



DepEd MEMORANDUM  
No. **150**, s. 2011

JUL 07 2011

**NATIONAL PROMOTION CAMPAIGN FOR THE PUERTO PRINCESA UNDERGROUND RIVER (PPUR) AS ONE OF THE NEW SEVEN WONDERS OF NATURE (N7WN)**

- To :
- Undersecretaries
  - Assistant Secretaries
  - Bureau Directors
  - Directors of Services, Centers, and Heads of Units
  - Regional Directors
  - Schools Division/City Superintendents
  - Heads, Public and Private Elementary and Secondary Schools
  - All Others Concerned

1. Responding to the call of President Benigno S. Aquino III, as declared in Presidential Proclamation No. 182 entitled “*Declaring a National and International Promotion Campaign for the Puerto Princesa Underground River As One of the New Seven Wonders of Nature*,” the Department of Education (DepEd) shall conduct various activities and other initiatives that will support the massive campaign for the inclusion of the **Puerto Princesa Underground River (PPUR) in the New Seven Wonders of Nature (N7WN)**. Please see Enclosure No. 1 for the copy of this Presidential Proclamation.

2. This promotion campaign aims to:
- a. ensure that the **PPUR** will be included in the **N7WN**;
  - b. encourage more than 30 million internet users and 77 million mobile phone subscribers to support the **PPUR** as a matter of national pride and patriotism; and
  - c. work together towards awareness, appreciation, preservation and promotion of the Philippines’ **PPUR** and its unique and outstanding scientific, biological, and geological features contained in Enclosure No. 2 to attract more international tourists who are interested to help the Philippine Tourism Industry prosper.

3. Being one of the major players in organizing the **PPUR-N7WN Campaign Task Force**, this Department shall conduct the **national and international advocacy and aggressive voting campaign from July to November 10, 2011** to more than 500,000 teaching and non-teaching personnel catering to around 22.05 million students in its 55,000 public schools and about 3.6 million students in the estimated 11,000 DepEd-accredited private schools. It also targets the active participation of the local government units (LGUs), and the Filipinos overseas and other nationals at the international level. Thus, the following strategies shall be employed:

- a. The Communications Unit-Office of the Secretary (CU-OSEC), in cooperation with the DepEd-MIMAROPA shall conduct an over-all monitoring of the department’s efforts in the campaign and coordinating the distribution of campaign materials to all DepEd offices; and



- b. The Regional and Division Offices shall organize the regional and division communications teams, which shall coordinate with the CU-OSEC and shall take the lead in various campaign activities in their respective regions and divisions.
4. Efforts in support of the campaign shall include, but are not limited to:
    - a. disseminating massive information initiatives such as posters placed in front of the school gate and print outs for the bulletin board with instructions on how to support and vote;  
  
(Instructions should be clearly written as: **text PPUR and send to 2861 or log on to [www.new7wonders.com](http://www.new7wonders.com) and register to choose Puerto Princesa Underground River as among your choice of new seven wonders.**)
    - b. establishing an information booth cum voting centers and other campaign activities in schools and communities, which are sponsored by different associations such as the supreme student governments, principals, and parents-teachers associations among others;
    - c. using standard campaign logo/design as screen savers in all the computer desktops inside schools and DepEd offices;
    - d. scheduling the region-wide mass voting, preferably after flag raising ceremonies in schools and field offices;  
(*The Regional and Division Communications Teams shall coordinate with the Communications Unit-Office of the Secretary for the schedule.*)
    - e. inclusion of the campaign as one of the agenda during executive meetings in all schools and DepEd offices to ensure the active participation of heads and officials in this endeavor;
    - f. making use of DepEd events, gatherings, trainings, and other activities, regardless of the number of participants, as a venue to promote the campaign and asking the support and votes of the participants;
    - g. posting the link of the official website of the New Seven Wonders of Nature in the official website of DepEd Regional and Division Offices, if there are any; and
    - h. allowing students to vote on-line during computer classes.
  5. The designated Communications Teams shall submit status reports of their activities every month to the Communications Unit-Office of the Secretary which will then consolidate the updates and inform the National Task Force during meetings.
  6. For questions and other concerns on the campaign, please contact the **Communications Unit-Office of the Secretary** at telephone numbers: (02) 631-6033 or (02) 633-2120 or e-mail at [depedcommunications@gmail.com](mailto:depedcommunications@gmail.com).
  7. Immediate and widest dissemination of this Memorandum is desired.

