TRAINING AND AWARENESS ACTIVITIES ON EGNSS IN SOUTH EAST ASIA

Matteo Vannucchi, ISMB

ICG-13 – Xi’an, 6th November 2018
ISMB

To create value-driven and socially relevant technological & process innovations in close Collaboration with industry and institutions.

ISMB is an “Operating Body” of Compagnia di San Paolo and it has been founded in 2000 with Politecnico di Torino. The Institute is a no profit Research & Innovation center operating in the ICT domain.
RESEARCH AREAS, STRATEGIC PROGRAMS AND FUNCTIONS

- ADVANCED COMPUTING & ELECTROMAGNETICS
- APPLIED PHOTONICS
- INNOVATION DEVELOPMENT
- MOBILE SOLUTIONS
- MULTI-LAYER WIRELESS SOLUTIONS
- NAVIGATION TECHNOLOGIES
- PERVERSIVE TECHNOLOGIES

STRATEGIC PROGRAMS
- SMART CITY
- SMART ENERGY
- SMART HEALTH

FUNCTIONS
- EMERGING TRENDS & OPPORTUNITIES
- HIGHER & PROFESSIONAL EDUCATION
- FRONT-END, MARKETING & COMMUNICATIONS
The 2nd Level Specializing Master on Navigation and Related Applications is a joint initiative of Politecnico di Torino and Istituto Superiore Mario Boella (ISMB) with the collaboration of the Istituto Nazionale di Ricerca Metrologica (INRIM) and the United Nations Office for Outer Space Affairs.

14 EDITIONS!
LONG-LASTING COLLABORATION WITH SOUTHEAST ASIA - SEA

Xi’an, 6th November 2018

ICG-13 5
MILESTONES

2004  First train-the-trainer action in Hanoi University of Science and Technology

2010  Set-up of the NAVIS, an International Collaboration Centre on European GNSS in Hanoi

2012  New Training and Research activities in collaboration with EU Universities

2015  New services for:
       European companies (visits and test facility)
       Asian researchers and professionals (training)

2018  Professional training dedicated to GNSS researchers and professionals in EU and SEA
       Showcase of European GNSS technology at the Navis Demo Centre in Hanoi, Vietnam
       Participation to Job fair events to attract future young GNSS professionals
SEA AND ASEAN

ASEAN Member Countries

- Myanmar
- Thailand
- Laos
- Philippines
- Vietnam
- Cambodia
- Malaysia
- Singapore
- Brunei Darussalam
- Indonesia
BELS (2015-2018) CONCEPT

BELS (Building European Links toward South East Asia in the field of EGNSS)

- Promotion of EGNSS Solutions in SEA
- NAVIS test bed
- AORW
- Short WS
- EU companies
- University/Technology transfer centres
- BELS Competition
- SEA stakeholders
- Governmental Institutions
- PhDs
- Capacity Building on EGNSS in SEA
- Training periods
- EGNSS uptake in SEA
16 Companies accompanied to South East Asia and Vietnam

13 Conferences/Workshops organized

~1000 People involved in BELS Project activities
BELS FOLLOW-UP: BELS+ (2018-2020)

BELS+ will continue BELS main activities:

• Set-up of the NAVIS Demo Centre to showcase EU GNSS Technology
• Awareness actions and Training on EGNSS in SEA: workshops, hands-on sessions, technical trainings
• Actions aiming to put in contact GNSS professionals, researchers and institutions of Europe and SEA
AWARENESS ON EGNSS IN SEA

- Co-organization of the Multi GNSS Asia - MGA Conference in collaboration with MGA and JAXA in Malaysia, Vietnam, Thailand, Brunei, Philippines, Indonesia

- 10 Short Awareness Workshops between 2015 and 2018 in Bandung (Indonesia), Manila (Philippines), Vientiane (Laos), Phnom Penh (Cambodia), Kuala Lumpur (Malaysia), Bangkok (Thailand), Nay Pyi Taw (Myanmar), Singapore, Ho Chi Minh City (Vietnam)

- Special sessions or side events: i.e. Special session on Galileo and EGNSS at FIG World Conference 2019 in Hanoi, Vietnam (TBD).
**TRAINING ACTIVITIES**

Example of Training Activity: **BELS Final Workshop** in Hanoi, Vietnam in May 2018.

Two training days on:
- Fundamentals on GNSS and on Precise positioning
- Exercises on GNSS Signals and data processing
- Technical visits

Approx. 50 participants to the training days: GNSS researchers, students, PhDs, professionals, etc.

<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>22nd May</th>
<th>23rd May</th>
<th>24th May</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning</td>
<td>Training</td>
<td>Training</td>
<td>Workshop</td>
</tr>
<tr>
<td>Fundamentals on GNSS @ NAVIS</td>
<td>Exercises on GNSS Signal and Data Processing @ NAVIS</td>
<td>Session 1: E-GNSS solutions for South East Asia</td>
<td></td>
</tr>
<tr>
<td>Lunch</td>
<td>Lunch</td>
<td>Lunch</td>
<td></td>
</tr>
<tr>
<td>Afternoon</td>
<td>Overview on Precise Positioning @ NAVIS</td>
<td>Technical visit to CORS station, and RTK Demonstration on site</td>
<td>Session 2: Needs and use of GNSS in South East Asia</td>
</tr>
<tr>
<td></td>
<td>Reception</td>
<td>Dinner</td>
<td>Gala Dinner</td>
</tr>
</tbody>
</table>
CAPACITY BUILDING ON EGNSS IN SEA

- Asian PhD students and researchers had the opportunity to study in European Universities (Denmark, France, Italy, Spain)

- Specializing Master students and researchers from SEA spent a training period in EU companies

- The training days in Hanoi (with hands-on sessions) during the Final Workshop were very much appreciated by SEA people which asked for further opportunities
NEW AWARENESS AND TRAINING ACTIVITIES WITH BELS+

- Awareness event in Thailand in Sept. 2018 at the TAIEX-PI ASEAN Multi-Country Workshop on Space Applications
- First EGNSS day with Training sessions and demonstrations carried on by EU GNSS Companies in Nov. 2018 in Hanoi, Vietnam
- New events in 2019 and in 2020
GNSS INTERFERENCE AND JAMMING LOCALISATION AND DETECTION IN VIETNAM

• Italy-Vietnam bilateral project
• Co-funded by Italian Ministero degli Affari Esteri e della Cooperazione Internazionale (Progetti di Grande Rilevanza) and by the Vietnamese Ministry of Science and Technology
• Partners: ISMB, Politecnico di Torino, NAVIS Centre @ Hanoi University of Science and Technology
CONCLUSIONS

• 15-year long fruitful win-win collaboration
• Training and Awareness activities carried on in all ASEAN countries
• Research Centre set up in Vietnam which has gain high reputation both nationally and internationally
• Students and visiting researchers trained in Italy and in Europe
• Activities with and funding from European Institutions (ESA, EC, ...) facilitated by the joint Italy-Vietnam collaboration
• Ongoing projects and joint activities involving the whole South East Asia region
CONTACTS

Matteo Vannucchi
Istituto Superiore Mario Boella
Via Pier Carlo Boggio, 61
10138 Torino, Italy
T. +39 011 2276444
vannucchi@ismb.it

www.ismb.it