



GLOBE Thailand Report

(January 2020 - April 2021)



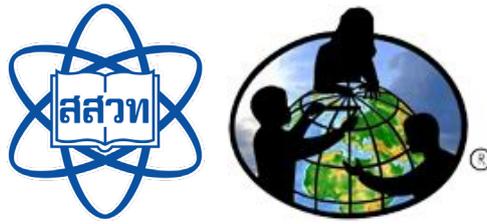
GLOBE Thailand

The Institute for the Promotion of Teaching Science and Technology (IPST)

Ministry of Education, Thailand

Contents

	Page
GLOBE Thailand Report (January 2020 – April 2021)	
1. Cooperation with Universities in Promoting Environmental Science Research Based on IPST Concept	3
2. Thailand Environmental Science Research Competition 2020	14
2.1 GLOBE Student Research Competition (GLOBE SRC2020)	14
2.2 Thailand Junior Water Prize (TJWP2020)	17
3. GLOBE Training Workshop	19
3.1 GLOBE Train-The-Trainer Workshop 2020	19
3.2 GLOBE Tree Around us Workshop	20
3.3 Climate Change Teacher Training	21
4. GLOBE Media	22
4.1 Improvement of Earth System Science Curriculum	22
4.2 Improvement of Supplementary Manual for Learning of Climate Change	23
4.3 Translation of E-Training GLOBE Protocols PowerPoint	23
4.4 Online Instructional GLOBE Media	25
5. GLOBE activities promotion in Thailand and enhancing environmental awareness	26
6. GLOBE Thailand Awards 2020	32
7. GLOBE Asia-Pacific Regional Meeting 2020	33
8. GLOBE Thailand Publication	34
9. GLOBE Website	35



GLOBE THAILAND REPORT (January 2020 – April 2021)

1. Cooperation with Universities in Promoting Environmental Science Research Based on IPST Concept

IPST cooperates with universities in the GLOBE network to systematically multiply the results of environmental education so as to build GLOBE Thailand's cooperative academic network at both national and international level as well as to develop students' knowledge and competence in undertaking environmental science research within the context of STEM education. In this fiscal year 2020 (1 October 2019 - 30 September 2020), IPST provided operational budget for this purpose to 19 universities; Srinakharinwirot University, Walailak University, Kasetsart University Kamphaeng Saen Campus, Prince of Songkla University Surat Thani Campus, Thaksin University, Loei Rajabhat University, Udon Thani Rajabhat University, Ubon Ratchathani Rajabhat University, Rajamangala University of Technology Isan, Mae Fah Luang University, Surat Thani Rajabhat university, Surin Rajabhat University, Suranaree University of Technology, Phuket Rajabhat University, Rambhai Barni Rajabhat University, Lampang Rajabhat University, Rajamangala University of Technology Suvarnabhumi, Phetchabun Rajabhat University and Uttaradit Rajabhat University. In all, 4,212 students, 692 teachers, 6,748 Data entry and 154 projects from 179 schools took part in different activities organized by the universities as follows:



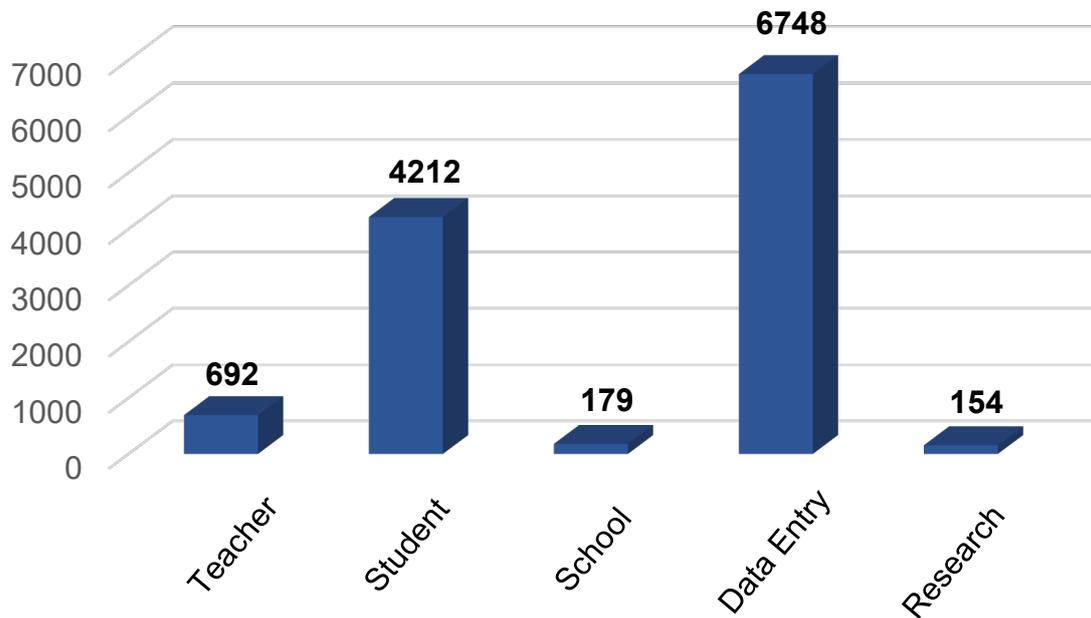
No	University	Teacher	Student	School	Data Entry	Research Project
1	Srinakharinwirot University	21	66	13	*	14
2	Walailak University	8	156	5	4,916	5
3	Kasetsart University Kamphaeng Saen Campus	95	471	6	6	6
4	Prince of Songkla University, Surat Thani Campus	54	396	5	*	5
5	Thaksin University	87	46	25	50	38
6	Loei Rajabhat University	*	*	18	*	*
7	Udon Thani Rajabhat University	23	75	16	*	*
8	Ubon Ratchathani Rajabhat University	40	386	5	*	5
9	Rajamangala University of Technology Isan	23	51	15	*	14