  
**BR. ARMIN A. LUISTRO FSC**  
Secretary

Encls.:

As stated

Reference:

DepEd Memorandum: No. 138, s. 2011

To be indicated in the Perpetual Index  
under the following subjects:

BUREAUS & OFFICES  
CAMPAIGN  
OFFICIALS  
REPORTS  
SCHOOLS

R:ADA/MPPD/DM Puerto Princesa  
June 29, 2011/7-2

**(Enclosure No. 1 to DepEd Memorandum No. 150, s. 2011)**

MALACAÑAN PALACE  
MANILA

**BY THE PRESIDENT OF THE PHILIPPINES**

**PROCLAMATION NO. 1823**

**DECLARING A NATIONAL AND INTERNATIONAL PROMOTION CAMPAIGN FOR  
THE PUERTO PRINCESA UNDERGROUND RIVER AS ONE OF THE NEW  
SEVEN WONDERS OF NATURE**

**WHEREAS**, the New 7 Wonders of Nature (N7WN) is a global polling campaign started in 2007 by an independent, Swiss-based, government-controlled foundation that conducted the global polling campaign in search of the New 7 Wonders of the World, an innovative marketing program that yielded tremendous economic, social and tourism benefits to the winning host countries;

**WHEREAS**, from an initial list of over 400 locations around the world, the Puerto Princesa Underground River is the lone finalist from the Philippines and now counts among the top 14 of the 28 Official Finalist Candidates, selected by a panel of international experts from a list of 77 contenders via the first round of global voting from 2007 to 2010;

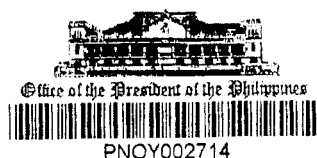
**WHEREAS**, the 8.2 kilometer long Puerto Princesa Underground River, formed 30 million years ago, is considered the longest underground river in the world, with unique and outstanding scientific, biological and geological features that merited its being recognized as a UNESCO World Heritage Site in December 1999 and being declared as a National Geological Monument in December 2003;

**WHEREAS**, inclusion in the 28 Official Finalist Candidates has made the Puerto Princesa Underground River world-renowned and is starting to attract international interest that will benefit the Philippine tourism industry as a whole with its synergistic effects;

**WHEREAS**, more than one billion people all over the world are expected to vote by phone, internet or text/sms in the selection of the N7WN, that will close on 10 November 2011;

**WHEREAS**, the competition is getting stronger and there is now a greater need for the Philippines to aggressively promote and campaign for the Puerto Princesa Underground River to ensure that it is proclaimed as one of the N7WN on 11 November 2011; and,

**WHEREAS**, the Philippines has over 30 million internet users and 77 million mobile phone subscribers who, together with the millions of Filipinos all over the world, should be made aware and encouraged, as a matter of national pride and patriotism, to



support the campaign to ensure that the Puerto Princesa Underground River is proclaimed as one of the N7WN.

**NOW, THEREFORE, I, BENIGNO S. AQUINO III**, President of the Philippines, by virtue of the powers vested in me by law, do hereby order the following:

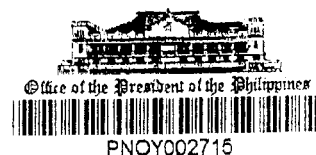
**SECTION 1. Declaration of a Promotion Campaign.** There shall be a national and international promotion campaign to encourage all Filipinos, both here and abroad, and all the friends of the Filipino people, to help in the campaign to make the Puerto Princesa Underground River be proclaimed as one of the N7WN.

**SECTION 2. Creation of a Campaign Task Force.** There is hereby created a Puerto Princesa Underground River-N7WN (PPUR-N7WN) Campaign Task Force to vigorously promote and push for the proclamation of the Puerto Princesa Underground River among the N7WN.

The PPUR-N7WN Campaign Task Force shall formulate and undertake an aggressive voting campaign at the national level, focusing on students and local government units (LGUs), and at the international level, especially among overseas Filipinos and nationals of other countries.

