

**GLOBE Train-The-Trainer Workshop**  
**December 17<sup>th</sup> – 23<sup>rd</sup>, 2017**  
**Burapha University, Chon Buri, Thailand**

Date & Time	Detail
<b>December 16<sup>th</sup>, 2017</b>	
09.00 – 17.00	Travel
<b>December 17<sup>th</sup>, 2017</b>	
09.00 – 17.00	<b>Preparing Workshop (<i>Facilitators only</i>)</b> <i>Location: CL-401,402,403, Central Laboratory</i>
14.00 – 16.00	<b>Registration</b> <i>(Register GLOBE ID @ GLOBE website and download GLOBE Data Entry Application)</i> <i>Location: 1<sup>st</sup> Floor Hall, Central Laboratory</i> <b>Facilitators:</b> Ms.Siriporn Laowanich
13.00 – 15.00	<b>Pre-workshop Drone LandCover Protocol for GLOBE</b> <i>(Only for Participants with laptop, Maximum 20 persons)</i> <b>Location:</b> CL-201 <b>Facilitators:</b> Dr.Krisanadej Jaroensutasinee and Dr.Mullica Jaroensutasinee
15.00 – 17.00	<b>Pre-workshop Soil Moisture Active Passive (SMAP) Probe</b> <i>(Only for Participants, Maximum 20 persons)</i> <b>Location:</b> CL-201 <b>Facilitators:</b> Dr.Krisanadej Jaroensutasinee and Dr.Siriwan Kajornkasirat
18.30 – 21.00	<b>Reception (<i>Welcome all participants</i>)</b> <b>Location:</b> 1 <sup>st</sup> Floor Hall, Central Laboratory <i>(Note: Semi-formal Attire or National Dress)</i>

Date & Time	Detail	
<b>GLOBE Basic Protocols</b>		
<b>December 18<sup>th</sup>, 2017</b>		
08.00 – 08.30	<b>Registration</b> <i>Location: 1<sup>st</sup> Floor Hall, Central Laboratory</i>	
08.45 – 09.15	<b>Opening Ceremony</b> <b>Welcome address</b> <i>Location: CL-101, Central Laboratory</i> <b>Introduction</b> Dr.Pornpun Waitayangkoon, President, Institute for the Promotion of Teaching Science and Technology (IPST), Thailand <b>Opening speech</b> Assoc. Prof. Dr.Tatchai Sumitra, Chairman of IPST Governing Board <i>Location: CL-101, Central Laboratory</i>	
09.15 – 09.30	<b>GLOBE Overview</b> Dr.Tony Murphy, Director, The GLOBE Implementation Office <i>Location: CL-101, Central Laboratory</i>	
09.30 – 09.40	<b>Group Photo</b>	
09.40 – 10.40	<b>Overview of Earth as a System, a new perspective for GLOBE communities</b> Dr.Dixon M. Butler, National Aeronautics and Space Administration (NASA) <i>Location: CL-101, Central Laboratory</i>	
10.40 – 10.55	<b>Refreshment</b> (Cocktail Social Time)	
10.55 – 12.00	<b>Soil Moisture Active Passive (SMAP) GLOBE program</b> Dr. Dixon M. Butler, National Aeronautics and Space Administration (NASA) <i>Location: CL-101, Central Laboratory</i>	
12.00 – 13.00	<b>Lunch</b> <i>Location: 1<sup>st</sup> Floor Hall, Central Laboratory</i>	
<b>Ecosystem II – Atmosphere/Hydrosphere (Team Teaching/Training)</b>		
13.00 – 15.30	<b>Jasmine Group – Hydrosphere</b> <ul style="list-style-type: none"> <li>• Site Description</li> <li>• Hydrology protocols/Macro invertebrate</li> <li>• Field work</li> <li>• Data Entry</li> <li>• Implementation and Research</li> </ul> <i>Location: CL-401</i> <b>Facilitators:</b> Dr.Mullica Jaroensutasinee (Master), Mrs.Yupaporn Laplai (Master), Dr.Thanya Panritdam (Assistant), Dr.Siriwan Kajornkasirat (Assistant)	<b>Lotus Group – Atmosphere</b> <ul style="list-style-type: none"> <li>• Introduction to Atmosphere</li> <li>• Site Definition</li> <li>• Basic Atmosphere Protocols</li> <li>• Max, Min, and Current temperature/Precipitation/Cloud type and cover</li> <li>• Field Work</li> <li>• Data Entry</li> <li>• Implementation and Research</li> </ul> <i>Location: CL-402</i> <b>Facilitators:</b> Dr.Krisanadej Jaroensutasinee (Master), Ms.Suwinai Mongkonthan (Master), Dr.Pay-Liam Lin (Lead), Ms.Bussarasiri Thana (Assistant), Mr.Nitat Limpongsai (Assistant)

