

Global Astronomy Survey : Peru

First Submission : Alfredo Gonzales [see human resources section] 19 August 2009

SPoC Approved : No

1. Professional (Research) Astronomy:

(i) Number of universities offering Astronomy (and their names)

- None

(ii) Number of universities offering Physics (and their names)

- Eight*

- Universidad Nacional Mayor de San Marcos - Facultad de Ciencias Físicas – Escuela Académica Profesional de Física (Lima)

- Universidad Nacional de Ingeniería – Facultad de Ciencias (Lima)

- Pontificia Universidad Católica del Perú – Facultad de Ciencias e Ingeniería (Lima)

Universidad Nacional Federico Villarreal – Facultad de Ciencias naturales y Matemática – Escuela Profesional de Física (Lima)

- Universidad Nacional San Antonio Abad del Cusco – Facultad de Ciencias Químicas, Físicas, y Matemáticas

- Universidad Nacional Pedro Ruiz Gallo – Facultad de Ciencias Físicas, Matemáticas y Computación – Escuela de Física (Lambayeque)

- Universidad Nacional de Arequipa – Facultad de Ciencias Naturales y Formales – Escuela de Física

- Universidad Nacional de Trujillo – Facultad de Ciencias Físicas y Matemáticas

(*) All of the universities have websites on the Internet

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

- At least 12 faculty teach at Peruvian Universities; some others are abroad.

María Luisa Aguilar Hurtado, Msc. Astronomer (SPoC head and SPACE Director).

Victor Daniel Vera Cervantes (Coordinador General SPACE).

Rafael Edgardo Carlos Reyes, Phd. in Physics.

Walter Guevara Day, Doctor.

Carlota Pereyra Rey (Responsible of Astronomy Fridays).

José Huisacayna Soto, Phd. student.

Jorge Meléndez Moreno, Phd. student.

Iván Ramírez, Astronomer.

Wilder Chicana, MSc student..

Liseth Gavilán, Astronomer.

Hugo Trigoso, MSc.

Julio Tello, MSc. Astronomer

Nobar Baella, MSc. Astronomer

Maria I. Zevallos, MSc. Astronomer

William Hipolito, Dr. Astronomer

Noemi Rodriguez, Dr. in Physics

Milagros Ruiz, Phd. student.

Antonio A. Pereyra, MSc. Student.

Edwin Portocarrero, Phd. student.

Percy L. Gomez, Phd. student.

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

- Radio Observatorio de Jicamarca (Lima) -

- [Observatorio de la UNMSM en Marangani, Prov. Canchis, Cusco \(Location: Longitud = 71° 10' 44" W - Latitud = 14° 21' 35" S\). Equipment: Meade telescope 6 inches, refl.](#)

- [Observatorio Magnetico y Solar de Huayao, Junín](#). E-mail: rafael@verdi.iagusp.usp.br - Observatory JA Fleming, IGP Huancayo. Celestron telescope 8" and camera CCD S7E.
- Sicaya Radio Observatory. A project to re-use a parabolic antenna and convert it to a radio-telescope. Under the IGP with some help from Japan and the USA.
- APA (Amateur Peruvian Astronomers), Morro Solar, Lima. Celestron 14", Celestron 8"; several refractors: 6", 4"(2), 3", cameras and binoculars.
- Observatory ISPM in Puyhuan; supported by APA. Owned 1 telescope, possibly a refractor 6" aprox. APA lends a reflector, catadioptric Celestron 8".
- IPA (Instituto Peruano de Astronomía) Maria Reiche Observatory and Planetarium at Colca canyon, Chivay, Arequipa.

(v) 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.)

It is reported that the National University in San Marcos has helped to form a group of astronomers. However, there is no school or faculty to form profesional astronomers. They are formed abroad.

Rated: Phase 2.5. My criterion is that exist astronomy community/activites/programs that are notoriously thriving. However, access to information and research are largely underfunded, almost non existent. While the strong potential is developing, the need of support is larger.

2. Public Understanding of Astronomy:

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

- The Peru's Geophysic Institute (IGP - <http://www.igp.gob.pe/>) does research at the Jicamarca Radio Observatory (JRO) and the Magnetic and Solar observatory in Huayao, Junin. They also have the new National Planetarium in Lima; it appears that it is underfunded. The IGP website shows how much are they limited in budget and ideas.
- For the last three decades the University of San Marcos (UNMSM) has been forming a team

of professional astronomers (see SPACE). They have community outreach activities.

- SPACE (Permanent Seminary on Astronomy and Space Science). Their site says that they are the first generation of Peruvian astronomers under a program supported by the IAU. They are responsible to form the Peruvian astronomers' first professional school. E-mail: space@unmsm.edu.pe).

- Also the National Engineering University has a team of professional astronomers. They have community outreach activities.

- CONIDA, the Peruvian Space Agency is under the Military. Their site says that they have a Solar Radio Observatory at their facilities in Chilca, close to Lima. Also, they are establishing an observatory in Moquegua at 4600 meters high (15,500 feet high). Because the Peruvian Air Force heads CONIDA, their activities are little known. They have some outreach and also suffer under extremely short budgets. E-mail: walter@conida.gob.pe .

(ii) What non-governmental astronomy/science outreach programmes for the public take place (NGO activities or international programmes that your country is involved in) There are several groups that have grown up in the last ten years.