**SECTION 3. Composition of the PPUR-N7WN Campaign Task Force.** The PPUR-N7WN Campaign Task Force shall be composed of the following:

- Chairperson: Secretary of the Interior and Local Government
- Vice-Chairperson: Secretary of Tourism
- Members: Secretary of Foreign Affairs
- Secretary of Transportation and Communications
- Secretary of Environment and Natural Resources
- Secretary of Labor and Employment
- Secretary of Budget and Management
- Secretary of Education
- Chairperson, Commission on Higher Education (CHED)
- Commissioner, National Telecommunications Commission (NTC)
- Director General, Philippine Information Agency (PIA)



Mayor, City of Puerto Princesa, Palawan

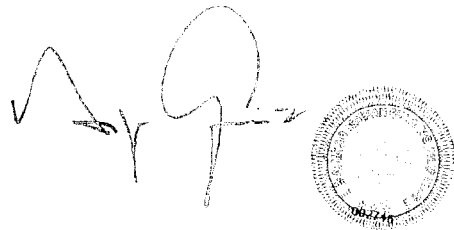
Five (5) Private Sector Representatives, to be appointed by the Chairperson upon the recommendation of the Mayor of the City of Puerto Princesa

**SECTION 4. Assistance.** All government offices and instrumentalities, including government-owned and -controlled corporations (GOCCs) shall actively participate in the campaign and provide support and assistance to the PPUR-N7WN Campaign Task Force. The private sector and the public at large are likewise enjoined to support the campaign.

**SECTION 5. Reporting.** The PPUR-N7WN Campaign Task Force is hereby directed to submit regular reports to the President, through the Executive Secretary, on a monthly basis or as often as necessary, on the status of the campaign and the ranking of Puerto Princesa Underground River among the candidates of the N7WN.

**IN WITNESS WHEREOF**, I have hereunto set my hand and caused the seal of the Republic of the Philippines to be affixed.

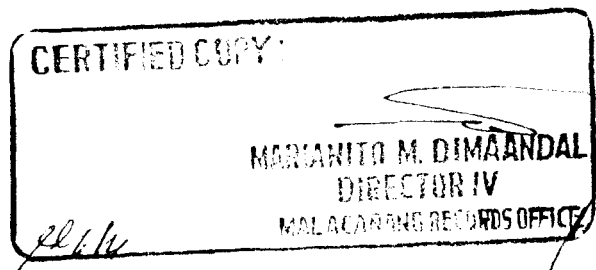
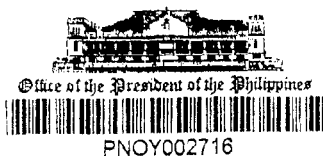
**DONE**, in the city of Manila, this 3<sup>rd</sup> day of June, in the year of Our Lord, Two Thousand and Eleven.



By the President:



**PAQUITO N. OCHOA, JR.**  
Executive Secretary





**La Venta**  
**Associazione Culturale Esplorazioni Geografiche**

**PALAWAN 2011 EXPEDITION**  
**PRELIMINARY REPORT**

**Introduction**

The Saint Paul karst area and the Puerto Princesa Subterranean River have been the object of several geographical and caving expeditions carried out by the Italian Speleological Society (1989, 1991) and, later on, by the geographical association La Venta (2000, 2007, 2008). Some of the researchers have accompanied the project since the beginning.

During February-March 2011 La Venta has carried out another expedition, with the following aims:

- survey of the south-eastern region of the Saint Paul ridge
- investigation of coastal cave systems (Little Underground River)
- exploration and survey of the Underground River eastern branches
- exploration and survey of the upper sector of Mount St. Paul
- exploration and survey of the Nagbituka region (northern part)

**Cave exploration**

***Puerto Princesa Subterranean River***

The PPSR is composed by a main active branch (that is the underground river itself), for a total length of 8.2 kms from the Inflow to the main entrance (Outflow), and a series of fossil (dry) upper galleries representing the ancient course of the river. The total development of the underground system, before the beginning of the expedition, summed up to 25 kms.

The exploration of a side branch discovered by the GAIA Exploration Club in 2003 has allowed the mapping of further 4.5 kms of huge galleries, named "150 Years" to recall the anniversary of the foundation of our country (1861-2011). Along these galleries, astounding calcite helictites (crystal formations) were discovered, so demonstrating that the PPSR, in spite of previous beliefs, is extremely important also from the point of view of speleothems (see Mineralogy and Speleothems).

Further exploration and mapping were carried out in other side branches of the cave, namely the Mud Galleries and the Australians' Inlet, for a total of approximately 2.5 kms.