Date & Time	Detail	
15.30 – 15.45	<b>Refreshment</b> – Location: TBA	
15.45 – 17.30	<b>Jasmine Group – Hydrosphere (cont.)</b>	<b>Lotus Group – Atmosphere (cont.)</b>
18.00 – 19.30	<b>Dinner</b> <i>Location: 1<sup>st</sup> Floor Hall, Central Laboratory</i>	

December 19 <sup>th</sup> , 2017		
08.30 – 08.45	<b>Q&amp;A – Location: CL-401</b> (Dr.Krisanadej Jaroensutasinee & ATM team, and Dr.Mullica Jaroensutasinee & Hydrosphere team)	
08.45 – 10.15	<b>Jasmine Group – Hydrosphere (cont.)</b>	<b>Lotus Group – Atmosphere (cont.)</b>
10.15 – 10.30	<b>Refreshment</b>	
10.30 – 12.00	<b>Jasmine Group – Atmosphere</b> <ul style="list-style-type: none"> <li>• Introduction to Atmosphere</li> <li>• Site Definition</li> <li>• Basic Atmosphere Protocols</li> <li>• Max, Min, and Current temperature/Precipitation/Cloud type and cover</li> <li>• Field Work</li> <li>• Data Entry</li> <li>• Implementation and Research</li> </ul> <i>Location: CL-402</i> <b>Facilitators:</b> Dr.Krisanadej Jaroensutasinee (Master), Ms.Suwinaï Mongkonthan (Master), Dr.Pay-Liam Lin (Lead), Ms.Bussarasiri Thana (Assistant), Mr.Nitat Limpongsai (Assistant)	<b>Lotus Group – Hydrosphere</b> <ul style="list-style-type: none"> <li>• Site Description</li> <li>• Hydrology protocols/ Macro invertebrate</li> <li>• Field work</li> <li>• Data Entry</li> <li>• Implementation and Research</li> </ul> <i>Location: CL-401</i> <b>Facilitators:</b> Dr.Mullica Jaroensutasinee (Master), Mrs.Yupaporn Laplai (Master), Dr.Thanya Panritdam (Assistant), Dr.Siriwan Kajornkasirat (Assistant)
12.00 – 13.00	<b>Lunch</b> <i>Location: 1<sup>st</sup> Floor Hall, Central Laboratory</i>	
13.00 – 15.30	<b>Jasmine Group – Atmosphere (cont.)</b>	<b>Lotus Group – Hydrosphere (cont.)</b>
15.30 – 15.45	<b>Refreshment</b>	
15.45 – 17.30	<b>Jasmine Group – Atmosphere (cont.)</b>	<b>Lotus Group – Hydrosphere (cont.)</b>
17.30 – 18.00	<b>Data Entry and GLOBE DIS</b> <i>Location: CL-402</i> <b>Facilitators:</b> Dr.Krisanadej Jaroensutasinee and Mrs.Yupaporn Laplai	
18.00 – 19.00	<b>Dinner</b> <i>Location: 1<sup>st</sup> Floor Hall, Central Laboratory</i>	