No	University	Teacher	Student	School	Data Entry	Research Project
10	Mae Fah Luang University	20	53	18	*	12
11	Surat Thani Rajabhat university	15	188	5	*	7
12	Surin Rajabhat University	59	183	5	*	5
13	Suranaree University of Technology	78	541	6	*	9
14	Phuket Rajabhat University	12	356	4	148	8
15	Rambhai Barni Rajabhat University	7	287	3	1,308	*
16	Lampang Rajabhat University	20	60	20	170	20
17	Rajamangala University of Technology Suvannabhumi	48	275	3	*	3
18	Phetchabun Rajabhat University	9	240	3	*	*
19	Uttaradit Rajabhat University	73	382	4	150	3
Total		692	4,212	179	6,748	154

Remark

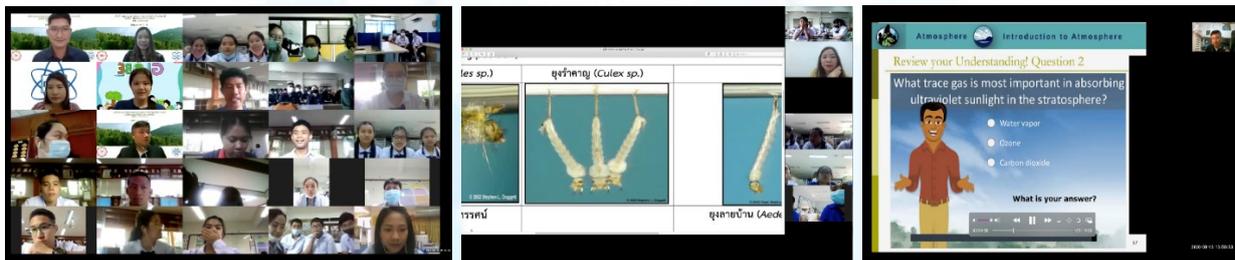
* Under operation because of epidemic of COVID-19

Overall Result of Cooperation with Universities Fiscal year 2020



1. Srinakharinwirot University

A training workshop on Earth System Science GLOBE STEM Training workshop with a view to apply technology and Internet of Things (IoT) to monitor the environment through Online workshop. The 66 students and 21 teachers from 13 schools measures Atmosphere, Biology and Mosquito data and developed 14 projects.



2. Walailak University

Walailak University arranged Earth System Science GLOBE STEM Training: training Atmosphere by using IoT and Drone, Hydrology, Biosphere, Mosquito protocol, GLOBE Data Entry via mobile application and STEM education through Face-to-Face workshop. The 156 students and 8 teachers developed five projects and sent 4,916 data entry from five schools.



3. Kasetsart University Kamphaeng Saen Campus

The Kamphaeng Saen Campus of Kasetsart University implemented a Pedosphere science research. The student project base on joint collaboration between scientists-teachers-students. The 471 students and 95 teachers from 6 schools developed six Pedosphere science education projects within six data entry.



4. Prince of Songkla University, Surat Thani Campus

Prince of Songkla University, Surat Thani Campus arranged Earth System Science GLOBE STEM Training; Atmosphere, Hydrology, Biology, Mosquito protocol, and GLOBE Data Entry via mobile application through Face-to-Face workshop. The 396 students and 54 teachers from 5 schools. Students developed five projects and sent 50 data entry.



5. Thaksin University

Thaksin University arranged Earth System Science GLOBE STEM Training: Atmosphere, Hydrology, Pedosphere, Land Cover, Mosquito protocol, GLOBE Data Entry via mobile application through Face-to-Face workshop. The 46 students and 87 teachers from 25 schools. After the workshop, students sent 50 data entry and developed 38 Earth System Science projects.



6. Loei Rajabhat University

Loei Rajabhat University arranged Earth System Science GLOBE STEM Meeting in 18 schools to prepare the training workshop in 2021.

7. Udon Thani Rajabhat University

Udon Thani Rajabhat University arranged Earth System Science GLOBE STEM Training workshop through Face-to-Face workshop for 75 students 23 teachers from 16 schools by collecting data on Hydrology, Pedosphere, Land Cover, Atmosphere, Mosquito, and GLOBE Data Entry via mobile application.



8. Ubon Ratchathani Rajabhat University

Ubon Ratchathani Rajabhat University arranged Earth System Science GLOBE STEM Training workshop through Face-to-Face workshop for 386 students 40 teachers from 5 schools by collecting data on Pedosphere, Hydrology, Atmosphere, Biosphere, Mosquito, and GLOBE Data Entry via mobile application. Students sent 586 data entry and developed five projects.



9. Rajamangala University of Technology Isan

Rajamangala University of Technology Isan trained Atmosphere, Pedosphere, Hydrology, Mosquito, Tree protocol and STEM education through Face-to-Face workshop for 51 students and 23 teachers from 15 schools. Final project, students developed 14 projects.



10. Mae Fah Luang University

Mae Fah Luang University trained Earth System Science GLOBE STEM workshop for 53 students 20 teachers from 18 schools by collecting data on Hydrology, Pedosphere and Tree, GLOBE Data Entry via mobile application. Students sent 647 data entry and developed 12 projects.



11. Surat Thani Rajabhat university

Surat Thani Rajabhat University trained Earth System Science GLOBE STEM workshop for 188 students 15 teachers from 5 schools by collecting data on Hydrology, Biology, Atmosphere, Mosquito, and GLOBE Data Entry via mobile application through Face-to-Face workshop. After the workshop, students developed six projects.



12. Surin Rajabhat University

Surin Rajabhat University trained Earth System Science GLOBE STEM workshop through Face-to-Face and Online workshop for 183 students 59 teachers from 5 schools by collecting data on Hydrology, Pedosphere, Atmosphere, Mosquito, and GLOBE Data Entry via mobile application 148 data entry. After the workshop, students developed five projects.



13. Suranaree University of Technology

Suranaree University of Technology trained Earth System Science GLOBE STEM workshop through Face-to-Face workshop for 541 students 78 teachers from 6 schools by collecting data on Atmosphere, Pedosphere, Hydrology, Biosphere, Mosquito, and GLOBE Data Entry via mobile application 1,308 data entry and students developed eight projects.