***Coastal explorations – The Little Underground River (LUR)***

Northeast of the PPSR estuary, an entrance on the rocky coast gives access to a cave known since decades as the Little Underground River (LUR). The cave owes its name to its resemblance with the well-known PPSR, even if smaller in size. The access to the cave is not easy and may be extremely dangerous in case of rough sea conditions, since the entrance is placed at the centre of a small bay, directly influenced by the waves and the tides. Due to this reason, the cave had never been seriously explored and mapped. The 2011 expedition has led to the exploration and mapping of further 2 kms of galleries, so bringing the total

development to over 3 kms; the cave has not been completely explored, due to the rough sea conditions that have kept the team from further accessing the entrance.

#### *Other cave explorations*

Other caves were explored in the area of Nagbituka (North-east), in the Kwago area (South) and in the Binang Bangan massif (South- west).

#### **Mineralogy and Speleothems**

Until 2010 the PPUR was supposed to be a cave with just "normal" chemical cave deposits (speleothems and cave minerals) of local or, maybe, regional importance as a maximum. But the exploration of 2011 proved that this karst system is exceptional worldwide also from this point of view. In fact the PPSR hosts aesthetically astonishing speleothems (like the "calcite grass", an extremely rare kind of helictites and large transparent euhedral calcite rhombohedrons inside pools at the bottom of gigantic orange flowstones: both these speleothems were discovered in the new parts of the "150 Years" Galleries). In the same cave, just a few tens of meters from the fossil sirenid along God's Highway, there is also a new type of speleothem, that we named "sail": a complex type of flowstone, the evolution of which was multiphase requiring stages in which water flowed by gravity followed by stages in which capillarity ruled (this formation is still under study).

From the mineralogical point of view the PPSR was known as hosting calcite and gypsum alone, but the first analyses carried out over the samples taken during the 2011 expedition evidenced that, beside other minerals like strengite, iron and manganese oxides-hydroxides, the system hosts also at least one mineral new for the cavern environment: the Robertsite, a phosphate related to the aggression of guano over the calcite speleothems. Another mineral new for the cavern environment seems also to be present: janggunite (a very rare Manganese and Iron oxide-hydroxide).

The mineralogic studies are just at the beginning and we are confident that other cave minerals will be discovered in the PPSR

#### **Hydrodynamics and Hydrochemistry of the PPSR**

The effect of the tides inside the PPUR was already known, but in 2011 it was possible to realize a detailed bathimetric analysis of the system (from the entrance to Rockpile) in order to evaluate the amount of water present inside the system. In the meantime automatic devices measured each 5 minutes for 6 days the level of the water, its temperature in three different sites (entrance, end of God's Highway and Rockpile). This will allow to carry out a quantitative calculation of the effect of the tides in relation with the amount of fresh water flowing inside the system: in this manner it will be possible to evaluate when the three layers of (sea, brackish and fresh) waters will be destroyed by floods.

Water samples have been also collected and their chemical content is under study.

#### **Cave environment monitoring**

During the Palawan 2011 expedition many different micro-meteorological researches were carried out. Their main purposes were:

- 1) To characterize the global air and water fluxes inside the cave;
- 2) To show the correlation between inflowing air fluxes and external meteorological conditions;
- 3) To measure air thermal sedimentations inside the cave, in order to show in the future their correlation with underground ecology;
- 4) To estimate the cave shape from airflow data;
- 5) To estimate the cave energetic in order to measure its sensitivity to touristic visits, and their impact on the cave.

