Astronomy Outreach in Cambodia

2025. December 10

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On behalf of

The Korean Astronomical Society
Education and Public Outreach Committee
International Educational Collaboration Team
Funded by **Donation**

Background and motivation

- **In 2016**, the Jesuit Education Mission in Cambodia invited the Korean Astronomical Society to conduct an Astronomy Camp.

- **Prof. Changbom Park** circulated an email within the Korean Astronomical Society seeking volunteers and telescope support for the Astronomy camp.
  → 4 - 120mm reflector telescopes
  → Establishment of the **Overseas outreach team** with about 30 members

- The goal was **to inspire children** by **sparking their curiosity and helping them imagine future possibilities** far beyond the limited options—such as fixing bikes—that they typically see around them.

Kingdom of Cambodia



- **Population:** 17.8 -18 million
- **Compulsory education:**
  elementary (6yrs)+ middle(3yrs)+high(3yrs)
- Registered NGO: about 6,100 (2024)
- Language: Khmer

- **No dedicated university-level astronomy department**

Activities

01



2016, Pusat

02



2017, Sisophone/Jesuit Xavier School

03



2018, Sisophone/Jesuit Xavier School

04



2019, Sisophone/Jesuit Xavier School

05



2023, Royal University of Phnom Penh

06

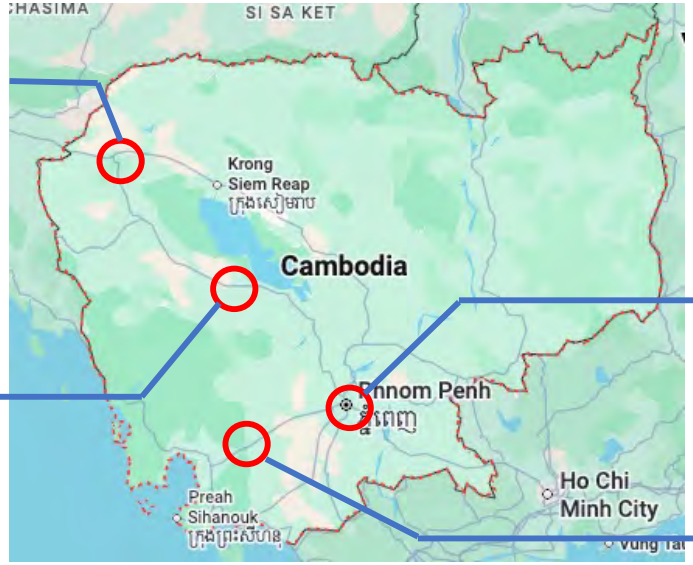


2024, Royal University of Phnom Penh

07



2025, Royal University of Phnom Penh, Kirirum Outdoor Lab.



Sisophone

Pusat

Phnom Penh

Kirirum National Park

2016 Pusat
(June 11 - 26)








- 50, from pre-school kids to high-school students
- Many photos & video about the solar systems, stars, and galaxies
- Hands-on activities

Due to the Language barrier,
Not easy to explain astronomy → need help → teaching teacher

2017 Sisophone
(April 02 - 10)






- Jesuit Xavier School
- 19 middle/high school teachers in the surrounding area
- Getting information about the science course in middle/high school → Although curriculum contains science topics, they were not taught effectively
- Lack of Khmer astronomical terminology

2018 Sisophone
(September 16 - 23)







- Jesuit Xavier School
- 20 middle/high school teachers in the surrounding area
- 2017 participants → assistants
- A Khmer-speaking volunteer (Hoseop Yoon)supports the program
- Outreach to children in the countryside

2019 Sisophone
(September 16 - 20)









- 20 middle/high school teachers in the surrounding area
- ~20 students in the Jesuit Xavier School
- 2017,2018 participants → assistants
- Outreach to children in the countryside

2020-2022: suspended due to COVID-19

National Research Foundation of Korea (NRF) project:

Survey on the demand for the development of an Astronomy education in the Royal University of Phnom Penh, Cambodia (2023/May/01 – 2024/Jan/31)

Astronomy

- requires **relatively little infrastructure**,
- allows **high-quality scientific learning** through strong instruction and effective teaching.
- its uniquely **open and collaborative nature** provides an excellent foundation for sustainable, long-term educational development in Cambodia.