14. Phuket Rajabhat University

Phuket Rajabhat University trained Earth System Science GLOBE STEM workshop through Face-to-Face workshop for 356 students 12 teachers from 4 schools by collecting data on Pedosphere, Hydrology, Biosphere, Mosquito, and GLOBE Data Entry via mobile application. The students sent 170 data entry and developed eight projects.



15. Rambhai Brani Rajabhat University

Rambhai Brani Rajabhat University trained Earth System Science GLOBE STEM workshop through Face-to-Face workshop for 287 students 7 teachers from 3 schools by collecting data on Biosphere, Mosquito, and GLOBE Data Entry via mobile application. The students developed three projects.



16. Lampang Rajabhat University

Lampang Rajabhat University trained Earth System Science GLOBE STEM workshop through Online workshop for 60 students 20 teachers from 20 schools by collecting data on Atmosphere, Pedosphere, Hydrology, Biosphere, Mosquito, and GLOBE Data Entry via mobile application. The students developed 30 projects.



17. Rajamangala University of Technology Suvarnabhumi

Rajamangala University of Technology Suvarnabhumi trained Earth System Science GLOBE STEM workshop through Face-to-Face workshop for 275 students 48 teachers from 3 schools by collecting data on Hydrology, Biosphere, Pedosphere, and GLOBE Data Entry via mobile application. The students sent 150 data entry and developed three projects.



18. Phetchabun Rajabhat University

Phetchabun Rajabhat University trained Earth System Science GLOBE STEM workshop through Face-to-Face workshop for 240 students 9 teachers from 3 schools by collecting data on Atmosphere, Biosphere, and GLOBE Data Entry via mobile application.



19. Uttaradit Rajabhat University

Uttaradit Rajabhat University trained Earth System Science GLOBE STEM workshop through Face-to-Face workshop for 382 students 73 teachers from 4 schools by collecting data on Biosphere, Mosquito, and GLOBE Data Entry via mobile application. Students developed three projects.



2. Thailand Environmental Science Research Competition 2020

2.1 GLOBE Student Research Competition 2020

GLOBE Student Research Competition 2020 (GLOBE SRC 2020) conducted on 11 June 2020 via ZOOM video conference application. There were 25 oral presentations and 23 poster presentations from 3 levels namely; primary level, lower secondary level and upper secondary level, which were presented in this competition. In this year, IPST received the partial grant from Development and Promotion of Science and Technology Talent project (DPST) foundation. The winners were as follow:

Oral Presentation awards:

Primary school category:

First prize: Dara Academy, Chiang Mai province

Title: The study of the physical characteristics of the area and the PM2.5 concentrations in Chiang Mai province.

Second prize: Varee Chiang Mai school, Chiang Mai Province

Title: The study of the relationship between sky color and the PM10 and PM2.5 concentrations in Chiang Mai province.

Third prize: Ban Na Kluea School, Trang province

Title: The relationship between number of mosquito larvae and water quality of the mosquito breeding sites at Ban Na Kluea School, Kantang District, Trang Province

Honorable mention: Anuban Lampang (Khelangrat Anusorn) school, Lampang province

Title: Preliminary study of water quality, type and characteristic of microplastic at Wang river and the efficiency of natural filter materials for microplastic filtration from washing machine wastewater.

Honorable mention: Thetsaban 5 school , Udon Thani province

Title: The study of relationship between amount of legumes, soil fertility and yield in peanut plantation from Ban Don Sawan and Ban Non Simma, Kumphawapi District, Udon Thani Province



Lower Secondary school category:

First prize: Bangkok Christian College, Bangkok

Title: Study of using physical factors to decrease pest activities of rice field crab, *Somanniathelpusa Germaini*, in the paddy field ecosystem.

Second prize: Princess Chulabhorn Science High School Trang, Trang province

Title: The ecology of mosquito larvae in different areas of the Rajamangala beach, Trang Province

Third prize: Kasetsart University Laboratory school Center for Educational Research and Development, Bangkok

Title: The study of the relationship between stomatal density and stomatal size with PM2.5 concentration reduction by using Crussulacean Acid Metabolism plant (CAM plant)

Honorable mention: Chumphae Suksa school, Khon Kaen province

Title: Effect of seed hydropriming technique on germination and seedling growth of Tubtim Chumphae Rice in dry direct seeding

Honorable mention: Donchanwittayakhom school, Kalasin province

Title: Smart Tray



Upper Secondary school category:

First prize: Donchanwittayakhom school, Kalasin province

Title: Study of environmental factors affecting the sprouting of local vegetables. For application

Second prize: Princess Chulabhorn Science High School Trang, Trang Province

Title: Study of mosquito species and their number in summer and rainy season at a touristic place Pakmeng beach, Trang

Third prize: Triam Udom Suksa school, Bangkok

Title: The relationship between aerosols concentration with atmospheric factors and land cover type

Honorable mention: Sa-Nguan Ying school, Suphanburi province

Title: The effect of inhibition of insect, fungal and bacterial plant pathogens from abandoned insect nest soil extract

Honorable mention: Khuruprachasan School, Chainat province

Title: Impact of paddy wastewater on water quality and aquatic animal in Krachap Yai pond

Poster Presentation awards:

Best Poster Presentation prize (Primary school): Ban Bangsak school, Trang province

Title: The survey of aquatic animal species and water quality in stream at Ban Khao Plu, Bang Sak subdistrict, Kantang district, Trang province

Honorable mention Poster Presentation prize (Primary school): Ban Mot Tanoi school, Trang province

Title: The population density of male and female fiddler crab (*Uca bengali*) at Ban Mot Tanoi school, Trang province

Best Poster Presentation prize (Lower Secondary school): Satee Phatthalung school, Phatthalung province

Title: Study of rainfall quality and characteristic of microplastic in rainfall at Phatthalung province

Honorable mention Poster Presentation prize (Lower Secondary school):
Nikom Khuan Khanun Wittaya school, Phatthalung province

Title: The relationship between water quality and mosquito larvae abundance at Nikom Khuan Khanun Wittaya school, Phatthalung province

Best Poster Presentation prize (Upper Secondary school): Varee Chiang Mai school, Chiang Mai province

