiral Property of Galaxies Having Radial Velocity 4000 to 5000 km s<sup>-1</sup> (Viva on 21 March 2007)
8. Sanjaya Paudel: Spatial Orientation of Galaxies in Seven Clusters of BM type II (Viva on 8 June 2007)
9. Nirmal Jibi Ghimire: Study of the Possibility of Finding -CN Background in Radio Survey (Viva on 13 August 2007)
10. Disoj Neupane: Morphological Dependence in the Spatial Orientation of Galaxies in the Nearby Local Supercluster (Viva on 21 July 2007)

11. Deergh Shahi: Spin Vector Orientation of Galaxies in the Zone-of-Avoidance(Viva on 27 July 2007)
12. Anil Kumar Gurung: Estimation of Cosmological Constant using Galaxy Rotation Curve of Spiral Galaxies in the Local Supercluster (Viva on 18 July 2007)
13. Tulsi Ram Gyawali: Negative Cosmological Constant of 15 Spiral Galaxies (Viva on 12 July 2007)
14. Ashok Devkota: Size of the Interstellar Bubble: A Time Dependent Numerical Simulation (Viva on 26 July 2007)
15. Chandra Pokheral: Spatial Orientations of Spin Vectors of Galaxies in the 3 Abell Clusters of BM type I (Viva on 28 Dec 2007)
16. Prakash Thapa: Position Angle Distribution of Galaxies having Radial Velocity 3,000 to 5,000 km s<sup>-1</sup> (Viva on 28 Dec 2007)
17. Prajwal Kafle: Radial Velocity Dependence in the Spatial Orientation of Galaxies in and around Local Supercluster (viva on March 22, 2009)
18. Barun Kumar Gupta: Study of the Galaxy NGC3885 Centered at 100 micron Far Infrared Cavity (Viva on 13 July 2008)
19. Nauraj Pokheral: A Correlation Between the Chiral Symmetry and the Basic Properties of Galaxies in the Local Supercluster (Viva on 13 July 2008)
20. Binod Dhakal (2008): Spin Vector Orientation of Galaxies in 4 Clusters of BM type I (Viva on 7 August 2008)
21. Udhhav Chamlagain (2009): First Principles Calculation and the Search of CH<sub>3</sub>CN Background in Far Infrared Sky (viva on 21 May 2009)
22. Rishi Ram Paudel (2009): Spatial Orientation of Galaxies in Three Merging Binary Cluster (viva on 22 March 2009)

Our Research domain included Galaxy Evolution, Chirality of Large Scale Structure, new kinds of Interactions in the ISM, Interstellar Bubble, Cosmological Constant stuffs, Search of Cynogen molecules in the Radio-Micro and -infrared frequencies, and Intracluster medium.

Four more students are going to complete their masters thesis in A&A in 3 months. Our three manuscripts are in the process of publications.

These days I am in Beijing, China, Participating on a school on 'Cosmology and Astro-particle Physics' as an expert, leading a team of Astrophysics student

(masters student) of Nepal.

Prof. Khanal is doing Cosmology in our group in Nepal. Dr. Ishwaree Nupane is my colleague, who is in New Zealand, doing Cosmology, particularly on Brane Theory and Supersymmetry.

I did PHD from University of Innsbruck, Austria in the year 2002 and Post-doctorate (2005) from a collaborative project connecting ESA and University of Washington, USA. Later I joined my position as a Associate Prof. in Tribhuvan University, Nepal. In addition, I am working as a collaborator of various research groups in Europe and US.]

iv. [Suresh Bhattarai : For the number of astronomical facilities (observatories, telescopes, etc),you missed the government body which is established for the astronomy development in Nepal.For more you will find the details on:<http://planeta-observatory.gov.np/index.htm>. The only National Observatory of Nepal at Nagarkot has been constructed by 2008 and is in operation now.Also.The organisation is providing grants for the research scholars and access for the observation from The National Observatory.But unfortunately,The organisation has not taken outreach as a significant part of astronomy development in the nation.There are small numbers of small telescopes which are frequently used for the public outreach activities in The Nation.]