Date & Time	Detail	
<b>December 20<sup>th</sup>, 2017</b>		
<b>Ecosystem I – Soil and Biosphere (Team Teaching/Training)</b>		
08.30 – 08.45	<b>Q&amp;A – Location:</b> CL-401 (Dr.Krisanadej Jaroensutasinee & ATM team, and Dr.Mullica Jaroensutasinee & Hydrosphere team)	
08.45 – 10.00	<b>Jasmine Group – Soil (Pedosphere)</b> <ul style="list-style-type: none"> <li>• Soil Characterization, Soil moisture, Soil temperature</li> <li>• Field work</li> <li>• Lab work</li> <li>• Data Entry</li> <li>• Implementation and Research</li> </ul> <i>Location: CL-401</i> <b>Facilitators:</b> Dr.Tony Murphy (Master), Ms.Samornsri Kanphai (Lead), Dr.Rungrote Nilthong (Lead), Dr.Napaporn Phankamolsil (Assistant)	<b>Lotus Group – Biosphere</b> <ul style="list-style-type: none"> <li>• GPS App, When and Where? Google Earth/Map</li> <li>• MUC guide App</li> <li>• Manual mapping</li> <li>• Phenology</li> <li>• Data Entry</li> <li>• Implementation and Research</li> </ul> <i>Location: CL-402</i> <b>Facilitators:</b> Dr.Elena Sparrow (Master), Dr.Krisanadej Jaroensutasinee (Master), Ms.Thanapun Chalee (Assistant), Dr.Watcharee Ruairuen (Assistant), Dr.Wichuda Klaweck (Assistant)
10.00 – 10.15	<b>Refreshment</b>	
10.15 – 12.00	<b>Jasmine Group – Soil (Pedosphere) (cont.)</b>	<b>Lotus Group – Biosphere (cont.)</b>
12.00 – 13.00	<b>Lunch</b> <i>Location: 1<sup>st</sup> Floor Hall, Central Laboratory</i>	
13.00 – 15.30	<b>Jasmine Group – Soil (Pedosphere) (cont.)</b>	<b>Lotus Group – Biosphere (cont.)</b>
15.30 – 15.45	<b>Refreshment</b> – Location: TBA	
15.45 – 17.00	<b>Jasmine Group – Soil (Pedosphere) (cont.)</b>	<b>Lotus Group – Biosphere (cont.)</b>
17.00 – 17.30	<b>Data Entry and GLOBE DIS</b> <i>Location: CL-402</i> <b>Facilitators:</b> Dr.Elena Sparrow, Dr.Rungrote Nilthong, Mr.Nitat Limpongsai and Dr.Watcharee Ruairuen	
17.30 – 18.30	Transportation to Khao Kheow Zoo Night Safari, (Dinner to go)	
18.30 – 21.00	Khao Kheow Zoo Night Safari	
21.00 – 22.00	Transportation to Hotel	

Date & Time	Detail	
<b>December 21<sup>st</sup>, 2017</b>		
08.30 – 08.45	<b>Q&amp;A – Location:</b> CL-401 (Dr.Elena & Biosphere Team, Dr.Tony & Soil Team)	
08.45 – 10.00	<b>Jasmine Group – Biosphere</b> <ul style="list-style-type: none"> <li>• GPS App, When and Where? Google Earth/Map</li> <li>• MUC guide App</li> <li>• Manual mapping</li> <li>• Phenology</li> <li>• Data Entry</li> <li>• Implementation and Research</li> </ul> <i>Location: CL-402</i> <b>Facilitators:</b> Dr.Elena Sparrow (Master), Dr.Krisanadej Jaroensutasinee (Master), Ms.Thanapun Chalee (Assistant), Dr.Watcharee Ruairuen (Assistant), Dr.Wichuda Klaweck (Assistant)	<b>Lotus Group – Soil (Pedosphere)</b> <ul style="list-style-type: none"> <li>• Soil Characterization, Soil moisture, Soil temperature</li> <li>• Field work</li> <li>• Lab work</li> <li>• Data Entry</li> <li>• Implementation and Research</li> </ul> <i>Location: CL-401</i> <b>Facilitators:</b> Dr.Tony Murphy (Master), Ms.Samornsri Kanphai (Lead), Dr.Rungrote Nilthong (Lead), Dr.Napaporn Phankamolsil (Assistant)
10.00 – 10.15	<b>Refreshment</b>	
10.15 – 12.00	<b>Jasmine Group – Biosphere (cont.)</b>	<b>Lotus Group – Soil (Pedosphere) (cont.)</b>
12.00 – 13.00	<b>Lunch</b> <i>Location: 1<sup>st</sup> Floor Hall, Central Laboratory</i>	
13.00 – 15.30	<b>Jasmine Group – Biosphere (cont.)</b>	<b>Lotus Group – Soil (Pedosphere) (cont.)</b>
15.30 – 15.45	<b>Refreshment</b>	
15.45 – 17.00	<b>Jasmine Group – Biosphere (cont.)</b>	<b>Lotus Group – Soil (Pedosphere) (cont.)</b>
17.00 – 17.30	<b>Data Entry and GLOBE DIS</b> <i>Location: CL-402</i> <b>Facilitators:</b> Dr.Tony Murphy, Dr.Napaporn Phankamolsil and Dr.Siriwan Kajornkasirat	
17.30 – 20.00	<b>Certification ceremony and banquet</b> <i>Location: CL-101, Central Laboratory</i> <i>(Note: Semi-formal Attire or National Dress)</i>	