Title: The efficiency of water treatment with biochar from various waste biomass

Honorable mention Poster Presentation prize (Upper Secondary school):
Satee Ranong school, Ranong province

Title: The distribution of microplastic from landfill at Ranong estuary to the sea

Best Popular Vote Poster Presentation prize: Princess Chulabhorn Science High School Trang, Trang Province

Titled: A Study of microplastic in sea and fish at Si Kao district, Trang province



2.2 Thailand Junior Water Prize 2020 (TJWP2020)

IPST organized the Thailand Junior Water Prize 2020 competition on 1 May 2020, with an objective to encourage students to learn about, care for, and conserve water resources. The winner was the research title **“Magnetic Fluid Biochar, Eco-Friendly Novel from Sawdust for Wastewater Treatment”** from Princess Chulabhorn Science High School Nakhon Si Thammarat, Nakhon Si Thammarat province. In this year, IPST received the partial grant by Government Savings Bank, and Development and Promotion of Science and Technology Talent project (DPST) foundation.



The winner of TJWP2020 was invited to submit their innovative water conservation methods to Virtual Stockholm Junior Water Prize 2020, Sweden on 25 August 2020.



Magnetic Fluid Biochar

Eco-Friendly Novel from Sawdust for Wastewater Treatment

3. GLOBE Training Workshop

3.1 GLOBE Train-The-Trainer Workshop 2020

IPST and Walailak university arranged the GLOBE Train-The-Trainer Workshop on 28 January – 1 February 2020, at Walailak University, Nakhon Si Thammarat Province, Thailand. There were 56 university lecturers from 35 universities. GLOBE Training Protocols included basic and advanced protocols; Atmosphere, Pedosphere, Hydrosphere and Biosphere, were trained in this workshop.



3.2 GLOBE Tree Around us Workshop

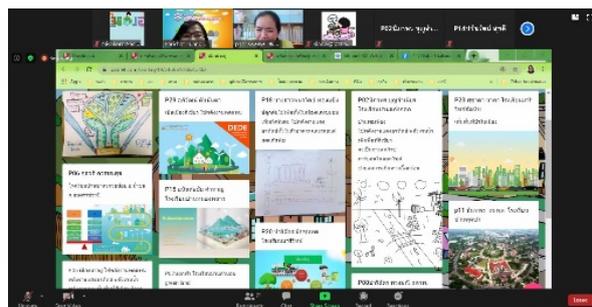
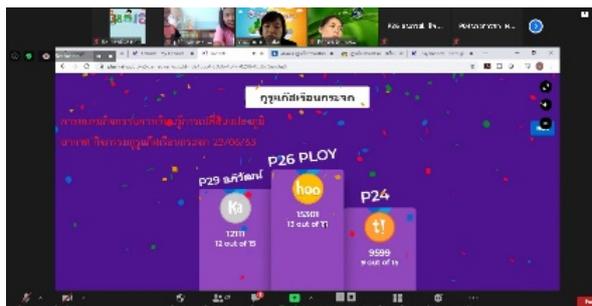
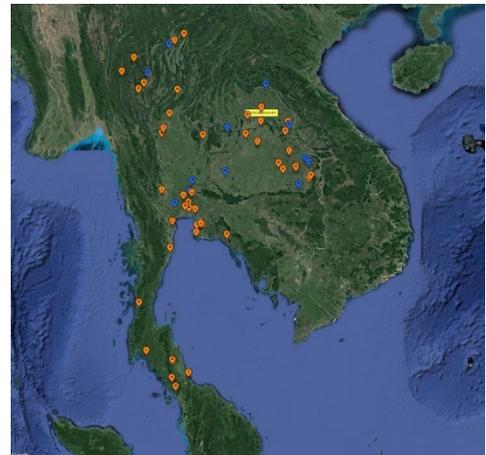
IPST organized GLOBE Trees around us workshop to encourage and support students to develop technological skills by using ICT tools and increase their interest in GLOBE protocol. The workshop was designed for students to measure trees height by using application together with Green-Up and Green-Down protocols through lecture and hands-on activities. The seven workshops were launched in primary and secondary school in Thailand. There were 1,900 participants, which consisted of 26 teachers, 1,867 students and 7 staffs from IPST, as follows:

1. Workshop on 28 November 2020;
 - Chonkanyanukoon School, 316 of secondary students attended the workshop.
 - Chonradsadornumrung School; 329 of secondary students attended the workshop.
2. Workshop on 3 December 2020;
 - Patumkongka School, 150 of secondary students and 5 teachers attended the workshop.
 - Sainampeung Under the Royal Patronage of Princess Petcharat Rajsuda Sirisopaphannawadee School, 325 of secondary students attended the workshop.
3. Workshop on 12 December 2020;
 - Jirasart Witthaya School, 279 of secondary students and 21 teachers attended workshop.
 - Wattanodtia School; 163 of upper primary students attended the workshop.
4. Workshop on 14 January 2021;
 - St.Joseph Thiphawan School, 305 of secondary students attended the workshop.