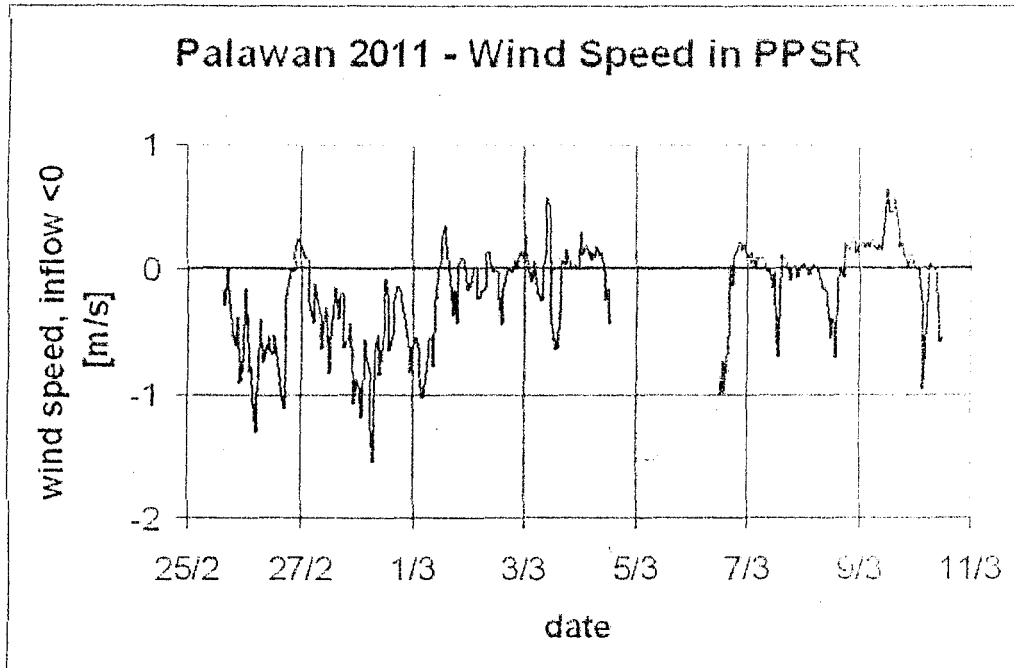
We have obtained 190.000 internal wind speed measures, 3600 measures of external pressure and temperature data, and two temperature profiles of the cave, each with 20 measures with 0.01 °C of



accuracy. The data collection is then really huge, and the analysis has just begun. Nevertheless we can already state some basic points.

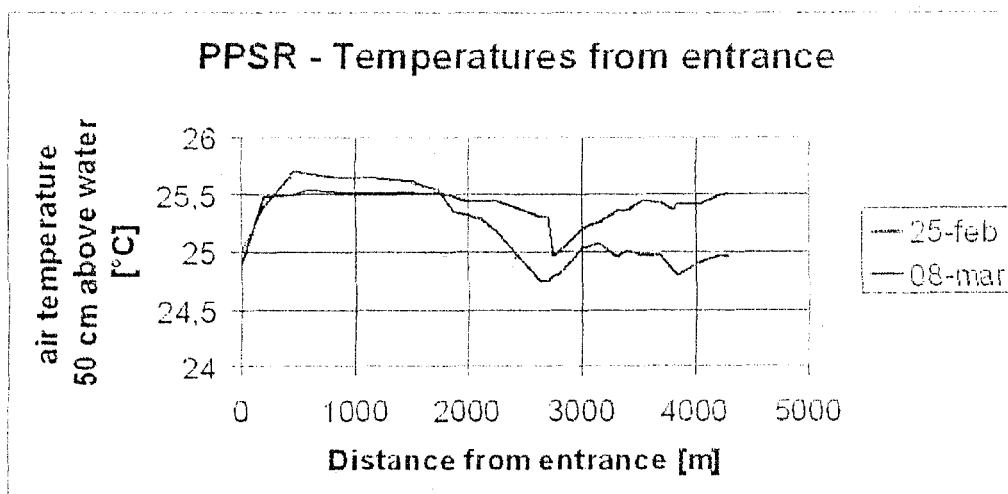
#### Airflow

The internal airflow is very complex, mainly controlled by external temperature, but it is possible to see also dependences from pressure and external air humidity, an effect never studied before. Typical airflows are around 50-150 m<sup>3</sup>/s. For comparison, typical air fluxes of big caves around the world are 1-20 m<sup>3</sup>/s. The figure shows its direction inversions and its complex time variation of short time scale.



#### Temperature

The temperature profiles along the river show a sudden drop around x=2500 (near Crocodile-Gypsum galleries) where during our operations it was always possible to observe a stationary cloud. This seems to indicate that in this region there is a colder air inflow from upper galleries, possibly connected with branches discovered during Palawan 2011. The temperature variation in 11 days is less than 0.5 °C, unexpectedly concentrated in the most internal parts.



### Energetic

Thanks to these measures and those of water level variations, we can estimate the water and air flow in the Subterranean River main branch. The average sea water flux is around  $0.8 \text{ m}^3/\text{s}$ , the flux of river fresh water is  $1 \text{ m}^3/\text{s}$  with a typical temperature difference with the cave of  $2 \text{ }^\circ\text{C}$ . In comparison, the airflow ( $100 \text{ m}^3/\text{s}$ , i.e.  $100 \text{ kg/s}$ ) is small.