Date & Time	Detail	
<b>GLOBE Advanced Protocols</b>		
<b>December 22<sup>nd</sup>, 2017</b>		
08.30 – 10.30	<p><b>Jasmine Group – Atmosphere</b></p> <ul style="list-style-type: none"> <li>• Water Vapor Protocol</li> <li>• Aerosols Protocol</li> <li>• Data Entry</li> </ul> <p><i>Location: CL-402</i></p> <p><b>Facilitators:</b>            Dr.Krisanadej Jaroensutasinee (Master),            Ms.Suwinai Mongkonthan (Master),            Dr.Pay-Liam Lin (Lead),            Ms.Bussarasiri Thana (Assistant),            Mr.Nitat Limpongsai (Assistant)</p>	<p><b>Lotus Group – Hydrology</b></p> <ul style="list-style-type: none"> <li>• Mosquito Protocol</li> <li>• Data Entry</li> </ul> <p><i>Location: CL-401</i></p> <p><b>Facilitators:</b>            Dr.Mullica Jaroensutasinee (Master),            Mrs.Yupaporn Laplai (Master),            Dr.Thanya Panritdam (Assistant),            Dr.Siriwan Kajornkasirat (Assistant)</p>
10.30 – 10.45	<b>Refreshment</b>	
10.45 – 12.45	<p><b>Jasmine Group – Hydrology</b></p> <ul style="list-style-type: none"> <li>• Mosquito Protocol</li> <li>• Data Entry</li> </ul> <p><i>Location: CL-401</i></p> <p><b>Facilitators:</b>            Dr.Mullica Jaroensutasinee (Master),            Mrs.Yupaporn Laplai (Master),            Dr.Thanya Panritdam (Assistant),            Dr.Siriwan Kajornkasirat (Assistant)</p>	<p><b>Lotus Group – Atmosphere</b></p> <ul style="list-style-type: none"> <li>• Water Vapor Protocol</li> <li>• Aerosols Protocol</li> <li>• Data Entry</li> </ul> <p><i>Location: CL-402</i></p> <p><b>Facilitators:</b>            Dr.Krisanadej Jaroensutasinee (Master),            Ms.Suwinai Mongkonthan (Master),            Dr.Pay-Liam Lin (Lead),            Ms.Bussarasiri Thana (Assistant),            Mr.Nitat Limpongsai (Assistant)</p>
12.45 – 13.45	<b>Lunch</b>	
13.45 – 17.00 ~ Included refreshment	<p><b>Jasmine Group – Biosphere</b></p> <ul style="list-style-type: none"> <li>• MultiSpec</li> <li>• Change Detection</li> <li>• Drone Mapping</li> <li>• Data Entry</li> </ul> <p><i>Location: CL-402</i></p> <p><b>Facilitators:</b>            Dr.Elena Sparrow (Master),            Dr.Krisanadej Jaroensutasinee (Master),            Ms.Thanapun Chalee (Assistant),            Dr.Watcharee Ruairuen (Assistant),            Dr.Wichuda Klaweck (Assistant)</p>	<p><b>Lotus Group – Soil (Pedosphere)</b></p> <ul style="list-style-type: none"> <li>• Soil Particle Size Distribution Protocol</li> <li>• Soil Particle Density Protocol</li> <li>• Soil pH Protocol</li> <li>• Soil Fertility Protocol</li> <li>• Data Entry</li> </ul> <p><i>Location: CL-401</i></p> <p><b>Facilitators:</b>            Dr.Tony Murphy (Master),            Ms.Samornsri Kanphai (Lead),            Dr.Rungrote Nilthong (Lead),            Dr.Napaporn Phankamolsil (Assistant)</p>

Date & Time	Detail
17.00 – 18.00	<b>Data Entry</b> <i>Location: CL-402</i> <b>Facilitators:</b> Ms.Suwinai Mongkonthan, Dr.Pay-Liam Lin and Ms.Samornsri Kanphai and Dr.Wichuda Klawech
18.00 – 19.00	<b>Dinner</b>