3.3 Climate Change Teacher Training

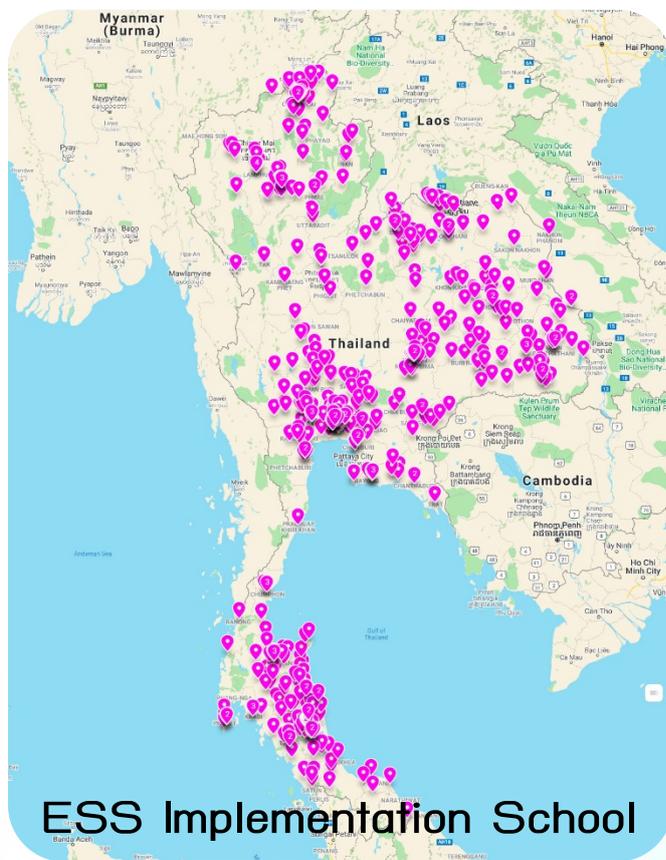
During 22 – 24 June 2020, IPST organized the Climate Change Online Training via ZOOM Video Conference Application. There were 89 teachers from 61 schools. The participants consisted of 20 primary school and 69 secondary school teachers.



4. GLOBE Media

4.1 Improvement of Earth System Science Curriculum

GLOBE Thailand has developed Earth System Science Curriculum in 2010 that consists of student books and teacher's guidebooks in Thai and English version for students in two levels: 4th to 6th and 7th to 9th grades. Over ten years, the curriculum implemented in 896 schools of normal schools and enrichment science classroom schools all over the country. In 2020, GLOBE Thailand has revised and improved Earth System Science Curriculum to update the environmental knowledge and situation.



คู่มือครู
บทเรียนที่ 1 เรียนรู้วิทยาศาสตร์โลกทั้งระบบ



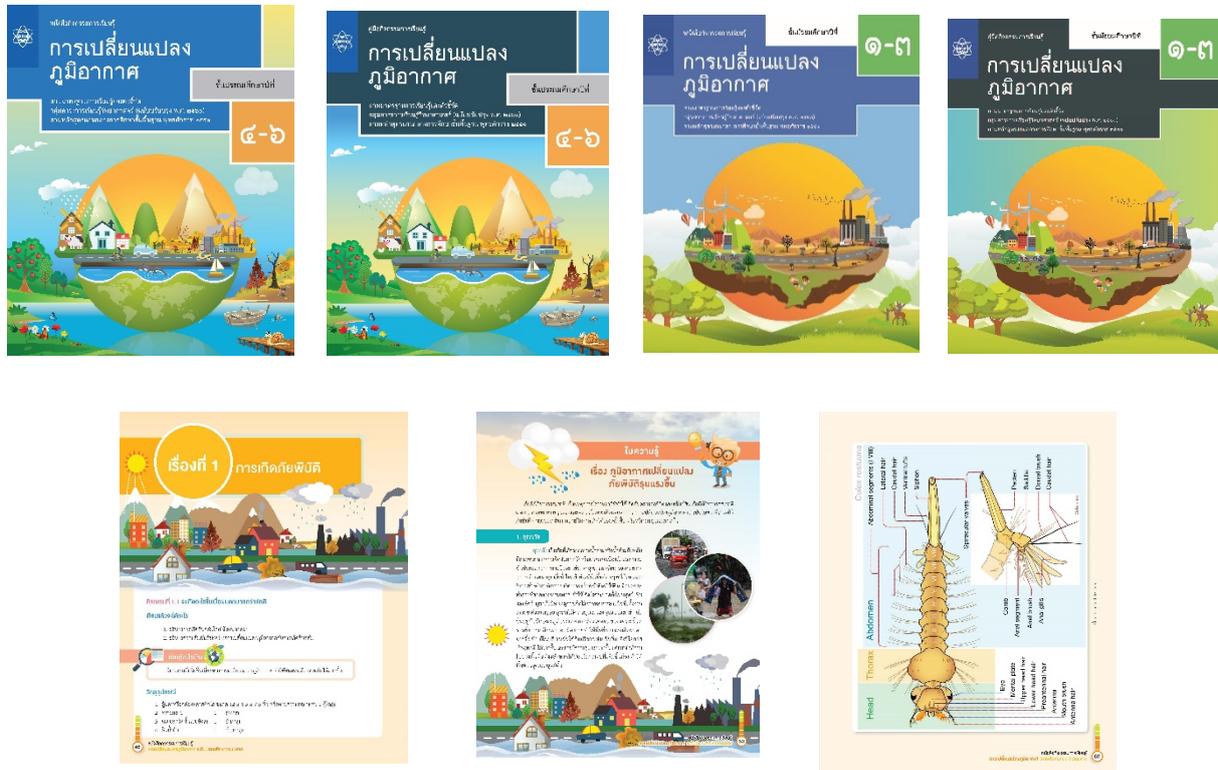
ในแนวปะการังเป็นระบบนิเวศทางทะเลแห่งสำคัญ
แห่งหนึ่งซึ่งบ่งชี้ชีวิตและสิ่งไม่มีชีวิตหลากหลาย
สิ่งต่างๆ เหล่านี้มีความสัมพันธ์กันหรือไม่ อย่างไร

บทเรียนที่ 4 การสืบค้นข้อมูลและวางแผนงานวิจัย



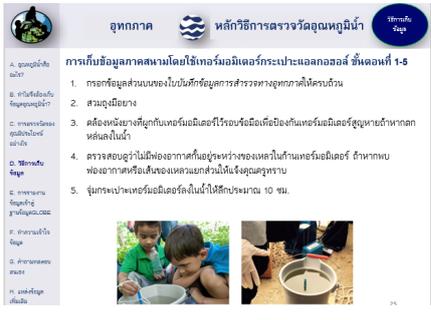
4.2 Improvement of Supplementary Manual for Learning of Climate Change

IPST revised and improved supplementary manual for learning of Climate Change which launched in 2016. The supplementary manuals consist of Student books and Teacher's guide books for G.4-6 and G.7-9 in Thai version.