Target:

Royal University of Phnom Penh

- Established in 1960
- about 30,000 students
- Department of Physics
- **Astronomy course in the 4th year**

YEAR FOUR					
SEMESTER ONE			SEMESTER TWO		
17 hours/week	Course Code	15 Credits	20 hours/week	Course Code	18 Credits
Astrophysics I	SPH401	2(2-0)	Astrophysics II	SPH408	2(2-0)
Communication System I	SPH402	2(2-0)	Communication System II	SPH409	2(2-0)
Solid State Physics I	SPH403	2(2-0)	Solid State Physics II	SPH410	2(2-0)
Nuclear Physics	SPH404	3(3-0)	Particle Physics	SPH411	3(3-0)
Photonic and laser Physics I	SPH405	2(2-0)	Photonic and laser Physics II	SPH412	2(2-0)
Advanced Electronics and Designs I	SPH406	3(3-0)	Advanced Electronics and Designs II	SPH413	3(3-0)
Physics Lab. IV-I	SPH407	1(0-3)	Renewable Energy Projects and Electrical Distribution	SPH414	3(3-0)
			Physics Lab. IV-II	SPH415	1(0-3)
			Or Thesis	SPH416	

Preliminary Field survey

(June 15 - 18)

Thoughts of the Korean Astronomical Society for Cambodia

1. **Wishes**: to help providing **more opportunity for scientific education** to Cambodian people. **Looking for collaborative education in the long term.**

2. **Basic education models**
- Short-term education programs for elementary, middle, high school students, & science teachers
- Public astronomical/space science events (lectures, star parties)
- Publication of astronomical and space science terminology in Cambodian languages
- Building astronomical facilities (science museum, observatory, planetarium, ..) for the public

3. **Advanced education models**
- Opening of astronomy-related courses in Cambodian universities
- Mentoring students who want to study astronomy
- **Helping students/PhDs for higher level studies in Korea**
- Expanding the existing physics departments to physics & astronomy department
- Establishing an astronomy department
- **Helping securing the educational facilities for astronomy**

Meeting twice:
(1) vice-president, head of the department, two professors
(2) one officer from the Ministry of education youth and sport

- The university welcomes the establishment of an astronomy department.
- They seek to collaborate on developing short- and long-term roadmaps to ensure the project's success.
- They hope to host **an astronomy education program on campus to introduce the subject to students.**
- They are interested in conducting high-school outreach to support future student recruitment.
- They believe astronomy can contribute to national pride (e.g., links to Angkor Wat).
- Two physics faculty members have been assigned as project contact points (Prof. Tharith).





2023 Royal University of Phnom Penh

(October 09 - 12)














Campus in Phnom Penh + Outdoor Lab. In the Kirirum National Park

- 40 under & graduated students from the Science Department
- 10 video volunteer lectures covering from the Solar system to the Cosmology (donated by 10 astronomers)
- NASE (Network for Astronomy School Education) hands-on program (http://sac.csic.es/astrosecundaria/en/cursos/realizados/reglados/238_corea_2021/ListaDocs.php)
- Training how to set and operate the telescope one by one

2023 Kampong Speu, Tra Peang ke
Making a solar system with clay
(October 13)











2024 Royal University of Phnom Penh
(September 09 - 12)







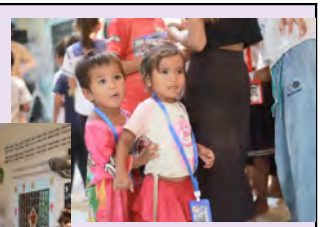




Campus in Phnom Penh
+ Outdoor Lab. In the Kirirum National Park

- 40 participants
- Covering from solar system to cosmology
- Gaia HRD / Life of star – Python program
- NASE hands-on program

Kampong Speu, Tra Peang ke
(September 13)




- 100 kids, primary, middle/high school students and adults
- Playing with solar filter
- Playing with telescope
- Making a solar system with clay

2025 Royal University of Phnom Penh
(September 08 – 11)











Campus in Phnom Penh
+ Outdoor Lab. In the Kirirum National Park

- 40 participants
- Covering from solar system to cosmology
- Simple data reduction process
- NASE hands-on program

Kampong Speu, Tra Peang ke
(September 12)







- 100 kids, primary, middle/high school students and adults
- Making a sundial & paper airplane
- Playing with telescope

Plans:

1. Expanding the existing physics departments to physics & astronomy department
2. Establishing an astronomy department
3. Helping students/PhDs for higher level studies in Korea



PhD in the Seoul National University
2024. 2nd semester

Where we intend to apply the Funding:

- National Research Foundation of Korea (NRF)
- Korea International Cooperation Agency (KOICA)

Current status:

2025. June: applied the "Demand survey Program: Official Development Assistance \(ODA) Project in Science and Technology - *Establishment of Cambodia's First Astronomy Education and Research Laboratory for Scientific Talent Development and Public Science Engagement*" *0.2M USD*

However, it stopped in the process of "Project Concept Paper(PCP)" from Cambodian side

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