The energetic flow is then mainly hydric, and can be estimated around  $15 \text{ MW}$ , an extremely high value. It's interesting to note that also the flux from animals is significant. Both Salanganes and bats have weights around  $15\text{-}20 \text{ g}$  each and a heat production of  $0.2 \text{ W}$ ; therefore each million of these flying inhabitants releases  $0.2 \text{ MW}$ .

### Tourism

In order to obtain from the tourist visits an energy flux similar to the natural one inside the cave, around  $150.000$  people should stay continuously inside the cave. With an average visit duration of one hour,  $3.600.000$  people per day have to visit the cave to release the same energy of entering fluids... One million salanganes or bats spending half a day inside the cave give an energy flux comparable with  $25.000$  visitors per day. To estimate the human impact on the cave it is necessary to study in detail these fluxes, which have a time and space dependence: to do this, we have left 2 data loggers inside the cave for a better estimation of its natural variability, but it looks that the receptive capacity of Puerto Princesa Subterranean River is surely enormous, and only insane human interventions (constructions, chemical changes, tunnels...) can damage the cave. Of course, the tourist visits should never take place during salanganes and bats displacements into and out of the cave.

The new fossil branches discovered during our operation behave probably in a completely different manner. Their thermal relation with the river conduits is not clear; nevertheless the cave temperature profiles suggest that there are connections between upper and lower conduit levels.

They are not insulated conduit because a strong airflow is present there, but its intensity and behaviour have not yet been measured. From the other side, there are no water or animal fluxes, then a huge and by far more accurate -and two year long- work has to be done to understand them thoroughly.

As a first approach, we have left another temperature data logger inside these branches, to compare their yearly temperature range with that of the river conduits below. In the next months we hope to have some better idea of their energetic behaviour, but many further studies have to be done.

### Geomorphology

During topographic surveys, many interesting morphologies have been observed and described.

The cave map itself allows us to describe the pattern of the cave recognizing the main evolutionary phases of this karst system. The new discoveries indicate a complex evolution under different condition of water flow. The interference effect between sea level changes and tectonic uplift is revealed by the presence of three main levels of cave passages.

Sealevel markers are present as water level notches at about  $7\text{-}8$  and  $11\text{-}12 \text{ m}$  above present sea level and as top-depositional surface of sediments. The interpretation of these markers is now in progress.

### Hydrogeochemistry

During the 2011 expedition, several water samples were collected, either cave waters or surface waters. The analyses will allow to estimate the surface and underground dissolution rate.

Organic elements are also important in order to explain the role of biological processes on the formation of some cave minerals.

### **Geography**

Despite the great access difficulties of the territory and the risks connected to covering long stretches of karst (*tropical karsts like the St. Paul area are considered among the most difficult to walk and climb on*), the top of St. Paul Dome was reached on March 21<sup>st</sup> 2011, by a team composed of 6 Italians, 2 park rangers and 4 local guides. The climb to Mt. St Paul gave the opportunity to survey a vast area south of the main massif, namely Binang Bangan, and verify the existence of other caves. The ascent to the top also revealed the presence of cave entrances that will be investigated in the near future.

### **Cartography**

In the course of the expedition several cave entrances were re-geopositioned thanks to high precision DGPS instruments. The same was done on top of St. Paul Dome, reached for the first time, with the positioning of a geodetic nail.

Topographical and geological mapping represented an integral part of the expedition activities.

### **Paleontology**

See dedicated report.

### **Palawan 2011 team members**

Antonio De Vivo, Leonardo Piccini, Alvisè Belotti, Corrado Conca, Giovanni Badino, Gaetano Boldrini, Carla Corongiu, Paolo Forti, Massimo Liverani, Alessio Romeo, Natalino Russo, Francesco Sauro, Silvia Arrica, Omar Belloni, José Maria Calaforra, Riccardo De Luca, Jo De Waele, Luca Gandolfo, Luca Imperio, Fulvio Iorio, Valentina Malcapi, Giampaolo Mariannelli, Stefano Marighetti, Andrea Mezzetti, Daniela Pani, Siria Panichi, Michele Pazzini, Marco Taverniti, Ivy Tommasi, Sonia Zucchini