4.3 Translation of E-Training GLOBE Protocols PowerPoint

GLOBE program has developed document for e-training to promote citizen to learn GLOBE protocol including Atmosphere, Hydrosphere, Pedosphere and Biosphere. All the document were publicized on GLOBE website. (www.globe.gov) Hence, IPST take this opportunities to promote and raise awareness of learning environmental science among Thai people especially teachers and students so IPST decided to translate all the e-training document to Thai version. The translated e-training modules were Atmosphere 8 topics, Hydrosphere 10 topics, Pedosphere 9 topics and Biosphere 14 topics as follows:

Modules	Protocols
<p>1. Atmosphere (8 topics)</p> 	<ol style="list-style-type: none"> 1. Introduction of Atmosphere 2. Aerosols 3. Air temperature 4. Barometric pressure 5. Clouds 6. Rain 7. Relative humidity 8. Surface temperature
<p>2. Hydrosphere (10 topics)</p> 	<ol style="list-style-type: none"> 1. Introduction of Hydrosphere 2. Alkalinity 3. Dissolved oxygen 4. Electrical conductivity 5. Mosquito larvae using GO MHM Application 6. Nitrates 7. Water pH 8. Water transparency 9. Water temperature 10. Salinity
<p>3. Biosphere (14 topics)</p> 	<ol style="list-style-type: none"> 1. Introduction of Biosphere 2. Land cover classification 3. Graminoid tree and shrub height 4. Canopy cover and ground cover 5. Graminoid biomass 6. Tree circumference 7. Grass green up 8. Tree and shrub green up 9. Grass green down 10. Tree and shrub green down 11. Carbon cycle 12. Carbon cycle modeling 13. Non-standard site carbon cycle 14. Standard site carbon cycle
<p>4. Pedosphere (9 topics)</p> 	<ol style="list-style-type: none"> 1. Introduction of Pedosphere 2. Frost tube 3. Selecting exposing and defining soil characterization 4. SMAP (SMAP soil moisture) 5. Soil bulk density 6. Soil characterization 7. Soil infiltration 8. Soil moisture gravimetric 9. Soil temperature

4.4 Online Instructional GLOBE Media

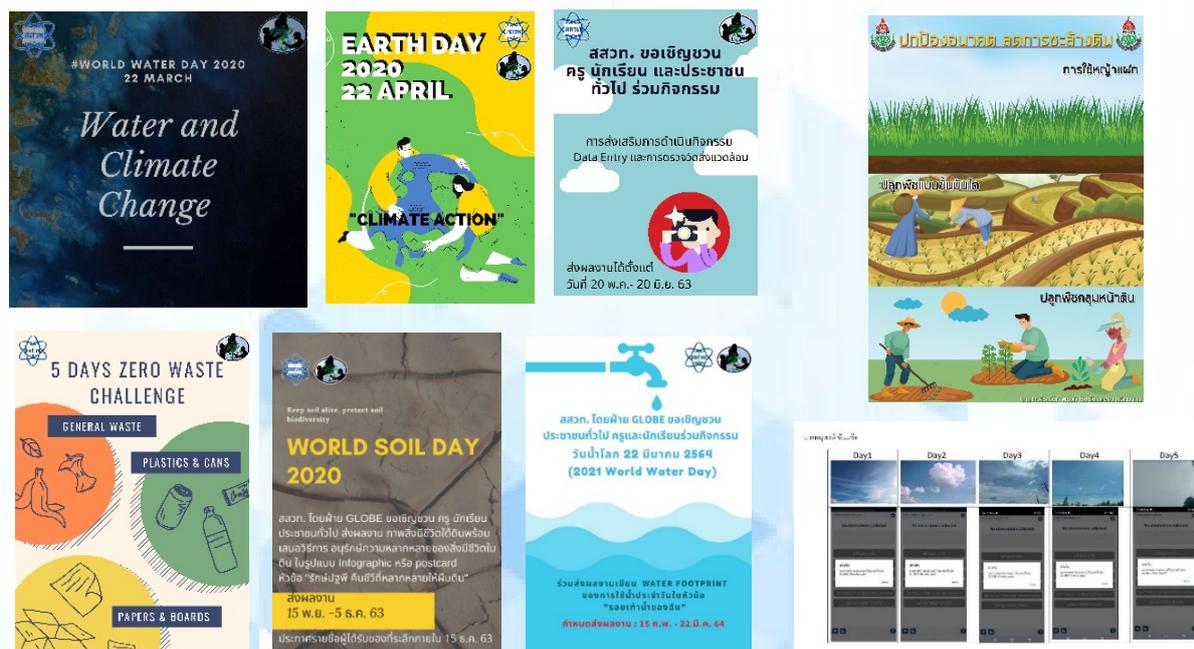
IPST developed online instructional GLOBE media for teachers and students to do the GLOBE protocol and also Climate Change media. This digital learning provides connectivity and increasing opportunities and equality of access to learning media as well as more efficient learning environment. These media are available on YouTube, GLOBE Thailand channel. The media compose of Water temperature protocol, “How does global temperature change?” Activity, and “Who is responsible for global temperature fluctuation?” Activity.



5. GLOBE activities promotion in Thailand and enhancing environmental awareness

IPST has promoted the teaching and learning of science, enhance environmental literacy, and promoted GLOBE activity. Students, teachers and general public were invited to participate the campaigned. 6 campaigns were invited to participate.

No.	Campaign	Theme	Activity Period	Number of participants
1	World Water Day	Water and Climate change	February – March 2020	18
2	Earth Day	Climate action	April –May 2020	10
3	Data Entry	Promote Atmosphere protocol	May – June 2020	103
4	5 Days Zero waste challenge	5 Days Zero waste challenge	July – September 2020	259
5	World Soil Day	Keep Soil alive, protect soil biodiversity	November – December 2020	47
6	World Water Day	Valuing Water	February – March 2021	18

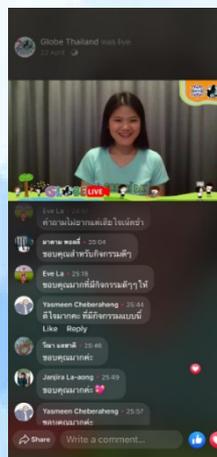


GLOBE Live in the time of covid-19

To share GLOBE learning resources, including e-books, protocol information, video & cartoon, reading materials which teachers, general public, and students can access on GLOBE Thailand website: <http://globethailand.ipst.ac.th/media.php>

This activity is about invite the participant to answer 10 Questions about Science that related to indicator of science curriculum via Facebook live. Facebook live activity started on 13 April 2020 and ended on 22 April 2020, approximately for 5 days. There are 56 students, 48 teachers, and 2 general public participated the activity.