- APA (<http://www.apa.com.pe/>), the Amateur Peruvian Astronomers association, was founded in 1946. As a private institution, APA depends mostly on its associates. They have a planetarium and observatory with high visibility, but in place not easily accessible in Lima. (E-mail: wcentauri@apa.com.pe).

- Astronomía Peru (<http://www.astronomiaperu.com/>) is an independent group with a very interesting website. They have useful information and help people that wants to build or buying telescopes, at regular prices. E-mail: info@astronomiaperu.com)

- Grupo astronomía (UNI - <http://fc.uni.edu.pe/astrofc/>). This is a group formed by physics students and professionals from the Faculty of Science at the UNI. They have a program of activities very enthusiast but limited. E-mail: astrofc@uni.edu.pe

- IPA (Peruvian Institute of Astronomy - <http://www.concytec.gob.pe/ipa/>). This is a non profit

private institution that has been active in Lima and the south. It is reported that they have a portable planetarium and have a program in schools. Also, they are related to the tourist current in Peru, and have planetariums in Ica, Nazca (close to the famous Nazca lines), Colca canyon and Cusco. It is not confirmed that they helped the Peruvian Air Force to install a planetarium in its main military facility. E-mail:

bdans100@yahoo.com

- MUTSUNICA; a group of students of Ica national university, 300 km. South of Lima. E-mail: astromutsunica@yahoo.com

- LIADA representation. League of Iberoamerica Astronomy institutions. E-mail: manoloastro@yahoo.com

- Cielo 12 Sur (South 12 Sky - <http://www.geocities.com/cielo12sur/>). An independent group of Astronomy lovers. Their website has information easy to watch. Also, there is a section on "Observation Clubs" formation that looks very helpful to expand the astronomy along the country. E-mail: cielo12sur@yahoo.com

- Planetarium Cusco (and observatory - <http://www.planetariumcusco.com/> .) They have a place near the Inca's capital. They have a blogspot with a video showing two telescopes; a Schmidt Cassegrain 9 (probably 8 inches in diameter) and a Schmidt Newtonian 10 inches diameter. E-mail:

nfo@planetariumcusco.com

- Circulo Astronomico Cusco; an independent group with some links to the planetarium in Cusco. E-mail: ersalgar@yahoo.com .

- Grupo astronomía (PUCP). They exist and are active but could not find information. Most members are students and professors at the Faculty of Science and Engineering of the Pontifical Catholic University of Peru).

- Mr. Alberto Gomez Dextre. He's written a book "Divulgando la astronomia"; he had a radio program on the field in Piura. E-mail: algodex@yahoo.es .

(iii) 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?

Astronomy is not as prominent as astrology is. Newspapers and magazines publish information about astronomy and space news, but there is not a permanent section. Radio and TV comment on events like eclipses and comments, rarely on astronomy. Nevertheless, there is a permanent interest in UFOs.

(iv) 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?

- Inti Raymi is how the Incas called their annual Sun's Festival. It is still remembered at the time of the winter solstice, in June. However, most of the people has to care about closer urgencies and do not care about astronomy or science. Some are beginning to say that science should be a locomotive that helps to take the country out of poverty; the idea is not a general understanding yet.

- The higher challenge would be to make politicians understand that they need more than only talk about science to develop it. As an example, everybody likes to talk about "the society of knowledge;" little is made to make it a reality with benefits for all.

- In some circles or when you are among well informed people, astronomy conversation is welcome. My personal thought is that $\frac{3}{4}$ of Peruvians would not care. There are no independent groups, societies or associations in most departments (24 divisions of the country).

(v) 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.)

I grew up during the so called "space race;" it was a time for great discoveries, as it is yet. I find that between 10 to 25 % of the population has some variable understanding of astronomy. Most of them live in larger cities.

Rated: Phase 3. Yes, there is a strong potential that is not developed cause to the bad public education system. Also, the people cannot easily reach information because the city or public library system is under-developed at large.

3. Astronomy in Schools:

(i) What governmental astronomy/science education and outreach programmes for schools take

place (co-ordinated either by government departments or national facilities)

Little if any. Private and independent organizations are mostly in charge. Most consist on field visits. Also, private schools are preferred to public schools.

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

Organizations like Cielo 12 Sur, Astronomía Peru, the Astronomy Peruvian Institute, the APA, the Grupo de Astronomía, and others show a growing activity and interest from the people. Nevertheless, their big effort needs to be multiplied several times.

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

For sure, a little could be included in public schools. I won't discard a wider part at some private schools. It can be prominent depending on the teachers and the schools. High school has the most potential age group to be explained astronomy details.

(iv) 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?

While in developed countries it is no rare for a high school to have telescopes or a small planetarium, I never listened about it in Peru. High schools used to have labs for chemistry and physics with equipment that is not state of the art. In general, math and science courses are considered hard to understand. The general interest is higher in schools for upper classes.

(v) 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.)

Rated: Phase 3. Again, the strong potencial needs strong stimulus.

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

By the end of the XX Century Peru had only one planetarium, the one APA's built at a visible but little accessible place in Lima. In less than ten years, the country has a dozen planetariums, some of them portables, most of them out of Lima, and some of them in universities. Most of them are small and private, near touristic places. A modern National Planetarium has been built in Lima for the IGP.

Comment:

Information in the Professional Research section may be about 10 years old.