### **PPSR Park Personnel and local guides from Odjongan, Cabayugan, Kwago, Kayasan**

### **Patronage and Sponsors**

City of Puerto Princesa  
Puerto Princesa Subterranean River National Park  
Società Speleologica Italiana  
Club Alpino Italiano  
University of Florence  
University of Bologna  
University of Turin

Ferrino, Dolomite, GT-Line  
Mastrel, Intermatica, New Foods  
Chelab, Allemano Technologies, Trimble  
Planetek, Amphibious, Korda's

### **Main issues of interest of the Puerto Princesa Subterranean River**

The Underground River System presents such peculiar features as to make it unique within the main worldwide karst contexts. Furthermore, the fact that it is also an important show cave visited yearly by hundreds of thousand tourists increases its interest, as it works as a mean to spread the scientific knowledge to the vast public; besides, it represents an example of good use of natural phenomena, allowing also the people of Palawan to live a socio-economic development respectful of the environment.

Some of the most important issues of interest of the Puerto Princesa Subterranean River are listed as follows:

**1- The Puerto Princesa Subterranean River represents one of the most important underground estuaries of the World.**

Tides affect the underground river water level for more than 5 kms, and this generates the partial mixing of fresh and marine waters. Recent analyses on the system hydrodynamics and hydrochemistry have highlighted the singularity and complexity of these phenomena, allowing the Underground River to become the underground estuary world holotype.

**2- The Puerto Princesa Subterranean River hosts a complex and valuable karst ecosystem.**

The over 10 million salanganes (cave swallows) and bat population living in the Cave heavily contribute to the Underground River trophic support. The marine life transported by the sea water entering the cave during the rising tide also contributes to the trophic content. Recognised troglobic, troglousen e trogophil organisms, together with lots of animals that usually do not settle in the deepest part of a cave, represent the exceptional biodiversity occurring into the Underground River Cave. Although biologic studies are still carrying on it is however already possible to state that the Underground River is one of the most complex, if not the most, karstic system in the World.

**3 - The Puerto Princesa Subterranean River probably is a cave with a very high amount of "energy".**

Its geographical location on the Thermal Equator together with the super-marine climate make this cave a relatively very warm cave and therefore with high water vapour content, but with a very limited external atmosphere temperature span. The strong air fluxes are therefore affected not only by air temperature differences and pressure, but also by wind and humidity content. The Cave, then, is not only interested by the strong fresh water river flooding and the tides, but also by strong and variable air fluxes. These fluxes, together with those generated by the oxidation processes of the organic components, contribute to the exceptional high-level energy of the cave.

The benefit of this natural context for the tourism industry is evident: the presence of this high energy content allows the cave system to drop down the effects of the high-level tourism impact.

**4 - The Puerto Princesa Subterranean River contains scientifically and aesthetically unique speleothems.**

Up to not long ago, the Puerto Princesa Subterranean River karst System was not considered interesting as regards chemical deposits. The recent surveys have highlighted that the cave bears several singular speleothems from both the morphological, aesthetic, and genetic point of view. Among them, beautiful helictites have been recently observed in the new discovered cave branches. Moreover, a mineral named Robertsite has been up-to-now found only in the Underground-River karst System. Most probably, the recent samplings will lead to the discovery of new cave minerals.

**5 - The Underground River hosts peculiar macro and micro karst morphologies.**

Some karst morphologies, such as the scallops, present a strong development inside this system. The scientific interest of such morphologies is significant due to the chance they offer to redraw, thanks to their scaled size from bottom to top, the existing relationships between tides and speed of the fresh water flow. This kind of quantitative study has never been done in the world before. Many other morphologies of this system are peculiar, and their analysis will allow to better define the speleogenetic mechanisms active inside the system.

**6 – The Puerto Princesa Subterranean River hosts a very well preserved fossil of a sea mammal of the Oligo-Miocene Age.**

In the course of a recent La Venta exploration the fossil of an Eocene mammal was discovered: it is perfectly conserved and outcrops from the wall of the gallery not far from the tourist tour limit. What is exceptional about this finding is the fact that the fossil (an extremely rare thing itself) is in perfect conditions and practically totally exposed due to erosion and differential karst dissolution, that have removed the limestone and left the bones untouched due to their partial phosphate content.

Even if the issues regarding the karst system are numberless, we believe that what we have here shortly listed may clearly highlight the exceptional scientific and aesthetic interest of the Puerto Princesa Subterranean River.

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