No.	Topic	Activity Date
1	Know GLOBE	13 April 2020
2	Pedosphere Protocol	15 April 2020
3	Climate Change	17 April 2020
4	Hydrosphere Protocol and Atmosphere Protocol	20 April 2020
5	Biosphere/Land cover and the Earth System	22 April 2020



GLOBE Thailand Teacher Shining Star 2020

IPST initiated the GLOBE Thailand teacher Shining Stars (GLOBE TSS) to admire teachers who implement GLOBE learning resources such as Earth system science curriculum, GLOBE Protocols in school. The GLOBE TSS including 5 themes:

1. GLOBE Young Scientist inspiration
2. GLOBE Implementation in School
3. ESS Curriculum Implementation in School
4. GLOBE for Community
5. Climate Change learning activities in school

The GLOBE TSS awards presented to:

- **GLOBE Young Scientist (GLOBE Young Scientist inspiration)**
Mrs. Patchara Pongmanawut, Princess Chulabhorn Science High School Trang (Outstanding Award)
- **GLOBE Implementation in School**
Mrs. Paninee Woranetiwut, Paphayomphittayakom school (Outstanding Award)
- **ESS Curriculum Implementation in School**
 - 1) Mr. Chumpon Chareesean, Donchanwitthayakhom school (Honorable mention)
 - 2) Mrs. Bannaruck Tanjapatkul, Varee Chiangmai School (Honorable mention)
 - 3) Miss Jessada Rithboonsri, Sawang Daen Din School (Honorable mention)



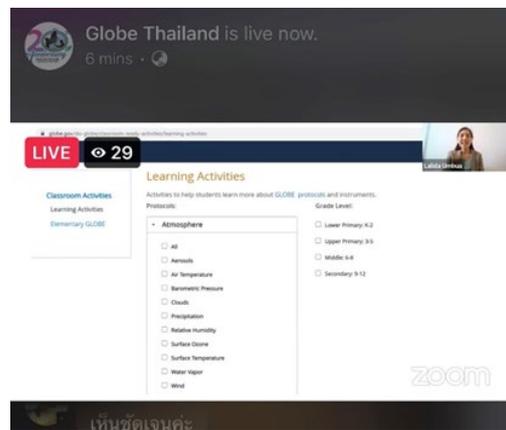
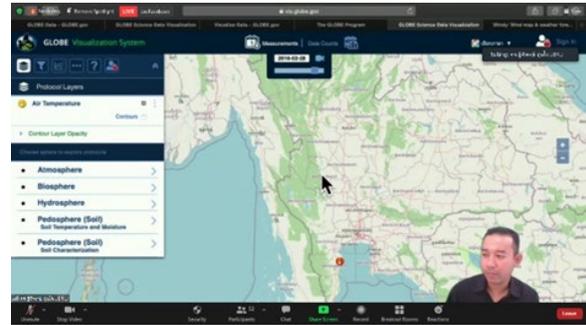
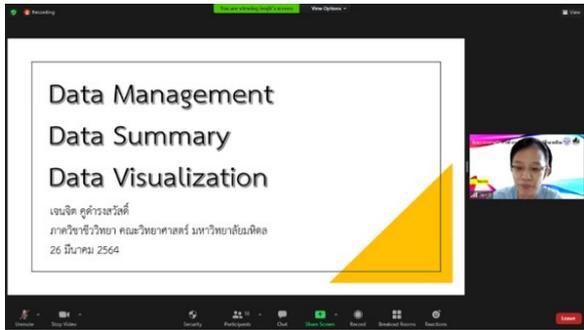
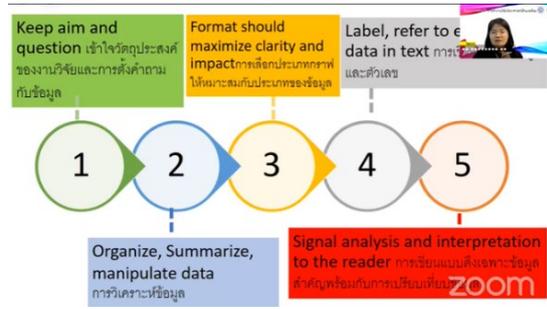


Promotion of Environmental Science Research seminars

IPST has been hosting the promotion of environmental science research seminars for 11 times via the ZOOM video conference application. The purpose of this seminar is to promote the creativity of student in environmental science research. This seminar also aims to promote environmental science skills and knowledge for students and teachers.

There were 532 teachers, 97 students, and 16 general public participated this seminars.

No.	Topics	Date/time
1	Pedosphere /soil	24 November 2020 / 09:00-12:00 AM
2	Atmosphere	24 November 2020 / 01:30-04:30 PM
3	Technology	27 November 2020 / 09:00-12:00 AM
4	Hydrosphere	27 November 2020 / 01:30-04:30 PM
5	Land cover and Biosphere	1 December 2020 / 09:00-12:00 AM
6	Water Innovation Ideas	7 December 2020 / 09:00-12:00 AM
7	Analysis and Interpretation of Data	21 December 2020 / 09:00-12:00 AM
8	Creating a Simple Environmental Monitoring Device (Live on Facebook)	13 January 2021 / 12:20 AM
9	Introduction to GLOBE Game (Live on Facebook)	23 April 2021 / 12:20 AM
10	GLOBE Teacher Account and Data Entry	24 February 2021 / 09:00-12:00 AM
11	Data management, summaries, and presentations	26 March 2021 / 09:00-12:00 AM



6. GLOBE Thailand Awards 2020

IPST conducted GLOBE Thailand Awards 2020 on 30 September 2020 at Ambassador Hotel, Bangkok, Thailand. This event aim to present awards for students and teachers in 3 GLOBE Thailand Competition platforms. 33 awards were presented to the winner, as follows:

1. GLOBE Student Research Competition 2020, there are 22 awards.
2. Thailand Junior Water Prize 2020, there are 6 awards.
3. GLOBE Thailand Teacher Shining Star 2020, there are 5 awards.