December 23 <sup>rd</sup> , 2017			
08.00 – 08.15	<b>Q&amp;A – Location: CL-401</b> (Dr.Elena & Biosphere Team, Dr.Tony & Soil Team, Dr.Krisanadej & Atmosphere Team)		
08.15 – 10.00	<table border="1"> <tr> <td> <b>Jasmine Group – Soil (Pedosphere)</b> <ul style="list-style-type: none"> <li>• Soil Particle Size Distribution Protocol</li> <li>• Soil Particle Density Protocol</li> <li>• Soil pH Protocol</li> <li>• Soil Fertility Protocol</li> <li>• Data Entry</li> </ul> <i>Location: CL-401</i>  <b>Facilitators:</b>            Dr.Tony Murphy (Master),            Ms.Samornsri Kanphai (Lead),            Dr.Rungrote Nilthong (Lead),            Dr.Napaporn Phankamolsil (Assistant)         </td> <td> <b>Lotus Group – Biosphere</b> <ul style="list-style-type: none"> <li>• MultiSpec</li> <li>• Change Detection</li> <li>• Drone Mapping</li> <li>• Data Entry</li> </ul> <i>Location: CL-402</i>  <b>Facilitators:</b>            Dr.Elena Sparrow (Master),            Dr.Krisanadej Jaroensutasinee (Master),            Ms.Thanapun Chalee (Assistant),            Dr.Watcharee Ruairuen (Assistant),            Dr.Wichuda Klawech (Assistant)         </td> </tr> </table>	<b>Jasmine Group – Soil (Pedosphere)</b> <ul style="list-style-type: none"> <li>• Soil Particle Size Distribution Protocol</li> <li>• Soil Particle Density Protocol</li> <li>• Soil pH Protocol</li> <li>• Soil Fertility Protocol</li> <li>• Data Entry</li> </ul> <i>Location: CL-401</i> <b>Facilitators:</b> Dr.Tony Murphy (Master), Ms.Samornsri Kanphai (Lead), Dr.Rungrote Nilthong (Lead), Dr.Napaporn Phankamolsil (Assistant)	<b>Lotus Group – Biosphere</b> <ul style="list-style-type: none"> <li>• MultiSpec</li> <li>• Change Detection</li> <li>• Drone Mapping</li> <li>• Data Entry</li> </ul> <i>Location: CL-402</i> <b>Facilitators:</b> Dr.Elena Sparrow (Master), Dr.Krisanadej Jaroensutasinee (Master), Ms.Thanapun Chalee (Assistant), Dr.Watcharee Ruairuen (Assistant), Dr.Wichuda Klawech (Assistant)
<b>Jasmine Group – Soil (Pedosphere)</b> <ul style="list-style-type: none"> <li>• Soil Particle Size Distribution Protocol</li> <li>• Soil Particle Density Protocol</li> <li>• Soil pH Protocol</li> <li>• Soil Fertility Protocol</li> <li>• Data Entry</li> </ul> <i>Location: CL-401</i> <b>Facilitators:</b> Dr.Tony Murphy (Master), Ms.Samornsri Kanphai (Lead), Dr.Rungrote Nilthong (Lead), Dr.Napaporn Phankamolsil (Assistant)	<b>Lotus Group – Biosphere</b> <ul style="list-style-type: none"> <li>• MultiSpec</li> <li>• Change Detection</li> <li>• Drone Mapping</li> <li>• Data Entry</li> </ul> <i>Location: CL-402</i> <b>Facilitators:</b> Dr.Elena Sparrow (Master), Dr.Krisanadej Jaroensutasinee (Master), Ms.Thanapun Chalee (Assistant), Dr.Watcharee Ruairuen (Assistant), Dr.Wichuda Klawech (Assistant)		
10.00 – 10.15	<b>Refreshment</b>		
10.15 – 12.00	<table border="1"> <tr> <td><b>Jasmine Group – Soil (Pedosphere) (cont.)</b></td> <td><b>Lotus Group – Biosphere (cont.)</b></td> </tr> </table>	<b>Jasmine Group – Soil (Pedosphere) (cont.)</b>	<b>Lotus Group – Biosphere (cont.)</b>
<b>Jasmine Group – Soil (Pedosphere) (cont.)</b>	<b>Lotus Group – Biosphere (cont.)</b>		
12.00– 13.00	<b>Lunch</b>		
13.00 – 15.00	<b>Data Entry</b> <i>Location: CL-402</i> <b>Facilitators:</b> Mrs.Yupaporn Laplai, Ms.Bussarasiri Thana and Dr.Thanya Panritdam		
15.00 – 15.15	<b>Refreshment</b>		
15.15 – 16.15	<ul style="list-style-type: none"> <li>• <b>Implementation and Research on Earth System Science</b></li> <li>• <b>Workshop Evaluation and Certification Ceremony (Advanced Protocol)</b></li> </ul> <i>Location: CL-201</i> <b>Facilitators:</b> Dr.Mullica Jaroensutasinee and Trainer Team		
16.15 – 16.30	<b>Workshop closes</b>		