7. GLOBE Asia-Pacific Regional Meeting 2020

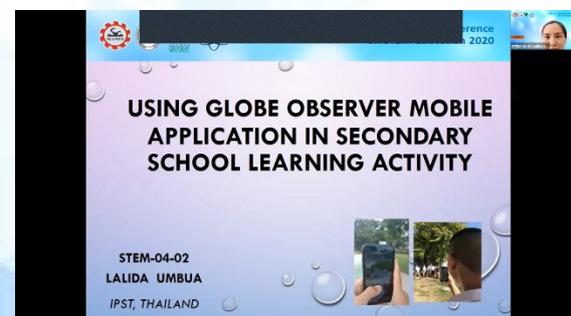
During 14 – 18 January 2020, two Thailand representatives; Dr. Worawarong Rakreungdet, Assistant to the President of IPST, and Mrs. Yupaporn Laplai, Specialist in Science Education, GLOBE Unit, IPST, attended the 2020 GLOBE Asia-Pacific Regional Meeting at Hyderabad, India. There were country coordinators from 11 countries: India, Nepal, Vietnam, Thailand, Taiwan, Sri Lanka, New Zealand, Philippines, Marshall Islands, Maldives and Australia. Moreover, there were the 2019 GLOBE Activities and GLOBE ZIKA Education & Prevention Program Presentation meeting.



8. GLOBE Thailand publications

Four GLOBE Thailand publications, these articles were presented in the International Joint Conference on STEM Education 2020 (IJCSE2020) during 18 – 19 November 2020. The topics are as follows:

- ❑ **Trend of environmental science project: A reflection of Thailand GLOBE Student Research Competition**, Ms.Yupaporn Laplai, Specialist in Science Education, GLOBE Unit, IPST
- ❑ **Implementing the Earth System Science Curriculum in School through Research-Based Learning and Technology Enhancing 21st Century Skills**, Ms.Suwainai Mongkonthan, Specialist in Science Education, GLOBE Unit, IPST
- ❑ **Using of Game-based learning via Facebook Live to Enhance Distance Learning in the Time of COVID-19 Pandemic**, Dr.Nisakorn Saengprachum, Academic Officer, GLOBE Unit, IPST
- ❑ **Using technology, hands-on, and fieldwork activity for GLOBE learning in secondary school**, Ms. Lalida Umbua, Senior Academic Officer, GLOBE Unit, IPST.



9. GLOBE Website

GLOBE Thailand developed new look GLOBE website available at <https://globefamily.ipst.ac.th/>



[การประกวดโปสเตอร์ขวัญใจมหาชน](#)

[การประกวดโปสเตอร์ขวัญใจมหาชน](#)

[การประกวดโปสเตอร์ขวัญใจมหาชน](#)

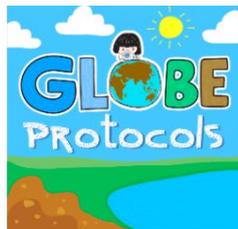
[ระดับประถมศึกษา](#)

[ระดับมัธยมศึกษา ตอนต้น](#)

[ระดับมัธยมศึกษา ตอนปลาย](#)



[ห้องเรียนวิทยาศาสตร์สิ่งแวดล้อม](#)



[หลักวิธีดำเนินการตรวจวัด GLOBE](#)



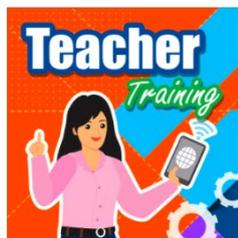
[รวมผลงานวิจัยนักเรียน](#)



[ชุมชน GLOBE](#)



[DIY อุปกรณ์ สื่อ กิจกรรม เกม](#)



[หลักสูตรอบรมครู](#)



[GLOBE Channel](#)



[ข่าว และ กิจกรรม](#)

จำนวนผู้เข้าชม

[free web counter](#)



ฝ่ายโลกศึกษาเพื่อพัฒนาสิ่งแวดล้อม (GLOBE) สสวท. เลขที่ 924 ถนนสุขุมวิท แขวงพระโขนง เขตคลองเตย กรุงเทพมหานคร 10110 โทร 023924021 ต่อ 1121 1124 1128 และ 5655 โทรสาร 023823239 email : globeproject@ipst.ac.th globethailand2020@gmail.com

Authors

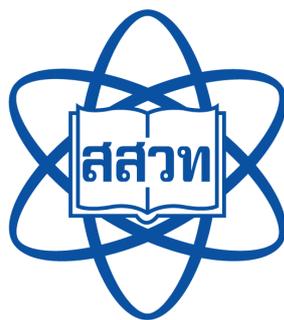
Advisory board

Prof. Sukit Limpijumnong, Ph.D. President of The Institute for the Promotion of Teaching Science and Technology (IPST), GLOBE Country Coordinator, Thailand

Dr. Worawarong Rakreungdet Assistant to the President of The Institute for the Promotion of Teaching Science and Technology (IPST)

Working Team

- | | |
|------------------------------|------------------|
| 1. Mrs. Parichat Puangmanee | GLOBE Unit, IPST |
| 2. Mrs. Yupaporn Laplai | GLOBE Unit, IPST |
| 3. Miss Samornsri Kanphai | GLOBE Unit, IPST |
| 4. Miss Suwinai Mongkonthan | GLOBE Unit, IPST |
| 5. Dr. Nisakorn Saengprachum | GLOBE Unit, IPST |
| 6. Miss Lalida Umbua | GLOBE Unit, IPST |
| 7. Miss Siriporn Laowanich | GLOBE Unit, IPST |



<http://globethailand.ipst.ac.th>
Email: globethailand2020@gmail.com,
globeproject@ipst.ac.th